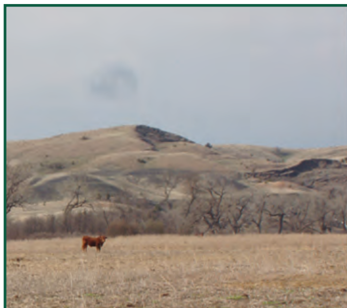

Big Bend to Witten 230-kV Transmission Project

Environmental Assessment

Prepared for:

Rural Utilities Service

Western Area Power Administration

Basin Electric Power Cooperative

November 2014

Big Bend to Witten 230-kV Transmission Project

Environmental Assessment

November 2014

List of Acronyms

AES	alternative evaluation study
amsl	above mean sea level
APE	area of potential effects
APLIC	Avian Power Line Interaction Committee
AWBP	Aransas-Wood Buffalo Population
BA	biological assessment
Basin Electric	Basin Electric Power Cooperative
BIA	Bureau of Indian Affairs
CEQ	Council on Environmental Quality
CESA	cumulative effects study area
CFR	Code of Federal Regulations
cfs	cubic foot per second
CRO	Cultural Resources Office, Lower Brule Sioux Tribe
CWA	Clean Water Act
CWS	Canadian Wildlife Service
dBA	A-weighted decibel
DENR	South Dakota Department of Environment and Natural Resources
DoS	Department of State
EA	environmental assessment
EMF	electric magnetic field
EO	Executive Order
ESA	Endangered Species Act of 1973
EXPN	non-essential experimental population
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FIRMs	Flood Insurance Rate Maps
FPA	Federal Power Act
FPPA	Farmland Protection Policy Act
FR	Federal Register
ft^2	square feet
GAP	Gap Analysis Project
GIS	Geographic Information System
HMA	habitat management area
HUC	hydrologic unit code
I-90	Interstate-90
kV	kilovolt
KXL	Keystone XL Pipeline Project
LBST	Lower Brule Sioux Tribe
MBTA	Migratory Bird Treaty Act of 1918

MCS	macro-corridor study
mg/L	milligrams per liter
MLRA	Major Land Resource Area
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NEP	non-essential population
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NESC	National Electrical Safety Code
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPP	Nebraska Public Power
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWE	NorthWestern Energy Pipeline
NWI	National Wetlands Inventory
OEM	Office of Emergency Management
OPGW	optical groundwire
OSHA	Occupational Health and Safety Administration
PEM	palustrine emergent
PFO	palustrine forested
Project	Big Bend to Witten Transmission Line Project
PSS	palustrine scrub-shrub
RCRA	Resource Conservation and Recovery Act
RFFA	reasonably foreseeable future actions
ROW	right-of-way
RUS	Rural Utilities Service
SAR	sodium adsorption ratio
SDBWG	South Dakota Bat Working Group
SDDA	South Dakota Department of Agriculture
SDGFP	South Dakota Game, Fish, and Parks Department
SDIP	South Dakota Intrastate Pipeline
SDNHP	South Dakota Natural Heritage Program
SHPO	State Historic Preservation Office
SH	State Highway
SpC	specific conductivity
SPCC	Spill Prevention, Control, and Countermeasure
SSURGO	Soil Survey Geographic Database
SWPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
TDS	total dissolved solids
TSS	total suspended solids
U.S.	United States

µS/cm	microSiemens per centimeter
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
West Central	West Central Electric Cooperative
Western	Western Area Power Administration
WUS	Waters of the U.S.
yd^3	cubic yard

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1.0 Introduction

1.1 Project Overview

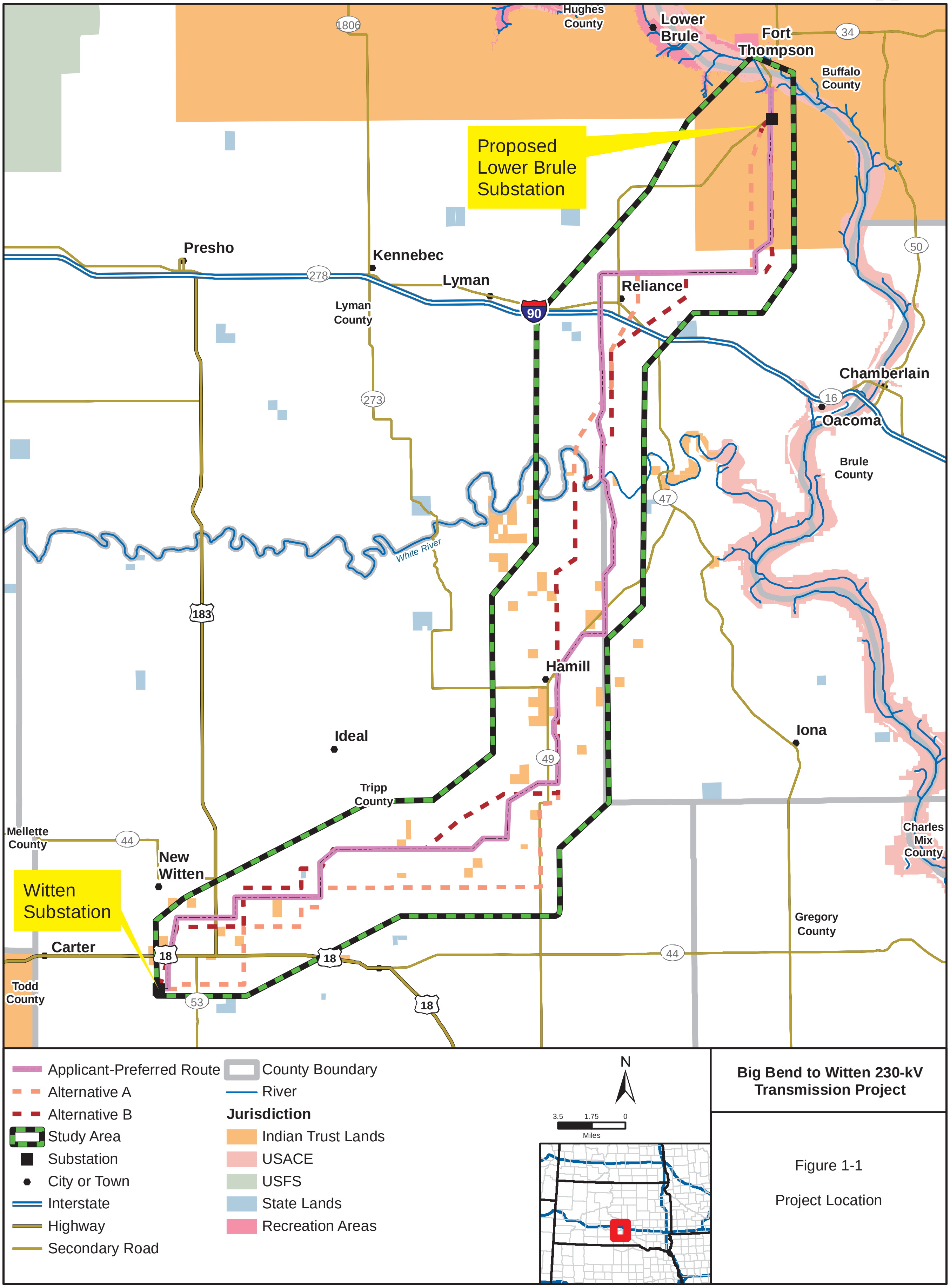
Basin Electric Power Cooperative (Basin Electric) is proposing to construct, own, and operate a 73.7-mile, 230-kilovolt (kV) transmission line that would connect a new switchyard (named the Lower Brule Switchyard) located on the Lower Brule Sioux Indian Reservation in Lyman County, South Dakota, with the existing Witten Substation located in Tripp County, South Dakota. A switching substation, or switchyard, is a substation without transformers that operates only at a single voltage level. Switchyards are used mainly for connections and interconnections, whereas substations change voltage levels and contain a transformer. As part of the proposed Project, Western Area Power Administration (Western) also proposes to convert an existing single-circuit 230-kV transmission line turning structure, located on the south side of the Big Bend Dam, to a double-circuit structure and construct a 1.6-mile double-circuit 230-kV transmission line to the proposed Lower Brule Switchyard. Collectively, this proposed Project is referred to as the Big Bend to Witten 230-kV Transmission Project (Project). The Project location is shown in **Figure 1-1**.

The Project would use predominately steel single-pole self-supporting structures within a 125-foot-wide right-of-way (ROW). The structures would range in height from approximately 70 to 115 feet, depending on span distances between structures and area topography. The span between structures would typically range from 650 feet to 950 feet and average approximately 800 feet, depending on topography. Taller structures would be used for crossing existing distribution and transmission lines or where unusual terrain exists. In special circumstances, steel H-frame structures may be used when span and/or strength requirements preclude the use of single-pole structures.

Structures would be designed to support three conductors in a staggered vertical arrangement and an overhead optical groundwire (OPGW). The OPGW would provide lightning suppression and fiber optic communications between the Lower Brule Switchyard and Witten Substation for systems control. Tangent structures would be free-standing and directly embedded if soil conditions permit. Angle structures (used where the transmission line changes direction) and dead-end structures (used to provide longitudinal stability along the length of the transmission line) would be steel with concrete foundations. Guy wires and anchors would not be used.

1.2 Agency Actions and Decisions

Basin Electric is seeking financial assistance from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS), as well as an interconnection agreement from Western. These actions require an evaluation of the potential environmental impacts of the Project under the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508), and RUS's and Western's Environmental Policies and Procedures (7 CFR 1794 and 10 CFR 1021, respectively). This environmental assessment (EA) documents the environmental analysis. RUS is the lead agency in the development of this EA in compliance with NEPA, and Western is a cooperating agency. In accordance with 40 CFR 1508.5, a cooperating agency is federal agency other than the lead agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal. As a portion of the proposed route is within Indian trust lands on the Lower Brule Sioux Indian Reservation, the Lower Brule Sioux Tribe (LBST) also has contributed to and been consulted in the development of this EA. The Bureau of Indian Affairs (BIA) would have a realty action for the portion of the Project on Indian Trust lands and, therefore, they also are a cooperating agency.



Big Bend to Witten 230-kV Transmission Project

Figure 1-1

Project Location

1.2.1 Rural Utilities Service

RUS's action is to provide financing assistance for the proposed Project, if approved. Under the Rural Electrification Act, as amended, the Secretary of Agriculture is authorized and empowered to make loans for rural electrification to nonprofit cooperatives and others "for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines or systems for the furnishing and improving of electric service to persons in rural areas" (7 United States Code [USC] 901 et seq.). This EA documents the analysis of potential impacts on the human environment that may result from the Project. Any decision by RUS related to the Project would require compliance with all relevant federal, state, and local environmental laws and regulations and completion of the environmental review requirements as prescribed in RUS's Environmental Policies and Procedures.

1.2.2 Western Area Power Administration

Basin Electric requests to interconnect its Project with Western's Transmission System. Western's action is to approve or deny the interconnection request under the provisions of the Contract for Management and Operation of the Integrated System, Contract No. 98-UGPR-196, dated September 17, 1998. If approved, Western would construct, own, and operate a 1.6-mile-long 230-kV double circuit transmission line from the Big Bend Dam to the new Lower Brule Switchyard. The Lower Brule Switchyard would be built by Western, but the ownership and future operation and maintenance responsibilities for the new Switchyard would be transferred to Basin Electric.

In reviewing interconnection requests, Western must ensure that existing reliability and service is not degraded. Western's Large Generator Interconnection Procedures provides for transmission and system studies to ensure that system reliability and service to existing customers are not adversely affected by new interconnections. These studies also identify system upgrades or additions necessary to accommodate the Project and address whether the upgrades/additions are within the Project scope.

Western must consider interconnection requests to its transmission system in accordance with its Open Access Transmission Service Tariff and the Federal Power Act (FPA). Western satisfies FPA requirements to provide transmission service on a non-discriminatory basis through compliance with its Open Access Transmission Service Tariff. Under the FPA, the Federal Energy Regulatory Commission (FERC) has the authority to order Western to allow an interconnection and to require Western to provide transmission service at rates it charges itself and under terms and conditions comparable to those it provides itself.

1.2.3 Lower Brule Sioux Tribe

The LBST is a federally recognized Indian Tribe located in central South Dakota. The proposed transmission line crosses Indian trust lands of the LBST on the Lower Brule Sioux Indian Reservation. Therefore, activities affecting the environment on the Lower Brule Sioux Indian Reservation require the approval of the LBST Tribal government and the LBST retains a significant interest in the purpose and need for the proposed Project and remains actively involved in the preparation of this EA.

1.2.4 Bureau of Indian Affairs

BIA is responsible for the administration and management of lands and other assets held in trust by the U.S. for American Indians, Indian tribes, and Alaska Natives. Indian trust assets are property (e.g., lands, minerals, and other resources) held in trust by the U.S. for federally recognized Indian tribes or individual Indians. The federal government is obligated to protect trust resources—a duty that is referred to as its trust responsibility and defined through treaties, laws, Executive Orders (EOs), judicial decisions, and agreements. Complying with NEPA is an inherently federal responsibility. However, activities affecting the environment on Indian trust lands often require the approval of both the BIA and the Tribal government. Because of this dual authority, RUS and the BIA are coordinating with the LBST on any decisions through the NEPA process.

1.3 Project Purpose and Need

Basin Electric is a not-for-profit, consumer-owned generation and transmission cooperative that supplies reliable power to 137 electric cooperative systems comprising 540,000 square miles (mi^2) of service territory in nine states, including South Dakota. With over 5,000 megawatts (MW) of electric power capacity in its portfolio, Basin Electric's member distribution cooperatives deliver generated power from the transmission grid to 2.8 million customers. To meet these responsibilities and to address forecasted increasing demand and new development, Basin Electric is proposing to build the 230-kV Big Bend to Witten transmission line to serve the service territories of two distribution cooperatives – Rosebud Electric Cooperative and West Central Electric Cooperative (West Central). Distribution cooperatives, like Rosebud Electric Cooperative and West Central, provide electric service to the end consumer. These cooperatives are non-profit, consumer-owned utilities that provide central station electric service to predominantly rural areas.

Many rural electric cooperatives have low density service areas. For instance, Rosebud Electric Cooperative serves only 2 metered accounts per mile of electric line compared to large power companies that typically serve 40 accounts per mile of line. Despite the low meter density, cooperatives have some of the lowest electric rates in South Dakota and the nation. Cooperatives are owned and controlled by the people they serve.

West Central serves members in Haakon, Jackson, Jones, Lyman, and Stanley counties. The cooperative maintains approximately 3,573 miles of line in an area of more than 7,000 mi^2, serving approximately 3,660 members. Towns served by West Central include Belvidere, Draper, Hayes, Kadoka, Kennebec, Lower Brule, Midland, Milesville, Murdo, Oacoma, Okaton, Philip, Presho, Reliance, and Vivian.

Rosebud Electric Cooperative is the tenth largest rural electric cooperative among twenty-nine rural electrics in South Dakota. A nine member electric board of directors governs the Cooperative. It employs 22 people to maintain approximately 2,500 miles of line and to serve approximately 5,200 metered accounts in a 3 county area. Rosebud Electric Cooperative serves the towns of Fairfax, Bonesteel, Herrick, Gregory, Dallas, Colome, Witten, and Hamill.

The network transmission system in Central South Dakota is not able to accommodate projected load growth in the next several years. This deficiency and recommendations for long-term system planning were identified as early as the mid-1980s. This transmission line is proposed to strengthen the transmission network, improve transmission system reliability, and to help meet future demand for electricity and economic development in the region. In addition to increasing load serving ability for both Rosebud and West Central Electric Cooperatives, the Project would provide additional access to the regional high voltage transmission system.

Based on regional transmission studies indicating the need to provide additional electric power to the Witten Substation to meet anticipated increased energy demand, Western conducted a joint system engineering study to determine system reliability under the proposed loads at maximum electrical energy consumption. The joint system engineering studies determined that the best way to meet that need and ensure continued system reliability would be to convert the existing Big Bend to Fort Thompson No. 2, 230-kV transmission line turning structure to a double-circuit structure and to construct a new double-circuit 230-kV transmission line from this point to the new Lower Brule Switchyard (Basin 2011). In addition, a new single-circuit 230-kV transmission line would be constructed from the Lower Brule Switchyard to the Witten Substation. With the assistance of the LBST, Basin Electric has identified an Applicant-Preferred Route (which has been carried forward for analysis as the Proposed Action) and two alternative routes to the Witten Substation.

As depicted in **Figure 1-2**, the regional high voltage transmission system in south-central South Dakota is concentrated along the Missouri River, with multiple 230-kV or greater transmission lines connecting hydroelectric generation facilities from Oahe Dam, near Pierre, to Fort Randall Dam, near the South Dakota-Nebraska border. A major node on this high voltage transmission "backbone" is the Fort Thompson substation located near the Big Bend Dam hydroelectric facility. The generators at the dam are connected to the Fort Thompson substation via two 230-kV transmission lines. The proposed Big Bend to Witten transmission line would connect to the 230-kV transmission line on the south side of the Big Bend Dam.

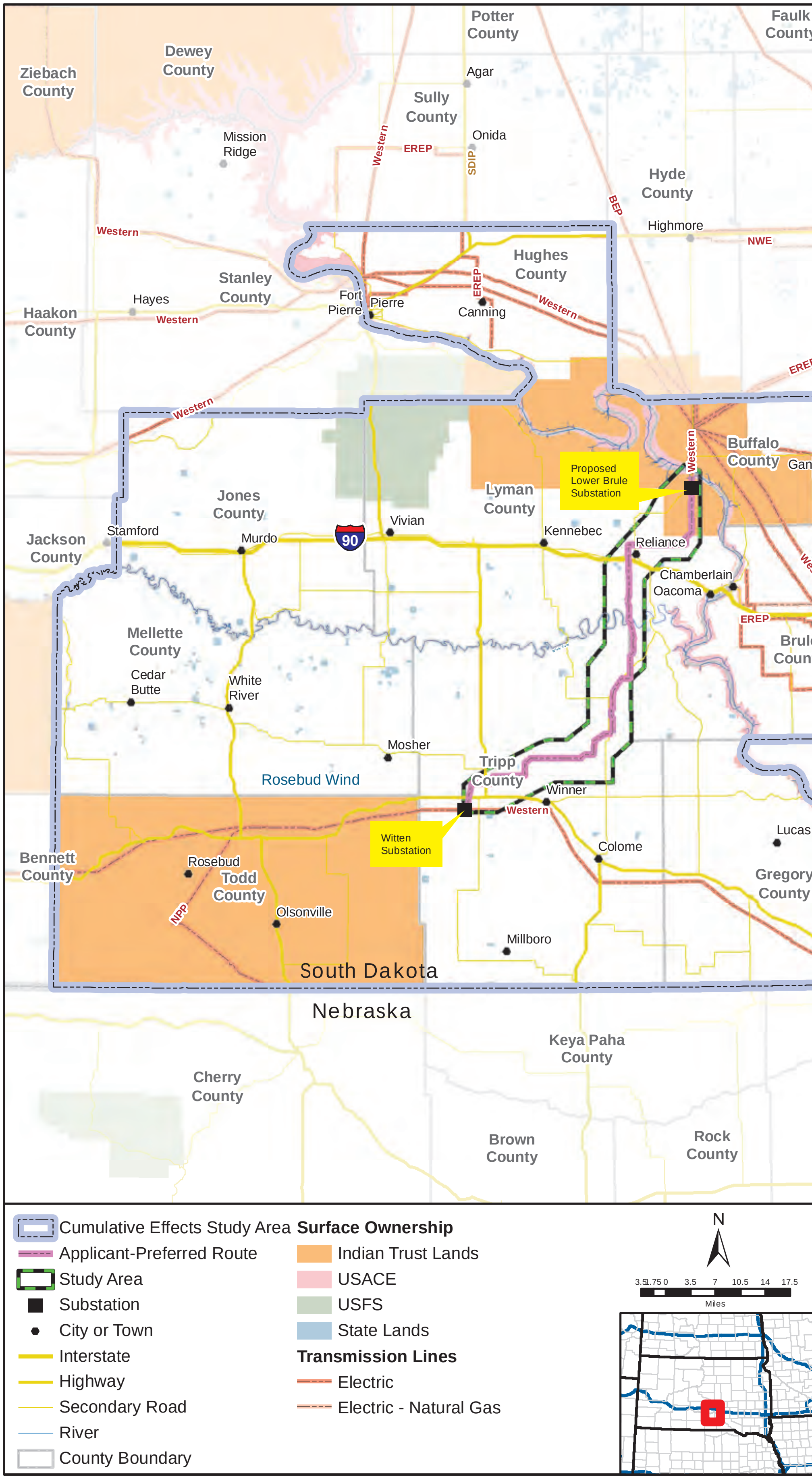
In contrast to the robust transmission system connecting the hydroelectric facilities, the area west of the Missouri river along the South Dakota-Nebraska border is served only by Western's single east-west (Fort Randall to Martin Substation) 115-kV line. The proposed Big Bend to Witten line would enhance system reliability by providing an additional connection to the "grid" roughly midpoint along this east-west line. If a portion of the Fort Randall to Martin 115-kV line would be damaged by a storm, the Big Bend to Witten line could provide power to the undamaged segments of the line. The proposed line also would provide a tap point for West Central near Reliance, which would enhance the reliability and stability of the West Central system. This new line would tie into a new 230-/69-kV substation proposed near Reliance and provide an alternate source of power to West Central's 69-kV system. In addition, West Central is in the process of building a second line into the Community of Lower Brule from the Reliance area to allow loop feeding of its Lower Brule distribution substation from current sources. The addition of a new source of power for the West Central 69 kV system would improve overall system reliability to West Central's new 69-kV line to Lower Brule along with its other members. An example would be the Rosebud Sioux Tribe, who is part of the Rosebud Electric Cooperative, has proposed two wind projects totaling 220 MW, and has conducted related planning and environmental studies. Further progress on the proposals awaits additional information on transmission network connectivity, availability of power purchase agreements, and leasing/permitting issues. Lastly, the Project lends itself to additional build-out in support of Western's long-range plan for a 230-kV system in southern South Dakota, and it would provide an increase in the load serving capacity such that the delivery needs of the projected network load can be met in a reliable manner. A potential component of this network load would be due to two pumping stations for the proposed Keystone XL (KXL) Pipeline, should that project be permitted and that the line be approved.

1.4 Public and Agency Coordination

1.4.1 Early Consultation and Coordination

<u>Lower Brule Sioux Tribe</u>

Consistent with 40 CFR 1501.2(d)(2), several meetings were held with the LBST regarding the proposed Project as well as potential corridors and routes. The first meeting was arranged and held by the LBST on February 25, 2010, at the Tribe's conference facilities in Lower Brule, South Dakota. Western, Basin Electric, the LBST Chairman, members of the LBST Tribal Council, members of the LBST Elder Advisory Committee, the staff of the LBST Cultural Resource Office, representatives from the Rosebud Sioux Tribe Tribal Historic Preservation Office, and personnel from ENTRIX (at the time the Department of State [DoS] NEPA consultant for the proposed KXL pipeline project) were present at the February 25, 2010, meeting. The purpose of the meeting was to respond to the LBST's request for a Project description and clarification of the need(s) for the proposed Project. Concerns were raised regarding the purpose of the proposed transmission line and regarding the proposed corridors being too close to cultural sensitive areas and wetland areas in several places. Also discussed and of concern was the environmental review process for the proposed transmission line. The federal agencies agreed to move forward with RUS as the lead federal agency to develop an EA for the proposed transmission line, confirming that this Project has a purpose independent of the KXL project and, therefore, outside the scope of the DoS NEPA review. The Big Bend to Witten transmission line Project would be needed regardless of whether or not the KXL project is constructed.



Big Bend to Witten 230-kV Transmission Project

Figure 1-2

Regional High Voltage Transmission System

On March 15, 2010, Basin Electric and Western personnel met with LBST cultural resources office staff and Rosebud Sioux Tribal Historic Preservation Office staff at Lower Brule Tribal Administrative Building to modify the route options in response to Tribal concerns. As a result of these meetings, route options along State Highway (SH) 47 were eliminated and three options that extended south from the proposed Lower Brule Switchyard were added. Basin Electric also shifted the corridor northeast of Winner, to avoid an area with a high potential for cultural resource sites.

On January 10, 2011, Basin Electric personnel met with the LBST at the Lower Brule Tribal Administration Building. The purpose of the meeting was to provide a project update and to discuss the NEPA process, alternative corridor placement, and the process and requirements for Tribal permitting and easements. It was requested that Basin Electric work with the BIA on their role in the permitting and easements on Indian trust lands. The LBST requested close involvement as the Project moved forward, and they have contributed to the development of this EA.

County Commissioners' Meetings

Basin Electric environmental, engineering, and ROW representatives met with the Tripp and Lyman County Commissions during their normally scheduled meetings on April 5, 2011. Commissioners were provided PowerPoint® slide handouts about the Project; the slides provided the basis for discussion at each meeting. The handouts provided information about Basin Electric, the Project, permitting requirements, and Project timelines.

Commissioners were asked if they had any questions, comments, or concerns about the Project or if they were aware of any local permits that would be required. Both counties were supportive of the Project and indicated there were no county zoning or permitting requirements. Lyman County raised the issue of a recent ordinance aimed at meteorological towers, with the thought that it also may apply to transmission structures. Upon further review with the Lyman County Commission, it was determined the ordinance did not apply to the Project.

1.4.2 Notification

The public scoping process for this EA began with notification to the public, other government agencies, and tribes of RUS's intent to prepare an EA with scoping and hold public scoping meetings. Notification included publishing a Notice of Intent (NOI) in the *Federal Register* on April 12, 2011 (76 FR 20311). Additionally, legal notices and display advertisements were published in the local newspapers, twice, at least 10 days prior to the first public scoping meeting (**Table 1-1**).

Table 1-1 Newspaper Notification

Newspaper	Display Advertisement	Legal Notice
Capital Journal	April 15 and April 22, 2011	April 15 and April 22, 2011
Lyman County Herald	April 13 and April 20, 2011	April 13 and April 20, 2011
Winner Advocate	April 20, 2011	April 13 and April 20, 2011

1.4.3 Consultation and Coordination with Federal, State, and Local Governments

Specific regulations require RUS to coordinate and consult with federal, state, and local agencies about the potential of the Project and alternatives to affect sensitive resources. The coordination and consultation must occur in a timely manner and are required before any final decisions are made. Issues related to agency consultation may include biological resources, cultural resources, socioeconomics, and land and water management, among others. RUS distributed letters to the following agencies requesting information:

- U.S. Fish and Wildlife Service;
- South Dakota Natural Heritage Program;
- South Dakota Game, Fish, and Parks Department;
- Lower Brule Sioux Tribe; and
- Rosebud Sioux Tribe.

1.4.4 Tribal Government-to-Government Consultation

RUS distributed letters to the following tribes notifying them about the Project and requesting consultation:

- Lower Brule Sioux Tribe;
- Rosebud Sioux Tribe;
- Standing Rock Sioux Tribe;
- Ponca Tribe of Oklahoma;
- Ponca Tribe of Nebraska;
- Oglala Sioux Tribe of the Pine Ridge Reservation;
- Crow Creek Sioux Tribe;
- Santee Sioux Nation;
- Cheyenne River Sioux Tribe; and
- Fort Peck Assiniboine and Sioux Tribes.

Consultation with the Indian tribes regarding historic properties and traditional cultural resources has continued throughout the Project as stipulated under Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR 800).

1.4.5 Project Scoping

Scoping is the process of actively soliciting input from the public and other interested federal, state, tribal, and local agencies. Information gained during scoping assists RUS in identifying potential environmental issues, alternatives, and mitigation measures associated with development of the Project. The process provides a mechanism for determining the scope and significant issues (40 CFR 1501.7 and 1508.25) so the EA can focus the analyses on areas of interest and concern. Scoping provides the public, tribes, and agencies opportunities for meaningful involvement in the decision-making process. A summary report of the scoping process for the project is included in **Appendix A**.

The agencies' overriding scoping goal is to engage a diverse group of public, agency and tribal participants to solicit relevant input and provide timely information throughout the review process. Five specific goals were established in the Project's public participation plan, including:

- Increase public awareness and understanding about the NEPA process through meaningful stakeholder participation;
- Identify the public's concerns so they can be addressed in the EA;
- Obtain public, federal, state, and local agency, and tribal comment and input;
- Effectively communicate, cooperate, and consult with the tribes, federal and state agencies, and local elected and appointed officials; and
- Evaluate the success of the communications and public participation activities.

1.4.5.1 Scoping Meetings

Scoping meetings were designed to promote information exchange about the Project and to gather public input on issues of concern that may need to be considered in the EA. RUS hosted two public scoping meetings: one in Reliance, South Dakota, and one in Winner, South Dakota. The dates, locations, and number of public attendees at the scoping meetings are presented in **Table 1-2**.

Table 1-2 Scoping Meetings

Meeting Location	Meeting Date/Time	Number of Attendees that Signed In
Reliance, South Dakota American Legion Post 179	Tuesday, April 26, 2011 4-7 p.m.	35
Winner, South Dakota Holiday Inn Express and Suites	Wednesday, April 27, 2011 4-7 p.m.	48

The public scoping meetings were conducted in an open house format to allow for an open exchange of information and to enable attendees to ask agency personnel and Basin Electric representatives questions about the Project. Display boards showing the Project location and the NEPA process were presented to facilitate conversation. Large maps were spread on tables so that landowners could identify their property and areas of concern. Informational materials about the Project, NEPA process, transmission line siting, and ROW were available as handouts. Attendees also were provided comment forms to complete and submit at the meeting or mail to RUS at a later date.

1.4.5.2 Summary of Scoping Comments

The 45-day public scoping period ended on May 27, 2011. RUS received a total of 18 comment submittals (e.g., letters, comment forms) containing 43 individual comments during the public scoping period. Most of the comments RUS received were from potentially affected landowners.

Following the close of the public scoping period, comments were compiled and analyzed to identify issues and concerns. A majority of the comments were related to:

- Impacts associated with routing the proposed transmission line across private property;
- Visual impacts to residents;
- Potential effects to agricultural activities; and
- Transmission line routing preferences.

As a result of the landowner comments (i.e., private property, visual impacts, land use compatibility) during the scoping period, transmission line routes that were previously presented in the scoping meetings were revised.

2.0 Alternatives Analysis

2.1 Development of Alternatives

A Macro-Corridor Study (MCS)/Alternative Evaluation Study (AES) (**Appendix B**) was prepared as required by RUS to thoroughly evaluate potential route alternatives for the Project. In addition, structure designs and alternative transmission line alignments were evaluated to identify those most appropriate for the Project and those that would minimize environmental impacts. The processes and results of these studies are described in detail in the following sections.

2.2 Macro-Corridor Study and Alternative Evaluation Study

RUS guidance regarding NEPA implementation (RUS Bulletin 1794A-603) requires that a MCS/AES be prepared and accepted by RUS prior to the start of the official NEPA process. The purpose of the MCS/AES was to evaluate potential alternative transmission line routes within an approximately 6-mile-wide macro-corridor between the Big Bend Dam located on the Lower Brule Sioux Indian Reservation in Lyman County and the existing Witten Substation located in Tripp County, South Dakota. This wide macro-corridor provided flexibility to identify a preferred route and alternative routes for the transmission line while minimizing impacts to important resources identified within the macro-corridor.

For this Project, three distinct phases for identifying and evaluating routes were undertaken as follows:

- Phase 1 – Definition of the Macro-Corridor/Project Study Area;
- Phase 2 – Resource Data Collection and Evaluation; and
- Phase 3 – Opportunities and Constraints Analysis.

<u>Definition of the Macro-Corridor/Project Study Area</u>

Basin Electric's System Planning Group and Western determined that a new double-circuit 230-kV transmission line from the Big Bend Dam to the proposed Lower Brule Switchyard, and a single-circuit 230-kV transmission line from the Lower Brule Switchyard to the Witten Substation offered the best way to meet the purpose and need for the Project (**Figure 1-1**).

Two alternative corridors for the proposed transmission line were identified during early stages of Project planning. Initially, a 6-mile-wide corridor was identified by Western and Basin Electric between an existing substation on the transmission grid (Witten Substation) and Big Bend Dam. Several route alternatives were identified within this initial corridor. Later, a second corridor, which also is 6 miles in width, was developed by Western and Basin Electric after consultation and in cooperation with the LBST. This corridor followed a similar path from the existing Witten Substation to Big Bend Dam, but with deviations in the southeast near Winner and the northeast near Reliance. This redesign also allowed for more direct north-south route options on the Lower Brule Reservation. The basis for the extent of a study area for a transmission line project is primarily determined by the project endpoints, the purpose and need, and the electric system requirements and components that best meet the purpose and need. Given the Project endpoints (new double-circuit structure located on the south side of the Big Bend Dam in the north and Witten Substation in the south), West Central's request for interconnection in the Reliance area, and the limited number of reasonable crossing locations of the White River, the study area was defined as an approximately 6-mile-wide macro-corridor generally running north-south through Lyman County and into Tripp County south of the unincorporated town of Hamill. At a point approximately 6 miles south of Hamill, the macro-corridor turns southwest to the Witten Substation. The macro-corridor encompassed approximately 250,350 acres, or 391.2 mi^2.

Resource data were collected within the study area from resource management agencies, state and local governments, utility companies, and other publicly available sources. These data were used to prepare Geographic Information System (GIS) resource maps and included the following resource categories:

- Existing linear transportation and utility corridors;
- Land use and jurisdiction;
- Cultural resources;
- Wetlands and water resources;
- Geologic hazards; and
- Biological resources.

All data collected reflect existing data readily available from local, state, and federal agencies.

The resource data were mapped in GIS format and combined with aerial photography to validate the identified preferred and alternative routes for the proposed transmission line within the macro-corridor. As described below, each environmental resource was categorized as an opportunity (suitable area), an avoidance area, or an exclusion area in the GIS opportunity and constraint model. The final phase of the MCS involved conducting an opportunity and constraints analysis. Project opportunity and constraint criteria were developed based on resources and characteristics of the macro-corridor that provided favorable or unfavorable attributes for locating the proposed transmission line. The criteria classifications include opportunity, avoidance, and exclusion areas associated with each selected resource. **Table 2-1** lists the opportunity and constraint criteria that were developed for the Project.

The degree of opportunity and constraint was based on the character of the resource (i.e., linear or site specific, natural or human, native or disturbed, and the proximity of the transmission line to the resource). In some cases, the opportunity and constraint mapping showed route crossing areas of avoidance or exclusion; however, sensitive features or land uses were taken into account during the route refinement process. In some instances, a route may be moved to avoid a sensitive area, or a sensitive feature (e.g., wetland) may be spanned. In either case, potential impacts to a sensitive resource can be avoided.

Avoidance areas included sensitive areas that were likely to incur environmental impacts or result in land use conflicts if directly affected by the Project. It is preferable to avoid these areas if opportunity areas are available elsewhere for locating the proposed transmission line. If a sensitive area cannot be completely avoided, impacts can be minimized through route refinement, careful placement of the transmission structures and access roads, spanning of the sensitive resource, seasonal restrictions on construction activities, and other mitigation measures.

Exclusion areas include locations with the highest level of sensitivity, including those areas with regulatory or legislative designations or extreme physical constraints not compatible with transmission line construction and/or operation. In general, locating a transmission line in these areas is not recommended and could result in increased environmental impacts, significantly higher costs, and/or additional regulatory approvals.

Figure 2-1 illustrates those areas identified as opportunities and avoidance and exclusion areas based on the opportunities and constraints criteria and resource data gathered. Based on this analysis, all of the identified routes appeared to provide reasonable alternatives for the proposed transmission line which avoided the majority of avoidance and exclusion areas within the macro-corridor. Although some of the routes cross areas that had been identified as avoidance and exclusion areas, routing in these areas appeared feasible from an engineering perspective. Avoidance areas crossed by one or more route segments included buffers associated with potentially sensitive land uses including some residential parcels, wetland areas, areas along the White River associated with moderate landslide potential, and one sharp-tailed grouse lek. Exclusion areas crossed included buffers associated with a reservoir, a census landmark (Fletcher Landing Field), and one sharp-tailed grouse lek. During the route refinement process, sensitive areas were avoided or spanned to the extent feasible. Greater detail regarding the opportunity and constraint criteria are provided in the MCS/AES in **Appendix B**.

Table 2-1 Project Opportunity and Constraint Criteria

Resource	Opportunity Area (optimize use for routing)	Avoidance Area (minimize use for routing)	Exclusion Area (exclude for routing when possible)
Existing Linear Transportation and Utility Corridors			
Roads (interstate, state, county)	Within 0.5 mile of existing road	Within 0.25 mile of scenic byway (except when parallel to an existing transmission line)	—
Railroads	Within 0.25 mile of railroad	—	—
Power Lines	Within 0.50 mile of existing power lines (69-kV or greater)	—	—
Land Use and Jurisdiction			
Land Use/Land Cover	Cropland and Pasture Herbaceous Rangeland Mixed Rangeland Shrub and Brush Rangeland	• Beaches • Commercial and Services • Deciduous Forest Land • Mixed Urban or Built-up • Non-forested Wetland • Other Agricultural Land • Other Urban or Built-up • Residential • Transportation, Communication, Utility	Reservoirs Strip Mines
Center-pivot Irrigation	—	—	Center-pivot irrigated fields
Jurisdiction – Municipal or Town Boundaries	—	Within municipal or town boundaries	—
Jurisdiction – State- or U.S. Army Corps of Engineers (USACE)-administered Lands	—	Within boundary of state- or USACE-lands	—
Indian Lands	—	Within boundary of Indian Lands	—

Table 2-1 Project Opportunity and Constraint Criteria

Resource	Opportunity Area (optimize use for routing)	Avoidance Area (minimize use for routing)	Exclusion Area (exclude for routing when possible)
Residential Areas	—	Within 500 feet of an occupied residence	Within 150 feet of an occupied residence
Schools, Parks, Recreation Areas, and other Census Landmarks	—	Within 500 feet of schools; educational facilities; cemeteries; parks; designated recreational areas; and apartments.	Within 150 feet of schools; educational facilities; cemeteries; parks; designated recreational areas; and apartments.
Communication and Radio Towers (**Federal Communications Commission** [FCC] Structures)	—	Within 150 feet of FCC structure	Within 50 feet of FCC structure
Cultural Resources			
Level I Survey Data	—	Within 0.125 mile of historic property or traditional cultural property (TCP)	Within 100 feet of historic property or TCP
Wetlands and Water Resources			
Wetlands	—	Within wetland boundary	-—
Surface Water	—	Within 100 feet of lakes and perennial streams	—
Geologic Hazards			
Geologic Hazards	—	Within areas classified as moderate or high hazard	—
Biological Resources			
Designated Wildlife Areas	—	Federal (U.S. Fish and Wildlife Service [USFWS] Jurisdiction) and state wildlife refuges, state wildlife areas, walk-in hunting areas; game and waterfowl production areas	—
Sharp-tailed grouse leks	—	Within 1.0 mile of active lek	Within 0.25 mile of active lek

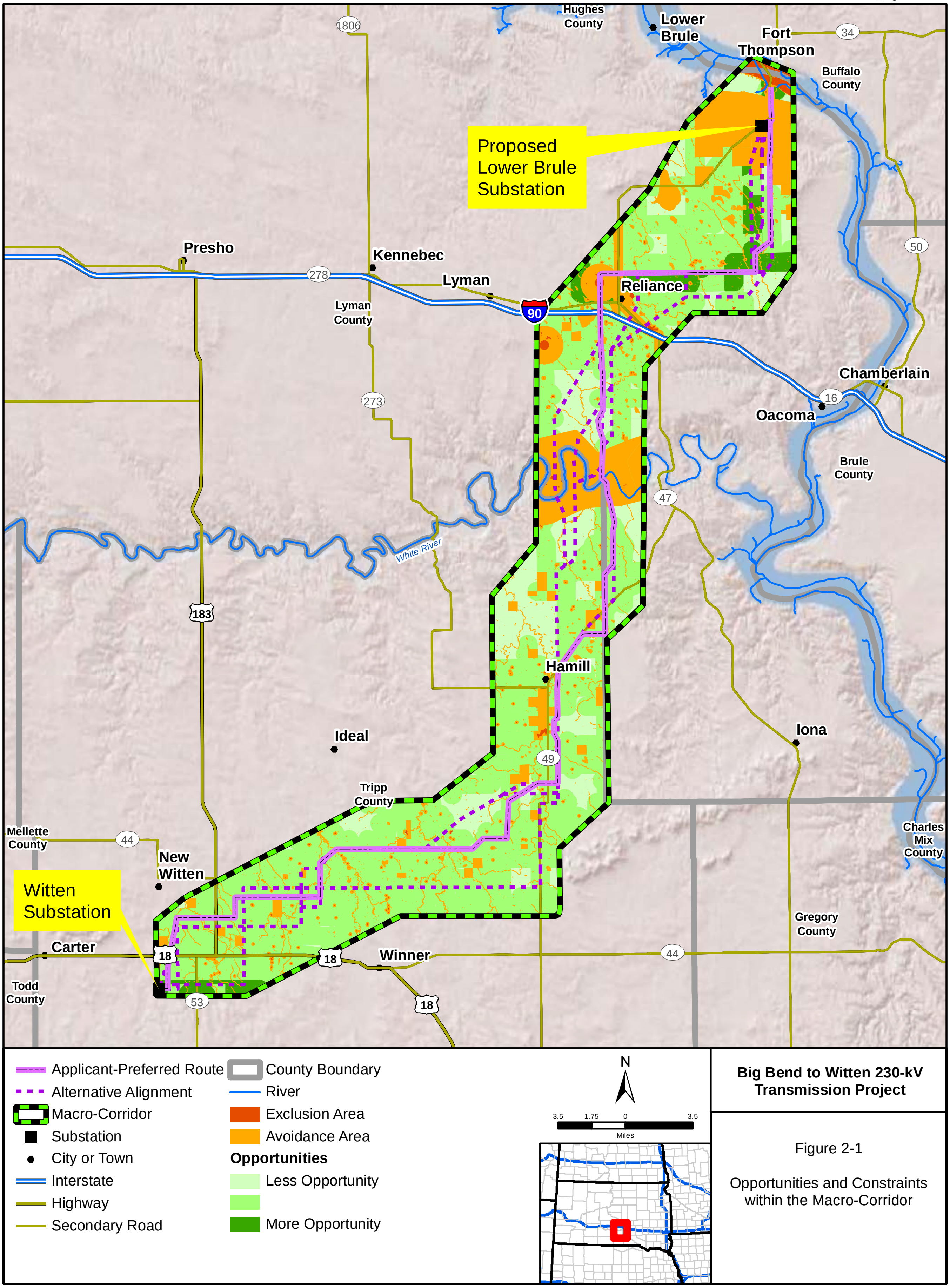


Figure 2-1

Opportunities and Constraints within the Macro-Corridor

2.3 Route Alternatives

The Routing Study (**Appendix C**) evaluated route alternatives and identified the final three routes that would be carried forward for analysis in the EA. The Routing Report identified Basin Electric's Applicant-Preferred Route (carried forward for analysis as the Proposed Action), as well as two alternative routes (Alternative Route A and Alternative Route B).

2.3.1 Alternative Route Screening Analysis

2.3.1.1 Overview of Alternative Route Identification

A series of potential routes (consisting of 63 route segments) between the Big Bend Dam, proposed Lower Brule Switchyard, and existing Witten Substation were evaluated. The potential route segments were presented at the public scoping meetings along with the route preferred by Basin Electric and Western. Some segments were removed from further consideration based on public input.

As part of the routing study, the remaining route segments were combined into 16 potential alternative routes. The 16 potential alternative routes were identified through an iterative process that considered all of the segments presented at the public scoping meetings, as well as constraints within the study area identified during the MCS/AES. The vast majority of segments presented during scoping were used in at least one of the 16 potential alternative routes or the Proposed Action.

During the MCS/AES process and before formal public scoping, Basin Electric identified a preliminary Applicant-Preferred Route that minimized environmental and land use constraints, and minimized Project costs and engineering constraints. After public scoping, the Applicant-Preferred Route was refined in response to input from the public and West Central regarding the interconnection near Reliance.

To identify the routes proposed for NEPA analysis, the 16 alternative routes and the Applicant-Preferred Route were narrowed down to three routes (the Proposed Action and two alternatives) through a screening process that included both quantitative and qualitative metrics.

The quantitative metrics included output from a computerized GIS analysis that tabulated potential constraints within the Project study area and summarized the data in matrix format. The comparative matrix quantified the potential effects for each criterion, ranked each criterion (where lowest generally is best depending on the criterion), and then tallied the rankings to represent an overall total for a relative comparison between alternative routes. To preserve an objective analysis, the criteria were not weighted, since weighting introduces a subjective element regarding the relative importance of various criteria. For this analysis, all criteria were treated equally. The ranks for each criterion were summed to create an overall total score for each route and the overall total scores for each route were ranked to determine the overall rank of each route. In addition to the qualitative metrics described below, the overall rank was used to help identify potential alternative routes for evaluation in the EA. **Table 3-1** in **Appendix C** depicts the summary matrix of quantitative data by route.

In addition to the quantitative metrics depicted in **Table 3-1** in **Appendix C**, the following qualitative metrics were applied during selection of the 3 routes from the field of 17 potential alternative routes:

- One of the three routes would be the Applicant-Preferred Route;
- The alternative routes would use segments that are not duplicative of segments used by the Applicant-Preferred Route to the greatest extent possible;
- The alternative routes would follow direct paths between the Project endpoints and meet the Applicant's purpose and need; and

- To the extent feasible, alternative routes would avoid major constraints including residences, Indian Trust and Allotted lands, cultural and historical resources, and known sensitive biological resources.

2.3.1.2 Criteria Used to Evaluate Potential Routes

The following criteria were used to develop quantitative metrics to evaluate the 16 alternative routes and the Proposed Action in a GIS-based model and output matrix.

- Route length;
- Percent of route adjacent to existing linear features;
- Length crossing Indian lands;
- Length crossing reservoirs and strip mines;
- Communication facilities within 150 feet;
- Residences within 500 feet;
- Number of crossings of perennial streams;
- Length within 100 feet of perennial/intermittent streams;
- Length crossing waterbodies;
- Length crossing National Wetland Inventory (NWI) wetlands;
- Level I cultural resources sites within 500 feet; and
- Known special status species locations.

During the analysis process, some of these criteria were subsequently removed from the comparative ranking matrix if the data were equal for all routes (no discernible difference), or if the criteria no longer applied. Criteria removed are summarized in Section 2.3.1.3. Greater detail regarding these criteria is provided in the Routing Report in **Appendix C**.

2.3.1.3 Criteria Considered but Removed from Comparative Analysis

Several routing criteria were evaluated against the data compiled during the MCS/AES data search, but were ultimately removed from further evaluation in the comparative analysis matrix. The criteria removed either did not apply to the alternative routes or the criteria applied evenly to all routes and, therefore, would not make a discernible difference for purposes of comparing and ranking alternatives. These criteria were removed from the comparative analysis.

- Length within 0.25 mile of a scenic byway;
- Length within 500 feet of census landmarks;
- Length within areas classified as important farmland; and
- Historic properties listed or eligible for inclusion in the National Register of Historic Places (NRHP).

2.3.2 Selection of Alternative Routes

2.3.2.1 Big Bend – Lower Brule Switchyard 230-kV Transmission Line

The northern portion of the Project, the proposed 230-kV transmission line between the Big Bend Dam (new 230-kV double-circuit structure) and the proposed Lower Brule Switchyard consists of a single route. The Project crosses land near the Big Bend Dam that is under the jurisdiction of the USACE before it crosses the Lower Brule Sioux Indian Reservation. Basin Electric and Western worked with the LBST to determine an appropriate alignment for the new transmission line and location for the proposed Switchyard, and they would continue to collaborate with LBST as needed to facilitate the Project.

2.3.2.2 Lower Brule – Witten 230-kV Transmission Line

A total of 16 route alternatives in addition to the Proposed Action, were evaluated in the comparative matrix. **Figure 2-2** depicts the segments that were evaluated in the routing report and includes a table that defines the segment combinations that comprise each of the 17 routes.

2.3.2.3 Alternative Routes Removed From Further Consideration

As a result of the comparative analysis, including the quantitative data in **Table 3-1** in **Appendix C**, and consideration of the qualitative metrics described in Section 2.3.1.1, a number of the potential alternative routes were eliminated from further consideration. A summary of the rationale used to eliminate 14 of the alternative routes from further analysis is provided below:

- Routes 1 and 2 were eliminated since they had the greatest length of any alternative and both of these alternative routes scored poorly in the matrix.
- Routes 3 and 4 were very similar to each other and were eliminated based on length within known prairie dog towns and length crossing NWI wetlands.
- Routes 5, 6, 7, and 8 were eliminated since they used segments that crossed Indian trust land.
- Route 9 was eliminated due to length within known prairie dog towns and because it had the highest length within 100 feet of perennial streams. This alternative route had the worst overall score in the matrix.
- Routes 11 and 12 were very similar to each other and were eliminated based on length within known prairie dog towns and length crossing NWI wetlands.
- Routes 13 and 14 also were similar to each other and were the second longest routes at 76 miles each and had the greatest length within 100 feet of perennial streams.
- Route 15 is similar to Route 16, but Route 15 had a longer length within 100 feet of perennial streams.

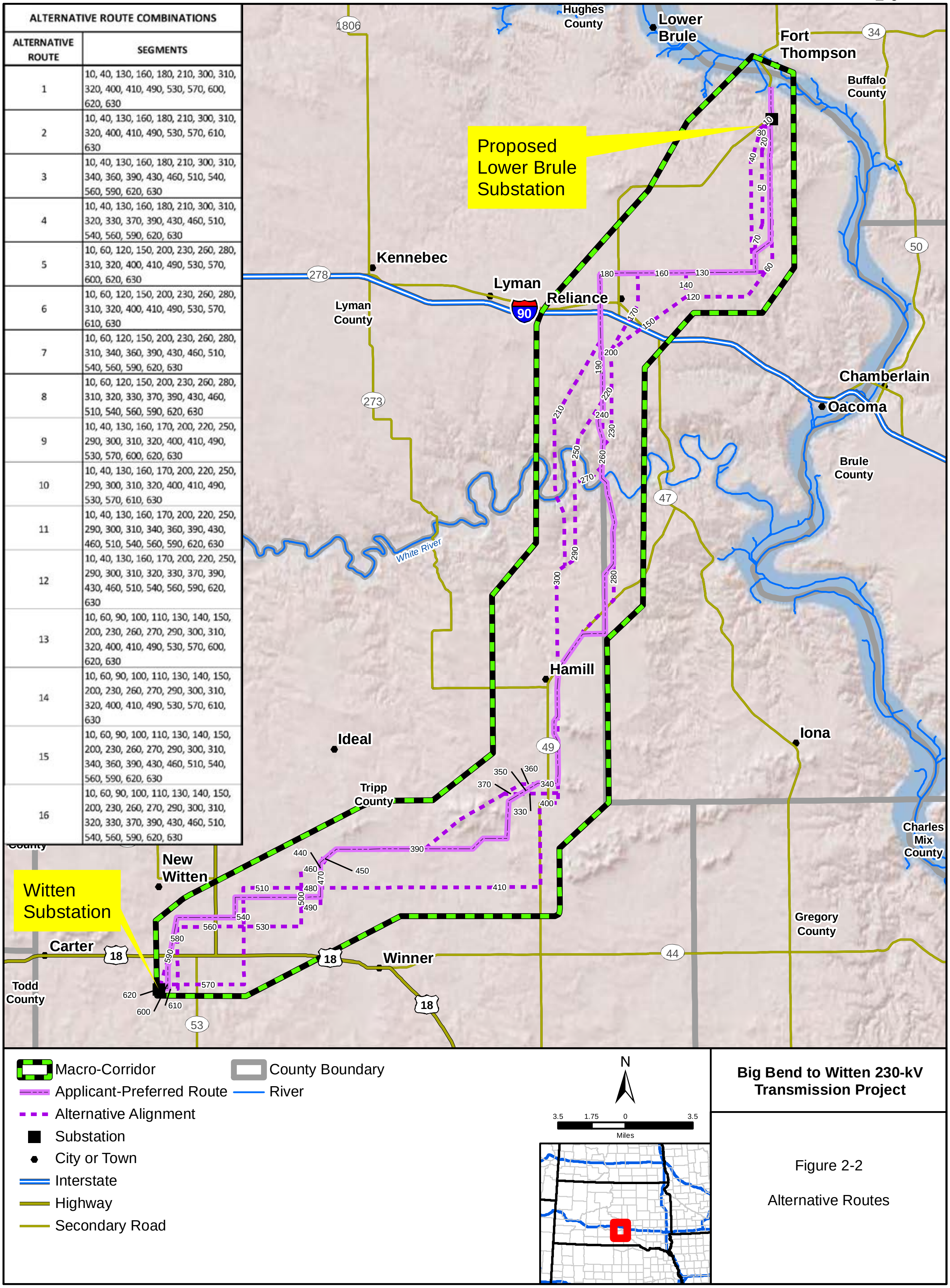
Alternative Route 16 had minimal constraints, scored well in the matrix (total rank of 3), and shared few segments with the Proposed Action. Therefore, Alternative Route 16 was determined to provide a reasonable alternative to the Proposed Action. Other routes that ranked in second or third place were nearly identical to the Proposed Action or to Alternative Route 16 and therefore, did not represent reasonable additional alternatives. Although Alternative Route 10 does not perform well in the matrix when compared with the other alternative routes (Route 10 received a total score of 34 with a rank of 7 in **Table 3-1** in **Appendix C**), this route was retained for evaluation in the EA since it provides a distinctly different alternative route than either the Proposed Action or Alternative Route 16.

2.3.2.4 Identification of Routes for Analysis

As described in Section 2.3.2, both quantitative and qualitative criteria were used to evaluate the 16 alternative routes and the Proposed Action and to identify two alternative routes for NEPA analysis. Basin Electric and Western worked closely with RUS, Native American tribal representatives, USACE, and local landowners to identify potential routes that would best meet the Project objectives and purpose and need, while minimizing adverse environmental effects and conflicts with existing land uses. This process resulted in the identification of the Applicant-Preferred Route, which is being carried forward for analysis as the Proposed Action. Basin Electric evaluated the Proposed Action in detail and “refined” that route to avoid some sensitive areas and other route adjustment requests, listed as follows:

ALTERNATIVE ROUTE COMBINATIONS

ALTERNATIVE ROUTE	SEGMENTS
1	10, 40, 130, 160, 180, 210, 300, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
2	10, 40, 130, 160, 180, 210, 300, 310, 320, 400, 410, 490, 530, 570, 610, 630
3	10, 40, 130, 160, 180, 210, 300, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
4	10, 40, 130, 160, 180, 210, 300, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630
5	10, 60, 120, 150, 200, 230, 260, 280, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
6	10, 60, 120, 150, 200, 230, 260, 280, 310, 320, 400, 410, 490, 530, 570, 610, 630
7	10, 60, 120, 150, 200, 230, 260, 280, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
8	10, 60, 120, 150, 200, 230, 260, 280, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630
9	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
10	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 320, 400, 410, 490, 530, 570, 610, 630
11	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
12	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630
13	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
14	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 320, 400, 410, 490, 530, 570, 610, 630
15	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
16	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630



Big Bend to Witten 230-kV Transmission Project

Figure 2-2

Alternative Routes

- Near Reliance, the original route was located south and east of Reliance and followed Segments 170, 200, and 230. The Proposed Action was shifted to the north and west of Reliance to accommodate West Central's request for a tap site in this location and landowner concerns regarding the location of the original route.
- South of the White River, the original route followed Segment 280. The Proposed Action was shifted 0.5 mile west to accommodate a landowner request, and the route continued south of SH 49 for approximately 1.25 miles to avoid crossing Indian trust land in Section 13.
- North of Winner, the original route followed Segment 380. The Proposed Action was moved 0.5 mile north along a portion of Segment 390 to accommodate potential future development along 272nd Street and to avoid a large wetland area.
- The last 10 miles of the original route into the Witten Substation followed Segments 490, 520, 550, 580, and 610. Routing in this area was shifted to avoid farmland and to follow ½-section lines or parallel to section lines to minimize disturbance to farming activities. In addition, the route along Segment 520 was shifted 0.5 mile north to avoid Indian trust land.

In addition to the Proposed Action, two routes were identified as being reasonable alternatives based on the quantitative and qualitative analysis in the route screening process. The two alternative routes carried forward for detailed environmental analysis along with the Proposed Action are routes 10 (Alternative Route A) and 16 (Alternative Route B).

2.3.2.5 Alternative Route A

As illustrated in **Figure 2-3** and provided in **Table 3-1** in **Appendix C**, the following features of Alternative Route A are favorable:

- Alternative Route A is slightly shorter than the Applicant-Preferred Route; and
- Alternative Route A has a shorter length across waterbodies when compared with the Applicant-Preferred Route.

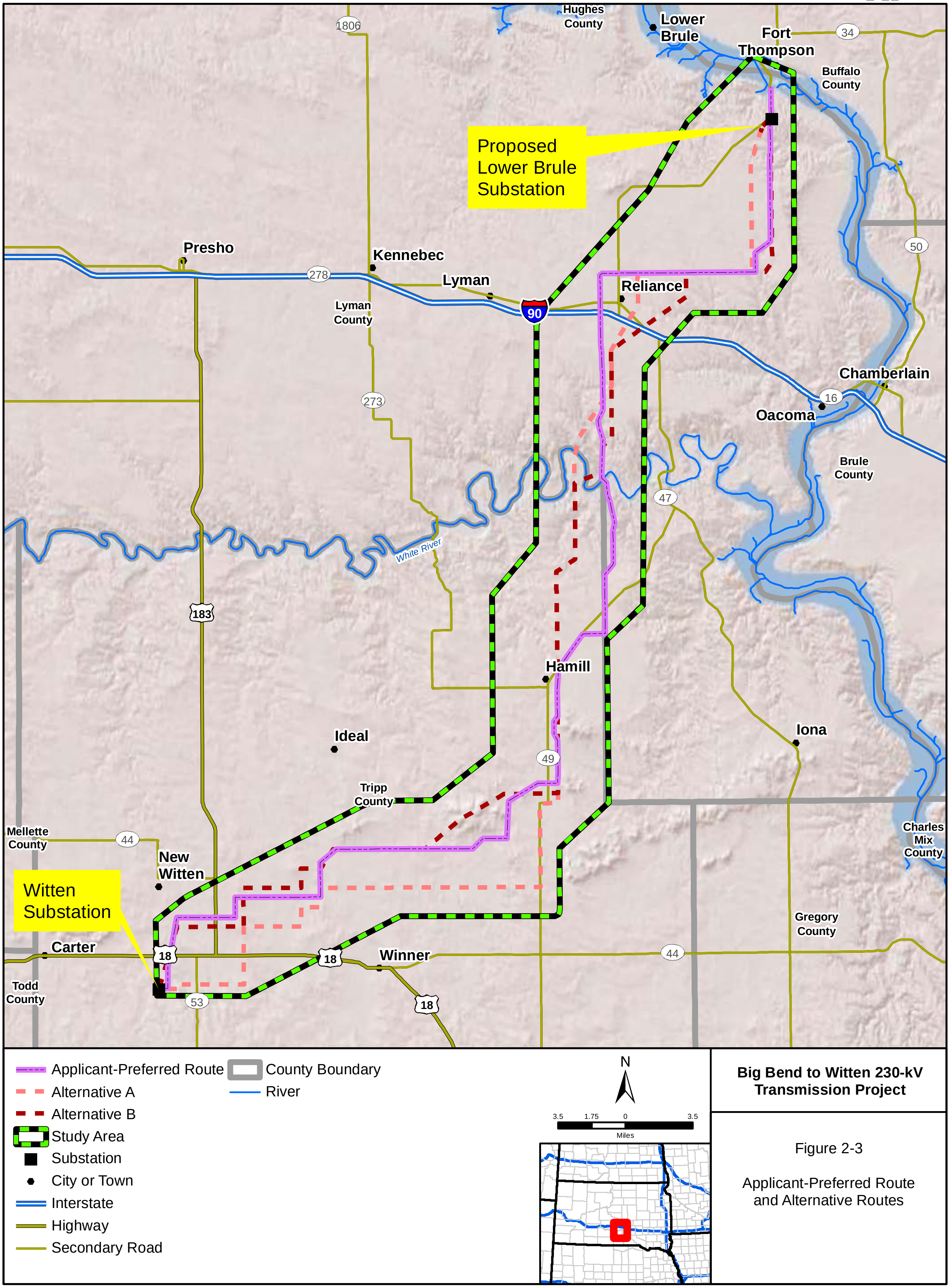
Potentially unfavorable aspects of Alternative Route A include:

- Only 35 percent of the total length of Alternative Route A is adjacent to existing linear features;
- Alternative Route A crosses an existing reservoir;
- Alternative Route A crosses seven perennial streams and has the longest length within 100 feet of perennial and intermittent streams;
- Alternative Route A has the second longest length within known prairie dog towns; and
- Alternative Route A has one residence within 500 feet of the centerline.

2.3.2.6 Alternative Route B

As illustrated in **Figure 2-3** and provided in **Table 3-1** in **Appendix C**, the following features of Alternative Route B are favorable:

- Route B is approximately 2 miles shorter than Route A and approximately 3 miles shorter than the Applicant-Preferred Route;
- Route B has the shortest length crossing waterbodies and NWI wetlands; and
- Route B has the shortest length within previously documented prairie dog colonies.



Big Bend to Witten 230-kV Transmission Project

Figure 2-3

Applicant-Preferred Route and Alternative Routes

Potentially unfavorable aspects of Alternative Route B include:

- Only 37 percent of the total length of Route B is adjacent to existing linear features;
- Route B crosses seven perennial streams;
- Route B has a longer length within 100 feet of perennial and intermittent streams when compared with the Applicant-Preferred Route; and
- Route B has one residence within 500 feet of the centerline.

2.3.2.7 Applicant-Preferred Route

As illustrated in **Figure 2-3** and provided in **Table 3-1** in **Appendix C**, favorable aspects of the Applicant-Preferred Route, also referred to as the Proposed Action, compared with the two alternative routes include:

- The route has the most favorable crossing of the White River;
- The route has the greatest percentage of alignment paralleling linear features;
- The route is not within 150 feet of any known communications facilities;
- The route has the fewest crossings of perennial streams and the shortest length within 100 feet of perennial and intermittent streams;
- The route is closest to West Central's tap site; and
- There are no occupied residences within 500 feet of the centerline.

Potentially unfavorable aspects of the Applicant-Preferred Route compared with the two alternative routes include:

- The Applicant-Preferred Route is longer than Routes A and B;
- The Applicant-Preferred Route has the greatest length crossing waterbodies and NWI wetlands; and
- The Applicant-Preferred Route is the only one of the three retained routes that traverses a historic sharp-tailed grouse lek.

2.4 Structure Alternatives

Engineering, cost, and environmental analyses were applied to evaluate various transmission line structure designs and materials. Structure design options included single-pole, H-frame, and lattice. Materials considered included steel (galvanized and self-weathering), wood (wood pole), and laminated wood. Factors considered included durability, cost of installation, cost and frequency of periodic maintenance, and potential environmental impacts.

Basin Electric selected single-pole steel structures based on comments from landowners received on previous projects with similar environmental issues. Single-pole steel structures were preferable because they greatly reduce potential conflicts with agricultural machinery operations, allow structure placement near property lines (reducing impacts to any one property owner), and reduce the amount of land needed for any one structure. Although there is a higher initial cost for materials with single-pole steel structures, the higher cost is offset by lower installation and long-term maintenance costs and better acceptance by landowners due to the smaller footprint.

2.5 Proposed Action and Alternative Routes

2.5.1 Transmission Lines

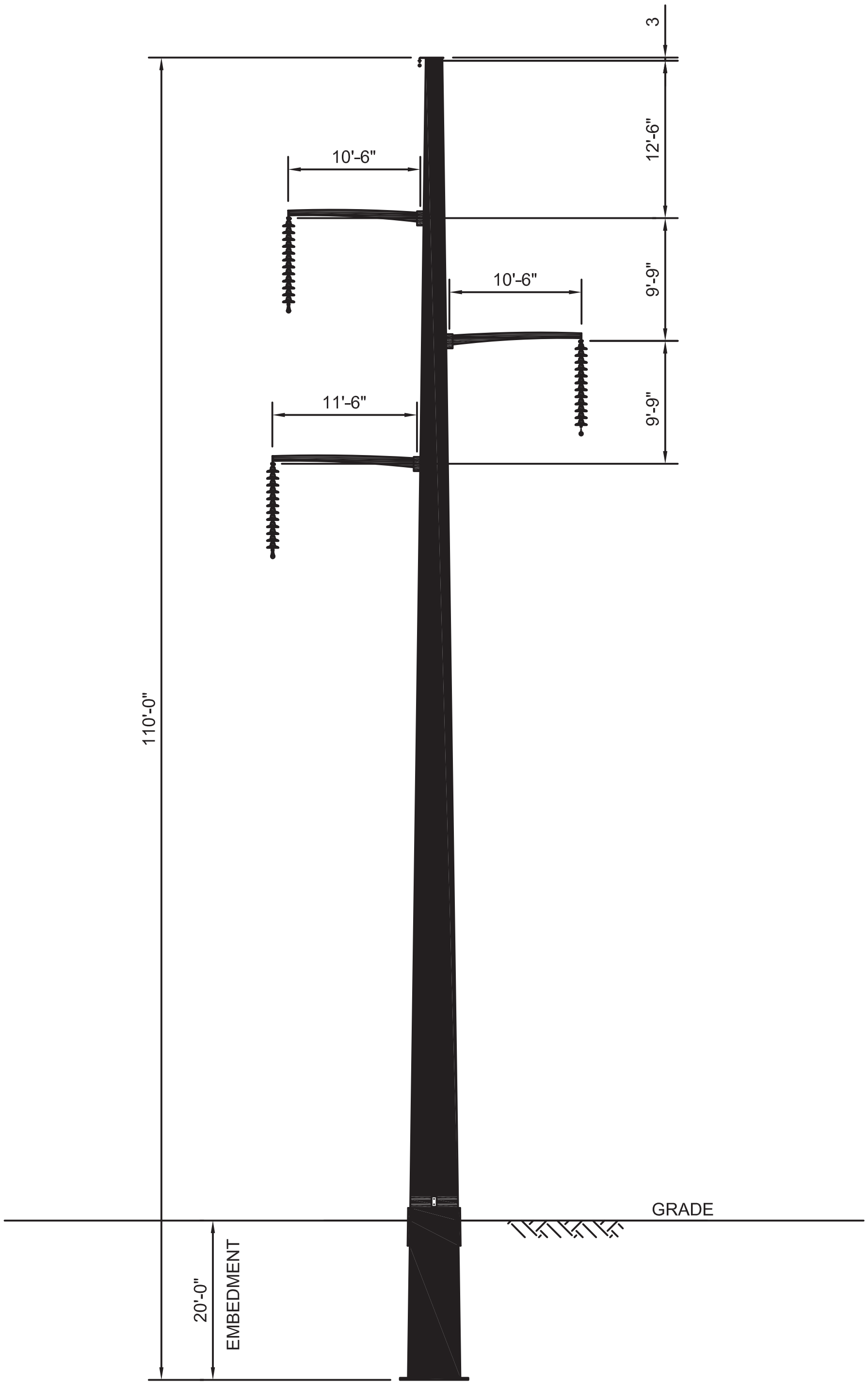
Design Parameters

The Proposed Action and alternative routes are illustrated in **Figure 2-3**. **Table 2-2** provides the typical physical design characteristics for the proposed single-circuit 230-kV transmission line. The design specifications for Western's proposed 1.6-mile double-circuit transmission line would be similar to the single-circuit 230-kV transmission line characteristics presented in the table. **Figure 2-4** illustrates the proposed single-circuit 230-kV transmission structures to be used for the Project.

The steel single-pole transmission line structures would range in height from approximately 70 feet to 115 feet and average 95 feet, depending on the required span distances between structures and area topography. The span between structures would typically range from 650 feet to 950 feet and average approximately 800 feet, depending on topography; taller structures could be used for crossing existing distribution and transmission lines or where unusual terrain exists. The single-pole structures would be designed to support three conductors and an overhead OPGW. The OPGW would provide lightning suppression and fiber optic communications between the Lower Brule Switchyard and Witten Substation for systems control. Tangent structures would be freestanding and directly embedded into the soil. Angle structures (used where the transmission line changes direction) and dead-end structures (used to provide longitudinal stability along the length of the line) would be constructed with concrete foundations. Guy wires would not be used.

Table 2-2 Transmission Line Characteristics

Description of Design Component	Values
Voltage (kV)	230
Conductor size (inches)	1.345
ROW width (feet)	125
Typical minimum and maximum span distances between structures (feet)	650 – 950
Average span (feet)	800
Minimum and maximum structure height (feet)	70 – 115
Average height of structures (feet)	95
Average number of structures (per mile)	6.6
Temporary disturbance per structure (square feet) (approximately 125-foot x 100-foot area)	12,500
Permanent disturbance per structure (acre) (approximately 3-foot diameter)	<0.0002
Minimum conductor-to-ground clearance to agricultural land at 100 degrees Celsius (feet)	26
Minimum conductor-to-ground clearance to rural roads at 100 degrees Celsius (feet)	28
Minimum conductor-to-ground clearance to paved highways at 100 degrees Celsius (feet)	31
Circuit configuration	Delta



Big Bend to Witten 230-kV Transmission Project

Figure 2-4

Typical Single-circuit Single-pole Structure

Project construction and design would meet the requirements of the National Electrical Safety Code (NESC) for the Heavy Loading District, Basin Electric and USDA-RUS design criteria, and other applicable local or national building codes. The Heavy Loading District refers to those areas (including South Dakota) that are subject to severe ice and wind loading. Minimum conductor clearance is measured at the point of greatest conductor sag and closest proximity to the ground. The proposed transmission line would be constructed with clearances that exceed standards set by NESC. Minimum conductor height would be 26 feet over agricultural land, 28 feet over rural roads, and 31 feet over paved highways.

<u>Construction Activities</u>

Basin Electric would likely commence construction of the transmission line in spring 2016, extending throughout the South Dakota construction season, usually beginning in March or April and ending in November or December of each year. Private contractors would construct the transmission line and haul away construction wastes associated with the Project. The contractors also would be responsible for complying with applicable mitigation measures and agency and tribal requirements.

<u>Pre-construction Surveying and Geotechnical Analyses</u>

Various studies must be completed and permits acquired before construction could begin, including completion of the EA process, RUS authorization, South Dakota Public Utilities Commission permitting, cultural resources (Section 106 NHPA) review and consultation, Section 7 consultation, transmission line engineering and design, ROW procurement, and final transmission structure siting.

Basin Electric and/or its contractors would perform initial transmission line survey work, consisting of survey control, route centerline location, profile surveys, and access surveys prior to construction. These surveys would likely be conducted concurrently with other pre-construction tasks.

Geotechnical analyses would be conducted at transmission line angle points and other locations to determine engineering requirements for structures. A truck-mounted auger would be transported to each site to drill a small-diameter borehole. Cuttings from each borehole would be evaluated to determine soil characteristics. Geotechnical analyses would be confined to a relatively small area needed for site access and equipment operations. Each geotechnical location would require an area totaling approximately 400 ft^2 for equipment setup and operations in addition to an access trail.

<u>ROW Access and Construction Preparation</u>

Crews would gain access from public roads and section line trails as well as within the transmission line ROW for constructing and maintaining the line. Access for line construction would be by truck travel within the ROW and structure sites located along section lines would be accessed directly from section line roads and trails, where possible. New graded surface access roads are not anticipated. Existing roads and trails would be left in comparable or better condition than what existed before construction. Gates would be installed where fences cross the ROW and locks would be installed at the landowner's request. Gates not in use would be closed but not locked, unless otherwise requested by the landowner.

Tree and brush removal in the ROW is anticipated to be minimal because the Project area consists largely of cultivated cropland and rangeland, and because woodlands and shelterbelts were avoided during the routing process. The ROW would only be cleared if trees and/or shrubs that are present would interfere with construction activities or the safe, reliable operation of the transmission line. Trees would be cut at ground level to provide access within the ROW and to allow vehicle access. Stumps and roots would remain in the ROW unless the landowner requests otherwise. Disposal of cut trees and brush would be consistent with the landowner's wishes and applicable state waste management rules.

<u>Transmission Structure Site Preparation</u>

Transmission structure site clearing would be minimal. The Project area and locations along the proposed transmission line route are relatively flat and the need for structure site leveling is expected to be minimal. It is anticipated that at some structure locations, blading of small areas (up to 40 feet by 40 feet for crane and manlift landings) may be required to level the ground surface to allow the safe operation of the equipment. Blading would be confined to the ROW and would be accomplished using bulldozers or front-end loaders. Soil removed during leveling would be stockpiled and replaced following construction; special emphasis would be placed on salvaging topsoil to be used for reclamation. The ground would be re-graded to the approximate original contour and revegetated (rangeland) or tilled (cropland) when the work is completed. Temporary disturbance to soils would be mitigated by returning the sites to grazing and farming.

Pole Augering

Crews would use a truck-mounted auger or tracked vehicle equipped with a power auger to drill holes for the structures at appropriate locations along the ROW. Total disturbance at each structure location would vary depending on terrain and equipment; however, all disturbances would be confined to the ROW.

Augering for poles would have an average diameter of 5 feet and an average depth of 20 feet. The single-pole structure would be lowered by crane into augered holes and the ring around the structure would be backfilled with crushed gravel and rock or augered material if suitable. Surplus material (expected to total approximately 15 cubic yards (yd^3) at each tangent structure site) would be left on-site or hauled to an off-site location (i.e., area landfills) for disposal, in accordance with landowner wishes.

Approximately 20 structures would require reinforced concrete foundations consisting of up to a 6-foot-diameter excavation to an average depth of 20 feet. Approximately 21 yd^3 of surplus material would be either spread in the vicinity of the structure or disposed of in accordance with landowner wishes. Large volumes of excess soil would be disposed of at local landfills. Landfills typically need additional fill as cover for waste material. Disposal of waste material, including concrete spoil, would be in compliance with applicable regulations and would not include placement in wetlands or aquatic sites. Site-specific hole diameters, depth, and the use of reinforced concrete foundations would be determined during geotechnical and engineering evaluations.

Structure Assembly and Erection

Structure components (i.e., structure segments, davit arms, hardware, insulators, and related materials) would be trucked to structure work site locations and assembled. Davit arms, insulators, and other appurtenances would be attached to the poles while on the ground at each structure location, within the 125-foot-wide ROW. Erection crews would place the structure in the hole (directly imbedded) or on reinforced foundations (i.e., self-supporting angle point and dead-end structures) using cranes or large boom trucks. The structures would then be plumbed and the hole backfilled, as previously described.

Conductor Stringing and Tensioning

Following structure construction, crews would install the conductors and OPGW using conductor stringing sheave blocks and line pulling and tensioning equipment. The conductor and OPGW would be kept under tension during the stringing process to keep the conductor clear of the ground and obstacles that could damage the conductor and/or OPGW surfaces.

Pulling and tensioning sites are typically located at 10,000-foot intervals and at angle point structures. Sites along tangent structures are maintained within the ROW, those at angle points typically are partially outside of the normal 125-foot-wide ROW. Each site typically requires two 37,500-square-foot (ft^2 [0.9-acre]) temporary use areas. Stringing equipment generally consists of wire pullers, tensioners, conductor reels, OPGW wire reels, and sheave blocks. About 10,000 feet of conductor and OPGW would be installed for each pull. After the conductor/ground wire is pulled for a section of line, it is tightened or sagged to the required design tension in compliance with the NESC. The process would be repeated until all of the conductor and OPGW are pulled through all sheaves. Conductor stringing also would require access to each structure for securing the conductor to the insulators or OPGW to each structure, once final line sag is established. A typical pulling and tensioning site and splicing site are shown schematically in **Figure 2-5**.

For public safety and property protection, temporary wooden guard structures would be used to provide support when stringing conductor and OPGW across existing power lines, roads, highways, railroads, and other linear obstacles. The structures would be removed when stringing is complete; the pole borings would be backfilled and the temporary support structure sites would be reclaimed. All temporary wooden guard structures would be installed within the transmission line ROW.

Structure Site Access and Traffic

Access would involve the use of existing roads where available, and temporary overland access trails where necessary. No new access roads would be constructed for the Project. The use of temporary overland access trails between structure sites would not require new construction, but would result in temporary disturbance. Occasional access from section line trails could result in temporary disturbance along the ROW; however, such disturbance would be limited to a 12-foot-wide track (approximately) and only long enough to provide vehicle access directly to structure locations. Some additional access disturbance could occur if truck or vehicle turnarounds are needed; however, the use of structure work sites would be encouraged.

Existing access roads (typically paved or maintained with a gravel or aggregate base) would be used in their original condition to the extent possible, or with minor road blading or other improvements as agreed upon by the county or township. Basin Electric would be responsible for repairing any damage caused by construction equipment movement and would return existing roads to original or better condition following construction. Basin Electric would not be responsible for maintaining roads following construction. Basin Electric would not be responsible for maintaining fences and gates following construction and restoration; however, access gates that would be installed during construction would be left in place following construction.

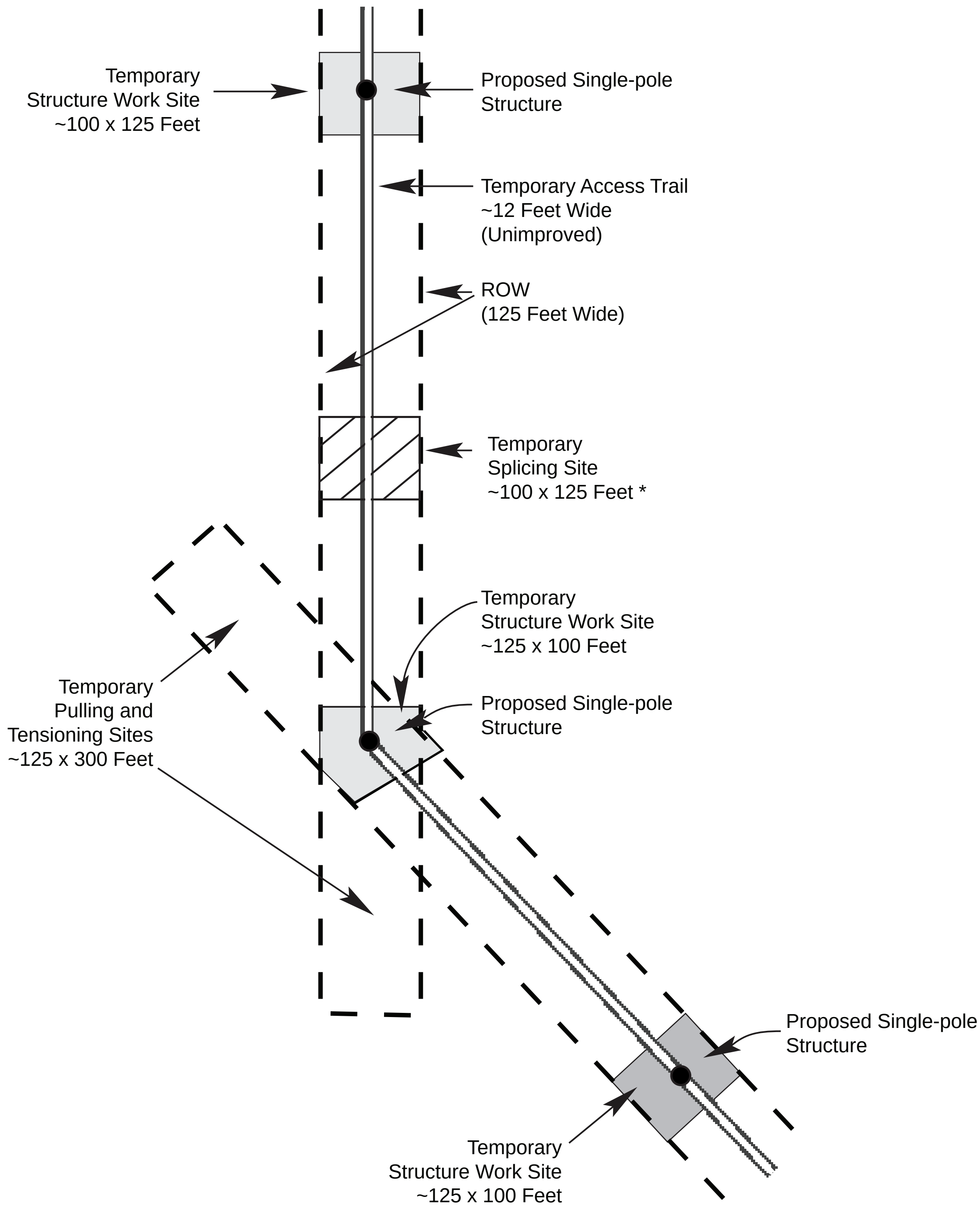
Line segments that are parallel to section lines that do not have established roadways would use the 66-foot-wide public ROW to the extent practicable. Specific access locations and areas of temporary disturbance cannot be determined without detailed engineering showing locations where such access locations might be appropriate and distances that would be crossed. A 33-foot-long, 12-foot-wide temporary access point would temporarily disturb 0.009 acre. If blading or other minor improvements are needed to ensure the safe movement of heavy equipment, such improvements would remain in place following construction.

Basin Electric would restore disturbed areas to pre-construction conditions, to the extent practicable, and would not be responsible for the long-term maintenance of such section line trails. Any fences, gates, or similar features that would be removed during construction would be replaced or rebuilt. Gates and fences that would be installed during construction would be left in place for future use.

Temporary Overland Access and Land Requirements

Temporary overland access would be used in areas without existing roads. Access through cultivated fields would be, to the extent practicable, during the non-growing season. Landowners would be compensated for loss of crops caused by construction activities. Gates may be installed to facilitate access to some structures and the ROW. The gates would be left in place following construction activities. Permanent access roads to the ROW or structures would not be maintained.

Temporary access routes would result in a 12-foot-wide temporary disturbance and compaction of vegetation and soils. Natural vegetation along these temporary access routes would recover quickly, primarily because grading would not be required. Temporary overland access routes would be subject to the same cultural resource and vegetation surveys as the other ROWs. Landowners would be compensated for access routes where public access does not exist.



LEGEND

* ~10,000 Feet Intervals

Big Bend to Witten 230-kV Transmission Project

Figure 2-5

Conceptual Construction Configuration

A 100-foot x 125-foot (12,500 ft^2) temporary work site would be located at each structure location and within the ROW. The area would be graded, if required, to ensure safe movement and operation of heavy equipment. The Proposed Action and Alternative Routes A and B require approximately 144, 142, and 138 acres, respectively, for structure installation, as shown in **Table 2-3**.

Pulling and tensioning sites and splicing sites would result in temporary disturbance to lands within and outside of the ROW. Pulling and tensioning areas would temporarily disturb a total of 75,000 ft^2 (1.7 acres) at each angle structure location. Approximately 15 to 22 pulling and tensioning sites would be needed at angle structure locations, totaling approximately 26 to 38 acres. The pulling and tensioning sites at the angle structures would extend beyond the designated ROW. Additional areas would be needed along long straight-line expanses of tangent structures. Approximately 20 to 25 pulling and tensioning sites would be required along tangent structures. Each pulling and tensioning site would occupy approximately 37,500 ft^2 within the ROW. Pulling and tensioning along tangent structures would result in temporary impacts from approximately 17 to 22 acres within the designated ROW.

Splicing sites, measuring approximately 12,500 ft^2 (0.3 acre), also would be required at approximately 10,000-foot increments within the transmission line ROW. Approximately 39 to 41 splicing sites would be required for construction, resulting in temporary impacts to 11 to 12 ROW acres. The conceptual configuration of temporary work sites, 12-foot-wide access trail, structure locations, pulling and tensioning sites, and splicing sites is shown in **Figure 2-5**.

Three temporary laydown areas would be needed; each site would total approximately 10 to 15 acres.

Approximately 50 borings are required for geotechnical analyses. Each boring site would temporarily affect as much as 400 ft^2 within the proposed ROW and at designated structure sites. The geotechnical surveys would be conducted during low precipitation conditions, which would minimize impacts to the soils and crops.

Estimated temporary and permanent land requirements identified in **Table 2-3** were used as the basis for calculating temporary and permanent acreage impacts to land uses, prime and unique farmland and farmland of statewide importance, vegetation types, and wetlands. Linear distance data developed through routing were converted to estimate acreage impacts. As noted in **Table 2-3**, temporary impacts associated with the Proposed Action would affect approximately 356 acres. Temporary impacts associated with Alternative Routes A and B would affect approximately 349 and 348 acres, respectively. Permanent impacts would be similar among the three alternatives, essentially limited to areas occupied by the single-pole structure bases.

<u>Permanent Land Requirements</u>

Permanent land disturbance has been estimated for self-supporting tangent structures, self-supporting dead-end structures, and self-supporting turning structures. Each tangent structure would require directly imbedding one 3-foot-diameter pole at each structure location, thus occupying a total of 7.1 ft^2 per structure. Turning structures and dead-end structures would be larger, with a 5-foot-diameter, thus each occupying approximately 19.6 ft^2. Approximately 35 turning and dead-end structures would be required for the transmission line. Tangent, dead-end, and angle structures would be self-supporting, thus guy wires would not be required.

Table 2-3 Temporary and Permanent Land Requirements for Proposed Action and Alternative Routes A and B

	Transmission Line Alternative		
	Proposed Action	**Alternative Route A**	**Alternative Route B**
Total length (miles)	75.8	75.1	72.5
Total number of single-pole structures[1]	501	496	479
Temporary Land Requirements			
Structure pads (acres)[2]	143.8	142.3	137.5
Access road within ROW (acres)[3]	103.5	102.5	99.0
Pulling and tensioning sites at angle structures (number)[4]	20	15	22
Pulling and tensioning sites at angle structures (acres)[5]	34.4	25.8	37.9
Pulling and tensioning sites along tangent locations (number)[6]	20	25	20
Pulling and tensioning sites along tangent locations (acres)[7]	17.2	21.5	17.2
Splicing site locations (number)[8]	41	40	39
Splicing sites (acres)[9]	11.8	11.5	11.2
Three laydown areas (acres)[10]	30 – 45	30 – 45	30 – 45
50 geotechnical boring sites (within ROW)	approximately 400 ft^2 each[11]		
Total Temporary Disturbed Area (acres)	**340.7 – 355.7**	**333.6 – 348.6**	**332.8 – 347.8**
Permanent Land Requirements			
Permanent land requirements for structures (acres)[12]	0.1	0.1	0.1
Lower Brule Switchyard and access road	7.1	7.1	7.1
Witten Substation expansion and access road	7.0	7.0	7.0
Total Permanently Disturbed Area (acres)	**14.2**	**14.2**	**14.2**
Potential Additional Permanently Disturbed Area (acres)			
Reliance Tap Site[13]	10.0	10.0	10.0

1 Approximate number, based on average 800-foot spacing.

2 Number of structures x 100 x 125 feet (12,500 ft^2).

3 800 linear feet between structure sites, number of structures, 12-foot-wide access trail.

4 Estimated number, based on number of angle structures.

5 Angle point locations x 125 feet x 300 feet (37,500 ft^2) x two directions.

6 Estimated number along areas with tangent structures.

7 Tangent structure locations x 125 feet x 300 feet (37,500 ft^2).

8 10,000-foot spacing between splicing sites.

9 Splicing site locations x 125 feet x 100 feet (12,500 ft^2).

10 Approximately 10 to 15 acres of surface disturbance per area.

11 Temporary disturbance areas previously accounted for in temporary disturbance for angle structures.

12 Estimated total permanent disturbance for all structures (approximately 7.1 ft^2 per structure x the estimated number of structures).

13 A 10-acre electrical tap site may be constructed in the Reliance, South Dakota area for West Central Cooperative at a later date.

Easements

Landowners were contacted several times throughout the routing process. Survey permissions are requested from each landowner along the route in order to allow Basin Electric access for engineering and environmental surveys. Once a route is finalized, Basin Electric would follow several steps to acquire the ROW for the Project. Title searches going back 30+years are completed to identify current ownership and all encumbrances that need to be addressed. A market analysis is conducted by a third-party appraiser to identify the current land values, which are in turn used to establish monetary offers for the easements. Negotiations with landowners occur in an effort to acquire easements; these negotiations may take place over several visits.

Similar steps as described above also are used for state lands, USACE (federal lands), and Indian tribal lands. Appropriate federal, state, and tribal representatives would be contacted. This may result in the ROW rights being granted in other forms such as permits or leases.

Construction Waste Management

Typical waste materials generated from construction activities include miscellaneous lumber and shipping materials used to protect equipment during transportation, paper products, soda cans, food-related materials, and sanitary waste. Waste from construction materials and rubbish from all construction areas would be collected, hauled away, and disposed in a state-approved landfill. Sanitary waste would be disposed through arrangements with local municipal sanitary waste treatment facilities.

Material staging areas and vehicle maintenance and refueling areas would not be located near waterways. If any of the material staging areas include vehicle and equipment refueling, or storage of petroleum products in excess of 1,320 gallons, a Spill Prevention, Control, and Countermeasures (SPCC) Plan would be developed. The SPCC Plan would address: 1) operating procedures to prevent spills; 2) control measures to prevent a spill from reaching navigable waters; and 3) countermeasures to contain, clean up, and mitigate the effects of a spill that reaches navigable waters. Additionally, spill containment and clean up materials (e.g., absorbent material, shovels) would be available at every work site. The materials would be used to contain and clean up oil and hydraulic spills that may result from equipment leaks. Workers would be trained in procedures to follow to contain and clean up released hazardous materials.

Construction Schedule, Work Force, and Equipment

Transmission line construction would generally follow a sequential set of activities performed by crews proceeding along the length of the line. **Table 2-4** lists the construction activities. Basin Electric would likely commence construction of the transmission line in spring 2016, extending throughout the South Dakota construction season, usually beginning in March or April and ending in November or December of each year. The sequential nature of construction would minimize activities at any given work site.

Worker Safety and Health Protocol

All construction and maintenance activities would be carried out in compliance with applicable federal and state worker safety regulations, as defined under the Occupation Safety and Health Administration (OSHA) Act of 1979. Worker safety and health is administered by Basin Electric's Transmission Systems Maintenance Division, which is a member of the National Safety Council.

Environmental Protection Measures

Project-specific mitigation measures have been developed to avoid or reduce the severity of environmental impacts (**Appendix D**). The measures are applicable to Project construction and operation.

Table 2-4 Conventional Personnel, Equipment, and Time Requirements for Construction

Task	Number of Personnel	Equipment	Length of Time
Structure site clearing and vegetation management	4–6	Pickups, all-terrain vehicles	1 month
Gate installation	3	Flatbed and pickup trucks	1 month
Structure assembly	6–8	Pickups, cranes, material trucks, rubber-tired crane, 4x4 pickups	4 months
Augering	2–3	Rotary drilling rigs, backhoes, pickups, rubber-tired digging equipment, all-terrain vehicles, portable compressors	4 months
Structure erection	6–8	Rubber-tired cranes, boom trucks, 4x4 pickups	5 months
Ground wire and conductor stringing	16–20	Pickups, manlifts/boom trucks, hydraulic tensioning machines, reel trailers	3 months
Cleanup	4	Pickups, dump trucks, flatbed trucks	Duration of Project
Concrete foundations	10	Excavators, concrete trucks, skid steer	1–2 months
Equipment installation	10	Cranes and trucks	3–4 months

Reclamation

Following construction, disturbed areas would be graded and/or re-sloped to their approximate original contours to minimize erosion and visual alteration. In grassland or pasture areas, disturbed areas would be reseeded with native species. Cultivated land would be tilled and returned to production. Fences and gates damaged as a result of the Project would be repaired.

Rangeland from which vegetation has been removed, destroyed, or damaged would be reclaimed and revegetated. Reclamation activities, weather permitting, would be ongoing throughout construction and would take place as soon as construction activities are completed in a particular area. Drainage structures and similar improvements would be removed from areas to be reclaimed, where appropriate, and the area would be revegetated using a native seed mixture, as recommended by the County Agricultural Extension Service or the Natural Resources Conservation Service (NRCS).

Ruts and scars from overland travel would be leveled to break up compacted soils and aid in returning areas to approximate original contours. Cultivated areas disturbed by overland travel would be leveled and tilled to break up compacted soils (if necessary) and returned to production.

The optimal timing for revegetation success would be spring or fall to coincide with seasonal rains. Mulching or netting may be required to protect seeded areas from erosion. Other erosion control devices, such as water bars, or terracing, or water diversion structures would be constructed where needed. Follow-up inspections would be carried out during the next growing season. Areas that did not become revegetated would be reseeded again, as necessary.

The reclamation procedures described above would be applied to disturbed areas including temporary access, staging areas, the transmission line ROW, and other areas disturbed by Project activities.

Operation and Maintenance

The following operation and maintenance activities would be performed throughout the life of the Project.

- Basin Electric's preventive maintenance program for the transmission line includes aerial and ground inspections. Aerial inspections would be conducted at least two times each year. Ground patrols would be conducted annually for the first 3 or 4 years, and less frequently thereafter. Climbing inspections of structures would be conducted on a 5-year cycle with every fifth structure inspected each year. Inspections and patrols would involve the use of vehicles in areas where there is suitable vehicle access.
- Maintenance activities would include repairing damaged conductors, inspecting and repairing structures, replacing damaged and broken insulators, and tightening hardware.
- Basin Electric would maintain any gates it installs or uses for access.
- Basin Electric would trim or remove trees that pose a clearance or safety problem to the operation of the transmission line. Specific requirements of the National Electric Reliability Council would be followed. This activity would be completed in accordance with the landowner easement.

Treatment of vegetation within the ROW would include the selective removal or tree trimming to prevent contact with the transmission line conductors. Some trees would have to be removed if they are classified as "danger trees" (trees that are 20 feet in height or taller which, upon falling, would come within 10 feet of the structure or conductors). Disposal of cut trees and brush would be in a manner acceptable to the landowner and in accordance with applicable state waste management rules. The need for tree removal is expected to be minimal as areas with trees were intentionally avoided during detailed routing.

Decommissioning

If the transmission line were to be abandoned or rebuilt, decommissioning and removal of structures, conductor, and ancillary equipment would be in accordance with applicable regulations in place at the time.

2.5.2 Lower Brule Switchyard and Witten Substation Expansion

2.5.2.1 Design and Land Requirements

Both the Lower Brule Switchyard and the Witten Substation Expansion include infrastructure to support the operation of the proposed 230-kV transmission line. A Supervisory Control and Data Acquisition system would interconnect the Lower Brule Switchyard and Witten Substation expansion. Hard-wire system communications would use fiber optics within the OPGW between the two sites and microwave communications equipment would be installed for Supervisory Control and Data Acquisition redundancy and to facilitate voice and data communications by field personnel. A microwave tower and dish would be constructed at the Witten Substation expansion and Lower Brule Switchyard. Each microwave relay tower would be a maximum of 150 feet in height, and have 2 to 4 dishes (each dish is 6 feet to 8 feet in diameter) affixed to it. Basin communications engineers have determined that due to the weight of the dishes creating potential wind loading issues, a monopole tower design is not feasible. Alternatively, two lattice designs were considered – a 'traditional,' self-supporting design with a wide triangular base (15 feet each side at the base) that tapers to a narrow tip, and a straight, narrower lattice (3 feet on each side); the former does not require guy lines, while the latter design does (see **Figures 2-6** and **2-7**).

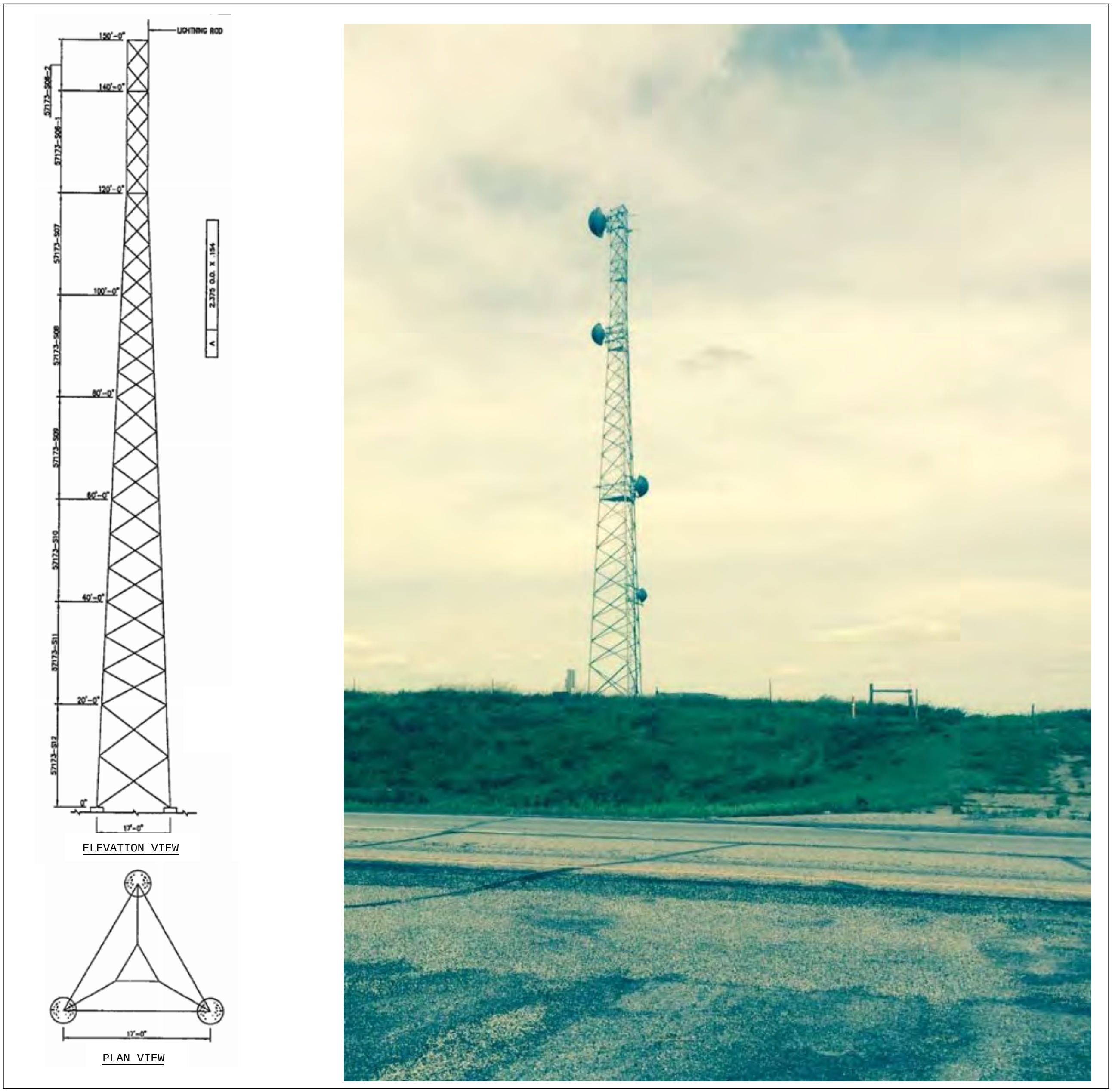


Figure 2-6 Typical Self-Supporting Lattice Relay Tower

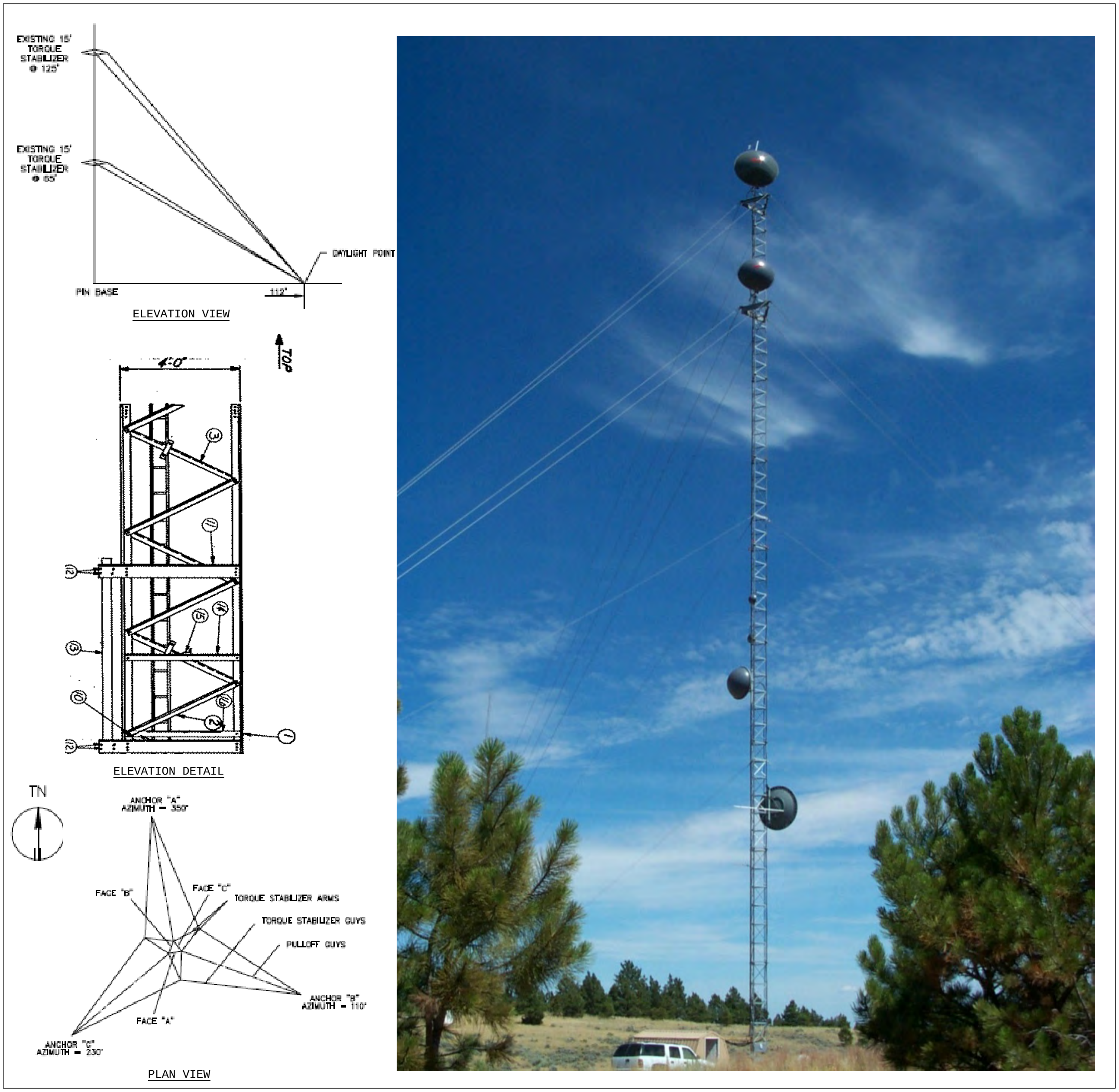


Figure 2-7 Guyed Narrow Lattice Relay Tower

Similar to other structural components, the two designs were evaluated according to durability, cost of installation, cost and frequency of periodic maintenance, land requirements and potential environmental impacts. While durability of each design is the same, construction cost for the self-supporting design is somewhat, but not substantially, higher; operations and maintenance costs also would be the same. The self-supporting design would have a footprint of 400 to 500 ft^2, while the guyed design, based on three guy anchors 100 to 150 feet from the tower, would require a much larger area (maximum of 70,685 ft^2). Additional space required for a shelter, propane, fencing, and associated components are comparable for each tower type. In terms of loading (i.e., amount of equipment that can be attached), the self-supporting design can handle higher loads.

Comparative environmental impacts are addressed in more detail in Sections 3.4, Fish and Wildlife Resources; 3.5, Special Status Species; and 3.12, Aesthetics. Briefly, potential impacts to avian species would be slightly lower with the self-supporting structure, while impacts to terrestrial species would be minor with either design. The towers would pose some additional risk to certain special status species, but not to the extent that they would be adversely affected. Consideration of aesthetics would favor the guyed design due to the narrower profile. The lower land requirement would favor the self-supporting design, but consideration of engineering and environmental factors did not weigh in favor of either design. Final design selection will be based on land (easement) requirements and any additional preference expressed by the LBST. Representative simulations from two observation points within the viewshed of the relay tower at the Lower Brule Switchyard are provided in **Appendix F**.

The Lower Brule Switchyard would be developed on a 7.1-acre site and the Witten Substation expansion would occur immediately adjacent to the existing Witten Substation on a 7-acre site (**Figures 2-8** and **2-9**).

2.5.2.2 Construction Activities

The sites for the Switchyard and Substation Expansion would be cleared and leveled in a manner similar to that proposed for the transmission structures. Topsoil would be segregated from underlying soils and redistributed on disturbed areas. Excess soil would be spread around the sites and/or used for fill, where needed. Soil erosion would be controlled during construction using best management practices. Components would be trucked to the site on local highways and roads and off-loaded using cranes and similar equipment. Concrete and aggregate would be trucked in from local sources. Access roads would be constructed to provide vehicle and equipment access from public roads and would consist of a compacted aggregate surface.

2.5.2.3 Operation

Basin Electric would operate both the Switchyard and Substation throughout the Project life. After construction, the ownership of the Lower Brule Switchyard would be transferred to Basin Electric, which would then own and operate it.

2.5.3 Big Bend Double-Circuit Structure and Transmission Line

2.5.3.1 Design and Land Requirements

Western proposes to convert the existing Big Bend-Fort Thompson No. 2, 230-kV transmission line turning lattice structure, located on the south side of the dam, to a double-circuit structure. Western would construct approximately 1.6 miles of new double-circuit transmission line south to a new Switchyard, the Lower Brule Switchyard, which also would be constructed by Western. The new 1.6-mile-long double-circuit 230-kV transmission line would be owned, constructed, and operated by Western. **Figure 2-10** illustrates a typical 230-kV double-circuit structure.

2.5.3.2 Construction Activities

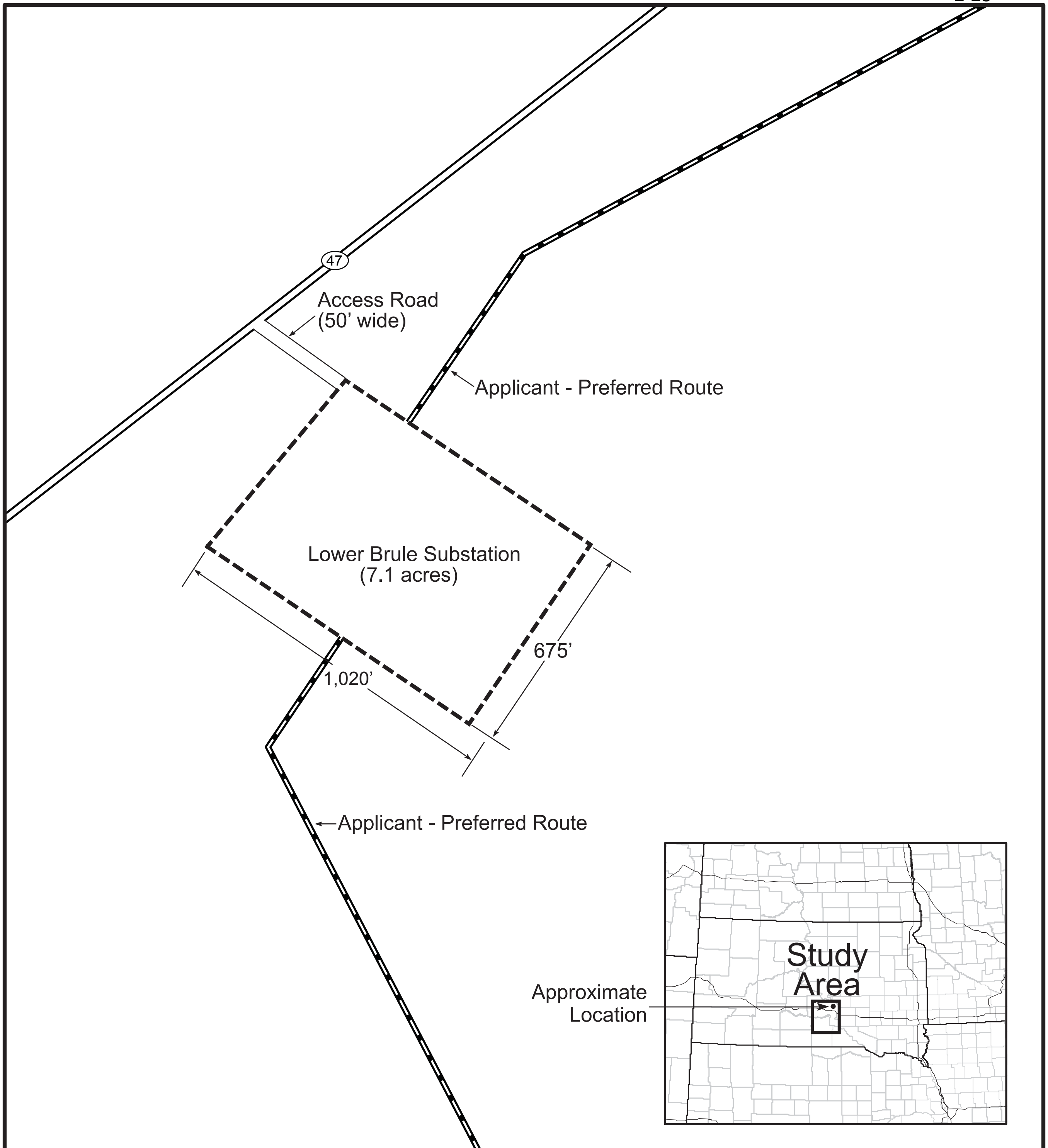
General construction activities would be the same as those described in Section 2.5.1.

2.5.3.3 Operation

General operational activities would be the same as those described in Section 2.5.1.

2.6 No Action Alternative

CEQ NEPA regulations (40 CFR 1502.14) require evaluation of the No Action Alternative as part of the analysis. The No Action Alternative differs from baseline analyses, which describes the affected environment, because this alternative addresses conditions that would exist without the Project. Under the No Action Alternative, beneficial and adverse impacts associated with construction and/or operation of the proposed transmission line, switchyard, and substation expansion would not be realized and existing conditions would continue during the foreseeable future. If the No Action Alternative were selected, none of the action alternatives would be funded or implemented by RUS or Western.



Legend

- Substation
- Applicant - Preferred Route
- 47 State Highway

N

Big Bend to Witten 230-kV Transmission Project

Figure 2-8

Lower Brule Substation

Note: The substation location and layout are preliminary and would be refined based on discussions/negotiations with the Lower Brule Sioux Tribe.

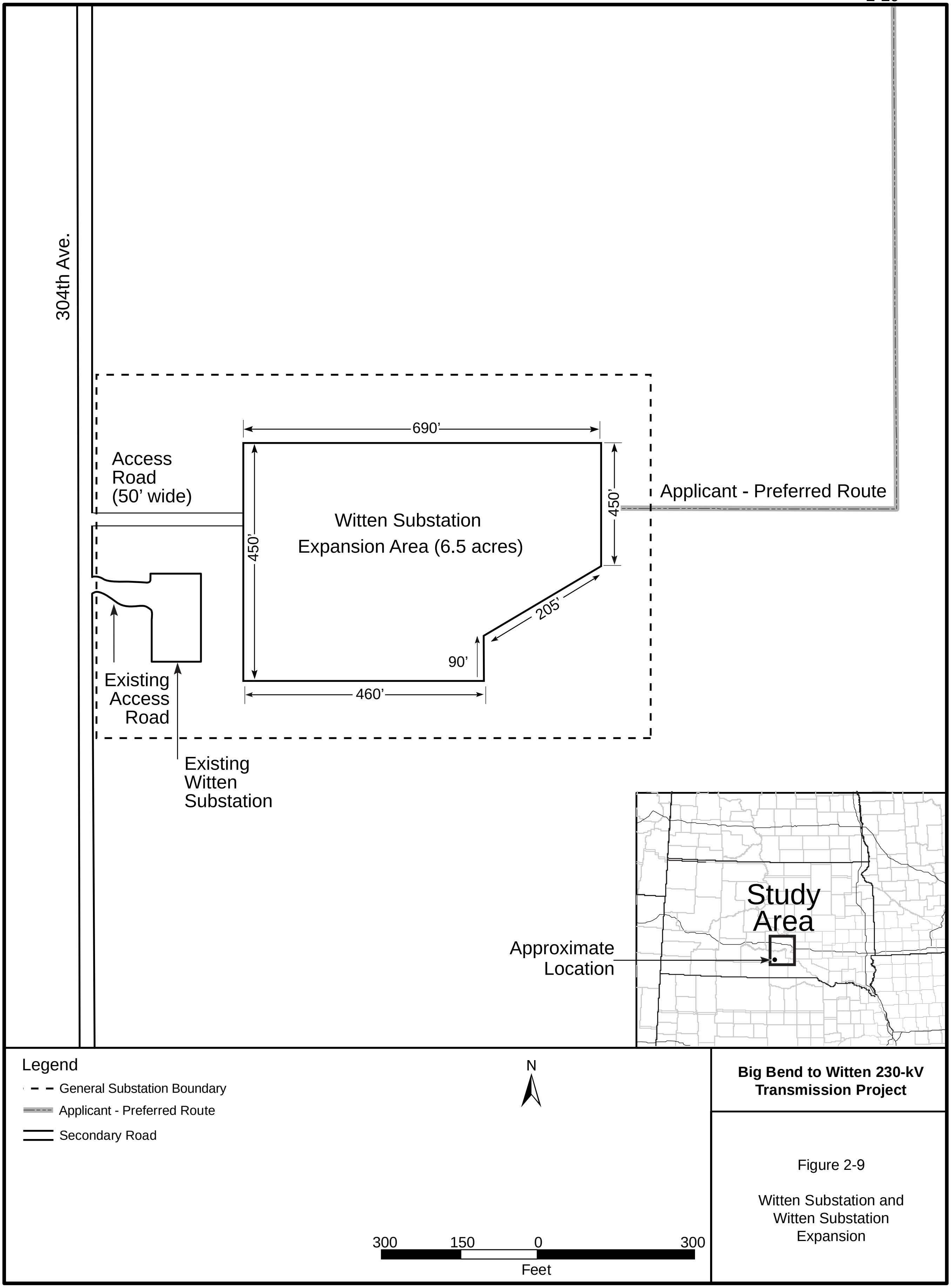
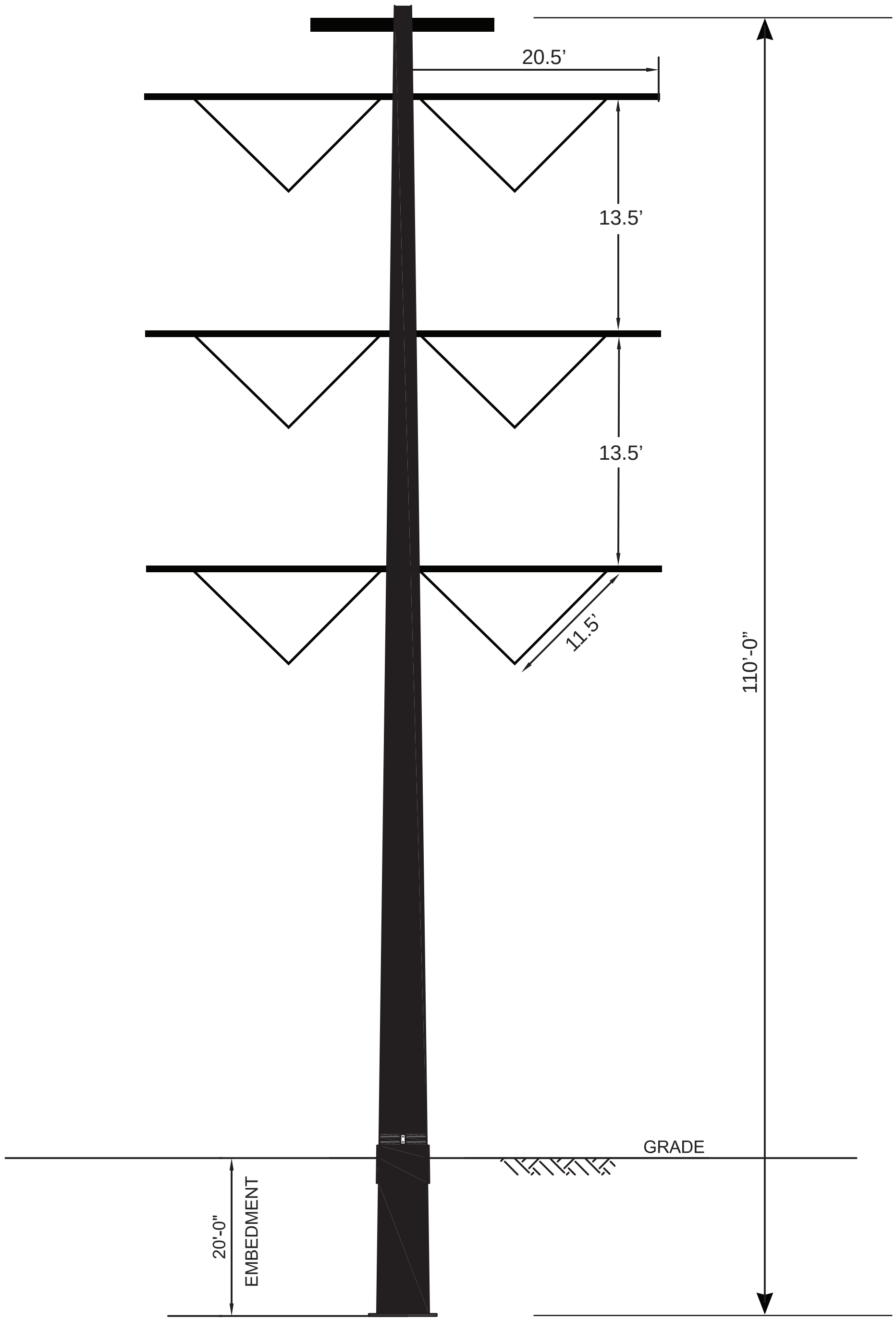


Figure 2-9

Witten Substation and Witten Substation Expansion



Big Bend to Witten 230-kV Transmission Project

Figure 2-10

Typical Double-circuit Single-pole Structure

3.0 Affected Environment and Environmental Consequences

This chapter describes the environment that would be affected by the development of the Project analyzed in this EA. The baseline information summarized in this chapter was obtained from published and unpublished materials; interviews with local, state, tribal, and federal agencies; and from field studies conducted in the study area. The affected environment for individual resources was delineated based on the area of potential direct and indirect environmental impacts for the Project. For resources such as soils and vegetation, the affected area was determined to be the physical location and immediate vicinity of the areas that may be impacted by the Project. For other topics such as water quality, air quality, wildlife and fishery resources, and socioeconomics, the affected environment was more extensive (e.g., airshed, local communities, etc.).

This chapter also describes the anticipated direct and indirect environmental impacts of the Proposed Action and the alternatives, including the No Action Alternative. The analysis of potential impacts assumed the implementation of the environmental protection measures developed for the Project (see **Appendix D**, Environmental Protection Measures). Mitigation measures developed in response to anticipated impacts are recommended for individual resources, and are discussed at the end of each resource section.

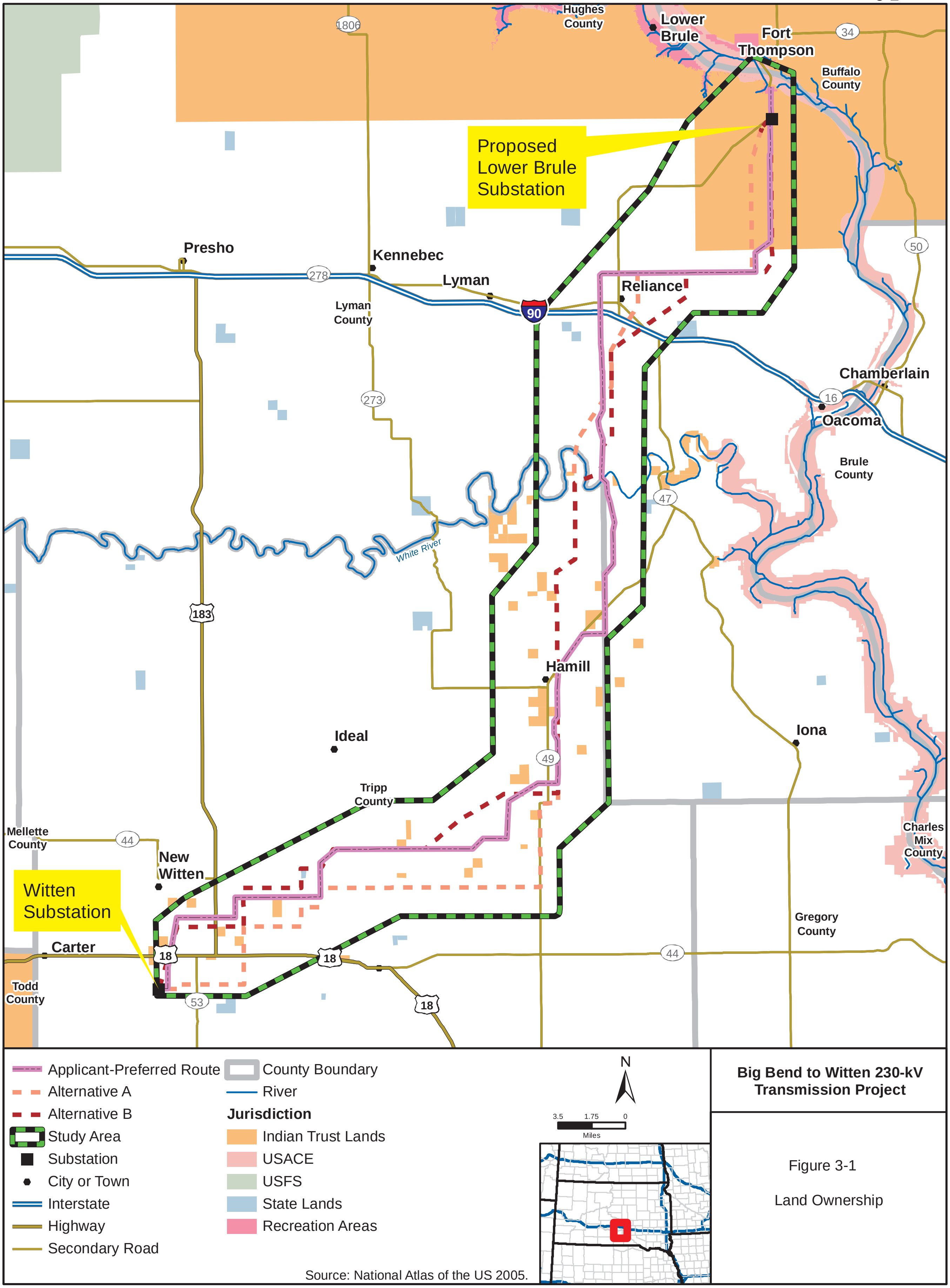
3.1 Jurisdictions, Land Use, and Agricultural Practices

3.1.1 Affected Environment

As detailed in **Table 3-1** and illustrated in **Figure 3-1**, the majority of the land within the study area is private land, comprising 88 percent. The Lower Brule Sioux Indian Reservation comprises 11 percent of the study area. The remainder of the study area, approximately 1 percent, is owned by the USACE and the State of South Dakota.

Table 3-1 Jurisdictions Within the Study Area

Ownership	Acreage Within the Study Area	Percent of Study Area
Private	220,086	88
BIA/LBST	27,989	11
USACE	1,708	<1
State of South Dakota	567	<1
Total	250,350	100



Big Bend to Witten 230-kV Transmission Project

Figure 3-1

Land Ownership

Table 3-5 in Section 3.3, Vegetation and Noxious Weeds, lists the various vegetation cover types within the study area, which correspond to several land use types. Based on the vegetation cover types, the primary land use within the study area is farmland, comprising approximately 59 percent of the study area. The most common crops produced are barley, wheat, oats, and corn. Hayland also is used for livestock grazing or production of seed and hay. Ranching is the second most common land use with the study area. Rangelands comprise approximately 40 percent of the study area and consist of grassland, badland, and shrubland. Less than 1 percent of the study area is developed. These areas include the cities of Hamill and Reliance, as well as utility lines and associated facilities, roads, and highways. Recreational activities also are another land use within the study area, comprising less than 1 percent of the study area.

3.1.2 Environmental Consequences

3.1.2.1 Proposed Action

Construction of the proposed transmission line would result in temporary impacts to lands during and immediately following construction. Tangent structures and angle structures would be single-pole self-supporting and would not require guy wires. Although self-supporting angle structures would require reinforced concrete and steel foundations, no additional lands for guy wires would be needed. Since guy wires are not needed, cultivation and ranching can occur adjacent to the base of each structure. Therefore, the amount of land that would be taken out of farmland production would be limited to the footprint of each structure base, resulting in a negligible to minor long-term impact on farmland use.

Temporary and permanent impacts according to land ownership have been tabulated (**Table 3-2**) using disturbance acreages presented in **Table 2-3**. As shown in **Table 3-2**, construction of the Proposed Action would result in temporary impacts to 356 acres from structure pads, access roads, pulling and tensioning sites for conductor stringing, conductor splicing sites, and other Project activities.

Table 3-2 Temporary and Permanent Disturbance by Jurisdiction

Ownership	Proposed Action		Alternative Route A		Alternative Route B	
	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Private	218	7.1	210.9	7.1	208.2	7.1
BIA/LBST	132.2	7.1	132.2	7.1	132.2	7.1
USACE	5.5	<1	5.5	<1	5.5	<1
State of South Dakota	0	0	0	0	1.9	0
Total	**355.7**	**14.2**	**348.6**	**14.2**	**347.8**	**14.2**

The majority (218 acres) of the temporary disturbance would occur on private land. Permanent disturbance would primarily occur on 7.1 acres of private land and 7.1 acres of Indian trust land with construction and operation of the Witten Substation and Lower Brule Switchyard, respectively.

Approximately 246 acres of cropland and pasture and 98 acres of herbaceous rangeland would be temporarily disturbed during construction. Basin Electric would consult directly with affected landowners to minimize disruption to agricultural activities. Impacts to cropland would be limited to soil compaction, which would be minimized by the land being returned to cultivation use after construction. Construction within rangeland also could result in soil compaction, which is expected to recover over time.

Permanent impacts would occur with the construction and operation of the Lower Brule Switchyard and Witten Substation expansion, access roads, and transmission line structures. Land within these areas would be permanently removed from production. Overall temporary and permanent impacts to land use would be minimized by Basin Electric's decision to use single-pole, self-supporting structures, rather than steel lattice, guyed, or H-frame structures and implementation of environmental protection measures.

3.1.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to jurisdictions, land use, and agricultural practices would be similar to those described under the Proposed Action. Approximately 7 fewer acres of land would be temporarily disturbed by this alternative. Approximately 242 acres of cropland and pasture and 101 acres of herbaceous rangeland would be temporarily disturbed during construction. **Table 3-2** summarizes estimated acreage of temporary and permanent Project-related disturbance for Alternative Route A.

3.1.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to land use would be similar to those described under the Proposed Action. Approximately 8 fewer acres of land would be temporarily disturbed by this alternative. Approximately 204 acres of cropland and pasture and 121 acres of herbaceous rangeland would be temporarily disturbed during construction. **Table 3-2** summarizes estimated acreage of temporary and permanent Project-related disturbance by Project activity for Alternative Route B.

3.1.2.4 No Action Alternative

Under the No Action Alternative, there would be no changes in land use within the study area.

3.2 Geology, Minerals, Paleontological Resources, and Soils

3.2.1 Affected Environment

3.2.1.1 Geology

Physiography and Geology

The Project is located in the Unglaciated Missouri Plateau section of the Great Plains physiographic province (Fenneman 1928). The study area crosses two physiographic sub-sections of the Unglaciated Missouri Plateau. A short portion of the north end of the study area is located in the Missouri Trench, the deeply incised valley of the Missouri River (Hogan and Fouberg 1998). Elevation of Missouri Trench ranges about 1,400 feet above mean sea level (amsl) at the Missouri River to about 1,700 feet amsl at the edge of the trench. Most of the study area is in the Pierre Hills section, which is located in the center of South Dakota and west of the Missouri River. The Pierre Hills is characterized by rounded hills and buttes, and elevations within the study area range from under 1,500 amsl to over 2,200 feet amsl.

The bedrock in the study area is the Upper Cretaceous Pierre Shale, which is composed of dark gray marine organic to calcareous shale. The Pierre Shale may be several hundred feet thick in the study area and contains layers of sandstone and conglomerate, but also persistent bentonite beds (Martin et al. 2004). Surficial deposits consist of recent alluvium, older terrace deposits, and eolian (i.e., wind-blown) deposits. No faults have been documented in the study area, but a north-south trending anticlinal fold is present in eastern Lyman County. Many faults in the Pierre Shale in west-central South Dakota are too small to present on smaller map scales, but have been described during detailed field studies (Crandell 1958).

Geological Hazards

Landslides

The Pierre Shale is susceptible to landslides in the form of slumps or flows or combinations of slumps and flows (Crandell 1958). The study area is located in an area of high susceptibility to landslides, with generally low incidence, where incidence is defined as less than 1.5 percent of the area involved in landslides (National Atlas 2011; Radbruch-Hall et al. 1982). High landslide incidence is defined as greater than 15 percent of the area involved. An area of high incidence in the study area occurs on the slopes of the Missouri Trench and where the White River joins the Missouri River, which would need to be considered during final engineering and locating transmission poles. Incidence of landslides appears to be related to periods of anomalously high precipitation and occur more frequently when moisture causes movement along the planes of small faults or fractures in the shale (Crandell 1958).

Seismicity

Central South Dakota does not experience very many earthquakes and the ones that have been recorded are of relatively low magnitude. Within a 60-mile radius of a circle centered near Hamill, South Dakota, there have been nine earthquakes greater than 2.0 magnitude from 1973 to October 2011 (National Earthquake Information Center 2011). The strongest quake was measured at a 4.6 magnitude and was about 10 miles north of Fort Thompson. Expected ground motions from a strong earthquake event are expected to be low (Petersen et al. 2008). No active or Quaternary faults have been identified in South Dakota (U.S. Geological Survey [USGS] 2006).

Subsidence

There are no potential karst areas in the study area (Weary et al. 2008).

3.2.1.2 Minerals

The only potential commercial mineral resources in the study area are sand and gravel (South Dakota Geological Survey and USGS 2008). The most likely sources of gravel may be terrace deposits along the valley of the White River (Caddes 1947). Manganese has been found in nodules and beds in the Pierre Shale and although occasional concentrations are high, no commercial production has occurred (Cox and Beach 1980; Gries 1942). There are no other potential mineral resources in the study area (Hogan and Fouberg 1998).

3.2.1.3 Paleontological Resources

As indicated in Section 3.2.1.2, the study area is almost entirely underlain by the Pierre Shale. The members of the Pierre shale in the area may contain fossils, commonly fish scales, and other fish parts and invertebrates (Curtiss and Wadell 1951; Petsch 1952; Petsch and Curtiss 1950). Some zones in the Pierre Shale contain ammonite fossils commonly found in concretions (Gries 1942). High value reptilian fossils are occasionally found in the Pierre Shale and include turtles and marine lizards (Parris et al. 2007).

Many important fossil localities in the Pierre Shale are found along the wall of the Missouri Trench where Pierre outcrops and fossils have a greater chance of discovery. The discovery of important fossils is less probable in the vegetated and topsoil-covered area within the study area.

3.2.1.4 Soils

Information regarding soil characteristics was obtained from NRCS literature or databases, including the Land Resource Regions and Major Land Resource Areas (MLRAs) of the U.S., the Caribbean, and the Pacific Basin, USDA Handbook 296 (USDA-NRCS 2006) and the Soil Survey Geographic Database (SSURGO). SSURGO is the most detailed level of soil mapping completed by the USDA-NRCS. The

SSURGO databases for Lyman and Tripp counties, South Dakota (NRCS 2011) are the source for the soils data in this section. **Table 3-3** provides a summary of the soil characteristics within the study area generated from the SSURGO data. The various soil map units within the study area were combined into generalized groups of soils to evaluate potential impacts and to determine effective erosion control measures, reclamation, and revegetation potential in the area.

Table 3-3 Soil Characteristics within the Study Area

Soil Characteristics	Acres Within Study Area
Droughty	2,323
Prime Farmland	77,385
Farmland of Statewide Importance	60,623
Hydric	222,960
Wind Erodible	661
Water Erodible	62,476
Shallow Depth to Bedrock	293
Compaction Prone	237,830
Low Revegetation Potential	3,747

Note: Acreages are not additive as areas with soil characteristics noted in the table may overlap.

Regional Overview

The study area is located within MLRA 63B, Southern Rolling Pierre Shale Plain Major of soil resources (USDA-NRCS 2006). This MLRA is an area of old plateaus and terraces that have been deeply eroded. It is nearly level to rolling and has long, smooth slopes and a well-defined dendritic drainage system. Rivers and creek valleys have smooth floors and steep walls. Some of the higher areas have deposits of glacial drift. The topography is typified by nearly level and broad intervalley remnants of smooth fluvial plains. Elevation ranges from 1,310 to 1,640 feet amsl on the bottom land along the Missouri River and from 1,310 to 1,970 feet amsl on the shale plain uplands. Cretaceous Pierre Shale underlies most of this area. This is a marine sediment having layers of volcanic ash that have been altered to smectitic clays. These clays shrink as they dry and swell as they become wet, causing significant problems for road and structural foundations. These soils also are prone to slumping and larger landslides when situated on sloping areas. The dominant soil orders in this MLRA are Entisols, Inceptisols, Mollisols, and Vertisols. Mollisols are fertile soils with high organic matter and a nutrient-enriched, thick surface. In contrast, Entisols are considered recent soils that lack soil development because erosion or deposition rates occur faster than the rate of soil development. Inceptisols are weakly developed soils that formed in humid and subhumid regions. Inceptisols have altered horizons that have lost bases or iron and aluminum but retain some weatherable minerals. Vertisols have a high content of expansive clay known as montmorillonite that forms deep cracks in drier seasons or years. Vertisols shrink when drying and swell when they become wetter. The soils are shallow to very deep, generally well drained, and loamy or clayey.

Study Area Soil Characteristics

Soil characteristics such as susceptibility to erosion and the potential for revegetation are important to consider when planning for construction activities and stabilization of disturbed areas. These hazards or limitations for use are a function of many physical and chemical characteristics of each soil, in combination with the climate and vegetation. **Table 3-3** summarizes important soil characteristics to be considered when evaluating the effects of surface-disturbing activities, with explanations of the meanings of each column described in this section.

Water erosion is the detachment and movement of soil by water. Natural erosion rates depend on inherent soil properties, slope, soil cover, and climate. Approximately 25 percent of the soils within the study area are highly erodible to water. Water erodible soils are illustrated in **Figure 3-2**. Wind erosion is the physical wearing of the earth's surface by wind. Wind erosion removes and redistributes soil. Small blowout areas may be associated with adjacent areas of deposition at the base of plants or behind obstacles, such as rocks, shrubs, fence rows, and roadbanks (Soil Quality Institute 2001). Wind erodible soils comprise less than 1 percent of the soils within the study area. Highly erodible soils typically require aggressive erosion control measures to minimize soil loss and offsite deposition if they are disturbed.

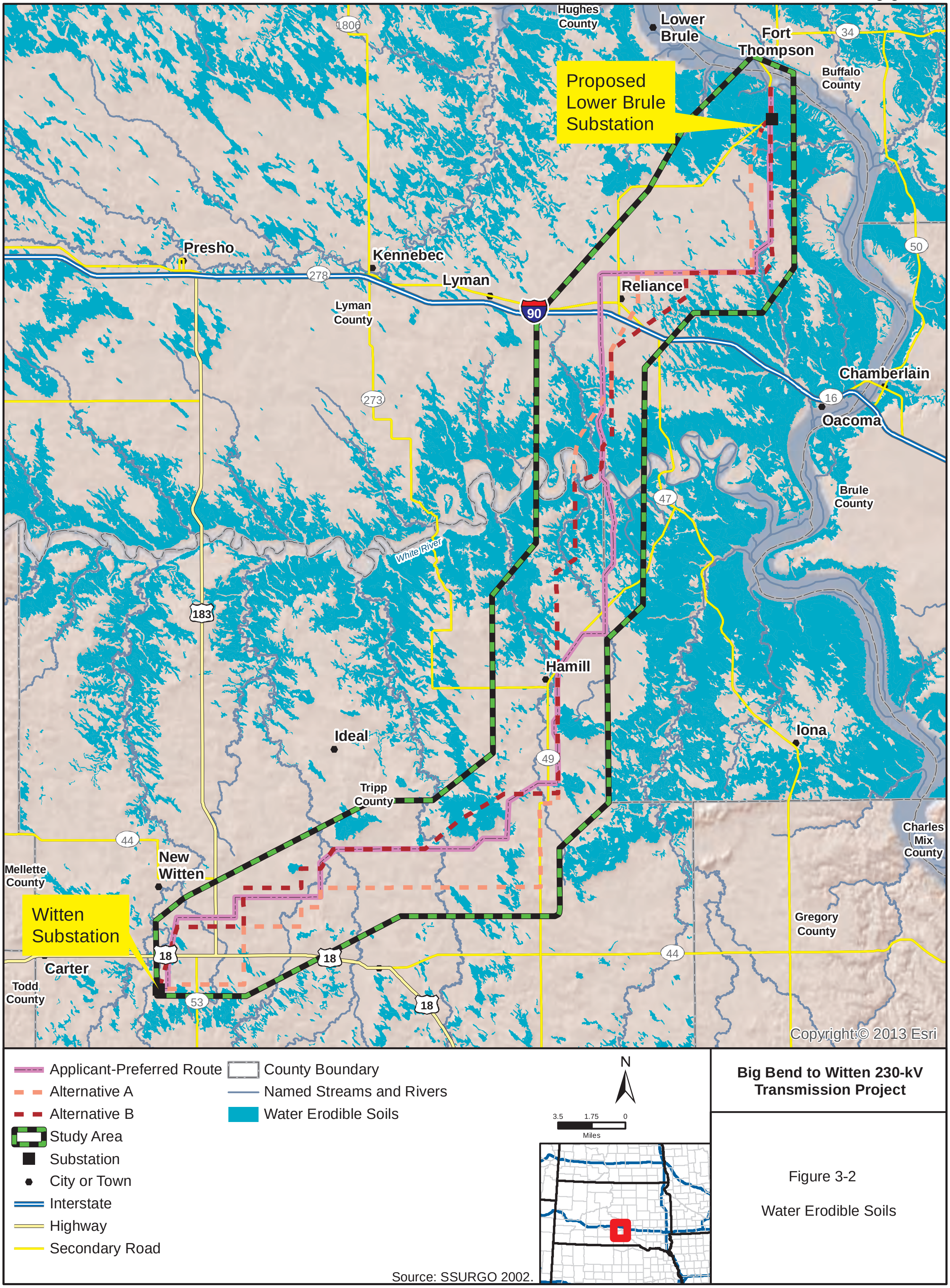
Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops and is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. These soils have the capability to be prime farmland, even if they have not yet been developed for agricultural uses. Farmland of statewide importance is land other than prime farmland which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use (USDA 1993). The Farmland Protection Policy Act (FPPA) states that federal programs that contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses will be minimized and shall be administered in a manner that, as practicable, are compatible with state and local government and private programs and policies to protect farmland. Approximately 31 percent of soils within the study area are prime farmland and 24 percent are farmland of statewide importance. The occurrence of prime farmland and farmland of statewide importance are illustrated in **Figure 3-3**.

Soil compaction occurs when soil particles are pressed together and the pore spaces between them are reduced and bulk density is increased. Moist fine textured soils are most susceptible to severe compaction. Compaction prone soils are often high in clay which can be a limiting factor to vegetation growth. Approximately 95 percent of the soils within the study area are compaction prone. The occurrence of compaction prone soils is illustrated in **Figure 3-4**.

Soils that are droughty have physical characteristics that may limit plant growth due to low water holding capacity. In addition, the success of stabilization and restoration efforts in these areas may be limited unless additional treatments and practices are employed to offset the adverse physical characteristics of the soils. Approximately 1 percent of the soils within the study area are considered droughty.

Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils are commonly associated with floodplains, lake plains, basin plains, riparian areas, wetlands, springs, and seeps. Approximately 89 percent of the soils within the study area have at least one component of the map unit that is hydric. Smaller areas of hydric soils may exist but may not be captured due to the scale of mapping. Alteration of hydric soils should be avoided.

Soils with a shallow depth to bedrock include soils that have lithic (hard) bedrock less than 60 inches from the soil surface. This can be an important consideration for excavating holes for transmission line poles. Less than 1 percent of the soils within the study area have a shallow depth to bedrock.



Big Bend to Witten 230-kV Transmission Project

Figure 3-2

Water Erodible Soils

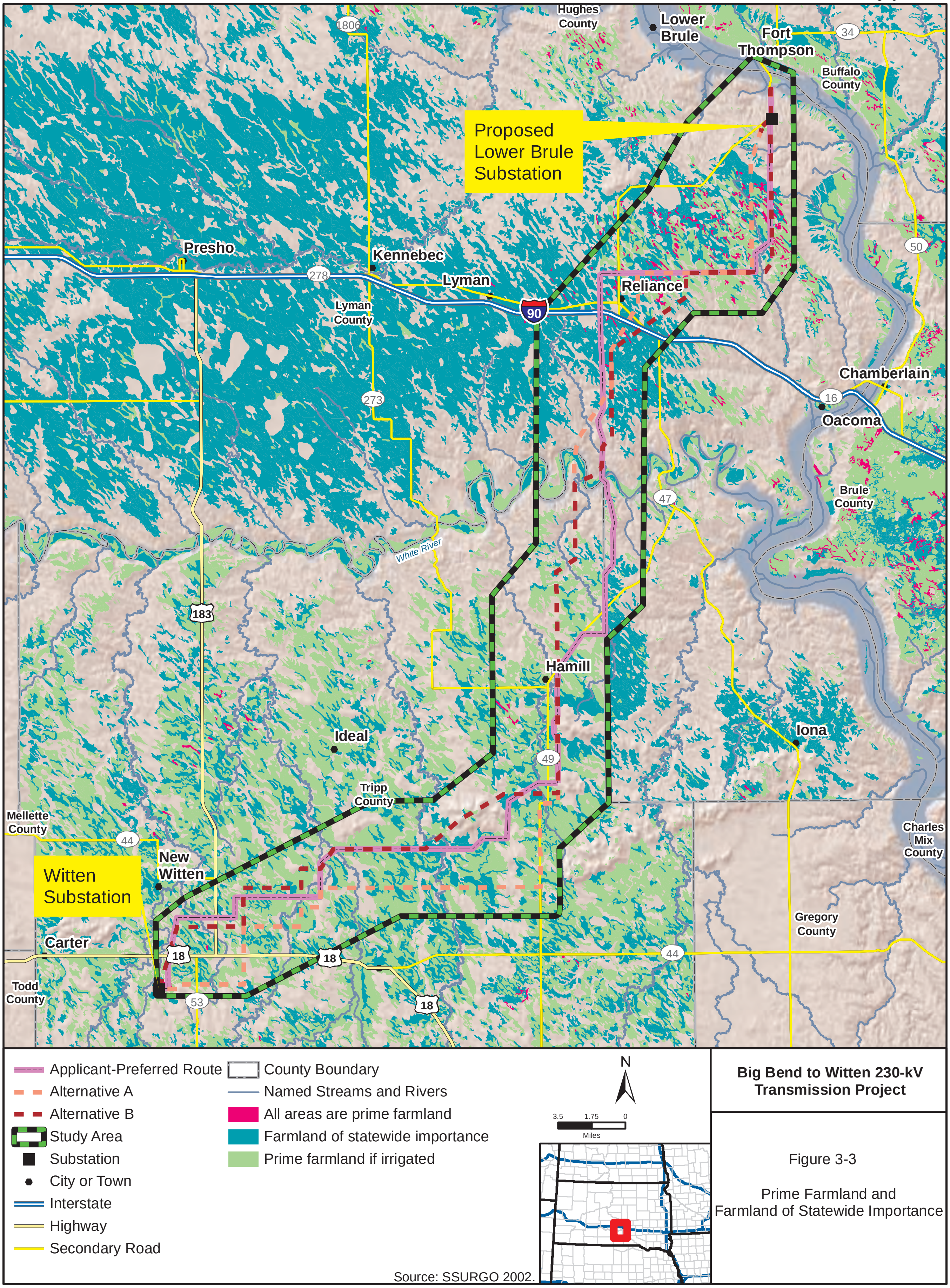
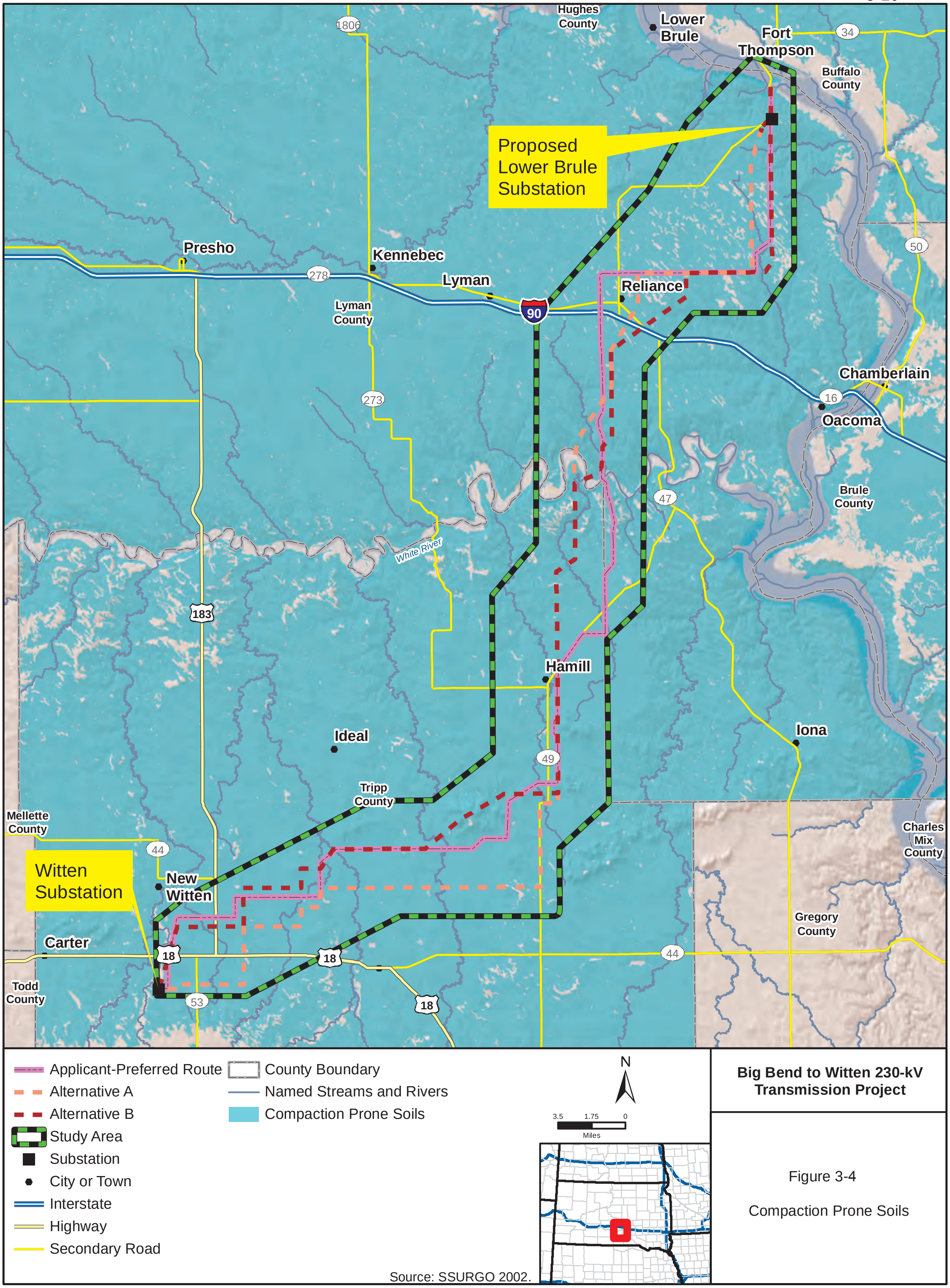


Figure 3-3

Prime Farmland and Farmland of Statewide Importance



Big Bend to Witten 230-kV Transmission Project

Figure 3-4

Compaction Prone Soils

Soils with low revegetation potential have chemical characteristics such as high salts, sodium, or pH that may limit plant growth. Saline soils affect plant uptake of water and sodic soils often have drainage limitations. In addition, the success of stabilization and restoration efforts in these areas may be limited unless additional treatments and practices are employed to offset the adverse physical and chemical characteristics of the soils. Approximately 2 percent of the soils within the study area have low revegetation potentials. Soils derived from the Pierre Shale generally have low revegetation potentials due to the high salts and calcareous nature of the parent materials from which they are derived.

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

Geology

The major issues for geology involve potential impacts to unique geological resources and potential impacts of geological hazards to the Project. The Project has been designed to avoid unique geological resources. Geological hazards related to seismicity and/or sinking and settling are not expected to adversely impact the Project. There are potential landslide and slope instability concerns with regard to the Pierre Shale. These risks would be higher in areas of steep slopes during periods of anomalously high precipitation. Potential areas of concern were identified in Section 3.2.1.1 as areas along the slopes of the Missouri Trench and where the White River joins the Missouri River. The environmental protection measures, as listed in **Appendix D**, would minimize hazards of construction in these areas.

Minerals

A major concern that linear projects present for mineral resources development is access to the mineral resource sites. Because of the lack of documentable mineral resources in the study area, the Project is not expected to prevent access to mineral resource sites or preclude development of those resources.

Paleontological Resources

Potential impacts to paleontological resources would involve the loss and destruction of scientifically valuable fossil resources. In the study area, areas of concern for paleontological resources are bedrock exposures of Pierre Shale along the Missouri Trench and the White River. Fossil recovery and protection would not occur on private lands unless through prior agreement with landowners. Due to the minimal amount of subsurface disturbance associated with the Project, effects to paleontological resources are likely to be negligible or minor.

Soils

Potential impacts to soil resources and potential impacts to the Project were evaluated based on soil types, their extent within the Project area, and their physical and chemical characteristics in relation to the Project activities. **Table 3-3** presents the soil characteristics in the study area and their relative extent. This information was based on SSURGO database reviews and analyses (NRCS 2011). **Table 3-4** lists the estimated temporary disturbance acreages according to soil characteristics.

In general, the impacts associated with construction of the transmission line would be temporary. Temporary disturbances would occur within the ROW due to construction traffic along the ROW, laydown areas, pulling and tensioning sites, and splicing sites. These temporary activities would affect approximately 356 acres of soils within the designated ROW, some of which may have been previously disturbed by agricultural activities. Based on structure spacing at a nominal 800 feet, construction of the transmission line would result in small areas of localized permanent disturbance associated with approximately 501 single pole structures with a diameter of 5-6 feet. Localized permanent impacts to soils would result from loss of surface lands due to installation of structures.

Table 3-4 Soil Characteristics and Estimated Temporary Disturbance

Soil Characteristics	Proposed Action (acres)	Alternative Route A (acres)	Alternative Route B (acres)
Compaction Prone[1]	336.0	333.5	316.9
Prime Farmland[2]	124.3	134.6	109.7
Farmland of Statewide Importance	84.4	68.4	69.4
Hydric[3]	319.1	309.5	293.1
Low Revegetation Potential	3.7	6.3	3.9
Wind Erodible	0.1	0.2	0
Water Erodible	75.9	86.7	95.2
Corrosion to Concrete[4]	13.9	18.1	25.6
Corrosion to Steel[4]	340.4	340.2	323.2

[1] Includes soils with greater than 28 percent clay in the top 20 inches.

[2] Includes areas of prime farmland if irrigated.

[3] Soils characterized as partially hydric (at least one component of the map unit is hydric). Hydric soils are a small percentage of the total area.

[4] Soils characterized as having a high hazard of corrosion to concrete or steel.

Note: Acreages are not additive as areas with soil characteristics noted in the table may overlap.

Source: NRCS 2011.

A 5-foot-diameter augering for a single-pole, tangent structure to an average depth of 20 feet would displace approximately 15 yd^3 of soil. Installation of angle structures (those that alter the direction of the line) would require a 6-foot-diameter, 20-foot-deep borehole for foundation construction. Soil displacement for each angle structure would total approximately 21 yd^3. Excess soils would be either left on-site or disposed of off-site at an approved landfill, depending on the landowner's wishes. The area would be graded, if required, to ensure safe movement and operation of heavy equipment. Pulling and tensioning areas would temporarily disturb approximately 17 to 22 acres of soil acres within the designated ROW, some of which may have been previously disturbed by agricultural activities.

Disturbance by construction practices resulting in the loss of the protective vegetative soil cover could result in accelerated wind and water erosion. Compaction would occur where construction vehicles travel along the ROW. This would reduce infiltration and increase runoff, which would increase erosion by water. The Proposed Action would temporarily affect approximately 76 acres of water erosion prone soils. Although few soils are prone to wind erosion along the proposed transmission line, wind erosion may result on all soils due to disturbance along the ROW when high winds are present. Wind erosion also may result when soils are excavated or leveled and loose on the surface. Project environmental protection measures and best management practices would be applied to reduce water erosion and sedimentation to nearby waterways.

Carbonates, salts, and sodium often accumulate in the lower subsoils. The mixing of soil horizons by rutting or spreading subsoil on the soil surface would lower soil productivity of agricultural and rangeland by diluting the physical, biological, and chemical properties of the nutrient rich topsoil. In addition, contamination of surface soils with subsoils that have chemical constraints would limit the revegetation potential of disturbed sites. This is especially a concern in areas of prime farmland. Soil productivity also would be negatively altered if woody materials are chipped and left on-site at depths deeper than

3 inches. Approximately 124 acres along the proposed ROW are considered prime farmland and 84 acres are considered farmland of statewide importance that could be temporarily disturbed. Direct impacts to prime farmland would result where Project footprints (structures, facilities) result in the permanent removal of soil resources. Surplus soil would be spread around the base of the structure or hauled to an off-site location (i.e., area landfills) for disposal, in accordance with landowner wishes.

Soil compaction and rutting result from the movement of construction vehicles along the construction ROW, on access roads, and from overland access. The degree of compaction would depend on the moisture content and texture of the soil at the time of construction. Approximately 336 acres of compaction prone soils occur along the proposed route that could be temporarily disturbed. Compaction would be most severe where there is repeated traffic and where heavy equipment operates on moist to wet soils with high clay contents. In many cases, wet areas such as wetlands and streams can be spanned by the line to minimize impacts during construction.

Rutting affects the surface hydrology of a site as well as the rooting environment. The process of rutting physically severs roots and reduces the aeration and infiltration of the soil, thereby degrading the rooting environment. Rutting also disrupts natural surface water hydrology by diverting and concentrating water flows creating accelerated erosion. Rutting is most likely to occur on moist or wet fine-textured soils but also may occur on dry sandy soils due to low soil strength. If soils are moist or wet, topsoil also may adhere to tires and/or tracked vehicles and be carried away. Maintenance of the line would be scheduled during periods of minimum precipitation to minimize impacts such as rutting and compaction.

Corrosion potential pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. For uncoated steel, the risk of corrosion is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract. For concrete, the risk of corrosion is based on soil texture, acidity, and amount of sulfates in the saturation extract (NRCS 2011).

Approximately 14 acres of soils along the Proposed Action with a severe concrete corrosion hazard could be temporarily disturbed. In general, the risk of corrosion to concrete is relatively low. Approximately 340 acres of soils that have a severe steel corrosion hazard along the Proposed Action could be temporarily disturbed. The risk of corrosion to uncoated steel by soils along the Proposed Action is high. The effects of corrosion on steel transmission line structures would be offset by the use of protective coating.

Construction of the new substation/switchyard and access roads would result in the permanent disturbance of approximately 14 acres of soil resources at each location. Where substation/switchyard structures are located the soils would be taken out of production and the area around the substation/switchyard would be graveled. A permanent loss in soil productivity and quality would be expected in these locations. Construction-related impacts to soil resources would be the similar to what is described above for transmission lines.

3.2.2.2 Alternative Route A

Geology, Minerals, and Paleontological Resources

Under Alternative Route A, direct impacts to geological, mineral, and paleontological resources would be similar to those described under the Proposed Action.

Soils

Under Alternative Route A, direct impacts to soil resources would be similar to those described under the Proposed Action. Approximately 7 fewer acres of soils would be temporarily disturbed by this alternative. Compared to the Proposed Action, Alternative Route A would temporarily disturb fewer acres of compaction prone soils (3 acres less), farmland of statewide importance (16 acres less), hydric soils (10 acres less), and soils with corrosion to steel (0.2 acre less). Compared to the Proposed Action, Alternative Route A would temporarily disturb more acres of prime farmland (10 acres more), soils with low revegetation potential (3 acres more), water erodible soils (11 acres more), and soils with corrosion to concrete (4 acres more). **Table 3-4** presents the soil characteristics in the analysis area ROW for Alternative Route A.

3.2.2.3 Alternative Route B

Geology, Minerals, and Paleontological Resources

Under Alternative Route B, direct impacts to geological, mineral, and paleontological resources would be similar to those described under the Proposed Action.

Soils

Under Alternative Route B, direct and indirect impacts to soil resources would be to those described under the Proposed Action. Approximately 8 fewer acres of soils would be temporarily disturbed by this alternative. Compared to the Proposed Action, Alternative Route B would temporarily disturb fewer acres of compaction prone soils (19 acres less), prime farmland (15 acres less), farmland of statewide importance (15 acres less), hydric soils (26 acres less), and soils with corrosion to steel (17 acres less). Compared to the Proposed Action, Alternative Route B would temporarily disturb more acres of soils with low revegetation potential (0.2 acre more), water erodible soils (19 acres more), and soils with corrosion to concrete (12 acres more). **Table 3-4** presents the soil characteristics in the analysis area ROW for Alternative Route B.

3.2.2.4 No Action Alternative

Geology, Minerals, and Paleontological Resources

Under the No Action Alternative, the Project would not occur and there would be no impacts from geological hazards or to mineral resources. Potential loss of paleontological resources would continue to occur as the result of natural erosion processes or the unauthorized collection of fossils.

Soils

Under the No Action Alternative, the Project would not be constructed and the associated impacts to soils would not occur. Under this alternative, there would be no temporary or permanent impacts to soils for the transmission lines. Soil resources that are highly erodible, compaction prone, or with substantial natural drainage limitations would not be affected. Natural and anthropogenic actions such as erosion, agriculture, fire, recreation, and development would continue to impact soil resources.

3.3 Vegetation and Noxious Weeds

3.3.1 Affected Environment

3.3.1.1 Vegetation

The study area is located within the Northwestern Glaciated Plains and the Northwestern Great Plains ecoregions of south-central South Dakota. The landscape is characterized as a semi-arid rolling plain of shale, siltstone, and sandstone with isolated sandstone buttes, badland formations, and semi-permanent and seasonal wetlands, referred to as ‘prairie potholes’. Vegetation cover types and characterizations were compiled using the National Land Cover Gap Analysis Project (GAP) database (USGS 2010) and SDGFP Comprehensive Wildlife Conservation Strategy (SDGFP 2006). Seven vegetation cover types are considered to occur within the study area: agriculture, grassland, shrubland, woodland, wetland/waterbody, badlands, and developed lands. Distribution and composition of each vegetation cover type varies based on landscape position, soil type, climatic conditions, moisture, elevation, aspect, and grazing and land management practices. Descriptions of the plant communities within each vegetation cover type are provided in the following text. Species nomenclature is consistent with the NRCS Plants Database (USDA-NRCS 2011). **Table 3-5** summarizes the vegetation cover types within the study area. **Figure 3-5** illustrates the vegetation cover types within the study area.

Table 3-5 Vegetation Cover Types within the Study Area

Vegetation Cover Type	Acreage within Study Area	Percent of Study Area
Agriculture	146,593	59
Grassland	97,987	39
Badland	2,891	1
Wetland/Waterbody[1]	2,345	1
Woodland/Upland Forest	326	<1
Developed	152	<1
Shrubland	56	<1
Total	**250,350**	**100**

[1] Wetland acreages presented in **Tables 3-5** and **3-13** differ significantly based on the dataset used within each section. **Table 3-5** presents acreage using the GAP database (USGS 2010); **Table 3-13** presents wetland acreage using the NWI database (USFWS 2011). The spatial extent of wetland and WUS features in specific locations will be delineated prior to construction.

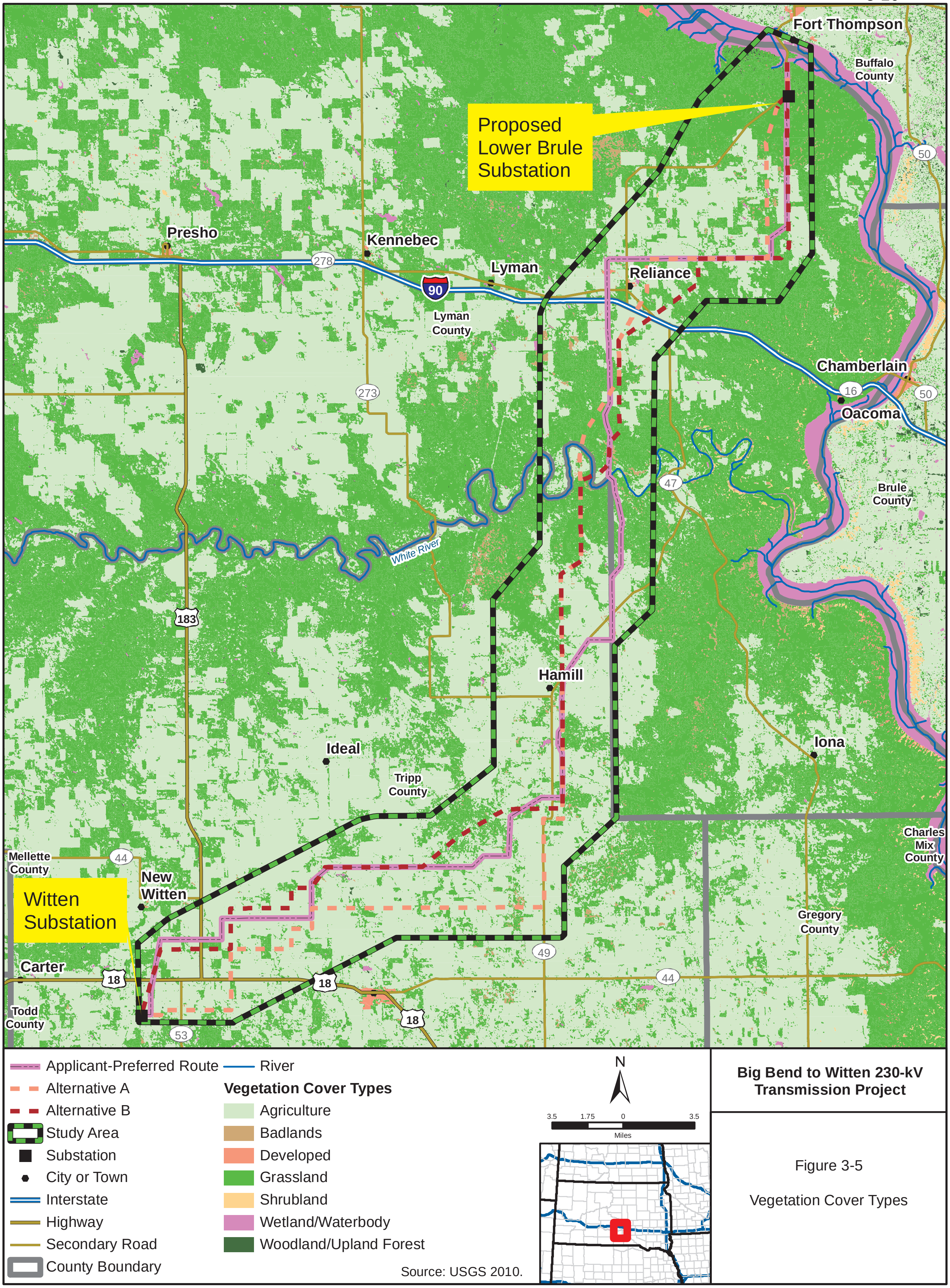
Source: USGS 2010.

Agriculture

Agriculture, the most prominent cover type within the study area (146,593 acres, 59 percent), is composed of cultivated cropland used primarily for the production of annual crops such as barley, wheat, oats, and corn. In addition, this vegetation cover type also consists of pasture and hayland including areas of grass, legumes, or grass-legume mixtures (i.e., planted herbaceous perennials) planted for livestock grazing or the production of seed or hay.

Grassland

Grassland, the second most prominent vegetation cover type within the study area (97,987 acres, 39 percent), is composed of tall-grass prairie (i.e., grassland community dominated by tall grasses 3 to 6 feet tall), mixed-grass prairie, and sandhills dune prairie. Sandhill dune prairie grasslands typically occupy wind-formed sand dunes of sand or gravel soils, dominated by sand-adapted species including sand bluestem (*Andropogon halli)*, hairy grama (*Bouteloua hirsuta*), prairie sandreed (*Calamovilfa longifolia*), and little bluestem (*Schizachyrium scoparium*). Mixed-grass prairie grasslands typically are composed of a mixture of tall, short, and intermediate grass species (approximately 1 to 2 feet tall) such as blue grama (*Bouteloua gracilis*), green needlegrass (*Nassella viridula*), thickspike wheatgrass (*Elymus lanceolatus*), and western wheatgrass (*Pascopyrum smithii*). Tall-grass prairie grasslands typically are dominated by tall grasses between 3 to 6 feet tall, such as big bluestem (*Andropogon gerardii*), little bluestem, and Indian grass (*Sorghastrum nutans*). Common forb species include pasque



Big Bend to Witten 230-kV Transmission Project

Figure 3-5

Vegetation Cover Types

flower (*Pulsatilla* spp.), western wallflower (*Erysimum asperum*), prairie smoke (*Geum triflorum*), Missouri milkvetch (*Astragalus missouriensis*), lead plant (*Amorpha canescens*), Indian breadroot (*Pediomelum* spp.), purple prairie clover (*Dalea purpurea*), gaura (*Gaura* spp.), harebell (*Asyneuma* spp.), fringed sage (*Artemesia frigida*), purple coneflower (*Echinacea* spp.), yarrow (*Achillea* spp.), and several species of goldenrods (*Solidago* spp.). Grassland vegetation is primarily used for livestock grazing.

<u>Badland</u>

The badland vegetation cover type, occupying approximately 2,891 acres (1 percent) of the study area, is characterized by steep, primarily south- and west-facing slopes with less than 20 percent vegetation cover on flats or eroded buttes formed from mudstone, claystone, siltstone, and scoria. Although sparsely vegetated, species associated with this vegetation cover type may include xeric shrub species such as spiny saltbush (*Atriplex* spp.) sagebrush (*Artemesia* spp.), rabbitbrush (*Chrysothamnus* spp.), and greasewood (*Sarcobatus* spp.). Sub-shrub and forb species may include prickly pear (*Opuntia* spp.), silver sage (*Artemesia cana*), prairie sandreed, yucca (*Yucca* spp.), winterfat (*Krascheninnikovia lanata*), butte primrose (*Oenothera caespitosa*), standing milkvetch (*Astragalus laxmannii*), and penstemon (*Penstemon* spp.).

<u>Wetland/Waterbody</u>

The wetland/waterbody cover type, occupying approximately 2,345 acres (1 percent) of the study area, includes a mosaic of palustrine emergent (PEM) wetlands, palustrine scrub-shrub (PSS), palustrine forested (PFO) wetlands, and open water systems. In PEM wetlands, fowl bluegrass (*Poa palustris)* and foxtail barley *(Hordeum jubatum)* dominate areas that typically contain water for several weeks after spring snowmelt. Shallow-marsh vegetation, such as spikerush (*Eleocharis palustris)* and wheat sedge *(Carex atherodes*), dominate areas where water typically persists for a few months each spring, and deep-marsh vegetation like cattails (*Typha latifolia*) and hardstem bulrush *(Scirpus acutus*) occupies areas where water persists throughout the year. PSS wetlands are dominated by woody vegetation less than 5 meters in height. The species present include shrubs, young trees, or trees that are stunted due to environmental conditions. Common PSS species may include greasewood, winterfat, fourwing saltbush (*Atriplex canescens*), and shadscale saltbush (*Atriplex confertifolia*). PFO wetlands are dominated by woody vegetation greater than or equal to 5 meters in height. Common PFO species include: boxelder (*Acer negundo*), eastern cottonwood (*Populus deltoides*), peachleaf willow (*Salix amygdaloides*), gray alder (*Alnus incana*), water birch (*Betula occidentalis*), redosier dogwood (*Cornus sericea*), chokecherry (*Prunus virginiana*), skunkbush sumac (*Rhus trilobata*), Drummond's willow (*Salix drummondiana*), narrowleaf willow (*Salix exigua*), shining willow (*Salix lucida*), silver buffaloberry (*Sheperdia argentea*), and snowberry species (*Symphoricarpos* spp.). Exotic species of tamarisk species (*Tamarix* spp.) and Russian olive (*Elaeagnus angustifolia*) are common within these stands.

<u>Woodland/Upland Forest</u>

The woodland/upland forest vegetation cover type, occupying approximately 326 acres (<1 percent) of the study area, is composed of natural or semi-natural woody vegetation, generally greater than 6 meters tall where tree canopy accounts for 25 to 100 percent of the cover. Most of the upland forests are found along streams and rivers, in rugged topography, or where rolling hills are dissected by drainages. Forest communities are either deciduous or mixed forest (forests composed of a deciduous and evergreen species). Common deciduous tree species include green ash (*Fraxinus pennsylvanica*), burr oak (*Quercus macrocarpa*), hickory (*Carya* spp.), and quaking aspen (*Populus tremuloides*); common evergreen species include juniper (*Juniperus* sp.) and pine (*Pinus* spp.).

<u>Developed</u>

The developed land cover type, occupying approximately 152 acres (<1 percent) of the study area, typically is characterized as high and low intensity residential development and urban development.

Shrubland

The shrubland vegetation cover type, occupying approximately 56 acres (<1 percent) of the study area, is composed of mesic, xeric, and creeping juniper dwarf shrubland communities. Common shrub species may include western snowberry (*Symphoricarpos occidentalis*), silver buffaloberry, chokecherry, serviceberry (*Amelanchier alnifolia*), and creeping juniper (*Juniperus horizontalis*). Evergreen shrublands dominated by silver sagebrush and Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) may be present in small, sparse stands throughout the study area. Common grassland species, such as those described above, may occupy the understory associated with this vegetation cover type.

3.3.1.2 Noxious Weeds

An increasing concern on both public and private lands is the introduction, spread, and proliferation of noxious weed species. Pursuant to the South Dakota Administrative Rules 12:62:02:01, a 'noxious weed' is defined as "a weed which the commission has designated as sufficiently detrimental to the state to warrant enforcement of control measures". The South Dakota Department of Agriculture (SDDA) currently declares seven plant species as state-designated noxious weeds. In addition to the South Dakota state-designated species, management is required for additional county-specific species within Lyman and Tripp counties. State and county-designated noxious weed species are presented in **Table 3-6**.

Table 3-6 Designated Noxious Weed Species within the Study Area

Common Name	Scientific Name	State of South Dakota Designated Species	County Designated Species (TR-Tripp; LY-Lyman)
Russian knapweed	*Acroptilon repens*	X	--
Hoary cress	*Cardaria draba*	X	--
Plumeless thistle	*Carduus acanthoides*	--	TR, LY
Musk thistle	*Carduus nutans*	--	TR, LY
Diffuse knapweed	*Centaurea diffusa*	--	TR
Spotted knapweed	*Centaurea stoebe*	--	TR
Canada thistle	*Cirsium arvense*	X	--
Bull thistle	*Cirsium vulgare*	--	TR
Field bindweed	*Convolvulus arvensis*	--	LY
Leafy spurge	*Euphorbia esula*	X	--
Purple loosestrife	*Lythrum salicaria*	X	--
Perennial sow thistle	*Sonchus arvensis*	X	--
Saltcedar	*Tamarix aphylla, T. chinensis, T. gallica, T. parviflora, T. ramosissima*	X	--
Common mullein	*Verbascum thapsus*	--	TR

Sources: SDDA 2009; USDA-NRCS 2011.

3.3.2 Environmental Consequences

The impact analysis area for vegetation and noxious weeds encompasses the Proposed Action and alternative routes. Construction impacts were calculated based on the inclusion of temporary use areas associated with single-pole structures and pad placement; access roads within the 125-foot-wide construction ROW; pulling and tensioning sites; splicing sites; laydown areas; and geotechnical boring sites. Operation impacts were calculated based on permanent disturbance associated with transmission structures, the Lower Brule Switchyard, Witten Substation expansion, and associated access roads. The primary issues associated with vegetation include direct and/or indirect impacts to native vegetation communities, riparian/wetland habitats, and impacts associated with the potential introduction and/or spread of noxious weed species.

3.3.2.1 Proposed Action

Table 3-7 summarizes estimated acreage of Project-related disturbance by vegetation cover type for the Proposed Action based on the temporary and permanent land requirements listed in **Table 2-3**.

Table 3-7 Summary of Temporary and Permanent Disturbance to Vegetation Cover Types

Vegetation Cover Type	Proposed Action		Alternative Route A		Alternative Route B	
	Temporary Impacts (acres)[1]	Permanent Impacts (acres)	Temporary Impacts (acres)[1]	Permanent Impacts (acres)	Temporary Impacts (acres)[1]	Permanent Impacts (acres)
Agriculture	204.3	7.1	210.7	7.1	194.2	7.1
Grassland	147.3	7.1	135.1	7.1	151.3	7.1
Badland	3.3	0.0	1.3	0.0	1.8	0.0
Wetland/Waterbody[2]	0.3	0.0	1.5	0.0	0.4	0.0
Woodland/Upland Forest	<0.1	0.0	0.0	0.0	0.0	0.0
Developed	0.4	0.0	0.0	0.0	0.0	0.0
Shrubland	0.0	0.0	0.0	0.0	0.1	0.0
Total	**355.7**	**14.2**	**348.6**	**14.2**	**347.8**	**14.2**

1 Acreage estimations calculated using a programmatic approach based on the estimated total impacts in relation to the total amount of each vegetation cover type within the 125-foot-wide ROW.

2 Although data indicates that approximately 0.3 to 1.5 acres of wetland and waterbodies would be temporarily impacted, all wetland and waterbodies would be either avoided or spanned.

Direct impacts from Project-related activities would include the temporary loss of vegetation as a result of trampling, clearing/blading of surface cover, and direct removal of aboveground and below ground vegetation as a result of construction implementation. Tree and brush removal within the ROW is anticipated to be minimal as the Project area largely consists of agriculture and grassland, and woodlands and shelterbelts were avoided to the maximum extent possible during the routing process. The ROW would only be cleared if trees and/or shrubs that are present would interfere with construction activities or the safe, reliable operation of the transmission line. Permanent impacts as a result of operation and maintenance activities would be limited to vegetation communities located within the permanent aboveground structure and ancillary footprints. The 125-foot-wide construction ROW would be allowed to re-establish to its previous herbaceous state; however, “danger trees” (trees that are 20 feet in height or taller, which upon falling, would come within 10 feet of the structure or conductors) would be trimmed, resulting in a long-term loss of "danger trees" within the woodland/upland forest vegetation cover type.

Indirect impacts resulting from implementation may include the potential establishment of noxious weed species in areas of vegetation removal or soil disturbance, in areas where reclamation is unsuccessful or prolonged, or in areas of higher soil erosion or lower vegetation cover. Noxious weed species can be introduced to the Project area via weed-contaminated vehicles, equipment, and erosion control devices (e.g., straw bales) and, if not controlled, can displace native plant species, rendering infested areas unproductive. In addition, increased fugitive dust emissions associated with vehicle and equipment travel along access roads for construction, operation, and maintenance activities may result in a potential decrease in species and habitat productivity.

To minimize environmental impacts and ensure site stabilization and revegetation, Basin Electric would follow the construction procedures detailed within Chapter 2.0, Alternatives Analysis. Included therein, construction within agricultural fields would be avoided during extremely wet conditions to avoid excessive rutting and compaction. In addition, Basin Electric has committed to avoiding wetlands, waterbodies, and other sensitive features via route around or spanning. Upon completion of construction, all temporary disturbed areas would be reseeded using native vegetation in compliance with the environmental protection measures (**Appendix D**). Timely stabilization of areas disturbed by construction and reseeding with an appropriate seed mixture would minimize the magnitude and duration of vegetation disturbance. Given the site-specific soil and moisture conditions, and extent of disturbance, it is anticipated that herbaceous-dominated communities would be successfully revegetated within 5 to 10 years; however, badland communities may take significantly longer to stabilize and revegetate. Shrub-dominated communities could take as long as 20 to 30 years to return to a pre-disturbance composition. Basin Electric would only remove "danger trees" that may interfere with safe operation of the proposed transmission line. Clearing of woodland areas is not anticipated.

Substantial increases in weed prevalence are not anticipated; however, despite efforts to prevent the proliferation of noxious weed species, it is possible that construction, operation, and maintenance activities would result in the spread or introduction of noxious weed species along the ROW or that weed species would be transported into areas that were relatively weed-free. Implementation of the environmental protection measures would minimize the potential introduction and spread of noxious weed species.

3.3.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to vegetation, and impact minimization measures would be similar to those described under the Proposed Action. Approximately 7 fewer acres of vegetation would be temporarily disturbed by this alternative. **Table 3-7** summarizes estimated acreage of Project-related disturbance by vegetation cover type for Alternative Route A based on the Project specifications listed in **Table 2-3**.

3.3.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to vegetation resources, and impact minimization measures would be similar to those described under the Proposed Action. Approximately 8 fewer acres of vegetation would be temporarily disturbed by this alternative. **Table 3-7** summarizes estimated acreage of Project-related disturbance by vegetation cover type for Alternative Route B based on the Project specifications listed in **Table 2-3**.

3.3.2.4 No Action Alternative

Under the No Action Alternative, the Project would not be developed; therefore, impacts to vegetation would not occur as a result of this Project.

3.4 Fish and Wildlife Resources

3.4.1 Affected Environment

As discussed in Section 3.3, Vegetation and Noxious Weeds, the dominant habitat types in the study area include agricultural (59 percent) and grassland (39 percent). Other limited habitat types that occur in the study area include badland, wetland/waterbody, woodland/upland forest and shrubland. Developed or heavily disturbed lands are not considered typical wildlife habitat and are not included in this analysis. The study area is characterized as a semi-arid rolling plain with isolated sandstone buttes, badland formations, and semi-permanent and seasonal wetlands, referred to as “prairie potholes.” Baseline descriptions of both resident and migratory wildlife include species that have either been documented within, or that could occur in the study area based on habitat associations. Wildlife species that could occur along the majority of the study area are typical of the grassland, agricultural land, badland, and wetland/waterbody communities of south-central South Dakota.

The Project would cross a number of named streams and rivers, as well as smaller tributaries and intermittent streams. In Lyman County, the Project would cross Short, North Fork American Crow, and Red Butte creeks, and their tributaries. In Tripp County, the Project would cross Black Dog, No Moccasin, Thunder, Dog Ear, Hollow, and East Cottonwood creeks, and a number of smaller tributaries. The White River forms the border between Lyman and Tripp counties and also would be crossed by the Project. Aquatic species inhabit surface waters including wetlands, perennial and intermittent drainages, and ponds and marshes. Aquatic habitat occurs in the study area.

3.4.1.1 Big Game Species

Big game species that occur in the study area include white-tailed deer, mule deer, and pronghorn. No important seasonal ranges have been identified within the study area (SDGFP 2011a).

<u>White-tailed Deer</u>

White-tailed deer are abundant throughout the state, inhabiting woodlands, riparian areas, and agricultural lands (SDGFP 2011a). White-tailed deer feed on cultivated crops, such as corn and wheat, native forbs and grasses, as well as mushrooms, fruits, and nuts. During winter, white-tailed deer congregate in woodland habitat. The 2010 population estimate for white-tailed deer in all areas of South Dakota except the Black Hills is 140,000 animals. This number has been slowly declining since 2004 (SDGFP 2011a).

<u>Mule Deer</u>

Mule deer occur throughout the west and central regions of the state, inhabiting virtually all habitat types (SDGFP 2011a). Mule deer feed on a wide variety of plants including forbs, grasses, sedges, shrubs, and trees. During winter, mule deer occur in areas of relatively high sagebrush densities and overall low snow accumulation, on south- and east-facing slopes. The 2010 population estimate for mule deer in all areas of South Dakota, except the Black Hills, is 60,000 animals. This number has been fairly stable since 2002. The 2010 estimate has decreased slightly from 2009 (SDGFP 2011a).

<u>Pronghorn</u>

South Dakota hosts one of the highest pronghorn populations in the nation, ranging throughout the west and central regions of the state (SDGFP 2011a). Pronghorn inhabit grasslands and shrublands on flat to rolling topography, and browse on shrubs, especially sagebrush, throughout the year. During the winter, pronghorn generally utilize areas of relatively high sagebrush densities and overall low snow accumulations, on south- and east-facing slopes. The 2010 population estimate for pronghorn in all areas of South Dakota is 51,000 animals. This number is down significantly from the 2008 estimate of 80,000 animals (SDGFP 2011a).

3.4.1.2 Small Game Species

Small game species that occur within the study area include upland game birds, waterfowl, furbearers, and other small mammals.

Upland Game Birds

Upland game birds that occur in the study area include sharp-tailed grouse, greater prairie chicken, gray (Hungarian) partridge, wild turkey, ring-necked pheasant, and mourning dove. Sharp-tailed grouse occur in a wide variety of habitats, including grasslands, agricultural areas, and shrublands (Stokes and Stokes 1996). Fifteen active sharp-tailed grouse leks are located in the northern portion of the study area on tribal land, and more leks could potentially exist (LBST2012a). Additional leks have been documented west of the study area in both Lyman and Tripp counties. No active sharp-tailed grouse leks would be crossed by the Project; however, historic leks could be affected. Greater prairie chickens occur in diverse grassland habitat (SDGFP 2006). Gray (Hungarian) partridge, wild turkey, and ring-necked pheasant all occur in a wide variety of habitats, including grasslands, shrublands, and agricultural areas (Stokes and Stokes 1996). These species are known to occur in Lyman and Tripp counties (SDGFP 2011b). Mourning doves occur in habitats ranging from deciduous forests to shrubland and grassland communities, often nesting in trees or shrubs near riparian areas or water sources (Stokes and Stokes 1996). This species is considered widespread and is common in South Dakota (SDGFP 2011b).

Waterfowl

Numerous waterfowl species are known to breed and migrate through south-central South Dakota, inhabiting the wetlands and waterbodies that would be crossed by the Project. Common waterfowl species that occur in the study area include Canada goose, mallard, green-winged teal, northern pintail, gadwall, and American wigeon. Other common summer residents include blue-winged teal, cinnamon teal, northern shoveler, redhead, and ring-necked duck (Stokes and Stokes 1996). Waterfowl production in South Dakota has been increasing dramatically. The estimate for breeding duck populations in 2008 was 3.4 million; in 2009 breeding duck populations were estimated at 4.8 million; and in 2010, the estimate was 5.8 million birds. Annual precipitation is the main reason for increasing waterfowl populations (SDGFP 2011c, 2010).

Furbearers

Furbearers that occur in the study area include muskrat, beaver, raccoon, striped skunk, muskrat, mink, long-tailed weasel, badger, bobcat, coyote, jackrabbit, and gray fox and red fox. These species have wide distributions in South Dakota and are found within all habitat types present in the study area (SDGFP 2011b). Due to increased structural diversity and available food sources, a higher diversity of furbearers is likely present in riparian areas. Fur dealer records for 2009-2010 (SDGFP 2010) indicate approximately 60,574 animals of 13 species were trapped, for a cash value of approximately $432,245. Muskrat, raccoon, coyote, and jackrabbit make up the majority of trapped species.

Small Game Mammals

Small game mammals that occur in the study area include fox squirrel and eastern cottontail (SDGFP 2011b). Fox squirrels occur in open deciduous forests in riparian and woodland habitats. Eastern cottontails occur in a variety of habitat types, but are most common in brushy areas such as shelterbelts and old farmsteads (Fitzgerald et al. 1994).

3.4.1.3 Non-game Species

A diversity of non-game species (e.g., small mammals, raptors, passerines, amphibians, and reptiles) occupies a variety of habitat types found within the study area (i.e., agricultural land, grassland, badland, woodland/upland forest, shrubland, and wetland/waterbody). Special status species are discussed in Section 3.5, Threatened and Endangered Species.

<u>Small Mammals</u>

Common small mammals that occur in the study area include bats, voles, gophers, prairie dogs, woodrats, and mice. These species provide a substantial prey base for predators, including larger mammals (coyote, badger, bobcat), raptors (eagles, hawks, falcons, owls), and reptiles (snakes). Bat species that occur within the study area include the hoary bat, little brown myotis, and big brown bat (South Dakota Bat Working Group [SDBWG] 2004). Bat species are described in more detail below.

Hoary Bat

The hoary bat is a solitary tree roosting bat, which utilizes trees with adequate foliage cover above, and minimal foliage cover below. Roost sites typically occur in live trees that are 10 to 16.5 feet tall, on forest edges. In eastern South Dakota, hoary bats inhabit trees in cottonwood floodplain forests along the Missouri River. Foraging occurs over water, or at the top of the tree canopy. This species migrates south in winter (SDBWG 2004).

Little Brown Myotis

The little brown myotis is opportunistic with regard to foraging and roosting habitat. Typical habitat consists of cottonwood forests, deciduous forests, and urban areas. The species is common near human-made structures (SDBWG 2004). Day roost sites are located in buildings, trees, under rocks or wood, or occasionally in caves. Night roosts are located in similar sites, or even the same sites, but usually in more confined spaces. Nursery roosts are usually in buildings, but also in other locations with suitable temperatures. Foraging usually occurs over water at the margins of lakes, streams, and ponds, as well as along forest edges. The little brown myotis hibernates from September-November and March-May, (depending on latitude and altitude), in sites with high humidity and temperature, such as caves or mines (Harris 2005).

Big Brown Bat

The big brown bat is common throughout South Dakota. Primary habitat for this species is forested areas. The species commonly roosts in human-made structures. In winter, big brown bats migrate from eastern South Dakota to western South Dakota to hibernate in caves, mines, and buildings. Foraging occurs over meadows, canopy vegetation, and open water (SDBWG 2004).

<u>Reptiles</u>

Common reptiles that occur in the study area include the painted turtle, common snapping turtle, racer, gophersnake (bullsnake), plains garter snake, common garter snake, prairie rattlesnake, and western hognose snake (Kiesow 2006). These species serve as both predators and prey in the prairie ecosystem.

3.4.1.4 Migratory Birds

Migratory birds are integral to natural communities and act as environmental indicators based on their sensitivity to environmental changes caused by human activities. Migratory birds are protected by the Migratory Bird Treaty Act (MBTA) (16 USC 703-711) and EO 13186 (66 FR 3853). These laws make it illegal to take, kill, or possess migratory birds or any part, nest or egg of a migratory bird except under permits issued pursuant to Federal regulations. EO 13186 was enacted in part to ensure that environmental analyses of federal actions evaluate impacts on migratory birds.

A variety of avian species occur in the study area throughout the year; however, they are most abundant during the spring/fall migration, as well as during the breeding season. A total of 110 breeding bird species were identified during the three USGS Breeding Bird Survey routes located closest to the study area (USGS 2011).

<u>Passerines</u>

Representative passerine species include killdeer, common nighthawk, eastern kingbird, western kingbird, eastern bluebird, common yellowthroat, clay-colored sparrow, vesper sparrow, lark sparrow, western meadowlark, Say's phoebe, horned lark, barn swallow, black-billed magpie, common raven, and lark bunting (Stokes and Stokes 1996).

<u>Raptors</u>

Raptor species that occur in the study area are those that inhabit grassland, shrubland, woodland/upland forest, wetland/waterbody, badland, and agricultural land habitats. Species that could occur as residents or migrants in the study area include eagles (bald and golden eagles), hawks (e.g., red-tailed hawk, Swainson's hawk, ferruginous hawk), falcons (e.g., prairie falcon, American kestrel), accipiters (e.g., Cooper's hawk, sharp-shinned hawk), owls (e.g., great-horned owl, burrowing owl, long-eared owl, short-eared owl), and northern harrier (Stokes and Stokes 1996). In addition to being protected by the MBTA, bald eagles and golden eagles are protected under the Bald and Golden Eagle Protection Act. The bald eagle (discussed in Section 3.5, Threatened and Endangered Species) also is state listed as endangered.

3.4.1.5 Aquatic Species

Aquatic species are fish, amphibians, and invertebrates that inhabit surface waters such as perennial streams and pond/lake environments. The description of aquatic communities focuses on important fisheries, which are defined as species with recreational or commercial value. The study area for aquatic resources includes the perennial streams, rivers, and ponds/lakes that would be crossed by the Project. This section describes recreationally or commercially important fisheries which occur at, or immediately downstream of the proposed crossings.

Invertebrate communities in waterbodies within the study area include worms, immature and adult insect groups, shellfish, and other forms of aquatic life. The composition can vary depending on flowing or standing water and other physical characteristics of the waterbody. They represent important food sources for fish and also are used as indicators of water quality conditions. For the purpose of describing aquatic resources, it is assumed that invertebrates are present in all waterbodies crossed by the Project.

<u>Fish</u>

Coolwater and warmwater fish species are found in perennial waterbodies in the study area. Spawning seasons for warmwater species are variable and species-specific, but spawning generally occurs between April and August and peaks in June and July. Spawning periods for various coolwater species occur from February through November, peak in April or October, and are species-specific.

Game fish include a variety of warm water and coolwater species such as walleye, perch, bass, crappie, catfish, bluegill, sauger, northern pike, and trout. Native non-game species include flathead chub, minnow, sunfish, and emerald shiner (Hoagstrom et al. 2011).

<u>Amphibians</u>

Potential habitat for amphibians includes perennial and intermittent stream reaches, wetlands, and ephemeral ponds. Common species found in the study area include the eastern plains spadefoot, Canadian toad, Great Plains Toad, Woodhouse's toad, northern leopard frog, western chorus frog, wood frog, and tiger salamander (Kiesow 2006).

3.4.1.6 Habitat Management Areas

Four Habitat Management Areas (HMAs) are present within the study area on tribal land, but are not crossed by any of the proposed routes. These areas are lands that the Lower Brule Sioux Tribal Wildlife Department intensively manages specifically for various types of wildlife. Management activities include prairie restoration, native tree and shrub planting, wetland restoration, and crop management. These lands are controlled to limit housing or other development that would be contrary to wildlife management objectives. HMAs are extensively used by hunters (LBST 2012b).

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

RUS, Basin Electric, and their consultant consulted the USFWS, SDGFP, and the LBST to identify potential impacts to fish and wildlife. Potential impacts to fish and wildlife could be direct or indirect. Direct impacts include species mortalities as a result of vehicle collisions or crushing of nests/burrows during construction or stream sedimentation. Indirect impacts include species displaced due to increased levels of noise, vibration, and human presence.

Potential impacts also could be either temporary or permanent. Construction impacts tend to be temporary, such as removing vegetation that could otherwise provide habitat that is later reclaimed and re-established (approximately 3 to 5 years). As presented in Section 3.3, Vegetation and Noxious Weeds, a total of six vegetation types that could serve as wildlife habitat would be temporarily disturbed by Project construction: agricultural land (204.3 acres), grassland (147.3 acres), badland (3.3 acres), wetland/waterbody (0.3 acre), and woodland/upland forest (less than 0.1 acre). The temporary disturbance to these vegetation types from the Project are discussed in the following sections. Operations impacts tend to be permanent, such as maintaining a substation/switchyard in an area that once could provide habitat. The extent of both temporary and permanent impacts would depend on factors such as the sensitivity of the species, seasonal use patterns, type and timing of the construction activities, and physical parameters (e.g., topography, cover, forage). Approximately 14 acres of potential habitat consisting of grassland and agricultural land would be permanently lost, primarily associated with the substation and switchyard.

Potential impacts by types of fish and wildlife are discussed in the following sections.

<u>Big Game Species</u>

No big game critical ranges would be affected by the Project. Project construction would disturb areas that could potentially provide habitat for big game, such as agricultural lands, grasslands, and badlands. However, the disturbance associated with the Project would represent approximately 1 percent of the overall available habitat within the study area available for big game species. Disturbed areas would be reclaimed, and in most instances, suitable habitat adjacent to disturbed areas would be available for big game species until grasses and woody vegetation are re-established within the disturbance areas.

Based on the amount of available habitat within the study area, impacts to big game species would be minimal, limited primarily to temporary displacement from areas of human activity associated with construction. To prevent direct mortality to individuals during construction, Basin Electric has committed to fence or cover boreholes to reduce the potential for livestock and wildlife entering the boreholes and for public safety.

<u>Small Game Species</u>

Direct and indirect impacts to small game include displacement and possible mortalities related to Project construction including temporary increased levels of noise and human presence. Project construction would disturb areas that could potentially provide habitat for small game species, such as agricultural lands, grasslands, badlands, wetlands/waterbodies, and woodland/upland forests. However, in most instances, suitable habitat adjacent to disturbed areas would be available for small game species until grasses and woody vegetation become re-established within the disturbance areas.

In areas with minimal trees or perching sites, such as the open agricultural and grasslands areas affected by the Project, power poles and lines can provide nesting, perching, roosting, or hunting sites for raptors, ravens, and crows, which can increase predation on ground birds and small mammals. However, the actual impact of raptors hunting from utility poles has not been adequately studied, quantified, or verified and such predation can occur regardless of the power line (Avian Power Line Interaction Committee [APLIC] 2006). Basin Electric has committed to working with applicable state and federal agencies and the LBST to determine if measures are needed (**Appendix D**). However, perch deterrents tend to control the location of perching rather than prevent perching from occurring (APLIC 2006).

Upland Game Birds and Waterfowl

Direct and indirect impacts to upland game birds and waterfowl include displacement and possible mortalities related to Project construction including temporary increased levels of noise and human presence. Vegetation removed during Project construction also could remove areas used by upland game birds and waterfowl. However, in most instances, suitable habitat adjacent to disturbed areas would be available until grasses and woody vegetation become re-established within the disturbance areas.

Although the Project would not affect active leks, the Proposed Action would traverse one historic sharp-tailed grouse lek and be located within 3 miles of another historic lek. The Proposed Action would render this historic lek site unusable and prevent the possibility of any future use from occurring at that lek. However, given that the location hasn't been active, it is possible that the lek has already been deemed unusable by sharp-tailed grouse. The possibility remains that the historic lekking grounds could still be used by sharp-tailed grouse and the proximity of the Proposed Action to the habitat could result in displacement to other areas. These species are particularly sensitive to disturbance while they congregate on lekking grounds each morning and evening from March to June. Construction activities and associated noise occurring during early morning and late evening in the vicinity of lekking grounds could disrupt and displace individuals that have gathered for breeding activities. Once breeding activities have concluded, hens create their nests on the ground beneath vegetation in proximity to the lekking grounds. Project construction could affect nesting sharp-tailed grouse by destroying nests, causing nest abandonment, or causing injury or direct mortality to the young. Basin Electric has developed measures to reduce the potential for construction impacts to game birds and waterfowl, which are described below.

If construction occurs during the breeding season, active game bird and waterfowl nests would be identified and avoided. In addition, sharp-tailed grouse and greater prairie chicken leks would be identified and avoided during the breeding season. Basin Electric has committed to conducting surveys prior to surface disturbance activities during the typical breeding season (April 15 through July 15). A qualified biologist would survey within suitable habitat for evidence of nesting (e.g., mated pairs, territorial defense, birds carrying nest material, transporting food). If active nests or leks are located, or other evidence of nesting is observed, appropriate protection measures, including establishment of spatial buffer areas and timing constraint periods, would be implemented until the young have fledged and dispersed from the nest area. These measures would be implemented on a site-specific and species-specific basis, in coordination with RUS. As a result, direct impacts to upland game birds and waterfowl from construction activities are expected to be low.

Waterfowl are found in wetlands scattered throughout the study area, with a large concentration north of Interstate-90 (I-90). Areas within mapped wetland boundaries and areas within 100 feet of surface waters are designated as avoidance areas by the Project. All of the surface waters within the study area, including the White River, would be spanned by the transmission line, thereby reducing habitat-related impacts to waterfowl.

In areas with minimal trees or perching sites, such as the open agricultural and grasslands areas affected by the Project, power poles and lines can provide nesting, perching, roosting, or hunting sites for raptors, ravens, and crows, which can increase predation on ground birds and small mammals. In addition, young birds are at greater risk to predation during the nestling period and immediately post-fledging when their motor skills and foraging behaviors are becoming developed. However, the actual impact of raptors hunting from utility poles has not been adequately studied, quantified, or verified and such predation can occur regardless of the power line (APLIC 2006). Basin Electric has committed to working with applicable state and federal agencies and the LBST to determine if measures are needed (**Appendix D**). However, perch deterrents tend to control the location of perching rather than prevent perching from occurring (APLIC 2006).

The operation of the transmission line would increase the collision potential for upland game birds and waterfowl (APLIC 2012). Collision potential depends on transmission line design, the location of the transmission line relative to high-use habitat areas (e.g., nesting, foraging, and resting), and bird flight patterns and migration corridors. Species of birds reported to be susceptible to collisions generally have a large body size, long wing span, heavy body, and poor maneuverability. Examples include species of loons, storks, grebes, waterfowl, and some species of hawks and eagles. Individual losses from collision mortality are unlikely to affect large and robust populations; therefore, collision risk of rare or endangered species is of greater concern (APLIC 2012). Basin Electric has committed to implement standard measures to minimize avian collision risk with overhead transmission lines, as outlined in *Reducing Avian Collisions with Power Lines* (APLIC 2012). Basin Electric also has proposed marking portions of the line to reduce potential collision risk for Whooping crane (see Section 3.5); such measures also could reduce collision risk for other species including upland game birds and waterfowl. An additional collision risk would be posed by the communications towers that would be constructed at the switchyard and substation sites. However, the self-supporting design would provide somewhat greater visibility, and would not require guy lines, which pose a greater collision risk. Should the guyed design be chosen, the guy wires would be marked with devices similar to those used on transmission lines. Lighting also would not be required. In consideration of these factors, collision risk due to the communications towers is expected to be low.

Non-game Species

Direct and indirect impacts to non-game species include displacement and possible mortalities related to Project construction including temporary increased levels of noise and human presence. Non-game species are more susceptible to mortalities during construction activities because species are less mobile and burrowing non-game species (e.g., small mammals and reptiles) could be crushed by construction vehicles and equipment. Transmission and communications towers would present a collision risk to bats, but this is expected to be minimal.

Vegetation removed during Project construction also could remove areas used by non-game species. However, in most instances, suitable habitat adjacent to disturbed areas would be available until grasses and woody vegetation become re-established within the disturbance areas.

Migratory Birds Including Raptors

Non-game avian species that could be affected by construction activities include nesting migratory birds and raptors which use the various vegetation types present in the study area. Direct and indirect impacts to avian species include displacement, destruction of nests, and possible mortalities related to Project construction including temporary increased levels of noise and human presence. Vegetation removed during Project construction also could remove areas used by non-game avian species and raptors. However, in most instances, suitable habitat adjacent to disturbed areas would be available until grasses and woody vegetation become re-established within the disturbance areas. Basin Electric has committed to conducting pre-construction surveys in order to identify the presence of migratory bird species and active nests would be avoided during construction, which would minimize the potential for these effects.

Three Historic eagle nests are present within 0.5 to 1 mile of the Proposed Action. Basin Electric has committed to conduct pre-construction surveys if construction is scheduled to occur during the breeding season for raptors (February 1 through August 15). Aerial and/or pedestrian breeding raptor surveys would be conducted by a qualified biologist through areas of suitable nesting habitat in order to identify any active nest sites within 0.5 mile (1.0 mile for bald eagles) from the Project area. Appropriate protection measures, including seasonal constraints and establishing distance buffer areas would be implemented at active nest sites until the young have fledged and have dispersed from the nest area. These measures would be implemented on a site-specific and species-specific basis, in coordination with RUS. By implementing these environmental protection measures, construction- and operation-related impacts to raptor species would be low.

Line-strike is a major source of injury and mortality to raptors and other large birds (USFWS 2011) and is a potential source of injury and mortality to migratory birds. In particular, transmission lines located adjacent to wetlands or stream crossings could increase this potential impact. Individual losses from collision mortality are unlikely to affect large and robust populations; therefore, collision risk of rare or endangered species is of greater concern (APLIC 2012). Standard measures to minimize avian collision risk with overhead transmission lines, as outlined in *Reducing Avian Collisions with Power Lines* (APLIC 2012) would be examined and implemented as appropriate. Basin Electric also has proposed marking portions of the line to reduce potential collision risk for Whooping crane (see Section 3.5); such measures also could reduce collision risk for other migratory bird species and raptors. As noted previously, an additional though likely minor collision risk would be posed by the communications towers that would be constructed at the switchyard and substation sites. Since the towers would be less than 200 feet in height, registration with both the Federal Aviation Administration and FCC would not be required, nor would any lighting or marking. Marking of guy wires (if that design is selected), and higher visibility of the self-supporting designs should limit collision risk to birds, especially neotropical migrants. The proposed height of the towers (approximately 150 feet) and the absence of lights and guy wires (or marking) align with the lower risk characterization of the USFWS's *Interim Guidelines For Recommendations On Communications Tower Siting, Construction, Operation, and Decommissioning* (USFWS 2000) The breeding raptor surveys would likewise identify any active nests in proximity to the towers, and determine if additional avoidance or siting measures would be necessary.

Electrical transmission line configurations of 60-kV or greater typically do not present an electrocution hazard to migratory birds, including raptors, based on conductor placement and distances between conductors and ground wires (APLIC 2006). As a result, no electrocution hazard to migratory birds, including raptors, would be anticipated from the Project.

Reptiles

Impacts to reptiles could include mortalities or displacement related to Project construction and operation. Construction activities could result in direct mortalities as a result of crushing of burrows from vehicles and equipment. Vegetation removed during Project construction also could remove areas used by reptiles. Due to the presence of suitable habitat adjacent to the disturbed areas, and the temporary nature of Project construction, impacts to these species is expected to be minimal, limited primarily to disturbed areas within the construction ROW.

Aquatic Species

Direct impacts to aquatic communities and habitat in the White River, Short, North Fork American Crow, Red Butte, Black Dog, No Moccasin, Thunder, Dog Ear, Hollow, and East Cottonwood creeks and a number of smaller tributaries and intermittent streams would be avoided, because the transmission line would span wetlands and waterbodies. Measures designed to reduce impacts to wetland/waterbody habitat at Project crossing locations are addressed in Section 3.6, Wetlands, and Section 3.8, Water Quality. Basin Electric has committed not to construct aboveground facilities and staging areas within mapped wetlands, riparian areas, or other waters of the U.S. (WUS), and Basin Electric would minimize the potential for indirect impacts to surface waters by controlling soil disturbance to avoid sedimentation of these water bodies through storm water runoff. Limited fisheries are present in the Project ROW, and those that are present would be spanned by the transmission line, reducing the potential for any impacts to these resources. Therefore, no new disturbance or impacts would be anticipated for aquatic resources.

Habitat Management Areas

Impacts to HMAs are not anticipated as a result of construction and operation of the Project because they are outside the ROW that would be disturbed.

Summary

Impacts to fish and game and non-game wildlife associated with the Project are anticipated to be minimal because: 1) only a small portion of potentially suitable habitat would be affected by Project construction activities; 2) established topsoil handling techniques and subsequent reseeding of disturbed areas would aid in the re-establishment of habitats; 3) the committed environmental protection measures would minimize potential impacts to species during the breeding season and minimize the impacts to their breeding territories; 4) the potential for injury or mortality by line-strike collision or electrocution or tower collision would be minimized by implementation of committed measures; and 5) the temporary nature of Project construction would minimize the length of time that wildlife would potentially avoid habitats along the Project ROW.

3.4.2.2 Alternative Route A

Potential impacts to fish and wildlife resources would be the same as discussed for the Proposed Action. However, this alternative would result in approximately 7 fewer acres of temporary impacts to potential wildlife habitat as a result of surface disturbing activities. Permanent impacts would be the same as discussed for the Proposed Action. In addition, this alternative would be located farther from the two sharp-tailed grouse leks (lek 1 – 2.9 miles; lek 2 – 0.5 mile) as discussed in Section 3.4.1.2. This alternative would be further from one eagle nest (approximately 3 miles), but would still be within 0.5 mile of two eagle nests.

3.4.2.3 Alternative Route B

Potential impacts to fish and wildlife resources would be the same as discussed for the Proposed Action. However, this alternative would result in approximately 8 fewer acres of temporary impacts to potential wildlife habitat as a result of surface disturbing activities. Permanent impacts would be the same as discussed for the Proposed Action. In addition, this alternative would be located father from the two sharp-tailed grouse leks (lek 1 – 4.5 miles; lek 2 – 3.4 miles) as discussed in Section 3.4.1.2. This alternative would be further from one eagle nest (approximately 2 miles), but would still be within 0.5 mile of two eagle nests.

3.4.2.4 No Action Alternative

The temporary disturbance of approximately 355.3 acres and the permanent disturbance of approximately 14.2 acres of potential wildlife habitat would not occur if the No Action Alternative were to be implemented. Impacts to fish and wildlife resources would not occur as a result of this Project.

3.5 Special Status Wildlife Species, Including Federally Listed Species

Special status species are those species protected under state, federal, or tribal law, regulation, or policy. Included in this category are federally listed species that are protected under the Endangered Species Act (ESA) and South Dakota state-listed species. In accordance with Section 7 of the ESA, as amended, the lead Federal agency (RUS) in coordination with the USFWS must ensure that any action that they authorize, fund, or carry out would not adversely affect a federally listed threatened or endangered species.

3.5.1 Affected Environment

Table 3-8 presents the 13 special status species that were identified as potentially occurring in the study area (SDGFP 2014; USFWS 2014, 2011a). The potential for occurrence in the study area was based on range, known distribution, and the presence of potentially suitable habitat within the study area. Based on consultation with the USFWS, SDGFP, and SDNHP, no federal or state-listed special status plant species were identified for the Project; therefore, no baseline studies or assessments were completed (SDGFP 2014; USFWS 2014, 2011a).

Table 3-8 Special Status Species Identified for the Project

Common Name	Scientific Name	Status
Black-footed ferret	*Mustela nigripes*	Federal endangered in Lyman County and on Lower Brule tribal land NEP/federal/proposed in Tripp County
Whooping crane	*Grus americana*	Federal endangered
Interior least tern	*Sterna antillarum athalassos*	Federal endangered
Pallid sturgeon	*Scaphirhynchus albus*	Federal endangered
American burying beetle	*Nicrophorus americanus*	Federal endangered
Piping plover	*Charadrius melodus*	Federal threatened
Sprague’s pipit	*Anthus spragueii*	Federal candidate
Bald eagle	*Haliaeetus leucocephalus*	State threatened
River otter	*Lontra canadensis*	State threatened
False map turtle	*Graptemys pseudogeographica*	State threatened
Northern redbelly dace	*Phoxinus eos*	State threatened
Pearl dace	*Margariscus margarita*	State threatened
Sturgeon chub	*Macrhybopsis gelida*	State threatened

3.5.2 Federally Listed Threatened and Endangered Species

Black-footed Ferret

The black-footed ferret is federally listed as endangered (FR67-2721). No designated critical habitat exists for this species (USFWS 2011a). Historically, the range of the black-footed ferret coincided closely with that of the prairie dog throughout the Great Plains and Rocky Mountain states of the U.S. and Canada (Fitzgerald et al. 1994). The species was considered extinct by the middle of the 20th century until it was documented in Mellette County, South Dakota, in 1964 and again in 1981 near Meeteetse, Wyoming. However, the South Dakota population subsequently disappeared and the Wyoming population declined to only a few remaining individuals, which were captured and provided the basis for the ongoing captive breeding program (Ashton and Dowd 2008).

Black-footed ferrets that were produced by this captive breeding program are often reintroduced as a Non-essential, Experimental Population (NEP), or as fully endangered. A NEP (including offspring) of a listed species is designated by rule published in the *Federal Register* as wholly separate geographically from other populations of the same species. For consultation purposes, a NEP of an endangered species is treated as a threatened species in National Parks (administered by the National Park Service) and in National Wildlife Refuges (administered by the USFWS); and as a species proposed for listing on other federally administered land, private land, and Indian trust land (USFWS

1998). In South Dakota, the black-footed ferret is treated as endangered in Lyman County and as NEP/proposed in Tripp County.

Black-footed ferrets are primarily nocturnal, solitary carnivores that are obligate associates of prairie dogs. Over 90 percent of the black-footed ferret diet is composed of prairie dogs, and ferrets use prairie dog burrows as their sole source of shelter. Black-footed ferrets require colonies with high densities of active prairie dogs burrows (Fitzgerald et al. 1994). They typically breed from March to May (USFWS 1988). The gestation period ranges from 41 to 45 days, with as many as 5 young born in late May and early June. The kits remain underground until late June or early July. Upon emerging, they may accompany the female during nocturnal foraging. Male ferrets are not active in rearing the young and live a solitary life except during the breeding season. Ferrets are most commonly observed in late summer or early fall (Ashton and Dowd 2008).

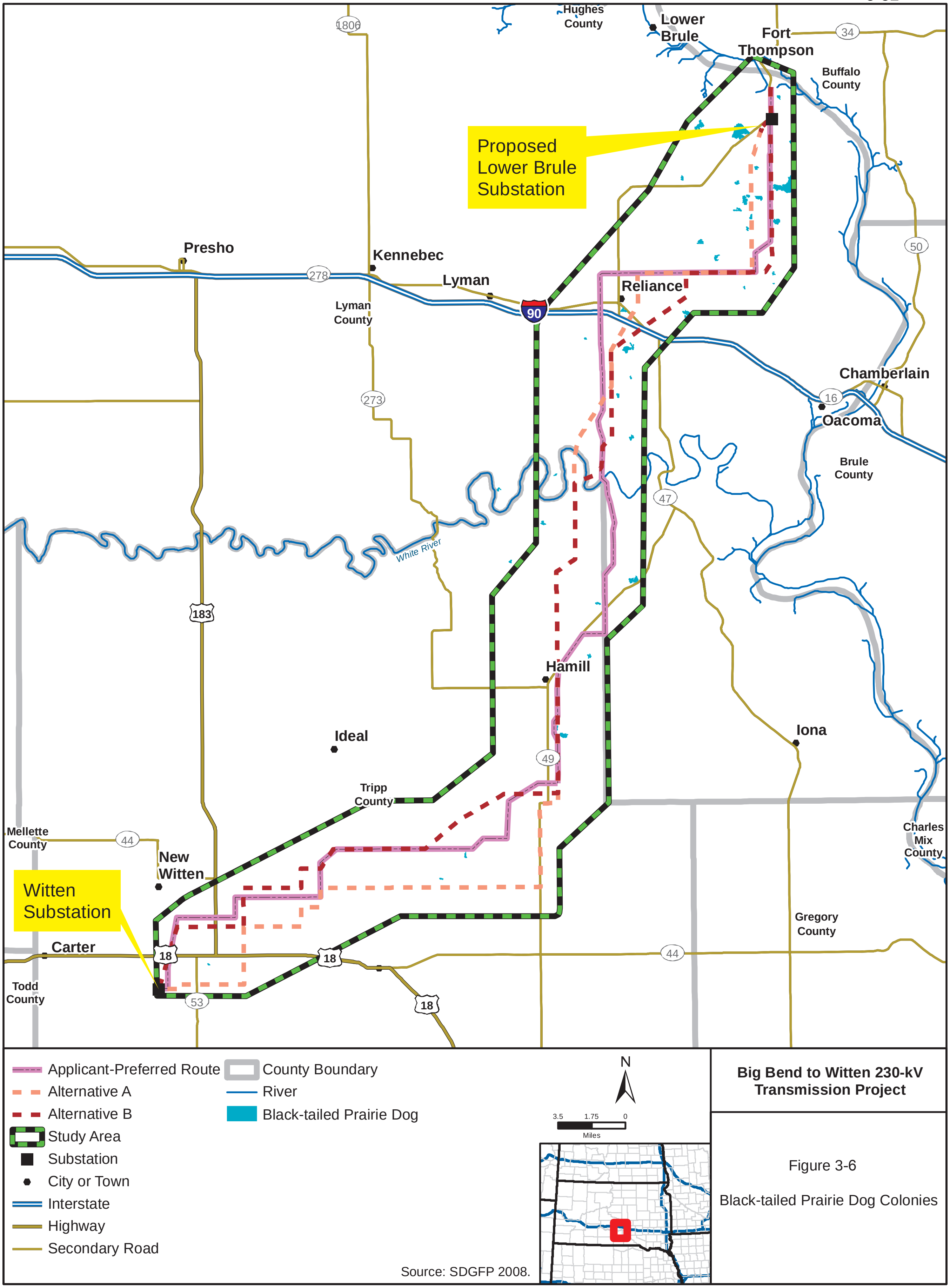
Suitable habitat for black-footed ferrets is determined by the size of active prairie dog colonies and the density of prairie dogs. In the Project area, an average of 25 acres of occupied prairie dog colonies is needed to support an individual ferret for at least one year (LBST [unpublished data]). A prairie dog colony or complex (10,000 acres or greater) with towns no further than 3 miles apart is necessary to sustain a viable population of 120 ferrets (Hagen et al. 2005). In the Project area, a prairie dog complex of 1,500 acres with colonies no further than 1 mile apart is likely to support 30 breeding adults. A total of 47 black-tailed prairie dog colonies are present within the study area, ranging in size from approximately 0.1 acre to approximately 286 acres (**Figure 3-6**). Two colonies would be crossed by the Project route, for distances of approximately 0.12 mile and 0.11 mile, respectively.

Although the black-footed ferret is presumed extirpated in South Dakota, the species has been reintroduced in six different locations in the state: Badlands National Park in1994, Conata Basin in 1996, Cheyenne River Indian Reservation in 2000, Rosebud Indian Reservation in 2003, Lower Brule Sioux Indian Reservation in 2006, and Wind Cave National Park in 2007 (USFWS 2008). The Rosebud Indian Reservation and the Lower Brule Sioux Indian Reservation are the closest reintroduction sites to the study area. The Rosebud Sioux Reservation reintroduction area overlays all of Gregory, Mellette, Todd, and Tripp counties in South Dakota. Initial reintroduction efforts on the Lower Brule Sioux Indian Reservation focused on lands near the Big Bend Dam (**Figure 3-6**). The Project route would cross approximately 6 miles of the Lower Brule Sioux Indian Reservation and the Lower Brule Switchyard would be constructed on the reservation.

Approximately 1,087 acres of prairie dog colonies are within the study area on tribal land. Black-footed ferrets and their progeny have previously occupied approximately 2,679 acres of prairie dog colonies on tribal land within and near the study area (LBST 2012a). Data for black-footed ferret-occupied colonies was collected during the fall of 2010 and 2011. Although some small colonies near the Proposed Action have not supported ferrets every year, they are recognized as important dispersal corridors for juveniles. Many of these small colonies could increase in size and become more suitable for year-round occupation by ferrets, as suitable habitat for prairie dogs exists throughout the study area.

Surveys for black-footed ferrets might be necessary. The species is highly mobile and ferrets have been documented to disperse to a distance of up to 15 miles. An individual ferret was reported within the study area in October 2012 by a local rancher. Existing colonies of prairie dogs in the study area are likely to increase in size, and in the future, additional colonies could become established within the study area, which would create additional habitat for black-footed ferrets (LBST 2012a).

Table 3-9 summarizes the number of individual ferrets captured or detected during spotlight surveys on the Lower Brule Sioux Indian Reservation from 2007 to 2012. **Table 3-10** summarizes the estimated fall ferret population size based on survey effort and suitable habitat on the Lower Brule Sioux Indian Reservation from 2007 to 2012. Factors contributing to black-footed ferret population declines include poisoning of prairie dogs, habitat destruction, and disease (e.g., sylvatic plague and canine distemper) (USFWS 2008). Predation also is a concern.



Source: SDGFP 2008.

Big Bend to Witten 230-kV Transmission Project

Figure 3-6

Black-tailed Prairie Dog Colonies

Table 3-9 Number of Individual Ferrets Captured or Detected During Spotlight Surveys on the Lower Brule Sioux Indian Reservation from 2007-2012

2007	2008	2009	2010	2011
9	21	29	31	8

Source: LBST 2012b.

Table 3-10 Estimated Fall Ferret Population Size Based on Survey Effort and Suitable Habitat on the Lower Brule Sioux Indian Reservation from 2007 to 2012

2007	2008	2009	2010	2011	2012
18	42	58	62	10	30

Source: LBST 2012b.

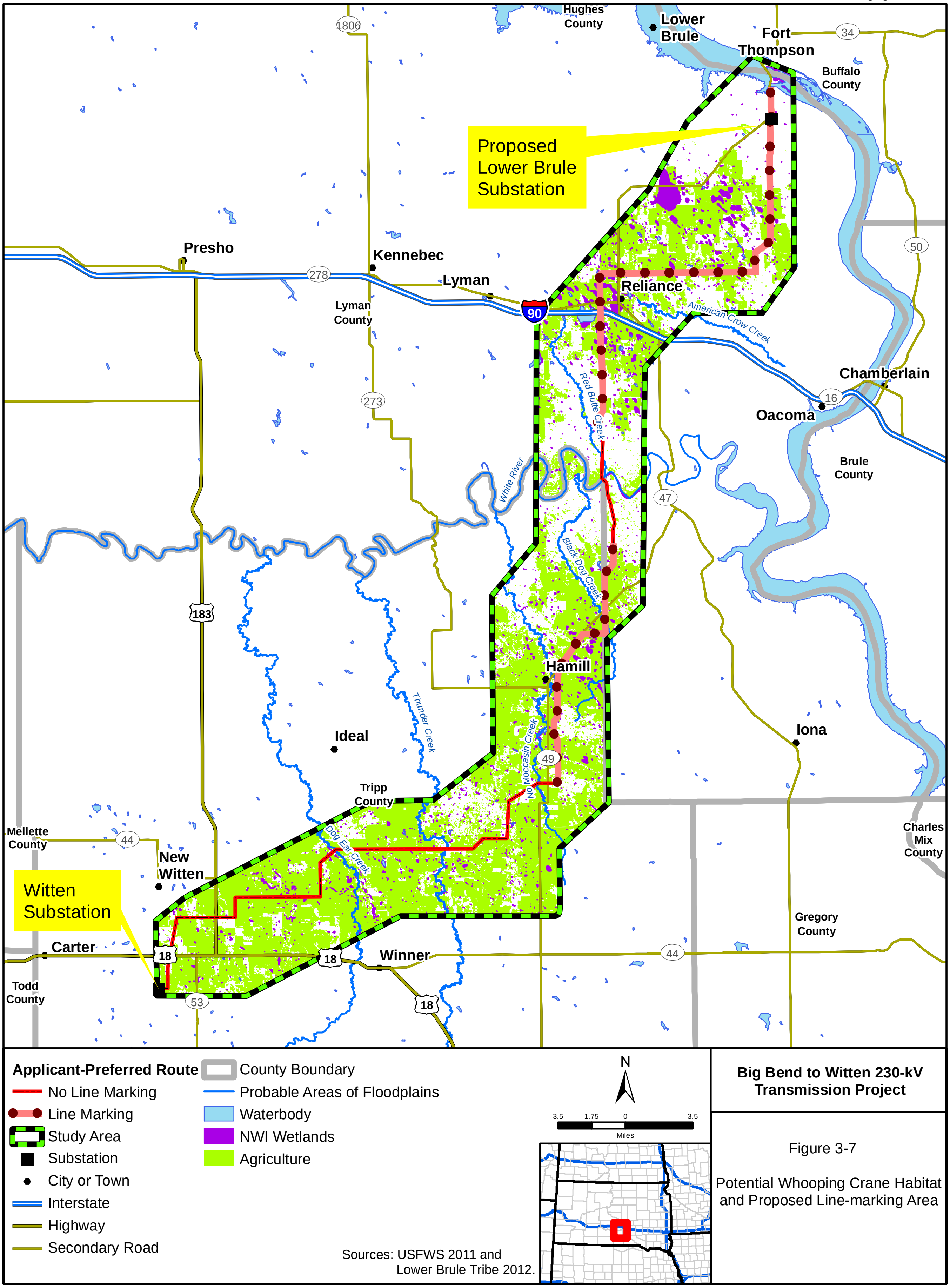
Whooping Crane

The whooping crane was listed as endangered on March 11, 1967 (32 FR 4001). Critical habitat for this species is not present in South Dakota (USFWS 2011a). The overall decline of the whooping crane has been attributed to habitat loss, human disturbance, hunting, predation, disease, and collisions with manmade features (Canadian Wildlife Service [CWS] and USFWS 2005). As of August 2011, the total population of wild whooping cranes was estimated to be 437 (International Crane Foundation 2011).

Whooping cranes that migrate through the study area nest in, and adjacent to, the Wood Buffalo National Park in Canada, and winter primarily in coastal marshes in Texas at the Aransas National Wildlife Refuge (Aransas-Wood Buffalo Population [AWBP]) (USFWS 2011d). During spring and fall migration, the AWBP transits the central Great Plains, including portions of North Dakota, South Dakota, Nebraska, Kansas, and Oklahoma. Birds from the AWBP population depart from their wintering grounds in Texas from late March through the first of May. Fall migration typically begins in mid-September with most birds arriving on wintering grounds between late October and mid-November (CWS and USFWS 2005).

Whooping cranes use a variety of habitats during migration, including freshwater marshes, wet prairies, shallow portions of rivers, reservoirs, lakes, lagoons, and grain and stubble fields. They feed on insects, berries, grains, fish, crustaceans, reptiles, and amphibians. Cranes roost on submerged or barren sandbars and are easily disturbed when roosting or feeding (Ashton and Dowd 2008).

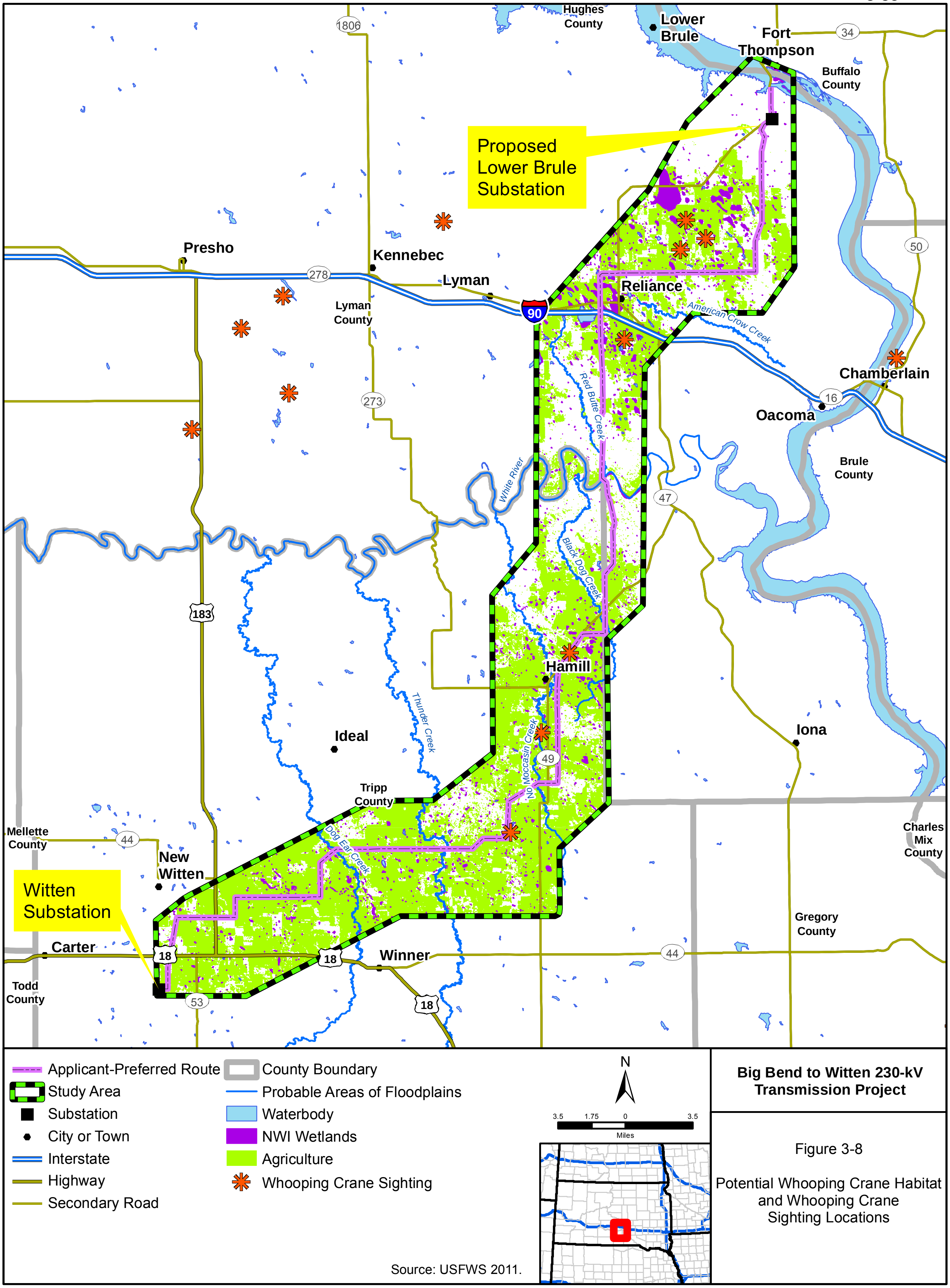
The study area is outside the breeding range for the whooping crane; therefore, the Project would not affect nesting habitat or composite nesting areas. However, the study area is within the 75 percent sighting corridor of the AWBP migration route (USFWS 2008b). Whooping cranes migrate through South Dakota in the spring (April to mid-May) and in the fall (mid-September to October). Suitable stop-over habitat for migrating whooping cranes is present throughout the study area. Approximately 59 percent of the study area consists of farmland. Wetlands and waterbodies are present throughout the study area, especially north of Interstate 90 (**Figure 3-7**). Whooping crane sightings have been documented in the study area (**Figure 3-8**). Therefore, it is likely that the species would be present in the study area during their biannual migrations.



Big Bend to Witten 230-kV Transmission Project

Figure 3-7

Potential Whooping Crane Habitat and Proposed Line-marking Area



Big Bend to Witten 230-kV Transmission Project

Figure 3-8

Potential Whooping Crane Habitat and Whooping Crane Sighting Locations

Interior Least Tern

The interior least tern was listed as endangered on May 28, 1985 (50 FR 21784). Historically, the breeding range of this subspecies extended from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. It included the Rio Grande, Red, Missouri, Arkansas, Mississippi, and Ohio River systems. The species winters along the Gulf Coast, Caribbean island coasts, the eastern coast of Central America, and northern South America. No critical habitat has been designated for this subspecies, but essential breeding habitat has been identified within its historic range (USFWS 2011a, 1990). The interior least tern continues to breed in most of the historic river systems, although its distribution generally is restricted to less altered river segments (USFWS 1990).

Interior least terns spend 4 to 5 months at their breeding sites. In South Dakota, the breeding season typically lasts from May 1 to August 15 (USFWS 2011e). Riverine nesting habitat for the interior least tern consists of sparsely vegetated sand and gravel bars within a wide, unobstructed river channel (Nelson 1998; USFWS 1990). The size of nesting habitat depends on water levels and the extent of associated sandbars. Interior least terns are considered to be colonial nesters, with colonies that generally consist of up to 20 nests. They nest on the ground in a simple unlined scrape, typically on sites that are sandy and relatively free of vegetation. Usually two to three eggs are laid by late May. Both the male and female terns share incubation duty, which generally lasts between 20 and 25 days. Fledging occurs approximately 3 weeks after hatching (Ehrlich et al.1988). Departure from colonies varies, but is usually complete by early September (USFWS 1990).

Interior least terns feed in the shallow areas of rivers, streams, and lakes. In addition to small fish, they also consume crustaceans, insects, mollusks, and worms (Nelson 1998; USFWS 1990). Interior least terns usually feed within a few hundred yards of the nesting colony; however, terns which nest at sand and gravel pits, or other artificial habitats, may travel up to 2 miles to forage (Ashton and Dowd 2008; USFWS 1990). Interior least terns spend 6 to 7 months at wintering sites along the Gulf Coast, Caribbean island coasts, the eastern cost of Central America, and northern South America.

In South Dakota, interior least terns are known to occur along the Missouri and Cheyenne rivers, mainly below the Gavins Point Dam (Ashton and Dowd 2008). Suitable nesting habitat is not present within the study area, although migration habitat is known to occur along the Missouri River, near the study area (USFWS 2011g). The transmission line would terminate at a transmission structure near the Big Bend Dam, immediately south of the Missouri River. The closest structure would be 100 feet or more from the riverbank. It is possible for the species to occur in the study area while foraging and during migration (USFWS 2011g).

Pallid Sturgeon

The pallid sturgeon was federally listed as endangered on September 6, 1990 (55 FR 36641) and also is state listed as endangered. No critical habitat has been designated for this species (USFWS 2011b). The pallid sturgeon is native to the Missouri and Mississippi River systems and is adapted to habitat conditions in these large rivers prior to modifications. Preferred habitat for this species is large, free-flowing rivers with warm, turbid water (USFWS 1993). The pallid sturgeon inhabits rivers with strong current (40 to 90 cubic feet per second [cfs]) with a firm sandy substrate (Ashton and Dowd 2008; USFWS 1993). Adults and sub-adults feed primarily on fish, while smaller juveniles feed primarily on the larvae of aquatic insects (Wilson 2004). Suitable habitat occurs in the Missouri River near the northern terminus of the Project. The transmission line would terminate at a transmission structure near the Big Bend Dam, immediately south of the Missouri River. The minimum setback for Project structures would be 100 feet from the bank of the river. Therefore, the potential for this species to occur near the study area would be low.

American Burying Beetle

The American burying beetle was listed as endangered on July 13, 1989 (54 FR 29652). No critical habitat has been designated for this species (USFWS 2011a). Historically, the American burying beetle was widely distributed throughout eastern North America and three Canadian provinces. In South Dakota, the American burying beetle primarily inhabits grassland and native prairie. This nocturnal species feeds on carrion, often by flying long distances to find a suitable carcass. When a pair of American burying beetles finds a suitable carcass, they will move it forward and excavate the soil from under it to a depth of about 4 inches. The carrion is cleaned of fur or feathers, fly larvae, and other organisms, and covered with a secretion that slows decomposition. It is then shaped into a ball and buried. The female will lay 10 to 30 eggs in a tunnel adjacent to the preserved carcass. When the eggs hatch, the larvae crawl to the carrion ball where one or both parents regurgitate food to the larvae. Adults and larvae feed on the carcass until the young pupate in the soil and emerge as adults about 1 month later. Adults could be present from July through August. They die soon after the young have pupated (Ashton and Dowd 2008).

A population of American burying beetles exists in south-central South Dakota, ranging from southwestern Gregory County through southern Tripp County. This area encompasses an estimated 500 mi^2 of core habitat and 800 mi^2 of potential habitat (Ashton and Dowd 2008). In 2005, a mark-recapture study was conducted on the population in this area and it met the definition of a self-sustaining population, as described in the recovery plan. South Dakota's American burying beetle population is an extension of a larger population found in the sandhills of Nebraska (Ashton and Dowd 2008). The portion of the study area that is south of U.S. 18 crosses the extreme northern extent of known American burying beetle range in Tripp county, encompassing approximately 37.5 acres of suitable habitat. Approximately 2 miles of transmission structures and the Witten Substation expansion would be located south of U.S. 18. Potential for the American burying beetle to occur within the study area would be low because the Project is located at the extreme northern limit of its geographic range in South Dakota (USFWS 2011j).

Piping Plover

The piping plover was listed as endangered on December 11, 1985 (50 FR 50726), but populations of piping plover that occur within the study area are considered to be threatened. Designated critical habitat for the piping plover exists along the Missouri River in southeastern South Dakota, both upstream and downstream of the study area (USFWS 2002). This critical habitat exists approximately 85 miles north (upstream) of the study area and continues into North Dakota. Critical habitat also exists approximately 107 miles south (downstream) of the study area and continues into Nebraska.

In North America, piping plovers breed only in three geographic regions: the Atlantic Coast, the northern Great Plains, and the Great Lakes. Wintering areas are along south Atlantic, Gulf Coast, and Caribbean beaches and barrier islands (USFWS 2011h). Piping plover begin arriving on breeding grounds in the Great Plains in mid-April. In South Dakota, the breeding season typically lasts from May 1 to August 15 (USFWS 2011e). Populations that nest along the Missouri River utilize beaches, and dry barren sandbars in wide, open channel beds. Nesting habitat of inland populations consists of sparsely vegetated shorelines around small alkali lakes, large reservoir beaches, river islands and adjacent sandpits, and shorelines associated with industrial ponds (Haig and Plissner 1993). Vegetative cover in nesting habitat is usually 25 percent or less (SDGFP 2006). The piping plover feeds by probing the sand and mud for insects, small crustaceans, and other invertebrates in or near shallow water.

Nests consist of shallow scrapes in the sand, with the nest cup often lined with small pebbles or shell fragments. The nest is typically far from vegetative cover. Nesting piping plovers have been found in least tern nesting colonies at a number of sites on Great Plains river sandbars and sand pits. Incubation is shared by the male and female and averages 26 days. Incubation begins only after the last egg is laid and eggs typically hatch on the same day. Brooding duties also are shared by the male and female. Broods remain in nesting territories until they mature unless they are disturbed. Fledging takes approximately 21 to 35 days (USFWS 2005). If a nest fails or is destroyed, adults could re-nest up to two times (SDGFP 2005). Breeding adults begin leaving nesting grounds as early as mid-July, with the majority gone by the end of August.

In South Dakota, piping plovers are known to occur along the Missouri River (Ashton and Dowd 2008). Suitable nesting habitat is not present within the study area, although migration habitat is present along the Missouri River near the study area (USFWS 2011g). The transmission line would terminate at a transmission structure near the Big Bend Dam, approximately 100 feet or more south of the Missouri River. It is possible for the species to occur in the study area while foraging and during migration (USFWS 2011g).

Sprague's Pipit

The Sprague's pipit was listed as a federal candidate species on September 15, 2010 (75 FR 56028). This species inhabits large (at least 225 acres) tracts of native grasslands, including lightly to moderately grazed lands. Habitat loss and degradation are primary causes of conservation concern for the Sprague's pipit. In addition, this species is affected by reduced productivity due to brown-headed cowbird parasitism in fragmented native prairie (SDGFP 2006). The Sprague's pipit feeds primarily on insects, spiders, and some seeds (Hagen et al. 2005; USFWS 2011i). The species is considered a possible migrant in Lyman County. No confirmed nest sites are present in South Dakota (USFWS 2011c). Approximately 39 percent of the study area consists of grassland. However, potential for this species to occur in the study area would be low since the study area occurs outside the geographic breeding range for this species.

3.5.3 State-Listed Species

Bald Eagle

The bald eagle is state-listed as threatened, and is protected under the Bald and Golden Eagle Protection Act. The species occurs throughout South Dakota year-round and new nests are constructed each year (USFWS 2011g). The bald eagle typically occurs near large waterbodies with suitable roosting and foraging habitat. They are mainly scavengers feeding primarily on fish, but also will eat waterfowl, rabbits, rodents, and other carrion. Nest sites usually are located in mature trees close to open water, but also could occur on cliffs. Winter habitat includes areas of open water, adequate food sources, and sufficient diurnal and nocturnal roosts. Bald eagles are present in the study area year-round (Ashton and Dowd 2008). In South Dakota, bald eagles typically begin nest building activities in late November and begin laying eggs in late January or early February. The young fledge from June to August (USFWS 2008). Six historic bald eagle nests are located within or near the study area, between I-90 and the north bank of the Missouri River. One historic nest is located approximately 2 miles east of the study area on the White River (SDNHP 2011). Four historic nests are located near the study area along the Missouri River. As a result, the potential for this species to occur in the study area would be high.

River Otter

The river otter is state-listed as threatened. The species inhabits waterbodies in wooded areas. Key habitat components include riparian vegetation, cavities for dens, and an adequate prey base. Otters feed primarily on fish, but also will take frogs, crayfish, and turtles. Breeding occurs in early spring. The pups remain with the mother until just prior to the birth of the mother's next litter (Ashton and Dowd 2008). Although otters generally are highly mobile during the denning season (March to September), they are tied to a particular den site (DoS 2008). The river otter has been documented in the White River as recently as 2008 (SDNHP 2011). According to the SDGFP, there are no known locations of river otter dens in the study area (SDGFP 2011b); therefore, the potential for this species to occur in the study area would be low.

False Map Turtle

The false map turtle is state-listed as threatened. The species inhabits waterbodies containing abundant aquatic vegetation and basking sites. The false map turtle is active from April through October and spends the winter in a muskrat den, under rocks or logs, or in the mud of the slough or lake bottom. It feeds on insects, worms, crayfish, mussels, snails, dead fish, and aquatic vegetation (Ashton and Dowd 2008). The species has been documented at the Missouri River near the northern terminus of the Project as recently as 2010 (SDNHP 2011). The transmission line would terminate at a transmission structure near the Big Bend Dam, immediately south of the Missouri River. The minimum setback for Project structures would be 100 feet from the bank of the river, therefore, potential for this species to occur in the study area would be low.

Northern Redbelly Dace

The northern redbelly dace is state-listed as threatened. The species inhabits spring-fed streams in the Big Sioux, Minnesota, Niobrara, and Crow creek drainages in South Dakota. Beds of aquatic vegetation are the preferred habitat for this species. The northern redbelly dace feeds on algae, zooplankton, and aquatic insect larvae (Ashton and Dowd 2008). The study area is outside of the known geographic range of the northern redbelly dace (SDGFP 2006). Ashton and Dowd (2008) reported the distribution and documented locations for this species as well south and west of the study area. The SDNHP has one record for this species near the study area from 1933. In addition, the transmission line would span all waterbodies along the Project routes. The minimum setback for Project structures would be 100 feet from the banks of streams. Therefore, potential for this species to be affected in the study area would be low.

Pearl Dace

The pearl dace is state-listed as threatened. The species inhabits cool bogs, ponds, lakes, creeks, and clear streams with a weak to moderate current and sand or gravel substrate. The pearl dace feeds on algae and invertebrates. The species is known to occur in cool spring sites in extreme south-central South Dakota (Ashton and Dowd 2008). The study area is outside of the known geographic range of the pearl dace (SDGFP 2006). In addition, the transmission line would span all waterbodies along the Project routes. The minimum setback for Project structures would be 100 feet from the banks of streams; therefore, potential for this species to be affected in the study area would be low.

Sturgeon Chub

The sturgeon chub is state-listed as threatened. The species inhabits swift current areas in channels of large, turbid rivers, usually with a gravel substrate. The sturgeon chub feeds on benthic invertebrates. The species is known to occur in the White River (Ashton and Dowd 2008). The transmission line would span the White River with a minimum setback of 100 feet from the banks. Therefore, potential for this species to occur in the study area would be moderate.

3.5.4 Environmental Consequences

3.5.4.1 Proposed Action

Potential impacts to special status species could be direct or indirect. Direct impacts include species mortalities as a result of vehicle collisions or crushing of nests/burrows during construction or stream sedimentation. Indirect impacts include species displaced due to increased levels of noise, vibration, and human presence. Intensity of these impacts would depend upon proximity to special status species or their habitat, timing and type of construction, sensitivity of the affected species, and seasonal use patterns.

Potential impacts also could be either temporary or permanent. Construction impacts tend to be temporary, such as removing vegetation that could otherwise provide habitat that is later reclaimed and re-established (approximately 3 to 5 years). Operations impacts tend to be permanent, such as maintaining a substation/switchyard in an area that once could provide habitat. The extent of both temporary and permanent impacts would depend on factors such as the sensitivity of the species, seasonal use patterns, type and timing of the construction activities, and physical parameters (e.g., topography, cover, forage).

Potential impacts specific to each special status species are discussed in the following sections.

Federally Listed Threatened and Endangered Species

A biological assessment for the Project was prepared and submitted to the USFWS with an overall finding of "may affect, not likely to adversely affect" federally listed species for the Project. Based on the biological assessment and proposed mitigation measures as part of informal consultation, the USFWS concurred with these findings for all federally listed species (Larson 2013; **Appendix E**). **Table 3-11** contains the species considered in the biological assessment, as well as the effects determination for each species.

Table 3-11 Summary of Findings for Federally Listed Species Affected by the Project

Species	Status	Habitat	Potential for Occurrence in Project Area	Determination	Rationale
Black-footed ferret (*Mustela nigripes*)	E	The species inhabits prairie dog colonies.	Potential to occur	May affect, not likely to adversely affect	Endangered/ Non-essential Experimental Population (EXPN)
Whooping crane (*Grus Americana*)	E	During migration, freshwater marshes, wet prairies, shallow portions of waterbodies, and grain and stubble fields are utilized for foraging.	Potential to occur	May affect, not likely to adversely affect	Appropriate conservation measures will be implemented to minimize potential impacts.
Interior least tern (*Sterna altillarum ssp. athalassos*)	E	During migration, shallow waters of rivers, streams, and lakes are utilized for foraging.	Potential to occur	May affect, not likely to adversely affect	The species may be present at the Missouri River. Appropriate conservation measures will be implemented to minimize potential impacts.
Piping plover (*Charadrius melodus*)	T	During migration, shallow waters of rivers, streams, and lakes are used for foraging.	Potential to occur	May affect, not likely to adversely affect	The species may be present at the Missouri River. Appropriate conservation measures will be implemented to minimize potential impacts.

Table 3-11 Summary of Findings for Federally Listed Species Affected by the Project

Species	Status	Habitat	Potential for Occurrence in Project Area	Determination	Rationale
American burying beetle (*Nicrophorus americanus*)	E	The species inhabits grassland and native prairie.	Potential to occur	May affect, not likely to adversely affect	The Project would disturb a small amount of potential habitat in the extreme northern extent of the known geographic range for this species.

Key = E –Endangered, T –Threatened.

A summary of proposed conservation measures, which will continue to be refined in coordination with applicable state and federal agencies and the LBST as needed, includes:

- Standard measures to minimize avian collision risk with overhead transmission lines or guy wires, as outlined in *Reducing Avian Collisions with Power Lines* (APLIC 2012), would be examined and appropriate measures developed as needed.
- Adequate raptor proofing designs, as described in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006), would be implemented on transmission structures.
- Siting of Project components would be avoided within active prairie dog colonies, to the extent practicable.
- Anti-perch devices would be placed on transmission structures that occur in active prairie dog colonies as determined through further coordination.
- Although the USFWS has not recommended surveys for the black-footed ferret, surveys would be completed if requested by the LBST as additional information on habitat quality and ferret population status becomes available.
- Line marking according to APLIC guidelines in areas of suitable crane stopover habitat to mitigate collision risk for migrating whooping cranes as discussed with the USFWS South Dakota Ecological Services Office and the LBST. This measure also serves to mitigate collision risk for migrating and foraging interior least terns and piping plovers.
- Project staff would be trained to recognize whooping cranes, any sightings would be immediately reported to the USFWS, South Dakota Field Office, and, if whooping cranes were to be sighted during construction, activities would cease until the birds move away from the Project ROW.
- Existing native vegetation within the construction ROW would be preserved whenever feasible.
- Surface disturbance areas would be reclaimed using native species, as approved by the county extension agency or landowners, and will be planted at the appropriate times in order to re-establish native vegetative cover and minimize the potential for invasion by non-native species.
- Wetland and riparian communities would be spanned by the proposed transmission line, thereby avoiding impacts to these ecosystems.

- Erosion and sedimentation controls would be implemented to minimize indirect impacts to wetlands and riparian areas.
- If herbicides are used to remove woody species that become established in the ROW and pose a hazard to the transmission line, they would be used in an appropriate manner.
- Mulch and seeds used for re-vegetation, erosion, and sediment control would be certified as weed-free.

No additional measures resulted from the Section 7 consultation between RUS and the USFWS (Larson 2013; **Appendix E**).

Black-footed Ferret

The black-footed ferret requires active prairie dog colonies of suitable size and density to maintain viable population levels. A total of two prairie dog colonies would be crossed by the Proposed Action. These colonies are listed in **Table 3-12**. However, the potential for this species to occur in the study area is low, due to the small and highly fragmented prairie dog colonies that are present. Although the USFWS has not recommended surveys for the black-footed ferret, Basin Electric has committed to completing surveys by the LBST as additional information on habitat quality and ferret population status becomes available. Any black-footed ferrets which could be present within the study area would be considered endangered or part of an NEP (USFWS 2011c), and the Proposed Action would not be considered to adversely affect this species.

Table 3-12 Prairie Dog Colonies Traversed by the Proposed Action

Black-tailed Prairie Dog Colony	Location	Size (acres)	Length Crossed (miles)
1	T101N R74W S10	0.25	0.02
1	T101N R74W S15	1.50	0.09
2	T106N R72W S27	1.96	0.12
Total		**3.71**	**0.23**

If black-footed ferrets are present within the study area, both direct and indirect impacts could occur as a result of surface disturbing activities associated with the Project. Direct impacts to black-footed ferrets and their habitat would include the temporary disturbance of 3.7 acres of black-tailed prairie dog colonies, animal displacement, and possible mortality associated with ground disturbing construction activities. Indirect impacts would include temporary increased noise and human presence associated with both surface disturbing activities during Project construction and maintenance activities during Project operation.

Construction of the proposed transmission line would increase the potential for predation of black-footed ferrets by great-horned owls. Basin has committed to avoid siting Project components within active prairie dog colonies, to the extent practicable. However, if transmission structures are located within or near prairie dog colonies, anti-perch devices would be placed on transmission structures that occur in active prairie dog colonies as determined through further coordination. Based on consultation with the USFWS (USFWS 2011k), surveys are not recommended for this species.

Whooping Crane

No direct impacts to the whooping crane are anticipated during Project construction. Whooping cranes do not nest in South Dakota. Although potentially suitable roosting and foraging habitat may occur in the study area, historic records for this species are sporadic, and established communal roost sites have not been documented within the study area (USFWS 2011c). Occurrence within or near the study area would be limited to migrating individuals or groups, or possibly in mixed flocks with sandhill cranes.

Indirect impacts to migrating whooping cranes may result from migrating individuals being flushed from the ROW during construction-related activities. Disturbance during roosting and foraging activities can stress the birds during critical times of the year (USFWS 2011g). Since whooping cranes are highly mobile, it is anticipated that individuals would move to other suitable resting and foraging habitats within the Project region. Based on the rarity of the species in the study area, potential impacts from encountering and flushing a migrating whooping crane during Project construction would be unlikely.

Direct impacts to whooping cranes could occur as a result of collision with the transmission line or microwave towers. Whooping cranes are large birds with low maneuverability. Line strike mortality is the greatest known human-caused threat to whooping cranes (USFWS 2011g). Collision risk depends on the location of the transmission line and towers relative to high-use habitat areas (e.g., nesting, foraging, and roosting), line orientation to flight patterns, and movement corridors, visibility, and transmission line/tower design. Collision risk increases when transmission lines are constructed between suitable wetland roosting and foraging habitat. Cranes tend to fly at low altitudes between these habitats, increasing collision potential. Basin has committed to the following measures to minimize potential impacts to Whooping crane:

- Line marking according to APLIC guidelines in areas of suitable crane stopover habitat to mitigate collision risk for migrating whooping cranes as discussed with the USFWS South Dakota Ecological Services Office and the LBST (**Figure 3-7**).
- Project staff would be trained to recognize whooping cranes, any sightings would be immediately reported to the USFWS, South Dakota Field Office, and, if whooping cranes were to be sighted during construction, activities would cease until the birds move away from the Project ROW.

Implementation of these measures would minimize any potential impacts and, therefore, the species would not be adversely affected by the Project.

Interior Least Tern and Piping Plover

Nesting habitat for these species is not present near the study area at the Missouri River (USFWS 2011k). Based on consultation with the USFWS (USFWS 2011k), pre-construction nesting surveys are not recommended.

The interior least tern and piping plover may forage near the study area at the Missouri River. No direct impacts to foraging habitat would be anticipated at this location, since the transmission line would terminate at a transmission structure near the Big Bend Dam, immediately south of the Missouri River. The minimum setback for Project structures would be 100 feet from the bank of the river. Direct and indirect impacts to interior least terns and piping plovers include displacement related to Project construction and operation and increased levels of noise, activity, and human presence. Indirect impacts would result from increased noise and human presence, if interior least terns or piping plovers are present within 0.25 mile of the Project ROW.

Similar impacts could occur during any maintenance activities if interior least terns or piping plovers are present within 0.25 mile of the ROW. The construction of a new electrical transmission line and microwave tower near the Missouri River would increase the collision potential for interior least terns and piping plovers (USFWS 2011g). Standard measures to minimize avian collision risk with overhead transmission lines, as outlined in *Reducing Avian Collisions with Power Lines* (APLIC 2012) would be examined and implemented as appropriate; marking also would apply to the microwave tower guy wires should that design be selected. Basin Electric also has proposed marking portions of the line to reduce potential collision risk for Whooping crane (see Section 3.5); such measures also could reduce collision risk for these species. As a result of these environmental protection measures, impacts to the interior least tern and piping plover would not be anticipated to adversely affect these species.

Sprague's Pipit

Direct and indirect impacts to Sprague's pipit include mortalities or displacement related to Project construction and operation as well as increased noise levels and human presence. Project construction would disturb areas that could be used for foraging. However, in most instances suitable foraging habitat adjacent to disturbed areas would be available to the Sprague's pipit. The species is a migrant in Lyman and Tripp counties and there are no known nest sites in South Dakota (USFWS 2011c). Therefore, impacts to the Sprague's pipit would be low.

American Burying Beetle

It is highly unlikely individual American burying beetles would be present in the study area, or that this species would be affected by Project construction (USFWS 2011j). The majority of the American burying beetle's life cycle is spent underground or in the litter layer of soil. Two miles of transmission line and the Witten Substation expansion would be constructed south of U.S. 18, resulting in a total of 7.1 acres of permanent surface disturbance. The study area is located at the extreme northern extent of American burying beetle geographic range in South Dakota. Potential impacts to the American burying beetle from Project operations would be negligible. The likelihood of maintenance personnel encountering an American burying beetle is low due to the fact that the species is nocturnal and fossorial. Based on consultation with USFWS, no surveys would be conducted for this species and impacts are not anticipated.

Construction activities involving over 1 acre of soil disturbance, which would occur south of U.S. 18 in Tripp County, would be reported to the USFWS Ecological Services Office. Based on consultation with the USFWS, surveys for this species are not recommended.

Pallid Sturgeon

Potential impacts to the Pallid sturgeon are primarily related to potential alteration or degradation of native habitats, increased sedimentation, potential toxicity related to fuel spills, and issues associated with water management. The Applicant has committed to not constructing aboveground facilities and construction laydown areas within mapped wetlands, riparian areas, or other WUS. The transmission line would span wetlands and waterbodies, including the White River. Direct impacts to aquatic special status species from construction activities would be unlikely. Therefore, impacts to the Pallid sturgeon would not be anticipated.

<u>State-Listed Species</u>

Bald Eagle

Direct impacts to bald eagles can result from the loss or alteration of habitat, and increased human disturbance. Line-strike and electrocution also are major sources of injury and mortality to bald eagles. Indirect impacts to bald eagles include disturbance or displacement related to Project construction and operation as well as increased levels of noise and human presence. During the breeding season, bald eagles are sensitive to a variety of human activities. Some eagle pairs tolerate proximity to human activity; others will abandon the nest site. This variability could be related to a number of factors, including visibility, duration, noise levels, extent of the area affected by the activity, prior experiences with humans, and tolerance of the individual nesting pair. Relative sensitivity of bald eagles during various stages of the breeding season also varies. If agitated by human activities, eagles could inadequately construct or repair their nest, could expend energy defending the nest rather than tending to their young, or could abandon the nest altogether. Activities that cause prolonged absences of adults from their nests can jeopardize eggs or young in various ways. Older nestlings could be startled by loud or intrusive human activities and prematurely jump from the nest. Disruption, destruction, or obstruction of roosting and foraging areas also can affect bald eagles. Interference with feeding can result in reduced productivity. Human activities near or within communal roost sites could prevent eagles from feeding or taking shelter.

The operation of the Project would increase the collision potential for bald eagles. However, collision potential typically is dependent on variables such as the line and microwave tower location in relation to high use areas (e.g., nesting, foraging, and roosting), line orientation to flight patterns and movement corridors, visibility, and transmission line/tower design. Basin Electric has committed to implementing standardized protection measures, as outlined in *Reducing Avian Collisions with Power Lines* (APLIC 2012), to prevent or minimize collision risk associated with the Project, in coordination with state and federal agencies and the LBST, as needed.

Transmission line configurations 60-kV or greater typically do not present an electrocution hazard to bald eagles, based on conductor placement and distances between conductors and ground wires (APLIC 2006). As a result, no electrocution hazard to bald eagles would be anticipated from the Project.

Three historic eagle nests occur within 0.5 to 1 mile of the Proposed Action. If construction is scheduled to occur during the breeding season for bald eagles (February 1 through August 15), pre-construction aerial and/or pedestrian breeding raptor surveys would be conducted by a qualified biologist in areas of suitable nesting habitat in order to identify any active nest sites within 1.0 mile from the Project area. Appropriate protection measures, including seasonal constraints and establishment of distance buffer areas would be implemented at active nest sites until the young have fledged and have dispersed from the nest area. These measures would be implemented on a site-specific basis, in coordination with the USFWS; the USFWS also would be consulted as to any permit requirements under the Bald and Golden Eagle Protection Act. Also, areas within 100 feet of surface waters are designated as avoidance areas by the Project, and the transmission line would span waterbodies. By implementing these environmental protection measures, impacts to the bald eagle would be low.

River Otter

Direct impacts to the river otter include displacement related to Project construction; habitat alteration, and increased noise levels and human presence, primarily at the White River crossing. Temporary construction-related disturbance near den sites could lead to abandonment of young, lost productivity, and displacement from preferred habitats, if present. However, according to SDGFP (2011b) there are no known locations of river otter dens within the study area. Consequently, no direct impacts to breeding river otters would be expected as a result of Project construction. The transmission line would span the White River with a minimum setback of 100 feet from the banks; therefore, impacts from Project operation are not anticipated.

False Map Turtle, Northern Redbelly Dace, Pearl Dace, and Sturgeon Chub

Potential impacts to aquatic special status species, including the false map turtle, northern redbelly dace, pearl dace, and sturgeon chub are primarily related to potential alteration or degradation of native habitats, increased sedimentation, potential toxicity related to fuel spills, and issues associated with water management. The Applicant has committed to not constructing aboveground facilities and construction laydown areas within mapped wetlands, riparian areas, or other WUS. The transmission line would span wetlands and waterbodies, including the White River. Direct impacts to aquatic special status species from construction activities would be unlikely. Therefore, impacts to aquatic special status species would not be anticipated.

3.5.4.2 Alternative Route A

Special Status Species

Potential impacts to special status species would be the same as discussed for the Proposed Action. This alternative would impact two prairie dog colonies; Colony 1, which also is crossed by the Proposed Action, and Colony 3, which is located at T106N, R72W, S33. A total of approximately 4.28 acres of prairie dog colonies would be affected by Alternative Route A. This alternative would be further from one eagle nest (approximately 3 miles), but would still be within 0.5 mile of two eagle nests.

3.5.4.3 Alternative Route B

Special Status Species

Potential impacts to special status species would be the same as discussed for the Proposed Action. This alternative route would impact one prairie dog colony; Colony 1, which also is crossed by the Proposed Action. A total of approximately 0.05 acres of a prairie dog colony would be affected by Alternative Route B. This alternative would be further from one eagle nest (approximately 2 miles), but would still be within 0.5 mile of two eagle nests.

3.5.4.4 No Action Alternative

Special Status Species

The temporary disturbance, permanent structures, and associated activity would not occur under the No Action Alternative. Impacts to special status species would not occur from this Project.

3.6 Wetlands

3.6.1 Affected Environment

3.6.1.1 Waters of the U.S.

WUS are defined in 33 CFR 328 and include all waters that currently are, or were used in the past, or may be susceptible to use in interstate or foreign commerce; all interstate waters including wetlands; all other waters such as interstate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate commerce; and all impoundments of waters otherwise defined as WUS under this definition. In addition, tributaries of the above listed waters, including arroyos and other intermittent drainages, and wetlands adjacent to the above waters also are considered to be WUS.

Criteria used by the USACE to determine whether a drainage constitutes a WUS include presence of a defined bed (i.e., a linear bed in a topographic depression which would transport surface water from a watershed), presence of defined banks (i.e., near vertical or steep-sided banks formed by erosion from flowing water), and evidence of an ordinary high water mark (e.g., scoured bed, shelving, an absence of terrestrial vegetation and recent alluvial or litter deposition) that the drainage is subject to surface water flows on an average annual basis.

WUS within the study area may include, but are not limited to the following: White River and Thunder, Hollow, No Moccasin, Dog Ear, Black Dog, American Crow, Red Butte, Sand, Short, Owl, and North Fork American Crow creeks. A detailed surface waters discussion including a tabular summary of the surface water features within the study area are presented in Section 3.8.1, Water Quality, and **Table 3-13**, respectively.

Table 3-13 NWI-identified Wetlands within the Study Area

Wetland Type	Acres	Percent of Total Acreage (%)
PEM[1]	5,690	61
PSS[1]	77	<1
PFO[1]	12	<1
Palustrine Aquatic Bed	1,220	13
Lacustrine	1,673	18
Riverine	610	7
Manmade Pond	7	<1
Total	**9,289**	**100**

[1] PEM = palustrine emergent; PSS = palustrine scrub-shrub; PFO = palustrine forested.

Source: USFWS 2011.

3.6.1.2 Wetlands

As described above, wetlands adjacent to WUS also are considered to be WUS. In addition, and as used in this section, the term “wetlands” has a regulatory definition as defined in 33 CFR 328.3(b). The term “wetlands” is defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” The frequency and duration of saturation may vary by geographical region, and is largely dependent upon local climatic conditions.

Under the USACE’s 1987 Wetland Delineation Manual, a “three-parameter” approach is required for delineating USACE-defined wetlands (USACE 1987). Based on this approach, areas are identified as wetlands if they exhibit the following characteristics:

- The prevalence of vegetation consisting of hydrophytic species or plants that have the ability to grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content and depleted soil oxygen levels.
- The presence of soils that are classified as hydric or possessing characteristics that are associated with reducing soil conditions. Hydric soils are poorly drained and have a seasonal high water table within 6 inches of the surface.
- An area which is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation (usually 12.5 percent of the growing season) (USACE 1987; Wetland Training Institute, Inc. 1995). Within the study area, an area would need to be saturated for a period of approximately 19 days to support vegetation adapted to saturated soils based on the average number of days above 32 degrees Fahrenheit (i.e., average 152 days*0.125) (NRCS 2002, 2000).

The USACE Wetland Delineation Manual (USACE 1987), in conjunction with the Regional Supplement to the Manual: Great Plains Region (USACE 2008) requires that, under normal circumstances, all three of these conditions be met for an area to be considered a wetland under the USACE’s definition. Federal mandates governing regulatory enforcement in wetlands and other WUS include Section 10 of the Rivers and Harbors Act of 1899 (Section 10), Sections 401 and 404 of the Clean Water Act (CWA), as amended (33 USC 1251 et seq.), and EO 11990, Protection of Wetlands (42 FR 26961). Any loss, dredging, or filling of WUS would be regulated by the USACE under CWA Section 404. Final regulatory authority and delineation boundaries for wetlands and WUS within these areas lie with the USACE. If wetland and riparian features potentially impacted are identified as being jurisdictional, consultation with the Omaha District of the USACE would be conducted, a subsequent jurisdictional determination would be obtained, and permit requirements would be determined at that time.

A desktop review of the NWI database was completed to identify the spatial extent of hydrological features within the study area. Based on this review, approximately 9,289 acres of palustrine, lacustrine (including manmade ponds), and riverine systems were identified. **Table 3-13** summarizes the NWI wetland data and associated acreage of each system within the study area. **Figure 3-9** illustrates the NWI-identified wetlands within the study area.

3.6.2 Environmental Consequences

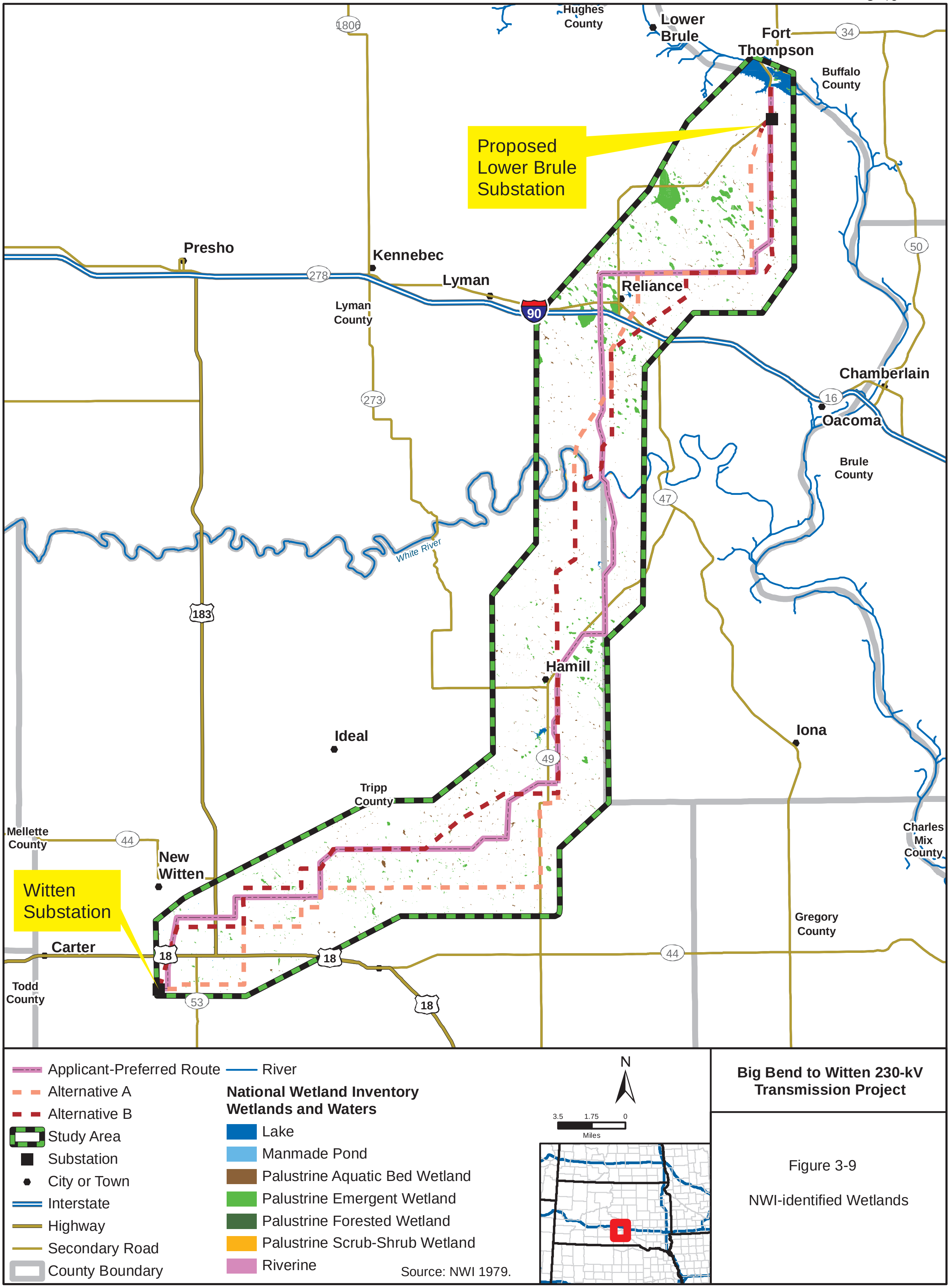
The impact analysis area for wetlands and WUS encompasses the Proposed Action and alternative routes. Temporary impacts were calculated based on the inclusion of temporary use areas associated with single-pole structures and pad placement; access roads within the 125-foot-wide construction ROW; pulling, tensioning, and splicing sites; laydown areas; and geotechnical boring sites. Permanent impacts were calculated based on the inclusion of long-term use areas associated with structure placement, and the Lower Brule Switchyard, and Witten Substation expansion areas and their associated access roads. The primary issues associated with wetlands and WUS include direct and/or indirect impacts to riparian/wetland habitats, and impacts associated with the introduction and/or spread of noxious weeds and invasive species within these communities.

3.6.2.1 Proposed Action

As described in **Appendix D**, Environmental Protection Measures, a pre-construction wetland and waterbody survey would be conducted in localized areas for appropriate structure placement in accordance with USACE wetland delineation protocol prior to construction. All features would be mapped using a Global Positioning System device to enable feature avoidance and site-specific structure placement.

Wetland and riparian communities would be spanned by the proposed transmission line; and construction, operation, and maintenance vehicle and equipment travel through wetlands would be prohibited, thereby avoiding direct impacts to these ecosystems. In addition, a 100-foot buffer would be established adjacent to wetlands and creeks, where practicable, to prevent or minimize impacts to these ecosystems. The Lower Brule Switchyard and Witten Substation expansion areas and associated access roads would not impact wetlands since these areas consist of cultivated cropland and rangeland. Indirect impacts as a result of Project implementation may include increased sedimentation and erosion, introduction of noxious weeds and invasive species, and accidental spills within wetland and riparian communities.

To minimize indirect impacts to wetlands and riparian areas, environmental protection measures would be implemented to include at minimum the following: 1) placement of erosion and sedimentation control devices; 2) prohibit the placement of staging areas and refueling areas near surface waterbodies; 3) conduct timely stabilization and revegetation with an approved native seed mixture to minimize soil erosion and sediment runoff; 4) implement pre-construction weed control, equipment washing, and post-construction noxious weed monitoring; 5) develop and execute measures in the Stormwater Pollution Prevention Plan (SWPPP); and 6) designate off-site and staging area refueling locations.



Big Bend to Witten 230-kV Transmission Project

Figure 3-9

NWI-identified Wetlands

Impacts to wetlands would generally be avoided as a result of the pre-construction surveys, avoidance of areas identified, and Environmental Protection Measures in **Appendix D**; therefore, impacts are anticipated to be minimal.

3.6.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to wetlands and WUS and impact minimization measures would be similar to those described under the Proposed Action.

3.6.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to wetlands and WUS and impact minimization measures would be similar to those described under the Proposed Action.

3.6.2.4 No Action Alternative

Under the No Action Alternative, the Project would not be developed; therefore, impacts to wetland resources would not occur.

3.7 Floodplains

3.7.1 Affected Environment

The basis for examining the occurrence of floodplains and the potential Project effects on them is found in EO 11988, Floodplain Management, dating from May 1977. This EO states that actions by federal agencies shall avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains wherever there is a practicable alternative. Each agency has a responsibility to evaluate the potential effects of any actions it may take in a floodplain; to ensure that its planning programs reflect consideration of flood hazards and floodplain management; and to prescribe procedures to implement the policies and requirements of the Order. If an agency has proposed to conduct, support, or allow an action to be located in a floodplain, the agency is to consider alternatives to avoid adverse effects and incompatible development in the floodplains.

From a geomorphic perspective, floodplains are relatively low, flat areas of land that surround water bodies and hold overflows during flood events. Floodplains are often associated with rivers and streams, where they consist of streamlain sediments forming levels (or “terraces”) deposited in different geologic times along the watercourse. Low terraces within a few feet above the elevation of an ordinary high water mark are usually considered the modern floodplain. From a policy perspective, much of the basic inventory, regulation, and mitigation effort for floodplains and flood mitigation (including the National Flood Insurance Program [NFIP]) have been led by the Federal Emergency Management Agency (FEMA). FEMA defines a floodplain as being any land area susceptible to inundation by waters from any source (FEMA 2011a). For purposes of the NFIP, regulatory floodplains are defined as the areas that would be inundated from a 100-year flood event (an event having a 1 percent chance of occurring in any year). FEMA Flood Insurance Rate Maps (FIRM) delineate floodplains on that basis, with Zone A and its subcategories delineating regulated floodplains.

There are no published FEMA floodplain maps, either historical or current, for the study area (FEMA 2011b). The South Dakota Office of Emergency Management (OEM), in Pierre, administers the National Flood Insurance Program for South Dakota under a cooperative agreement with FEMA.

Geomorphically, the floodplain along the White River is the most extensive within the study area. It occurs as a broad, relatively flat valley feature ranging from approximately 0.5 mile to 1 mile wide across the study area. Floodplain elevations along the White River in the study area range from approximately 1,475 feet upstream to 1,400 feet downstream. Narrower geomorphic floodplains exist at other stream crossings. These primarily occur in Tripp County and include streams such as Black Dog, No Moccasin, Thunder, and Dog Ear creeks (**Figure 3-10**). These floodplains range from about 75 to 150 feet wide.

Similar narrow floodplains occur within the study area in Lyman County along American Crow Creek and on lower Red Butte Creek. Other stream crossings within the study area consist of narrower, more entrenched channel features with little or no associated floodplains.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

The proposed construction would avoid disturbance in floodplains by selecting site-specific alignments to avoid streams or, where crossings would be necessary, span them with overhead lines. As described in Chapter 2.0, the span between transmission structures would typically range from 650 feet to 950 feet, and would average approximately 800 feet, depending on topography. Taller structures allowing wider spans could be used if necessary for crossing broader floodplain features.

In general, this approach would avoid impacts to hydrologic and hydraulic conditions on floodplains, since little or no disturbance on floodplains would result from spanning them. There are no officially designated FEMA floodplains along the Proposed Action, and most of the crossings would involve relatively narrow features such as No Moccasin Creek or Dog Ear Creek (**Figure 3-10**). In some cases, transmission structures may be required on low-lying geomorphic floodplains along streams. If this occurs, however, the footprint would be small and is not anticipated to create an encroachment on out-of-bank flow conveyance. Since existing access routes would be used, no stream constrictions would result from the Project.

Neither the Lower Brule Switchyard nor the Witten Substation expansion would be located on geomorphic or FEMA-designated floodplains. No impacts to floodplains would occur from construction of these facilities. These facilities would not be affected by floodplains.

No operations and maintenance impacts to floodplain hydrology or flood conveyance are anticipated from the Project.

3.7.2.2 Alternative Route A

Impacts from this alternative would be the same as those described for the Proposed Action.

3.7.2.3 Alternative Route B

Impacts from this alternative would be the same as those described for the Proposed Action.

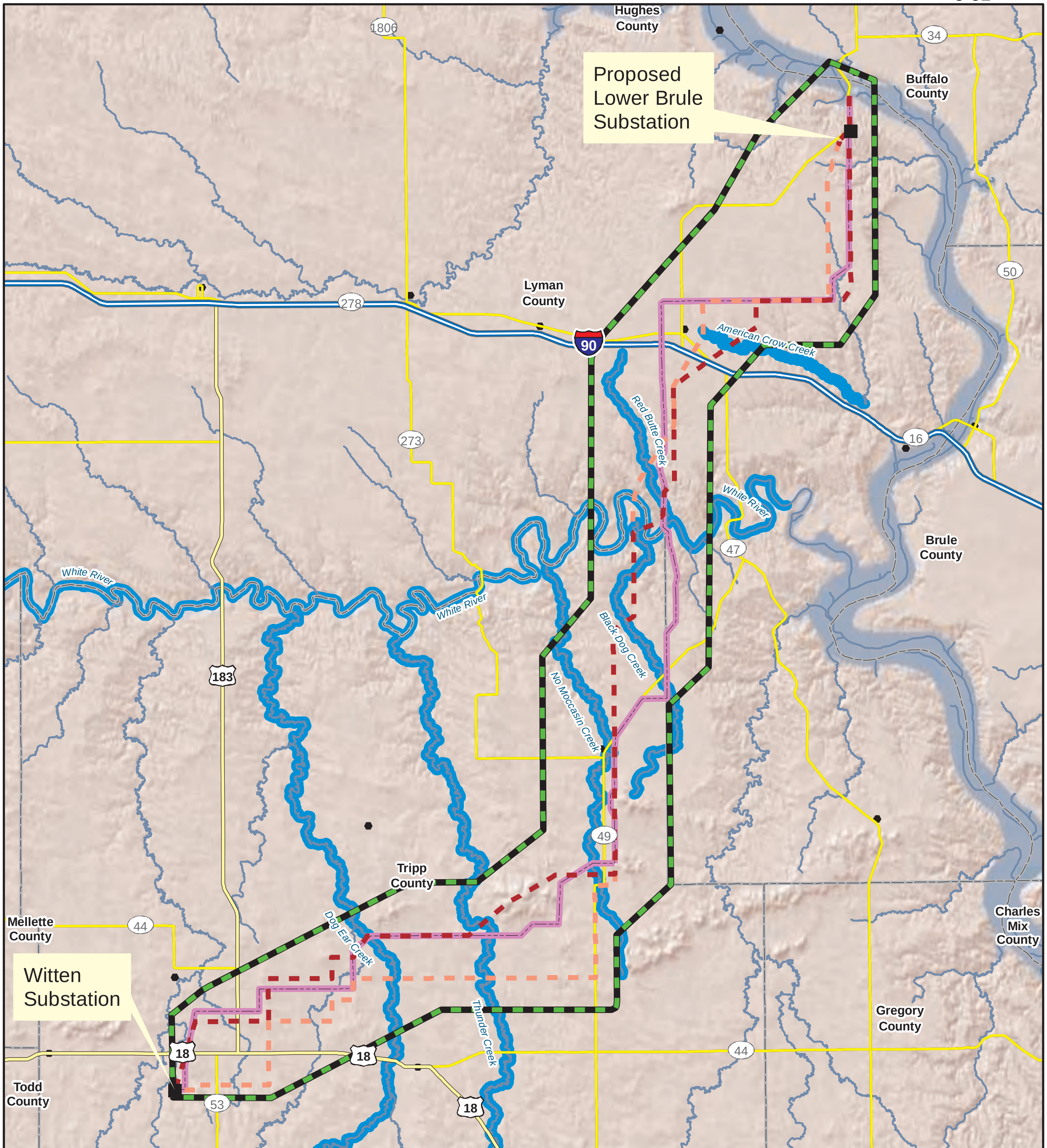
3.7.2.4 No Action Alternative

Under the No Action Alternative, no impacts to floodplain hydrology or hydraulics would occur. Existing conditions on geomorphic floodplains in the area would continue undisturbed by Project activities.

3.8 Water Quality

3.8.1 Affected Environment

WUS are regulated by the CWA. The purpose of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” The CWA is the primary authority under which the U.S. Environmental Protection Agency (USEPA), the South Dakota Department of Environment and Natural Resources (DENR), and USACE regulate effects to surface waters within the boundaries of South Dakota.



Applicant-Preferred Route
Alternative A
Alternative B
Study Area
Substation
City or Town
Interstate
Highway
Secondary Road
County Boundary
Named Streams and Rivers
Probable Areas of Floodplains

N
3.5 1.75 0
Miles

Source: ESRI 2004.

Notes:
1) Geomorphic floodplains are associated with these streams, based on aerial photo review by AECOM.

Big Bend to Witten 230-kV Transmission Project

Figure 3-10

Probable Areas of Geomorphic Floodplains

Designated beneficial uses for the various waterbodies (i.e., rivers and streams, lakes, groundwater) form the basis for assigning and administering water quality standards. The uses and the standards, in turn, designate the quality at which the waters are to be maintained and protected. Water quality standards for South Dakota define the physical and chemical characteristics of surface water and groundwater that allow them to meet these uses, as designated by the state. South Dakota assigns numbers to the designated beneficial-use categories (DENR 2011a):

1) Domestic water supply waters;
2) Coldwater permanent fish life propagation waters;
3) Coldwater marginal fish life propagation waters;
4) Warmwater permanent fish life propagation waters;
5) Warmwater semi-permanent fish life propagation waters;
6) Warmwater marginal fish life propagation waters;
7) Immersion recreation waters;
8) Limited-contact recreation waters;
9) Fish and wildlife propagation, recreation, and stock watering waters;
10) Irrigation waters; and
11) Commerce and industry waters.

All streams in South Dakota are assigned the beneficial uses of irrigation (Use 10), fish and wildlife propagation, recreation, and stock watering (Use 9) (DENR 2011a).

Water quality is assessed under state and federal monitoring programs, and regulated through permit reviews and provisions for various water uses or other activities. In addition, the CWA requires states to publish, every 2 years, an updated list of water-quality “impaired” streams and lakes that do not meet designated uses because water quality does not meet established standards.

Storm water runoff is generated when precipitation from rain and snowmelt events flows over land or impervious surfaces and does not percolate into the ground. As the runoff flows over the land or impervious surfaces (paved streets, parking lots, and building rooftops), it accumulates debris, chemicals, sediment or other pollutants that could adversely affect water quality if the runoff is discharged untreated. The primary method to control storm water discharges is the use of best management practices. Storm water discharges from construction activities (such as clearing, grading, excavating, and stockpiling) that disturb one or more acres of land are regulated under the National Pollutant Discharge Elimination System (NPDES) storm water program. To prevent storm water discharge of pollutants, construction operators must obtain coverage under an NPDES permit, which often requires a storm water pollution prevention plan (SWPPP) to define what best management practices the operator would comply with the NPDES (e.g., silt fencing, erosion control). The NPDES is a nationwide federal program of the USEPA. In South Dakota, DENR has the delegated authority from USEPA to issue permits and regulate storm water discharges under the NPDES for activities within the state.

3.8.1.1 Existing Surface Water Quality

Table 3-14 indicates the total number of stream crossings along each of the Project routes within the study area (**Figure 3-11**). These crossings occur within two major watersheds, Medicine or Medicine Creek (Hydrologic Unit Code [HUC] 10140104) and the Lower White River (HUC 10140204) (USEPA 2011). No areas of probable concern for sediment contamination occur along or adjacent to the Project routes (USEPA 2004). Water quality has been sampled by the DENR and the USGS in Medicine

Creek near the town of Kennebec, and in the lower White River at Oacoma (USEPA 2011; USGS 2011). Although part of the larger Medicine Creek watershed area would be crossed, Medicine Creek itself would not be crossed by any of the Project routes under consideration; its data probably reflect general water quality characteristics and influences in the area. Currently, there are no water quality impairments listed for Medicine Creek (USEPA 2011). In past assessments, Medicine Creek was impaired on the basis of elevated specific conductivity (SpC, a general measure of salinity), as well as Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) concentrations. If Medicine Creek is representative of smaller drainages and land use influences in the study area, these water quality constituents may be elevated in other streams along the Project routes.

Table 3-14 Number of Stream Crossings by Project Route

Total Number of Stream Crossings	
Proposed Action	85
Alternative Route A	93
Alternative Route B	85

As a flow example, annual peak discharges in Medicine Creek at Kennebec averaged 2,356 cfs for the period 1960 through 2010, with a maximum of 16,600 cfs and a minimum of less than 1 cfs (USGS 2011). The median peak flow is 725 cfs. These data reflect a contributing watershed area of approximately 446 mi^2. Peak flows occurred in any month from March through August, but were most common from late March to mid-June. Similarly, peak flows at other stream crossings also are expected to vary widely in their rates and timing. From existing water quality data, SpC ranged between 284 to 6,530 microSiemens per centimeter (µS/cm) in Medicine Creek (USEPA 2011; USGS 2011). More recent data for selected peak-flow and late summer/early fall low-flow months indicate generally higher SpC values, averaging approximately 3,600 µS/cm (USEPA 2011). SpC values were consistently higher in the low-flow months, as were TDS concentrations. For data available for years 2000 to 2005, TDS ranged between approximately 570 milligrams per liter (mg/L) to 5,520 mg/L in peak-flow months, and from approximately 2,530 to 7,280 mg/L in selected low-flow months. TSS ranged widely, between 22 and 1,140 mg/L, and did not show a general seasonal pattern. Dissolved oxygen concentrations ranged from 11.2 to 18.2 mg/L. The pH values ranged between 8.13 to 9.01, with values of 8.4 to 8.7 being more typical. There was generally a slight increase in pH later in the year.

On the White River at Oacoma, annual peak flows averaged 15,563 cfs for the period 1960 through 2010, with a maximum of 42,400 cfs and a minimum of 1,750 cfs (USGS 2011). River data are gathered at the SH 47 bridge a few miles downstream of the study area. They reflect a contributing watershed area of approximately 9,859 mi^2. Recorded peak flows occurred in any month from mid-February through late September, but appeared to be most common from early March to late June.

The White River basin receives the majority of the runoff and drainage from the badlands in the western part of the state. These exposed sedimentary rock formations form a major natural source of both suspended and dissolved solids to the river. Severe erosion and leaching of soils occurs in the Badlands and downstream throughout the basin (DENR 2010). The river is currently impaired on the basis of Sodium Adsorption Ratio (SAR) and pathogens (the presence of *E. coli* and excessive fecal coliform counts) (DENR 2010; USEPA 2011). In past assessments, the river also was impaired due to elevated TSS concentrations and turbidity. The applicable water quality standard for TSS has been modified to be less than or equal to 21,550 mg/L, as a site-specific daily maximum for semi-permanent fish life propagation. The current water quality in the river attains that standard (DENR 2011a; USEPA 2011).

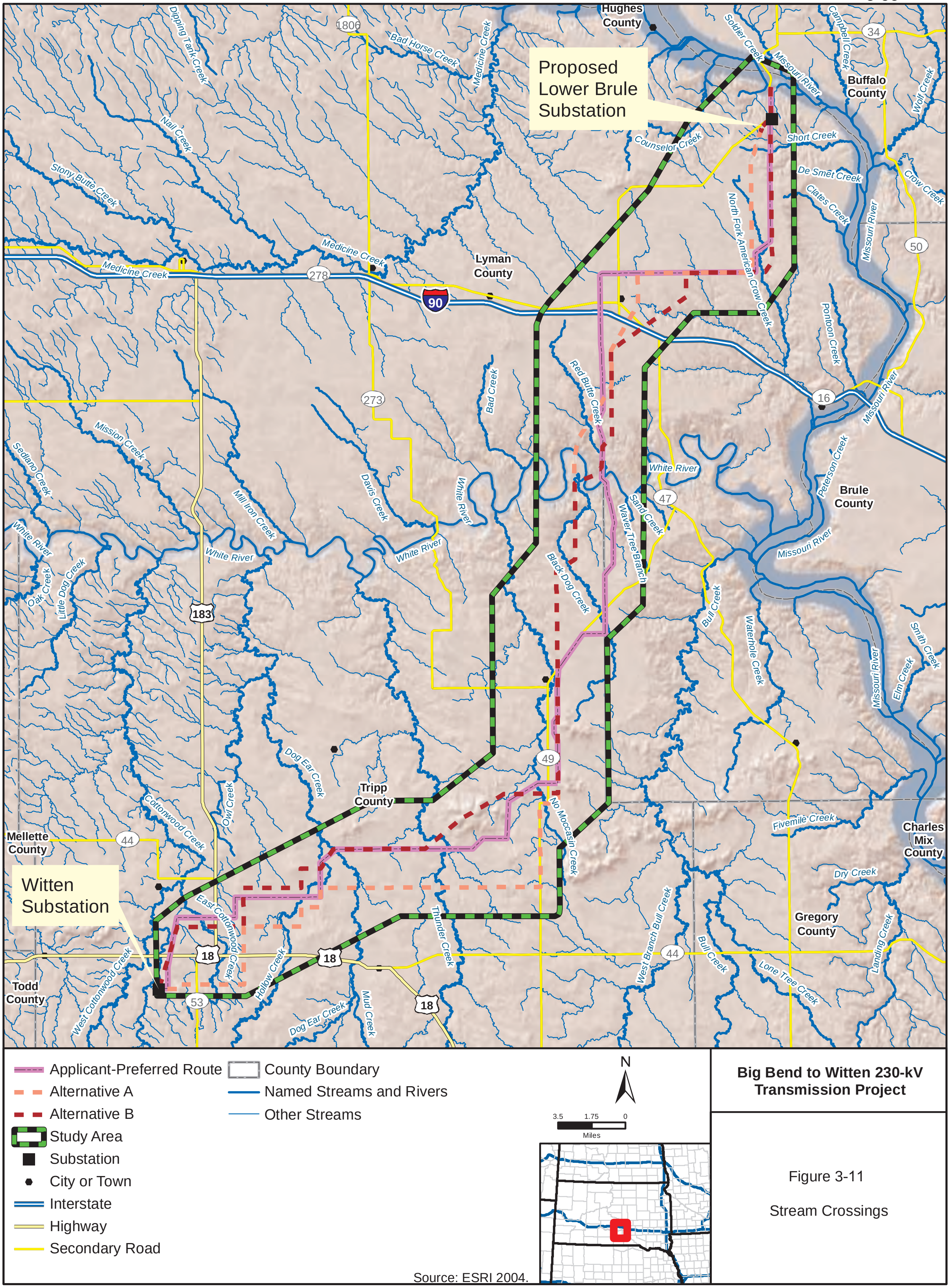


Figure 3-11

Stream Crossings

Water quality data from the White River have been collected by both the USGS and DENR. Over the period 1969 to 2011, USGS data for SpC indicate that this parameter ranged from approximately 300 to 2,670 µS/cm, with an average of 690 µS/cm (USGS 2011). Recent data from DENR fall within the same range. In the last 10 years, SpC data from the river samples have been consistently below about 1,200 µS/cm. Suspended sediment concentrations, which include USGS data from 1972 to 2011, average approximately 10,000 mg/L, with a median value of 4,525 mg/L. They range widely (14 to 82,000 mg/L). Since the year 2000, suspended sediment concentrations have somewhat declined in the river, with an average of approximately 7,800 mg/L, a median value of 3,040 mg/L, and a range of 14 to 58,100 mg/L. Recent (2000 through 2005) TSS data for peak-flow and selected low-flow months ranged from approximately 60 to 11,400 mg/L (USEPA 2011). There was no apparent seasonal correlation. TDS concentrations from the same data set ranged from approximately 210 to 5,600 mg/L, and were generally lower in the late summer/early fall. Based on this brief comparison, the river data appear to differ from Medicine Creek data in that respect. This may be due to more early season runoff in the river from the badlands upstream. Dissolved oxygen concentrations ranged from approximately 8.7 to 12.8 mg/L, and pH ranged from approximately 8.0 to 8.7 standard units (USEPA 2011).

3.8.1.2 Existing Groundwater Quality

Groundwater resources occur in several major aquifers in the study area and surrounding region. These consist of unconsolidated alluvial deposits along streams, nearby Pleistocene terrace materials, the coarse, weakly consolidated sands in the Valentine Formation of the Ogallala Group on higher plateaus, the deeper Dakota Formation sandstones, and still deeper water-bearing zones of the Inyan Kara and Minnelusa Formations (Barari 1976a,b; Howells 1974; Ogle 1995; Schulz 1994). Alluvial water-bearing zones occur within broad streamlain deposits along the White River valley, and in narrower bands along other floodplains as shown in **Figure 3-11**.

Most wells that reliably produce water in the study area are constructed in Dakota (Newcastle) Formation sandstones at depths approximately 1,000 feet below ground surface, or in deeper zones (DENR 2011b). These wells are isolated from the surface by the overlying thickness of clayey materials in the Pierre Shale, and by chalky shales and siltstones of the Niobrara Formation, Carlisle Shale, Greenhorn Limestone, and Graneros Shale. These rocks form relatively impermeable zones hundreds of feet thick above water-bearing zones in the Dakota Formation and the deeper Inyan Kara Group, Sundance, and Minnelusa formations (Ogle 1995). These aquifers are under confined conditions, and wells completed in them are likely to flow when drilled in topographically low areas, such as near streams (Carter 1998). Water levels in the Dakota aquifer have been declining steadily due to the extensive pumping from this aquifer statewide (Ogle 1995).

Groundwater that has an ambient TDS concentration of 10,000 mg/L or less is classified as having the beneficial use of drinking water supplies, suitable for human consumption (South Dakota Administrative Rule 74:54:01:03). If groundwater quality fails to meet other state standards due to natural causes or conditions, no degradation of the groundwater beyond the ambient concentration is allowed.

Groundwater quality in the shallow, unconsolidated alluvial and terrace aquifers varies widely according to the source of these transported materials and the nature of the near-surface bedrock underlying the deposit. Data from shallow wells in the region indicate that SpC ranged from approximately 820 to 4,900 µS/cm; TDS concentrations ranged from about 520 to 4,500 mg/L; and pH ranged from 7.5 to 8.0 standard units (Howells 1974; Ogle 1995; USGS 2011).

In the general area, groundwater from the Dakota Formation contains TDS concentrations ranging from approximately, 1,500 to 3,000 mg/L. SpC ranges from about 2,000 to 5,000 µS/cm, and pH generally ranges from 7.0 to 8.0 standard units (Howells 1974; USGS 2011). Salinity, particularly as related to sodium concentrations, and TDS are occasionally elevated in water from wells supplied by the Dakota Formation (Barari 1976b; Howells 1974).

3.8.2 Environmental Consequences

Construction of the Proposed Action or alternative routes would result in land disturbance of approximately 348 to 356 acres, depending on route selection as described in Chapter 2.0. Because of this, a NDPES permit for construction activities would be required from the State of South Dakota. As authorized by Section 402 of the CWA, the NPDES permit program regulates sources that may discharge pollutants into WUS. The Project would comply with permit application requirements, and with provisions of the NPDES permit issued after review and approval by DENR. As described in Chapter 2.0, if any of the material staging areas include vehicle and equipment refueling, or involve storage of petroleum products in excess of 1,320 gallons, a SPCC Plan would be developed and implemented.

Additional state and federal programs regulate the discharge of dredged or fill material into WUS, including wetlands, under Section 404 of the CWA. No dredge or fill activities are anticipated as part of the Project; it is assumed that most traffic around streams would use existing bridges or crossing structures. However, temporary disturbance may be needed to allow equipment and vehicles to cross the smaller streams. Environmental protection measures for wetlands, floodplains, and water quality would be implemented to protect or minimize impacts to water quality (**Appendix D**). The potential for Project impacts to wetlands is discussed further in Section 3.6. Local and state programs address floodplain management, as further discussed in Section 3.7. No permanent structures are proposed to be located in floodplains.

A number of environmental protection measures are proposed for the Project as described in **Appendix D**. Several measures related to Agricultural Practices, Soils, Wetlands, Floodplains, and Water Quality as listed in **Appendix D** would address potential impacts to water resources and water quality. In particular, these would include:

- Spanning waterbodies with overhead transmission lines to avoid disturbance impacts;
- Eliminating deep ruts that could channel runoff and sediment;
- Additional erosion and sediment controls, including revegetation and other practices;
- Development and implementation of an approved SWPPP, Spill Prevention and Response Plan, and SPCC Plan if needed and any other provisions that may be specified during the approval processes for the permits;
- Scheduling maintenance operations during periods of minimum precipitation whenever possible;
- Spanning streams and drainages, and avoiding waterbodies and wetlands during construction and maintenance;
- Setbacks from wetlands and waterbodies for staging areas and refueling; and
- Use of existing access roads and trails with minimal grading.

3.8.2.1 Proposed Action

Potential impacts to water quality from construction of the Proposed Action and substation/switchyard could include sedimentation of streams and ponds from augering and grading, and increased turbidity and salinity from traffic on access roads, trails, and temporary access routes. At a number of structures, 15 to 20 yd^3 of surplus soil material would be either spread in the vicinity of the structure or disposed of in accordance with landowner wishes (see Chapter 2.0). Runoff from these materials could add to the potential sedimentation, turbidity, and salinity in surface waters. In addition, water quality impacts could result from spills of fuels, lubricants, drilling fluids, cuttings, or other material used to operate equipment and erect the structures.

Along this route, three perennial streams and numerous intermittent streams would be spanned. A total of approximately 1,600 feet of waterbody crossings would be spanned by the transmission line.

Approximately 25,600 feet of the route would be located within 100 feet of a perennial or intermittent stream.

Impacts to these features and water quality within them would be avoided, or their effects reduced by implementation of the environmental protection measures. In addition, the implementation of an approved SWPPP, Spill Prevention and Response Plan, and SPCC Plan if needed and any other provisions that may be specified during the approval processes for the permits previously described also would avoid or reduce potential impacts to water features and water quality. As described in Chapter 2.0, waste and rubbish from construction areas would be collected and disposed of in an approved landfill. Sanitary waste would be removed through arrangements with local municipal sanitary waste treatment facilities. Hazardous waste would not be stored or located near the ROW or in proximity to waterways or drainages at any time before, during, or after construction. Material staging areas and vehicle maintenance and refueling areas would not be located near waterways.

As previously described, the majority of groundwater in the study area is isolated from surface activities by hundreds of feet of relatively impermeable, clayey material. Shallower groundwater in alluvial and terrace deposits would be protected by compliance with NPDES permit provisions and implementation of the Spill Prevention and Response Plan. Negligible use of water supplies would occur during Project construction, and potential impacts to surface water or groundwater quantities would not occur. No impacts to water quality or quantity would be anticipated.

Potential impacts to water quality from operation and maintenance of the transmission line and substation/switchyard could primarily include increased sedimentation, turbidity, and salinity in streams and ponds from traffic on access roads, trails, and temporary access routes. These potential water quality impacts would be avoided or mitigated through implementation of environmental protection measures, and ongoing compliance with operating plans and permit provisions. With implementation of environmental protection measures, impacts to water quality are expected to be negligible to minor and would not result in measurable changes to watershed impairment determinations.

3.8.2.2 Alternative Route A

Potential impacts to water quality under this Alternative would be similar to those described for the Proposed Action. Under this alternative, seven perennial streams and numerous intermittent streams would be crossed. A total of approximately 1,500 feet of waterbody crossings would be involved. Approximately 32,000 feet of the route would be located within 100 feet of a perennial or intermittent stream.

Impacts to these features and water quality within them would be avoided, or their effects reduced and mitigated, by implementation of the environmental protection measures, a SWPPP, SPCC, and Spill Prevention and Response Plan in the same manner as discussed for the Proposed Action. Potential water quality impacts and related considerations from operations and maintenance under Alternative Route A would be the same as those discussed for the Proposed Action.

3.8.2.3 Alternative Route B

For this alternative, seven perennial streams and numerous intermittent streams would be crossed. A total of approximately 1,200 feet of waterbody crossings would be involved. Approximately 29,000 feet of the route would be located within 100 feet of a perennial or intermittent stream. Alternative Route B would be located in steeper terrain northeast of Winner and along the tributaries to American Crow Creek east of Reliance. As a result, the potential for surface water quality impacts from increases in sedimentation, turbidity, and salinity during construction and maintenance would be higher along this alternative than along the Proposed Action or Alternative Route A.

Impacts to these features and water quality within them would be avoided, or their effects reduced and mitigated, by implementation of the environmental protection measures, a SWPPP, SPCC, and Spill

Prevention and Response Plan in the same manner as discussed for the Proposed Action. The environmental protection measures and the SWPPP would need somewhat more rigorous implementation to successfully control runoff, sedimentation, and surface water quality impacts along Alternative Route B, due to steeper terrain along parts of the route.

Potential water quality impacts and related considerations from operations and maintenance under Alternative Route B would be the same as those discussed for the Proposed Action.

3.8.2.4 No Action Alternative

Under the No Action Alternative, no surface disturbance, excavation, waterbody crossings, equipment operations, traffic, or storage of fuels or other materials would occur as a result of the Project, and therefore this alternative would have no additional impacts to water quality.

3.9 Cultural Resources

3.9.1 Affected Environment

The regulations implementing Section 106 of the NHPA (36 CFR 800) require that federal agencies and applicants for federal financial assistance consider the potential effects of their actions on "historic properties" listed in or eligible for listing in the NRHP. The NRHP contains a wide range of historic property types including historic buildings and structures, archaeological sites, individual objects, landscape features, and combinations of property types that form districts (e.g., archaeological districts or historic districts).

The potential to affect historic properties must be evaluated for the entire "area of potential effects" (APEs). The APE is defined as the entire Project footprint of all Project activities and the viewshed surrounding the Project footprint. The APE for historic properties 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 includes areas of direct impact and indirect impacts. Direct impacts include all locations potentially subject to ground disturbance resulting from construction activities. Indirect impacts include visual effects. That is, all locations for which elements of the Project (e.g., aboveground electric transmission structures and lines) might create a visual impact (e.g., block the view of an important historic property or interrupt the viewshed between associated historic properties).

The Project APE for direct impacts includes the 125-foot-wide construction ROW as well as temporary construction equipment and materials storage yards and temporary or permanent access roads created or upgraded for transmission line construction and maintenance. Where applicable, the APE for visual impacts includes Project components with vertical profiles of sufficient mass and scale that they would block the view of an eligible building, structure, or landscape feature or introduce incompatible elements to a historic property for which setting contributes to its NRHP eligibility.

3.9.2 Archaeological Resources, Historic Buildings, and Historic Sites

Under the National Register Criteria for Evaluation (36 CFR 60), buildings, structures, and archaeological sites that are more than 50 years old may be eligible for inclusion in the National Register. Buildings, structures, and sites less than 50 years old must meet special criteria to be considered National Register eligible. Archaeological resources are the tangible remains of human occupations that are no longer in use. Buildings are designed to house human activity (e.g., homes, community centers, etc.) and structures are constructed for purposes other than to house human activity (e.g., bridges, canals, etc.). Finally, certain areas which are associated with the cultural practices or beliefs of a living community or cultural group may qualify for consideration as Traditional Cultural Properties (TCPs) (Parker and King 1998). The LBST Cultural Resources Office, under the direction of a qualified archeologist, conducted cultural resources investigations in the APE. A description of those investigations follows.

3.9.2.1 Cultural Resources Investigations

In July 2012, the LBST Cultural Resources Office (CRO) conducted a Level III archaeological survey and TCP survey for the proposed transmission line route and substation/switchyard locations (Molyneaux and Blue Thunder 2013). The survey corridor was 84 miles long by 125 feet wide and also included a 1,000-foot-long reroute and three proposed substation locations. For visual concerns, the survey included an area measuring 0.25-mile either side of the transmission line centerline. The TCP survey included lands within sight of the transmission line corridor. Prior to the Level III and TCP surveys, a background literature and site records search of the survey corridor and substation locations was conducted through the State Archaeological Research Center's site records database and from archives and files at the LBST CRO. In addition, the CRO reviewed the General Land Office maps, township plat maps, county and local histories, and historic aerial photography. An analysis of these databases indicated that several previous surveys had been conducted within a small portion (3.4 percent) of the survey corridor. As a result of the literature and files search, one historic property (historic railroad) was identified within the survey corridor.

A total of 20 cultural resources were identified during the Level III archaeological survey. Of the 20 cultural resources, 9 were located within or adjacent to the survey corridor (direct APE) and 11 were identified within 0.25 mile of the survey corridor (visual APE). The nine sites in the direct APE include two prehistoric lithic scatters, one historic dump, two historic railroads, one historic depression, and three historic farmsteads. Of the 11 sites within the visual APE, four are farmsteads, three are historic dumps, two are buttes/quarries, one is a wagon road, and one is an historic station (Big White River Government Issue Station). Of the nine sites within the direct APE, two are sections of two railroads previously recommended as eligible for nomination to the NRHP: the former Chicago, Milwaukee, St. Paul, and Pacific Railway; and the former Chicago and North Western Railway. The remaining seven sites were recommended as not eligible. Of the 11 sites within the visual APE, 1 site (Big White River Government Issue Station) has the potential (if ever fully investigated and recorded) to be eligible for the NRHP. The remaining 10 sites were recommended as not eligible for the NRHP. There are two NRHP-eligible historic structures located outside of the visual APE (approximately 0.5 to 0.9 mile away), but the viewshed between the structures and the proposed transmission line has been disturbed by existing utility poles, trees, farmsteads, and a highway. As a result of the TCP survey, many localities with significance within the history and traditions of the Sicangu people of the Lakota Nation were identified by tribal members who were part of the survey. Due to the confidential nature of these localities, they are not identified in this document.

The Level III survey and TCP survey identified two NRHP-eligible historic properties within the direct APE, two NRHP-eligible historic structures outside of the visual APE, and several localities of significance to the tribes. Basin worked cooperatively with the LBST to alter the corridor in certain areas to mitigate impacts to sites of significance found during the Level III and TCP investigations. Based on the evidence of the two surveys, the CRO recommended a finding of "No Historic Properties Affected." The results of the two surveys were included in a report that was submitted to the South Dakota State Historic Society on March 12, 2013. In a letter dated July 24, 2013, the South Dakota State Historic Preservation Officer (SHPO) agreed with the findings of the Level III survey and TCP survey (Rubingh 2013; **Appendix E**). In the letter, the South Dakota SHPO states that "we would recommend a determination of 'No Historic Properties Affected' provided the following the stipulations: 1) all eligible and unevaluated sites are avoided by all construction activities, and 2) activities occurring in areas not identified in your correspondence are submitted to SHPO for further review and comment."

3.9.3 Traditional Cultural Properties/Sites of Religious Significance

National Register Bulletin 38, "Guidelines for Evaluating and Documenting Traditional Cultural properties," provides guidance for determining National Register eligibility for a historic property based on "traditional cultural significance," which may be defined as "those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice." The general category of TCPs encompasses a wide range of historic property types, including but not limited to, locations associated with important beliefs, plant and mineral gathering areas, places that mark cultural origins, prehistoric archaeological sites, features (e.g., stone circles/cairns), artifacts, sacred areas, burial sites, rock art, traditional use areas, and sources for materials used in the production of sacred objects and traditional tools. Many TCPs are Native American religious sites; therefore tribal input is essential to determining if TCPs are located in the APE, and if the Project could impact TCPs.

On February 25, 2010, the LBST arranged and held a meeting at the LBST conference facilities in Lower Brule, South Dakota. Western and Basin Electric met with LBST representatives, the Lower Brule Sioux Tribal Chairman, members of the Tribal Council, members of the Cultural Resources Elder Advisory Committee, Lower Brule community members, staff of the LBST Cultural Resources Office and the Department of Wildlife, Fish and Recreation, and representatives from the Rosebud Sioux Tribal Historic Preservation Office. The tribes raised concerns regarding the proposed corridors being too close to culturally sensitive areas including Medicine Butte. There also were tribal concerns that the proposed routes could impact wetland areas in several places and also impact tribal program areas. The LBST offered information about where the proposed route could be modified to avoid culturally sensitive areas. Western, RUS, and Basin responded to tribal concerns by selecting a route that avoided these areas, and the LBST has had continuing input on the development of Project alternatives. Basin contracted with the Cultural Resources Office of the LBST to conduct a TCP survey, as noted above. Because eligible historic properties would be avoided, RUS, as lead federal agency for Section 106 review, has made a determination of “no historic properties affected,” in consultation with the tribes and the SHPO. Western, RUS, and Basin will continue to work with the LBST Cultural Resources Office and tribal leadership throughout Project implementation to ensure protection of cultural resources important to the tribes.

3.9.3.1 Tribal Consultation

The NHPA as well as the implementing regulations for Section 106 of the NHPA (36 CFR 800) require federal agencies responsible for specific undertakings to consult with any federally recognized Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking. 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 the lead federal agency for Section 106 review, RUS initiated consultation by sending letters on April 22, 2011, to all federally recognized American Indian tribes, either residing in or with cultural ties to the study area (see example letters and distribution list in **Appendix E**). The letter informed these tribes of the specifics of the Project and solicited their input regarding historical and traditional ties to the area, and about the presence of sites of cultural and religious importance to the tribe. A total of nine Native American groups were contacted:

- Lower Brule Sioux Tribe;
- Rosebud Sioux Tribe;
- Standing Rock Sioux Tribe;
- Ponca Tribe of Oklahoma;
- Ponca Tribe of Nebraska;
- Oglala Sioux Tribe of the Pine Ridge Reservation;
- Crow Creek Sioux Tribe;
- Santee Sioux Nation; and
- Cheyenne River Sioux Tribe.

No responses to these requests for consultation were received. While they are the two tribes most directly affected by the proposal, the LBST has remained actively involved in Project planning and coordination, and the Rosebud Sioux Tribe to a lesser extent. In addition to ongoing coordination and consultation via regular conference calls and other communications, RUS met three times with representatives of the LBST tribe and once with the Rosebud Sioux Tribe. The first meeting was an initial meeting with LBST and the Rosebud Sioux Tribe in February 2010 to clarify the purpose of the proposed transmission line. The second meeting was held at the LBST conference center on June 10, 2011. Both meetings included participation by tribal members and elders, the Rosebud Sioux Tribal Historic Preservation Office, Western, RUS, and Basin. The purpose of the meeting was to provide a detailed Project description and timeline, summarize the April 2011 NEPA scoping meetings, describe the agency's approach to Section 106, identify and discuss resources important to the tribes, and discuss potential cultural resource survey requirements.

The third meeting was held on March 15, 2012, at the LBST council chambers. Participants included LBST Council members, the Tribal Chairman, tribal members and elders, Western, RUS, Basin, and West Central. The main purpose of the meeting was to specifically address the Tribal Council about the proposal, explain the roles of each agency and Basin, answer questions, and seek their feedback. Council members expressed their concerns about the need for better consultation with and involvement of the tribe, resolution of the proposed line route (between the Proposed Action and a tribe-preferred alternative), and the need to more directly involve the BIA.

3.9.4 Environmental Consequences

3.9.4.1 Proposed Action

As a result of the Level III archeological survey and TCP survey, two NRHP-eligible historic railroads were identified within the 125-foot transmission line ROW, one potentially eligible historic property was identified within the visual APE; and two NRHP-eligible historic structures were identified outside of the visual APE (Molyneaux and Blue Thunder 2013). Several localities of significance to the tribes were identified within sight of the Project. No direct impacts to the historic railroads would occur since they would be spanned by the transmission line, and no transmission structures would be constructed within the railroad ROWs.

As a result of the TCP survey, many areas with significance within the history and traditions of the Sicangu people of the Lakota Nation were identified by tribal members who were part of the survey (Molyneaux and Blue Thunder 2013). Due to the confidential nature of these localities, they are not identified in this document, in accordance with Section 304 of the NHPA. In a letter dated July 24, 2013, the South Dakota SHPO concurred with the findings in the Level III and TCP surveys report of "no historic properties affected." However, Project construction activities could potentially adversely affect subsurface cultural resources. If previously unknown cultural resources are encountered during Project construction, all work within 200 feet of the discovery would cease and RUS in coordination with the tribal monitor would notify the SHPO and appropriate tribes within 48 hours of the discovery. A qualified archaeologist and, if necessary, a tribal representative would evaluate the find to make recommendations on NRHP-eligibility. If RUS determines the discovery to be NRHP-eligible, further consultation would be conducted with the appropriate parties, including the Advisory Council on Historic Preservation, to determine any mitigation efforts necessary to avoid or mitigate adverse effects in accordance with 36 CFR 800.13, "Post-Review Discoveries." The contractor constructing the Project would be responsible for securing the site from any potential disturbance by looting or other activities until all appropriate parties have been notified and had an opportunity to consult and provide information for RUS to determine the level of effort needed to protect any historic properties. Construction would not resume at the location of the discovery until authorized by the RUS.

If construction or other Project personnel or tribal monitor encounter what they believe may be human remains, all work would immediately cease at that location and RUS would be notified. RUS would then notify the appropriate law enforcement agency within 48 hours (South Dakota Codified Law § 34-27-25), as well as the SHPO, LBST CRO, and Rosebud Sioux Tribal Historic Preservation Office. No further construction would occur within 200 feet any direction of the discovery and the site would be secured until RUS, the SHPO, and/or a qualified archaeologist and tribal representatives had examined and evaluated the discovery. Construction would not resume until authorized by RUS.

Impacts would not be anticipated to adversely affect cultural resources because: 1) although the Project ROW crosses two previously recorded NRHP-eligible historic railroads, no direct impacts to the historic railroads would occur since they would be spanned by the transmission line; 2) if any additional historic properties are located in the APE, they would be avoided or mitigated in compliance with Section 106; and 3) unanticipated discoveries of cultural resources during construction would be handled as described in Section 3.9.4.1.

3.9.4.2 Alternative Route A

Under Alternative Route A, impacts to previously recorded cultural resources would be the same as those described for the Proposed Action.

3.9.4.3 Alternative Route B

Under Alternative Route B, impacts to previously recorded cultural resources would be the same as those described for the Proposed Action and Alternative Route A.

3.9.4.4 No Action Alternative

Under the No Action Alternative, the Project would not be developed; therefore, no impacts to cultural resources would occur as a result of the Project.

3.10 Socioeconomics

3.10.1 Affected Environment

3.10.1.1 Population and Demography

The study area is located in Lyman and Tripp counties in rural, south-central South Dakota. The northern portion of the study area is located in Lyman County. Lyman County includes an area of approximately 1,640 mi^2 and a 2010 population of 3,755 residents (U.S. Census Bureau 2010). The southern portion of the study area is located in Tripp County, which includes an area of 1,614 mi^2. Based on data from the U.S. Census Bureau, Tripp County had a 2010 county population of 5,644 residents.

Racial composition of residents within the two counties is predominantly white: 58.3 percent in Lyman County and 83.1 percent in Tripp County. **Table 3-15** provides demographic information for the towns located in proximity to the study area.

3.10.1.2 Economy and Employment

Agriculture is the primary industry within the study area, with the most acreage devoted to growing crops such as corn, soybeans, hay, wheat, and alfalfa (SDDA 2010). Livestock production is the second largest industry, primarily producing beef, pork, and dairy. Service industries and retail trade support residents in the area towns.

Table 3-15 Demographics of Towns Within and Adjacent to the Study Area

Town	County	Population[1]	Median Household Income[2]	Percent (%) Below Poverty Level[2]	
				Families	Individuals
Lower Brule	Lyman	613	$22,885	39	42
Reliance	Lyman	191	$42,750	12	19
Hamill	Tripp	11	No Data	No data	No data
New Witten	Tripp	79	$31,000	0	0
Winner	Tripp	2,897	$38,618	10	17

[1] U.S. Census Bureau, Census 2010.

[2] U.S. Census Bureau, Census 2005-2009 estimate.

There are a variety of recreation opportunities in the study area that provide employment and revenue to the community. During the fall hunting season, the hunting industry provides recreational activities and increased revenues in the study area. Recreation in the study area includes big and small game hunting on private lands and South Dakota School and Public Lands. Also, the Walk-In-Area Program, a collaborative effort between the state and private landowners, opens designated private lands to hunting as well as fishing. Big game opportunities include whitetail deer, mule deer, and pronghorn; small game opportunities include pheasant, dove, sharp-tailed grouse, turkey, and waterfowl. The White River is a popular destination for catfish fishing, while Lake Sharpe, located immediately north of the study area, provides opportunities for walleye and largemouth bass fishing, in addition to camping, boating, picnicking, and hunting. Fishing opportunities are year round. Biking and golfing may be enjoyed near the town of Winner. Two recreation areas within the study area, Good Soldier Creek Recreation Area and Right Tailrace Recreation Area, are located on the Lower Brule Sioux Indian Reservation adjacent to Lake Sharpe and the Big Bend Dam. Both recreation areas are managed by the USACE. Main uses of these recreational areas are water-related activities (boating, fishing), but also include picnicking, camping, and hiking.

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Construction of the Project would directly affect approximately 105 landowners, regardless of alternative selected. A portion of the landowner's land would be used as an easement, for which they would be compensated by the Applicant. The Proposed Action does not have any residences within 500 feet of the centerline. Areas used for crop and livestock production may be taken out of commission, either temporarily or permanently, as a result of the Project. However, line routing has been situated along field edges or section lines to reduce the overall amount of interference with agricultural operations and any potential impacts to productive areas would be minimized through negotiations with landowners. There are abundant areas for crop and livestock production in the study area, and any potential impacts would be negligible to the local economy.

Construction of the proposed transmission line would be completed by construction contractors. A total of approximately 70 workers would be needed during the 8-month construction period. Workers traveling from outside of the area would require lodging and meals, benefiting the communities of Lower Brule, Reliance, and Winner with a minimal, temporary positive economic impact during construction as a result of increased income and tax revenue. Some materials and services would be purchased locally, such as concrete, seed, aggregate, and machinery repair. Lyman and Tripp counties also would see an increase in property tax receipts from the Project. As a result of the small construction workforce and the temporary nature of construction activities, negative impacts to housing, population, or community facilities and services are not expected due to the Project. Ultimately, the increased reliability in electric service would be a beneficial effect on the local population.

Visitors to the area for recreation opportunities may be temporarily displaced during the 8-month construction period, particularly if construction coincides with key recreation seasons. Impacts to game species discussed in Section 3.4.2 also could temporarily affect hunting opportunities in the area; however, these impacts are anticipated to be minor and short-term as abundant habitat exists nearby. Once the Project is installed, direct impacts to recreational opportunities should be minimal; however, long-term visual effects are discussed in Section 3.12, Aesthetics.

3.10.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to socioeconomic resources would be similar to those described for the Proposed Action.

3.10.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to socioeconomic resources would be similar to those described for the Proposed Action.

3.10.2.4 No Action Alternative

If the No Action Alternative were selected, local communities would not realize the beneficial economic impacts associated with Project construction and operation.

3.11 Environmental Justice

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was signed on February 11, 1994. EO 12898 directs federal agencies to review proposals and identify, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations to the greatest extent practicable and permitted by law. The EO also directs, through the development of agency-specific environmental justice strategies, greater public participation and access to information. According to the USDA 2012-2014 Environmental Justice Strategic Plan, the (EO) "… was born out of the need to address concerns that the high and adverse environmental impacts of private or governmental actions were falling disproportionately on populations protected by laws such as Title VI (of the 1964 Civil Rights Act) (also sometimes referred to as "environmental justice" concerns)." The Strategic Plan also states that "Executive Order 12898 amplifies Title VI by providing that each federal agency shall make achieving environmental justice part of its mission …"

CEQ guidelines for evaluating potential adverse environmental justice effects indicate minority populations should be identified when either: 1) a minority population exceeds 50 percent of the population of the affected area; or 2) a minority population represents a "meaningfully greater increment" of the affected area population than the population of some appropriate larger geographic unit, as a whole. As such, the Project must be evaluated in terms of an adverse effect that:

a) Is predominately borne by a minority population and/or low-income population; or

b) Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low income population.

3.11.1 Affected Environment

Demographic composition by race and ethnicity of residents in Lyman and Tripp counties is detailed in **Table 3-16**. The residents are predominantly White. The second largest race/ethnicity in the study area is American Indian. Both counties are home to an American Indian Reservation whose population that is higher than the state average. This population can be attributed to the Lower Brule Sioux Indian Reservation located in the northern portion of the study area and the Rosebud Sioux Indian Reservation located west of the study area. Reliance and Hamill are the only towns located within the study area. The populations of Reliance and Hamill are 80 percent White and 100 percent White, respectively. Lyman and Tripp counties recorded 2009 poverty levels that were above the state average and median household income levels that were below the state average. Since the proposed project crosses the LBST Indian Reservation, the proportion of affected American Indian populations potentially affected by the project is higher than county figures depict.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

The Project was evaluated for any disproportionately high and adverse human health or environmental effects on minority communities and low-income communities. As detailed in **Table 3-16**, both Lyman and Tripp counties contain American Indian populations that are meaningfully greater (at least 1.5 times as a percentage) than the American Indian population of the state. Lyman County and the community of Lower Brule also have poverty rates that are meaningfully greater than the state average. There is no evidence the Project would have a disproportionately high adverse human health or environmental effect on minority and low-income populations, because effects from the construction and operation of the Project would be the same for all populations. Possible economic development and employment opportunities created by the proposed project may offset some potential effects of the project crossing the Lower Brule Sioux Indian Reservation.

3.11.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to environmental justice would be the same as those described for the Proposed Action.

3.11.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to environmental justice would be the same as those described for the Proposed Action.

3.11.2.4 No Action Alternative

Under the No Action Alternative, construction of the Project would not take place and minority and low-income populations would remain unchanged.

3.12 Aesthetics

3.12.1 Affected Environment

The landscape of the study area is characterized by a variety of landforms, including the plains and topographically varied landscapes of the Missouri Plateau Region (unglaciated section) of the Great Plains physiographic province (Fenneman 1931). The Project crosses through a mix of rangeland and agricultural fields. Cottonwood-dominated riparian vegetation characterizes the crossing of the White River. Rangeland vegetation is dominated by mixed shrub grasslands. **Figure 3-12** through **Figure 3-15** illustrate four characteristic views of the study area landscape. Human modifications to the natural landscape character are sparsely scattered, most commonly consisting of roads with occasional clusters of farm buildings and fences. There are few populated settlements.

Table 3-16 Race and Poverty Characteristics of Affected Counties in the Study Area

State/County	Race[2] as a Percent (%) of Total Population (estimated)[1,2] – 2010					Population at or Below Poverty Level (%) (2009)[1]	Median Household Income ($) (2009)[1]
	White	Black or African American	American Indian and Alaskan Native	Asian	Two or More Races		
Lyman County	58.3	0.1	38.2	0.3	2.9	23.8	34,318
Tripp County	83.1	0.1	14.0	0.2	2.4	20.4	38,887
South Dakota Percentage	**85.9**	**1.3**	**8.8**	**0.9**	**2.1**	**14.2**	**45,048**

[1] U.S. Census Bureau 2010.

[2] 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 a percentage of population categories. 1.1 percent of the population in both Lyman and Tripp counties identify themselves as Hispanic or Latino. Hispanic/Latino ethnicity accounts for 2.7 percent of the state population.

Figure 3-12 **Scenic Riparian Woodland Corridor at White River Crossing**

Figure 3-13 **Rural Famstead with Rangeland and Wetland**

Figure 3-14 **Recreation area Near Big Bend Dam**

Figure 3-15 **Cultivated Cropland**

Visually sensitive areas in the study area include towns, roads, recreation areas, and traditional cultural worship areas. The study area includes the Lewis and Clark National Historic Trail Auto Route, the Native American Scenic Byway, Medicine Butte, and the towns of Hamill and Reliance, South Dakota. Interstate, U.S., and state highways that occur in the study area include I-90, U.S. 16, U.S. 18, U.S. 183, SH 47, SH 49, SH 273, and SH 278. The Project also would be visible from less traveled roads and homes within its viewshed. In addition, the Project would be visible from the Missouri River and White River, which provide public recreational activities in the study area.

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

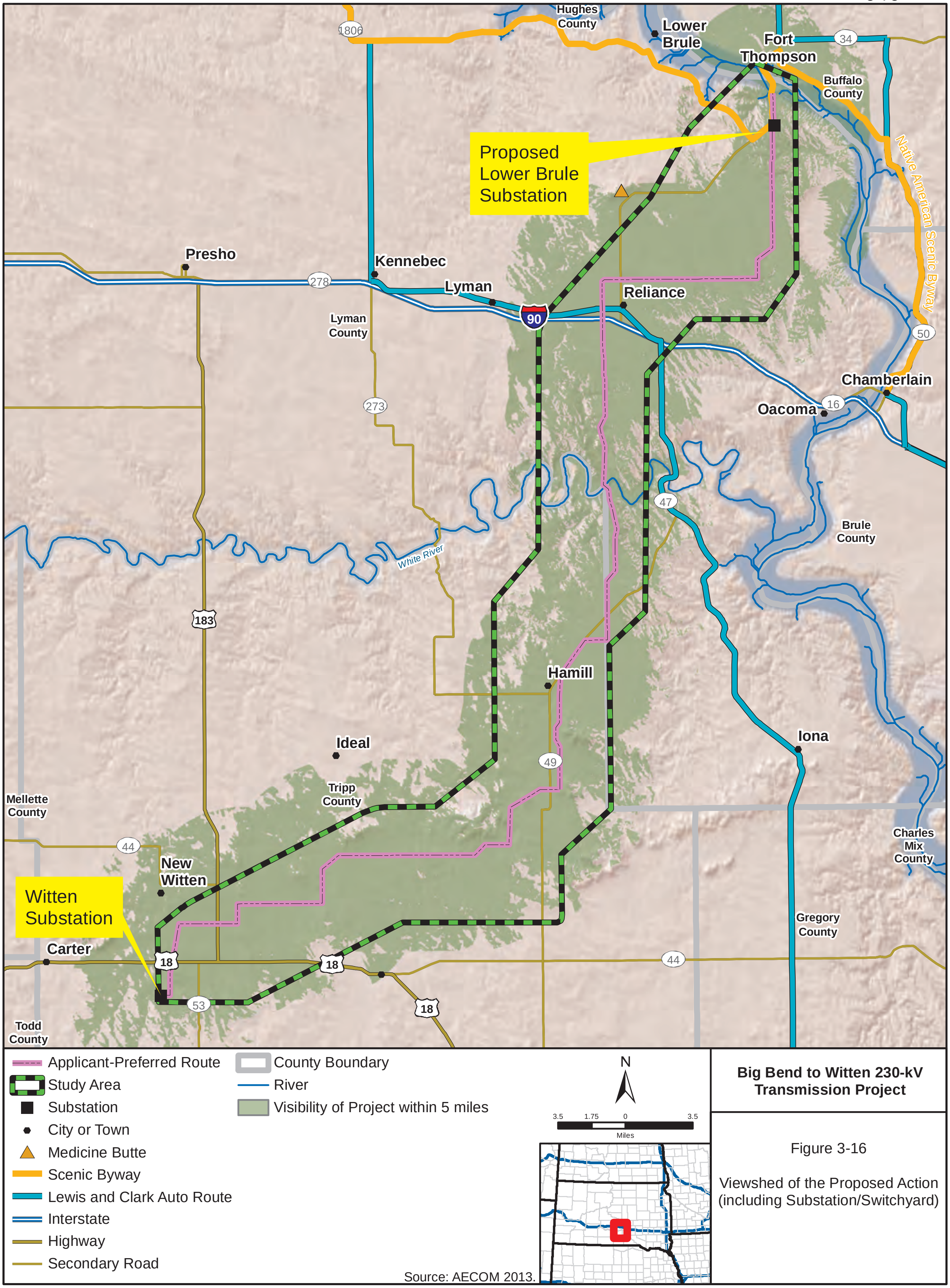
The visible features of the Project would include the expansion of one substation and one switchyard, including a microwave tower at each of these sites (approximately 150 feet in height), and self-supporting steel poles for the transmission line, ranging in height from approximately 70 to 115 feet, depending on span distances between structures and centerline topography. Three steel conductors would span between structures. The spans would typically range from 650 feet to 950 feet, depending on topography. Taller structures would be used for crossing existing distribution and transmission lines or where unusual terrain exists. Vegetation would be removed at structure locations and in substation/ switchyard areas in a small portion of the Project area where vegetation is of such a height that it could interfere with safe operation of the transmission line. This may include removing trees for Project construction or transmission line operation, although there are few trees present in the study area. The aesthetic impact of the Project would be stronger if visible in the immediate foreground (0.25 mile) in areas of high scenic beauty combined with one or more of the following: scenic highways, integral vistas, parks, and recreational rivers.

Figure 3-16 through **Figure 3-18** illustrate the viewsheds of the Proposed Action and Alternative Routes A and B, respectively. **Table 3-17** lists viewshed acreages for the Proposed Action and Alternative Routes A and B.

Table 3-17 Viewshed Acreages of the Proposed Action and Alternatives

Action	Visibility within 0.5 mile	Visibility 0.5 mile to 5 miles
Proposed Action – 501 structures	48,248 acres	306,503 acres
Alternative Route A – 496 structures	47,719 acres	316,632 acres
Alternative Route B – 479 structures	46,076 acres	312,702 acres

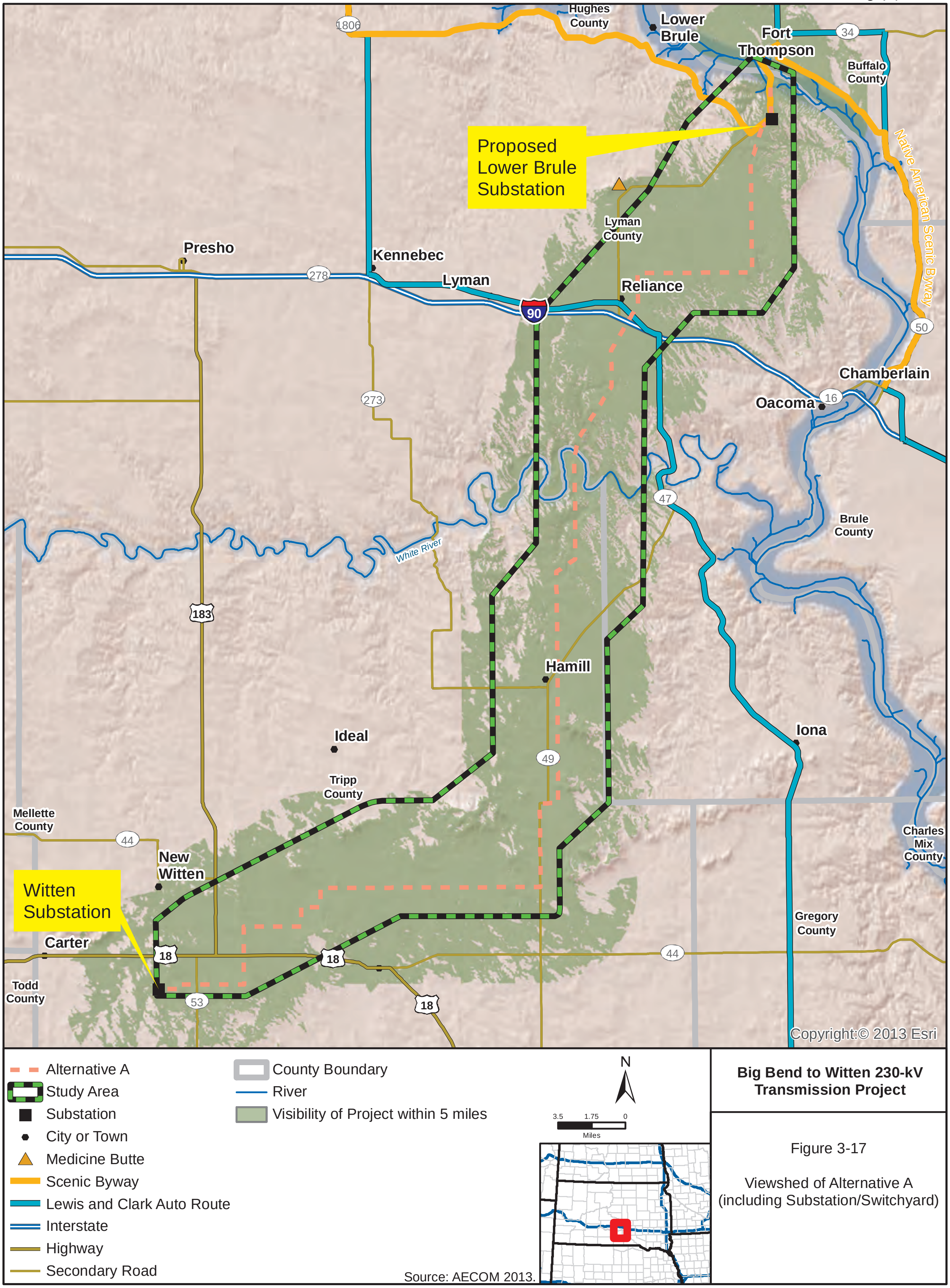
The aesthetic impacts resulting from the construction and operation of the Project are based on the impacts to people and scenery, and compliance with laws, ordinances, regulations, and standards of the applicable jurisdictions.



Big Bend to Witten 230-kV Transmission Project

Figure 3-16

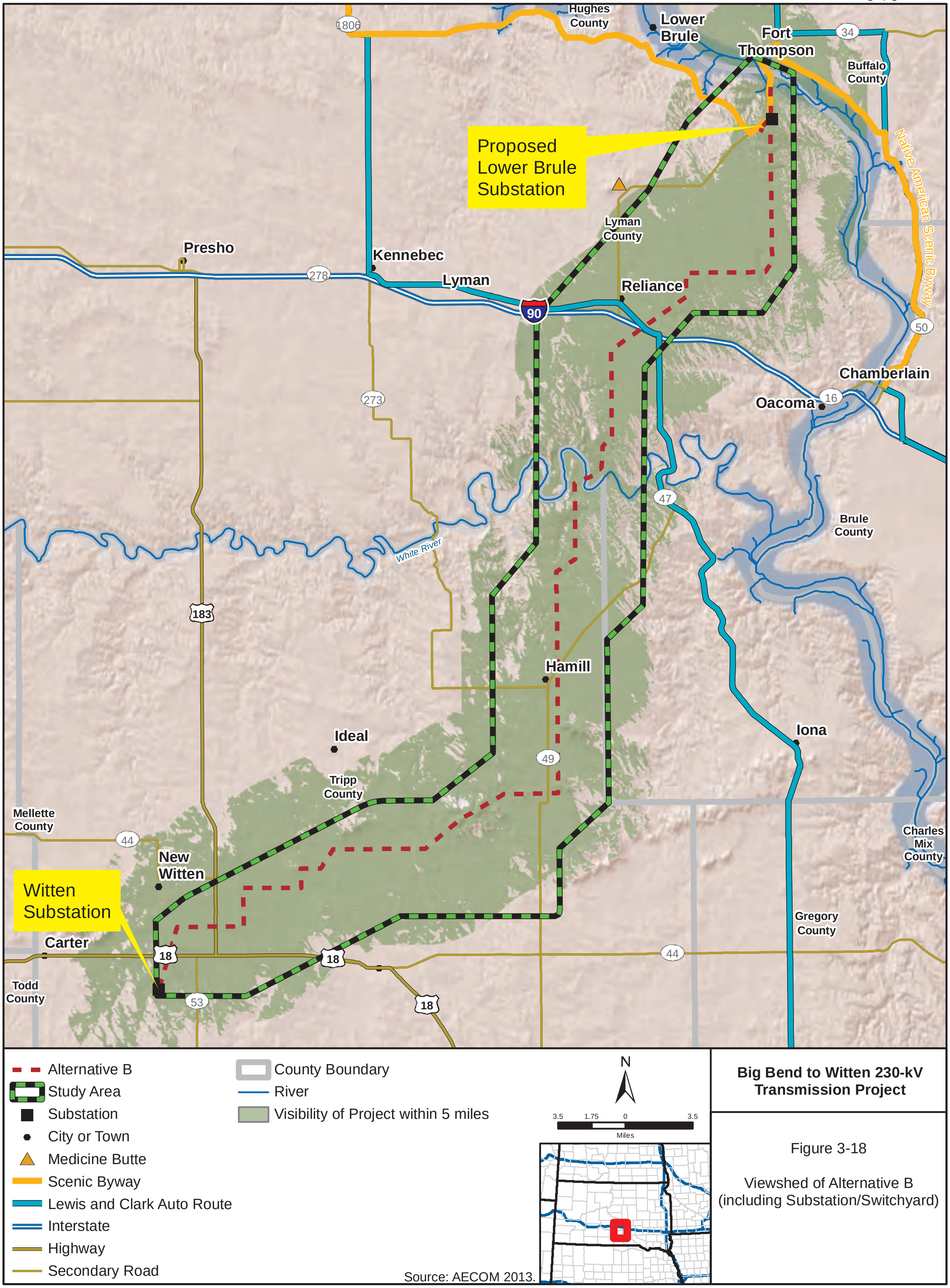
Viewshed of the Proposed Action (including Substation/Switchyard)



Big Bend to Witten 230-kV Transmission Project

Figure 3-17

Viewshed of Alternative A (including Substation/Switchyard)



Big Bend to Witten 230-kV Transmission Project

Figure 3-18

Viewshed of Alternative B (including Substation/Switchyard)

The Proposed Action would cross the Lewis and Clark National Historic Trail Auto Route and the federally designated Native American Scenic Byway. Therefore, the Proposed Action would be visible in the immediate foreground (0.25 mile). The Auto Route is not a part of the congressionally designated trail, but is an existing highway approximately parallel to the historic river trail. The Auto Route is a series of developed highways and roadways that do not possess unique qualities related to the understanding of the National Historic Trail. The portion of SH 47 within the study area also has been designated as the Native American Scenic Byway. The transmission line would cross the viewshed of this driving route at a discrete location and, therefore, would not have a substantial impact on the overall driving experience for travelers driving this route. In most places, the transmission line would be at least one mile from the driving route. Therefore, the impacts to the visual character of this driving route would be minor.

The Proposed Action would cross the White River and, therefore, would be visible in the immediate foreground (0.25 mile). The scenic beauty of the White River landscape in that area is high as compared to the characteristic landscapes of the physiographic province. The transmission line would cross the river at a relatively discrete area and would not be located in an area of higher than normal recreational use of the river. The scenic beauty of the river would be impacted in the area where the transmission line crosses the river, but this is a small portion of the overall watershed and its associated scenic qualities.

Therefore, the Project would have a moderate to high impact on the river's aesthetics in the immediate vicinity of the transmission line crossing area, but on the whole, the impact to the overall scenic qualities of the White River watershed would be minor.

One of the Project's two substations, the Lower Brule Switchyard, would be visible from the Native American Scenic Byway at a distance of less than 1 mile. The microwave tower at this site, at a proposed height of 150 feet, would be visible at potentially longer distances depending on the viewpoint. This would include the Lewis and Clark National Historic Trail, which at this location essentially follows the center line of the Missouri River. According to a simple viewshed analysis conducted by the National Park Service, at a height of 150 feet the tower is likely to be visible from the river at some locations both up and downstream of the dam and from a portion of the Trail auto route on the east side of the river. The tower also would be visible to at least a portion of the Lower Brule Sioux Reservation; initial discussions with both the LBST and the NPS indicate a preference for the guyed tower design due to its narrower overall profile. Representative simulations from two observation points within the viewshed of the relay tower at the Lower Brule Switchyard are provided in **Appendix F**. Mitigation measures have been developed to reduce the impacts of the switchyard on the scenic qualities of the Native American Scenic Byway. With the implementation of these mitigation measures, the Project would have minor to moderate impacts on the aesthetics of this scenic byway at the local level.

Initial mitigation and re-routing of the transmission line reduced the direct impact to the Medicine Butte viewshed. All other impacts from public viewing locations, including the towns of Hamill and Reliance, the Missouri River, and crossings of the several highways, other less-traveled roads, and residences, would result in minor to moderate impacts at discrete locations along these viewsheds.

3.12.2.2 Alternative Route A

The aesthetic impacts resulting from construction and operation of Alternative Route A would be similar to those of the Proposed Action.

3.12.2.3 Alternative Route B

The aesthetic impacts resulting from construction and operation of Alternative Route B would be similar to those of the Proposed Action.

3.12.2.4 No Action Alternative

The No Action Alternative would result in no aesthetic impacts to the landscape within the Project area resulting from this Project.

3.13 Noise, Radio, and Television Interference

Project-related noise would result primarily from construction of the Project. Potential interference of radio and television transmission by the Project, as well as noise effects, is detailed in this section.

3.13.1 Affected Environment

The study area is characterized by rural background noise typically consisting of natural noise sources, such as wind and wildlife, as well as manmade noise sources characteristically associated with ranching and farming, such as noise from cattle, farm machinery, and ranch vehicles. Rural ambient noise typically ranges from 20 A-weighted decibel (dBA) to 40 dBA (British Wind Energy Association 2000). Forty dBA is the equivalent of a quiet office or library. Existing noise sources also include traffic along transportation corridors such as I-90, U.S. Highways 18 and 183, and SHs 47, 49, and 53.

No noise studies have been conducted within the study area. There is one elementary school, two recreational areas, and numerous residences in the towns of Hamill and Reliance within the study area. The school, recreation areas, and towns are more than 500 feet from the centerline of the Proposed Action and alternative routes.

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

Temporary noise impacts would result from construction activities. Temporary construction noise would be limited to no more than a few days at any particular location and could be mitigated by scheduling work to daytime hours, particularly near sensitive receptors (e.g., rural residences). The use of single-pole structures, rather than H-frame structures, would reduce construction time needed for boring structure legs by approximately 50 percent. Reduced augering time would reduce the duration of associated equipment noise. The Project would not result in long-term noise impacts to area residents.

Average noise levels for typical construction equipment range from 74 dBA for a roller to 88 dBA for a crane (Harris, Miller, Miller, and Hanson, Inc. 2006). In general, the dominant noise source from most construction equipment is the diesel engine, particularly if the engine is poorly muffled. Other sources of continuous noise include field compressors, bulldozers, and backhoes. **Table 3-18** portrays the noise levels of various types of construction equipment expected at different distances.

For a general assessment of construction impacts, assuming a geometric spreading only (i.e., a decrease of about 6 dBA per doubling of distance from a point source) on the basis of the noise levels presented in **Table 3-18**, it is estimated that the noisiest piece of equipment operating at peak load would produce noise levels that would exceed the USEPA guideline for residential noise (55 dBA) at a distance of about 1,600 feet (USEPA 1974). Rural background noise in rural areas is typically near 40 dBA (USEPA 1978). The effects of noise generated by construction would be alleviated, to some extent, by air absorption, terrain, and vegetation. If there are complaints by those affected in the study area, Basin would work with those parties to determine the best approach to minimize any possible impacts.

Table 3-18 Noise Levels at Various Distances from Typical Construction Equipment

Construction Equipment	Noise Level[1] at Distances (dBA)					
	50 feet	100 feet	200 feet	400 feet	800 feet	1,600 feet
Bulldozer	85	79	73	67	61	55
Concrete Mixer	85	79	73	67	61	55
Concrete Pump	82	76	70	64	58	52
Crane, Derrick	88	82	76	70	64	58
Crane, Mobile	83	77	71	65	59	53
Front-end Loader	85	79	73	67	61	55
Generator	81	75	69	63	57	51
Grader	85	79	73	67	61	55
Shovel	82	76	70	64	58	52
Truck	88	82	76	70	64	58

[1] The equivalent steady-state sound level that contains the same varying sound level during a 1-hour period.

Source: Harris, Miller, Miller, and Hanson, Inc. 2006.

Corona on the surface of high voltage conductors, caused by current arcing across two or more points along a conductor, can create signals that may interfere with radio and television reception. Modern transmission line design has reduced corona to a minimum and such design is proposed for the Project. Occasionally, more sensitive radio and television sets pick up on “corona noise.” During a rainfall event, noise from corona discharge emanating from a power line would be at 39 dBA, at approximately 50 feet from the center of the tower, which would equal the noise being generated in a library (Bonneville Power Administration 1996). In general, because of the climate in the analysis area and existing ambient noise, such as wind and wildlife, the impact of corona discharge is expected to be negligible. Noise from traffic during the operations phase would range from light- to medium-duty vehicles, and is expected to be negligible. Overall, the noise levels of operations would be lower than the noise levels associated with short-term construction activities, and in conjunction with the existing ambient noise, would result in a negligible impact to noise sensitive receptors in the analysis area. The Proposed Action does not have any telecommunications facilities within 150 feet of the alignment, nor are any residences within 500 feet of the alignment. At a distance of 500 feet, corona noise would be less than the USEPA guideline for residential noise of 55 dBA (USEPA 1974). Although corona discharge can cause television and radio reception interference, it does not represent a threat to human health or safety.

The nearest residences to the Lower Brule Switchyard and Witten Substation are greater than 0.5 mile from either of the sites. At this distance, construction noise and noise related to increased truck traffic would not impact local residents.

3.13.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to noise, radio, and television would be similar to those described under the Proposed Action, with the exception that only one residence would be within 250 feet of the alignment and one telecommunications facility would be within 150 feet of the alignment.

3.13.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to noise, radio, and television would be similar to those described under the Proposed Action, with the exception that one residence would be within

500 feet of the alignment and one residence would be within 250 feet of the alignment. Additionally, one telecommunications facility would be within 150 feet of the alignment.

3.13.2.4 No Action Alternative

Human-induced noise levels would remain at their current levels within the study area if the transmission line or substation/switchyard were not constructed.

3.14 Air Quality

3.14.1 Affected Environment

The Clean Air Act (42 USC 7401 *et seq*. as amended in 1977 and 1990) is the principal federal statute governing air pollution. The Clean Air Act empowered the USEPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. These pollutants are called “criteria” air pollutants and include carbon monoxide, ozone, nitrogen dioxide, sulfur dioxide, lead, particulate matter equal to or less than 10 microns in diameter, and fine particulate matter equal to or less than 2.5 microns in diameter. The NAAQS include primary standards designed to protect human health and secondary standards to protect public welfare, including visibility and damage to crops and vegetation.

Regions of the country that do not meet the NAAQS are designated as “nonattainment” areas. Certain rural parts of the country do not have extensive air quality monitoring networks; these areas are considered “unclassifiable” and are presumed to be in attainment with the NAAQS. The study area includes portions of Lyman and Tripp counties. Air quality in each of these counties falls into the categories of either “better than national standards” or “unclassifiable/attainment” for all criteria air pollutants in accordance with 40 CFR 81.342 (USEPA 2014).

Air quality within the state of South Dakota is regulated by the DENR Air Quality Program. There are no prescribed state-wide requirements for controlling fugitive dust emissions such as those that may be released during construction of the Project.

Lyman and Tripp counties are primarily rural agricultural counties, and based on a review of the DENR Title V permitting website, there are no known large emission sources in those counties, or within the study area. Emission sources within and near the study area include vehicular travel on paved and unpaved roads, residences (e.g., space heating, water heating, and fireplaces), open burning, and agricultural operations. Based on the lack of nearby large emission sources and the air quality attainment status of the counties, the existing air quality within the study area is expected to be good.

3.14.2 Environmental Consequences

Because the Project area is in an attainment area and none of the actions proposed would involve introduction of a new facility that would be a major point source of air pollution, the Project would not have measurable effects on local or regional air quality. During construction, Project activities would have a minor to moderate temporary effect on air quality from fugitive dust and vehicle emissions at the site-specific level.

3.14.2.1 Proposed Action

During construction, air quality impacts would be temporary and would primarily occur in the immediate vicinity and downwind of construction activities. Temporary air quality impacts would include both fugitive dust emissions and exhaust emissions; however, fugitive dust would be the primary pollutant of concern. Fugitive dust emissions would result from mechanical clearing of vegetation and movement of soil, augering for direct embedded transmission structures, and vehicular travel on unpaved roads and within the construction ROW. Emissions of fugitive dust from vehicle travel are a function of several factors, including soil moisture, wind speed, and vehicular speed on unpaved roads.

Air quality mitigation measures to minimize fugitive dust from overland travel within the ROW and from other ground disturbance activities would be implemented as necessary to reduce fugitive dust. Fugitive dust emissions generated as a result of surface disturbance activities and vehicle use of access roads would be controlled by the periodic application of water, if necessary.

Given the current attainment status of the counties and the relatively short duration of construction activities, construction of the Project would not be expected to result in a degradation of local or regional air quality, or result in any exceedences of the NAAQS. Overall, construction impacts on air quality are projected to be negligible.

Operation of the proposed transmission line would have no measurable impact on air quality within the study area or in Lyman or Tripp counties. Periodic maintenance activities would have the potential to generate minor amounts of fugitive dust and exhaust emissions from maintenance vehicles; however, the air quality impacts would be negligible.

3.14.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts would be similar to those described for the Proposed Action.

3.14.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts would be similar to those described for the Proposed Action.

3.14.2.4 No Action Alternative

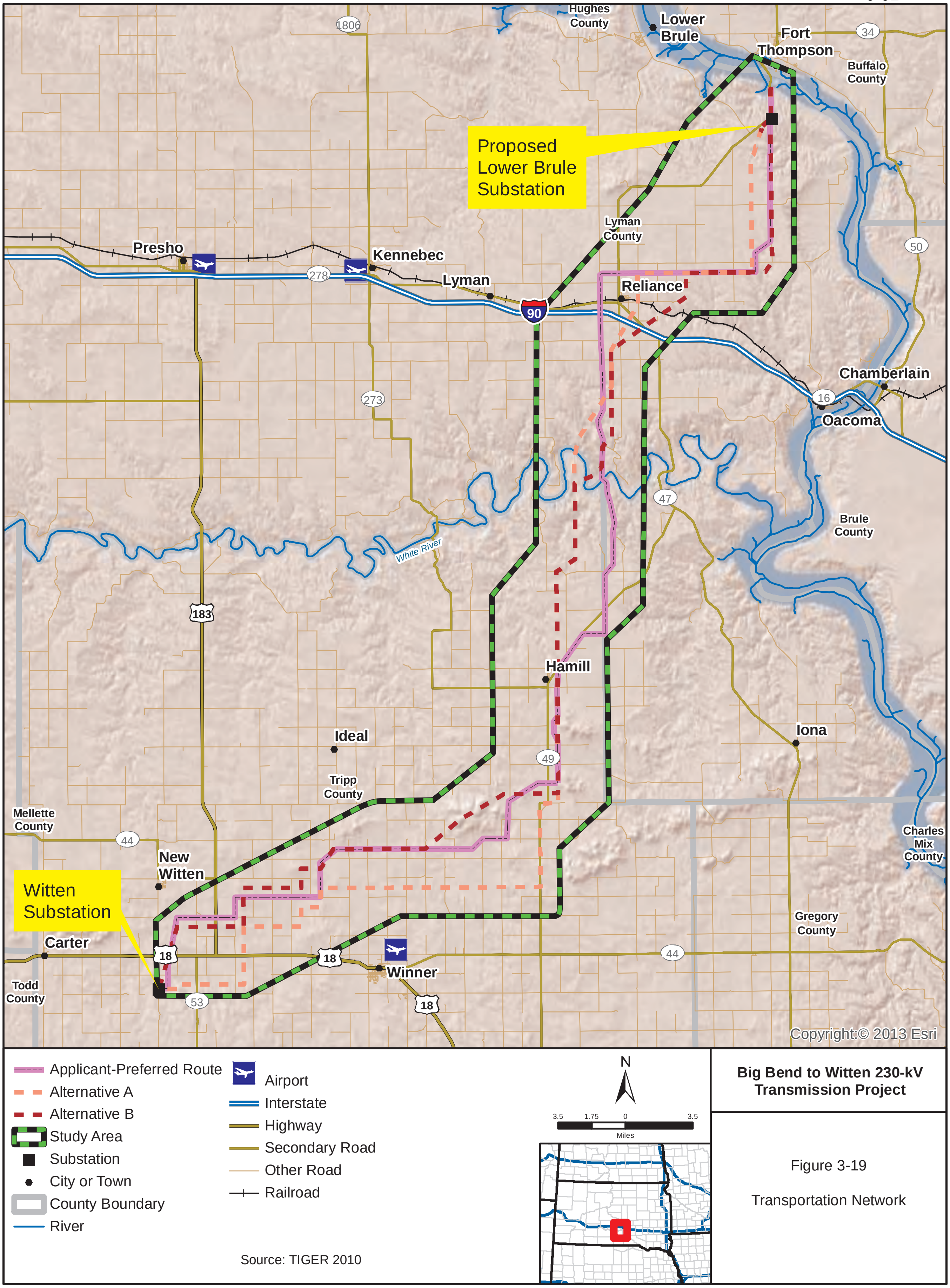
Under the No Action Alternative, the proposed transmission line would not be constructed and air quality impacts would not occur.

3.15 Transportation

Regional transportation facilities, largely consisting of highways and rural roads, would be used to transport construction and maintenance workers, equipment, and materials to transmission line and substation/switchyard sites.

3.15.1 Affected Environment

Construction of the Project would require crossing numerous roads and highways. **Figure 3-19** illustrates the transportation network in and near the study area. Major highways in the study area include I-90; U.S. Highways 18 and 183; SH 44, 47, 49, and 53; and BIA Highway 5. I-90 extends east-west through Reliance, and U.S. Highways 18 and 183 transect the southern portion of the study area east-west and north-south, respectively. SH 49 runs north-south through Hamill in the central portion of the study area. SH 47 and 53 transect north-south through the northern and southern portions of the study area, respectively. SH 44 transects east-west through the southern portion of the study area. A portion of SH 47 within the study area has been designated as the Native American Scenic Byway. The byway traverses the Lower Brule Sioux Indian Reservation from west to east and enters the study area on BIA Highway 5. Additionally, the Lewis and Clark National Historic Trail Auto Tour Route enters the study area on SH 47 north of Reliance. Other roads and highways in the study area are oriented in a north-south, east-west grid along section lines. In addition, the Dakota Southern Railroad intersects the northern portion of the study area in an east-west orientation through the town of Reliance. The Winner Regional Airport provides general aviation services. The main runway is 4,500 feet long and 75 feet wide (AirNav 2011). The Fletcher Landing Field is the only known airstrip within the study area. It has not been used in several years and does not appear to be active.



Big Bend to Witten 230-kV Transmission Project

Figure 3-19

Transportation Network

3.15.2 Environmental Consequences

3.15.2.1 Proposed Action

Disruption to local traffic is expected to be minimal and temporary and related to the movement of heavy equipment. Single-pole transmission line structures, conductor, ground wire, OPGW, and hardware would be trucked to staging areas and/or to structure site locations. Flat-bed trucks would be used to transport structure sections (typically two sections per structure), insulators, hardware, conductor, and OPGW, totaling approximately 161 to 164 truckloads. Equipment would be required for site clearing, structure assembly, augering, conductor and OPGW stringing, and foundation construction, as identified in **Table 2-5**.

Temporary wooden H-frame structures would be installed at roadway crossings within the proposed transmission line ROW to facilitate conductor stringing. The wooden H-frame structures would be installed by augering structure leg holes near the roadway and installing structure poles and cross-members to support conductor, and OPGW during pulling and tensioning. Actual disruption to local traffic patterns would be minimal, consisting of temporary delays. Road closures would not be required. Transmission line installation at railroad crossings would be similar to those of road crossings, but would not impact rail movement. Soils displaced while augering holes for the H-frame legs would be used to back-fill around the legs and used as fill when the structure is removed. Personal vehicles would transport approximately 70 construction workers to scattered work sites over an 8-month period. Areas where worker activity is most intense are likely to experience localized temporary traffic increases that could be an annoyance to rural residents. Overall traffic increases also could lead to a small increase in risk of traffic accidents.

The movement of heavy equipment would comply with applicable South Dakota Department of Transportation regulations. Local roads and highways that are damaged by construction equipment would be repaired in a timely manner and to county specifications.

The Proposed Action is approximately 5 miles northwest of Winner Regional Airport. Due to the distance of the Project from the airport, as well as the relatively low average structure height of 110 feet, impacts to airport operations are not anticipated.

3.15.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to transportation resources would be the same as those described for the Proposed Action.

3.15.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to transportation resources would be the same as those described for the Proposed Action.

3.15.2.4 No Action Alternative

Potential impacts to local traffic patterns would not occur if the Project were not developed.

3.16 Human Health and Safety

This section includes information regarding potential human health and safety issues related to Project construction and operation.

3.16.1 Affected Environment

Construction and operation of the Project could result in temporary impacts to public health and safety and ongoing potential for impacts to workers servicing the transmission lines and equipment. Potential health and safety concerns related to construction include highway and roadway safety associated with the transport of structures, structure hardware, conductor, and personnel and solid waste management. Concerns connected to operations include electric shock, electric and magnetic fields, corona, stray voltage, and induced voltage. Worker safety issues are associated with Project construction, operation, and maintenance activities. Potential health and safety issues are similar among the three Project routes. Neither schools nor residential developments are located within 500 feet of the Proposed Action or alternative routes, although there are scattered residences near the Proposed Action or alternative routes (**Table 3-19**).

Table 3-19 Residences Near the Proposed Action or Alternative Routes

Residential Distance from Alternatives	Proposed Action (count)	Alternative Route A (count)	Alternative Route B (count)
Residences Within 500 feet	0	0	1
Residences Within 250 feet	0	1	1

3.16.1.1 Hazardous Materials and Solid Waste

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 in 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 electrical transmission line construction and operational activities and that would be subject to these regulations would include almost all of the materials listed in **Table 3-20**.
- "Hazardous substances" as defined by Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by Superfund Amendments and Reauthorization Act and listed in 40 CFR Table 302.4.
- "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.

Hazardous Materials Use

A number of hazardous materials or substances are used in the construction, operation, and maintenance of electrical transmission lines. **Table 3-20** lists common types of hazardous materials that could be used, but it is not a comprehensive list.

Table 3-20 Hazardous Materials Typically Used in Transmission Line Construction and Operation

Canned spray paint
Compressed gases (flammable and nonflammable)
Diesel deicer
Fire extinguishers
Gasoline treatment
Glycols (ethylene glycol, propylene glycol, triethylene glycol)

Table 3-20 Hazardous Materials Typically Used in Transmission Line Construction and Operation

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: Modified from Molberg et al. (2007) and San Diego Gas and Electric (2006).

3.16.1.2 Non- Hazardous Solid Waste

Regulatory Definition of Solid Waste

Through RCRA Subtitle D, the USEPA delegates authority to state and local governments to be the primary planning, regulating, and implementing entities for the management of nonhazardous solid waste, such as household garbage and nonhazardous industrial solid waste.

Solid Waste Generation

Solid waste generated from transmission line construction and operation is minimal when compared to other types of industrial and commercial projects. Solid waste generated from construction and operation of the proposed transmission line 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 (Molberg et al. 2007). All solid waste generated by the Project would be disposed at an appropriately permitted facility in accordance with state regulations.

Contaminated Sites

In spite of the generally rural areas crossed by the study area, there is always the potential that contaminated sites are present, given that transmission line 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.

3.16.2 Environmental Consequences

3.16.2.1 Proposed Action

Construction and Operation

Constructing the Project could have minor effects on public and employee health and safety that would likely be temporary and minor. Transport of heavy equipment and materials would create traffic congestion in some areas, which could affect highway safety. Potential long-term health and safety concerns include electric shock, electric and magnetic fields (EMF), corona, stray voltage, and induced voltage, which would not likely affect the public, because the proposed distances from residences is sufficient to mitigate these effects.

The Project would be constructed in compliance with worker health and safety regulations as prescribed by the U.S. Department of Labor, OSHA, and the NESC. Construction of the proposed transmission line would require the transport of heavy equipment and materials along the length of the Project. Impacts from vehicle movement would be temporary and concentrated within specific areas at structure sites. Construction would occur over an 8-month period. Materials delivery would be carried out during the 8-month construction period. Approximately 88 truckloads would be required for structures and 25 truckloads would be required for insulator and hardware delivery. Large pieces of equipment, such as structure segments, would be delivered directly to work sites along the proposed transmission line corridor. Conductor, groundwire, and OPGW transport would require at least 51 truckloads. Additional truck traffic would be needed to transport materials from staging sites to work sites. Roads that are damaged due to heavy equipment movement would be repaired by Basin Electric.

Electric shock is not expected to represent a health and safety hazard to the public as conductor heights would be sufficient to allow movement of construction and farm equipment and personnel below the proposed transmission line.

Cause and effect relationships between EMF exposure and adverse health effects have not been determined. Some studies have indicated possible connections between exposure and health effects, while other studies have not. Those indicating some sort of linkage have often, if not always, shown no correlation when replicated. EMF levels typically diminish substantially with increased distance from the conductors, typically reaching background levels within 300 feet of the nearest conductor. Furthermore, occasional exposure to such fields would be temporary and infrequent. Exposures would be far less than those experienced in the home or workplace. There are no residences within 500 feet of the Proposed Action.

Corona is caused by electric current arcing across two or more points along transmission line conductor. Corona does not represent a threat to human health and safety. Stray voltage is typically associated with rural end-users, such as farm and ranch complexes where equipment is exposed to dust and other contaminants. Induced current occurs along linear features, such as fences that parallel conductors. Neither stray voltage nor induced current are health risks to area residents and both can be mitigated by proper grounding.

Potential adverse health effects associated with lightning strikes are minimized by the presence of the overhead ground wire and OPGW which shield the conductors. The current from a lightning strike is diverted to the ground at the adjacent structure. When the current is discharged from the structure base to the surrounding ground, a step potential voltage can momentarily exist on the ground near the structure, presenting an electrocution hazard. Therefore, people should avoid structures during a lightning storm.

Electrocution hazard would be present inside the fence of the substation/switchyard facilities. High voltage equipment always poses a threat to any human who enters the facility. The facility would be fenced and access points secured with padlocks and marked with signs prohibiting the entry of unauthorized personnel. The design of the facility would be such that energized equipment would comply with Rule 110.A. of the NESC that requires a 14.9-foot safety clearance zone within the fence for 230-kV equipment. Exposed parts must be outside of the safety zone. Only trained personnel would be allowed to maintain the substation equipment, and they would comply with applicable Basin Electric worker safety programs, procedures, and regulations.

Hazardous Materials

Issues related to the presence of hazardous materials are the potential impacts to the environment from an accidental release of hazardous materials during transportation and use during construction and operation of the Project.

Improper handling or storage of hazardous materials can result in contamination of soil and water resources as well as pose a threat to worker and public health and safety. The environmental effects of a release would depend on the material released, the quantity released, and the location of the release. Potential releases could include a small amount of fuel spilled during transfer operations at the ROW to the loss of several thousand gallons of fuel into a riparian drainage. The release of a hazardous material or solid waste into a sensitive area (such as stream, wetland, or populated area) will be avoided.

Contamination of soil and water may occur due to spills during transportation, storage, and handling of hazardous materials and solid waste. Also, unknown subsurface contaminated soil could be encountered during augering.

Soil and water contamination along the ROW may result from spills during construction and augering. Impacts from spills would typically be minor because of the low frequency of spill occurrence, relatively low volume of materials being handled, and small volume of spills. Fixed facilities (construction laydown areas) would have a SPCC Plan to address procedures to ensure the proper handling and storage of these materials and procedures for the containment and cleanup of spills at fixed facilities. Spill prevention and containment and cleanup procedures for construction along the ROW that would not be covered under SPCC Plans would be provided in the Spill Prevention and Response Plan. For example, spill prevention procedures would include specification of distance from water bodies at which equipment refueling would take place.

Table 3-20 lists various hazardous materials that would be used in the operation of the transmission line and associated facilities. The procedures for safe handling of these materials would be covered under the SPCC Plan and also is covered by a number of regulatory programs as described in Section 3.17.1.2. Contamination from spills or leaks of fuels, lubricants, coolants, and solvents during construction could occur, but the impacts typically would be minor due to the low frequency and volumes of these occurrences. Hazardous materials used in operation of the Project would be handled and used according to applicable rules and regulations and present a low risk to the environment and public health.

Solid Waste

Construction waste would be disposed in accordance with applicable rules. Construction debris would not be placed in or adjacent to waterways and construction trash would be removed from the ROW. Basin Electric would comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations.

It is possible that contaminated soil could be encountered during augering operations. If contaminated soil is encountered, Basin Electric's contractor would suspend work in the area of the suspected contamination until the type and extent of the contamination was determined. The type and extent of contamination, the responsible party, and local, state, and federal regulations would determine the appropriate cleanup method for contaminated soil.

There are currently no known contaminated sites crossed by the proposed transmission line route or affected by aboveground facilities. If unanticipated contaminated soil or groundwater is encountered during construction, Basin Electric would implement appropriate measures and procedures.

As described in Section 3.17.1.2, the waste generated during operation would be similar to waste generated during construction and would have to be disposed in accordance with applicable rules and regulations.

3.16.2.2 Alternative Route A

Under Alternative Route A, direct and indirect impacts to human health would be similar to those described under the Proposed Action, with the exception that one residence would be within 250 feet of the alignment. Direct and indirect impacts from storage and use of hazardous materials and the generation of solid waste would be the same as the Proposed Action.

3.16.2.3 Alternative Route B

Under Alternative Route B, direct and indirect impacts to human health would be similar to those described under the Proposed Action, with the exception that one residence would be within 500 feet of the alignment and one residence would be within 250 feet of the alignment. Direct and indirect impacts from storage and use of hazardous materials and the generation of solid waste would be the same as the Proposed Action.

3.16.2.4 No Action Alternative

Impacts to human health would not occur if the Project were not to be constructed or operated. Additionally, under the No Action Alternative, impacts from hazardous materials and solid waste would not occur.

3.17 Intentional Destructive Acts

Transmission line projects may be the subject of intentional destructive acts ranging from random vandalism and theft to sabotage and acts of terrorism intended to disable the facility. Acts of vandalism and theft are more likely to occur than acts of sabotage and terrorism and most likely to occur in remote areas and at substation/switchyard. Theft frequently involves equipment and salvageable metal at substations and switchyards. Vandalism often includes shooting out insulators. Sabotage and terrorism would most likely include destruction of key transmission line components with the intent of interrupting the electrical grid.

Intentional destructive acts can result in financial, human health and safety, and environmental impacts and impact to consumers and businesses that rely on power. Financial impacts are ultimately passed on to rate payers. Health and environmental impacts related to intentional destructive acts could range from electrocution of perpetrators, line crews, or the public; wildfire ignition from downed lines; and oil contamination from damaged equipment. Impacts to consumers and business would range from minor annoyance to economic hardship.

Vandalism and theft within substations/switchyards would be minimized as equipment would be protected by fencing. Few if any preventive measures are available to protect the transmission line from vandalism or sabotage. However, separation of lines would reduce the potential for affecting two or more lines as a result of a single act of sabotage.

4.0 Cumulative Impacts

4.1 Introduction

Cumulative impacts are those impacts on the environment that result from the incremental impact of the Proposed Action when added to the impacts of past, present, and reasonably foreseeable future actions (RFFAs), regardless of what agency (federal or non-federal) or private entity undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR 1508.7). Impacts first must be identified for the proposed Project before cumulative impacts with past, present and RFFAs can occur.

Connected actions are those that 1) automatically trigger other actions which may require environmental impact statements, 2) cannot or will not proceed unless other actions are taken previously or simultaneously, 3) are interdependent parts of a larger action and depend on the larger action for their justification (40 CFR 1508.25). If a single action does not necessarily trigger another and has an independent utility apart from another action, then the two actions are not considered to be connected. For the purposes of this analysis, both cumulative and potential connected actions have been included.

The cumulative effects study area (CESA) includes a 9-county area (approximately 6,516,935 acres) in south-central South Dakota as illustrated in **Figure 4-1**. Past and present actions and RFFAs with the potential to cause cumulative impacts in combination with the Project also are illustrated in **Figure 4-1**. These actions were identified primarily by geographic location and their similarity to the Project, as well as the type of resource potentially affected. A brief description of these actions is provided in this section. The area of concern for cumulative impacts would vary by resource. Impacts to certain resources would be restricted to the actual area of disturbance. Other resources, such as vegetation and wildlife, may be affected over a wide area, and cumulative impacts could involve more than surface disturbance.

4.2 Past, Present, and Reasonably Foreseeable Future Projects

Table 4-1 briefly describes past and reasonably foreseeable future projects within the CESA that were considered in the cumulative impacts analysis. The CESA includes various types of projects including electric transmission line, pipeline (i.e., natural gas, crude oil, and other liquids), and wind energy projects. The majority of the projects in the CESA are composed of linear projects such as electric transmission lines and pipelines. Many of these electric transmission lines and pipelines occur within the same utility corridors and are illustrated as multiple-utility corridors (e.g., electric-natural gas) in **Figure 4-1**.

4.2.1 Past Projects

Past projects within the CESA include eight electric transmission lines, two natural gas pipelines, and one wind energy facility.

<u>Electric Transmission Lines</u>

The eight electric transmission lines traverse approximately 868 miles within the CESA. Seven of the eight electric (115-, 230-, and 345-kV) transmission lines are owned and operated by Western and extend approximately 835 miles within the CESA. The Nebraska Public Power electric transmission line crosses approximately 33 miles within the CESA. The majority of the surface disturbance associated with the construction of these transmission lines was temporary since areas were reclaimed or vegetation recovered shortly after construction was completed. Permanent surface disturbance associated with these transmission lines was limited to the structure locations, consisting of approximately 1.1 acres. In addition to the transmission lines, 10 electric substations are associated with these transmission lines with an average permanent surface disturbance of 15 acres.

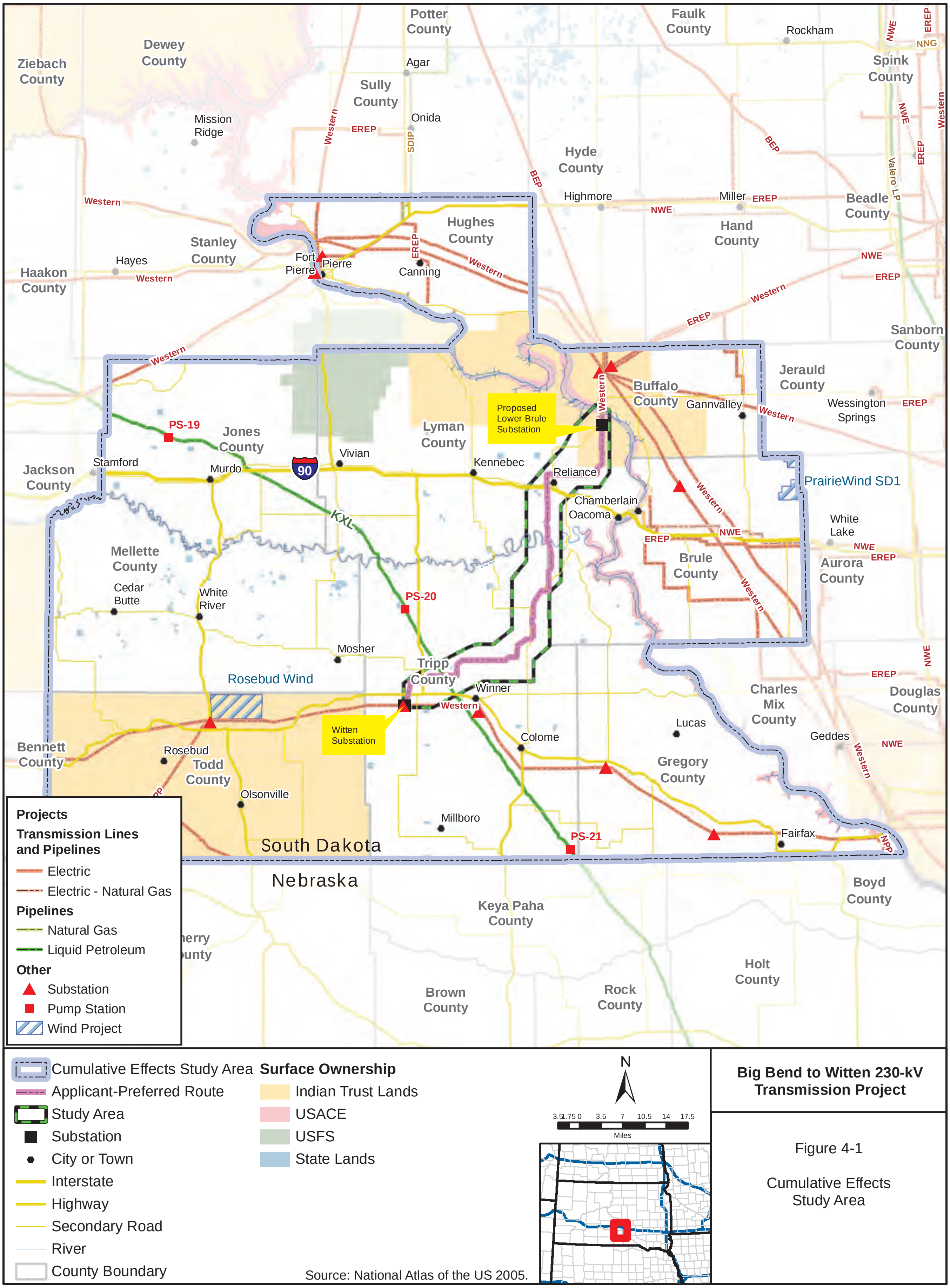

Potter County
Faulk County
Rockham
Dewey County
Ziebach County
Agar
Sully County
Spink County
Mission Ridge
Onida
Hyde County
Highmore
Miller
Beadle County
Hand County
Hughes County
Stanley County
Hayes
Fort Pierre
Pierre
Canning
Haakon County
Sanborn County
Jerauld County
Buffalo County
Gannvalley
Wessington Springs
Proposed Lower Brule Substation
Lyman County
Jones County
PS-19
Vivian
Kennebec
Jackson County
Stamford
Murdo
90
KXL
Reliance
Chamberlain
Oacoma
PrairieWind SD1
White Lake
Brule County
Aurora County
Mellette County
Cedar Butte
White River
PS-20
Mosher
Tripp County
Winner
Rosebud Wind
Witten Substation
Charles Mix County
Douglas County
Lucas
Colome
Geddes
Gregory County
Bennett County
Rosebud
Todd County
Olsonville
Millboro
PS-21
Fairfax
South Dakota
Nebraska
Boyd County
Keya Paha County
Holt County
Brown County
Rock County
Western
EREP
SDIP
BEP
NWE
NNG
Valero LP
NPP
Projects
Transmission Lines and Pipelines
Electric
Electric - Natural Gas
Pipelines
Natural Gas
Liquid Petroleum
Other
Substation
Pump Station
Wind Project
Cumulative Effects Study Area
Applicant-Preferred Route
Study Area
Substation
City or Town
Interstate
Highway
Secondary Road
River
County Boundary
Surface Ownership
Indian Trust Lands
USACE
USFS
State Lands
N
3.5 1.75 0 3.5 7 10.5 14 17.5
Miles
Source: National Atlas of the US 2005.
Big Bend to Witten 230-kV Transmission Project
Figure 4-1
Cumulative Effects Study Area

Table 4-1 Past, Present, and Reasonably Foreseeable Future Projects

Project Name	Map ID	Project Description	Distance Within CESA (miles)	Estimated Temporary Surface Disturbance (acres)	Estimated Permanent Surface Disturbance (acres)
Past Projects					
Western – Multiple Electric Transmission Lines	Western	A network of 115-, 230-, and 345-kV electric transmission lines.	835	1,215[1]	1.0[2]
Western – Substations for Multiple Electric Transmission Lines	Western	Ten substations associated with 115-, 230-, and 345-kV electric transmission lines.	NA	150[3]	150[3]
Nebraska Public Power (NPP) 115-kV Electric Transmission Line	NPP	Segment of an 115-kV electric transmission line on the Rosebud Indian Reservation.	33	48[1]	<0.1[2]
SDIP Natural Gas Pipeline	SDIP	Natural gas pipeline in central Hughes County.	19	115[4]	<0.1[5]
NWE Natural Gas Pipeline	NWE	Natural gas pipeline in central Brule County.	31.5	191[4]	<0.1[5]
Basin Electric – PrairieWinds SD1 Wind Energy Project	Basin	A portion of this wind energy project occurs in northeastern Brule County.	NA	300	35
Subtotal				2,019	186.3

Table 4-1 Past, Present, and Reasonably Foreseeable Future Projects

Project Name	Map ID	Project Description	Distance Within CESA (miles)	Estimated Temporary Surface Disturbance (acres)	Estimated Permanent Surface Disturbance (acres)
Reasonably Foreseeable Future Projects					
Rosebud Wind Energy Project	Rosebud Wind	A 100-MW wind energy project is proposed by the Rosebud Sioux Tribe approximately 2.5 miles north of Mission, South Dakota.	NA	400[7]	100[7]
Keystone XL Pipeline Project	KXL	A segment of the 1,661-mile-long, 36-inch-diameter crude oil pipeline from Hardisty, Alberta Canada to the Texas Gulf Coast.	111.7	1,489[4]	45[6]
Subtotal				**1,889**	**145**
Total				**3,908**	**331.3**

[1] Assumes a 12-foot disturbance width for an access trail within the construction ROW; excludes temporary disturbance associated with pulling and tensioning sites and construction laydown areas.

[2] Assumes an average span between structures of 800 feet and an average permanent disturbance area of 7.1 ft^2 per structure; excludes permanent disturbance associated with substation and communication sites.

[3] Assumes an average temporary and permanent disturbance of 15 acres.

[4] Assumes a construction disturbance width of 50 feet.

[5] Assumes permanent disturbance for mainline valves.

[6] Assumes a maximum disturbance of 15 acres for 3 pump stations (Pump Stations 19 through 21).

[7] Assumed acres of temporary and permanent disturbance.

NA – Not applicable.

Some of these projects parallel other ROWs (i.e., roadways, pipeline corridors, and existing power lines). Some of these electric transmission lines were installed along field edges or section lines to reduce the overall amount of habitat fragmentation and interference with agricultural operations. Some trees were likely removed to provide adequate clearance between the conductors and underlying vegetation. Land disturbance and vegetation clearing for the electric transmission lines and substations affected only a small fraction of the native vegetation present in the CESA. The most notable cumulative impacts associated with electric transmission lines are the additive effects to land use and visual quality.

Natural Gas Pipelines

Two natural gas pipelines, including the South Dakota Intrastate Pipeline (SDIP) and the NorthWestern Energy (NWE) pipeline, traverse approximately 50.5 miles within the CESA with estimated permanent surface disturbances of less than 0.2 acre.

Wind Energy Facility

PrairieWinds, SD1, Incorporated is a wholly owned subsidiary of Basin Electric. PrairieWinds constructed the South Dakota PrairieWinds SD1 Project, a 151.5-MW capacity wind-powered generation facility, including 101, 1.5-MW wind turbine generators; electrical collector lines, collector substation, transmission line, communications system, and wind turbine service access roads. Two portions of this project, which include 26 turbines and associated access roads, occur in extreme northeastern Brule County in the eastern portion of the CESA. Total permanent surface disturbances associated with this project included 261 acres. Of this total, only 35 acres of permanent disturbance occur within the CESA.

4.2.2 Present Projects

Based on a thorough review of projects within the CESA, no electric transmission line, pipeline, or wind energy projects resulting in additional surface disturbance are currently being constructed within the CESA.

4.2.3 Reasonably Foreseeable Future Projects

Activities considered to be RFFAs were evaluated based on the criteria listed below. Information was gathered to identify potential future actions in the following ways: contacting South Dakota and county planning staff and considering other environmental impact statements/EAs recently completed for other projects in the region. The information gathered was evaluated based on the criteria to determine which of these projects are speculative due to limiting factors and which are reasonably foreseeable to occur and relevant to the cumulative impacts discussion.

- **Siting authorities/applications** – identify if an application has been submitted to a siting authority (e.g., utilities commission, Public Utilities Commission) that regulates the rates and services of a public utility, reviews and approves and/or denies applications for development of electric transmission line or wind projects with a capacity of 100 MW or more.
- **NEPA process/federal approvals** – identify if a project is under NEPA review (federal agencies are required to consider and disclose the potential environmental impacts of their “major” or “significant” proposed actions prior to decision-making, involve the public and other agencies, and document their analyses and conclusions).
- **System studies and planning analysis** – determine if a project requires preliminary analysis or an evaluation of proposal design to determine the feasibility of or difficulty in carrying out a designated task; such studies precede technical development and project implementation.

Using the above criteria, two projects have been identified as reasonably foreseeable: a proposed wind energy development project on the Rosebud Indian Reservation in Todd County, and the proposed KXL Pipeline Project, which traverses Jones, Lyman, and Tripp counties.

Wind Energy Facility

A 100-MW wind energy project is proposed to be constructed by the Rosebud Sioux Tribe approximately 2.5 miles north of Mission, South Dakota. An estimated 100 acres of permanent surface disturbance for this wind energy development project would occur in the CESA.

Crude Oil Pipeline

The KXL Project would consist of a 1,661-mile-long, 36-inch-diameter crude oil pipeline extending from Hardisty, Alberta, Canada to the Texas Gulf Coast. Approximately 112 miles of the proposed pipeline would traverse the CESA. An estimated 45 acres of permanent surface disturbance would occur in the CESA with the construction of three pump stations (Pump Stations 19 through 21) within the CESA. The proposed Project could potentially connect with the KXL Project if it were constructed in the future; however, the proposed Project has independent utility as discussed in Section 1.3 of this EA.

4.3 Analysis of Cumulative and Connected Actions

The following sections disclose the potential cumulative effects of the proposed Project (discussed in Chapter 3.0) in consideration of the effects of past, present, and the RFFAs and potential connected actions discussed in Section 4.2.

4.3.1 Jurisdiction, Land Use, and Agricultural Practices

Past actions and RFFAs that contribute to cumulative impacts to jurisdiction, land use, and agricultural practices in the CESA include electric transmission line, pipeline, and wind energy projects. The CESA has previously been affected by past actions associated primarily with agricultural practices (59 percent of the CESA) and development associated with the cities of Hamill and Reliance, as well as utility lines and associated facilities, roads, and highways. The Project would contribute approximately 4 percent to the cumulative permanent surface disturbance of up to 345.5 acres within the CESA. The permanent loss of 345.5 acres of land represents less than 1.0 percent of the entire CESA. The overwhelming land use in the study area and the CESA is for production agriculture and rangeland, and the Project's effect to these uses would be negligible.

With the implementation of environmental protection measures, the Project, when added to past actions and RFFAs would not be expected to significantly contribute to cumulative impacts to jurisdiction, land use, and agricultural practices in the CESA.

4.3.2 Geology, Minerals, Paleontological Resources, and Soils

4.3.2.1 Geology

Incremental effects of the Project are difficult to quantify because of varying site conditions and construction. However, given appropriate design or avoidance, geologic hazards are not expected to contribute to cumulative impacts in the CESA.

4.3.2.2 Minerals

Since there are no anticipated impacts to mineral access, there are no cumulative impacts to mineral resources within the CESA.

4.3.2.3 Paleontological Resources

Since there are no anticipated impacts to paleontological resources, there are no cumulative impacts to paleontological resources.

4.3.2.4 Soils

Past actions and RFFAs that contribute to cumulative impacts to soil resources in the study area include construction of natural surface, graveled, and paved roads; electric transmission lines; pipelines; and wind energy projects. Roads and structures (e.g., transmission structures, substations, pump stations, wind turbines) would result in permanent impacts that include removal of vegetation, exposure of the soil, mixing of soil horizons, soil compaction, loss of topsoil productivity, and increased susceptibility of the soil to erosion. Approximately 345.5 acres of soils would be permanently impacted as a result of past actions, RFFAs, and construction of the Project. Pipeline and transmission line construction typically results in linear surface disturbance to soils with temporary impacts.

With the implementation of the recommended mitigation measures, the Project, when added to past actions and RFFAs, would not be expected to significantly contribute to cumulative impacts to soil resources in the CESA. Surface disturbance from these projects would be less than 0.1 percent of the entire CESA.

4.3.3 Vegetation and Noxious Weeds

Project-related surface disturbance, in addition to past actions and RFFAs within the CESA, would result in the cumulative permanent surface disturbance of 345.5 acres. Surface disturbance from these projects would be less than 0.1 percent of the entire CESA. Cumulative impacts to vegetation would be minimized by implementing environmental protection measures for proper handling of topsoil and spoil, preventative and remedial noxious weed management (pre- and post-construction treatments), and reclamation techniques described in **Appendix D**. With implementation of these measures, in addition to the minimal loss of vegetation in relation to the total amount of vegetative cover within the CESA, the Project contribution to cumulative impacts would be considered minimal.

4.3.4 Fish and Wildlife Resources

Project-related surface disturbance, in addition to past actions and RFFAs within the CESA, would result in the cumulative permanent surface disturbance of 345.5 acres. The overall region has been previously affected by at least some level of historic and current development activities and would be affected by RFFAs. Surface disturbance in the CESA primarily results from oil and gas pipelines, electrical transmission and distribution lines, and wind or other energy projects. However, other activities such as livestock grazing, agriculture, recreational activities and other types of development also contribute to cumulative impacts on wildlife and their habitats. Over 60 percent of the CESA has already been affected by past agricultural practices and development activities, which has had incremental effects to fish and wildlife habitats. However, the Project's contribution to the cumulative surface disturbance in the CESA would be less than 1 percent. Fish and wildlife populations have been negatively affected by past, present and RFFAs, either by being displaced or through additional intrusions encroaching on habitat for the local populations. The proposed project would add incrementally to those cumulative effects, although to a minor degree. The particular effect of tall structures on the landscape would incrementally increase predation risk for some species and collision risk for other species. However, environmental protection measures outlined in **Appendix D** would minimize these impacts.

4.3.5 Threatened and Endangered Species

Project-related surface disturbance, in addition to past actions and RFFAs within the CESA, would result in the cumulative permanent surface disturbance of 345.5 acres. The overall region has been previously affected by at least some level of historic and current development activities and would be affected by RFFAs. Surface disturbance in the CESA primarily results from oil and gas pipelines, electrical transmission and distribution lines, and wind or other energy projects. However, other activities such as livestock grazing, agriculture, recreational activities and other types of development also contribute to cumulative impacts on special status species that occur in the CESA. Over 60 percent of the CESA has already been affected by past agricultural practices and development activities, which has had incremental effects to fish and wildlife habitats. However, the Project's contribution to the cumulative surface disturbance in the CESA would be less than 1 percent. Special status species have been negatively affected by past, present and RFFAs, either by being displaced or through additional intrusions encroaching on habitat for the local populations. The proposed project would add incrementally to those cumulative effects, although to a minor degree that would not be anticipated to adversely affect the species. The particular effect of tall structures on the landscape would incrementally increase predation risk for some species and collision risk for other species. However, environmental protection measures outlined in **Appendix D** would minimize these impacts. Specific measures such as conducting pre-construction surveys to minimize or avoid impacts as well as line marking and monitoring to reduce potential collision risk for Whooping cranes would further reduce the potential for special status species to be affected by the Project.

4.3.6 Wetlands

Impacts to wetlands are not anticipated as a result of Project implementation; therefore, cumulative impacts are not anticipated.

4.3.7 Floodplains

Impacts to floodplains are not anticipated as a result of Project implementation; therefore, cumulative impacts are not anticipated.

4.3.8 Water Quality

Impacts to water quality are not anticipated as a result of Project implementation; therefore, cumulative impacts are not anticipated.

4.3.9 Cultural Resources

Cumulative impacts to cultural resources and Native American traditional values would result from surface disturbance, unauthorized collection, and natural erosion processes in the CESA. With the implementation of the recommended mitigation measures and avoidance, the Project, when added to past actions and RFFAs, would not be expected to significantly contribute to cumulative impacts to these resources in the CESA.

4.3.10 Socioeconomics

Past actions and RFFAs that contribute to cumulative impacts to socioeconomics in the study area include electric transmission line, pipeline, and wind energy projects. The majority of lands affected by past actions and RFFAs would be agricultural. Although the loss of agricultural productivity would affect landowners, they would be compensated for the loss of productivity. Incremental impacts within the CESA would be minimal.

4.3.11 Environmental Justice

Past actions and RFFAs that contribute to cumulative impacts to environmental justice in the study area include electric transmission line, pipeline, and wind energy projects. Despite the presence of a meaningfully greater Native American population and poverty rates that are meaningfully greater than the state average, the Project would generate income through property tax revenues and if communities supply services such as restaurants and lodging that may potentially benefit minority communities by creating the potential for limited types of economic development and possible employment opportunities. The Project, when added to past actions and RFFAs, would not be expected to significantly contribute to cumulative impacts to minority and low-income populations in the CESA.

4.3.12 Aesthetics

Past actions and RFFAs within the CESA include the existing Witten Substation, a segment of Western's existing 115-kV transmission line that is connected to the Witten Substation, a segment of the proposed TransCanada KXL Pipeline, and numerous distribution lines. Cumulative visual impacts would occur with the presence of electric transmission structures, conductors, and substations within the viewshed of residents, recreationists, and motorists travelling on roads and highways within the CESA. After reclamation has been completed, visual impacts would lessen over time with the establishment of vegetative cover. Overall, the cumulative visual impacts within the CESA from existing electrical transmission structures and facilities and other tall structures, in addition to the transmission line and substation/switchyard associated with the Project, would occur over the long term.

4.3.13 Noise, Radio, and Television Interference

Past actions and RFFAs that contribute to cumulative impacts to noise, radio, and television in the CESA include electric transmission line, pipeline, and wind energy projects. With implementation of modern transmission design, routing away from sensitive structures, and the temporary duration of construction, the Project, when added to past actions and RFFAs, would not be expected to significantly contribute to cumulative noise levels and potential for radio or television interference in the CESA.

4.3.14 Air Quality

To the extent to which construction of the Project would occur simultaneously and in the same general area as other projects, there could be minor cumulative temporary air quality impacts. Simultaneous construction activities in close proximity to one another could result in locally elevated concentrations of pollutants; however, those concentrations would not be expected to result in a degradation of local or regional air quality, or result in any exceedences of the NAAQS. It is not expected that the Project would contribute to noticeable cumulative air quality impacts.

4.3.15 Transportation

Past actions and RFFAs that contribute to cumulative impacts to transportation in the CESA include electric transmission line, pipeline, wind energy projects, and existing infrastructure development including roads. Minor traffic increases would occur on local roads in the long term as a result of operations traffic. With the implementation of environmental protection measures, the Project, when added to past actions and RFFAs, would not be expected to significantly contribute to cumulative impacts to transportation resources in the CESA.

4.3.16 Human Health and Safety

Past actions and RFFAs that contribute to cumulative impacts to human health and safety in the CESA include electric transmission line, pipeline, wind energy projects, and existing infrastructure development. As there are no anticipated long-term impacts to human health and safety, there are no long-term cumulative impacts to human health and safety in the CESA.

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6.0 List of Preparers and Reviewers

Table 6-1 lists the personnel responsible for preparing this EA. AECOM is the third-party consultant to assist with the preparation of this EA.

Table 6-1 List of Preparers

Name	Title/Resource
Rural Utilities Service	
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Jon Alstad	Alternatives, Project Coordination and Development
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Steve Ensley	Corridor and Routing Analysis - GIS Specialist
Todd White	GIS, Data Management, Impact Analysis
Julie Barraza	Fish and Wildlife Resources; Special Status Wildlife; Biological Assessment
Bill Berg	Geology, Minerals, and Paleontological Resources
Jim Burrell	Water Quality
Steve Graber	Jurisdiction, Land Use, and Agricultural Practices; Socioeconomics; Environmental Justice; Noise, Radio, and Television Interference; Transportation; and Human Health and Safety
Allison Grow	Vegetation and Noxious Weeds; Wetlands and Floodplains
Terra Mascarenas	Soils
Kim Munson	Cultural Resources, Native American Traditional Values
Merlyn Paulson	Aesthetics

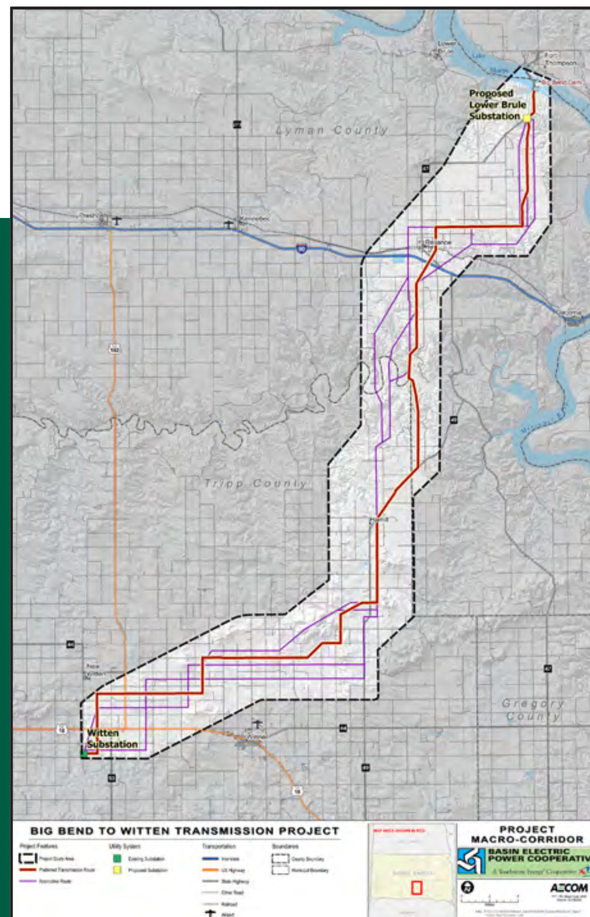
Appendix A

Scoping Report

Big Bend to Witten 230-kV Transmission Project

Environmental Assessment

Scoping Report



USDA Rural Development

List of Acronyms

Basin Electric	Basin Electric Power Cooperative
CFR	Code of Federal Regulations
DOS	Department of State
EA	Environmental Assessment
kV	kilovolt
KXL	Keystone XL
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
Project	Big Bend to Witten 230-kV Transmission Project
ROW	right-of-way
RUS	Rural Utilities Service
SDGFP	South Dakota Game, Fish, and Parks
SDNHP	South Dakota Natural Heritage Program
USFWS	U.S. Fish and Wildlife Service
Western	Western Area Power Administration

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1.0 Introduction

Two primary principles of the National Environmental Policy Act (NEPA) are full disclosure of potential environmental effects and open public participation throughout the decision-making process. Rural Utilities Service (RUS) is preparing an Environmental Assessment (EA) for the proposed Big Bend to Witten 230-kilovolt (kV) Transmission Project (Project) in south-central South Dakota. RUS is the lead agency and Western Area Power Administration (Western) is participating as the cooperating agency. The Scoping Report provides an overview of the public scoping process and a summary of the scoping comments and the issues and concerns identified during the scoping process.

1.1 Project Background and Project Description

The U.S. Department of Agriculture's RUS is currently considering whether to provide Project financing for the proposed 70-mile-long, 230-kV Project. Western is considering whether to provide interconnection of the proposed 70-mile-long, 230-kV single-circuit transmission line to its transmission system. The Project also would include a new Lower Brule Substation, additions to the existing Witten Substation, and 2 miles of 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation.

Basin Electric Power Cooperative (Basin Electric) has applied to RUS for financing and proposes to construct and operate the Project to meet existing and future electric power requirements in south-central South Dakota. Basin Electric would interconnect the new transmission line to the existing Western transmission system. The proposed Project would be located in south-central South Dakota, in Lyman and Tripp counties. Approximately 6 miles of the single-circuit transmission line and all of the double-circuit transmission line, as well as Western's Lower Brule Substation, would be constructed on the Lower Brule Indian Reservation.

The proposed Project would transfer power from Western's transmission system near Big Bend Dam to Rosebud Electric Cooperative's Witten Substation, near Witten, South Dakota. It is anticipated that some communication facility additions or enhancements may be necessary for the Project, including communication towers and buildings at the Lower Brule Substation, Witten Substation, and other intermediate sites.

Under RUS regulations for implementation of NEPA, an EA with scoping is being prepared to assess potential impacts of the proposed action on the human and natural environment. RUS is responsible for NEPA compliance and related statutes for the proposed Project. Since the Project would be constructed partly on the Lower Brule Indian Reservation, other cooperating agencies may be identified.

1.2 Purpose of Scoping

Scoping is the process of actively soliciting input from the public and other interested federal, state, tribal, and local agencies. Information gained during scoping assists RUS in identifying potential environmental issues, alternatives, and mitigation measures associated with development of the proposed Project. The process provides a mechanism for determining the scope and significant issues (40 Code of Federal Regulations [CFR] 1501.7 and CFR 1508.25) so that the EA can focus the analyses on areas of interest and concern. Therefore, public participation during the scoping period is a vital component to preparing a comprehensive and sound NEPA document. Scoping provides the public, tribes, and agencies opportunities for meaningful public involvement in the decision-making process.

The agencies' overriding scoping goal is to engage a diverse group of public and agency participants to solicit relevant input and provide timely information throughout the review process. Five specific goals were established in the Project's Public Participation Plan, including:

- Increase public awareness and understanding about the NEPA process through meaningful stakeholder participation;
- Identify the public's concerns so they can be addressed in the EA;
- Obtain public, federal, state, and local agency, and tribal comment and input;
- Effectively communicate, cooperate, and consult with the tribes, federal and state agencies, and local elected and appointed officials; and
- Evaluate the success of the communications and public participation activities.

2.0 Summary of the Scoping Process

2.1 Pre-Scoping Activities

2.1.1 Lower Brule and Rosebud Sioux Tribes

Prior to RUS' publication of the Notice of Intent (NOI), several meetings were held with the Lower Brule Sioux Tribe regarding potential corridors and routes for the Lower Brule to Witten transmission line. The first meeting was arranged and held by the LBST on February 25, 2010. Western, Basin Electric, the LBST Chairman, members of the LBST Tribal Council, members of the LBST Elder Advisory Committee, the staff of the LBST Cultural Resource Office, representatives from the Rosebud Sioux Tribe Tribal Historic Preservation Office, and personnel from ENTRIX (at the time the Department of State [DoS] NEPA consultant for the proposed KXL pipeline project) were present at the meeting. The purpose of the meeting was to respond to the LBST's request for a Project description and clarification of the need(s) for the proposed Project. Concerns were raised regarding the purpose of the proposed transmission line and regarding the proposed corridors being too close to cultural sensitive areas and wetland areas in several places.

On March 15, 2010, Basin Electric and Western personnel met with LBST cultural resources office staff and Rosebud Sioux Tribal Historic Preservation Office staff at Lower Brule Tribal Administrative Building to modify the route options in response to Tribal concerns. As a result of these meetings, route options along State Highway (SH) 47 were eliminated and three options that extended south from the proposed Lower Brule Switchyard were added. Basin Electric also shifted the corridor northeast of Winner, to avoid an area with a high potential for cultural resource sites.

On January 10, 2011, Basin Electric personnel met with Tribal representatives at Lower Brule Tribal Headquarters. The purpose of the meeting was to provide a project update and to discuss the NEPA process, alternative corridor placement, and the process and requirements for Tribal permitting and easements.

2.1.2 County Commissioners' Meetings

Basin Electric environmental, engineering, and ROW representatives met with Tripp and Lyman County Commissions during their normally scheduled meetings on April 5, 2011. Commissioners were provided PowerPoint® slide handouts about the Project; the slides provided the basis for discussion at each meeting. The handouts provided information about Basin Electric, the proposed Project, permitting requirements, and Project timelines.

Commissioners were asked if they had any questions, comments, or concerns about the Project or if they were aware of any local permits that would be required. Both counties were supportive of the Project and indicated there were no county zoning or permitting requirements. Lyman County raised the issue of a recent ordinance aimed at meteorological towers, with the thought that it also may apply to transmission structures. Upon further review with the Lyman County Commission, it appeared the ordinance did not apply.

2.2 Notification

The initial step in the NEPA process is to notify the public, other government agencies, and tribes of RUS' intent to prepare an EA with scoping and hold public scoping meetings by publishing the NOI in the Federal Register. The NOI for the Project was published in the Federal Register on April 12, 2011. Additionally, legal notices and display advertisements were published in the local newspapers, twice, at least 10 days prior to the first public scoping meeting. **Table 2-1** provides a summary of the legal notices and display advertisements. Copies of the NOI, publications and affidavits are provided in **Appendix A - Notification**.

Table 2-1 Newspaper Notification

Newspaper	Display Advertisement	Legal Notice
Capital Journal	April 15 and April 22, 2011	April 15 and April 22, 2011
Lyman County Herald	April 13 and April 20, 2011	April 13 and April 20, 2011
Winner Advocate	April 20, 2011	April 13 and April 20, 2011

2.3 Consultation and Coordination with Federal, State, and Local Governments

Specific regulations require RUS to coordinate and consult with federal, state, and local agencies about the potential of the proposed Project and alternatives to affect sensitive resources. The coordination and consultation must occur in a timely manner and are required before any final decisions are made. Issues related to agency consultation may include biological resources, cultural resources, socioeconomics, and land and water management. For example, biological resource consultations apply to the potential for Project activities to disturb sensitive species or habitats. Cultural resource consultations would apply to the potential for impacts to important cultural or archaeological sites. RUS distributed letters to the following agencies requesting biological information:

- U.S. Fish and Wildlife Service (USFWS);
- South Dakota Natural Heritage Program (SDNHP); and
- South Dakota Game, Fish, and Parks (SDGFP).

2.4 Tribal Government-to-Government Consultation

Under Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, RUS is required to establish regular and meaningful consultation and collaboration with Native American tribal governments on development of regulatory policies and issuance of permits that could significantly or uniquely affect their communities. RUS distributed letters to the following tribes notifying them about the Project:

- Lower Brule Sioux Tribe;
- Rosebud Sioux Tribe of Indians;
- Standing Rock Sioux Tribe;
- Ponca Tribe of Oklahoma;
- Ponca Tribe of Nebraska;
- Oglala Sioux Tribe of the Pine Ridge Reservation;
- Crow Creek Sioux Tribe;
- Santee Sioux Nation; and
- Cheyenne River Sioux Tribe.

Consultation with the tribes will continue throughout the Project as stipulated under Section 106 of the National Historic Preservation Act (NHPA), as amended.

2.5 Scoping Meetings

Public scoping meetings offer an opportunity for public involvement during the scoping period. The meetings are designed to promote information exchange about the proposed Project and to gather public input on issues of concern that may need to be considered in the EA. RUS hosted two public scoping meetings: one in Reliance, South Dakota and one in Winner, South Dakota. The dates, locations, and number of public attendees at the scoping meetings are presented in **Table 2-2.**

Table 2-2 Scoping Meetings

Meeting Location	Meeting Date/Time	Number of Attendees that Signed In
Reliance, South Dakota American Legion Post 179	Tuesday, April 26, 2011 4-7 p.m.	35
Winner, South Dakota Holiday Inn Express and Suites	Wednesday, April 27, 2011 4-7 p.m.	48

The public scoping meetings were conducted in open house format to allow for an open exchange of information and to enable attendees to ask agency personnel and Basin Electric representatives questions about the Project. Display boards showing the project location and the NEPA process were presented to facilitate conversation. Large maps were spread on tables so that landowners could identify their property and areas of concern. Informational materials about the Project, NEPA process, transmission line siting, and right-of-way (ROW) were available as handouts. Attendees also were provided comment forms to complete and submit at the meeting or mail to RUS at a later date. **Appendix B** includes the materials that were available at the public scoping meetings.

3.0 Summary of Key Scoping Comments

The 45-day public scoping period ended on May 27, 2011. RUS received a total of 18 comment submittals (e.g., letters, comment forms) containing 43 individual comments during the public scoping period. Most of the comments RUS received were from potentially affected landowners.

Following the close of the public scoping period, comments were compiled and analyzed to identify issues and concerns. A majority of the comments were related to:

- Impacts associated with routing the proposed transmission line across private property;
- Visual impacts to residents;
- Potential effects to agricultural activities; and
- Transmission line routing preferences.

A comprehensive list of the scoping comments are provided in **Appendix C** and sorted by topic.

4.0 Activities Following Scoping

The NEPA process provides additional opportunities for public input. Following the scoping period, the transmission line route refinement process will continue and a Draft EA will be prepared, incorporating information received from the public during the scoping period. Once the Draft EA is prepared, the public will be notified of its availability for review. During a 45-day review period, the public can comment on key issues and the adequacy of the environmental analyses. **Figure 4-1** identifies additional opportunities and the anticipated schedule for the public to provide comments and participate in the EA process.

Figure 4-1 EA NEPA Process

Appendix A

Notification

between 8 a.m. and 8 p.m., Eastern Standard Time, Monday through Friday.

SUPPLEMENTARY INFORMATION: The meeting is open to the public. More information will be posted on the Mt. Baker-Snoqualmie National Forest Web site at *http://www.fs.fed.us/r6/mbs/projects/rac.shtml*.

Comments may be sent via e-mail to *pforbes@fs.fed.us* or via facsimile to (360) 436–1309. All comments, including names and addresses when provided, are placed in the record and are available for public inspection and copying. The public may inspect comments received at the Darrington Ranger District office at 1405 Emens Avenue, Darrington, Washington, during regular office hours (Monday through Friday 8 a.m.–4:30 p.m.).

Dated: April 5, 2011.

Renee Bodine,

Acting Forest Supervisor.

[FR Doc. 2011–8647 Filed 4–11–11; 8:45 am]

BILLING CODE 3410–11–P

DEPARTMENT OF AGRICULTURE

Rural Utilities Service

Basin Electric Power Cooperative: Notice of Intent To Hold Public Scoping Meetings and Prepare an Environmental Assessment

AGENCY: Rural Utilities Service, USDA.

ACTION: Notice of Intent to hold public scoping meetings and prepare an Environmental Assessment (EA).

SUMMARY: The Rural Utilities Service (RUS) intends to hold public scoping meetings and prepare an Environmental Assessment with Scoping (EA) to meet its responsibilities under the National Environmental Policy Act (NEPA) and 7 CFR part 1794 in connection with potential impacts related to a proposed project by Basin Electric Power Cooperative (Basin Electric). The proposed Big Bend to Witten Transmission Line Project (proposed action) consists of an approximately 70-mile long 230-kV single-circuit transmission line, a new Western Area Power Administration (Western) substation called Lower Brule Substation, an addition to the existing Witten Substation, and approximately two miles of 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. It is anticipated that some communication facility additions or enhancements may be necessary for the project including radio towers and buildings at Lower Brule Substation, Witten Substation, and one or two intermediate sites. Basin Electric is requesting RUS financial assistance for the proposed action.

DATES: RUS will conduct public scoping meetings in an open house format to provide information and solicit comments for the preparation of the EA. The scoping meetings will be held on the following dates: The American Legion Post 179, 109 North 5th Avenue, Reliance, SD, on Tuesday April 26, 2011, 4–7 p.m.; The Holiday Inn Express and Suites, 1360 East Highway 44, Winner, SD, on Wednesday April 27, 2011, 4–7 p.m.

ADDRESSES: To send comments or request additional information, contact: Mr. Richard Fristik, Senior Environmental Protection Specialist, USDA, Rural Utilities Service, 1400 Independence Avenue, SW., Stop 1571, Washington, DC 20250–1571. *Telephone:* (202) 720–5093 or *e-mail: richard.fristik@wdc.usda.gov.*

A Macro Corridor and Alternative Evaluation Study has been prepared for the proposed project. The document is available for public review prior to and during the public scoping meetings. The report is available at the RUS address provided in this notice and on the agency's Web site at: *http://www.usda.gov/rus/water/ees/ea.htm,* the offices of Basin Electric and the following repositories:

Kennebec Public Library, 203 S Main, Kennebec, SD 57544

Tripp County Library—Grossenburg Memorial, 442 Monroe Street, Winner, SD 57580

SUPPLEMENTARY INFORMATION: The network transmission system in South Dakota is not able to accommodate projected load growth by 2014. The major impact is the addition of the pumping station loads associated with the proposed Keystone XL pipeline. Seven pumping stations are proposed to be located in South Dakota. The two pumping stations to be connected to the Witten Substation and Gregory Substation would have a large impact on the network transmission system. These substations are located in a relatively remote area from a network transmission perspective and therefore do not have a strong redundant transmission connection. The existing Western 115-kV line between the Mission Substation and the Fort Randall Substation is not able to reliably accommodate the ultimate pump station build-out load level. An outage of the Fort Randall to Gregory 115-kV line would result in operating voltage criteria violations in the areas of Mission and Gregory, SD. The addition of the Big Bend to Witten 230-kV transmission line would provide an increase in the load serving capacity such that the delivery needs of the projected network load can be met in a reliable manner.

The proposed action consists of an approximately 70-mile long 230-kV single circuit transmission line, a new Western Substation called Lower Brule Substation, an addition to the existing Witten Substation, and approximately two miles of 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. Lower Brule Substation would be a new facility, to be built by Western, near Big Bend Dam on the Missouri River. Western would also construct, own, and operate approximately two miles of double circuit transmission line between Big Bend Dam and the new Lower Brule Substation. The Witten Substation is owned by Rosebud Electric Cooperative and is near the town of Witten, SD. Basin Electric would build and own the addition to the Witten Substation. It is anticipated that some communication facility additions or enhancements may be necessary for the project including radio towers and buildings at Lower Brule Substation, Witten Substation, and one or two intermediate sites.

Basin Electric is seeking financing from RUS for its ownership of the proposed project. Before making a decision to provide financing, RUS is required to conduct an environmental review under NEPA in accordance with RUS's Environmental Policies and Procedures (7 CFR Part 1794). Western has agreed to be a cooperating agency in preparation of the EA. Government agencies, private organizations, and the public are invited to participate in the planning and analysis of the proposed action. Representatives from RUS, Western and Basin Electric will be available at the scoping meetings to discuss the environmental review process, describe the proposed action, discuss the scope of environmental issues to be considered, answer questions, and accept comments. Comments regarding the proposed action may be submitted (orally or in writing) at the public scoping meetings or in writing by May 27, 2011, at the Rural Utilities Service address provided in this notice. From information provided in the Macro Corridor and Alternatives Evaluation Study Report, from government agencies, private organizations, and the public, Basin Electric Power Cooperative will prepare an environmental analysis to be submitted to RUS for review. RUS will review the environmental analysis and determine the significance of the impacts of the proposal. If accepted, the document will be adopted as the environmental assessment (EA) for the proposal. RUS's EA would be available for review and comment for 45 days. Should RUS determine, based on the EA for the proposal, that impacts associated with the construction and operation of the proposal would not have a significant environmental impact, it will prepare a finding of no significant impact (FONSI). Public notification of a FONSI would be published in the **Federal Register** and in newspapers with circulation in the proposal area.

If at any point in the preparation of an EA, RUS determines that the proposed action will have a significant effect on the quality of the human environment, the preparation of an Environmental Impact Statement will be required. Any final action by RUS related to the proposed action will be subject to, and contingent upon, compliance with all relevant Federal, State, and local environmental laws and regulations and completion of the environmental review requirements as prescribed in RUS's Environmental Policies and Procedures.

Dated: April 5, 2011.

Mark S. Plank,

Director, Engineering and Environmental, Staff, Rural Utilities Service.

[FR Doc. 2011–8719 Filed 4–11–11; 8:45 am]

BILLING CODE P

DEPARTMENT OF COMMERCE

International Trade Administration

[A–403–801, C–403–802]

Fresh and Chilled Atlantic Salmon From Norway: Extension of Time Limits for Preliminary and Final Results of Full Third Antidumping and Countervailing Duty Sunset Reviews

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

DATES: *Effective Date:* April 12, 2011.

FOR FURTHER INFORMATION CONTACT: Kristen Johnson for (CVD) at 202–482–4793 and Eric Greynolds for (AD) at 202–482–6071, AD/CVD Operations, Office 3, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230.

Background

On January 3, 2011, the Department of Commerce (the Department) initiated the third sunset reviews of the antidumping (AD) and countervailing duty (CVD) orders on fresh and chilled Atlantic salmon from Norway, pursuant to section 751(c) of the Tariff Act of 1930, as amended (the Act). *See Initiation of Five-Year ("Sunset") Review,* 76 FR 89 (January 3, 2011). Within the deadline specified in 19 CFR 351.218(d)(1)(i), the Department received a notice of intent to participate, in both the AD and CVD sunset reviews, on behalf of Phoenix Salmon U.S., Inc. (Phoenix Salmon), a domestic interested party. Phoenix Salmon claimed interested party status under section 771(9)(C) of the Act, as a producer of subject merchandise.

The Department received timely substantive responses from Phoenix Salmon and the following respondent interested parties: the Government of Norway, Norwegian Seafood Federation (NSF), and the Aquaculture Division of the Norwegian Seafood Association (ADNSA). The domestic and respondent interested parties also submitted to the Department timely rebuttal comments.

On April 6, 2011, after analyzing the submissions from the interested parties and finding that NSF and ADNSA have standing as foreign interested parties and that the substantive responses submitted by all of the interested parties are adequate, the Department determined to conduct full sunset reviews of the AD and CVD orders on fresh and chilled Atlantic salmon from Norway. *See* Memorandum to Gary Taverman, Acting Deputy Assistant Secretary for Antidumping and Countervailing Duty Operations, from Melissa Skinner, Director, Antidumping and Countervailing Duty Operations, Office 3, regarding "Adequacy Determination: Third Sunset Reviews of the Antidumping and Countervailing Duty Orders on Fresh and Chilled Atlantic Salmon From Norway," (April 6, 2011).

Extension of Time Limits

In accordance with section 751(c)(5)(B) of the Act, the Department may extend the period of time for making its determination by not more than 90 days, if it determines that the review is extraordinarily complicated. We determine that the AD and CVD sunset reviews are extraordinarily complicated, pursuant to section 751(c)(5)(C) of the Act, because of a large number of complex issues in each review that the Department must analyze.

The preliminary results of the full sunset reviews of the AD and CVD orders on fresh and chilled Atlantic salmon from Norway are scheduled for April 23, 2011, and the final results of these reviews are scheduled for August 31, 2011. The Department is extending the deadlines for both the preliminary and final results of the full sunset reviews.

As a result, the Department intends to issue the preliminary results of the full sunset reviews of the AD and CVD orders on fresh and chilled Atlantic salmon from Norway on July 22, 2011, and the final results of the reviews on November 29, 2011. These dates are 90 days from the original scheduled dates of the preliminary and final results of these full sunset reviews.

This notice is issued in accordance with sections 751(c)(5)(B) and (C)(v) of the Act.

Dated: April 6, 2011.

Gary Taverman,

Acting Deputy Assistant Secretary for Antidumping and Countervailing Duty Operations.

[FR Doc. 2011–8735 Filed 4–11–11; 8:45 am]

BILLING CODE 3510–DS–P

DEPARTMENT OF COMMERCE

International Trade Administration

[A–489–805]

Certain Pasta From Turkey: Extension of Time Limit for the Preliminary Results of Antidumping Duty Administrative Review

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

FOR FURTHER INFORMATION CONTACT: Stephanie Moore, AD/CVD Operations, Office 3, Import Administration, U.S. Department of Commerce, 14th Street and Constitution Ave., NW., Washington, DC 20230; (202) 482–3692.

Background

On July 24, 1996, the Department published in the Federal Register the antidumping duty order on certain pasta from Turkey. See Notice of Antidumping Duty Order and Amended Final Determination of Sales at Less Than Fair Value: Certain Pasta From Turkey, 61 FR 38545 (July 24, 1996). On July 1, 2010, we published in the **Federal Register** the notice of "Opportunity to Request Administrative Review" of this order for the period July 1, 2009, through June 30, 2010. See Antidumping or Countervailing Duty Order, Finding, or Suspended Investigation; Opportunity To Request Administrative Review, 75 FR 38074 (July 1, 2010). On July 30, 2010, we received a request from petitioners [1] to

[1] New World Pasta Company, American Italian Pasta Company, and Dakota Growers Pasta Company (collectively, petitioners).

Capital Journal

AFFIDAVIT OF PUBLICATION

State of South Dakota, County of Hughes

Ona Arnold of said county, being, first duly sworn, on oath, says: That he/she is the publisher or an employee of the publisher of the Capital Journal, a daily newspaper published in the City of Pierre in said County of Hughes and State of South Dakota; that he/she has full and personal knowledge of the facts herein stated, that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, that said newspaper has been published within the said County of Hughes and State of South Dakota, for at least one year next prior to the first publication of the attached public notice, and that the legal/display advertisement headed Applicant Notice of Public Scoping Meetings + Environmental Assessment Basin Power Electric Power a printed copy of which, taken from the paper in which the same was published, and which is hereto attached and made a part of this affidavit, was published in said newspaper for two successive week(s) to wit:

April 15 2011	20
April 22 2011	20
20	20
20	20
20	20

That the full amount of the fee charged for the publication of the attached public notice inures to the sole benefit of the publisher or publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever; that the fees charged for the publication thereof are: $146.86.

Signed: Ona Arnold

subscribed and sworn to before me this 26 day of April 2011

M. Baker

Notary Public in and for the County of Hughes, South Dakota.
My Commission expires 2-19, 2015.

800 Public Notice

OF SD CO WEED/PEST BOARDS, 150.00 ANNUAL DUES; AVERA QUEEN OF PEACE - OCCUPAT, 71.90, SERVICES & FEES; BLACK HILLS CHEMICAL & JANITOR, 154.93, SUPPLIES; DENNIS BOOTH, 40.00, P/Z MEETING; BOTTOM LINE WELDING, 51.70, SUPPLIES; Butler Machinery Co., 1,536.72, SUPPLIES; CAPITAL AREA REFUSE LLC, 58.00, TRASH BILLING; CAPITAL JOURNAL, 276.13, SUBSCRIPTION RENEWAL; CATLIN'S CAR CLINIC, 185.00, REPAIRS, MAINT.; CHEMSEARCH, 405.50, SUPPLIES; COLE PAPERS INC. 74630700, 314.10, REPAIRS; COMMUNITY YOUTH INVOLVED CTR., 1,666.66, APRIL SUPPORT; COUNTRY CARPET & FLOORING INC, 2,636.68, INSTALL CARPET TILE; BOB COVERDALE, 56.65, P/Z MEETING; COWBOY COUNTRY STORES PIERRE, 80.00, GASOLINE; Chandler's Glass & Recycl, 15.00, SUPPLIES; DAKOTA 2000, 56.95, NETGEAR ROUTER; DAKOTA BUSINESS CENTER, 63.04, SUPPLIES; DUFFY LAW OFFICE, 2,394.40, COURT APPT ATTY; EDDIES TRUCK SALES, 745.82, SUPPLIES; FLEET SERVICES, 14,293.31, SUPPLIES; FORT PIERRE FIRE DEPT, 14,425.00, 2ND OTR PAYMENT; FORT PIERRE CITY, 1,704.06, COPIER LEASE; FOUR CORNERS FIRE DEPTMENT, 4,500.00, 2ND QTR PAYMENT; FRIMAN OIL & GAS CO., 27,336.00, #2 DYED FUEL; Friman Oil & Gas Co., 625.17, SUPPLIES; GOLDEN WEST TELECOMMUNICATIONS, 334.04, 911 SERVICE; LORI J. GRODE, 152.00, TRANSCRIPT; HUGHES COUNTY AUDITOR, 12,200.00, JAIL BILLING; KRIS KROLL, 30.00, DISTRICT MEETING MILEAGE; KRIS KROLL, 149.00, SKILLPATH SEMINAR; Klein's Office Equipment, 46.19, SUPPLIES; JOHN LATHAM, 20.00, SUBPOENA; SHAUN LEAFGREEN, 40.00, P/Z MEETING; LEIDHOLT, MCNEELY & LEIDHOLT, 79.50, REPAIRS, MAINT.; LITTLE FALLS MACHINE,INC, 146.68, SUPPLIES; LYCOX ENTERPRISES, INC., 17,950.00, EQUIPMENT; JACK MAGEE, 246.00, COURT APPT ATTY; THOMAS P MAHER, 2,348.59, PROFESSIONAL SERVICES; MICRO-FIX COMPUTERS, 105.00, REPAIRS & MAINT; MICROFILM IMAGING SYSTEMS INC, 375.00, MONTHLY RENT; MIDCONTINENT COMMUNICATION, 206.70, UTILITIES; MISSOURI VALLEY RADIOLOGY LLC, 24.64, B1100ASS; MN WIRELESS, LLC, 69.00, UTILITIES; MONTANA-DAKOTA UTILITIES CO, 613.13, UTILITIES; DARLIS D PERRY, 540.00, BLOOD TESTS; PIERRE CITY, 110.00, MEDICAL DIRECTOR; PITNEY BOWES GLOBAL, 175.19, RENTAL INVOICE; PRYNT-COMM, 229.88, COMMISSIONER MISC; QUILL CORPORATION, 157.96, SUPPLIES; QWEST COMMUNICATIONS, 270.42, 4 CORNERS REPEATERS; OLINGER,LOVALD & MCCAHREN PC, 507.91, SL; MICHAEL ROTHSCHADL, 164.54, SUBPOENA; RUNNINGS, 354.22, SUPPLIES; RUNNINGS SUPPLY INC, 122.63, SUPPLIES; SCHAEFER'S OIL, 365.28, SUPPLIES; SDAAO, 200.00, ANNUAL CONFERENCE; SDACO, 600.00, 2011 SPRING/DEPUTY WORKSHOP; SD BUREAU OF ADMINISTRATION, 19.13, UTILITIES; SD DEPARTMENT OF REVENUE, 3,592.71, SC INVOLUNTARY; SERVALL UNIFORM & LINEN, 53.52, REPAIRS, MAINT.; SHANE'S PHARMACY, 50.30, MEDICAL CARE; SHARPE ENTERPRISES INC., 12,000.00, FINAL PMT-SCHOMER BARN; SIOUX CITY FOUNDRY CO., 4,004.00, SUPPLIES; ST MARY'S HEALTHCARE CENTER, 702.96, OMHP EVAL; ST MARY'S HEALTH CARE CENTER, 751.17, CRISIS ROOM; STANLEY COUNTY LAW ENFORCEMENT, 44,664.00, 2ND OTR PAYMENT; RODNEY STOESER, 44.44, P/Z MEETING; SUTLEYS TOWN & RANCH MARKET, 2.99, SUPPLIES; THE LODGE AT DEADWOOD, 196.00, CONVENTION; TITZE ELECTRIC, 1,971.90, SCHOMER BARN REPAIRS; SCHMIDT, SCHROYER, MORENO PC, 51.13, PROFESSIONAL SERVICES; JON VANDER MATEN, 90.00, BLOOD TESTS; WALMART COMMUNITY, 61.85, SUPPLIES; MONA WEIGER, 613.20, TRANSCRIPTS; Wegner Auto Co., 1,926.69, REPAIRS, MAINT.; XEROX CORPORATION, 150.17, LEASE - BILLABLE PRINTS; YANKTON COUNTY, 103.75, MENTAL ILLNESS HEARING; YANKTON REXALL DRUG, 16.98, MEDICATION; Zander Auto Parts, 454.44, SUPPLIES

SALARIES BY OFFICE: Commissioners, $3,602.70, Auditor, $6,371.86; Treasurer, $5,901.76; States Attorney, $6,611.02; Custodian, $3,127.40; Director of Equalization, $6,833.68; Register of Deeds, $3,487.60; Road and Bridge, $28,901.66; Community Health Secretary, $2,632.56; WIC Secretary, $333.71; Wellmark Blue Cross/Blue Shield, employee insurance, $12,754.95; SD Retirement System, withheld and match, $5,651.56; SD Supplemental Retirement, employee contribution, $40.00; Electronic Transfer, FICA, Medicare and Withholding Tax, $10,636.11

AUDITOR'S ACCOUNT WITH THE TREASURER

March 2011: Cash on hand, $1,183.48; Checks, less than 3 days, $26,285.72; Petty Cash, $200.00; First National Bank, $40,195.77; MKKT ACCT - First National Bank, $2,436,335.17; MKKT ACCT - American State Bank, $65,916.58; SD FIT, $6,005.84; Total, $2,576,042.56

REGISTER OF DEEDS:

Regular fees, March 2011, $1697.92; Transfer fees, March 2011, $3372.50

PETTY CASH: Kroll asked for additional petty cash for the Register of Deeds due to an increase in customers requesting change for the Clerk of Courts. After discussion, Comm. declined the request stating that those customers need to go to a bank for change.

CASH TRANSFER: Motion by Scott, seconded by Iversen to transfer $3700 from the General Fund to Emergency & Disaster Fund for unanticipated repeater expenses. All voted aye. Motion carried.

WORK COMP AUDIT: Kroll informed Comm. that covering board volunteer members is an additional $10/per/month. No action taken.

WEST LOWER BRULE TWP: Wiedemer stated that the land in question is not being taxed. No action taken.

SDAAO CONFERENCE: Motion by Booth, seconded by Iversen to approve Don Wiedemer and Betn Dutt to attend the SDAAO Convention on May 24-27. All voted aye. Motion carried.

COPIER AGREEMENT: Motion by Scott seconded by Booth to approve the copier agreement with the City of Fort Pierre, Hughes & Stanley Co Ext. and Stanley Co Law Enforcement, CSD Coop Grazing Dist. and the SC Health Nurse. All voted aye. Motion carried.

CONNECTING POINT SERVER UPGRADE: Motion by Booth, seconded by Iversen to approve the server upgrade. All voted aye. Motion carried.

USED FRONT END LOADER BID OPENING: Jeff Kroll with Butler was in attendance. Bids were as follows: Titan Machinery: 2003 Case 721D $88,000, Butler Machinery: 2001 CAT 938G $77,200; Sheehan Mack: 2007 Volvo L70F $106,000, 2005 Volvo L70E $100,500, 2006 Volvo L60E $98,000; RDO Equipment: 2004 Deere 544J $65,000, new 2011 Deere 524K $106,500. Motion by Booth, seconded by Scott to table awarding the bid until Sullivan can look at the equipment that was bid and a decision will be made at the April 12, 2011 meeting. All voted aye. Motion carried.

EMERGENCY MANAGEMENT: Fines discussed the 2010 Homeland Security Grant Contract. Motion by Scott, seconded by Iversen to approve the contract. All voted aye. Motion carried. Weather Spotter training is on April 6 at 7:00 at Pierre Fire Station #1. The Wildfire Protection Plan Grant has been completed and the final payment of $6849 has been received. Discussion followed on the possibility of applying for a grant to install a card swipe security system for the CH.

VENDING MACHINE: Toby Bernstein discussed installing a coin operated vending machine upstairs in the CH. Motion by Booth, seconded by Scott to approve Bernstein to install a vending machine with a contract that has been approved by the States Attorney. All voted aye. Motion carried.

PUBLIC HEARING CONDITIONAL USE PERMIT - VERIZON WIRELESS: Wiedemer presented the Comm. with information regarding a Conditional Use Permit requested by Verizon Wireless with sites at SD06 Oahe at 27469 US HWY 14 & 34 and SD06 Wagonbound Creek at 24898 US HWY 34 for better cell phone coverage. Permit was approved by Planning & Zoning at the March 29, 2011 meeting. Motion by Scott, seconded by Iversen to approve the Permit. All voted aye. Motion carried.

VETERAN'S MEMORIAL: David Neuharth and Jim Stoeser were in attendance. Neuharth informed Comm. that there is a balance of $8300 for the memorial. A meeting will be held on April 12 at 7:30 p.m. in the Commission Room to discuss further avenues of collecting donations.

EXECUTIVE SESSION: Motion by Booth, seconded by Scott to go into Executive Session for personnel at 10:14 a.m. All voted aye. Motion carried. Out at 11:02 a.m.

4-H SUMMER ASSISTANT: Lynn Carlson asked for a summer 4-H assistant to help with all of the tasks throughout the summer. They have $5,500 in the budget for this position. The position typically pays $7.75-$8.25/hour. The Hughes Co. Comm. approved them to advertise for the position. Motion by Iversen, seconded by Scott to approve the advertisement for this position. All voted aye. Motion carried. Carlson suggested that there may be changes to the structure of the Extension offices and he will report any information after the meeting on April 12.

MAINTENANCE BACKUP: Rick Sass asked that the Comm. approve Cindy Kindle as backup maintenance/custodian. Motion by Booth, seconded by Scott to approve Cindy Kindle at a rate of $10/hour. All voted aye. Motion carried.

FAIRGROUNDS BLEACHERS: Rick Hahn presented the contract for the bleachers and the drawings for the concrete work. He estimates that the concrete will cost $10,000 and the work will start after May 8 and be completed before June 10, 2011.

EXECUTIVE SESSION: Motion by Booth, seconded by Scott to go into Executive Session for a contract at 11:28 a.m. All voted aye. Motion carried. Out at 11:50 a.m.

FOUR CORNERS FIRE DEPT: David Neuharth, Mitch Norman, Lura Kirkpatrick, Duane Prince and Levi Neuharth were present. David Neuharth stated that the heat bill is high and they would like to be proactive in working things out and creating a lease agreement. Comm. will meet with members from the Fire Dept. at a later time to discuss insurance and lease options.

LUNCH: Adjourned for lunch at 12:09 p.m. The meeting was called back to order at 1:06 p.m.

EXECUTIVE SESSION: Gerrick McComsey with Sharpe Enterprises was present. Motion by Booth, seconded by Scott to go into Executive Session for a contract at 1:06 p.m. All voted aye. Motion carried. Out at 2:08 p.m.

SCHOMER BARN: Motion by Scott, seconded by Booth to make a final payment to Sharpe Enterprises in the amount of $12,000 on the Schomer Barn project. All voted aye. Motion carried.

HUMAN RESOURCES: Chuck Humphrey presented the Comm. with Personnel Policy changes dated back to Nov., 2010. The changes were tabled until the April 12 meeting. Humphrey also presented the Comm. with an employee pay schedule. Motion by Scott, seconded by Iversen to keep the pay schedule the same as listed from 2007. All voted aye. Motion carried.

EXECUTIVE SESSION: Dawn Sass was present. Motion by Booth, seconded by Scott to go into Executive Session for poor relief at 2:41 p.m. All voted aye. Motion carried. Out at 2:51 p.m.

POOR RELIEF: Motion by Scott, seconded by Booth to deny payment to applicant-case #1. Motion by Scott, seconded by Iversen to deny payment to St. Mary's Healthcare-case #2. All voted aye. Motion carried.

SDACO: Motion by Iversen, seconded by Booth to approve Treasurer Stroup, Register of Deeds Stoeser, and Auditor Kroll to attend the SDACO Spring Workshop and Deputy Treasurer Dougherty and Deputy Auditor Sass to attend the SDACO Deputy Workshop. All voted aye. Motion carried.

TREASURER'S REPORT: Treasurer Stroup presented the Comm. the bank reconciliation and interest statements.

AUDITOR'S REPORT: Auditor Kroll presented the Comm. with the budget expenditure report, fund cash balances, adjusting entries and Monitoring Compliance report.

SKILLPATH SEMINAR: Motion by Booth, seconded by Scott to allow Kroll to attend the Skillpath Seminar in Pierre in June. All voted aye. Motion carried.

SURPLUS SHREDDER: Motion by Iversen, seconded by Scott to surplus the ID Armor shredder from the Treasurer's Office as trash as it is broken and unrepairable. All voted aye. Motion carried.

RESIGNATION: Motion by Iversen, seconded by Scott to accept Pat Sutley's letter of resignation. Motion by Scott, seconded by Iversen to advertise the interim Commissioner position for District #2 Precinct #9, with resume and cover letter due to the Auditor's Office by April 20, 2011.

ADJOURNMENT: Meeting adjourned at 3:20 p.m.

BOARD OF STANLEY COUNTY COMMISSIONERS
D.D. Jacobson, Chairman

ATTEST:

Kristi Kroll, Auditor

Published once at the total approximate cost of $183.05.

800 Public Notice

SNAXLP 11300
1tdly 4/15

PUBLIC HEARING
Department of Energy State Plan FY 2012 for Home Weatherization Assistance for Low Income Persons
This hearing will not address the American Recovery and Reinvestment Act Weatherization funds.

The Department of Social Services will hold a public hearing on the proposed FY 2012 Department of Energy State Plan for Home Weatherization Assistance for Low Income Persons. The hearing is to obtain final comments on the proposed plan. It will be held Thursday, April 28, 2011, 7:00 p.m. CDT, in the Conference Room at 912 E. Sioux Ave., Pierre, SD.

Interested persons may obtain copies of the proposed State Plan by contacting David Gall, Administrator, Office of Energy Assistance, 206 W. Missouri Ave., Pierre, SD 57501. Written comments will be accepted at the address indicated above until 5:00 p.m. CDT, April 27, 2011.

Notice is further given to handicapped individuals that the hearing is being held in a physically accessible building.

Published once at the total approximate cost of $14.35.

800 Public Notice

SNAXLP 11272
3tdly 4/1, 4/8, 4/15

IN CIRCUIT COURT
SIXTH JUDICIAL CIRCUIT
No. PRO 10-14
NOTICE OF CREDITORS AND NOTICE OF FORMAL PROBATE AND APPOINTMENT OF PERSONAL REPRESENTATIVE IN TESTACY
STATE OF SOUTH DAKOTA
ss
COUNTY OF STANLEY
IN THE ESTATE OF, DARYL J VANDER VORSTE, Decedent.

Notice is given that on December 15, 2010, Wayne Vander Vorste, whose address is 103Coal-lla Court, Apartment A12, Fort Pierre, South Dakota was appointed as personal representative of the estate of Daryl J Vander Vorste.

Creditors of decedent must file their claims within four months after the date of the first publication of this notice or their claims may be barred.

Claims may be filed with the personal representative or may be filed with the Stanley County Clerk of Courts, Post Office Box 758, Fort Pierre, South Dakota 57532 with a copy of the claim then being mailed to the personal representative.

Dated this 30h day of March, 2011.

Wayne Vandervorst

Prepared By:
Siebrasse Law Office, P.C.
David W. Siebrasse
Post Office Box 118
Pierre, South Dakota 57501
(605) 224-8111

Stanley County Clerk of Courts
Post Office Box 758
Fort Pierre, South Dakota 57532
605-223-7735

SNAXLP 11279
2tdly 4/8, 4/15

IN CIRCUIT COURT
SIXTH JUDICIAL CIRCUIT
Civil No. 10-18
NOTICE OF REAL ESTATE SALE
STATE OF SOUTH DAKOTA
COUNTY OF STANLEY

OneWest Bank, FSB, Plaintiff,
vs.
Tracy L. Frye, Judy A. Frye, Mortgage Electronic Registration Systems, Inc., and any person in possession, Defendants.

Judgment in the amount of $108,627.27 having been entered in favor of plaintiff and against defendants, which Judgment was filed with the Clerk of Courts of Stanley County, South Dakota, on August 25, 2010, for the foreclosure of a real estate mortgage.

Notice is hereby given pursuant to said Judgment that the real property described in the Mortgage dated June 29, 2007, which Tracy L. Frye and Judy A. Frye, Mortgagors, executed and delivered to Mortgage Electronic Registration Systems, Inc. which mortgage was assigned to OneWest Bank, FSB by assignment of mortgage recorded on the 22nd day of February 2010, Book 316 of Mortgages on page 155-156, Mortgagee:

LOT W-1, A SUBDIVISION OF LOT H-4 AND THE SE1/4 OF NW1/4 SECTION 2, TOWNSHIP 4 NORTH, RANGE 31 EAST, B.H.M., STANLEY COUNTY, SOUTH DAKOTA, ACCORDING TO THE RECORDED PLAT THEREOF.

and recorded in the office of the Register of Deeds of Stanley County, South Dakota, on the 19th day of July 2007, Book 306 of Mtgs. Page 59-74, in order to realize the amount of $101,275.00, as of June 29, 2007, plus interest accruing thereafter on said amount at the rate of 6.000% per year together with the costs and expenses of sale, will be sold subject to redemption as provided by law as one parcel of land at public auction, subject to the lien for unpaid real estate taxes and assessments of Stanley County, South Dakota, and easements and restrictions of record, to the highest bidder for cash under the direction of the Sheriff of Stanley County, South Dakota, at the front door of the Stanley County Courthouse, in Fort Pierre, South Dakota, on April 22, 2011, at 10:00 A.M. (CT).

Dated March 3, 2011.

Sheriff of Stanley County, South Dakota

MACKOFF KELLOGG LAW FIRM

By: Glen R. Bruhschwein, Attorney #03080
38 Second Avenue East
Dickinson, ND 58601
(701) 227-1841
Attorneys for Plaintiff

Published twice at the total approximate cost of $57.20

SNAXLP 11289
2tdly 4/8, 4/15

STORAGE LIEN SALE

Oahe Storage located at 1415 N. Highway 83, Ft Pierre, SD has filed a personal property lien against COLLEN LEXA, last known address, PO Box, Fort Pierre, SD 57532 for non-payment of storage rent and other fees per SDCL 44-2-3 and 44-14 at the Register of Deeds, Stanley County, South Dakota. Account balance became delinquent on March 2, 2011. Delinquent rent and other fees are $275.00.00 to date and account is subject to additional rent, penalties and other fees and charges. Stored items are assorted boxes & totes of clothing and toys, wood rocking chair, box fan, children's bikes, wood dresser and misc items.

Oahe Storage will sell or dispose of stored items on March 16th, 2011. Anyone interested in bidding on stored items may inspect between 10 a.m. and 12 p.m. on that date. Bids for complete unit will be taken at that time. Call 223-2736 for information.

SNAXLP 11296
1tdly 4/15

NOTICE OF FORFEITURE OF PROPERTY RIGHTS

Notice is hereby given that the persons or entities listed below have outstanding capital credit checks issued in 2004. The amounts of these outstanding checks will be forfeited to Venture Communications Cooperative (formerly Sully Buttes Telephone Cooperative) six months after the first date of publication of this notice unless the money is claimed and proper evidence of ownership is submitted to Venture Communications Cooperative within the six month period.

Baade, Janet
Denison, William J
Dixon, Vernon
Eklund, Daniel & Karen
Ellwanger, Earl
Federated Farm Services
Godwin, Pamela & Marshall
Hagel, Greg D & Pam K
Jensen, Shaun & Kim Weaver
King, Forrest A & Sharon
Marshall, Anne
Martin, Jey
Maul, Monte
Nelson, Troy D
Pfau, Rob
Storrs, Leola
Tjomsland, Elizabeth
Tonak, Darryl
Van Hooten, Robert
Waltman, Carl & Dorene

SNAXLP 11304
2tdly 4/15, 4/22

Applicant Notice of Public Scoping Meetings and Environmental Assessment Basin Electric Power Cooperative: Big Bend to Witten 230-kV Transmission Line Project

SUMMARY: The Rural Utilities Service (RUS) intends to hold public scoping meetings and prepare an Environmental Assessment with Scoping (EA) to meet its responsibilities under the National Environmental Policy Act (NEPA) and 7 CFR part 1794 in connection with potential impacts related to a proposed project by Basin Electric Power Cooperative (Basin Electric). The proposed Big Bend to Witten Transmission Line Project (proposed action) consists of an approximately 70-mile long 230-kV single-circuit transmission line, a new Western Area Power Administration (Western) substation called Lower Brule Substation, an addition to the existing Witten Substation, and approximately two miles of 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. It is anticipated that some communication facility additions or enhancements may be necessary for the project including radio towers and buildings at Lower Brule Substation, Witten Substation, and one or two intermediate sites. Basin Electric is requesting RUS financial assistance for the proposed action.

DATES: RUS will conduct public scoping meetings in an open house format to provide information and solicit comments for the preparation of the EA. Scoping meetings will be held on the following dates: Reliance, South Dakota, American Legion Post 179, 109 North 5th Avenue, Tuesday April 26, 2011, 4-7 p.m.; Winner, South Dakota, Holiday Inn Express and Suites, 1360 East Highway 44, Wednesday April 27, 2011, 4-7 p.m.

ADDRESSES: To send comments or request additional information, contact:

Mr. Richard Fristik, Senior Environmental Protection Specialist, USDA, Rural Utilities Service, 1400 Independence Avenue, SW., Stop 1571, Washington, DC 20250-1571, Telephone: (202) 720-5093, or e-mail:tsrichard.fristik@wdc.usda.gov or:

Mr. Kevin Solie, Senior Environmental Analyst, Basin Electric Power Cooperative, 1717 East Interstate Avenue, Bismarck, ND 58503-0564, Telephone: (701) 557-5485, or e-mail: ksolie@bepc.com

A Macro Corridor and Alternative Evaluation Study has been prepared for the proposed project. The document is available for public review prior to and during the public scoping meetings. The report is available at the RUS address provided in this notice and on the agency's Web site at: http://www.usda.gov/rus/water/ees/ea.htm, the offices of Basin Electric, the Applicant's website at: http://www.basinelectric.com/Projects/South_Dakota_Transmission/index.html and the following repositories:

Kennebec Public Library, 203 S Main, Kennebec, SD 57544

Tripp County Library - Grossenburg Memorial, 442 Monroe Street, Winner, SD 57580

SUPPLEMENTARY INFORMATION: The network transmission system in South Dakota is not able to accommodate projected load growth by 2014. The major impact is the addition of the pumping station loads associated with the proposed Keystone XL pipeline. Seven pumping stations are proposed to be located in South Dakota. The two pumping stations to be connected to the Witten Substation and Gregory Substation would have a large impact on the network transmission system. These

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substations are located in a relatively remote area from a network transmission perspective and therefore do not have a strong redundant transmission connection. The existing Western 115-kV line between the Mission Substation and the Fort Randall Substation is not able to reliably accommodate the ultimate pump station build-out load level. An outage of the Fort Randall to Gregory 115-kV line would result in operating voltage criteria violations in the Mission and Gregory South Dakota area. The addition of the Big Bend to Witten 230-kV transmission line would provide an increase in the load serving capacity such that the delivery needs of the projected network load can be met in a reliable manner.

Basin Electric is seeking financing from RUS for its ownership of the proposed project. Before making a decision to provide financing, RUS is required to conduct an environmental review under NEPA in accordance with RUS's Environmental Policies and Procedures (7 CFR Part 1794) Western has agreed to be a cooperating agency in preparation of the EA. Government agencies, private organizations, and the public are invited to participate in the planning and analysis of the proposed action Representatives from RUS, Western and Basin Electric will be available at the scoping meetings to discuss the environmental review process, describe the proposed action, discuss the scope of environmental issues to be considered, answer questions, and accept comments Comments regarding the proposed action may be submitted (orally or in writing) at the public scoping meetings or in writing by May 27, 2011 at the Rural Utilities Service address provided in this notice. From information provided in the Macro Corridor and Alternatives Evaluation Study Report, from government agencies, private organizations, and the public, Basin Electric Power Cooperative will prepare an environmental analysis to be submitted to RUS for review. RUS will review the environmental analysis and determine the significance of the impacts of the proposal. If accepted, the document will be adopted as the environmental assessment (EA) for the proposal. RUS's EA would be available for review and comment for 45 days. Should RUS determine based on the EA for the proposal that impacts associated with the construction and operation of the proposal would not have a significant environmental impact, it will prepare a finding of no significant impact (FONSI). Public notification of a FONSI would be published in the Federal Register and in newspapers with circulation in the proposal area.

If at any point in the preparation of an EA, RUS determines that the proposed action will have a significant effect on the quality of the human environment, the preparation of an Environmental Impact Statement will be required. Any final action by RUS related to the proposed action will be subject to, and contingent upon compliance with all relevant Federal, State and local environmental laws and regulations and completion of the environmental review requirements as prescribed in RUS's Environmental Policies and Procedures

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Iversen to meet with States Attorney Maher to draft a letter stating that Stanley County does not support the terrets. All voted aye. Motion carried.

GOLDENWEST EASEMENT: Tom Finn was in attendance. There will be a pre-construction meeting on April 18 at 10:00 a.m. at the Hayes Hall. Finn discussed the fiberoptic cable that they will be boring and that they will be using GPS. Sullivan stated that he doesn't feel the need for an essement at all crossings as there are markers.

USED LOADER BIDS: Sullivan stated that all bids were higher than anticipated. Motion by Scott, seconded by Iversen to deny all bids. All voted aye. Motion carried. Sullivan will get lease and lease to purchase options from the bidders.

HUMAN RESOURCES: Chuck Humphrey presented the Comm. with the policy changes that were made since November, 2010. Motion by Iversen, seconded by Scott to approve the amendments to the policy which are listed in the Auditor's Office and give a complete copy of the new manual to each employee. All voted aye. Motion carried.

FAIRGROUNDS MANAGER: David Neuharth, Jim Stoeser and Chuck Humphrey were present. Humphrey presented Comm. with a job description for a Fairgrounds Manager. Booth stated that Expo and the Fort Pierre Chamber of Commerce may give money towards the position. Kroll informed Comm. that a Fairgrounds Manager position is not in the 2011 budget. Neuharth suggested discussing this position with all entities involved. Iversen asked if the grounds would generate enough income to cover the salary of the position. Iversen wants Comm. to meet with the Chamber of Commerce and the Expo Board and present them with the job description and assure that they are willing to commit to paying for a portion of the salary. Humphrey suggested bringing in another Fairgrounds Manager to get an opinion on what they would anticipate the fairgrounds to monetarily generate. Motion by Scott, seconded by Iversen to table the Fairgrounds Manager discussion until the May 3 meeting. All voted aye. Motion carried.

SDAAO CONFERENCE: Kroll asked for clarification on pay for out of town conferences. Jacobson stated that all hourly employees are to be paid for an 8 hour day while out of town for conventions.

GOOD FRIDAY: Motion by Booth, seconded by Scott to allow County Offices to be administratively closed on Good Friday. After discussion, all voted aye. Motion carried.

BANKHEAD JONES: Motion by Scott, seconded by Iversen to pass the money on to the Stanley County School. All voted aye. Motion carried.

EXECUTIVE SESSION: Motion by Booth, seconded by Scott to go into Executive Session for poor relief and personnel at 9:54 p.m. All voted aye. Motion carried. Out at 10:16 p.m.

POOR RELIEF: Motion by Booth, seconded by Iversen to approve payment to the City of Fort Pierre $118.32 for the poor relief claim #1. All voted aye. Motion carried.

ADJOURNMENT: Meeting adjourned at 10:20 p.m.

BOARD OF STANLEY COUNTY COMMISSIONERS
D.D. Jacobson, Chairman

ATTEST:

Kristi Kroll,
Auditor

Published once at the total approximate cost of $80.09.

SNAXLP 11320
1tdly 4/22

REQUEST FOR PROPOSALS ARCHITECTURAL SERVICES FOR DESIGN & CONSTRUCTION RAWLINS LIBRARY EXPANSION PROJECT PIERRE, SD

The City of Pierre is soliciting proposals from qualified firms interested in providing design and construction services for expansion/ renovation of Rawlins Library in Pierre, SD. Rawlins Library currently encompasses 15,600 square feet that will need mechanical, HVAC, and electrical upgrades as well as finish and space allocation retrofits. An additional 10,000 square foot unobtrusive expansion to the existing facility with common mechanical, HVAC, and electrical systems will also be included in the project.

A preliminary building concept/layout, utilities analysis, and cost opinion was undertaken completed in 2010. Copies of that work will be provided upon request. The successful proposal shall demonstrate expertise in public structures particularly library design/construction and demonstrate proficiency in mechanical, HVAC, and electrical systems. The design component is to be completed by March 1, 2012. Proposals are to be submitted to the City Engineer Office PO Box 1253 (222 E. Dakota) Pierre, SD 57501 no later than 5:00 pm CDT May 27, 2011. Please contact John Childs PE, City Engineer, City of Pierre, PO Box 1253, Pierre, SD 57501-1253 (605) 773-3056 - FAX 773-7406) or Beverly Lewis, Library Director, Rawlins Library, 1000 E. Church Street, Ph. 605-773-7421 for project questions.

Published once at the total approximate cost of $20.16.

SNAXLP 11319
1tdly 4/22

CITY COMMISSION ROOM PIERRE, SOUTH DAKOTA
April 12, 2011

The City of Pierre regular session on April 12, 2011 at 5:30 PM with Commissioners Goodman, Harding, Hutzenga, Mehlhaff and Mayor Gill present for roll call. Trace Beck signed the guest register.

The Pledge of Allegiance was recited.

Mayor Gill recited a Proclamation for Telecommunicator's Week.

Commissioner Harding moved and Commissioner Hulzenga seconded to approve the consent calendar which consisted of 1) Minutes of the Regular April 5, 2011 meeting; 2) Set April 26th 5:45pm Public Hearing for Todd Surdez Retail On/Off Sale Malt Beverage and Retail On/Off Sale Wine Licenses; 3) New Hire Seasonal CDL Landfill - Dave Stanton $14.25; 4) New Hire Seasonal Street - Tyler Marshall $8.75, Jose Uvallas $10.75; 5) New Hire Seasonal Golf - Vern Larson $10.50, Roger Mews $10.75, Ron Purkapile $10.75, David Egan $9.25, Richard Mssteller $8.25, Polly Gill $8.25, Devon Russell $8.25; 6) New Hire Intern Golf - Chris Anglin $10.00; 7) New Hire Intern Information Technology - Andrew Olson $10.25; 8) New Hire Seasonal Library - DeeAnn Knofczynski $10.00, Melissa Kirkpatrick $10.00; 9) New Hire Intern Utilities - Molly Ryan $10.25; 10) Monthly Financial Summary; 11) Claims. Unanimous approval.

ALLTEL, CELL SERVICE, 86.43, PAT DURKIN, GOLF CORRECTION MEMB TO CART P, 121.9, FIRST NATIONAL BANK, CLEAN WATER STATE REVOLV FUND, 1,065.82

Commissioner Mehlhaff commented that it has been almost a year since the City implemented the new Water Treatment Process. The new process has resulted in few complaints and less staff time flushing the system. Dane Brewer, Water Superintendent, explained the new steps they have taken over the past year to reduce the brown water issues. The first step was to reduce the amount of time the water sits during the winter by reducing the storage capacity and matching the turnover rate with winter demand. The second step was to inject the new chemicals into the water. This is done at each well, based on the specific needs of that well. The third step is to use the higher quality wells during the winter months and take the lesser quality wells off-line. The changes have been successful in reducing the number of complaints about brown water and have also generated complements.

Leon Schochenmaier, City Administrator, presented a request for Down's Marina to replace an existing structure on the land leased from the City. This land is leased to the City from the State Department of Game, Fish, and Parks (SD GFP). The State Department of Game, Fish, and Parks has provided written authorization to proceed with the project as proposed. The lease agreement between the City and Down's Marina requires City approval before improvements can be made. Commissioner Hulzenga moved and Commissioner Harding seconded to approve the storage building change as presented. Unanimous approval.

Trace and Steve Beck presented a request for the Commission to consider Tax Increment Financing for commercial development to be located on the corner of 4th Street and the Truck By-pass. Trace explained that General Motors has recently implemented image upgrade policies. After reviewing available options, it was decided to build a new facility on approximately 6 acres in the South Gate Development. The store would occupy lots 6 and 7, but the TIF would include lots 1 through 9. Sharon Pruess, City Planner, commented that the proposed area is already platted with these lots and the area is zoned general business, which is appropriate. Sharon explained that this would be the first step in the TIF process, which is to ask for the Commission to send the request to the Planning Commission for further analysis. Mayor Gill commented that City staff have been working on establishing a more comprehensive TIF process and that will be coming forward for approval in the near future. The process is independant of this request, but will probably coincide at some point. Commissioner Hutzenga moved and Commissioner Mehlhaff seconded to analyze the potential for a TIF for Beck Motor Company to be located at the corner of 4th Street and Truck By-pass and refer to the Planning Commission. Unanimous approval.

Commissioner Harding moved and Commissioner Goodman seconded to adjourn 8:30pm. Unanimous approval.

Twila Hight
Finance Officer

Published once at the total approximate cost of $57.30.

800 Public Notice

SNAXLP 11311
4tdly 4/20, 4/22, 4/27, 4/29

PUBLIC NOTICE

"Dean Kurtz Construction Company is requesting subcontractor and supplier proposals for the New Ft Thompson Water Treatment Plant, Crow Creek Indian Reservation, Ft Thompson, South Dakota. Proposals are due at the office of Dean Kurtz Construction by 10:00 AM MDT, Friday, May 6, 2011. Dean Kurtz Construction is an Equal Opportunity Employer. We encourage participation by MBE, WBE, DBE, and SDVOSB firms. Plans may be viewed at the Construction Industry Center in Rapid City. Plans are available at the Aberdeen Area India Health Service, Aberdean, South Dakota. Contact Nichole R. Archambeau, Contract Specialist at (605) 226-7567 for information. Any questions concerning this project should be directed to Bradley D. Kurtz at 605.343.6665."

DEAN KURTZ CONSTRUCTION COMPANY
Lindsey Seachris
Administrative Assistant

SNAXLP 11304
2tdly 4/15, 4/22

Applicant Notice of Public Scoping Meetings and Environmental Assessment Basin Electric Power Cooperative: Big Bend to Witten 230-kV Transmission Line Project

SUMMARY: The Rural Utilities Service (RUS) intends to hold public scoping meetings and prepare an Environmental Assessment with Scoping (EA) to meet its responsibilities under the National Environmental Policy Act (NEPA) and 7 CFR part 1794 in connection with potential impacts related to a proposed project by Basin Electric Power Cooperative (Basin Electric). The proposed Big Bend to Witten Transmission Line Project (proposed action) consists of an approximately 70-mile long 230-kV single-circuit transmission line, a new Western Area Power Administration (Western) substation called Lower Brule Substation, an addition to the existing Witten Substation, and approximately two miles of 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. It is anticipated that some communication facility additions or enhancements may be necessary for the project including radio towers and buildings at Lower Brule Substation, Witten Substation, and one or two intermediate sites. Basin Electric is requesting RUS financial assistance for the proposed action.

DATES: RUS will conduct public scoping meetings in an open house format to provide information and solicit comments for the preparation of the EA. Scoping meetings will be held on the following dates: Reliance, South Dakota, American Legion Post 179, 109 North 5th Avenue, Tuesday April 26, 2011, 4-7 p.m., Winner, South Dakota, Holiday Inn Express and Suites, 1360 East Highway 44, Wednesday April 27, 2011, 4-7 p.m.

ADDRESSES: To send comments or request additional information, contact:

Mr. Richard Fristik, Senior Environmental Protection Specialist, USDA, Rural Utilities Service, 1400 Independence Avenue, SW., Stop 1571, Washington, DC 20250-1571, Telephone (202) 720-5093, or e-mail:tsrichard.fristik@wdc.usda.gov or

Mr. Kevin Solte, Senior Environmental Analyst, Basin Electric Power Cooperative, 1717 East Interstate Avenue, Bismarck, ND 58503-0564, Telephone: (701) 557-5495, or e-mail: ksolie@bepc.com

A Macro Corridor and Alternative Evaluation Study has been prepared for the proposed project. The document is available for public review prior to and during the public scoping meetings. The report is available at the RUS address provided in this notice and on the agency's Web site at http://www.usda.gov/rus/water/ees/ea.htm, the offices of Basin Electric, the Applicant's website at http://www.basinelectric.com/Projects/South_Dakota_Transmission/index.html and the following repositories:

Kennebec Public Library, 203 S Main, Kennebec, SD 57544

Tripp County Library - Grossenburg Memorial, 442 Monroe Street, Winner, SD 57580

SUPPLEMENTARY INFORMATION: The network transmission system in South Dakota is not able to accommodate projected load growth by 2014. The major impact is the addition of the pumping station loads associated with the proposed Keystone XL pipeline. Seven pumping stations are proposed to be located in South Dakota. The two pumping stations to be connected to the Witten Substation and Gregory Substation would have a large impact on the network transmission system. These substations are located in a relatively remote area from a network transmission perspective and therefore do not have a strong redundant transmission connection. The existing Western 115-kV line between the Mission Substation and the Fort Randall Substation is not able to reliably accommodate the ultimate pump station build-out load level. An outage of the Fort Randall to Gregory 115-kV line would result in operating voltage criteria violations in the Mission and Gregory South Dakota area. The addition of the Big Bend to Witten 230-kV transmission line would provide an increase in the load serving capacity such that the delivery needs of the projected network load can be met in a reliable manner.

Basin Electric is seeking financing from RUS for its ownership of the proposed project. Before making a decision to provide financing, RUS is required to conduct an environmental review under NEPA in accordance with RUS's Environmental Policies and Procedures (7 CFR Part 1794). Western has agreed to be a cooperating agency in preparation of the EA. Government agencies, private organizations, and the public are invited to participate in the planning and analysis of the proposed action. Representatives from RUS, Western and Basin Electric will be available at the scoping meetings to discuss the environmental review process, describe the proposed action, discuss the scope of environmental issues to be considered, answer questions, and accept comments. Comments regarding the proposed action may be submitted (orally or in writing) at the public scoping meetings or in writing by May 27, 2011 at the Rural Utilities Service address provided in this notice. From information provided in the Macro Corridor and Alternatives Evaluation Study Report, from government agencies, private organizations, and the public, Basin Electric Power Cooperative will prepare an environmental analysis to be submitted to RUS for review. RUS will review the environmental analysis and determine the significance of the impacts of the proposal. If accepted, the document will be adopted as the environmental assessment (EA) for the proposal. RUS's EA would be available for review and comment for 45 days. Should RUS determine, based on the EA for the proposal, that impacts associated with the construction and operation of the proposal would not have a significant environmental impact, it will prepare a finding of no significant impact (FONSI). Public notification of a FONSI would be published in the Federal Register and in newspapers with circulation in the proposal area.

If at any point in the preparation of an EA, RUS determines that the proposed action will have a significant effect on the quality of the human environment, the preparation of an Environmental Impact Statement will be required. Any final action by RUS related to the proposed action will be subject to, and contingent upon, compliance with all relevant Federal, State, and local environmental laws and regulations and completion of the environmental review requirements as prescribed in RUS's Environmental Policies and Procedures.

Capital Journal

AFFIDAVIT OF PUBLICATION

State of South Dakota, County of Hughes

Ina Arnold of said county, being, first duly sworn, on oath, says: That he/she is the publisher or an employee of the publisher of the Capital Journal, a daily newspaper published in the City of Pierre in said County of Hughes and State of South Dakota; that he/she has full and personal knowledge of the facts herein stated, that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, that said newspaper has been published within the said County of Hughes and State of South Dakota, for at least one year next prior to the first publication of the attached public notice, and that the legal/display advertisement headed You Are Invited! Public Scoping Meetings

a printed copy of which, taken from the paper in which the same was published, and which is hereto attached and made a part of this affidavit, was published in said newspaper for two successive week(s) to wit:

April 15 2011	20
April 22 2011	20
20	20
20	20
20	20

That the full amount of the fee charged for the publication of the attached public notice inures to the sole benefit of the publisher or publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever; that the fees charged for the publication thereof are: $327.42.

Signed: Ina Arnold

subscribed and sworn to before me this 5 day of May 2011

M. Baker

Notary Public in and for the County of Hughes, South Dakota.
My Commission expires 2-19, 2015.

WHAT'S HAPPENING

PANCAKE FEED:

There will be a Post 8 pancake feed from 7-11 a.m. on Saturday at the American Legion Cabin. Cost is $3. It is sponsored by Post 8 Baseball Board.

HORSE RACES:

There will be horse races at the Stanley County Fairgrounds from 1-7 p.m. on Saturday. Call Dennis at 605-223-2915 for more information.

EGG HUNT:

The Governor's Easter Egg Hunt will be at 1 p.m. on Sunday at the South Dakota Governor's Residence Lawn. Call Steve at 605-295-1221 for more information.

ProBuild secures FSC certification for 59 lumber facilities in the US

CAPITAL JOURNAL STAFF

DENVER — ProBuild Holdings Inc., the nation's largest professional building materials supplier, announced that 59 of its facilities nationwide have received Forest Stewardship Council Chain of Custody Certification.

This certification enables these locations to sell FSC-certified materials. An FSC product label ensures that the forest products used are from responsibly harvested and verified sources.

The ProBuild in Pierre is one of ProBuild locations that have received FSC certification.

FSC sets high standards that ensure forestry is practiced in an environmentally responsible, socially beneficial and economically viable way.

This complements ProBuild's commitment to sustainability through its ProEarth platform.

ProEarth is a comprehensive sustainability platform that guides how ProBuild does business.

ProEarth's three platform elements include operational excellence, product stewardship and social responsibility.

"We have made a commitment to become FSC certified in markets where customer demand dictates," said ProBuild CEO, Bill Myrick. "We support all types of wood certification programs so that we approach sustainability in a measurable, accouotable and responsible way. This is only one step in our much longer journey to green as a Company."

"Our customers want high-quality green products from a professional, one-stop resource," said Lisa Peterson, ProBuild's vice president, marketing and communications. "FSC provides that credible certification so our customers know they are using responsibly harvested lumber."

ProBuild is the nation's largest diversified supplier of lumber and building materials to professional builders and contractors.

ProBuild currently operates more than 450 lumber and building product distributions, manufacturing and assembly centers serving 45 states in the U.S.

ProBuild sells a broad selection of building materials including lumber and plywood, engineered wood, gypsum wallboard and other drywall products, millwork, trusses, roofing, siding products, tools, insulation materials and metal and hardware specialties.

The company's manufacturing activities include trusses, wall panels, millwork and pre-hung door and window fabrication.

ProBuild's construction services include the installation of framing, millwork, insulation and other products.

To learn more about ProBuild, visit their website at www.probuild.com.

Patten receives Modern Woodmen grant

CAPITAL JOURNAL STAFF

PIERRE — Elisha J. Patten, of Pierre, was recently awarded a $500 educational scholarship in a national competition with other students who are members of Modern Woodmen of America. Modern Woodmen, a fraternal benefit society offering financial services, has local representatives and is based in Rock Island, Ill.

Patten, the daughter of Kathie Patten, of Pierre, plans to use the grant to attend South Dakota State University in Brookings.

Patten is one of 100 grant winners chosen this year.

During the past 40 years, Modern Woodmen has committed millions of dollars in financial assistance to hundreds of students through its Fraternal Scholarship program.

Applications for the 2011-2012 scholarship program will be taken in the fall of 2011.

Founded in 1883 as a fraternal benefit society, Modern Woodmen of America offers financial services and fraternal member benefits to individuals and families throughout the United States.

Local Modern Woodmen representative Bryan Niehoff can be reached at 605-494-0707.

NEWS BRIEFS

Businesses should beware of poster scams

PIERRE — The South Dakota Department of Labor and Regulation has labor law compliance posters available at no charge from any local DLR office. This poster includes the six federal posting requirements. Various federal agencies such as the U.S. Labor Department, OSHA and EEOC have posting requirements.

Businesses should beware of companies soliciting unsuspecting individuals and attempting to sell compliance posters. They often use scare tactics about potential fines and penalties. The company's solicitations use an official-looking seal to create the impression the advertisement is actually an official communication from a government entity. Victims of poster scams should contact the Consumer Protection Unit at 1-800-300-1986 with information or to file a complaint.

There are two state posting requirements. The Division of Unemployment Insurance requires a posting, which can be downloaded from www.sdjobs.org. State workers' compensation law also requires a posting encouraging workplace safety; there is no required format.

GMMS scholarships to be awarded

PIERRE — The Richard Bruhn Memorial Scholarships will be awarded this spring to Georgia Morse Middle School students to help defray costs of summer camps that are directly relevant to a school class or activity.

The fund was established as a memorial for Richard Bruhn who was a counselor at the junior high for 18 years.

Application forms maybe obtained in the GMMS office and must be returned by May 2.

Benefit fund established for Ron Johnson family

PIERRE — A fund has been established with Wells Fargo banks to benefit the family of Ronald Johnson, a correctional officer at the South Dakota State Penitentiary who was killed on duty April 12.

Donations to the Ronald E. Johnson Family Benefit Fund can be made at any Wells Fargo banking store nationwide. Wells Fargo made the first donation of $1,000 to the fund.

— Capital Journal staff

WEEKLY MEETINGS

TODAY

- **ALCOHOLICS ANONYMOUS:** 325 S. Garfield Ave. Noon, open; 8 p.m., closed.
- **PIERRE DUPLICATE BRIDGE CLUB:** Pierre Senior Citizens Center. 1 p.m.
- **CAPITAL CITY AL-ANON:** 222 1/2 S. Adams Ave. 6 p.m.

SATURDAY

- **PIERRE RUNNING CLUB:** Griffin Park tennis court. 8 a.m.
- **WEIGHT WATCHERS:** 109 E. Capitol Ave. 8:30 a.m.
- **WINE TASTING:** ChrisaMari Vineyards and Winery, 29141 Holly Road. Noon to 6 p.m. Call 605-224-4778.
- **ALCOHOLICS ANONYMOUS:** 325 S. Garfield Ave. 8 p.m., closed.

SUNDAY

- **NONDENOMINATIONAL BIBLE MEETING:** Oahe Family YMCA. 3:30 p.m.
- **ALCOHOLICS ANONYMOUS:** 325 S. Garfield Ave. 8 p.m., open.

MONDAY

- **CAPITAL CITY AL-ANON:** 222 1/2 S. Adams Ave. 10:15-11:15 a.m.
- **PIERRE KIWANIS CLUB:** Perkins. Noon.
- **EXCHANGE CLUB OF PIERRE-FORT PIERRE:** Best Western Ramkota Hotel & Conference Center. Noon.
- **WOMEN'S INVESTMENT GROUP:** S.D. Bankers Association office, 109 W. Missouri Ave. 5:30 p.m.

To submit an event:

- E-mail information to Jamie Anderson, Capital Journal community editor, at events@capjournal.com at least one week in advance. Include title of event, location, days and times, cost and contact information.

WHAT'S HAPPENING

BOYS & GIRLS CLUB DANCE:

The Boys and Girls Club, 110 S. Roe St., will have a dance from 7-10 p.m. today. Cost is $5. Call Becky at 605-224-5811 ext. 4100 for more information.

PARENT/SENIOR PARTY:

The Riggs High School Parent/Senior party will be from 7-11 p.m. on Saturday at Riggs Gym. All Riggs seniors and their parents are invited.

CRAFT SHOW:

The Zonta Spring Craft Show will be from 9 a.m.-5 p.m. on Saturday and from 10 a.m.-4 p.m. on Sunday at the Pierre Mall.

Pierre native travels to Haiti for dentistry work

Recruited to be part of a dental mission team into the heart of the island nation of Haiti, Pierre native and future dentist Pat Anderson found his week to be "an unforgettable experience" and a reminder of the blessings in his own life back home.

Anderson, a 2003 graduate of Riggs High School, comes by his dental heritage naturally. His father and mother, Drs. Chuck and Kathy Anderson, are both dentists. Pat, after earning his bachelor's degree from Mount Marty College with a major in biology and a minor in chemistry, is now in the third of four years at the University of Nebraska Medical Center's school of dentistry in Lincoln and will graduate in May 2012. Then he plans to apply for a one-year oral surgery fellowship there.

But in the meantime, how about some on-the-job experience, the likes of which could not possibly be duplicated in the United States?

A phone call from Lincoln dentist Marty Killeen was Pat's link to the Haiti trip. Five years ago Killeen's father Don, a Lincoln businessman, made a trip to a Catholic mission in Kobonal, Haiti, a place discovered through his local church. Noting the dire need for proper dental care in Haiti, the elder Killeen enlisted two of his sons, Marty and dental student Addison, to organize and recruit for a dental mission trip. It has become an annual mission.

PARKER KNOX

"Each year the group is a mix of dentists, oral surgeons and eager students like me," Pat said after returning home. "The idea is to get the best care possible to those most in need of it."

He said most of the work done in Haiti is tooth extractions along with simple fillings, but because most of the people there have abscessed teeth and are in pain, oral surgery skills are a must. That is a field in which Pat has a deep interest, so he jumped at the chance to join this year's team, sponsored by the congregation of St. Joseph's Catholic Church of Lincoln.

Don Killeen, five dentists/oral surgeons, five students, one physician and one midwife left March 13 and by the end of the next day were in the city of Hinche, located in the middle of Haiti's central plateau.

"Imagine my surprise," Pat said, "when I saw that our landing strip was a glorified dirt road!" A 20-mile truck ride from the airport took the team members to the Hinche suburb of Kobonal and to the mission itself.

"As we rode through town, we saw many Haitians leading or riding their cattle, goats or donkeys on the side of the road," he said.

"As we drove through Hinche, I felt as if we were on parade," Pat said, "not that the people were hostile by any means, but I doubt they see white people very often. The people were very nice and grateful for the service we were providing."

The days were long, starting at 6 a.m. Monday through Saturday and continuing to sunset or until all patients had been seen.

"Patients would line up early in the morning and wait to see us," Pat said. "Some days there were mostly kids from the mission school; other days mostly adults from the surrounding areas."

As soon as the team members treated one patient, another was on his way in.

"We were kept very busy, but it was worth it," Pat added. "Not only were we helping people but also gaining invaluable experience at the same time. Needless to say, we students learned quickly."

Supper at the main house on the mission grounds was a welcome respite from the day's labors and a chance to relax and share stories from the day. The team slept in small guesthouses on cots protected with mosquito nets. They had limited electricity at the mission, but that was more than most of the nation has.

The head priest at the mission prepared traditional Haitian meals for the visitors from Nebraska, including one night of authentic Cajun gumbo from his native Louisiana.

"Although we were certainly roughing it at the mission, we certainly did not want for good food," Pat said.

"I loved every minute of the trip and would do it again in a second," Pat said, "but it was a sobering experience. It was hard to see the amount of poverty and destitution these people endure every day. It also gave me a new appreciation for everything I have."

Pat and his wife and high school classmate, the former Sara Tillman, are expecting their first child this summer during the time Pat will be off for his summer break from dental school.

"I was so glad I could use my talents in a way to really help those people who so desperately needed it," Pat said, "and I can't wait for next year!"

BLUNT NEWS

BY LOUISE KOZEL

The Blunt senior citizens met April 4 for their regular monthly business meeting. Meeting was called to order by Pres. Thelma King with six members present.

The scholarships were discussed. The applications will be turned in to Thelma King on April 11, on the deadlines designated. The senior members will be looking at them on April 18, or if the weather prevents on April 25.

Membership dues are due for the year. Discussion was held on the possibility of raising the dues from $5 to $12. After discussion it was decided to leave them at $5.

The next business meeting will be July 11. Members are encouraged to come and bring a dish to share.

The GFWC Blunt Study Club hosted their 10th annual salad luncheon at the Blunt Senior Center. Some 80 ladies were in attendance. This year's theme was Cups and Saucers, telling the history of a number of them.

Louise Kozel was asked to tell about some of the accomplishments of the club and the many causes they contribute to. The club, which was organized in 1902, became federated with the General Federation of Women's Clubs in 1903.

WEEKLY MEETINGS

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SATURDAY

- **PIERRE RUNNING CLUB:** Griffin Park tennis court. 8 a.m.
- **WEIGHT WATCHERS:** 109 E. Capitol Ave. 8:30 a.m.
- **WINE TASTING:** ChrisaMari Vineyards and Winery, 29141 Holly Road. Noon to 6 p.m. Call 605-224-4778.
- **ALCOHOLICS ANONYMOUS:** 325 S. Garfield Ave. 8 p.m., closed.

SUNDAY

- **NONDENOMINATIONAL BIBLE MEETING:** Oahe Family YMCA. 3:30 p.m.
- **ALCOHOLICS ANONYMOUS:** 325 S. Garfield Ave. 8 p.m., open.

MONDAY

- **HUGHES COUNTY COMMISSION:** Hughes County Courthouse. 5:30 p.m.
- **GERMANS FROM RUSSIA HERITAGE SOCIETY:** United Congregational Church of Christ, 123 N. Highland Ave. 6:15 p.m.
- **RIGGS FINE ARTS BOOSTER CLUB:** Riggs High Band Room. 7 p.m.
- **STREET MASTERS CAR CLUB:** Budget Host Inn, 640 N. Euclid Ave. 7:30 p.m.
- **FORT PIERRE CITY COUNCIL:** Stanley County Courthouse. 7:30 p.m.

To submit an event:

- E-mail information to Jamie Anderson, Capital Journal community editor, at events@capjournal.com at least one week in advance. Include title of event, location, days and times, cost and contact information.

Publisher's Affidavit of Publication

STATE OF SOUTH DAKOTA)
)SS
COUNTY OF LYMAN)

Connie Penny, of said county and state being duly sworn on her oath says: The Lyman County Herald is a weekly newspaper of general circulation and published in Presho, Lyman County, and State of South Dakota; and has been such newspaper during the times hereinafter mentioned; That said newspaper is a legal weekly, that it has a bonafide circulation of more than 200 copies weekly, that it has been published within said County of Lyman more than fifty-two successive weeks next prior to publication of the notice hereinafter mentioned and maintained at the place of publication; That I, the undersigned am editor of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all the facts stated in this affidavit; that the advertisement headed:

Applicant Notice of Public Scoping Meeting
244 Lines

a printed copy of which is hereto attached and published in the said newspaper for 2 consecutive week(s).

The first publication of said notice in said newspaper aforesaid was on
Wednesday, the 13 day of April A.D., 2011
and that the succeeding publications were severally
Wednesday, the 20 day of April A.D., 2011
Wednesday, the ____ day of ________ A.D., 2011
Wednesday, the ____ day of ________ A.D., 2011
Wednesday, the ____ day of ________ A.D., 2011
Wednesday, the ____ day of ________ A.D., 2011
Wednesday, the ____ day of ________ A.D., 2011
Wednesday, the ____ day of ________ A.D., 2011
Wednesday, the ____ day of ________ A.D., 2011

and the last publication on Wednesday, the 20 day of April, 2011, that the full sum of fees charged for publishing the same, to-wit; the sum of $ 131.00 insures solely to the editor of The Lyman County Herald. That no agreement or understanding for any division thereof had been made with any other person, and that no part thereof has been agreed to be paid to any person whatsoever.

Connie Penny

Meghan Kay Severyn
Notary Public

Subscribed and sworn to before me this 21 day of April, 2011

My Commission expires ________, 20__

Meghan Kay Severyn
My Commission Expires
March 12, 2015

MEGHAN KAY SEVERYN
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

Applicant Notice of Public Scoping Meetings and Environmental Assessment
Basin Electric Power Cooperative: Big Bend to Witten 230-kV Transmission Line Project

SUMMARY: The Rural Utilities Service (RUS) intends to hold public scoping meetings and prepare an Environmental Assessment with Scoping (EA) to meet its responsibilities under the National Environmental Policy Act (NEPA) and 7 CFR part 1794 in connection with potential impacts related to a proposed project by Basin Electric Power Cooperative (Basin Electric). The proposed Big Bend to Witten Transmission Line Project (proposed action) consists of an approximately 70-mile long 230-kV single-circuit transmission line, a new Western Area Power Administration (Western) substation called Lower Brule Substation, an addition to the existing Witten Substation, and approximately two miles of 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. It is anticipated that some communication facility additions or enhancements may be necessary for the project including radio towers and buildings at Lower Brule Substation, Witten Substation, and one or two intermediate sites. Basin Electric is requesting RUS financial assistance for the proposed action.

DATES: RUS will conduct public scoping meetings in an open house format to provide information and solicit comments for the preparation of the EA. Scoping meetings will be held on the following dates: Reliance, South Dakota, American Legion Post 179, 109 North 5th Avenue, Tuesday April 26, 2011, 4—7 p.m.; Winner, South Dakota, Holiday Inn Express and Suites, 1360 East Highway 44, Wednesday April 27, 2011, 4—7 p.m. ADDRESSES: To send comments or request additional information, contact:

Mr. Richard Fristik, Senior Environmental Protection Specialist
USDA, Rural Utilities Service
1400 Independence Avenue, SW., Stop 1571
Washington, DC 20250–1571
Telephone: (202) 720–5093
or e-mail:tsrichard.fristik@wdc.usda.gov or:

Mr. Kevin Solie, Senior Environmental Analyst
Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismarck, ND 58503-0564
Telephone: (701) 557-5495
or e-mail: ksolie@bepc.com

A Macro Corridor and Alternative Evaluation Study has for public review prior to and during the public scoping meetings. The report is available at the RUS address provided in this notice and on the agency's Web site at: http://www.usda.gov/rus/water/ees/ea.htm, the offices of Basin Electric, the Applicant's website at: http://www.basinelectric.com/Projects/South_Dakota_Transmission/index.html and the following repositories:

Kennebec Public Library
203 S Main
Kennebec, SD 57544

Tripp County Library-Grossenburg Memorial
442 Monroe Street
Winner, SD 57580

SUPPLEMENTARY INFORMATION: The network transmission system in South Dakota is not able to accommodate projected load growth by 2014. The major impact is the addition of the pumping station loads associated with the proposed Keystone XL pipeline. Seven pumping stations are proposed to be located in South Dakota. The two pumping stations to be connected to the Witten Substation and Gregory Substation would have a large impact on the network transmission system. These substations are located in a relatively remote area from a network transmission perspective and therefore do not have a strong redundant transmission connection. The existing Western 115-kV line between the Mission Substation and the Fort Randall Substation is not able to reliably accommodate the ultimate pump station build-out load level. An outage of the Fort Randall to Gregory 115-kV line would result in operating voltage criteria violations in the Mission and Gregory South Dakota area. The addition of the Big Bend to Witten 230-kV transmission line would provide an increase in the load serving capacity such that the delivery needs of the projected network load can be met in a reliable manner. Basin Electric is seeking financing from RUS for its ownership of the proposed project. Before making a decision to provide financing, RUS is required to conduct an environmental review under NEPA in accordance with RUS's Environmental Policies and Procedures (7 CFR Part 1794). Western has agreed to be a cooperating agency in preparation of the EA. Government agencies, private organizations, and the public are invited to participate in the planning and analysis of the proposed action. Representatives from RUS, Western and Basin environmental review process describe the proposed action, discuss the scope of environmental issues to be considered, answer questions and accept comments. Comments regarding the proposed action may be submitted (orally or in writing) at the public scoping meetings or in writing by May 27, 2011 at the Rural Utilities Service address provided in this notice. From information provided in the Macro Corridor and Alternatives Evaluation Study Report, from government agencies, private organizations, and the public, Basin Electric Power Cooperative will prepare an environmental analysis to be submitted to RUS for review. RUS will review the environmental analysis and determine the significance of the impacts of the proposal. If accepted the document will be adopted as the environmental assessment (EA) for the proposal. RUS's EA would be available for review and comment for 45 days. Should RUS determine, based on the EA for the proposal, that impacts associated with the construction and operation of the proposal would not have a significant environmental impact it will prepare a finding of no significant impact (FONSI). Public notification of a FONSI would be published in the Federal Register and in newspapers with circulation in the proposal area.

If at any point in the preparation of an EA, RUS determines that the proposed action will have a significant effect on the quality of the human environment, the preparation of an Environmental Impact Statement will be required. Any final action by RUS related to the proposed action will be subject to, and contingent upon, compliance with all relevant Federal, State, and local environmental laws and regulations and completion of the environmental review requirements as prescribed in RUS's Environmental Policies and Procedures.

04/13 & 04/20

Published twice at the approximate cost of $131.07.

STATE OF SOUTH DAKOTA)
)SS
COUNTY OF LYMAN)

Connie Penny, of said county and state being duly sworn on her oath says: The Lyman County Herald is a weekly newspaper of general circulation and published in Presho, Lyman County, and State of South Dakota; and has been such newspaper during the times hereinafter mentioned; That said newspaper is a legal weekly, that it has a bonafide circulation of more than 200 copies weekly, that it has been published within said County of Lyman more than fifty-two successive weeks next prior to publication of the notice hereinafter mentioned and maintained at the place of publication; That I, the undersigned am editor of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all the facts stated in this affidavit; that the advertisement headed:

Basin Electric Public Meeting
2x9

a printed copy of which is hereto attached and published in the said newspaper for 2 consecutive week(s).

The first publication of said notice in said newspaper aforesaid was on
Wednesday, the 13 day of April A.D., 2011
and that the succeeding publications were severally
Wednesday, the 20 day of April A.D., 2011
Wednesday, the ______ day of ______ A.D., 2011
Wednesday, the ______ day of ______ A.D., 2011
Wednesday, the ______ day of ______ A.D., 2011
Wednesday, the ______ day of ______ A.D., 2011
Wednesday, the ______ day of ______ A.D., 2011
Wednesday, the ______ day of ______ A.D., 2011
Wednesday, the ______ day of ______ A.D., 2011

and the last publication on Wednesday, the 20 day of April, 2011, that the full sum of fees charged for publishing the same, to-wit; the sum of $ 162.00 insures solely to the editor of The Lyman County Herald. That no agreement or understanding for any division thereof had been made with any other person, and that no part thereof has been agreed to be paid to any person whatsoever.

Connie Penny

[signature]
Notary Public

Subscribed and sworn to before me this 21 day of April, 2011

My Commission expires Meghan Kay Severyn My Commission Expires March 12, 2015, 20__

MEGHAN KAY SEVERYN
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

You Are Invited!

PUBLIC SCOPING MEETINGS

The U.S. Department of Agriculture Rural Utilities Service is hosting two public meetings in your area. Basin Electric Power Cooperative is proposing to construct an approximately 70-mile-long 230-kilovolt (kV) single-circuit transmission line located in south-central South Dakota. The Big Bend to Witten Transmission Project also would include construction of a 2-mile-long 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. The new substation and 2 miles of double-circuit transmission line would be constructed by Western Area Power Administration.

The public scoping meetings are being held to obtain your input as well as to fulfill the primary principle of full disclosure and public participation in the National Environmental Policy Act scoping process. You are encouraged to attend either public meeting to learn more about the proposed project and provide your comments.

Additional information about the project can be found in the legal notices section of this newspaper.

PLEASE JOIN US!

April 26, 2011
American Legion Post 179
109 North 5th Avenue
Reliance, South Dakota
57569
4 pm - 7 pm

April 27, 2011
Holiday Inn Express
1360 E. Highway 44
Winner, South Dakota
57580
4 pm - 7 pm

NEED MORE INFORMATION?

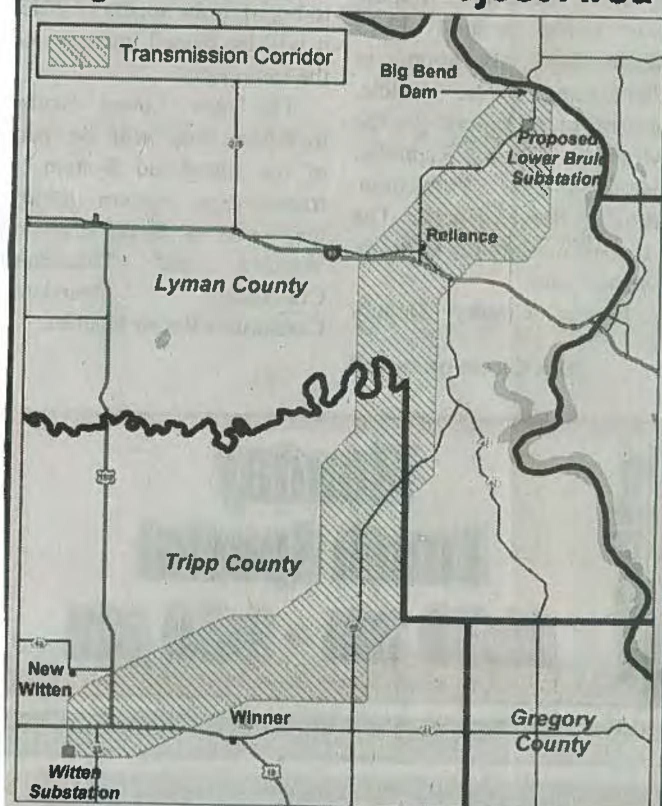
Rich Fristik
Rural Utilities Service
1400 Independence Ave. SW
Mail Stop 1571
Washington, D.C. 20250
(202) 720-5093

Kevin Solie
Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismarck, North Dakota
58503-0564
(701) 557-5495

USDA Rural Development

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy Cooperative

Big Bend - Witten Project Area



AFFIDAVIT OF PUBLICATION

State of South Dakota, county of Tripp-ss.

Dan Bechtold

of said county being first duly sworn, on oath says that he is the Editor of

WINNER ADVOCATE

a weekly newspaper printed and published at Winner, sa county of Tripp, and has full and personal knowledge of the facts herein stated that said newspaper is a leg newspaper and has a bona fide circulation of a least tv hundred copies weekly and has been published within sa County for fifty-two successive weeks prior to th publication of the notice herein mentioned, and w printed wholly or in part in a office maintained at sa place of publication; that the

178 lines @ 1 Column rate x 80%

11" legal display map @ $7.00 p.c.i.

Applicant Notice

Basin Electric

a printed copy of which, taken from the paper in which th same was published, is attached to this sheet, and is mac a part of this affidavit, was published in said newspaper least one in each week for 2 weeks, on the day each week on which said newspaper was regular published to wit:

04/13/11

04/20/11

That the full amount of the fees for the publication of the *annexed notice is $ 274.15

Dan Bechtold

Subscribed and sworn to before me this 20th day of April, 2011

Patricia Arvin

Notary Public

County of Tripp, South Dakota

My Commission Expires November 4, 2015

SEAL
Patricia Arvin
Notary Public
SOUTH DAKOTA

APPLICANT NOTICE

OF PUBLIC SCOPING MEETINGS AND ENVIRONMENTAL ASSESSMENT BASIN ELECTRIC POWER COOPERATIVE: BIG BEND TO WITTEN 230-KV TRANSMISSION LINE PROJECT

SUMMARY: The Rural Utilities Service (RUS) intends to hold public scoping meetings and prepare an Environmental

Assessment with Scoping (EA) to meet its responsibilities under the National Environmental Policy Act (NEPA) and 7 CFR part 1794 in connection with potential impacts related to a proposed project by Basin Electric Power Cooperative (Basin Electric). The proposed Big Bend to Witten Transmission Line Project (proposed action) consists of an approximately 70-mile long 230-kV single-circuit transmission line, a new Western Area Power Administration (Western) substation called Lower Brule Substation, an addition to the existing Witten Substation, and approximately two miles of 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. The Big Bend to Witten Project Area and transmission corridor are depicted in the map accompanying this notice. It is anticipated that some communication facility additions or enhancements may be necessary for the project including radio towers and buildings at Lower Brule Substation, Witten Substation, and one or two intermediate sites. Basin Electric is requesting RUS financial assistance for the proposed action.

DATES: RUS will conduct public scoping meetings in an open house format to provide information and solicit comments for the preparation of the EA. Scoping meetings will be held on the following dates: Reliance, South Dakota, American Legion Post 179, 109 North 5th Avenue, Tuesday April 26, 2011, 4—7 p.m.; Winner, South Dakota, Holiday Inn Express and Suites, 1360 East Highway 44, Wednesday April 27, 2011, 4—7 p.m.

ADDRESSES: To send comments or request additional information, contact:

Mr. Richard Fristik, Senior Environmental Protection Specialist
USDA, Rural Utilities Service
1400 Independence Avenue, SW., Stop 1571
Washington, DC 20250–1571
Telephone: (202) 720–5093
or e-mail:tsrichard.fristik@wdc.usda.gov

or:

Mr. Kevin Solie, Senior Environmental Analyst
Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismarck, ND 58503-0564
Telephone: (701) 557-5495
or e-mail: ksolie@bepc.com

A Macro Corridor and Alternative Evaluation Study has been prepared for the proposed project. The document is available for public review prior to and during the public scoping meetings. The report is available at the RUS address provided in this notice and on the agency's Web site at: http://www.usda.gov/rus/water/ees/ea.htm, the offices of Basin Electric, the Applicant's website at: http://www.basinelectric.com/Projects/South_Dakota_Transmission/index.html and the following repositories:

Kennebec Public Library
203 S Main
Kennebec, SD 57544

Tripp County Library - Grossenburg Memorial
442 Monroe Street
Winner, SD 57580

SUPPLEMENTARY INFORMATION: The network transmission system in South Dakota is not able to accommodate projected load growth by 2014. The major impact is the addition of the pumping station loads associated with the proposed Keystone XL pipeline. Seven pumping stations are proposed to be located in South Dakota. The two pumping stations to be connected to the Witten Substation and Gregory Substation would have a large impact on the network transmission system. These substations are located in a relatively remote area from a network transmission perspective and therefore do not have a strong redundant transmission connection. The existing Western 115-kV line between the Mission Substation and the Fort Randall Substation is not able to reliably accommodate the ultimate pump station build-out load level. An outage of the Fort Randall to Gregory 115-kV line would result in operating voltage criteria violations in the Mission and Gregory South Dakota area. The addition of the Big Bend to Witten 230-kV transmission line would provide an increase in the load serving capacity such that the delivery needs of the projected network load can be met in a reliable manner.

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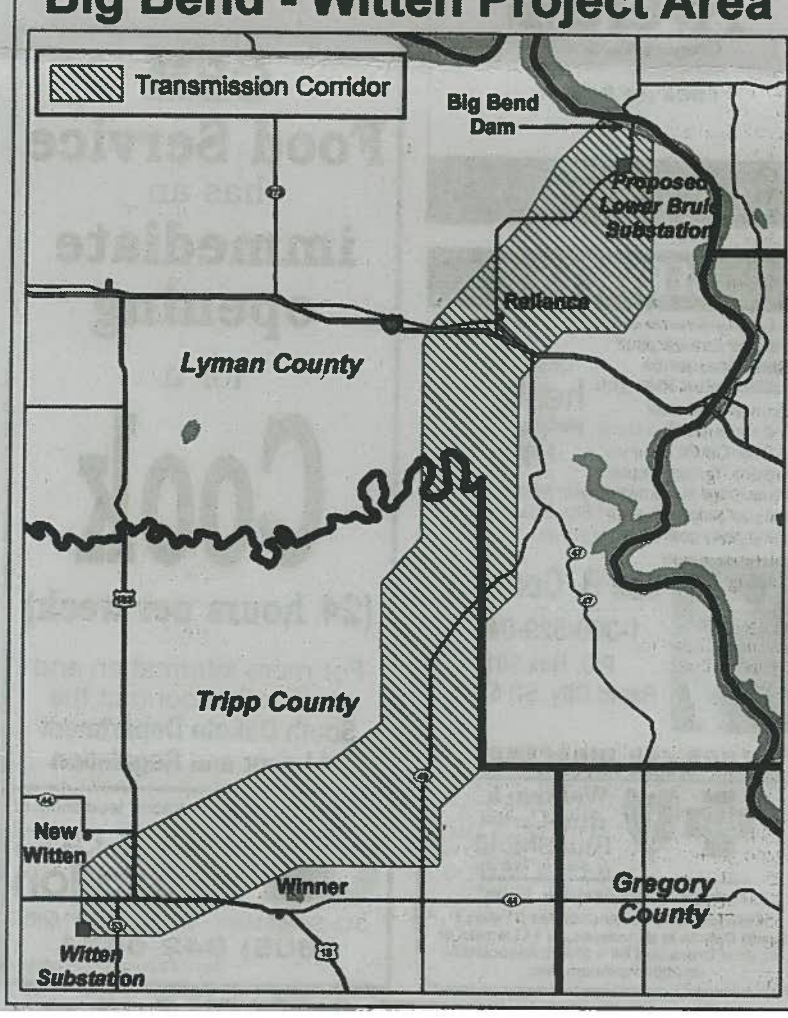
(15-16)

Big Bend - Witten Project Area



AFFIDAVIT OF PUBLICATION

State of South Dakota, county of Tripp-ss.

Dan Bechtold

of said county being first duly sworn, on oath says that he is the Editor of

WINNER ADVOCATE

a weekly newspaper printed and published at Winner, said county of Tripp, and has full and personal knowledge of all the facts herein stated that said newspaper is a legal newspaper and has a bona fide circulation of a least two hundred copies weekly and has been published within said County for fifty-two successive weeks prior to the publication of the notice herein mentioned, and was printed wholly or in part in a office maintained at said place of publication; that the

10.5" display ad @ $7.00 p.c.i.

Applicant meeting

Curt Pearson, Basin Electric

a printed copy of which, taken from the paper in which the same was published, is attached to this sheet, and is made a part of this affidavit, was published in said newspaper at least one in each week for 1 weeks, on the day of each week on which said newspaper was regularly published to wit:

4/20/11

That the full amount of the fees for the publication of the *annexed notice is $ 73.50

Dan Bechtold

Subscribed and sworn to before me this 20th day of June, 2011

Patricia Arvin

Notary Public

County of Tripp, South Dakota

My Commission Expires November 4, 2015

SEAL
Patricia Arvin
Notary Public
SOUTH DAKOTA

You Are Invited!

PUBLIC SCOPING MEETINGS

The U.S. Department of Agriculture Rural Utilities Service is hosting two public meetings in your area. Basin Electric Power Cooperative is proposing to construct an approximately 70-mile-long 230-kilovolt (kV) single-circuit transmission line located in south-central South Dakota. The Big Bend to Witten Transmission Project also would include construction of a 2-mile-long 230-kV double-circuit transmission line between Big Bend Dam and the new Lower Brule Substation. The new substation and 2 miles of double-circuit transmission line would be constructed by Western Area Power Administration.

The public scoping meetings are being held to obtain your input as well as to fulfill the primary principle of full disclosure and public participation in the National Environmental Policy Act scoping process. You are encouraged to attend either public meeting to learn more about the proposed project and provide your comments.

Additional information about the project can be found in the legal notices section of this newspaper.

PLEASE JOIN US!

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American Legion Post 179
109 North 5th Avenue
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57569
4 pm - 7 pm

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NEED MORE INFORMATION?

Rich Fristik
Rural Utilities Service
1400 Independence Ave. SW
Mail Stop 1571
Washington, D.C. 20250
(202) 720-5093

Kevin Solie
Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismarck, North Dakota
58503-0564
(701) 557-5495

USDA Rural Development

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative

Appendix B

Meeting Materials

WELCOME

Big Bend to Witten Transmission Project

Environmental Assessment

Public Scoping Meeting

USDA

Rural Development

BASIN ELECTRIC POWER COOPERATIVE

A Touchstone Energy® Cooperative

USDA Rural Development

Big Bend to Witten Transmission Project
Reliance, South Dakota

Attendance Sheet
April 26, 2011

Please Print Clearly

4:00 pm – 7:00 pm

Name	Representing	Address	Telephone Number	E-mail	Mailing List? Y/N

USDA Rural Development

Big Bend to Witten Transmission Project
Winner, South Dakota

Attendance Sheet
April 27, 2011

Please Print Clearly

4:00 pm – 7:00 pm

Name	Representing	Address	Telephone Number	E-mail	Mailing List? Y/N

Written Comment Sheet

Big Bend to Witten Transmission Project
Environmental Assessment

We want your comments! If you have any issues, concerns, or questions that you would like addressed in the Big Bend to Witten Transmission Project Environmental Assessment (EA), please complete and submit this comment sheet at the scoping meeting to ensure your input is considered. You can also drop the comment sheet in the mail to the address on the reverse side of this sheet. Fold the comment sheet on the lines with the return address showing, tape it closed, affix a stamp, and mail. You may attach additional pages. Please submit your comments by May 27, 2011**.** For your comments to be the most effective, the U.S Department of Agriculture, Rural Utilities Service suggests the following guidelines:

- Confine your comments to the proposed project;
- Focus your comments on potential impacts and ideas for project alternatives; and
- Submit your comments within the timeframes announced.

If you have no comments or questions, but would like to be on our mailing list and receive a copy of the Draft EA, please complete the contact information below and fill in the box on the reverse side and submit this form.

Before including your address, phone number, e-mail address or any other personally identifying information in your comment, you should be aware that your entire comment – including personal identifying information - may be made publicly available at any time. While you may ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Name:______________________________ Title:______________

Organization: ______________________________________

Mailing address:_____________________________________

City, State, Zipcode:__________________________________

E-mail:__________________ Phone: ___________________

Thank you for your interest and participation!

Fold 2

Affix
Stamp

Rich Fristik
U.S. Department of Agriculture
Rural Development
1400 Independence Ave., SW
Mail Stop 1571
Washington, D.C. 20250

Fold 1

Big Bend to Witten Transmission Project mailing list
To have your name added or removed from our mailing list for this project, please check the appropriate box. Be sure to fill out the contact information on the reverse side. If you do not ask us to remove your name from our mailing list, we will send you future EA-related announcements.

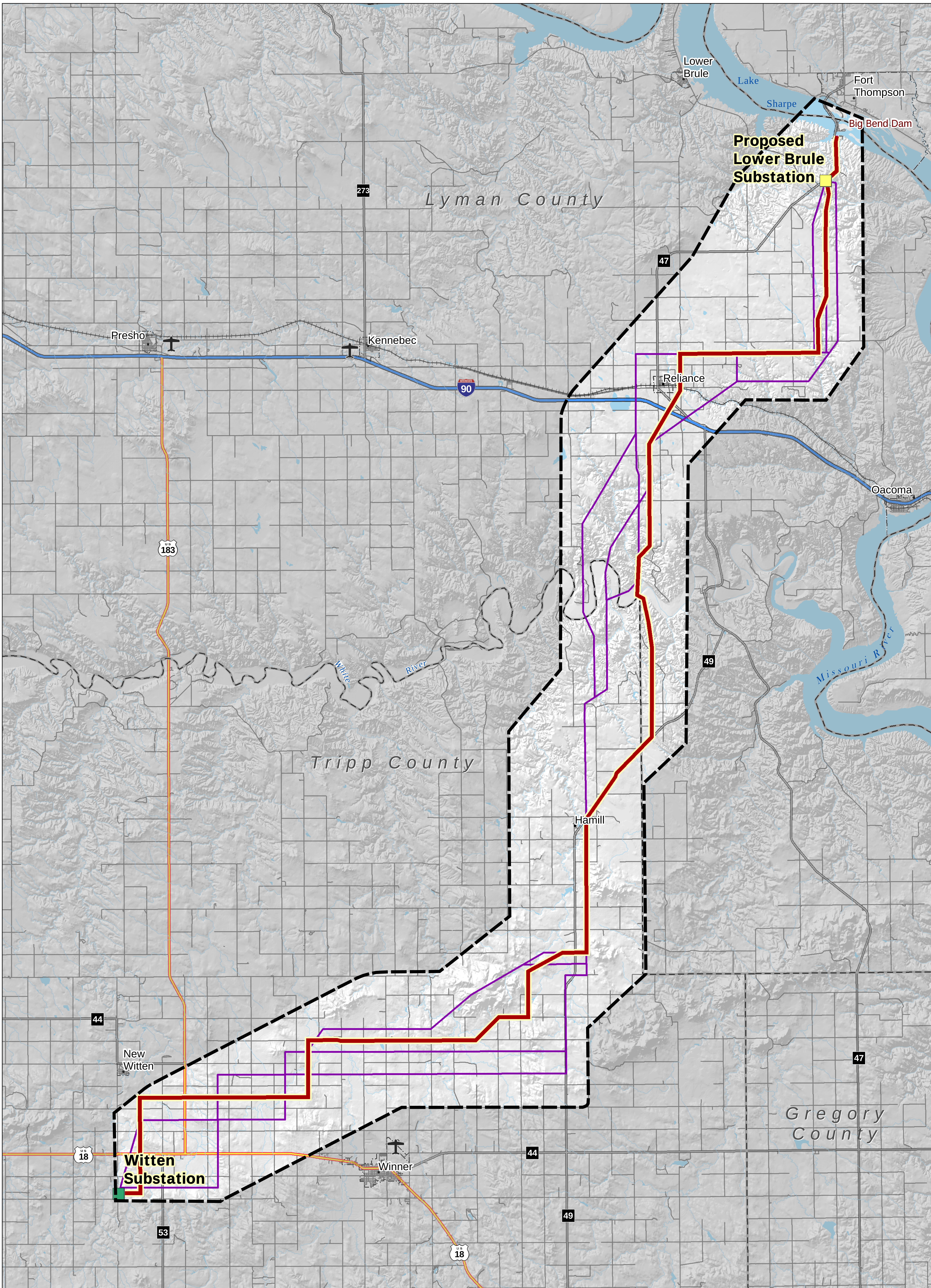
☐ Yes, add my name to the mailing list to receive future information

☐ No, please remove my name from your mailing list

Sign up to receive the Draft EA
To receive the Draft EA check the appropriate box.

☐ Send me the Draft EA in the following format:

☐ CD-rom ☐ Executive Summary only (about 25 pages)



BIG BEND TO WITTEN TRANSMISSION PROJECT

Project Features
- Project Study Area
- Preferred Transmission Route
- Alternative Route

Utility System
- Existing Substation
- Proposed Substation

Transportation
- Interstate
- US Highway
- State Highway
- Other Road
- Railroad
- Airport

Boundaries
- County Boundary
- Municipal Boundary

MAP AREA SHOWN IN RED.

MN
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
0 100 200
Miles

PROJECT MACRO-CORRIDOR

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative

0 2 4
Miles

AECOM
717 17th Street Suite 2600
Denver, CO 80202

File: P:\2011\11180015.01Basin_LB2W\06GIS\6.3Layout\Resource_Maps\110222_MacroCorridor.mxd
Date Modified: March 10, 2011

Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, NSBP

Environmental Assessment NEPA Process

NEPA Process

An Environmental Assessment (EA) is being prepared under the direction of the U.S. Department of Agriculture, Rural Utilities Service (RUS) for the proposed Big Bend to Witten Transmission Project (Project). The EA will be developed in accordance with National Environmental Policy Act (NEPA) requirements and RUS NEPA implementing regulations. NEPA requires that environmental information be made available to the public and public officials before decisions are made.

Public participation is required as part of the NEPA environmental review process. The public participation effort for this Project focuses on gathering input from the public and providing project information. The NEPA process provides several opportunities for the public to participate in the decision-making process as shown on the figure to the right.

How you can participate

Attend the public meetings scheduled for your area to learn more about the Project. The meetings also provide you with an opportunity to ask questions, express concerns, and submit comments to help define the scope of the EA. Comments or questions can also be submitted at any time during the NEPA process.

April 26, 2011

American Legion Post 179
109 North 5th Avenue - Reliance, SD

4:00 – 7:00 p.m.

April 27, 2011

Holiday Inn Express
1360 E. Highway 44 - Winner, SD

4:00 – 7:00 p.m.

USDA Rural Development

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy Cooperative

Environmental Assessment NEPA Process

Throughout the NEPA process, if you have questions or concerns, you can contact:

Rich Fristik
Rural Utilities Service
1400 Independence Ave. SW
Mail Stop 1571
Washington, D.C. 20250

(202) 720-5093
e-mail: richard.fristik@wdc.usda.gov

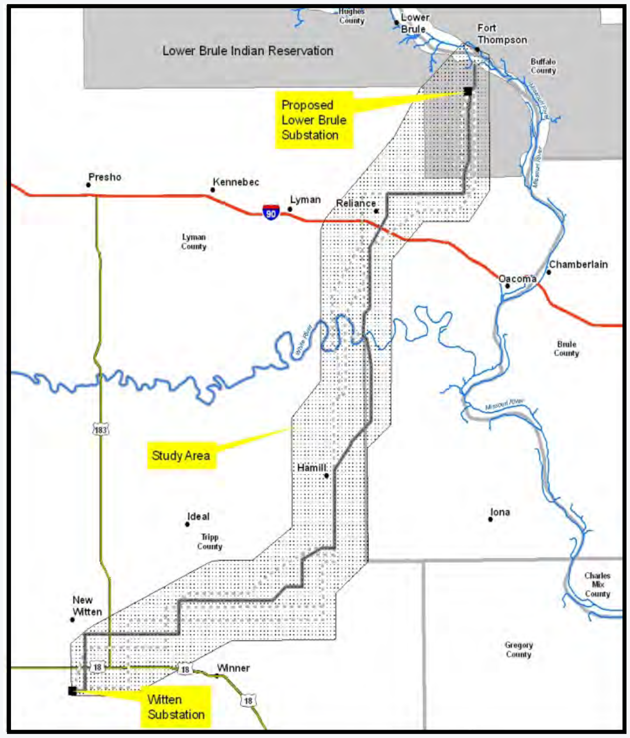
Project Description

Basin Electric Power Cooperative (Basin Electric) is proposing to construct an approximately 70-mile-long 230-kilovolt (kV) single-circuit transmission line and an addition to the existing Witten Substation located in south-central South Dakota. Basin Electric also would own the addition to the Witten Substation. Western Area Power Administration (Western) would construct, own, and operate approximately 2 miles of double-circuit 230-kV transmission line between Big Bend Dam and the new Lower Brule Substation. It is anticipated that some communication facility additions or enhancements may be necessary for the Project including radio towers and buildings at Lower Brule Substation, Witten Substation, and one or two intermediate sites.

Project Purpose and Need

The network transmission system in South Dakota is not able to accommodate projected load growth by 2014. The major impact is the addition of the pumping station loads associated with the proposed Keystone XL pipeline. Seven pumping stations are proposed to be located in South Dakota. Each station would have electrical load that would increase from approximately 12 megawatts (MWs) initially in 2012 to 22 MWs at ultimate build-out, which is expected in 2014. The addition of the Big Bend to Witten 230-kV transmission line would provide an increase in the load serving capacity such that the delivery needs of the projected network load can be met in a reliable manner.

Project Location Map



Need for Agency Action

The RUS is considering whether to provide financing for the Project and is the Lead Agency with oversight for preparing the Environmental Assessment. Western is considering whether to provide interconnection of the Project to its transmission system and is serving as a Cooperating Agency in the NEPA process.

Project Participants

Participant	Project Title and Role
Basin Electric	Project Applicant – owner and operator of the Project.
Rural Utilities Service	Lead Agency – oversight of the NEPA process and preparation of the EA.
Western Area Power Administration	Cooperating Agency - NEPA process; construction of the 2-mile-long double-circuit 230-kV transmission line from Big Bend to the new Lower Brule Substation. Western also will construct the new Lower Brule Substation.
AECOM	Project Environmental Contractor – preparation of the EA.

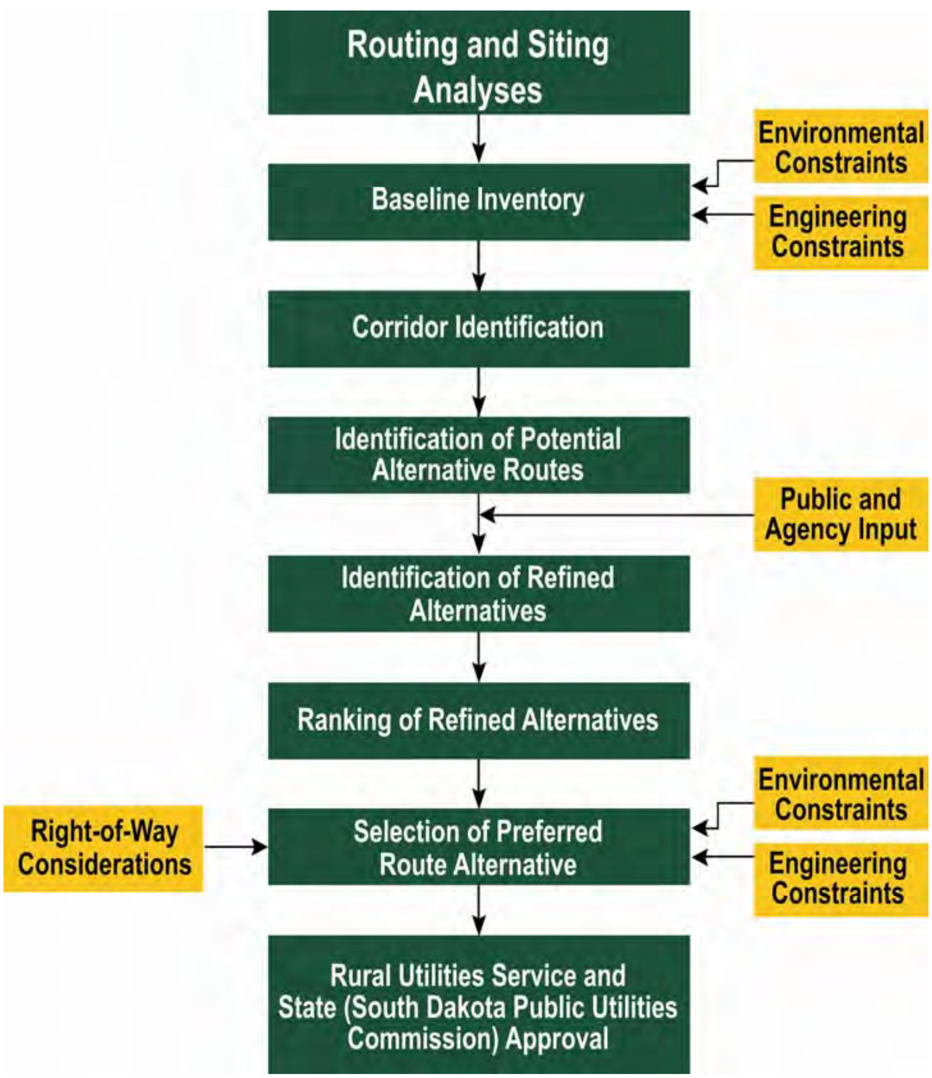
Big Bend to Witten Transmission Project

Siting and Environmental

Siting transmission lines requires input from a variety of sources, including the public. It also requires consideration of criteria specifically for this Project.

This routing approach ensures that all factors are evaluated to reduce the potential of impact resulting from siting and construction of the Project. Transmission line routing criteria and the process used for this Project are shown below.

Routing and Siting Process



Conditions favorable for routing:

- Maximize use of linear features
- Maximize use of routes along (undeveloped) section line trails when practicable
- Routing through remote rangeland areas

Conditions to avoid include:

- Population centers and habitable structures
- Airports and landing strips
- Disruption to agricultural activities
- Prime or important farmland
- Extreme topographic areas
- Sensitive biological habitat resources
- Special status plant and animal species
- Wetlands and riparian areas

Right-of-Way

Basin Electric Power Cooperative (Basin Electric) needs to acquire long-term easements for a new transmission line. An easement is a right to use a particular parcel of land for the purpose of constructing, operating, and maintaining utilities.

Access by the landowner within the easement is not restricted, and normal agricultural activities can still occur. The only activities that are typically not permitted in transmission line easements are those that reduce the ground to line clearance or those that jeopardize the integrity of the support structures. Landowners would need to exercise caution when operating tall equipment and moving irrigation pipes within the easement area.

Survey permission

Basin Electric would meet with each landowner, to ask for survey permission and would answer any questions. Various surveys (e.g., biological, cultural) would be needed throughout the Project. Survey information is used to identify the preferred route.

Compensation

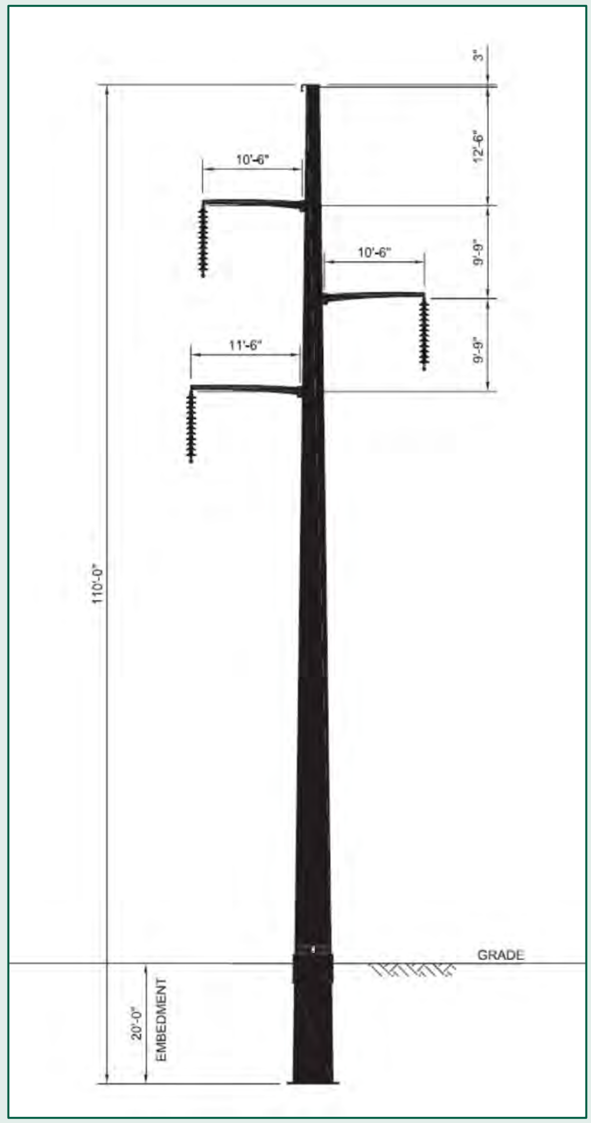
Basin Electric would use market data from recent sales of similar properties to determine fair and appropriate compensation. Basin Electric would make every effort to reach a fair and reasonable settlement with each affected landowner.

Construction and Operation

Following construction, Basin Electric would reclaim the property to as good or better condition than prior to construction. In addition to the easement agreement, Basin Electric would provide compensation for damages to crops, pasture land, or other property affected during construction or resulting from maintenance of the transmission line. A Basin Electric inspector would monitor construction activities and a right-of-way agent would be available if there are any questions, concerns or problems during and after construction.

Engineering

- 230-kV single-circuit transmission line
- Average span - 800 feet
- Right-of-Way width – 125 feet
- Single pole structure



Appendix C

Summary of Comments

Comprehensive List of Scoping Comments

Note: Some of the comments may appear more than once since they relate to several topics.

Agriculture

- An environmental study should be conducted and projects developed in the area should not impact farming, ranching, and natural resources.
- The transmission line should be sited on the section lines instead of the ½-section lines to avoid impacts to farmland.
- The transmission line should be routed along the section line to avoid impacts to agricultural activities and to provide easier access for transmission line construction and maintenance.
- The transmission lines should be sited on pasture land rather than farmland.

Wildlife

- Potential impacts to prairie chickens and sharp-tailed grouse on their property from project construction and operation.

Construction/Maintenance

- All garbage should be removed during construction.
- Construction noise impacts and closing gates on their property.
- A stipulation is needed in agreements that concrete footings would be removed at the end of the 99-year lease.
- If project does not extend to the full 99-year lease, project components should be removed with no pro-rata rent payments returned to Basin Electric.
- The transmission line should be routed along the section line to avoid impacts to agricultural activities and to provide easier access for transmission line construction and maintenance.

Grazing

- An environmental study should be conducted and projects developed in the area should not impact farming, ranching, and natural resources.

Lands/Realty

- Landowner prefers to be paid a fair annual payment if the proposed project is located on his land.
- Landowner should be paid 10 to 25 percent annual rent from gross profits made from the pipeline company, because transmission lines and pipelines devalue private land.
- If the project does not extend to the full 99-year lease, project components should be removed with no pro-rata rent payments returned to Basin Electric.
- The transmission line should be sited on the section lines instead of the ½-section lines because it impacts farmland.
- Commenter prefers annual payments from usage of electricity on landowner's property.

- The transmission line should be sited along the section line to the west mile marker instead of the ½-section line (104073 Block 13 SE and NW).
- The transmission line should be sited along the section line between the Schindler property on the north (105073 SE Block 14).
- Landowner already has power lines on the west side and does not want additional transmission lines on his/her property (Sections 1 and 3).
- Transmission line routes cross Indian lands in Sections 3 and 10.
- The transmission line should be realigned so it traverses between Sections 11 and 12 (105073) on the section line.
- Payment for right-of-way (ROW) easement is inadequate and does not account for land values for project life.
- Transmission line Segment 460 is located close to a residence and would impact property.
- The proposed transmission line crosses 7 quarter-sections of land (Sections 14, 15, and 16) owned by one farmer/rancher in Reliance Township.
- Payment for a ROW easement is 80 percent of the assessed land value and is inappropriate.
- Landowner approves of the project being constructed on his land (Segment 570 - East ½ Section 30-99-77).
- Landowner prefers the transmission line be built on the west end of his land as discussed on May 17, 2011.

Opinion

- Opposed to the project and does not feel additional electric power is needed.
- An environmental study should be conducted and projects developed in the area should not impact farming, ranching, and natural resources.
- In favor of the project because it would benefit the residents of Lyman County and West-Central Electric Cooperative.
- In favor of the project because it would benefit the Reliance community.
- In favor of the project because it would benefit the county.
- Opposed to construction of the transmission line on his property.
- In favor of the transmission line and potential for wind farm development.
- In favor of the transmission line because it will strengthen the Rosebud Electric power grid.
- In favor of the proposed transmission line.
- Potential visual impacts and opposition to the transmission line being constructed on his property or any adjacent property.
- Opposed to construction of the project on his land.

Out-of-Scope

- Wind farms would likely be built in the area near the proposed transmission line.

Public Health and Safety

- Public health and safety may be affected by working and living close to transmission lines.

Public Participation

- The public scoping meeting was very informational.

Reclamation

- Reclamation should be conducted immediately after construction and ruts created in the soil from large construction equipment should be repaired.

Routing

- Segment 159 of the transmission line is located too close to a residence.
- The transmission line should be sited along the section line to the west mile marker instead of the ½-section line (104073 Block 13 SE and NW).
- The transmission line should be sited along the section line between the Schindler property on the north (105073 SE Block 14).
- Landowner already has power lines on the west side and does not want additional lines (Sections 1 and 3).
- Transmission line route would cross Indian lands in Sections 10 and 3.
- The transmission line should be realigned to go between Sections 11 and 12 (105073) on the section line.
- Strongly opposed to the transmission line being sited on Segment 460 because it impacts property and is located very close to a residence.
- In favor of the project being constructed on his land (Segment 570 - East 1/2 Section 30-99-77).
- The proposed transmission line crosses 7 quarter- sections of land (Sections 14, 15, and 16) owned by one farmer/rancher in Reliance Township.
- The transmission line should be sited on the section lines instead of the ½-section lines because it impacts farmland.

Socioeconomics

- Potential impacts to property values.
- Payment for ROW easement is inadequate and does not account for land values for project life.

Transportation

- Additional traffic from construction vehicles.

Visual Resources

- Visual impacts to a resident that lives at 32124 271st Street at the base on Brad Leyon Buttes looking over Pleasant Valley.
- Visual impacts and opposition to the transmission line being constructed on his property or any adjacent property.
- Place the transmission structures lower on the side hills to reduce visibility.

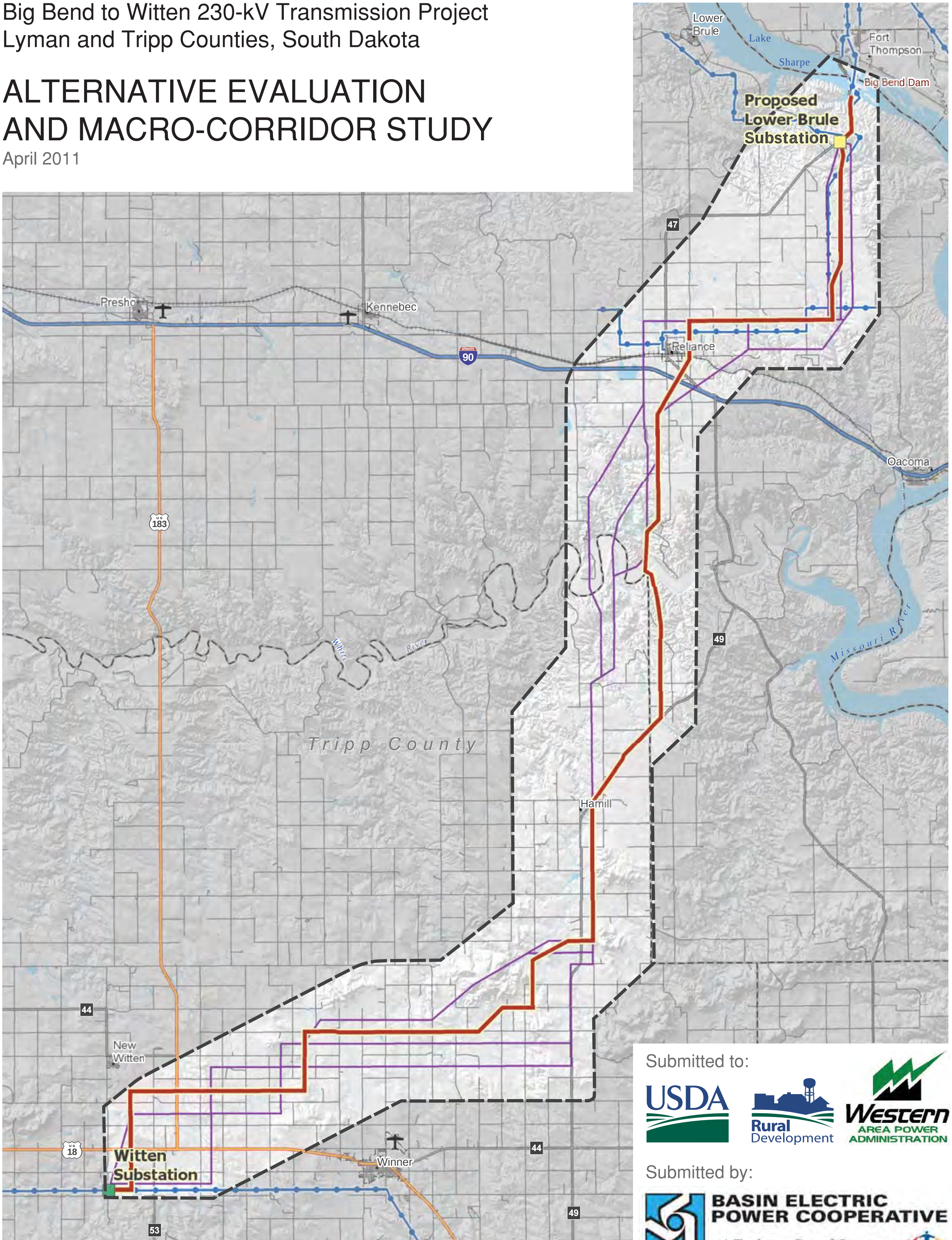
Appendix B

Alternative Evaluation and Macro-Corridor Study

Big Bend to Witten 230-kV Transmission Project
Lyman and Tripp Counties, South Dakota

ALTERNATIVE EVALUATION AND MACRO-CORRIDOR STUDY

April 2011



Submitted to:

USDA Rural Development

Western Area Power Administration

Submitted by:

Basin Electric Power Cooperative

A Touchstone Energy® Cooperative

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Appendix A
Resource Maps

1.0 Introduction

1.1 Background

Basin Electric Power Cooperative (Basin Electric) is proposing to construct a 230-kilovolt (kV) transmission line that would connect a proposed Lower Brule Substation located on the Lower Brule Indian Reservation in Lyman County, South Dakota with the existing Witten Substation located in Tripp County, South Dakota. As part of this project, Western Area Power Administration (Western) is also proposing to convert an existing single-circuit 230-kV transmission line turning structure, located on the south side of the Big Bend Dam, to a double-circuit structure and construct a 2.1-mile double-circuit 230-kV transmission line from this point to the proposed Lower Brule Substation. Collectively, this project is referred to as the Big Bend to Witten 230-kV Transmission Project (Project).

1.2 Project Description

The Project involves constructing a 70-mile single-circuit 230-kV transmission line that would connect the proposed Lower Brule Substation with the existing Witten Substation. As part of this Project, Western would also construct a 2.1-mile double-circuit 230-kV transmission line from a new double-circuit transmission structure located on the Big Bend to Fort Thompson No. 2 transmission line to the proposed Lower Brule Substation. The total length of these transmission lines, depending on the final route selected, is expected to be approximately 72 miles. The macro-corridor developed for this Project is shown on Figure 1-1.

1.2.1 Right-of-Way Considerations

The new transmission line is proposed to be constructed within a 125-foot-wide right-of-way (ROW). Basin Electric representatives would work with the landowners along the selected route to obtain the necessary land rights to allow for access, construction, operation, and maintenance of the transmission line.

1.2.2 Proposed Transmission Line Characteristics

Table 1-1 provides the typical physical design characteristics for the proposed single-circuit 230-kV transmission line. The design specifications for Western’s proposed 2-mile double-circuit transmission line were not available at the time this Macro-Corridor Study was published; however, they are anticipated to be similar to the single-circuit 230-kV transmission line characteristics presented in Table 1-1. Figure 1-2 illustrates the proposed single-circuit 230-kV transmission structures to be used for the Project.

Table 1-1:
Transmission Line Characteristics

Description of Design Component	Values
Voltage (kV)	230
Conductor Size (inches)	1.345
Right-of-Way Width (feet)	125
Typical Minimum and Maximum Span Distances Between Structures (feet)	650 - 950
Average Span (feet)	800
Minimum and Maximum Structure Height (feet)	70 - 115
Average Height of Structures (feet)	95
Average Number of Structures (per mile)	6.6
Temporary Disturbance per Structure (square feet) (approximately 125-foot x 100-foot area)	12,500
Permanent Disturbance per Structure (acre) (approximately 3-foot diameter per structure leg)	<0.0002
Minimum Conductor-to-Ground Clearance to Agricultural Land at 100 degrees Celsius (°C) (feet)	26
Minimum Conductor-to-Ground Clearance to Rural Roads at 100°C (feet)	28
Minimum Conductor-to-Ground Clearance to Paved Highways at 100°C (feet)	31
Circuit Configuration	Vertical

The steel single-pole transmission line structures would range in height from approximately 70 feet to 115 feet and average 95 feet, depending on the required span distances between structures and area topography. The span between structures would typically range from 650 feet to 950 feet and average approximately 800 feet, depending on topography; taller structures could be used for crossing existing distribution and transmission lines or where unusual terrain exists. The single-pole structures would be designed to support three conductors and an overhead optical ground wire (OPGW). The OPGW would provide lightning suppression and fiber optic communications between the Lower Brule and Witten substations for systems control. Tangent structures would be freestanding and directly embedded into the soil. Angle structures (used where the transmission line changes direction) and dead-end structures (used to provide longitudinal stability along the length of the line) would be constructed with concrete foundations. Guy wires would not be used.

Project construction and design would meet the requirements of the National Electrical Safety Code (NESC) for the Heavy Loading District, Basin Electric and USDA-RUS design criteria, and other applicable local or national building codes. The Heavy Loading District refers to those areas (including South Dakota) that are subject to severe ice and wind loading. Minimum conductor clearance is measured at the point of greatest conductor sag and closest proximity to the ground. The proposed transmission line would be constructed with clearances that exceed standards set by NESC. Minimum conductor height would be 26 feet over agricultural land, 28 feet over rural roads, and 31 feet over paved highways.

1.3 Purpose of the Alternative Evaluation and Macro-Corridor Study

The U.S. Department of Agriculture's Rural Utilities Service (RUS) electric program provides capital loans to electric cooperatives for the upgrade, expansion, maintenance, and replacement of the electric infrastructure in rural areas. Basin Electric is pursuing financing from RUS for the new 230-kV transmission line in Lyman and Tripp counties. As part of this Project, Western is also proposing to convert an existing 230-kV transmission line turning structure, located on the south side of the Big Bend Dam, to a double-circuit structure and construct a 2.1-mile double-circuit 230-kV transmission line from this point to the proposed Lower Brule Substation.

RUS is required to evaluate environmental impacts of their actions under the National Environmental Policy Act (NEPA) and Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations 1500–1508). RUS will prepare an Environmental Assessment with Western as a cooperating agency. RUS guidance regarding NEPA implementation (RUS Bulletin 1794A-603) requires that a Macro-Corridor Study (MCS) and an Alternative Evaluation Study (AES) be prepared and accepted by RUS prior to the start of the official NEPA process. Basin Electric has prepared this document to evaluate the system alternatives that best meet the purpose and need of the Project, as well as to identify potential alternative routes for the transmission line.

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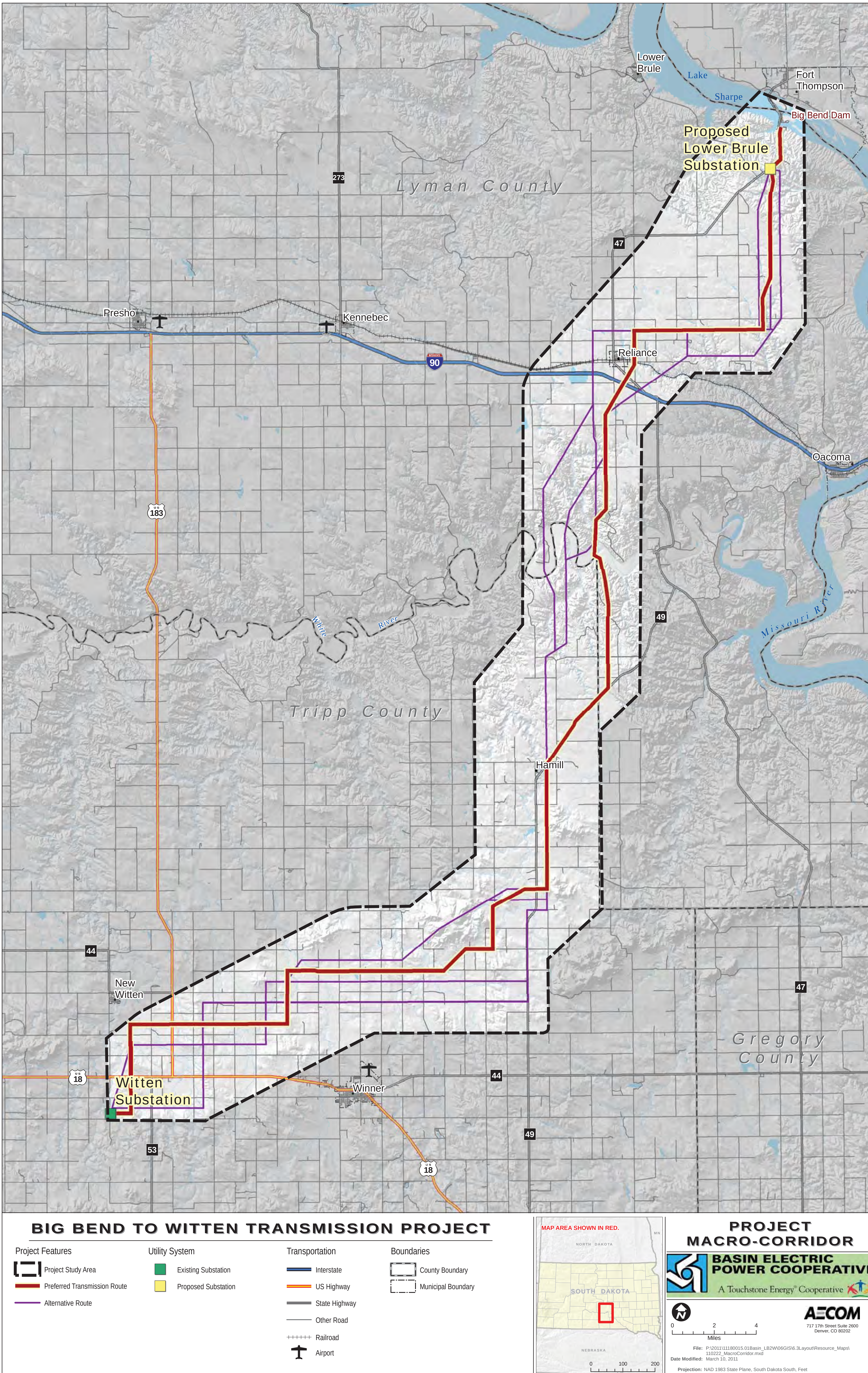

Lower Brule
Lake Sharpe
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
273
47
Presho
Kennebec
90
Reliance
Oacoma
183
White River
Missouri River
49
Tripp County
Hamill
44
New Witten
18
Witten Substation
Winner
Gregory County
53
BIG BEND TO WITTEN TRANSMISSION PROJECT
Project Features
Project Study Area
Preferred Transmission Route
Alternative Route
Utility System
Existing Substation
Proposed Substation
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Boundaries
County Boundary
Municipal Boundary
MAP AREA SHOWN IN RED.
MN
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
0 100 200 Miles
PROJECT MACRO-CORRIDOR
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
0 2 4 Miles
AECOM
717 17th Street Suite 2600
Denver, CO 80202
File: P:\2011\11180015.01Basin_LB2W\06GIS\6.3Layout\Resource_Maps\110222_MacroCorridor.mxd
Date Modified: March 10, 2011
Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, NSBP

Figure 1-1

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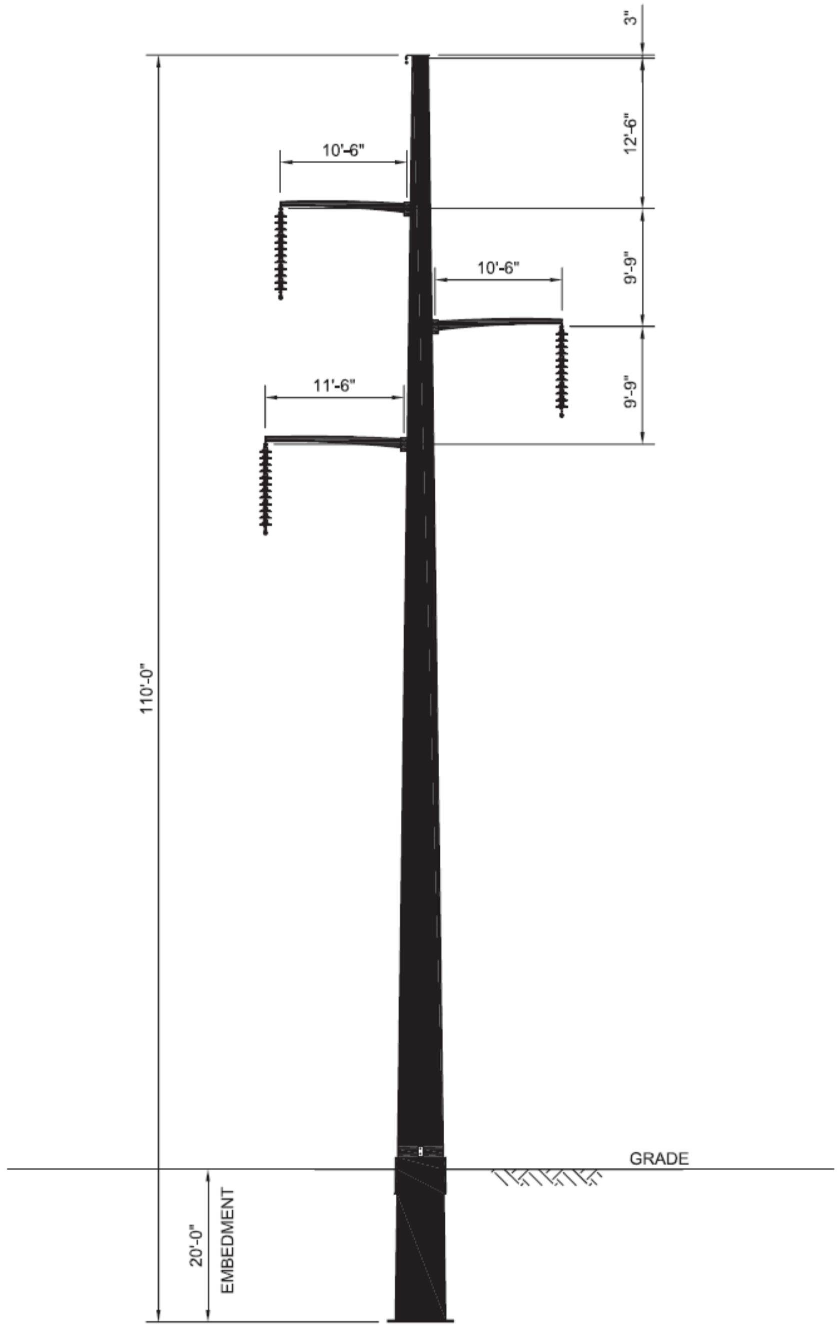

Figure 1-2: Typical Single-Circuit Single-pole Structure

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2.0 Purpose and Need

2.1 Overview of Basin Electric's Transmission System

Basin Electric, established in 1961 and headquartered in Bismarck, North Dakota, is one of the largest electric generation and transmission cooperatives in the United States. Basin Electric's core business is generating and transmitting wholesale bulk electric power to customers, which primarily consist of 135 member cooperatives located in nine states. Basin Electric's service territory spans 540,000 square miles in the central United States from the Canadian border to Mexico, including parts of Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, and Wyoming. Basin Electric's member cooperatives distribute electricity to about 2.8 million consumers.

Basin Electric owns 2,093 miles and maintains 2,178 miles of high-voltage transmission lines and owns and maintains equipment in 66 switchyards and 116 telecommunications sites.

No transmission lines (115-kV or greater) are present within the macro-corridor, except in the extreme northern and southern portions of the macro-corridor. Western's 230-kV Big Bend to Fort Thompson transmission line is located in the northern portion of the macro-corridor near Big Bend Dam. The Witten substation is on Western's 115-kV Fort Randall to Mission transmission line, located in the southern portion of the macro-corridor.

2.2 Existing Big Bend Switchyard

The existing Big Bend Switchyard contains eight generation interconnections (59 megawatts [MWs] each) and four step-up transformers. The 230-kV bus is split at disconnect switch 7089, providing two separate 230-kV buses. A 230-kV line connects each 230-kV bus radially to Fort Thompson Substation, which is 7 miles away. There are no 230-kV circuit breakers at Big Bend Switchyard. Replacement of switch 7089 with a 230-kV breaker was considered to allow the 230-kV buses to be connected through a breaker and add some operational flexibility. However, field investigation by Western indicated there is insufficient space to accommodate a 230-kV circuit breaker at that position.

2.3 Regional Transmission System Studies and Analyses

2.3.1 Basin Electric Transmission Studies

The Big Bend to Witten 230-kV transmission line is required to serve proposed load growth on the 115-kV system between Mission and Fort Randall substations. Much of the short-term load growth in this area is associated with provision of electrical service to pump stations for the proposed TransCanada Keystone XL pipeline. In addition to short-term load growth, the need for an additional source at the Witten Substation has been identified to improve regional system reliability and voltage stability.

2.3.2 Western Transmission System Studies

After receipt of information on the power requirements for the proposed pump stations in South Dakota associated with the TransCanada Keystone XL pipeline, Western conducted a joint system engineering study to determine system reliability under the proposed loads at maximum electrical energy consumption. The joint system engineering studies determined that a 230-kV transmission line originating at the Fort Thompson/Big Bend area and extending south to the existing Witten Substation would be required to support voltage requirements for pump stations 20 and 21 in the Witten area when the pipeline is operating at maximum capacity.

To address this requirement, Western proposes to convert the existing Big Bend to Fort Thompson No. 2, 230-kV transmission line turning structure, located on the south side of the dam, to a double-circuit structure. Western would then construct approximately 2.1 miles of new double-circuit transmission line south to a new substation, (i.e., Lower Brule Substation), which would also be constructed by Western. The new switchyard/substation would be a 3-breaker ring bus configuration, expandable to a breaker and a half configuration. The new 2.1-mile-long double-circuit 230-kV transmission line would be owned, constructed, and operated by Western. After construction, ownership of the Lower Brule Substation would be transferred to Basin Electric, which would then own and operate it. Western would complete design of the new substation and double-circuit transmission line in 2012 and would begin construction in the spring of 2013.

2.3.3 West Central Electric Cooperative Request

West Central Electric Cooperative (West Central) has requested a 230-kV/69-kV interconnection to the proposed transmission line approximately 10 miles southwest of Big Bend Switchyard. The requested delivery point is near the town of Reliance; however, the specific location of the delivery point had not been determined as of March 2011.

2.4 Conclusion of Purpose and Need

As a result of the regional transmission studies and the need to provide additional electric power to the Witten Substation to meet anticipated increased demand, Basin Electric and Western determined that the best way to meet that need and ensure continued system reliability would be to convert the existing Big Bend to Fort Thompson No. 2, 230-kV transmission line turning structure to a double-circuit structure and to construct a new double-circuit 230-kV transmission line from this point to the new Lower Brule Substation. In addition, a new single-circuit 230-kV transmission line would be constructed from the Lower Brule Substation to the Witten Substation. Basin Electric has identified a preferred route and several alternative routes to the Witten Substation and this MCS provides an evaluation of the feasibility of the preferred and alternative routes. The potential environmental impacts of the routes will be evaluated in a separate Environmental Assessment to be prepared following public scoping.

3.0 System Alternatives Evaluated

Two major system alternatives were evaluated to meet the purpose and need of the Project. A 230-kV transmission line alternative from Lake Platte Substation to Witten Substation was considered as an electrically viable alternative to the Project. The Lake Platte alternative was eliminated from further consideration because of the technical and environmental issues associated with crossing the Missouri River.

Western determined that the Big Bend Substation, located at the Big Bend Dam, would not accommodate an expansion of two 230-kV circuit breakers that would be required for the Project. Therefore, four alternative configurations were identified and reviewed for the northern terminal. The alternatives were identified with consideration of a request from West Central Electric Cooperative to provide delivery into their 69-kV system approximately 10 miles southwest of Big Bend. The Witten Substation would serve as the southern terminal to the Project. The alternative configurations for the northern terminal are briefly described in the following sections.

3.1 Alternative Configuration 1

Alternative Configuration 1 would tap into the existing Big Bend to Fort Thompson 230-kV transmission line adjacent to the Big Bend Substation. Two options to this Alternative Configuration were identified. Option 1A would add an interconnection for the West Central Delivery at the Reliance tap; however, this option would increase the potential for a loss of the proposed transmission line. Option 1B would add a breaker at the interconnection point; this option would reduce exposure of tripping generation and potential line outage.

3.2 Alternative Configuration 2

Alternative Configuration 2 would tap into the existing Big Bend to Fort Thompson 230-kV transmission line, and a new substation would be constructed approximately 2 miles south of the Big Bend Substation. The newly constructed substation, the Lower Brule Substation with the West Central Delivery, would increase the Big Bend to Fort Thompson 230-kV transmission line reliability over Alternative Configuration 1.

3.3 Alternative Configuration 3

Alternative Configuration 3 would radially feed one double-circuit from the Big Bend to Fort Thompson 230-kV transmission line to the newly-constructed Lower Brule Substation. Should an outage occur on the Lower Brule to Fort Thompson 230-kV transmission line, then power generated from Big Bend could be transmitted on the remaining 230-kV double-circuit transmission line. Option 3A adds breakers at the Lower Brule Substation for the West Central Delivery. Option 3B would add a tap interconnection for the West Central Delivery at the Reliance Substation. Alternative 3 (Option 3B) is the proposed Alternative Configuration for this Project.

3.4 Alternative Configuration 4

Alternative Configuration 4 would loop both 230-kV double-circuits from the Big Bend to Fort Thompson 230-kV transmission line to the Lower Brule Substation with additional circuit breakers. This would provide additional reliability for the proposed transmission line, but would be the most expensive of the proposed alternatives.

4.0 Macro-Corridor Study

The purpose of the MCS was to evaluate potential alternative transmission line routes within an approximately 6-mile-wide macro-corridor between the Big Bend Dam located on the Lower Brule Indian Reservation in Lyman County and the existing Witten Substation located in Tripp County, South Dakota. This wide macro-corridor will provide flexibility to identify a preferred and at least one alternative route for the transmission line while minimizing impacts to important resources identified within the macro-corridor.

For this Project, three distinct phases for identifying and evaluating routes were undertaken as follows:

- Phase 1—Definition of the Macro-Corridor/Project Study Area
- Phase 2—Resource Data Collection and Evaluation
- Phase 3—Opportunities and Constraints Analysis

Each of these phases is described in more detail in the following sections. The final section of the document describes additional inputs to routing, which include public scoping, field reconnaissance, route refinement, and permitting.

4.1 Definition of the Macro-Corridor/Project Study Area

4.1.1 Early Project Planning

Two alternative corridors for the proposed transmission line were identified during early stages of Project planning and are discussed in detail in the Keystone XL project Draft Environmental Impact Statement (DEIS). Initially, a 6-mile-wide corridor was identified by Western and Basin Electric between an existing substation on the transmission grid (Witten Substation) and Big Bend Dam. Several route alternatives were identified within this initial corridor. Later, a second corridor, which is also six miles in width, was developed by Western and Basin Electric with input from the Lower Brule Reservation. This corridor followed a similar path from the existing Witten Substation to Big Bend Dam but with deviations in the southeast near Winner and the northeast near Reliance. The second corridor allowed for more direct north-south route options on the Lower Brule Reservation and is the basis for the macro-corridor identified in this study.

4.1.2 Macro-Corridor Study Planning

The first phase of the MCS process involved identifying the study area within which the Project would be located. The extent of a study area for a transmission line project is primarily determined by the project endpoints, the purpose and need, and the electric system requirements and components that best meet the purpose and need. As described in the Alternative Evaluation (Section 3.0), studies by Basin Electric's System Planning Group and Western determined that a new double-circuit 230-kV transmission line from the Big Bend Dam to the proposed Lower Brule Substation, and a single-circuit 230-kV transmission line from the Lower Brule Substation to the Witten Substation offered the best way to meet the purpose and need for the Project.

Given the project endpoints (new double-circuit structure located on the south side of the Big Bend Dam in the north and Witten Substation in the south), West Central's request for interconnection in the Reliance area, and the limited number of reasonable crossing locations of the White River, the Project study area was defined as an approximately 6-mile-wide macro-corridor generally running north-south through Lyman County and into Tripp County south of the unincorporated town of Hamill. At a point approximately 6 miles south of Hamill, the macro-corridor turns southwest to the Witten Substation. The defined macro-corridor within which preliminary routes have been identified is shown in Figure 4-1. The macro-corridor encompasses approximately 250,350 acres or 391.2 square miles.

4.2 Resource Data Collection and Evaluation

The second phase of the MCS involved collecting resource data within the study area from resource management agencies, state and local governments, utility companies, and other publicly available sources. Resource data obtained from municipalities, counties, state and federal agencies, and utilities were used to prepare Geographic Information System (GIS) resource maps and included the following resource categories:

- Existing Linear Transportation and Utility Corridors;
- Land Use and Jurisdiction;
- Cultural Resources;
- Wetlands and Water Resources;
- Geologic Hazards; and
- Biological Resources.

All data collected reflect existing data readily available from the resource and local, state, and federal agencies. No new field data were collected within the macro-corridor to support the opportunities and constraints analysis.

The resource data were mapped in GIS format and combined with aerial photography to validate the identified preferred and alternative routes for the proposed transmission line within the macro-corridor. As described below, each environmental resource was categorized as an opportunity (suitable area), an avoidance area, or an exclusion area in the GIS opportunity and constraint model. The following sections describe in more detail each set of resource data that was collected as part of this analysis. Resource maps referenced in this section have been included in Appendix A.

4.3 Opportunities and Constraints Analysis

The final phase of the MCS involved conducting an opportunity and constraints analysis. Project opportunity and constraint criteria were developed based on resources and characteristics of the macro-corridor that provided favorable or unfavorable attributes for locating the proposed transmission line. The criteria classifications include opportunity, avoidance, and exclusion areas associated with each selected resource. Table 4-1 lists the opportunity and constraint criteria that were developed for the Project.

To assist in the evaluation of the preliminary routes, the GIS data for each resource were categorized as an opportunity or a constraint and a GIS-based model was developed to map the areas of opportunity and constraint. The degree of opportunity and constraint is based on the character of the resource (i.e., linear or site specific, natural or human, native or disturbed, and the proximity of the transmission line to the resource). In some cases, the opportunity and constraint mapping may show routes crossing areas of avoidance or exclusion; however, sensitive features or land uses will be taken into account during the route refinement process. In some instances, a route may be moved to avoid a sensitive area, or a sensitive feature (e.g., wetland) may be spanned. In either case, potential impacts to a sensitive resource can be avoided.

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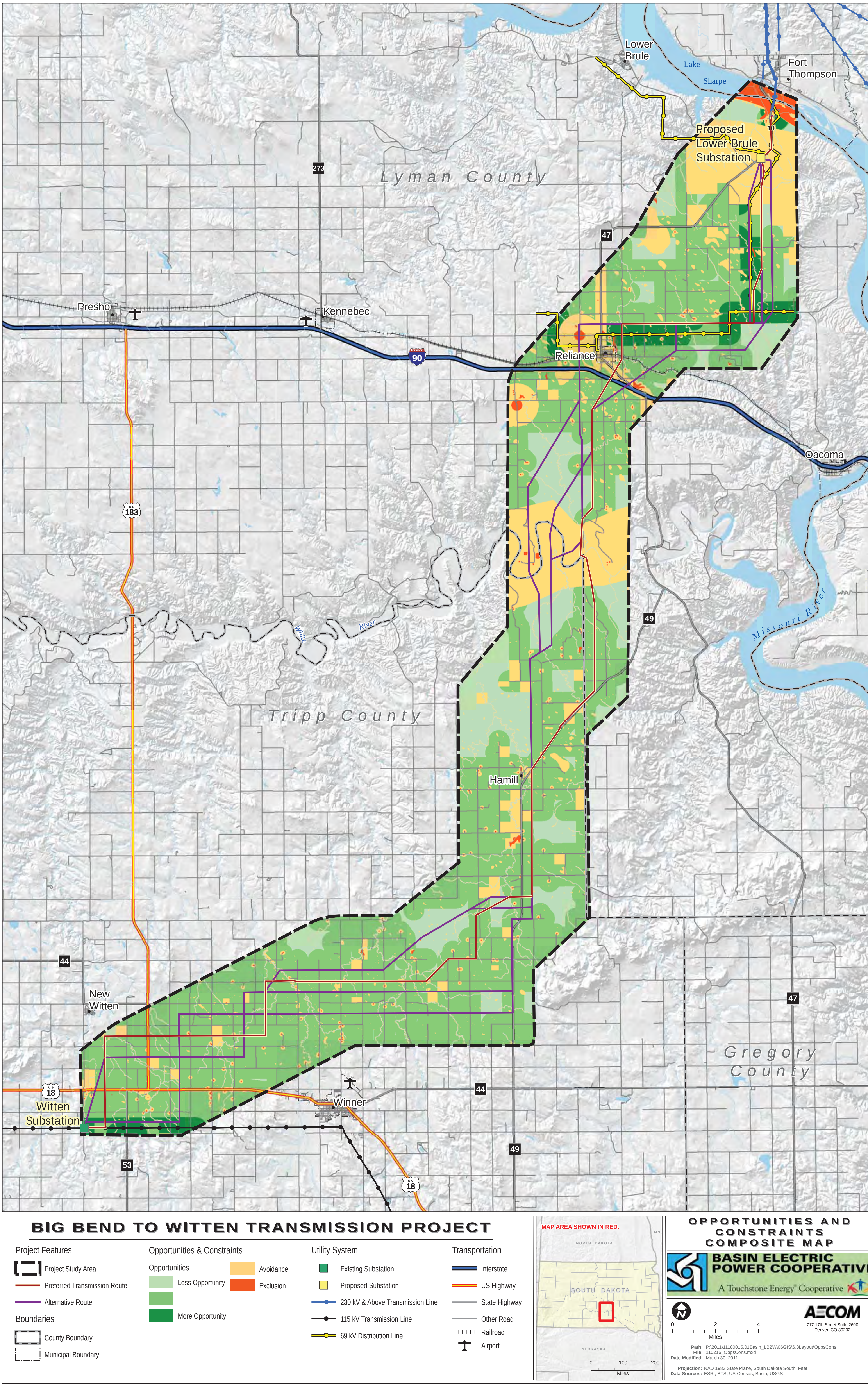
BIG BEND TO WITTEN TRANSMISSION PROJECT
OPPORTUNITIES AND CONSTRAINTS COMPOSITE MAP
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy Cooperative
AECOM
717 17th Street Suite 2600 Denver, CO 80202
Project Features
Project Study Area
Preferred Transmission Route
Alternative Route
Boundaries
County Boundary
Municipal Boundary
Opportunities & Constraints
Opportunities
Less Opportunity
More Opportunity
Avoidance
Exclusion
Utility System
Existing Substation
Proposed Substation
230 kV & Above Transmission Line
115 kV Transmission Line
69 kV Distribution Line
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MN
Miles
Path: P:\2011\11180015.01Basin_LB2W\06GIS\6.3Layout\OppsCons
File: 110216_OppsCons.mxd
Date Modified: March 30, 2011
Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS
Lower Brule
Lake Sharpe
Fort Thompson
Proposed Lower Brule Substation
Lyman County
Presho
Kennebec
Reliance
Oacoma
Missouri River
White River
Tripp County
Hamill
New Witten
Witten Substation
Winner
Gregory County
90
183
273
47
49
44
18
53
10

Figure 4-1

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Table 4-1:
Project Opportunity and Constraint Criteria

Resource	Opportunity Area (Optimize Use for Routing)	Avoidance Area (Minimize Use for Routing)	Exclusion Area (Exclude for Routing When Possible)
Existing Linear Transportation and Utility Corridors			
Roads (interstate, state, county)	Within 0.5 mile of existing road	Within 0.25 mile of scenic byway (except when parallel to an existing transmission line)	—
Railroads	Within 0.25 mile of railroad	—	—
Power Lines	Within 0.50 mile of existing power lines (69-kV or greater)	—	—
Land Use and Jurisdiction			
Land Use/Land Cover	Cropland and Pasture Herbaceous Rangeland Mixed Rangeland Shrub & Brush Rangeland	Beaches Commercial and Services Deciduous Forest Land Mixed Urban or Built-Up Non-forested Wetland Other Agricultural Land Other Urban or Built-Up Residential Transportation, Communication, Utility	Reservoirs Strip Mines
Center-pivot Irrigation	—	—	Center-pivot irrigated fields
Jurisdiction - Municipal or Town Boundaries	—	Within municipal or town boundaries	—
Jurisdiction – State- or Corps of Engineers-owned Lands	—	Within boundary of state- or USACE-lands	—
Jurisdiction – Indian Trust Lands	—	Within boundary of Indian Trust Lands	—
Residential Areas	—	Within 500 feet of an occupied residence	Within 150 feet of an occupied residence
Schools, Parks, Recreation Areas, and other Census Landmarks	—	Within 500 feet of schools; educational facilities; cemeteries; parks; designated recreational areas; and apartments.	Within 150 feet of schools; educational facilities; cemeteries; parks; designated recreational areas; and apartments.
Communication and Radio Towers (FCC Structures)	—	Within 150 feet of FCC structure	Within 50 feet of FCC structure
Cultural Resources			
Class I Survey Data	—	Within 0.125 mile of Class I site	Within 100 feet of Class I site

Resource	Opportunity Area (Optimize Use for Routing)	Avoidance Area (Minimize Use for Routing)	Exclusion Area (Exclude for Routing When Possible)
Wetlands and Water Resources			
Wetlands	—	Within wetland boundary	-—
Surface Water	—	Within 100 feet of lakes and perennial streams	—
Geologic Hazards			
Geologic Hazards	—	Within areas classified as moderate or high hazard	—
Biological Resources			
Designated Wildlife Areas	—	Federal (USFWS Jurisdiction) and State Wildlife Refuges, State Wildlife Areas, Walk-in Hunting Areas; Game and Waterfowl Production Areas	—
Sharp-tailed grouse leks	—	Within 1.0 mile of active lek	Within 0.25 mile of active lek

Avoidance areas included sensitive areas that were likely to incur environmental impacts or result in land use conflicts if directly affected by the Project. It is preferable to avoid these areas if opportunity areas are available elsewhere for locating the proposed transmission line. If a sensitive area cannot be completely avoided, impacts can be minimized through route refinement, careful placement of the transmission structures and access roads, spanning of the sensitive resource, seasonal restrictions on construction activities, and other mitigation measures.

Exclusion areas include locations with the highest level of sensitivity, including those areas with regulatory or legislative designations or extreme physical constraints not compatible with transmission line construction and/or operation. In general, locating a transmission line in these areas is not recommended and could result in increased environmental impacts, significantly higher costs, and/or additional regulatory approvals.

Figure 4-1 illustrates those areas identified as opportunities, avoidance areas, and exclusion areas based on the opportunities and constraints criteria and resource data gathered. Based on this analysis, all of the identified routes appear to provide reasonable alternatives for the proposed transmission line which avoid the majority of avoidance and exclusion areas within the macro-corridor. Although some of the routes cross areas that have been identified as avoidance and exclusion areas, routing in these areas appears feasible from an engineering perspective. Avoidance areas crossed by one or more route segments include buffers associated with potentially sensitive land uses including some residential parcels, wetland areas, areas along the White River associated with moderate landslide potential, and one sharp-tailed grouse lek. Exclusion areas crossed include buffers associated with a reservoir, a census landmark (Fletcher Landing Field), and one sharp-tailed grouse lek. During the route refinement process, sensitive areas will be avoided or spanned to the extent feasible. The following sections describe each of the opportunity and constraint criteria in greater detail.

4.3.1 Existing Linear Transportation and Utility Corridors

Existing linear facilities and ROWs can provide suitable opportunities for routing transmission lines. For this Project, roads, railroads, and transmission lines were identified and mapped as possible opportunities (see Figure A-1). Data on the locations of roads and railroads within the macro-corridor were obtained from the South Dakota Department of Transportation (SDDOT) and U.S. Census Bureau TIGER database (2010).

Locating a transmission line along these linear features may result in fewer environmental impacts because of the existing disturbance and relatively easy access to the ROW. A general description of these transportation features is presented in the following sections.

4.3.1.1 Major Roads and Scenic Byways

There are a number of opportunities for routing the proposed transmission line along existing roadways within the macro-corridor. As shown in Figure A-1, most of the macro-corridor has a fairly extensive roadway network that includes local roads, state highways, U.S. highways, and one interstate highway. The main highways in the Lyman County portion of the macro-corridor include BIA Highway 5, South Dakota (SD) Highway 47 (SD 47), and Interstate 90 (I-90). The main highways in the Tripp County portion of the macro-corridor include SD 44, SD 49, SD 53, U.S. Highway 18 (US 18), and US 183. In order to maximize the areas of opportunity within the macro-corridor, particularly through areas in agricultural production, areas within 0.5 mile of a roadway were designated as opportunity areas.

The Native American Scenic Byway was designated as a national scenic byway on September 22, 2005. The byway traverses the Lower Brule Indian Reservation from west to east and enters the macro-corridor on BIA Highway 5. At the intersection of BIA Highway 5 and SD 47, the byway turns north and follows SD 47 north across the Big Bend Dam.

The Lewis and Clark National Historic Trail (NHT) Auto Tour Route enters the macro-corridor on SD 47 north of Reliance and continues south through Reliance on SD 47. The auto tour route leaves the macro-corridor southeast of Reliance and south of I-90. Areas within 0.25 mile of these scenic byways will be avoided to the extent feasible, unless an existing transmission line parallels the roadway. The preferred route will cross the Lewis and Clark NHT Auto Tour Route southeast of Reliance.

4.3.1.2 Railroad Rights-of-Way

The South Dakota State Railroad (formerly Dakota Southern Railroad) runs east-west across the macro-corridor through the town of Reliance immediately north of I-90. The SDDOT Office of Railroads manages the railroad ROW and utility leases. Due to the east-west orientation of the railroad, this linear feature does not provide a significant opportunity for routing the proposed transmission line. Coordination with the Office of Railroads will be necessary since a utility lease or crossing permit would be required where the proposed transmission line crosses the railroad ROW near Reliance.

4.3.1.3 Power Lines

Existing power lines may provide opportunities for routing the proposed transmission line within or adjacent to an existing ROW. Using or paralleling the ROWs of existing power lines could potentially reduce impacts associated with construction, operation, and maintenance of the proposed transmission line. However, it may not be possible to parallel certain existing transmission lines (115-kV or greater) for reasons of system reliability. Specific assessment should be conducted to determine whether the reliability of the electric system would be jeopardized by placing the proposed transmission line in close proximity to an existing transmission line. The potential risk is that both transmission lines could be taken out of service by an accident or severe weather.

Existing transmission and distribution lines within the macro-corridor are shown in Figure A-2. In the northern part of the macro-corridor in Lyman County, the preferred route and several of the alternative routes parallel existing power lines. There are very few existing transmission lines in the central and southern portions of the macro-corridor. The only known existing transmission line in the Tripp County portion of the macro-corridor is a Western transmission line that serves the Witten Substation. One of the alternative routes parallels this transmission line along the southern boundary of the macro-corridor. Existing distribution lines that serve rural residences could provide additional opportunities for routing.

4.3.2 Land Use and Jurisdiction

4.3.2.1 Land Use and Land Cover

Land use and land cover data were obtained from the U.S. Geological Survey (USGS) National Land Cover Dataset (NLCD) (2001). Land cover describes the general categories of land uses within the macro-corridor. Figure A-3 shows the distribution of land cover types in the macro-corridor. As can be seen from the figure, the categories cropland and pasture, herbaceous rangeland, and shrub and brush rangeland constitute the majority of the land cover within the macro-corridor. These general categories of land cover types typically provide good opportunities for routing transmission lines.

4.3.2.2 Center-pivot Irrigation

Center-pivot irrigation is limited within the macro-corridor and only one parcel using this type of irrigation system has been identified near the White River. The westernmost alternative route avoids this parcel. Parcels with center-pivot irrigation systems were designated as exclusion areas, although transmission lines may be routed along the edges of these fields.

4.3.2.3 Jurisdiction

Jurisdiction and land ownership within the macro-corridor is shown in Figure A-4. Reliance is the only incorporated town within the macro-corridor; Hamill is unincorporated. Preliminary routes are located outside of the incorporated boundary of Reliance and avoid residences near Hamill.

Data on land ownership were obtained from the South Dakota Geographic Information System (GIS). Land ownership and jurisdiction within the macro-corridor include the Bureau of Indian Affairs (BIA), Indian Trust Land, State of South Dakota, U.S. Army Corps of Engineers (USACE), and private land. An estimated 80 percent of the land in the macro-corridor is privately owned. There is one walk-in hunting area located northeast of Reliance on the Lower Brule Indian Reservation (shown as state land on Figure A-4); however, none of the routes are located near this parcel. Areas within town boundaries, state-owned, USACE-owned, and Indian Trust Lands were designated as avoidance areas.

4.3.2.4 Residences and Residential Areas

Individual residences and other structures within the macro-corridor have been digitized to aid in the routing of the transmission line. As can be seen in Figure A-5, residences are located throughout the macro-corridor. Preliminary routes for the transmission line were selected to avoid residences. For the opportunity and constraints analysis, areas within 150 feet of an occupied residence were designated as exclusion areas and areas within 500 feet of an occupied residence will be avoided during routing whenever possible.

4.3.2.5 Schools, Parks, Recreation Areas, and Census Landmarks

Data on the locations of schools, parks, recreation areas, cemeteries, and other census-identified landmarks were obtained from the U.S. Census Bureau (2010). As can be seen from Figure A-6, there are only a few census landmarks within the macro-corridor. For the opportunity and constraints analysis, areas within 150 feet of census landmarks were designated as exclusion areas and areas within 500 feet of these features were designated as avoidance areas.

There are two known recreation areas within the macro-corridor, which are located on the Lower Brule Indian Reservation. The Good Soldier Creek Recreation Area is located on the right bank of Lake Sharpe adjacent to Big Bend Dam in Lyman County. Access is from State Highway 47 to a gravel circulation road. The recreation area is primarily a day use area that covers approximately 17 acres of land, 9 acres of which are developed. Facilities include picnic sites, campsites, group picnic shelters, grills, a vault toilet, a playground, horseshoe pits, a handicap-accessible fishing dock, large parking areas, a non-operating water treatment plant, and a two-lane boat ramp with a dock.

The Right Tailrace Recreation Area is located immediately downstream and adjacent to Big Bend Dam in Lyman County. The recreation area is accessible from State Highway 47. The area consists of approximately 148 acres with roughly one-third of the area developed. Facilities include picnic sites, a group picnic area, a primitive campground, handicap accessible fishing pier, a playground, a comfort station with shower, potable water, a fish-cleaning table, a fixed dock for pedestrian visitors, and a one-lane boat ramp with a courtesy dock. The Right Tailrace Recreation Area affords year-round use. The main uses of the area include both water-oriented and land-based recreation activities including boating, fishing, camping, picnicking, hiking, and wildlife viewing.

There are three known cemeteries within the macro-corridor. The Saint Mary's Cemetery is located north of Reliance and the Trinity Cemetery is located southwest of Reliance on the south side of I-90. A third cemetery is located near Hamill. None of these cemeteries are located within 500 feet of the preferred or an alternative route.

4.3.2.6 Communication and Radio Towers

The locations of communication facilities within the macro-corridor were obtained from the Federal Communications Commission (FCC). Communication facilities include television transmission towers, microwave towers, and cellular telephone towers (FCC 2009). There are approximately 22 communications facilities within the macro-corridor. These facilities are generally scattered throughout the macro-corridor as shown in Figure A-7.

The Project will follow all FCC regulations for siting transmission lines and structures near communication facilities. For the opportunity and constraints analysis, areas within 50 feet of a communications facility were designated as exclusion areas and areas within 150 feet of a communications facility were designated as avoidance areas.

4.3.2.7 Airports

Data on airports within and near the macro-corridor were obtained from the Bureau of Transportation Statistics (BTS) airport data (2006) and the U.S. Census Bureau (2010). The Fletcher Landing Field is the only known airstrip within the macro-corridor. The alternative transmission route southeast of Reliance crosses a portion of the parcel that contains the identified landing strip. Based on a telephone conversation between Basin Electric and a representative from the town of Reliance regarding this parcel, the landing strip has had no known use in several years, and does not appear to be active. Therefore, this landing strip would not be considered an avoidance area during the route refinement process.

There are no known public airports within the macro-corridor. The nearest public airport (Winner Regional Airport or Bob Wiley Field) is approximately 3 miles from the nearest alternative segment, and the proposed transmission structures should not pose a hazard to aircraft arriving at or departing from the airport. Airports near the macro-corridor are shown in Figure A-1.

4.3.3 Cultural and Historic Resources

There are no known National Register of Historic Places (NRHP) listed sites within the macro-corridor. Previously collected Class I cultural resources survey data were included in the opportunity and constraints analysis. Areas within 100 feet of Class I sites were designated as exclusion areas and areas within 0.125 mile of Class I sites were designated as avoidance areas.

The main Class I cultural resources that could potentially be affected by the Project are several bridges more than 50 years old, which are located throughout the macro-corridor. These bridges were previously determined to be ineligible for inclusion on the NRHP; however, they have been retained in the MCS since they may have local significance. Bridges identified in the Class I inventory near the preferred route include bridges over Red Butte, Black Dog, Thunder, and Dog Ear creeks, and a branch of Thunder Creek. A second bridge over Dog Ear Creek is located in close proximity to one of the alternative routes.

Five previously identified potentially historic structures over 50 years old are located within the macro-corridor. None of these structures is located within 0.125 mile of either the preferred route or an alternative route. The general locations of structures and bridges identified in the Class I inventory are shown in Figure A-8. Due to the sensitive nature of cultural resource data, other Class I cultural resource sites are not shown on the figure; however, the locations of these sites will be taken into account during the route refinement phase of the Project.

4.3.4 Wetlands and Water Resources

4.3.4.1 Wetlands

Wetlands and surface water features within the macro-corridor are shown in Figure A-9. Data on the locations of wetlands in the macro-corridor were obtained from the National Wetlands Inventory (NWI). Areas of wetlands are scattered throughout the macro-corridor, with a large concentration of wetlands north of I-90. The preliminary routes generally avoid areas with large numbers of wetlands. Impacts to wetlands can typically be avoided through careful placement of transmission structures and by spanning the transmission line across wetland areas. The maximum distance that can be spanned is approximately 950 feet.

As part of the opportunity and constraints analysis, areas within mapped wetland boundaries were designated as avoidance areas. Wetlands surveys will be conducted prior to final design and construction so that the transmission line can be routed to minimize impacts to these resources.

4.3.4.2 Surface Water

River and stream data were obtained from the USGS National Hydrological Dataset (NHD). The Project would cross the White River as well as a number of named creeks and their tributaries within the macro-corridor. In Lyman County, Short, North Fork American Crow, and Red Butte creeks and tributaries would be crossed by the proposed transmission line. In Tripp County, the Project would cross Black Dog, No Moccasin, Thunder, Dog Ear, Hollow, and East Cottonwood creeks and a number of smaller tributaries. West Cottonwood Creek also enters the far western portion of the macro-corridor north of the Witten Substation; however, it does not appear that West Cottonwood Creek would be crossed by any of the proposed alignments. Areas within 100 feet of surface waters were designated as avoidance areas. All of the surface waters within the macro-corridor, including the White River, can be spanned by the proposed transmission line and it is unlikely that the Project would result in impacts to these surface waters.

4.3.5 Geologic Hazards

The principal geologic hazards identified within the macro-corridor are landslide hazards. Steeper slopes along the White River have been classified as moderate hazard areas, while slopes along the Missouri River have been classified as high hazard areas. For the opportunity and constraints analysis, areas of both moderate and high landslide hazards have been classified as avoidance areas since transmission line routing in these areas appears feasible from an engineering perspective. Landslide hazards are shown in Figure A-10.

4.3.6 Biological Resources

4.3.6.1 Vegetation and Wildlife

Vegetation

The land cover types present within the macro-corridor are shown in Figure A-3. The dominant land cover types include agricultural cropland and mixed grass prairie communities (i.e., rangeland), with some areas of shrub and brush rangeland present near the White River. Several nonforested wetlands are also located within the macro-corridor. Preliminary routes for the proposed transmission line were selected to avoid these larger wetland complexes. Smaller wetlands can be spanned to minimize potential impacts.

Wildlife

The macro-corridor contains mixed grass prairie, which provides habitat for resident and migrant songbirds such as the Brewer’s sparrow, horned lark, lark bunting, and several species of sparrows. Wetlands and prairie potholes support species of waterfowl and shorebirds, and provide forage and stopover habitat for migrating species in the spring and fall. Mammals in the area would likely include fox, coyote, prairie dog, gopher, badger, and rodent species. Common wildlife species observed during site visits will be documented; however, habitat areas for these species were not included in the opportunity and constraints analysis.

4.3.6.2 Threatened, Endangered and Special Status Species

Federal Species of Concern

Federally threatened species are those species, subspecies, or varieties likely to become endangered within the foreseeable future throughout all or a significant portion of their range. Federally endangered species are those species, subspecies, or varieties already in danger of extinction throughout all or a significant portion of their range. Federal candidate species are those species being considered for listing as endangered or threatened, but for which a proposed regulation has not yet been published in the *Federal Register*. Species listed as threatened and endangered that may occur within Lyman and Tripp counties are shown in Table 4-2.

Table 4-2:
Federally Threatened and Endangered Species in Lyman and Tripp Counties

Common Name	Scientific Name	County	Group	Status	Avoidance
Whooping crane	*Grus americana*	Lyman, Tripp	Bird	FE	Avoidance of wetlands/surface waters
Least tern	*Sterna antillarum athalassos*	Lyman	Bird	FE	Avoidance of waters/shorelines
Piping plover	*Charadrius melodus*	Lyman	Bird	FT	Avoidance of waters/shorelines
Black-footed ferret	*Mustela nigripes*	Lyman, Tripp	Mammal	FE	Avoidance of prairie dog colonies
Pallid Sturgeon	*Scaphirhynchus albus*	Lyman	Fish	FE	Avoidance of Missouri River
American burying beetle	*Nicrophorus americanus*	Tripp	Insect	FE	No avoidance measures proposed at this time due to the variety of habitats including, forests, grasslands, wetlands.

Electronic resource data for the other threatened and endangered species were not available at the time this MCS was completed. Habitat and occurrences of these additional species will be assessed in greater detail during the route refinement process based on additional data received from the agencies. Basin Electric and the agencies will work with South Dakota Game, Fish and Parks (SDGFP) and U.S. Fish and Wildlife Service (USFWS) throughout the routing process to minimize impacts on threatened and endangered species and their habitats.

Other Species of Concern

Bald Eagle

The bald eagle was de-listed from the Endangered Species Act on June 28, 2007, but is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The bald eagle commonly inhabits suitable nesting and foraging habitats near reservoirs and rivers. Bald eagle habitat within the macro-corridor has been identified by the South Dakota Natural Heritage Program (SDNHP) and will also be documented during biological site visits. This information will be used during the route refinement process to avoid bald eagle habitat to the extent feasible, and any known nest locations would be avoided.

Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act. During the route refinement phase of the Project, data from SDNHP and biological site visits will be used to avoid important migratory bird habitats such as wetlands. SDGFP and USFWS will be consulted to determine appropriate measures to avoid impacts to migratory birds.

Initial agency consultation letters were sent to USFWS and SDGFP on February 23, 2011. In addition, a request for species occurrence data was submitted to SDNHP. Species information obtained during initial consultation with the agencies will be incorporated into the route refinement process.

4.3.7 Data Considered, But Not Used in Macro-Corridor Analysis

4.3.7.1 Soils

Soil data for the macro-corridor were obtained from the Natural Resource Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) database. For the preliminary analysis of routing opportunities, data on the erosion potential of soils by water and wind were mapped, but were not included in the opportunities and constraints model because highly erodible soils are present throughout the macro-corridor and these data were not useful in discriminating among the various routes.

4.3.7.2 Slope

Slope was identified and mapped using the USGS National Elevation Dataset 30-meter Digital Elevation Model and the Spatial Analyst extension in ArcGIS 9.1. As shown in Figure A-11, the majority of the macro-corridor consists of slopes of less than 30 percent. Areas of steeper slope are generally concentrated near the Missouri River, north and south of the White River, and are associated with various landforms that occur throughout the macro-corridor.

Slope may be classified as either an opportunity or a constraint depending on its degree and orientation. Opportunities associated with slope exist where landforms provide visual screening of the transmission line. In contrast, steep terrain is typically avoided or excluded during routing because constructing a transmission line and access roads on steep slopes could require complex engineering and may result in potential environmental impacts. Given the generally low slope within the macro-corridor and the ability to avoid steeper terrain during final routing, slope should not be a significant factor for routing the Project. Consequently, slope data were mapped, but were not included in the opportunities and constraints model.

4.3.7.3 Agriculture

Agricultural land uses, including cultivated cropland, pasture, and herbaceous rangeland, are present throughout the macro-corridor and collectively represent more than 90 percent of land use within the macro-corridor.

Data regarding regions of important farmland were obtained from the SSURGO database. The three main categories of important farmland within the macro-corridor are “prime farmland,” “farmland of statewide importance,” and “prime farmland if irrigated.” As shown in Figure A-12, areas categorized as important farmland are present throughout the macro-corridor. The acreage and percentage of important farmland in the macro-corridor is presented in Table 4-3.

Table 4-3:
Important Farmland in the Macro-Corridor

SSURGO Farmland Category	Acres	Square Miles	Percent of Total Land Area
All Areas are Prime Farmland	3,121	4.9	1%
Farmland of Statewide Importance	60,505	94.5	24%
Prime Farmland, If Irrigated	74,146	115.9	30%
TOTALS	137,772	215.3	55%

Approximately 55 percent of the area of the macro-corridor is classified as important farmland. Due to its widespread distribution throughout the macro-corridor, areas of important farmland were not specifically categorized as avoidance areas at this stage. Given the nature of the Project, it is unlikely there would be actual conversion of important farmland, but coordination with the USDA NRCS will assist in this determination. The proposed transmission line will be routed along the edges of cultivated fields whenever possible, and Basin Electric will work with landowners to avoid impacts to farming operations.

4.3.7.4 Oil and Gas Wells

Based on data available from the South Dakota Geological Survey, there is no current oil or gas production in Lyman or Tripp counties, and the four oil and gas wells within the macro-corridor were dry holes that have been plugged and abandoned. Consequently, the presence of these former wells should not be a factor in the routing of the transmission line.

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5.0 Additional Inputs to Routing and Alternatives

As discussed in Section 4.0, the opportunities and constraints analysis was used to validate the preliminary route options that have been identified within the macro-corridor. The route validation and refinement process continues through public scoping and field reconnaissance. Issues raised by the public and landowners, and additional constraints identified in the field can play a significant role in route refinement. By including these additional inputs, a preferred route and one or more alternative routes will be identified for analysis in the Environmental Assessment (EA) and presented to the South Dakota Public Utilities Commission (PUC) and local agencies for permitting. These additional inputs are discussed in the following sections.

5.1 Public Scoping and Stakeholder Involvement

Public and stakeholder involvement and Project communications will be integral to the evaluation of the preliminary routes within the macro-corridor and the selection of a preferred and an alternative route for detailed environmental analysis.

The public involvement process will include public scoping meetings that will occur at the beginning of the formal NEPA process. At these meetings, hosted by the agencies, Basin Electric will present the macro-corridor and preliminary routes to the public and solicit input regarding issues of concern. This input will assist in refining the alternative routes as well as determining the level of analysis necessary to address the relevant issues. Public input will continue to be a part of the Project through the NEPA process and the development of the EA for the Project.

Stakeholders are those people and organizations that may be affected or have some interest in the Project. Potential stakeholders for this Project identified to date include the following entities:

- Businesses, residents, and property owners along the identified routes;
- Towns of Reliance, Hamill, Winner, and New Witten;
- State and local elected officials;
- SDGFP;
- SDDOT;
- Native American tribes;
- Bureau of Indian Affairs;
- USACE;
- USFWS; and
- National Park Service.

Public scoping meetings for this project are scheduled in the towns of Reliance and Winner for the week of April 25, 2011. Notification of public meetings will be sent to stakeholders and will be posted in local news media prior to the meetings.

5.2 Field Reconnaissance and Identification of Route-Specific Constraints

Field reconnaissance within the macro-corridor is planned for the week of April 25, 2011. The field reconnaissance will be used to ground-truth data that have already been collected and identify additional route-specific constraints. Field observations may include determining the extent of floodplains and wetlands and identifying other visible constraints that could influence routing decisions. These items are discussed in the following sections.

5.2.1 Floodplains

The 100-year floodplain delineation is typically used to define floodplain hazard areas. Local and state governments, as well as the Federal Emergency Management Agency (FEMA), strongly discourage development within floodplains. Floodplains can generally be spanned or avoided through careful pole placement. The floodplain of the White River at the proposed crossing locations will be observed during the field reconnaissance to determine if the floodplain will pose a challenge for routing. Once an alignment and alternatives are chosen, hardcopy FEMA floodplain maps, if available, would be included in the analysis.

5.3 Route Refinement and Comparative Analysis

Through a process that includes resource impact assessment and landowner, public, and agency involvement, specific alternative routes will be identified (Phase 5 of the siting process). This allows for the quantification of Project-related impacts associated with each route alternative. Potential routes that are identified would need to meet the Project objectives, which require that the routes:

- Connect both substations;
- Maximize opportunities and minimize constraints and avoidance areas through more detailed analysis; and
- Are cost-effective.

The route refinement process will involve assessing the environmental consequences that are expected as a result of implementation of the Project. Potential routes will be analyzed on a segment-by-segment basis using routing criteria developed through the public/agency consultation process. These criteria will expand upon the opportunity and constraints criteria used in the MCS. For each of the routing criteria, segment impacts will be quantified to allow for easy comparison. Impact values associated with each of the route alternatives will then be summed and a rank will be assigned to each route alternative, with 1 representing the least impact and a higher number (depending on the number of alternatives considered) representing the most impact. An alternative's ranking will reflect the relative impact that a given route alternative has on resources compared to the impacts of the other alternatives.

6.0 References Cited

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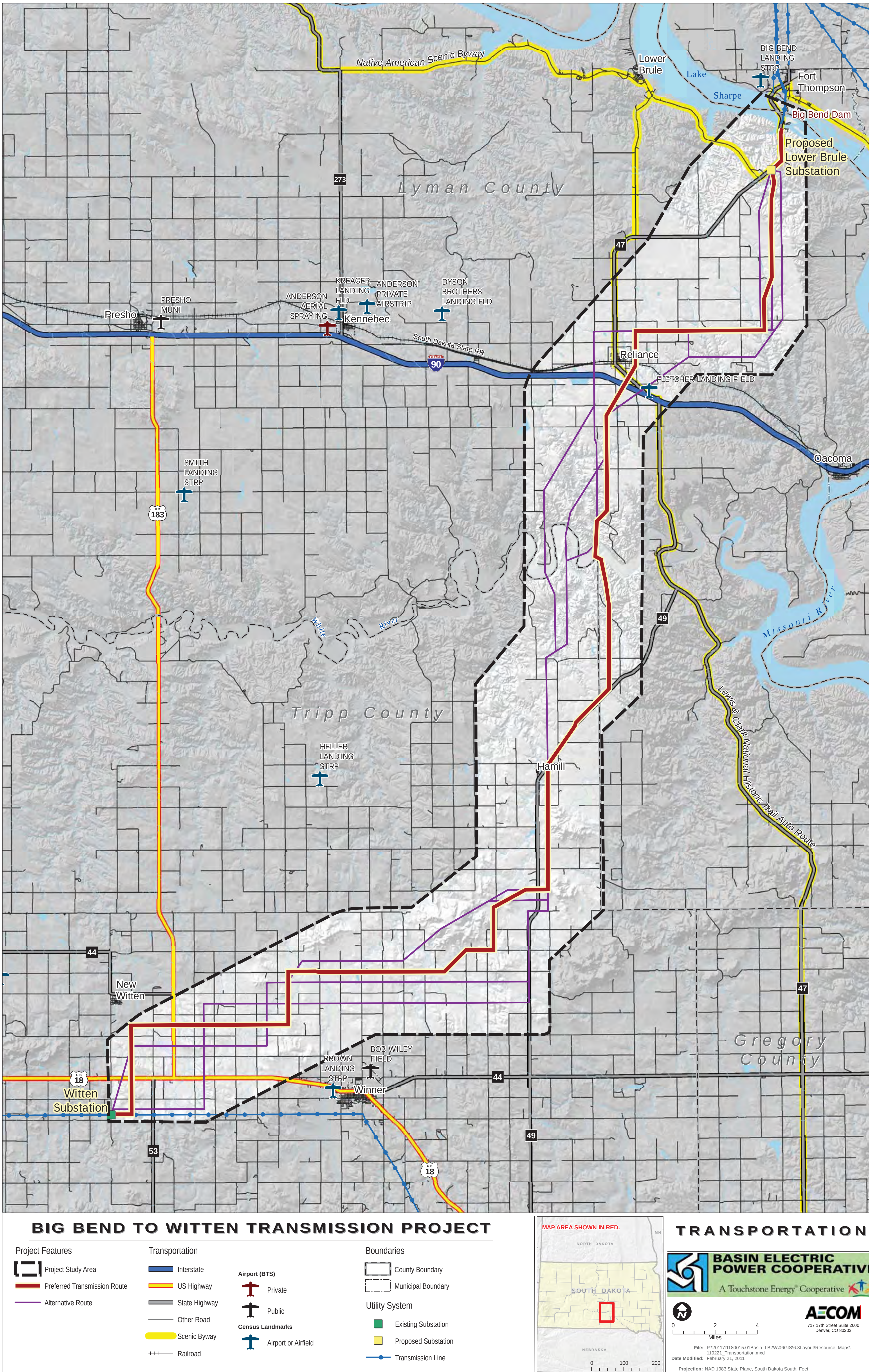
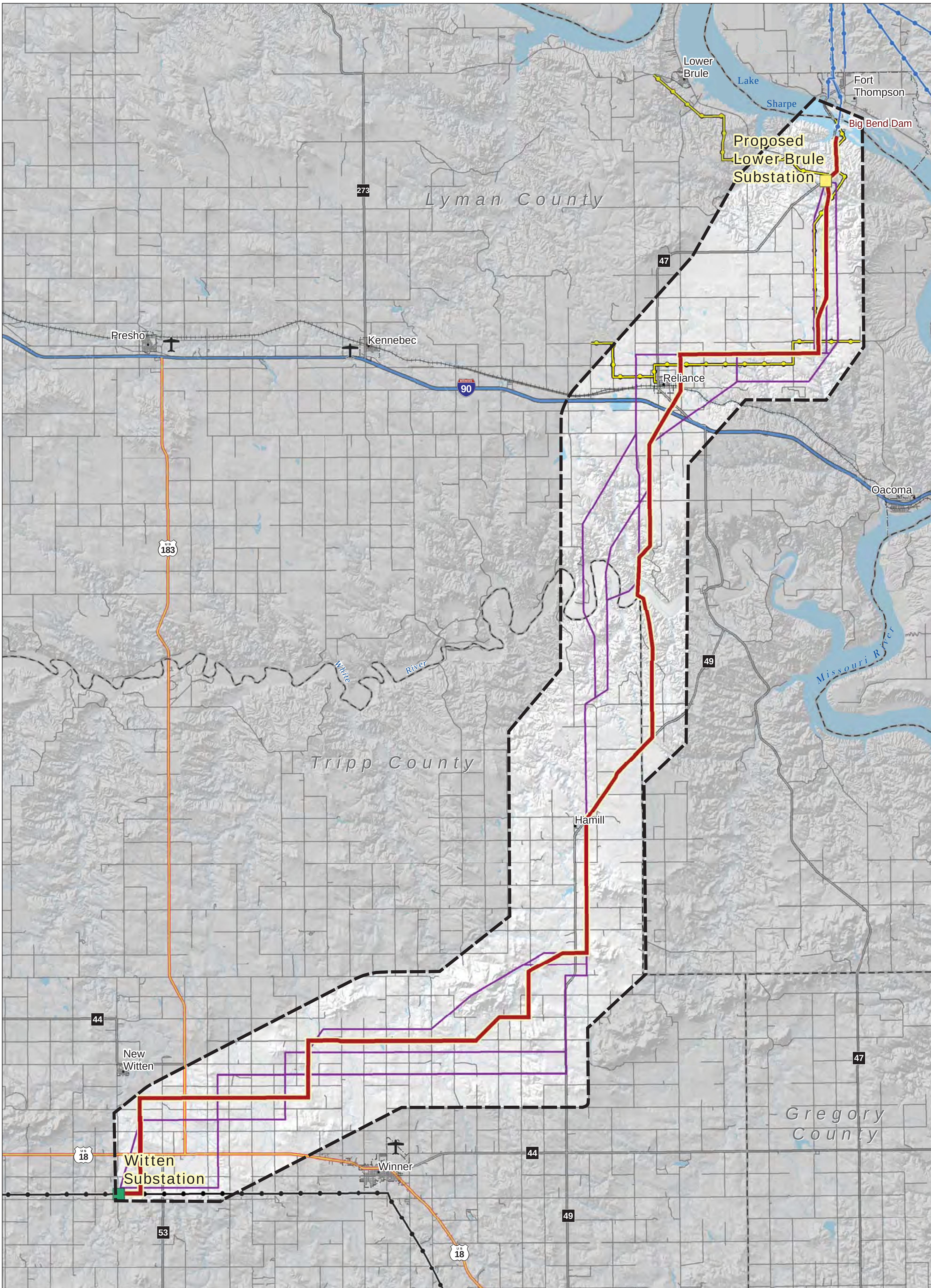
Appendix A—Resource Maps



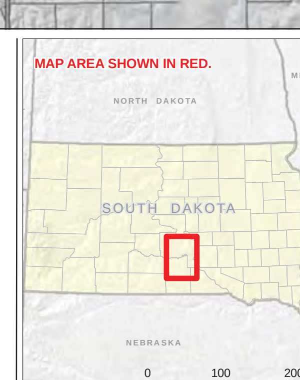
BIG BEND TO WITTEN TRANSMISSION PROJECT
TRANSPORTATION
Native American Scenic Byway
Lower Brule
Lake Sharpe
BIG BEND LANDING STRP
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
273
47
PRESHO MUNI
Presho
ANDERSON AERIAL SPRAYING
KREAGER LANDING FLD
ANDERSON PRIVATE AIRSTRIP
DYSON BROTHERS LANDING FLD
Kennebec
South Dakota State RR
90
Reliance
FLETCHER LANDING FIELD
Oacoma
SMITH LANDING STRP
183
White River
Missouri River
49
Tripp County
Lewis & Clark National Historic Trail Auto Route
HELLER LANDING STRP
Hamill
44
New Witten
Gregory County
BOB WILEY FIELD
BROWN LANDING STRP
Winner
18
Witten Substation
53
Project Features
Project Study Area
Preferred Transmission Route
Alternative Route
Transportation
Interstate
US Highway
State Highway
Other Road
Scenic Byway
Railroad
Airport (BTS)
Private
Public
Census Landmarks
Airport or Airfield
Boundaries
County Boundary
Municipal Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MN
0 100 200
Miles
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
AECOM
717 17th Street Suite 2600
Denver, CO 80202
0 2 4
Miles
File: P:\2011\11180015.01Basin_LB2W\06GIS\6.3Layout\Resource_Maps\110221_Transportation.mxd
Date Modified: February 21, 2011
Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, NSBP

Figure A-1



BIG BEND TO WITTEN TRANSMISSION PROJECT

Project Features	Utility System	Transportation	Boundaries
Project Study Area	Existing Substation	Interstate	County Boundary
Preferred Transmission Route	Proposed Substation	US Highway	Municipal Boundary
Alternative Route	230 kV & Above Transmission Line	State Highway	
	115 kV Transmission Line	Other Road	
	69 kV Distribution Line	Railroad	
		Airport	



UTILITIES

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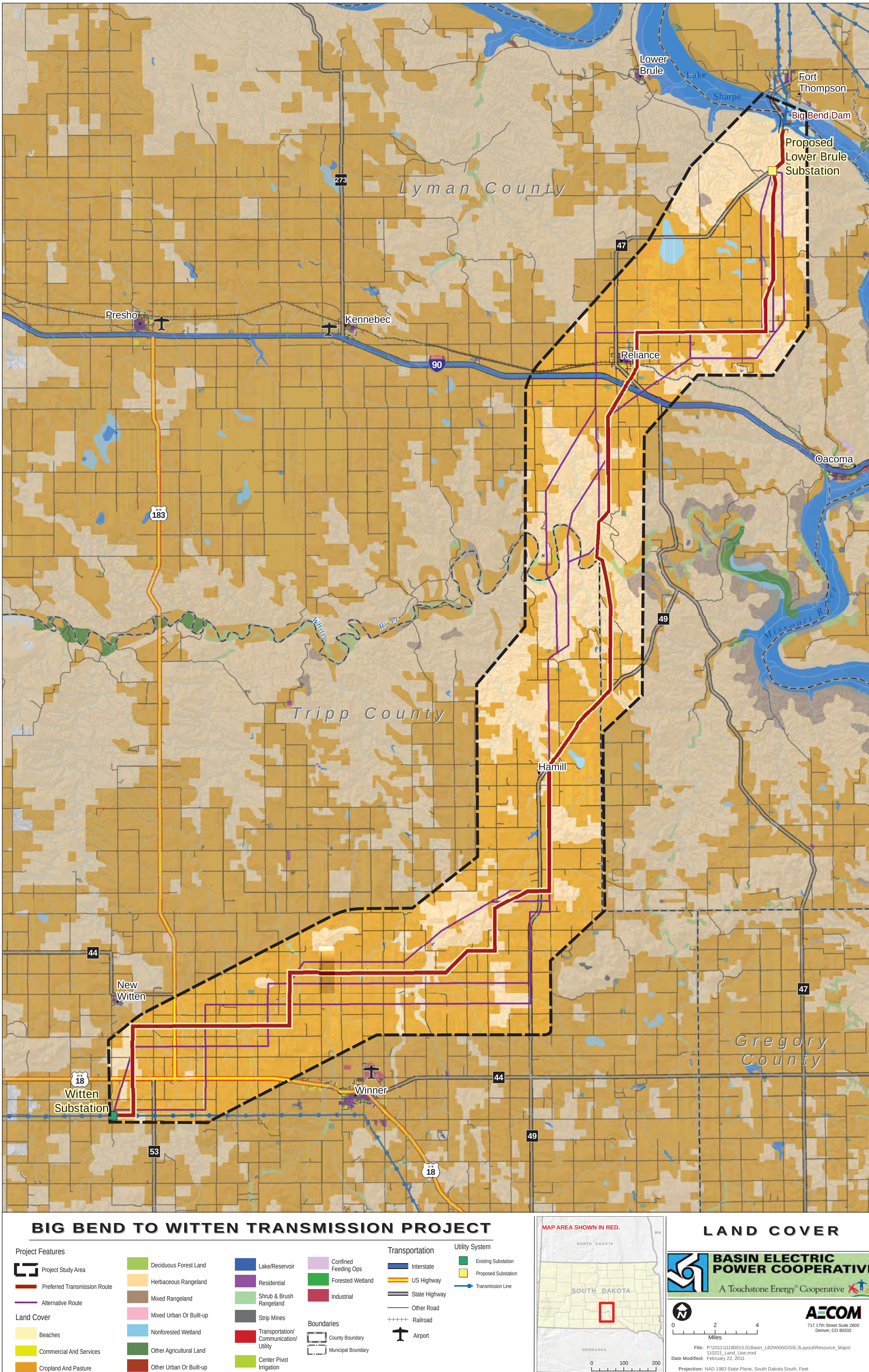
Path: P:\2011\11180015.01Basin_LB2W\06GIS\6.3Layout\Resource_Maps\
File: 110222_Utilities.mxd
Date Modified: March 30, 2011

Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, NSBP

Figure A-2


BIG BEND TO WITTEN TRANSMISSION PROJECT
LAND COVER
Lower Brule
Lake Sharpe
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
Presho
Kennebec
Reliance
Oacoma
White River
Missouri River
Tripp County
Hamill
New Witten
Witten Substation
Winner
Gregory County
273
47
90
183
49
44
53
18
Project Features
Project Study Area
Preferred Transmission Route
Alternative Route
Land Cover
Beaches
Commercial And Services
Cropland And Pasture
Deciduous Forest Land
Herbaceous Rangeland
Mixed Rangeland
Mixed Urban Or Built-up
Nonforested Wetland
Other Agricultural Land
Other Urban Or Built-up
Lake/Reservoir
Residential
Shrub & Brush Rangeland
Strip Mines
Transportation/ Communication/ Utility
Center Pivot Irrigation
Confined Feeding Ops
Forested Wetland
Industrial
Boundaries
County Boundary
Municipal Boundary
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Utility System
Existing Substation
Proposed Substation
Transmission Line
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MN
0 100 200
Miles
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
0 2 4
Miles
AECOM
717 17th Street Suite 2600
Denver, CO 80202
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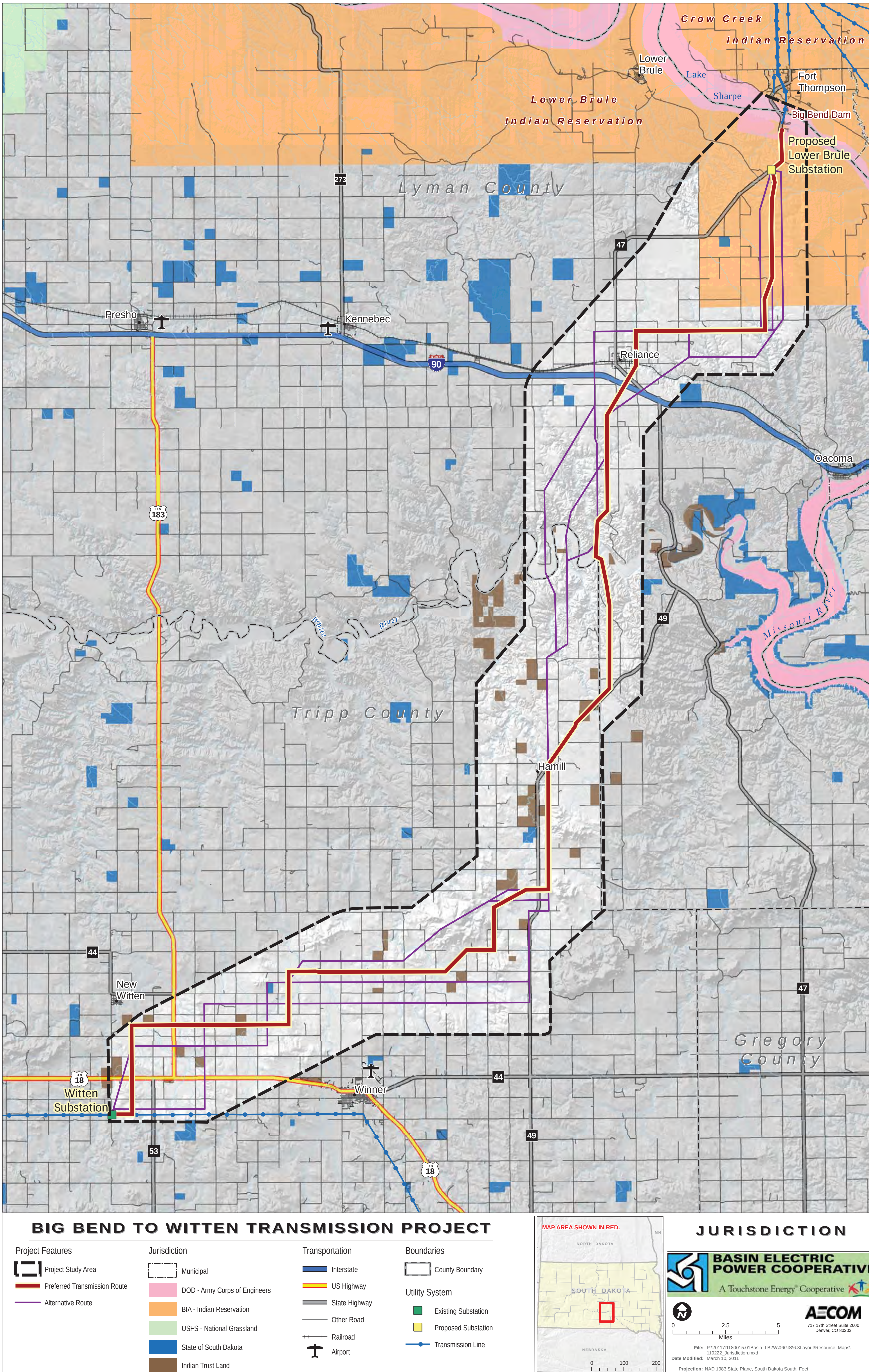
Data Sources: ESRI, BTS, US Census, Basin, USGS, NSBP

Figure A-3


BIG BEND TO WITTEN TRANSMISSION PROJECT
JURISDICTION
Crow Creek Indian Reservation
Lower Brule Indian Reservation
Lower Brule
Lake Sharpe
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
Presho
Kennebec
Reliance
Oacoma
Missouri River
White River
Tripp County
Hamill
New Witten
Witten Substation
Winner
Gregory County
Project Features
Project Study Area
Preferred Transmission Route
Alternative Route
Jurisdiction
Municipal
DOD - Army Corps of Engineers
BIA - Indian Reservation
USFS - National Grassland
State of South Dakota
Indian Trust Land
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Boundaries
County Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MN
0 100 200 Miles
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
0 2.5 5 Miles
AECOM
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Denver, CO 80202
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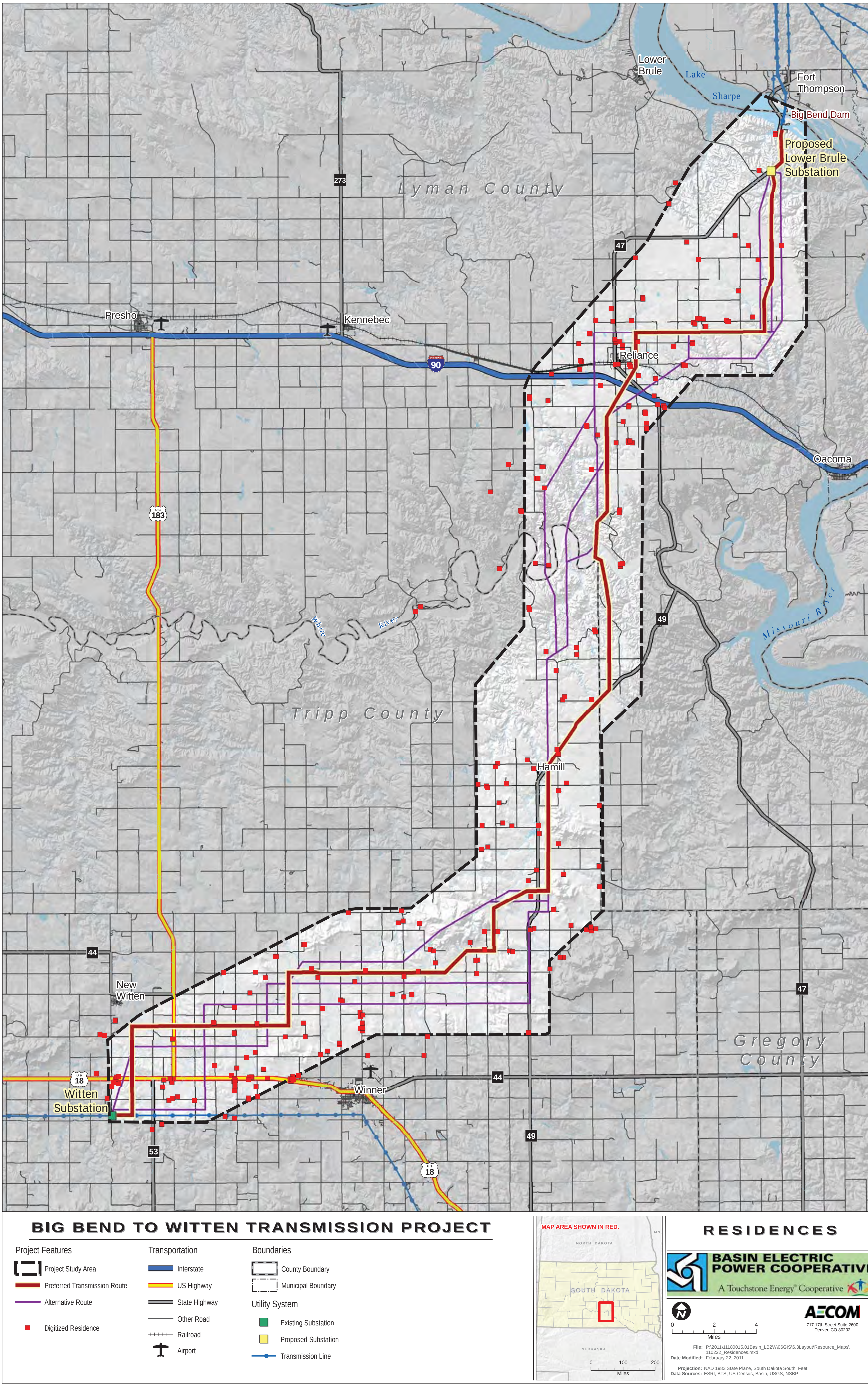
Data Sources: ESRI, BTS, US Census, Basin, USGS, SDGIS

Figure A-4



Lower Brule
Lake Sharpe
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
273
47
Presho
Kennebec
Reliance
90
Oacoma
183
White River
Missouri River
49
Tripp County
Hamill
44
New Witten
18
Witten Substation
Winner
53
Gregory County
BIG BEND TO WITTEN TRANSMISSION PROJECT
Project Features
Project Study Area
Preferred Transmission Route
Alternative Route
Digitized Residence
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Boundaries
County Boundary
Municipal Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MN
0 100 200 Miles
RESIDENCES
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
0 2 4 Miles
AECOM
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Denver, CO 80202
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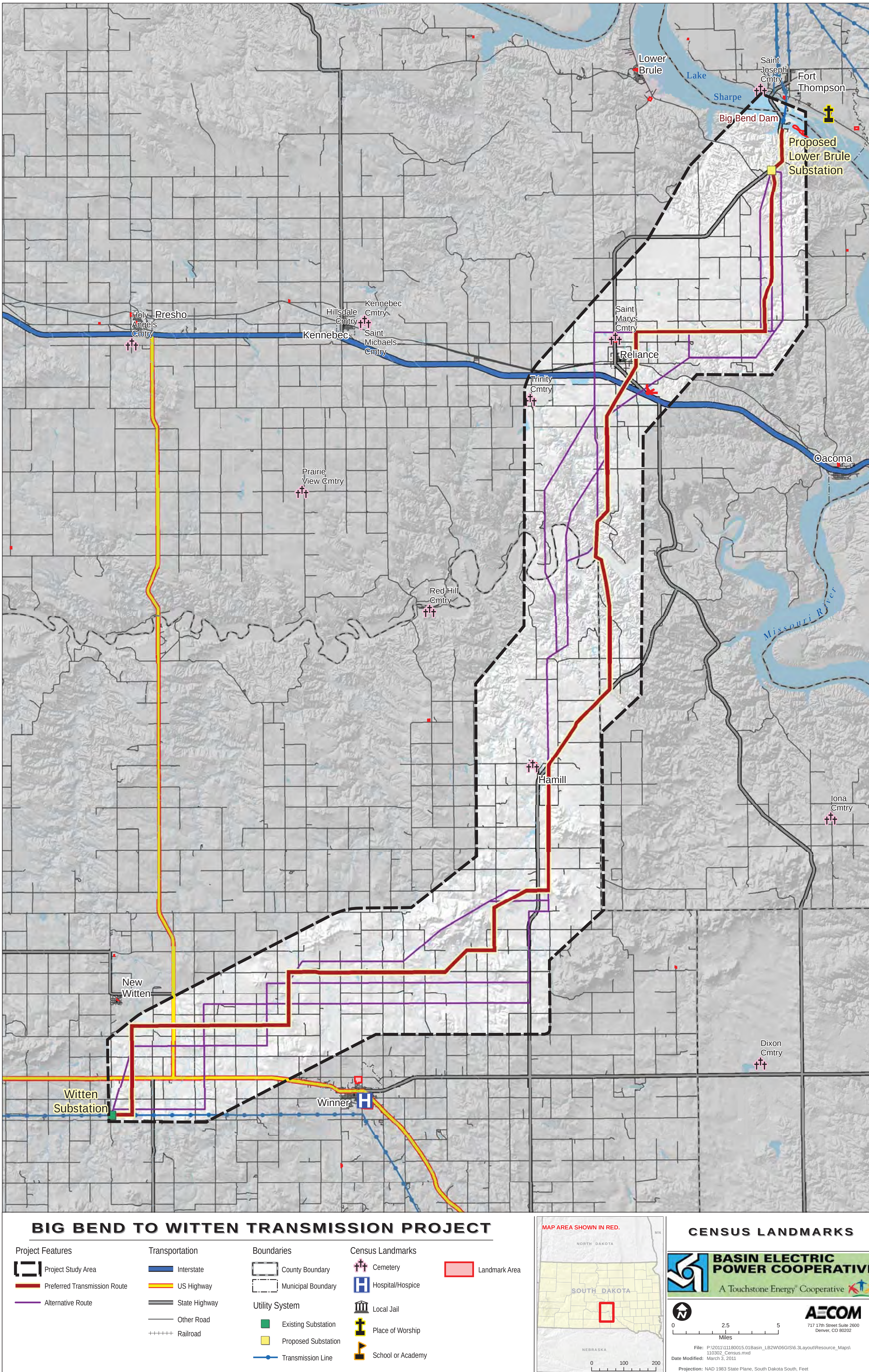
Figure A-5



Lower Brule
Lake Sharpe
Saint Joseph Cmtry
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Holy Angels Cmtry
Presho
Hillsdale Cmtry
Kennebec Cmtry
Kennebec
Saint Michaels Cmtry
Saint Marys Cmtry
Reliance
Trinity Cmtry
Oacoma
Prairie View Cmtry
Red Hill Cmtry
Missouri River
Hamill
Iona Cmtry
New Witten
Dixon Cmtry
Witten Substation
Winner
BIG BEND TO WITTEN TRANSMISSION PROJECT
Project Features
Project Study Area
Preferred Transmission Route
Alternative Route
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Boundaries
County Boundary
Municipal Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
Census Landmarks
Cemetery
Hospital/Hospice
Local Jail
Place of Worship
School or Academy
Landmark Area
MAP AREA SHOWN IN RED.
NORTH DAKOTA
MN
SOUTH DAKOTA
NEBRASKA
0 100 200
Miles
CENSUS LANDMARKS
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
N
0 2.5 5
Miles
AECOM
717 17th Street Suite 2600
Denver, CO 80202
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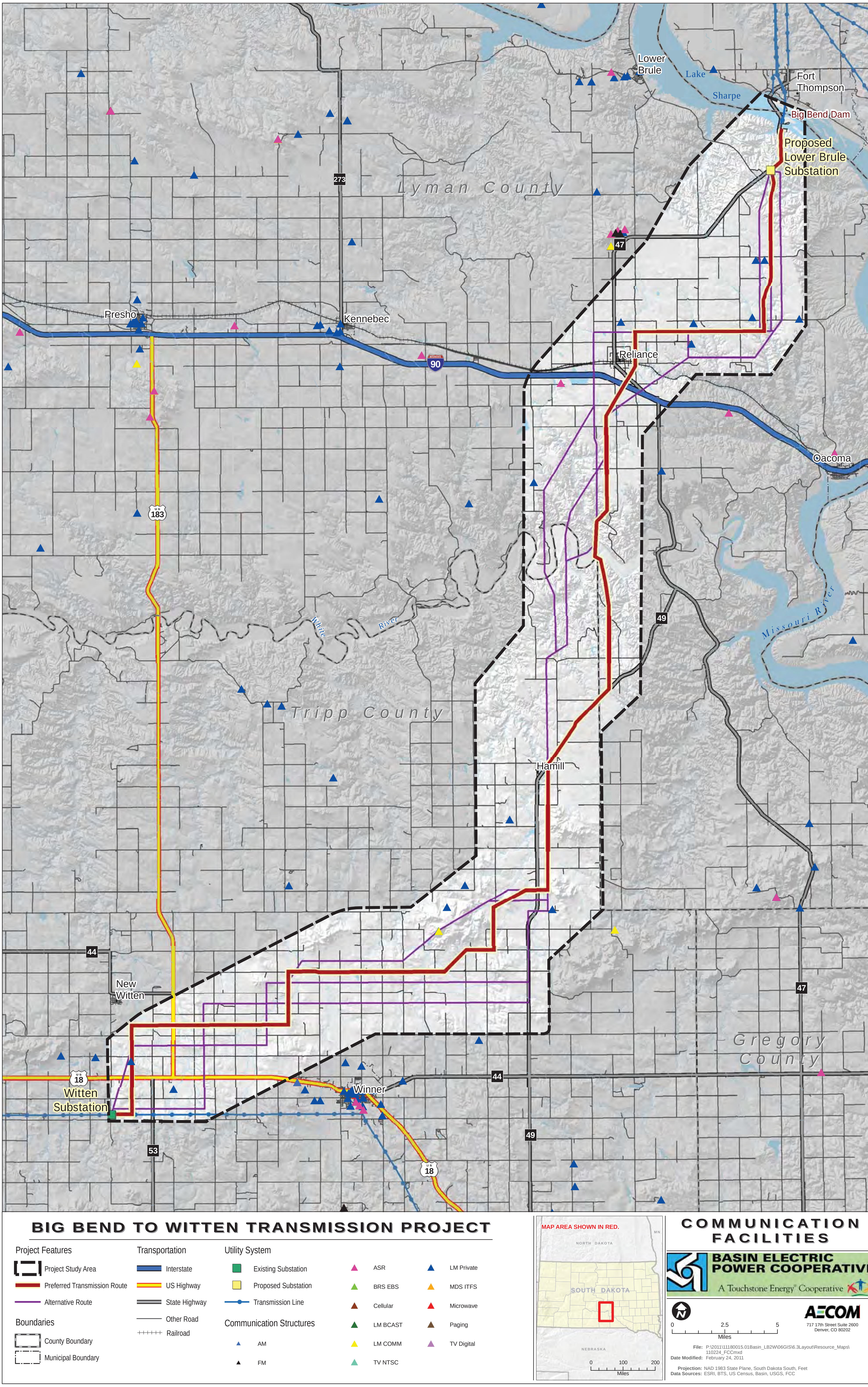
Figure A-6



Lower Brule
Lake Sharpe
Fort Thompson
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Proposed Lower Brule Substation
Lyman County
273
47
Presho
Kennebec
90
Reliance
Oacoma
183
49
White River
Missouri River
Tripp County
Hamill
44
New Witten
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49
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County Boundary
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Railroad
Utility System
Existing Substation
Proposed Substation
Transmission Line
Communication Structures
AM
FM
ASR
BRS EBS
Cellular
LM BCAST
LM COMM
TV NTSC
LM Private
MDS ITFS
Microwave
Paging
TV Digital
MAP AREA SHOWN IN RED.
MN
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
0 100 200
Miles
COMMUNICATION FACILITIES
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
0 2.5 5
Miles
AECOM
717 17th Street Suite 2600
Denver, CO 80202
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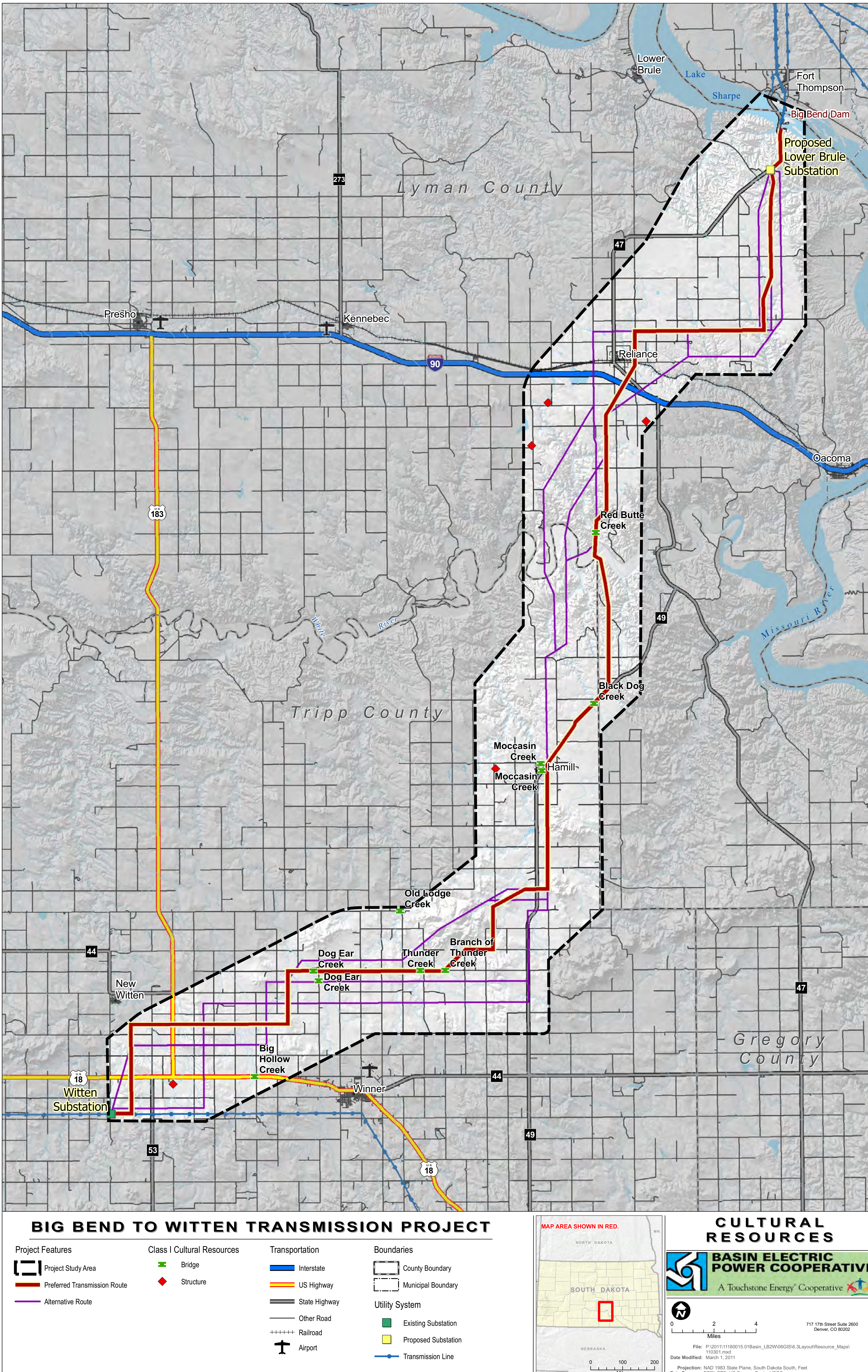
Data Sources: ESRI, BTS, US Census, Basin, USGS, FCC

Figure A-7


BIG BEND TO WITTEN TRANSMISSION PROJECT
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Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
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Kennebec
Reliance
Oacoma
Red Butte Creek
White River
Missouri River
Black Dog Creek
Tripp County
Moccasin Creek
Hamill
Moccasin Creek
Old Lodge Creek
Branch of Thunder Creek
Thunder Creek
Dog Ear Creek
Dog Ear Creek
New Witten
Big Hollow Creek
Witten Substation
Winner
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273
47
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Project Study Area
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Alternative Route
Class I Cultural Resources
Bridge
Structure
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Boundaries
County Boundary
Municipal Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
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A Touchstone Energy Cooperative
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717 17th Street Suite 2600
Denver, CO 80202
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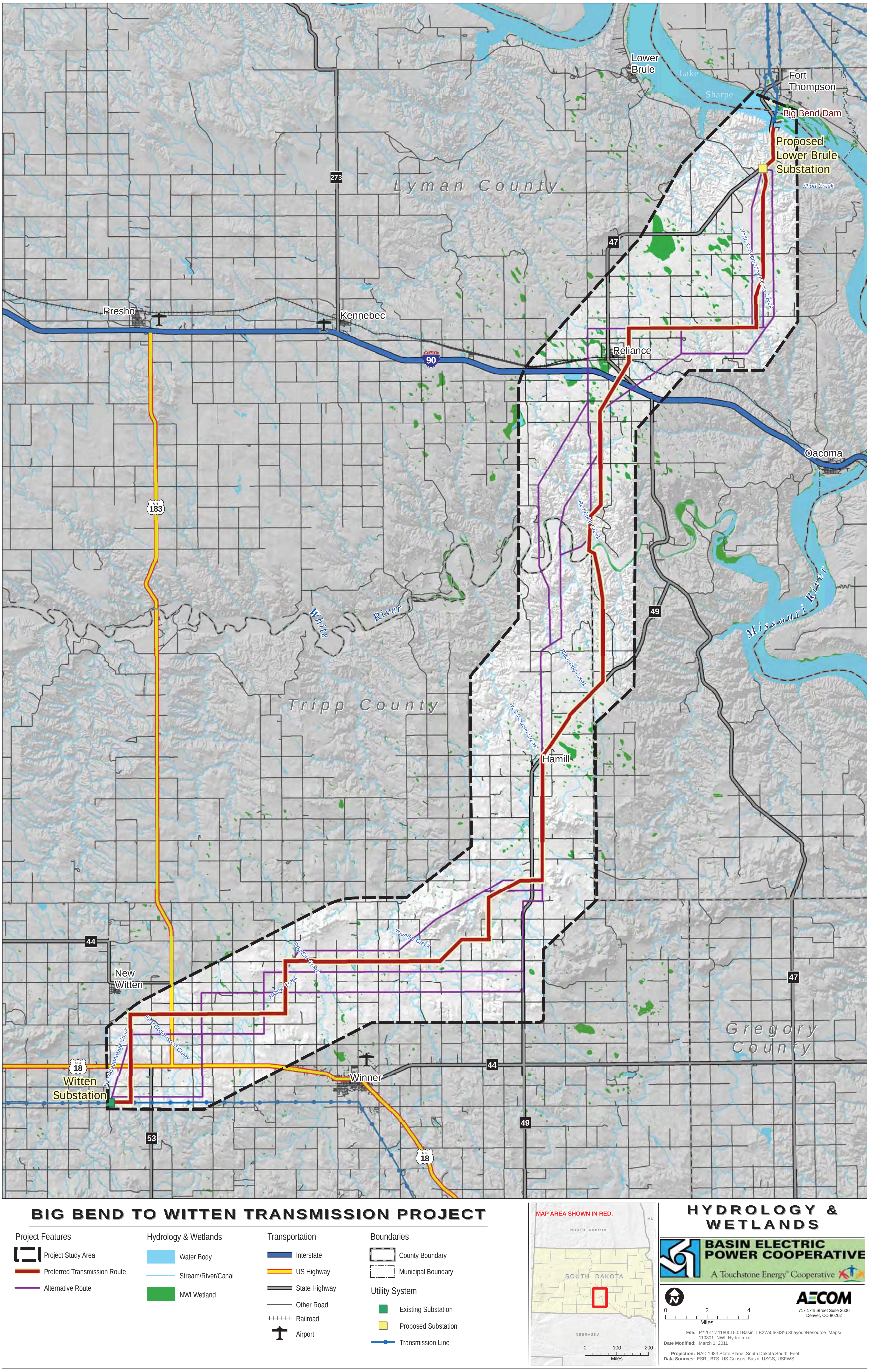
Data Sources: ESRI, BTS, US Census, Basin, USGS

Figure A-8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Lake Sharpe
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
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North Fork Medicine Creek
Presho
Kennebec
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Reliance
Oacoma
183
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Black Dog Creek
Tripp County
No Moccasin Creek
Hamill
Thunder Creek
Dog Ear Creek
Willow Creek
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Stream/River/Canal
NWI Wetland
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Boundaries
County Boundary
Municipal Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
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HYDROLOGY & WETLANDS
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
0 2 4
Miles
AECOM
717 17th Street Suite 2600
Denver, CO 80202
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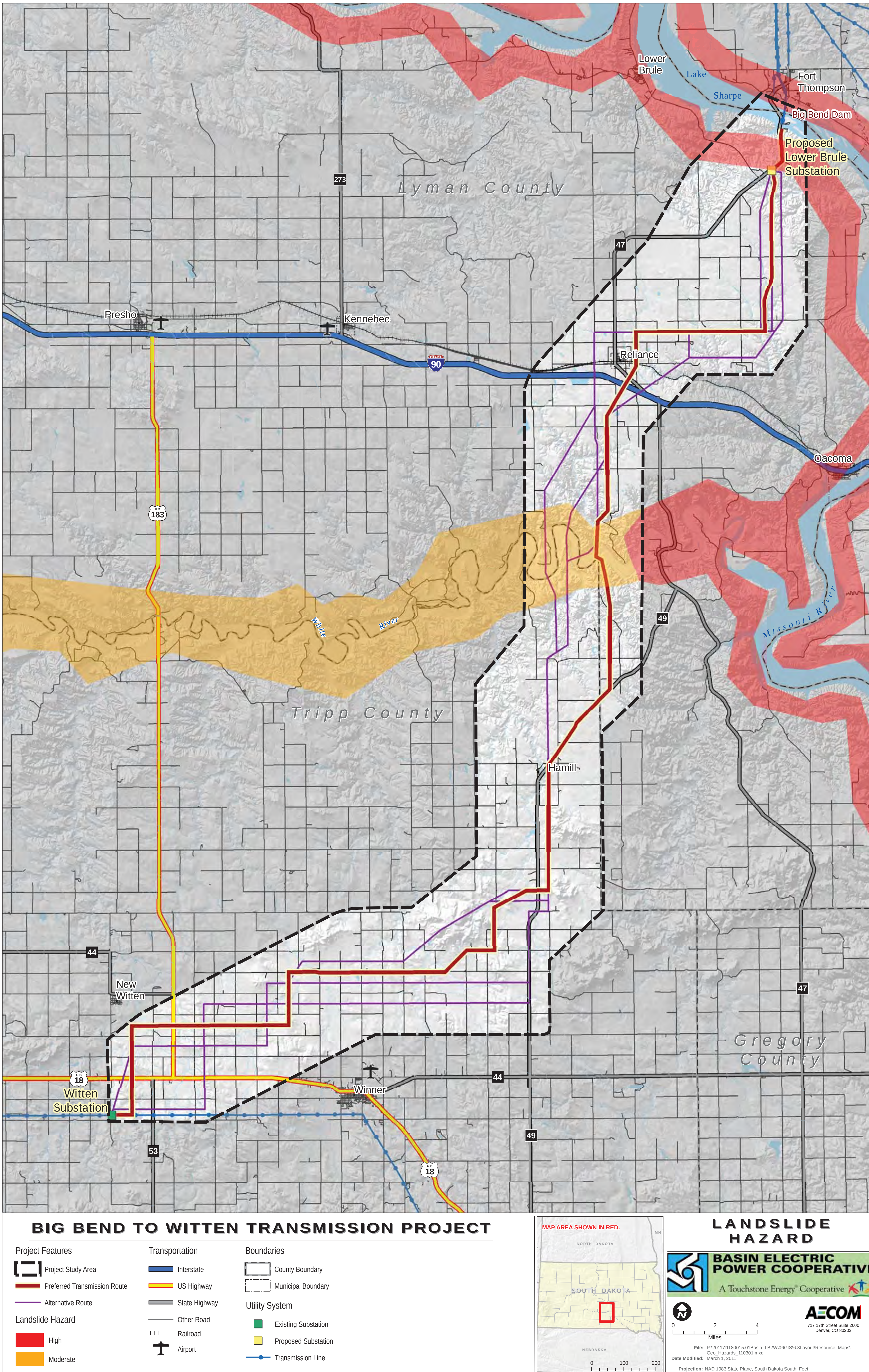
Figure A-9



BIG BEND TO WITTEN TRANSMISSION PROJECT
LANDSLIDE HAZARD
Lower Brule
Lake Sharpe
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
Presho
Kennebec
Reliance
Oacoma
White River
Missouri River
Tripp County
Hamill
New Witten
Witten Substation
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47
90
183
49
44
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53
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Project Study Area
Preferred Transmission Route
Alternative Route
Landslide Hazard
High
Moderate
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Boundaries
County Boundary
Municipal Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MN
0 100 200 Miles
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
0 2 4 Miles
AECOM
717 17th Street Suite 2600
Denver, CO 80202
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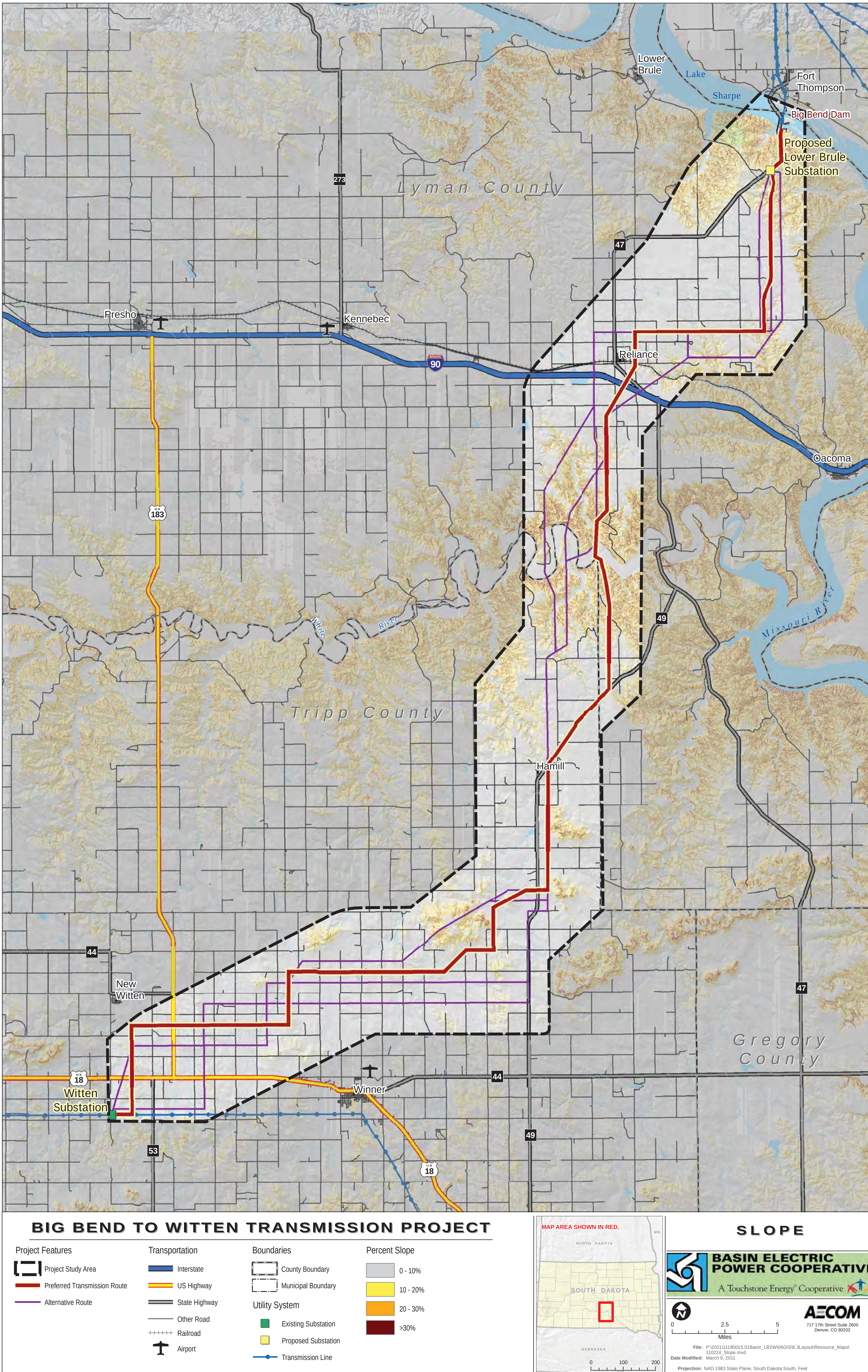
Data Sources: ESRI, BTS, US Census, Basin, USGS, National Atlas

Figure A-10


Lower Brule
Lake Sharpe
Fort Thompson
Big Bend Dam
Proposed Lower Brule Substation
Lyman County
273
47
Presho
Kennebec
Reliance
90
Oacoma
183
White River
Missouri River
49
Tripp County
Hamill
44
New Witten
Gregory County
18
Witten Substation
Winner
53
BIG BEND TO WITTEN TRANSMISSION PROJECT
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Preferred Transmission Route
Alternative Route
Transportation
Interstate
US Highway
State Highway
Other Road
Railroad
Airport
Boundaries
County Boundary
Municipal Boundary
Utility System
Existing Substation
Proposed Substation
Transmission Line
Percent Slope
0 - 10%
10 - 20%
20 - 30%
>30%
MAP AREA SHOWN IN RED.
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
MN
0 100 200
Miles
SLOPE
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative
AECOM
717 17th Street Suite 2600
Denver, CO 80202
0 2.5 5
Miles
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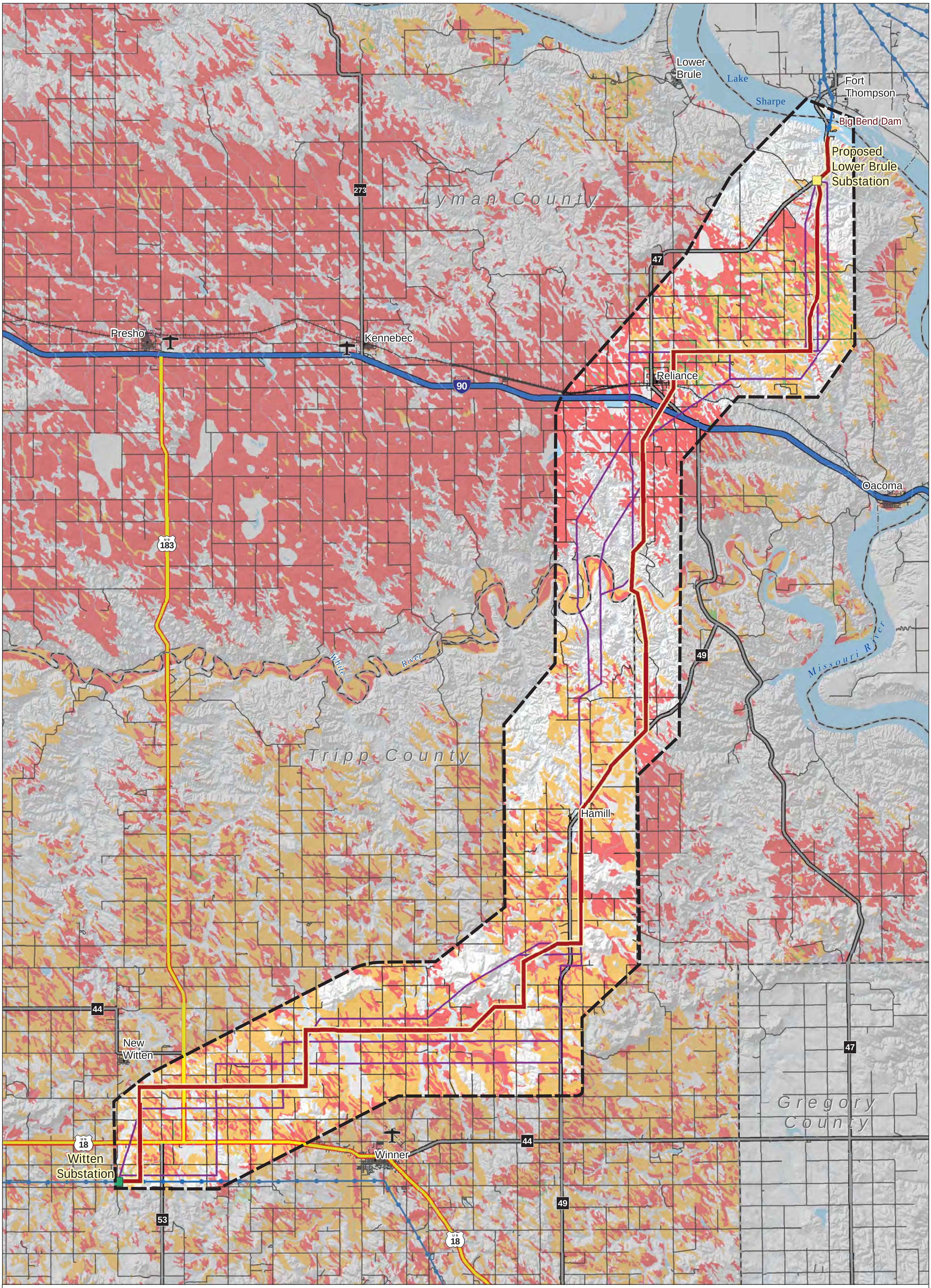
Data Sources: ESRI, BTS, US Census, Basin, USGS

Figure A-11



BIG BEND TO WITTEN TRANSMISSION PROJECT

IMPORTANT FARMLAND

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Date Modified: March 1, 2011

Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, NRCS

Figure A-12

Appendix C

Routing Study

Basin Electric Power Cooperative

Big Bend Dam to Witten Substation
230-kV Transmission Project
Lyman and Tripp Counties, South Dakota

FINAL

ROUTING REPORT

December 29, 2011

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Table of Contents, Cont.

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LIST OF TABLES

1.0 INTRODUCTION

1.1 Project Description and Need

Basin Electric Power Cooperative (Basin Electric) is proposing to construct and operate a new single-circuit 230-kilovolt (kV) transmission line in south-central South Dakota that would extend from a new substation (Lower Brule Substation) south of the Big Bend Dam on Lake Sharpe approximately 74 miles south-southwest to the existing Witten Substation located south of U.S. Highway 18. In addition to the new 230-kV transmission line, Western Area Power Administration (Western) is proposing to convert an existing single-circuit 230-kV transmission line structure, located on the south side of the Big Bend Dam, to a double-circuit structure and construct approximately 2.2 miles of double-circuit 230-kV transmission line from the new structure to the new Lower Brule Substation. The approximate 76-mile Big Bend to Witten 230-kV Transmission Project (Project) consists of the aforementioned elements. The Project is located within Lyman and Tripp counties in south-central South Dakota. Figure 1-1 illustrates the Project study area.

The design characteristics for the proposed line between the new Lower Brule Substation and existing Witten Substation, including right-of-way (ROW) requirements, structure spacing and height, and assumed disturbance and clearance assumptions, are summarized in Table 1-1. These assumptions were used in the routing analysis and also were used during the initial Macro-Corridor Study referenced below. The proposed transmission structures would be steel single-poles and would be designed to support three conductors and an overhead optical ground wire. Tangent structures would be directly embedded into the soil and angle and dead-end structures would be constructed using concrete foundations. No guy wires are proposed. The design criteria for the portion of the line between the Big Bend Dam and the Lower Brule Substation are expected to be similar.

The proposed Lower Brule Substation would be located on the Lower Brule Indian Reservation on the east side of State Highway 47 and would occupy approximately 16 acres of land (Figure 2-1). The substation location would be determined via consultation with tribal representatives. The existing Witten Substation would be expanded immediately to the northeast to accommodate the new 230-kV connection. The new part of the substation would have a separate access road and would be separated by a fence from the existing Witten Substation.

The need for the Project is driven by two key factors: 1) serve proposed short-term load growth on the 115-kV system between Basin Electric's Mission and Fort Randall Substations, including electric service demands from pump stations for the proposed TransCanada Keystone XL Pipeline; and 2) provide an additional source of power at the Witten Substation to improve regional system reliability and voltage stability.

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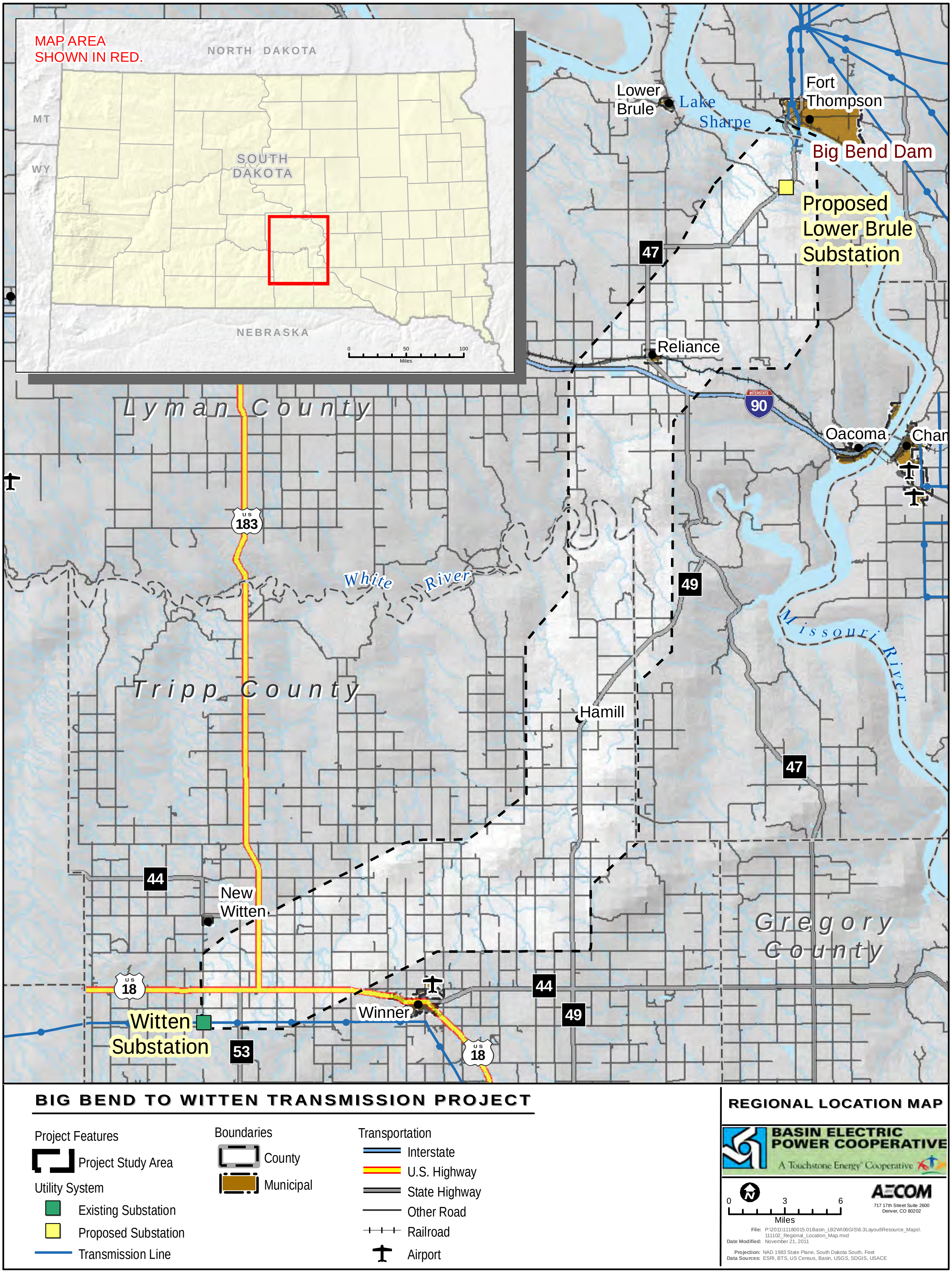

MAP AREA
SHOWN IN RED.
NORTH DAKOTA
MT
WY
SOUTH
DAKOTA
NEBRASKA
0
50
100
Miles
Lower
Brule
Lake
Sharpe
Fort
Thompson
Big Bend Dam
Proposed
Lower Brule
Substation
47
Reliance
90
Oacoma
Chan
Lyman County
183
White River
49
Missouri River
Tripp County
Hamill
47
44
New
Witten
Gregory
County
18
44
Winner
49
Witten
Substation
53
18
BIG BEND TO WITTEN TRANSMISSION PROJECT
Project Features
Project Study Area
Utility System
Existing Substation
Proposed Substation
Transmission Line
Boundaries
County
Municipal
Transportation
Interstate
U.S. Highway
State Highway
Other Road
Railroad
Airport
REGIONAL LOCATION MAP
BASIN ELECTRIC
POWER COOPERATIVE
A Touchstone Energy® Cooperative
0
3
6
Miles
AECOM
717 17th Street Suite 2600
Denver, CO 80202
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Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, SDGIS, USACE

FIGURE 1-1

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Table 1-1
Lower Brule-Witten Transmission Line Characteristics

Description of Design Component	Values
Voltage (kV)	230
Conductor Diameter (inches)	1.345
Right-of-Way Width (feet)	125
Typical Minimum and Maximum Span Distances Between Structures (feet)	650 - 950
Average Span (feet)	800
Minimum and Maximum Structure Height (feet)	70 - 115
Average Height of Structures (feet)	95
Average Number of Structures (per mile)	6.6
Temporary Disturbance per Structure (square feet) (approximately 125-foot x 100-foot area)	12,500
Permanent Disturbance per Structure (acre) (approximately 3-foot diameter per structure leg)	<0.0002
Minimum Conductor-to-Ground Clearance to Agricultural Land at 100 degrees Celsius (°C) (feet)	26
Minimum Conductor-to-Ground Clearance to Rural Roads at 100°C (feet)	28
Minimum Conductor-to-Ground Clearance to Paved Highways at 100°C (feet)	31
Circuit Configuration	Vertical

1.2 Purpose of the Routing Report

RUS guidance regarding NEPA implementation (RUS Bulletin 1794A-603) requires that a Macro-Corridor Study (MCS) and an Alternative Evaluation Study (AES) be prepared by the project proponent and accepted by RUS prior to the start of the official NEPA process. Basin Electric published the Big Bend to Witten 230-kV Transmission Project Alternative Evaluation and Macro-Corridor Study (hereinafter referred to as the AE/MCS; available at http://www.rurdev.usda.gov/UWP-BigBendToWitten_SD.html) in April 2011, to evaluate the system alternatives that best meet the purpose and need of the Project, as well as to identify corridors and preliminary routes for the transmission line. This Routing Report evaluates route alternatives in more detail, and identifies the final three routes that will be carried forward into the Environmental Assessment. The Routing Report identifies Basin Electric's (Applicant) Preferred Route, as well as two alternative routes.

2.0 PROJECT BACKGROUND

2.1 Definition of the Study Area

The Project study area for the Routing Report is defined in the AE/MCS. The extent of a study area for a transmission line project is primarily determined by the project endpoints, the purpose and need, and the electric system requirements and components that best meet the purpose and need. As noted previously under Project Description and Need, Basin Electric and Western determined that a new double-circuit 230-kV transmission line from the Big Bend Dam to the proposed Lower Brule Substation, and a single-circuit 230-kV transmission line from the Lower Brule Substation to the Witten Substation offered the best way to meet the purpose and need for the Project. In addition to the knowing the two project endpoints, West Central Electric Cooperative (West Central) requested a 230-kV/69-kV interconnection to the proposed transmission line approximately 10 miles southwest of the Big Bend Switchyard near the town of Reliance. The limited number of reasonable crossing locations of the White River and the need to provide an interconnection with West Central ultimately helped define the Project study area boundary. The resulting 6-mile-wide macro-corridor generally trends north-south through Lyman County and into Tripp County south of the unincorporated town of Hamill. At a point approximately 6 miles south of Hamill, the macro-corridor turns southwest to the Witten Substation. The Project study area is shown in Figure 1-1 in this report. The study area encompasses approximately 391.2 square miles.

2.2 Summary of Alternative Evaluation and Macro-Corridor Study

The AE/MCS provides additional detail regarding the Project purpose and need, as well as regional transmission system studies and analyses. That study is incorporated by reference into this Routing Report. The AE/MCS defined the study area, summarized the resource data collection, and included a constraints and opportunities analysis, defining the resource attributes that would affect routing the proposed transmission line. Resource data were gathered from local municipalities, counties, and state and federal agencies, primarily consisting of existing Geographic Information System (GIS) data bases. These data included: existing linear transportation and utility corridors; land use and jurisdiction information; cultural resources; wetlands and water resources (e.g., water bodies, floodplains); geologic hazards; and biological resources. Aerial photography was also used as a base map to verify the existing conditions within the study area, and limited field reconnaissance was conducted to ground-truth some of the desktop data. Other resources considered but not used in the AE/MCS process included soils, slope, agriculture, and oil and gas wells. These resources were not used in the opportunity and constraints analysis since the resources were either determined to be absent or nearly ubiquitous across the entire study area and therefore, would not be useful in discriminating among various routes.

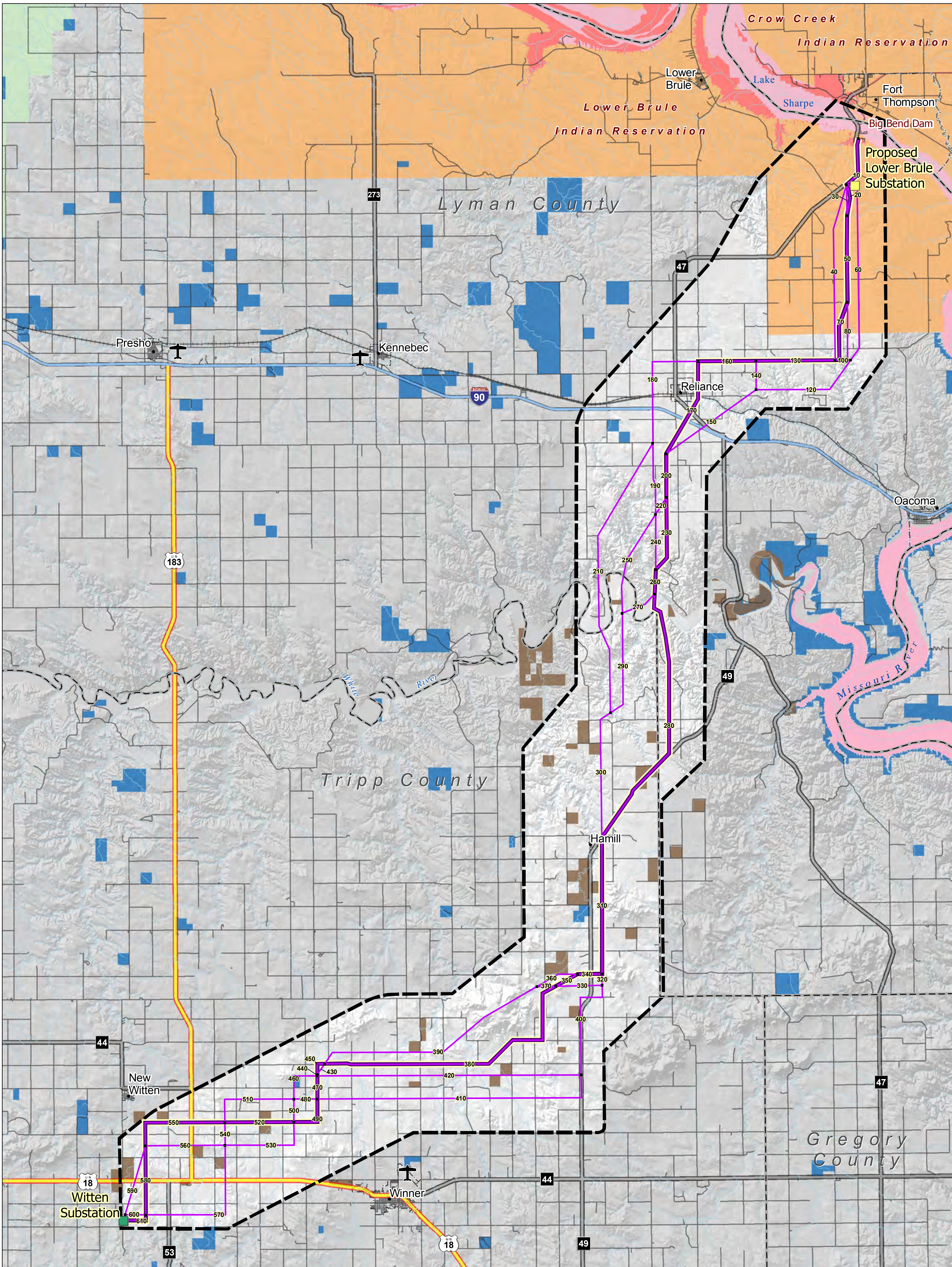
The opportunities and constraints analysis was based on criteria associated with the resources previously noted. Specifically, the categories of criteria included opportunity areas, avoidance areas and exclusion areas. Opportunity areas were limited primarily to areas along existing road or utility rights-of-way (ROW), as well as rural rangeland, croplands, and open space. Avoidance areas were identified for resources that should be avoided if possible, but that could be crossed by the proposed transmission line under certain conditions (limited crossing or implementation of design measures or mitigation measures would avoid adverse effects). Exclusion areas were identified as those areas that should be excluded from transmission line crossing and include: reservoirs; strip mines; center-pivot irrigation; areas within 150 feet of occupied residences; areas within 150 feet of schools, cemeteries, parks, and recreation areas; areas within 50 feet of a Federal Communications Commission (FCC) structure; areas within 100 feet of a documented cultural resource site; and areas within 0.25 mile of active sharp-tailed grouse leks.

Based on the GIS database information, a composite map was produced identifying the opportunities and constraints within the macro-corridor. The opportunities and constraints information was used by Basin Electric to identify alternative routes and route segments that would potentially meet the routing objectives: connect the two substations; maximize the opportunities and minimize the constraints; and be cost-effective. In addition to gathering resource data and developing an opportunities and constraints map, the early phase of routing also included public participation, which is described further in the EA and Scoping Report. Figure 2-1 illustrates the route segments presented at the public scoping meetings, as well as the initial route proposed by Basin Electric and Western ("Applicant-Preferred Route").

2.3 Public and Agency Participation

The RUS NEPA process included pre-scoping activities, agency and tribal consultation, and public scoping meetings. The data gathered from the public and agency outreach efforts were used in the initial identification of potential routes. A detailed description of the scoping process is provided in Chapter 2 of the Big Bend to Witten 230-kV Transmission Project Environmental Assessment Scoping Report, July 2011, with a summary of scoping comments compiled in Appendix C of that document. The public scoping meetings were held within the study area on April 26 and 27, 2011. At these meetings, Basin Electric and Western provided an opportunity for the public to understand the proposed Project and the NEPA process, as well as provide their comments both verbally and in written form. A number of visual aids (e.g., poster boards) were used to graphically show the study area and the initial set of route segments developed by Basin Electric and Western. Figure 2-1 illustrates the route segments presented at the public scoping meetings, as well as the initial route proposed by Basin Electric and Western ("Applicant-Preferred Route").

Scoping comments covered a variety of topics including: agriculture, wildlife, construction/maintenance concerns, grazing, lands/realty, public health and safety, reclamation, socioeconomics, transportation and visual resources. A number of comments were also made specific to the Project purpose and need, or to a particular route segment that crossed or was in close proximity to a landowner's property.



BIG BEND TO WITTEN TRANSMISSION PROJECT

SEGMENTS PRESENTED AT PUBLIC SCOPING

Project Features
- Project Study Area
- 100 Alternative Route Segment
- Proposed Route Presented At Scoping

Jurisdiction
- DOD - Army Corps of Engineers
- Recreation Areas
- BIA - Indian Reservation
- USFS - National Grassland
- State of South Dakota
- Indian Trust Land

Transportation
- Interstate
- U.S. Highway
- State Highway
- Other Road
- Railroad
- Airport

Boundaries
- County
- Municipal

Utility System
- Existing Substation
- Proposed Substation

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File: P:\2011\11180015.01Basin_LB2W\06GIS\6.3Layout\Resource_Maps\111121_Public_Scoping_Segments.mxd
Date Modified: November 21, 2011

Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, SDGIS, USACE

FIGURE 2-1

2.4 Adjustments to Route Segments

Based on public comments, several route segments were eliminated from the original set presented at the scoping meetings. In addition, Basin Electric made additional refinements to the Applicant-Preferred Route based on input from landowners and member cooperatives, or to avoid other types of sensitive features.

The following five route segments were eliminated based on information gathered during preparation of the AE/MCS, field reconnaissance, and public scoping meetings:

- Segment 80: This segment had multiple crossings over the North Fork American Creek.
- Segment 380: This segment had a relatively large number of residences within 500 feet of the centerline, a greater number of Class I archaeological resource sites than other segments, substantial wetlands crossings and impacts to surface waters.
- Segment 420: The segment crossed Indian Trust land, had a number of residences within 500 feet, and crossed a large number of wetlands and surface waters.
- Segment 520: Similar to Segment 420, this segment crossed Indian Trust land, had a number of residences within 500 feet, and crossed a large number of wetlands and surface waters.
- Segment 550: This segment had the greatest impact to surface waters.

Following the public scoping meetings, Basin Electric made the following adjustments to the Applicant-Preferred Route:

- Near Reliance, the original route was located south and east of Reliance and followed Segments 170, 200, and 230. The Applicant-Preferred Route was shifted to the north and west of Reliance to accommodate West Central's request for a tap site in this location and landowner concerns regarding the location of the original route.
- South of the White River, the original route followed Segment 280. The Applicant-Preferred Route was shifted 0.5 mile west to accommodate a landowner request, and the route continued south of Highway 49 for approximately 1.25 miles to avoid crossing Indian Trust land in Section 13.
- North of Winner, the original route followed Segment 380. The Applicant-Preferred Route was moved 0.5 mile north along a portion of Segment 390 to accommodate potential future development along 272nd Street and to avoid a large wetland area.
- The last 10 miles of the original route into the Witten Substation followed Segments 490, 520, 550, 580, and 610. Routing in this area was shifted to avoid farmland and to follow ½-section lines or parallel to section lines to minimize disturbance to farming activities. In addition, the route along Segment 520 was shifted 0.5 mile north to avoid Indian Trust land.

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3.0 ALTERNATIVE ROUTE SCREENING ANALYSIS

3.1 Overview of Alternative Route Identification

The Project consists of a series of potential routes (consisting of 63 route segments) between the Big Bend Dam, proposed Lower Brule Substation, and existing Witten Substation. The potential route segments were presented at the public scoping meetings, along with an Applicant-Preferred Route proposed by Basin Electric and Western. As noted in Section 2.3, some segments were removed from further consideration.

As part of the routing study, the remaining route segments were combined into 16 potential alternative routes. The 16 potential alternative routes were identified through an iterative process that considered all of the segments presented at the public scoping meetings, as well as constraints within the Project study area identified during the AE/MCS. The vast majority of segments presented during scoping were used in at least one of the 16 potential alternative routes or the Applicant-Preferred Route.

During the AE/MCS process and before formal public scoping, Basin Electric identified a preliminary proposed route that minimized environmental and land use constraints, and minimized project costs and engineering constraints. After public scoping , the Applicant-Preferred Route was refined in response to input from the public and West Central regarding the interconnection near Reliance. These modifications are described in Section 2.3.

To identify the routes proposed for analysis in the EA, the 16 alternative routes and the Applicant-Preferred Route were narrowed down to three routes (the Applicant-Preferred Route and two alternatives) through a screening process that included both quantitative and qualitative metrics.

The quantitative metrics include output from a computerized GIS analysis that tabulates potential constraints within the Project study area and summarizes the data in matrix format. The specific quantitative metrics (criteria) that were used and evaluated in the matrix are described in more detail in Section 3.2. The comparative matrix quantifies the potential effects for each criterion, ranks each criterion (where lowest generally is best depending on the criterion), and then tallies the rankings are to represent an overall total for a relative comparison between alternative routes. To preserve an objective analysis, the criteria were not weighted, since weighting introduces a subjective element regarding the relative importance of various criteria. For this analysis, all criteria were treated equally. The ranks for each criterion were summed to create an overall total score for each route and the overall total scores for each route were ranked to determine the overall rank of each route. In addition to the qualitative metrics described below, the overall rank was used to help identify potential alternative routes for evaluation in the EA. Table 3-1 depicts the summary matrix of quantitative data by route.

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Table 3-1 Comparative Matrix – 17 Alternative Routes

CATEGORY	ROUTES																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17 Applicant-Preferred Route
Route Length																	
Route Length (feet)	405,000	405,326	385,713	387,603	396,939	397,265	377,651	379,542	396,959	397,285	377,672	379,562	400,754	401,080	381,467	383,357	399,714
Route Length (miles)	77	77	73	73	75	75	72	72	75	75	72	72	76	76	72	73	76
RANK (LOW BEST)	5	5	2	2	3	3	1	1	3	3	1	1	4	4	1	2	4
TOTAL SCORE	**5**	**5**	**2**	**2**	**3**	**3**	**1**	**1**	**3**	**3**	**1**	**1**	**4**	**4**	**1**	**2**	**4**
TOTAL RANK (LOW BEST)	**5**	**5**	**2**	**2**	**3**	**3**	**1**	**1**	**3**	**3**	**1**	**1**	**4**	**4**	**1**	**2**	**4**
Engineering																	
Length Within 200 feet of Existing Transmission or Distribution Lines (feet)	8,952	14,057	8,952	8,952	8,918	14,022	8,918	8,918	8,952	14,057	8,952	8,952	9,718	14,822	9,718	9,718	7,825
Length Within 200 feet of Existing U.S. and State Highways (feet)	29,402	29,402	8,798	8,798	53,269	53,269	32,665	32,665	29,013	29,013	8,409	8,409	29,008	29,008	8,404	8,404	16,144
Length within 0.25 mile of Scenic Byways (feet)	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	15,000
RANK (LOW BEST)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Length within 200 feet of County Roads (feet)	36,570	36,570	29,223	29,163	47,528	47,528	40,181	40,121	26,168	26,168	18,821	18,761	44,858	44,858	37,511	37,451	66,626
Length within 200 feet of Section Lines (feet)	78,186	79,412	64,099	54,692	99,823	101,049	85,736	76,329	69,604	70,830	55,517	46,110	98,629	99,855	84,542	75,135	133,855
Total Length Adjacent All Linear Features	153,110	159,441	111,072	101,605	209,537	215,868	167,499	158,032	133,737	140,067	91,699	82,232	182,213	188,543	140,175	130,708	224,450
Total % Adjacent to Linear Features	38%	39%	29%	26%	53%	54%	44%	42%	34%	35%	24%	22%	45%	47%	37%	34%	56%
RANK (HIGH BEST)	5	5	7	7	2	2	4	4	6	5	8	8	3	3	5	6	1
TOTAL SCORE	**7**	**7**	**9**	**9**	**4**	**4**	**6**	**6**	**8**	**7**	**10**	**10**	**5**	**5**	**7**	**8**	**2**
TOTAL RANK (LOW BEST)	**5**	**5**	**7**	**7**	**2**	**2**	**4**	**4**	**6**	**5**	**8**	**8**	**3**	**3**	**5**	**6**	**1**
Jurisdiction																	
Length Crossing Indian Trust Land (feet)	0	0	0	0	7,235	7,235	7,235	7,235	0	0	0	0	0	0	0	0	2,614
RANK (LOW BEST)	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	2
TOTAL SCORE	**1**	**1**	**1**	**1**	**3**	**3**	**3**	**3**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
TOTAL RANK (LOW BEST)	**1**	**1**	**1**	**1**	**3**	**3**	**3**	**3**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
Land Use/Land Cover																	
Length Crossing Reservoirs and Strip Mines (feet)	379	379	379	379	0	0	0	0	379	379	379	379	0	0	0	0	0
RANK (LOW BEST)	2	2	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1
Communication Facilities Within 150 feet (number)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
RANK (LOW BEST)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
TOTAL SCORE	**4**	**4**	**4**	**4**	**3**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**3**	**3**	**3**	**3**	**2**
TOTAL RANK (LOW BEST)	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**1**
Residential																	
Number of Residences within 250 Feet of Centerline	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	0
RANK (LOW BEST)	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	1
Number of Residences between 251- 500 Feet of Centerline	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2
RANK (LOW BEST)	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2
TOTAL SCORE	**3**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**
TOTAL RANK (LOW BEST)	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**
Wetlands and Water Resources																	
Number of Crossings of Perennial Streams (number)	6	6	6	6	3	3	3	3	7	7	7	7	7	7	7	7	3
RANK (LOW BEST)	2	2	2	2	1	1	1	1	3	3	3	3	3	3	3	3	1
Length within 100 ft of Perennial/Intermittent Streams (feet)	28,000	28,000	25,000	25,000	28,000	28,000	25,000	25,000	32,000	32,000	30,000	29,000	32,000	32,000	30,000	29,000	28,000
RANK (LOW BEST)	2	2	1	1	2	2	1	1	5	5	4	3	5	5	4	3	2
Length Crossing Waterbodies (feet)	1,200	1,200	1,200	1,200	1,600	1,600	1,600	1,600	1,500	1,500	1,500	1,500	1,200	1,200	1,200	1,200	1,600
RANK (LOW BEST)	1	1	1	1	3	3	3	3	2	2	2	2	1	1	1	1	3
Length Crossing NWI Wetlands (feet)	5,000	5,000	6,000	6,000	4,000	4,000	5,000	5,000	5,000	5,000	6,000	6,000	3,000	3,000	4,000	4,000	6,000
RANK (LOW BEST)	3	3	4	4	2	2	3	3	3	3	4	4	1	1	2	2	4
TOTAL SCORE	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**13**	**13**	**13**	**12**	**10**	**10**	**10**	**9**	**10**
TOTAL RANK (LOW BEST)	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**5**	**5**	**5**	**4**	**3**	**3**	**3**	**2**	**3**
Cultural and Historic Resources																	
Other Class I sites within 500 feet (number)	7	7	7	7	5	5	5	5	5	5	5	5	5	5	5	5	5
RANK (LOW BEST)	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL SCORE	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
TOTAL RANK (LOW BEST)	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Biological Resources																	
Length within known prairie dog towns (feet)	1,628	1,628	1,628	1,628	260	260	260	260	1,445	1,445	1,445	1,445	260	260	260	260	1,097
Raptor Nests within 0.25 mile (number)	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	0
RANK (LOW BEST)	2	2	1	1	2	2	1	1	2	2	1	1	2	2	1	1	1
Sharp-tailed grouse leks within 0.25 mile (number)	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
RANK (LOW BEST)	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2
TOTAL SCORE	**4**	**4**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**3**
TOTAL RANK (LOW BEST)	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**1**	**2**	**2**	**1**	**1**	**2**	**2**	**1**	**1**	**2**
Totals																	
OVERALL TOTAL SCORE	**34**	**34**	**32**	**32**	**29**	**29**	**28**	**28**	**35**	**34**	**34**	**33**	**30**	**30**	**28**	**29**	**27**
TOTAL RANK (LOW BEST)	**7**	**7**	**5**	**5**	**3**	**3**	**2**	**2**	**8**	**7**	**7**	**6**	**4**	**4**	**2**	**3**	**1**

In addition to the quantitative metrics depicted in Table 3-1, the following qualitative metrics were applied during selection of the three routes from the field of 17 potential alternative routes:

One of the three routes will represent the Applicant-Preferred Route.

The alternative routes should use segments that are not duplicative of segments used by the Applicant-Preferred Route to the greatest extent possible.

The alternative routes should follow direct paths between the Project endpoints and meet the Applicant's purpose and need.

1) To the extent feasible, alternative routes should avoid major constraints including residences, Indian Trust land, cultural and historical resources, and known sensitive biological resources.

3.2 Criteria Used to Evaluate Potential Routes

The following criteria were used to develop quantitative metrics to evaluate the 16 alternative routes and the Applicant-Preferred Route in a GIS-based model and output matrix. During the analysis process, some of these criteria were subsequently removed from the comparative ranking matrix if the data were equal for all routes (no discernable difference), or if the criteria no longer applied. Criteria removed are summarized in Section 3.3.

Route Length

Route length is a key criterion that is commonly used to compare transmission line routes. Longer transmission line routes are typically (but not always) more costly to construct and may have greater impacts when compared with shorter routes.

Percent of Route Adjacent to Existing Linear Features

Routing transmission lines along existing linear features such as roads and transmission lines can reduce the potential impact when compared with constructing a "greenfield" transmission line. In many instances, existing roadways or other types of ROW can provide access to the new transmission line for both construction and maintenance purposes. For the purposes of the routing study, the following criteria were included in the linear features category:

- Transmission and distribution lines;
- U.S. and State highways;
- County roads; and
- Section lines.

The length within 200 feet of each of these features was added together and divided by the total length of the route to create a percentage adjacent to linear features.

Length Crossing Indian Trust Land

Indian Trust lands often have multiple owners, which can greatly complicate the process for obtaining easements. Consequently, parcels of Indian Trust land were identified as avoidance areas for this routing study.

Length Crossing Reservoirs and Strip Mines

Due to their typical size and breadth, or operational constraints, transmission lines are typically routed around these types of facilities. In some cases, reservoirs can be spanned if necessary.

Communication Facilities within 150 Feet

Transmission line routing must meet the requirements of the Federal Communications Commission (FCC) to avoid potential interference with AM radio, FM radio and telecommunications facilities.

Residences within 500 Feet

Land use compatibility issues must be considered when routing a transmission line in proximity to residences. A typical transmission line routing criterion looks at residences within the proposed ROW and within an additional reasonable buffer zone outside the ROW. The proposed ROW is 125 feet (62.5 feet on either side of the transmission line centerline) and no residences were found within the proposed ROW. The number of residences within 500 feet of each route was included in the matrix.

Number of Crossings of Perennial Streams

All of the streams within the Project study area can be spanned, but limiting the number of stream crossings can reduce direct and indirect effects to water quality and associated stream habitat, and, depending on the length of the stream crossing, can reduce construction costs.

Length within 100 feet of Perennial/Intermittent Streams

Construction and long-term maintenance of utility lines and structures can result in direct and indirect effects to surface waters as a result of soil disturbance, erosion and habitat disturbance. Maintaining an adequate buffer between transmission line construction activities and adjacent surface waters is prudent.

Length Crossing Waterbodies

Large waterbodies can pose obstacles to transmission line routing, and sometimes require routing around the water feature. The Project would be constructed using 230-kV transmission structures that allow for an average span length of 650 to 950 feet. Waterbodies that are less than 950 feet wide could be spanned by the proposed transmission line.

Length Crossing National Wetland Inventory (NWI) Wetlands

Due to the sensitive nature of wetland habitat and the species occupying the habitat, direct impacts as a result of short-term construction or long-term operations should be avoided. Wetlands can typically be spanned by transmission lines; however, wetlands within the ROW would need to be delineated in localized areas prior to construction and measures to avoid impacts to wetlands would be implemented.

Class I Cultural Resources Sites within 500 Feet

Important historical and cultural resources should be avoided when routing a transmission line. Depending on the resource and its status with the State Historic Preservation Office, some sites can be spanned as long as the ground surface in the vicinity of the site is not disturbed.

Length within Known Prairie Dog Colonies

Prairie dog colonies can be a potential concern for routing transmission lines since these colonies typically provide habitat for the black-footed ferret, which is a federally-listed endangered species. Project biologists have determined that it is highly unlikely the black-footed ferret would occur in the Project study area, and RUS has concurred with this determination. Another potential concern is that burrowing owls often use prairie dog burrows for nest sites. The burrowing owl is protected under the Migratory Bird Treaty Act. Burrowing owl surveys within potential habitat areas would be conducted prior to construction.

Raptor Nests within 0.25 mile of Centerline

Transmission line routing must consider potential effects to raptors and other avian species protected by the Migratory Bird Treaty Act. Areas of high flight activity are generally found around nests and foraging areas. Proximity of nests to transmission lines increases the risk of collision and potential mortality.

Length within Sharp-Tailed Grouse Leks

Sharp-tailed grouse leks were included in the constraints criteria since the grouse population has been in decline through loss of habitat across the nation. The grouse prefers grasslands and prairies and primarily forages on the ground in summer months. Nesting typically occurs in May and June. The presence of active leks (i.e. communal display and breeding areas) along a transmission line route may influence construction scheduling. These leks can typically be spanned by the transmission line, but peer-reviewed data suggests that grouse will likely abandon the use of leks that are under and near transmission lines.

3.3 Criteria Considered but Removed from Comparative Analysis

Several routing criteria were evaluated against the data compiled during the AE/MCS data search but were ultimately removed from further evaluation in the comparative analysis matrix because they either did not apply to the alternative routes or the criteria applied evenly to all routes and therefore, would not make a discernable difference for purposes of comparing and ranking alternatives. These criteria were removed from the comparative analysis.

Length within 0.25 mile of a Scenic Byway

Transmission lines and associated structures could result in an adverse visual effect to motorists traveling on scenic byways. Altering a scenic viewshed by erecting man-made utility infrastructure could detract from the overall viewing experience. All of the routes evaluated parallel a scenic byway (Native American Scenic Byway) for approximately 3 miles between Big Bend Dam and the proposed Lower Brule Substation, so this criterion was not particularly useful in distinguishing among the various alternative routes; however, the Applicant-Preferred Route parallels scenic byways for a slightly shorter length than any of the alternative routes. As a result, this criterion was removed from the comparative matrix.

Length within 500 Feet of Census Landmarks

Census landmarks consist of structures accounted for in census data and typically include schools, hospitals, airports and landing strips, churches, cemeteries and jails. These types of land uses may present routing constraints depending upon the distance between the transmission line and the census landmark structure and the sensitivity of the land use. Other factors include the size of the transmission line (kV) and associated structure specifications. No census landmarks were identified within 500 feet of the centerline of alternative routes, with the exception of an old, inactive landing strip. As a result, this criterion was removed from the matrix.

Length within Areas Classified as Important Farmland

Based on U.S. Department of Agriculture classifications, important farmland within the macro-corridor is classified as “prime farmland”, “farmland of statewide importance”, or “prime farmland, if irrigated.” Because of the extensive distribution of important farmland throughout the macro-corridor, all of the routes would cross varying amounts of important farmland. Since important farmland is widely distributed throughout the macro-corridor, this category was not a significant discriminator among the routes and was therefore removed from the matrix.

Construction of transmission lines through agricultural areas rarely results in a disruption of agricultural practices for more than a single growing season, and if constructed after harvest or during winter months, may result in minimal disruption. In addition, most agricultural operations may continue within the ROW once construction has been completed so the amount of land removed from agricultural production is minimal and is generally limited to the actual footprint of the transmission structures and the area immediately around the structures.

Historic Structures

Only one historic structure was identified during the early stages of the AE/MCS, within 500 feet of an early version of the Applicant-Preferred Route. The Applicant-Preferred Route was subsequently shifted away from the structure. For this reason, this criterion was removed from the matrix.

3.4 Selection of Alternate Routes

3.4.1 Big Bend – Lower Brule Substation 230-kV Transmission Line

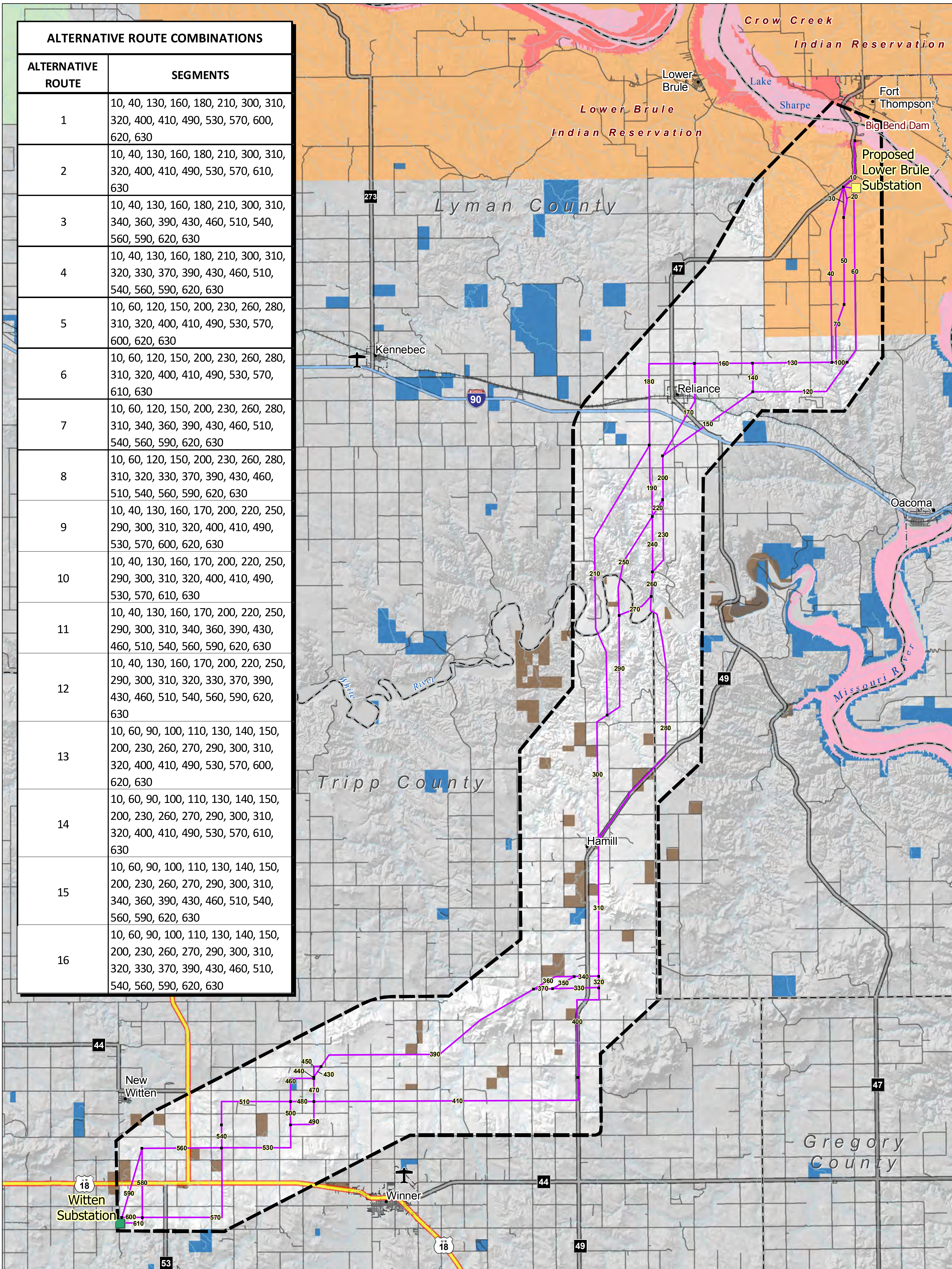
As shown in Figures 3-1 and 3-2, the northern portion of the Project, the proposed 230-kV transmission line between the Big Bend Dam (new 230-kV double-circuit structure) and the proposed Lower Brule Substation consists of a single route, with no alternatives. This part of the Project is located entirely on the Lower Brule Indian Reservation. Basin Electric and Western will work with the Lower Brule and Rosebud Tribal Representatives to determine an appropriate alignment for the new transmission line and location for the proposed substation.

3.4.2 Lower Brule – Witten 230-kV Transmission Line

A total of 17 routes including the Applicant-Preferred Route (identified as Route 17) were evaluated in the comparative matrix. The 16 preliminary alternative routes consist of a combination of various segments. Figure 3-1 depicts the segments that were evaluated in this routing report and includes a table that defines the segment combinations that comprised each of the 16 alternative routes. Figure 3-2 is a map that shows the Applicant-Preferred Route. As noted previously, a number of adjustments were made to the Applicant-Preferred Route between public scoping and the comparative analysis/routing report phase in order to avoid conflicts, minimize environmental effects, and/or address the concerns of the greatest number of landowners.

BIG BEND TO WITTEN TRANSMISSION PROJECT

ALTERNATIVE ROUTES



ALTERNATIVE ROUTE COMBINATIONS

ALTERNATIVE ROUTE	SEGMENTS
1	10, 40, 130, 160, 180, 210, 300, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
2	10, 40, 130, 160, 180, 210, 300, 310, 320, 400, 410, 490, 530, 570, 610, 630
3	10, 40, 130, 160, 180, 210, 300, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
4	10, 40, 130, 160, 180, 210, 300, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630
5	10, 60, 120, 150, 200, 230, 260, 280, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
6	10, 60, 120, 150, 200, 230, 260, 280, 310, 320, 400, 410, 490, 530, 570, 610, 630
7	10, 60, 120, 150, 200, 230, 260, 280, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
8	10, 60, 120, 150, 200, 230, 260, 280, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630
9	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
10	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 320, 400, 410, 490, 530, 570, 610, 630
11	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
12	10, 40, 130, 160, 170, 200, 220, 250, 290, 300, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630
13	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 320, 400, 410, 490, 530, 570, 600, 620, 630
14	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 320, 400, 410, 490, 530, 570, 610, 630
15	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 340, 360, 390, 430, 460, 510, 540, 560, 590, 620, 630
16	10, 60, 90, 100, 110, 130, 140, 150, 200, 230, 260, 270, 290, 300, 310, 320, 330, 370, 390, 430, 460, 510, 540, 560, 590, 620, 630

Project Features
- Project Study Area
- 180 Alternative Route Segment

Jurisdiction
- DOD - Army Corps of Engineers
- Recreation Areas
- BIA - Indian Reservation
- USFS - National Grassland
- State of South Dakota
- Indian Trust Land

Transportation
- Interstate
- U.S. Highway
- State Highway
- Other Road
- Railroad
- Airport

Boundaries
- County
- Municipal

Utility System
- Existing Substation
- Proposed Substation

0 3 6 Miles

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Denver, CO 80202

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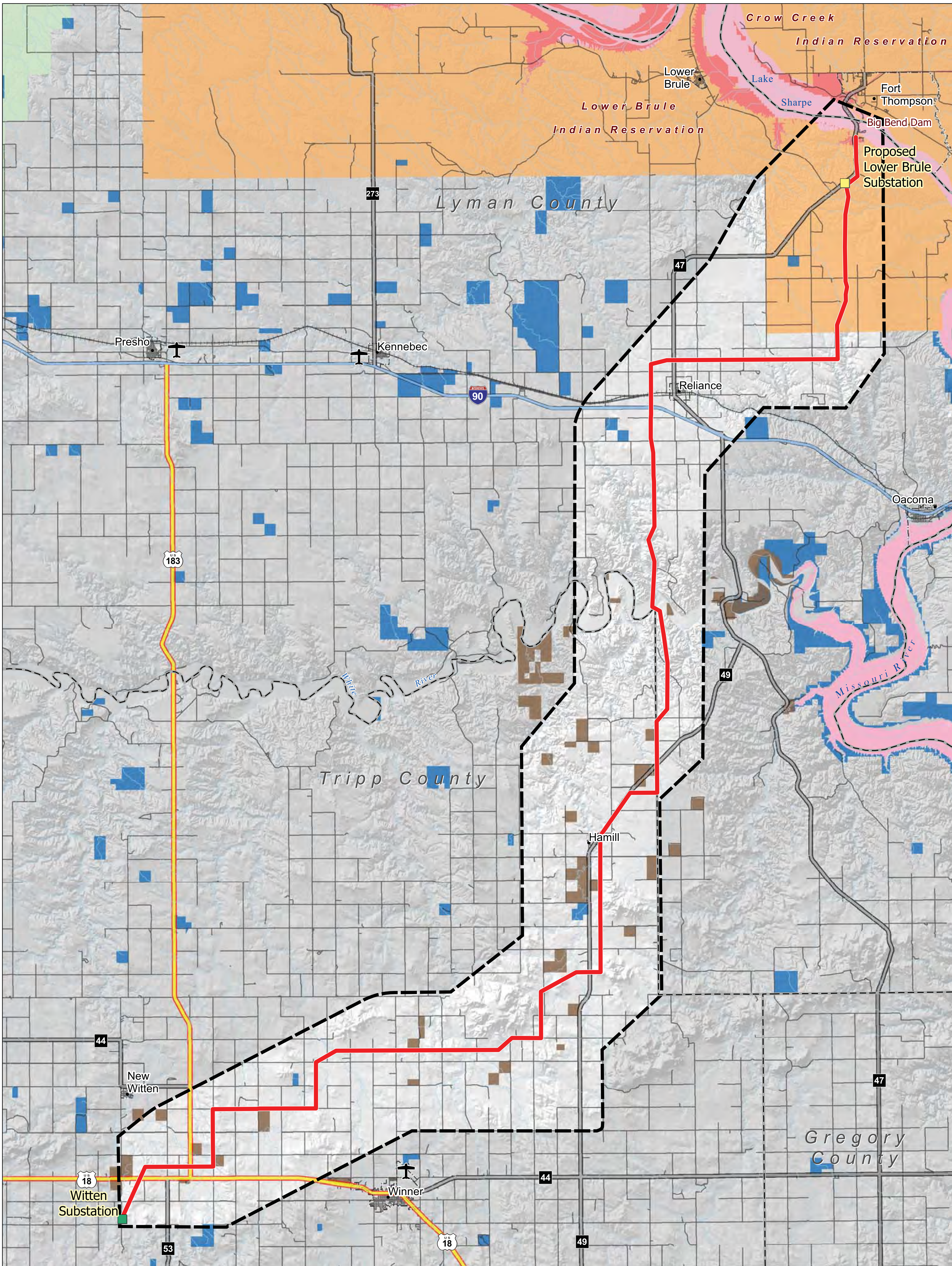
Date Modified: November 21, 2011

Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, SDGIS, USACE

FIGURE 3-1



BIG BEND TO WITTEN TRANSMISSION PROJECT

APPLICANT-PREFERRED ROUTE

Project Features
- Project Study Area
- Applicant-Preferred Route

Jurisdiction
- DOD - Army Corps of Engineers
- Recreation Areas
- BIA - Indian Reservation
- USFS - National Grassland
- State of South Dakota
- Indian Trust Land

Transportation
- Interstate
- U.S. Highway
- State Highway
- Other Road
- Railroad
- Airport

Boundaries
- County
- Municipal

Utility System
- Existing Substation
- Proposed Substation

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Date Modified: November 21, 2011

Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, SDGIS, USACE

FIGURE 3-2

3.4.3 Comparative Analysis of 17 Routes (Applicant-Preferred Route and 16 Alternative Routes)

Table 3-1 quantifies the resource data by alternative route and ranks the various routes based on the quantified data. With the exception of Engineering, lower values for each criterion (e.g., route length) result in a better ranking. For Engineering, the higher the quantitative data (e.g., length adjacent to linear features), the better the ranking since it is optimal to follow existing linear features when routing a transmission line.

As expected, many routes resulted in duplicate ranks for individual categories, as well as total scores and the spread between the various alternatives in the “Overall Total Score” row is considered minimal (totals ranging from 27 to 34), which emphasizes the fact that the Applicant-Preferred Route and the 16 alternative routes would result in similar impacts on the resources present within the corridor.

The following text provides a summary description of the results in Table 3-1. The values for each of these criteria allow the alternatives to be compared against each other and to see the relative differences among the alternatives.

3.4.3.1 Route Length

The 16 routes that were evaluated in the GIS model ranged in length from approximately 72 to 77 miles. Routes 7, 8, 11, 12 and 15 were all the shortest at approximately 72 miles. Routes 1 and 2 ranked 5th and were the longest at 77 miles. The Applicant-Preferred Route ranked 4th at 76 miles.

3.4.3.2 Percent of Route Adjacent to Existing Linear Features

The length of an alternative route within 200 feet of each category (transmission and distribution lines, U.S. and State Highways, county roads, and section lines) was added together and divided by the total length of the route to create a percentage adjacent to linear features. For the routes that were evaluated, the percent adjacent to existing linear features ranged from approximately 22 percent (Route 12) to 56 percent (Applicant-Preferred Route, 17). Due to the substantive difference between the routes, the percent adjacent to linear features were assigned ranks based on the range of percentages listed below:

Adjacent to Existing Linear Features (Percent Ranges)	Assigned Rank
55% to 59%	1
50% to 54%	2
45% to 49%	3
40% to 44%	4
35% to 39%	5
30% to 34%	6
25% to 29%	7
20% to 24%	8
19% or less	9

3.4.3.3 Length of Route Crossing Indian Trust Land

Routes 5, 6, 7 and 8 cross approximately 7,235 feet of Indian Trust land. In addition, the Applicant-Preferred Route crosses approximately 2,614 feet of Indian Trust land. The current alignment of the Applicant-Preferred Route barely encroaches onto a parcel of Indian Trust land (the reference line is located approximately 1 foot inside the parcel); however, Basin Electric intends to avoid this parcel of land completely during the ROW acquisition process.

3.4.3.4 Length Crossing Reservoirs and Strip Mines

Based on the GIS data from the U.S. Census Bureau, eight of the 16 alternative routes would cross a feature identified in the Census dataset as a reservoir. The Applicant-Preferred Route does not cross any reservoirs. Based on the size of and the length across the reservoir (379 feet), this feature could be easily spanned or avoided entirely through minor route adjustments.

3.4.3.5 Communication Facilities within 150 Feet

All 16 alternative routes are located within 150 feet of an existing telecommunications facility. The Applicant-Preferred Route does not have any telecommunications facilities within 150 feet of the current alignment.

3.4.3.6 Residences within 500 Feet

As described in the AE/MCS, there are numerous residences scattered throughout the Project corridor. Of the 16 routes that were evaluated, all of the routes have at least one and a maximum of two homes within 500 feet of the transmission line, and 12 of the alternative routes have one residence within 250 feet of centerline. Based on the centerline used in this analysis, the Applicant-Preferred Route had 2 residences within 500 feet and no residences within 250 feet.

3.4.3.7 Number of Perennial Stream Crossings

All 17 routes cross three or more perennial streams. The Applicant-Preferred Route and Alternative Routes 5, 6, 7, and 8 cross a total of 3 streams, Alternative Routes 1, 2, 3, and 4 cross 6 streams each, and Alternative Routes 9 through 16 cross 7 streams each. Stream crossings within the study area are relatively narrow and can be easily spanned by the proposed transmission line, which has a span length between 650 and 950 feet. Construction and long-term operational measures would need to be implemented to minimize impacts to water quality and stream habitat. The Applicant-Preferred Route and Alternative Routes 5, 6, 7, and 8 would have the least potential impact on water resources and therefore, ranked best for this category.

3.4.3.8 Length within 100 feet of Perennial or Intermittent Streams

All 17 routes are located within 100 feet of perennial and intermittent streams, with cumulative paralleling distances ranging between 25,000 and 32,000 feet. Alternative Routes 3, 4, 7, and 8 had the shortest distance of transmission line within 100 feet of a perennial or intermittent stream and therefore ranked the best. The Applicant-Preferred Route, along with Alternative Routes 1, 2, 5, and 6 were ranked in second place with cumulative distances of 28,000 feet.

3.4.3.9 Length Crossing Waterbodies

All of the alternative routes, as well as the Applicant-Preferred Route, cross areas defined as waterbodies or open water. The cumulative total length of crossings over waterbodies ranged from 1,200 to 1,600 feet. The Applicant-Preferred Route crosses approximately 1,600 feet in total. However, it should be noted the waterbodies crossed by any of the alternative routes can be easily spanned by the transmission line since the maximum water body width (White River crossing) is 570 feet and the typical span distance of the transmission line is 650 to 950 feet.

3.4.3.10 Length Crossing National Wetlands Inventory (NWI) Wetlands

There are numerous wetlands located within the Project study area and the total length of wetland crossings for the routes ranged from approximately 3,000 to 6,000 feet. Most of these wetland areas crossed by routes are small and can be easily spanned. One of the larger wetland areas (approximately 1,100 feet at its widest point) is crossed by the Applicant-Preferred Route, but the centerline is near the southern edge of the wetland and the ROW is expected to be shifted south to avoid or span the wetland area. All wetlands within the transmission line ROW would need to be delineated to avoid impacts during construction and maintenance activities.

3.4.3.11 Class I Cultural Resources Sites within 500 Feet

Each of the alternative routes, including the Applicant-Preferred Route, are within 500 feet of 5 to 7 previously identified cultural resources sites. The specific nature of these sites, the potential impacts of the Project, and potential avoidance/mitigation measures for these cultural resources sites will be addressed in the EA. In addition, all of the alternative routes (excluding the Applicant-Preferred Route) cross one recorded site, which has been determined to be potentially eligible for listing in the National Register of Historic Places (NHRP). Alternative Routes 1, 2, 3, and 4 and the Applicant-Preferred Route cross a second site that is listed as NRHP-eligible. Further analysis of all sites within 500 feet of the Project centerline will be required during the EA process and consultation with the South Dakota SHPO will determine potential effects and mitigation requirements. In most cases, cultural resources can be avoided by spanning the site or through protective measures implemented during construction. In some cases, the transmission line may need to be relocated or the artifacts could be recovered and preserved.

3.4.3.12 Length within Known Prairie Dog Colonies

All of the alternative routes traverse portions of previously documented prairie dog colonies, which may or may not currently be active. Prairie dog colonies are a potential concern since these colonies can provide nesting habitat for the burrowing owl, which is protected under the Migratory Bird Treaty Act. The length of the routes through prairie dog colonies ranged from 260 to 1,628 feet. The Applicant-Preferred Route would cross 1,097 feet of prairie dog colonies.

3.4.3.13 Raptor Nests within 0.25 mile of Centerline

While detailed nest surveys have not yet been completed, existing resource data compiled for this study indicate recorded raptor nests within 0.25 mile from some of the alternative routes. Alternative Routes 1, 2, 5, 6, 9, 10, 13, and 14 are all within 0.25 mile of one recorded raptor nest. All remaining routes, including the Applicant-Preferred Route, were not located in proximity to a recorded nest site and therefore, received a better ranking for this criterion.

3.4.3.14 Length within Sharp-Tailed Grouse Leks

There is one historic sharp-tailed grouse lek that has been identified within the Project study area. This historic grouse lek, which is located northwest of Reliance, would be crossed by alternative routes 1, 2, 3 and 4 and the Applicant-Preferred Route; however, the current status of this grouse lek is unknown. If this sharp-tailed grouse lek is determined to be active, construction of the transmission line may need to occur outside of the breeding season or the transmission line may need to be re-routed to avoid impacts to this sensitive species habitat.

3.4.4 Alternative Routes Removed From Further Consideration

As a result of the comparative analysis described in Section 3.3, including the quantitative data in Table 3-1, and consideration of the qualitative metrics described in Section 3.1, a number of the potential alternative routes were eliminated from further consideration. As listed in Table 3-1, the Applicant-Preferred Route ranked number 1 in comparison to all the other alternatives with a total score of 27. Several alternatives ranked in second and third place (Alternative Routes 5, 6, 7, 8, 15 and 16), with total scores of 28 and 29. The minimal spread in scores between the alternative routes is due to the fact that the difference between these routes is fairly minimal. As discussed previously, both quantitative and qualitative metrics were used to determine which routes should be eliminated. A summary of the rationale used to eliminate 14 of the alternative routes from further analysis is provided below:

- Routes 1 and 2 were eliminated since they had the greatest length of any alternative and both of these alternative routes scored poorly in the matrix.
- Routes 3 and 4 were very similar to each other. These alternative routes were eliminated based on length within known prairie dog towns and length crossing NWI wetlands.
- Routes 5, 6, 7 and 8 were eliminated since they used segments that crossed Indian Trust land.
- Route 9 was eliminated due to length within known prairie dog towns and because it had the highest length within 100 feet of perennial streams. This alternative route had the worst overall score in the matrix.
- Routes 11 and 12 were very similar to each other. Those alternatives were eliminated based on length within known prairie dog towns and length crossing NWI wetlands.
- Routes 13 and 14 were also similar to each other. These routes were the second longest routes at 76 miles each and had the greatest length within 100 feet of perennial streams.

- Route 15 is similar to Route 16, but Route 15 had a longer length within 100 feet of perennial streams.

Alternative Route 16 had minimal constraints, scored well in the matrix (total rank of 3), and shared few segments with the Applicant-Preferred Route. Therefore, Alternative Route 16 was determined to provide a reasonable alternative to the Applicant-Preferred Route. Other routes that ranked in second or third place were nearly identical to the Applicant-Preferred Route or to Alternative Route 16 and therefore, did not represent reasonable additional alternatives. Although Alternative Route 10 does not perform well in the matrix when compared with the other alternative routes (Route 10 received a total score of 34 with a rank of 7 in Table 3-1), this route was retained for evaluation in the EA since the route provides a distinctly different alternative route than either the Applicant-Preferred Route or Alternative Route 16. Additional features of the Alternative Routes and the Applicant-Preferred Route are described in Section 4.0 below.

4.0 IDENTIFICATION OF ROUTES FOR ANALYSIS IN THE EA

As described in Section 3.1, both quantitative and qualitative criteria were used to evaluate the 16 alternative routes and the Applicant-Preferred Route and to identify two alternative routes for analysis in the EA. Basin Electric and Western worked closely with RUS, Native American tribal representatives, the U.S. Army Corps of Engineers, and local landowners to identify potential routes that would best meet the Project objectives and purpose and need, while minimizing adverse environmental effects and conflicts with existing land uses. This process resulted in the identification of the Applicant-Preferred Route, which will be evaluated in detail in the EA. Basin Electric will continue to refine this route such that some potential impacts can be minimized or avoided long before construction occurs. In comparison, no comparable route refinement process has been conducted for the alternative routes.

In addition to the Applicant-Preferred Route, two alternative routes were identified based on the route screening analysis described in Section 3. This quantitative and qualitative process resulted in the identification of Alternative Routes 10 and 16. The selected routes represent a reasonable range of alternative routes within the Project study area and these routes will be evaluated in the EA. Figure 4-1 illustrates the three selected alternative routes.

4.1 Alternative Route 10

As illustrated in Table 3-1, the following features of Alternative Route 10 are favorable:

- Route 10 is slightly shorter than the Applicant-Preferred Route.
- Route 10 has a shorter length across waterbodies when compared with Applicant-Preferred Route.

Potentially unfavorable aspects of Alternative Route 10 include:

- Only 35 percent of the total length of Route 10 is adjacent to existing linear features.
- Route 10 crosses an existing reservoir.
- Route 10 crosses 7 perennial streams and has the longest length within 100 feet of perennial and intermittent streams.
- Route 10 has the second longest length within known prairie dog towns.

4.2 Alternative Route 16

As illustrated in Table 3-1, the following features of Alternative Route 16 are favorable:

- Route 16 is approximately 2 miles shorter than Route 10 and approximately 3 miles shorter than the Applicant-Preferred Route.
- Route 16 has the shortest length crossing waterbodies and NWI wetlands.

- Route 16 has the shortest length within previously documented prairie dog colonies.

Potentially unfavorable aspects of Alternative Route 16 include:

- Only 37 percent of the total length of Route 16 is adjacent to existing linear features.
- Route 16 crosses 7 perennial streams.
- Route 16 has a longer length within 100 feet of perennial and intermittent streams when compared with the Applicant-Preferred Route.

4.3 Applicant-Preferred Route

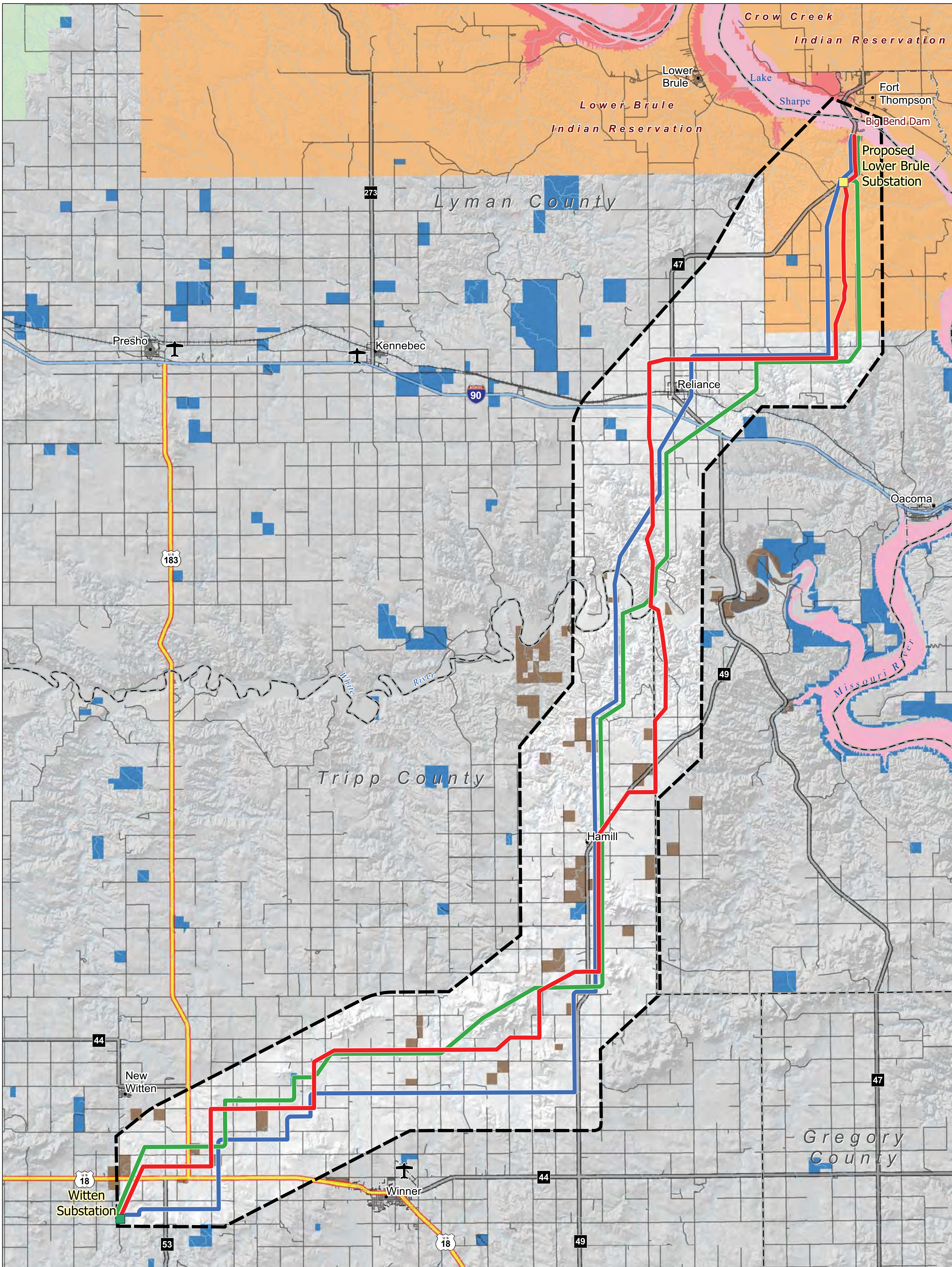
Favorable aspects of the Applicant-Preferred Route compared with the two alternative routes include:

- The route has the greatest percentage of alignment paralleling linear features.
- The route is not within 150 feet of any known communications facilities.
- The route has the fewest crossings of perennial streams and the shortest length within 100 feet of perennial and intermittent streams.

Potentially unfavorable aspects of the Applicant-Preferred Route compared with the two alternative routes include:

- The Applicant-Preferred Route is longer than Routes 10 and 16.
- The centerline of the Applicant-Preferred Route encroaches on and crosses Indian Trust land for approximately 2,614 feet; although as previously described, Basin Electric will completely avoid this parcel during the easement acquisition process.
- Based on the centerline used in this analysis, the Applicant-Preferred Route had two residences within 500 feet of centerline compared to one residence along Routes 10 and 16. However, as a result of recent adjustments to the Applicant-Preferred Route, Basin Electric has confirmed there are presently no occupied residences within 500 feet of the centerline.
- The Applicant-Preferred Route has the greatest length crossing waterbodies and NWI wetlands.
- The Applicant-Preferred Route is the only one of the three retained routes that traverses a historic sharp-tailed grouse lek.

All of these resource issues will be thoroughly evaluated in the EA, and none of the issues identified in this preliminary screening of the alternatives appear to be insurmountable from a routing and permitting perspective. It is likely that all of the potential impacts associated with the Applicant-Preferred Route (or either of the alternative routes) can be minimized or avoided through minor adjustments as needed and through standard construction mitigation practices.



BIG BEND TO WITTEN TRANSMISSION PROJECT

Project Features	Jurisdiction	Transportation	Boundaries
Project Study Area	DOD - Army Corps of Engineers	Interstate	County
Applicant-Preferred Route	Recreation Areas	U.S. Highway	Municipal
Route 10	BIA - Indian Reservation	State Highway	
Route 16	USFS - National Grassland	Other Road	**Utility System**
	State of South Dakota	Railroad	Existing Substation
	Indian Trust Land	Airport	Proposed Substation

Note: Routes 10 and 16 offset for display purposes.

APPLICANT-PREFERRED ROUTE AND SELECTED ALTERNATIVES

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Denver, CO 80202

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Date Modified: November 21, 2011
Projection: NAD 1983 State Plane, South Dakota South, Feet
Data Sources: ESRI, BTS, US Census, Basin, USGS, SDGIS, USACE

FIGURE 4-1

5.0 REFERENCES

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Appendix D

Environmental Protection Measures

1. Jurisdictions, Land Use, and Agricultural Practices

Land Use

- The movement of crews and equipment will be limited to the right-of-way (ROW) and other areas that have been cleared for cultural, historical, and biological resources. The construction contractor will limit movement on the ROW so as to minimize damage to rangeland, cropland, or property.
- The ROW across the Lower Brule Sioux Indian Reservation will be issued as a lease as negotiated with the LBST.

Agricultural Practices

- Where practical, construction activities will be scheduled during periods when agricultural activities would be minimally affected or the landowner will be compensated accordingly.
- Fences, gates, and similar improvements that are removed or damaged will be promptly repaired or replaced. New gates may be installed, if deemed appropriate.
- The ROW will be purchased through negotiations with each landowner affected by the proposed project and payment will be made of full value for crop damages or other property damage during construction or maintenance.
- When weather and ground conditions permit, all deep ruts that are hazardous to farming operations and to movement of equipment will be eliminated or compensation will be provided if the landowner desires. Such ruts will be leveled, filled, and graded, or otherwise eliminated in an approved manner. Ruts, scars, and compacted soils from construction activities in cropland or rangeland will be loosened and leveled by subsoiling, paraplowing, scarifying, harrowing, or disking, as appropriate. Damage to ditches, roads, and other features of the land will be corrected. The land and other features will be restored as nearly as practicable to their original conditions.

2. Geology, Minerals, and Soils

Soils

- Excess subsoils and rock will be hauled off-site to an approved landfill.
- Erosion and sediment controls will be established prior to construction, then maintained and controlled through application of Storm Water Pollution Prevention Plans (SWPPPs).
- Sediment control measures (e.g., installation of silt fences) will be used, where appropriate, to prevent sediment from moving off-site and into waterbodies.
- Maintenance operations will be scheduled during periods of minimum precipitation to minimize the potential of surface runoff and to reduce the risk of erosion, rutting, sedimentation, and soil compaction. However, emergency repairs to the proposed transmission line may occur during periods of inclement weather. Ruts, scars, and compacted soils resulting from emergency activities will be repaired by subsoiling, paraplowing, scarifying, harrowing, or disking, as appropriate.
- Temporary laydown areas will be located in previously disturbed areas and/or areas previously surveyed for cultural and biological resources.
- Landslide-prone areas associated with the Pierre Shale would be assessed for potential instability. Such assessment would include, if necessary, review of available information concerning areas of mapped landslides, descriptions of historic landslides, and consultation with appropriate governmental agency personnel who are knowledgeable about the hazards.

Assessment shall also include field surveys and gathering of geotechnical information to determine what engineering design methods would mitigate or lessen potential risks. If the risks cannot be practically mitigated or lessened, then avoidance of potentially unstable areas is recommended such as relocation of routes to more stable bedrock. If avoidance is not possible, then appropriate design standards should be used to mitigate the risk to the furthest extent possible.

3. Vegetation and Noxious Weeds

Vegetation

- Where wooded areas cannot be avoided, the proposed transmission line will be placed in areas with the lowest density of trees, whenever feasible, thereby reducing the number of trees that will require removal within the construction ROW.
- All vegetative materials resulting from clearing operations will either be chipped on site, or removed and disposed of in a permitted facility.
- Existing native vegetation within the construction ROW will be preserved whenever feasible.
- Surface disturbance areas will be reclaimed using native species, as approved by the Natural Resources Conservation Service, county extension agency, or landowners, and will be planted at the appropriate times in order to reestablish native vegetative cover and minimize the potential for invasion by non-native species.
- Wetland and riparian communities will be spanned by the proposed transmission line, thereby avoiding impacts to these ecosystems.
- Erosion and sedimentation controls will be implemented to minimize indirect impacts to wetlands and riparian areas.
- If herbicides are used to remove woody species that become established in the ROW and pose a hazard to the transmission line, they will be used in an appropriate manner.
- Mulch and seeds used for revegetation, erosion, and sediment control will be certified as weed-free.

Noxious Weeds

- If noxious weeds are observed in the surface disturbance areas, populations will be controlled with the application of herbicides, which will be applied by a certified herbicide applicator in accordance with label instructions and State and local County Weed Board regulations. Biological control methods (i.e., use of spurge beetles, etc.) also may be considered for weed control, in consultation with appropriate agencies.
- Herbicides will not be used near surface water.
- Prior to the initiation of construction activities, construction vehicles and equipment will be thoroughly cleaned to prevent the possible spread of noxious weed seeds within the project area.
- The construction ROW and other surface disturbance areas will be monitored annually for noxious weeds for a 3-year period following construction and reclamation. Landowners will be consulted regarding all noxious weed control measures and issues.
- Herbicide applications will occur in late spring or early summer to eradicate or control noxious weeds before they mature.

4. Fish and Wildlife Resources

- Prior to surface disturbance activities during the migratory bird (not including raptors) breeding season (April 15 through July 15), a qualified biologist will survey within suitable ROW habitat (i.e., non-cultivated land) for nesting activity and other evidence of nesting (e.g., mated pairs, territorial defense, birds carrying nest material, transporting food). If active nests are located, or other evidence of nesting is observed, appropriate protection measures, including establishment of buffer areas and constraint periods, will be implemented until the young have fledged and dispersed from the nest area. These measures will be implemented on a site-specific and species-specific basis, in coordination with applicable state and federal agencies and the Lower Brule Sioux Tribe, as needed.
- If construction is to occur during the breeding season for raptors (February 1 through August 15), prior to construction activities, raptor breeding surveys will be conducted by a qualified biologist through areas of suitable nesting habitat to identify any active nest sites within 0.5 mile (1.0 mile for bald eagles) from the project area. If applicable, appropriate protection measures, including seasonal constraints and establishment of buffer areas will be implemented at active nest sites until the young have fledged and have dispersed from the nest area. These measures will be implemented on a site-specific and species-specific basis, in coordination with applicable state and federal agencies and the LBST, as needed
- Standard measures to minimize avian collision risk with overhead transmission lines, as outlined in *Reducing Avian Collisions with Power Lines* (Avian Power Line Interaction Committee [APLIC] 2012), will be examined and appropriate measures will be developed in coordination with applicable state and federal agencies and the LBST, as needed
- Adequate raptor proofing designs, as described in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006), will be implemented on the structures in coordination with applicable state and federal agencies and the LBST, as needed.
- Holes that are drilled or excavated for pole placement or foundation construction and left unattended overnight will be marked and secured with temporary fencing and plywood covers to reduce the potential for livestock and wildlife entering the holes and for public safety.

5. Threatened and Endangered Species

- In order to minimize impacts to threatened and endangered species, Basin Electric will implement mitigation measures presented during the Section 7 consultation between RUS and the USFWS. The USFWS concurred with the mitigation measures presented in the EA (Larson 2013; **Appendix E**).

6. Wetlands, Floodplains, and Water Quality

- A pre-construction wetland and waterbody survey will be conducted prior to construction to determine the location and spatial extent of wetlands and waterbodies within the project area. All features will be mapped using a Global Positioning System device to enable feature avoidance and site-specific structure placement. In localized areas where detailed wetland mapping will be required for appropriate structure placement to avoid wetland impacts, the U.S. Army Corps of Engineers–approved three-parameter approach will be used to delineate wetland boundaries.
- A 100-foot buffer will be established adjacent to wetlands and streams, where practicable, to prevent or minimize impacts to those ecosystems. Construction vehicles and equipment will not traverse through wetlands and riparian areas, thereby avoiding direct impacts to these sensitive areas.
- Transmission line structures will be sited so that streams and drainages are spanned and remain undisturbed. Construction and maintenance access also will avoid these areas.

- Staging areas and refueling areas will not be located near surface waterbodies.
- Areas that need to be cleared during construction will be revegetated with an approved native seed mix as soon as technically feasible to minimize soil erosion and sediment runoff.
- A Spill Prevention and Response Plan will be developed prior to the start of construction to prevent the potential for spills of hazardous substances into streams and drainages, and potential contamination of groundwater. The plan will include a procedure for storage of hazardous materials and refueling of construction equipment outside of riparian zones, spill containment and recovery plan, and notification and activation protocols.
- Refueling of construction vehicles will occur at commercial fueling facilities and staging areas, if on-site fuel storage is needed for refueling.
- A SWPPP will be developed and implemented prior to initial construction activities. This Plan will include an analysis of materials that will be utilized and site activities that could potentially impact storm water and the associated mitigation measures to minimize that potential. Plan implementation will include regular inspections of areas under construction, material storage and laydown areas, and structural devices for storm water management. All construction personnel will be trained and required to comply with Plan's requirements and the maintenance of all environmental protection measures. The SWPPP will be maintained until final stabilization of all disturbed areas has been completed.

7. Cultural Resources and Native American Traditional Values

- If any previously unknown cultural resources or human remains are discovered during project construction, all work within 200 feet of the discovery that might adversely affect the cultural resource or human remains will cease until the agencies, in consultation with the appropriate parties, can evaluate the discovery. The agencies will be notified immediately (within 24 hours) and will have a qualified professional archaeologist and tribal representative (if necessary) with the proper expertise for the suspected resource type on-site as soon as possible. Construction in the immediate vicinity of the discovery will not proceed until authorized by the agencies.
- Basin Electric will ensure that all of their personnel, contractors, and subcontractors will not engage in the illegal collection, damage, or vandalism of historic and prehistoric resources.
- Basin Electric will retain a tribal monitor during construction activity.

8. Air Quality

- Fugitive dust emissions generated as a result of surface disturbance activities and vehicle use of access roads will be controlled by the periodic application of water, if necessary.
- Vehicles and equipment will be properly maintained to avoid excessive emission of exhaust gases due to poor engine adjustments.
- The speed of vehicles traveling on unpaved roads will be limited, to the extent practicable, to reduce the generation of fugitive dust.
- Burning waste materials within the ROW will not be permitted and all waste materials will be disposed of at permitted waste disposal areas or landfills.

9. Visual Resources

- In order to minimize aesthetic impacts for motorists traveling on the Native American Scenic byway (SH 47), junipers and other woody species would be planted in irregular patterns between SH 47 and the Lower Brule Substation, in coordination with the Lower Brule Tribe.

10. Transportation

- The transportation of materials and equipment will be conducted in accordance with South Dakota Department of Transportation regulations.
- All necessary provisions will be made to conform to safety requirements for maintaining the flow of public traffic. Construction operations will be conducted to offer the least possible obstruction and inconvenience to public traffic.
- Public roads, section lines and existing trails will be used, to the extent practicable, to access the proposed transmission line.

Appendix E

Agency and Tribal Consultation Letters

SOUTH DAKOTA
STATE HISTORICAL SOCIETY
DEPARTMENT OF TOURISM

July 24, 2013

Mr. Kevin Solie
Basin Electric Power Cooperative
1717 East Interstate Ave.
Bismarck ND 58503

INITIAL SECTION 106 PROJECT CONSULTATION
Project: 130621004F – Big Bend to Witten transmission line
Location: Multiple Counties
(RUS)

Dear Mr. Solie:

Thank you for the opportunity to comment on the above referenced project. On June 21, 2013, we received the information regarding the proposed line placement in South Dakota for Basin Electric Power Cooperative.

Given that there is no direct federal involvement in your project at this time, we can only make a preliminary recommendation. Based on the information provided in your correspondence and the report "A Class III Cultural Resources Survey and a Traditional Cultural Property Survey of the Proposed Big Bend to Witten Transmission Line Corridor, Lyman and Tripp Counties, South Dakota for Basin Electric Power Cooperative" by Brian L. Molyneaux, PhD and Florentine Blue Thunder, and your additional information provided on July 18th, 2013, we would recommend a determination of "No Historic Properties Affected" provided the following stipulations: 1) all eligible and unevaluated sites are avoided by all construction activities 2) activities occurring in areas not identified in your correspondence are submitted to SHPO for further review and comment.

Please note this recommendation is limited to the areas identified in this request and does not apply to any staging or material storage areas.

After the agency official has completed the Section 106 process if historic properties are discovered or unanticipated effects on historic properties are found, the agency official shall avoid, minimize or mitigate the adverse effects to such properties and notify the SHPO and Indian tribes that might attach religious and cultural significance to the affected property within 48 hours of the discovery, pursuant to 36 CFR part 800.13.

Consultation with the SHPO does not relieve the federal agency official from consulting with other appropriate parties, as described in 36CFR Part 800.2(c).

Should you require any additional information, please contact Amy Rubingh, at (605) 773-8370. We appreciate your concern for the non-renewable cultural heritage of our state.

Sincerely,

Jay D. Vogt
State Historic Preservation Officer

Amy Rubingh

Amy Rubingh
Review and Compliance Archaeologist

CC: Deirdre Remley – deirdre.remley@wdc.usda.gov – USDA Rural Utilities Service

BASIN ELECTRIC
POWER COOPERATIVE

1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58503-0564
PHONE 701-223-0441
FAX: 701-557-5336

June 19, 2013

Scott Larson, Field Supervisor
U. S. Fish and Wildlife Service
South Dakota Field Office
420 S. Garfield Avenue, Suite 400
Pierre, SD 57501-5408

Dear Mr. Larson:

The enclosed Biological Assessment (BA) is hereby submitted for consideration as informal consultation with the U.S. Fish and Wildlife Service (Service) in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) for the Big Bend to Witten 230-kV Transmission Project (Project) as proposed by Basin Electric Power Cooperative (Basin Electric). The BA addresses six federally listed species and one federal candidate species, which were identified by the U.S. Fish and Wildlife Service (USFWS) as occurring within or near the study area.

Basin Electric is seeking financial assistance from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS), as well as an interconnection agreement from the U.S. Department of Energy, Western Area Power Administration (Western). RUS is the lead agency and Western is a cooperating agency. RUS is requesting written concurrence from the USFWS on the determinations that have been reached for the proposed project. The following table contains the species considered in the BA, as well as the effects determination for each species.

Species	Status	Habitat	Potential for Occurrence in Project Area	Preliminary Determination	Rationale
Black-footed ferret (*Mustela nigripes*)	E	The species inhabits prairie dog colonies	Potential to occur	May affect, not likely to adversely affect	Endangered/ Non-essential Experimental Population (EXPN)

Species	Status	Habitat	Potential for Occurrence in Project Area	Preliminary Determination	Rationale
Whooping crane (*Grus Americana*)	E	During migration, freshwater marshes, wet prairies, shallow portions of waterbodies, and grain and stubble fields are utilized for foraging.	Potential to occur	May affect, not likely to adversely affect	Appropriate conservation measures will be implemented to minimize potential impacts.
Interior least tern (*Stema altillarum ssp. athalassos*)	E	During migration, shallow waters of rivers, streams, and lakes are utilized for foraging.	Potential to occur	May affect, not likely to adversely affect	The species may be present at the Missouri River. Appropriate conservation measures will be implemented to minimize potential impacts.
Piping plover (*Charadrius melodus*)	T	During migration, shallow waters of rivers, streams, and lakes are utilized for foraging.	Potential to occur	May affect, not likely to adversely affect	The species may be present at the Missouri River. Appropriate conservation measures will be implemented to minimize potential impacts.
American burying beetle (*Nicrophorus americanus*)	E	The species inhabits grassland and native prairie.	Potential to occur	May affect, not likely to adversely affect	The Project would disturb a small amount of potential habitat in the extreme northern extent of the known geographic range for this species.

Key = E –Endangered, T –Threatened

A summary of proposed conservation measures, which will continue to be refined in coordination with applicable state and federal agencies and the Lower Brule Sioux Tribe as needed, includes:

- Standard measures to minimize avian collision risk with overhead transmission lines, as outlined in *Reducing Avian Collisions with Power Lines* (Avian Power Line Interaction Committee [APLIC] 2012), will be examined and appropriate measures developed as needed.
- Adequate raptor proofing designs, as described in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006), will be implemented on transmission structures.
- Siting of Project components will be avoided within active prairie dog colonies, to the extent practicable.
- Anti-perch devices will be placed on transmission structures that occur in active prairie dog colonies as determined through further coordination.
- Although the USFWS has not recommended surveys for the black-footed ferret, surveys will be completed if requested by the Lower Brule Sioux Tribe as additional information on habitat quality and ferret population status becomes available.
- Line marking according to APLIC guidelines in areas of suitable crane stopover habitat to mitigate collision risk for migrating whooping cranes as discussed with the USFWS South Dakota Ecological Services Office and the Lower Brule Sioux Tribe. This measure also serves to mitigate collision risk for migrating and foraging interior least terns and piping plovers.
- Project staff will be trained to recognize whooping cranes, any sightings will be immediately reported to the USFWS, South Dakota Field Office, and, if whooping cranes were to be sighted during construction, activities will cease until the birds move away from the Project ROW.
- Existing native vegetation within the construction ROW will be preserved whenever feasible.
- Surface disturbance areas will be reclaimed using native species, as approved by the county extension agency or landowners, and will be planted at the appropriate times in order to re-establish native vegetative cover and minimize the potential for invasion by non-native species.
- Wetland and riparian communities will be spanned by the proposed transmission line, thereby avoiding impacts to these ecosystems.
- Erosion and sedimentation controls will be implemented to minimize indirect impacts to wetlands and riparian areas.
- If herbicides are used to remove woody species that become established in the ROW and pose a hazard to the transmission line, they will be used in an appropriate manner.

- Mulch and seeds used for re-vegetation, erosion, and sediment control will be certified as weed-free.
- Implement additional mitigation measures resulting from Section 7 consultation between Rural Utilities Service and the U.S. Fish and Wildlife Service.

Based on the information in the BA and the conservation measures that Basin Electric has committed to, Basin Electric recommends an overall finding of "may affect, not likely to adversely affect" federally listed species for the Project. If you agree, please provide us with documentation of your concurrence.

If you require further information, please contact Basin Electric's Environmental Project Manager, Kevin Solie at ksolie@bepc.com or 701.557.5495 or RUS's Environmental Project Manager, Deirdre Remley at deirdre.remley@wdc.usda.gov or (202) 720-9640.

Sincerely,

Kevin L. Solie
Senior Environmental Coordinator

/ser

Enclosure

cc: Deirdre Remley, RUS
Rod O'Sullivan, Western

The U.S. Fish and Wildlife Service concurs with your conclusion that the described project will not adversely affect listed species. Contact this office if changes are made or new information becomes available.

6/26/13
Date

SD Field Supervisor
USFWS

APR 2 2 2011

Chairman Charles Murphy
Standing Rock Sioux Tribe
PO Box D
Fort Yates, North Dakota 58538

Dear Mr. Murphy

The Rural Utilities Service (RUS), an agency of the U.S. Department of Agriculture, is considering an application for financial assistance from Basin Electric Power Cooperative (BEPC) to construct and operate a new 230-kilovolt (kV) transmission line in Lyman and Tripp Counties, South Dakota. The proposed Big Bend to Witten Transmission Line (Project) will interconnect with the Western Area Power Administration (Western) transmission system in order to meet existing and future electric power requirements in south central South Dakota, including the proposed Keystone XL Pipeline. The proposed Project will transfer power from Western's transmission system at a new substation to be located near Big Bend Dam, South Dakota to the Rosebud Electric Cooperative Witten Substation near Witten, South Dakota. RUS is considering funding this application, which would make it an undertaking subject to review under Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470f, and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800).

The proposed Project plans to construct the following components: (1) a 230-kV single circuit transmission line predominately using steel single-pole self-supporting structures within a 125-foot-wide right-of-way (ROW) approximately 70 miles long; (2) an addition to the existing Witten Substation; and (3) a new substation, designated as the Lower Brule Substation. Located near the town of Witten, South Dakota, the Witten Substation is owned by Rosebud Electric Cooperative. BEPC proposes to build and own the new addition to this substation. BEPC anticipates that other communication facility additions or enhancements will be necessary for the Project, including radio towers and buildings at the substations; and other intermediate sites.

Western plans to build the new Lower Brule Substation near Big Bend Dam and approximately two miles of double-circuit line to connect this new facility to the dam. Western has determined that implementation of these proposed plans is an undertaking subject to review under 36 CFR Part 800. In accordance with 36 CFR § 800.2(a)(2), Western has designated RUS as the lead Federal agency fulfilling their collective responsibilities under Section 106.

The location of the proposed Project is described in the enclosed map. Approximately six miles of the proposed transmission line as well as the Lower Brule substation will be located on the Lower Brule Indian Reservation. The remainder of the proposed Project is located within the historic homeland of the Lower Brule Sioux and the Rosebud Sioux Tribes. Accordingly, BEPC, using aerial imagery and topographic maps, has worked closely with these tribes to develop the Project corridor and route alternatives shown on the enclosed map.

RUS is inviting the Standing Rock Sioux Tribe to participate in government-to-government consultation for this undertaking. Please advise RUS of your decision by May 13, 2011. RUS has submitted more detailed project documentation to Waste'Win young.

RUS appreciates your attention to this matter. Pursuant to its regulations at 7 CFR Part 1794 implementing the National Environmental Policy Act, RUS will be hosting Scoping meetings for this project in South Dakota on April 26-27, 2011. More detailed information about these meetings is enclosed if you would like to attend.

Should you have any questions or require additional information, please contact Mr. Richard Fristik, Senior Environmental Protection Specialist, at 202-720-5093 or via email at Richard.Fristik@wdc.usda.gov.

Sincerely,

Mark S. Plank

MARK S. PLANK
Director
Engineering and Environmental Staff
Water and Environmental Programs

Enclosures

Cc: EES file EES RFristik EES MPlank EES LDean
Rod O'Sullivan, Environmental Protection Specialist
Western Area Power Administration, Corporate Services Office
12115 W. Alameda Parkway
P.O. Box 281213
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Kevin L. Solie, Senior Environmental Analyst
Basin Electric Power Cooperative
1717 East Interstate Ave
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Jon Alstad, Senior Project Manager
Environment
AECOM
1601 Prospect Parkway
Fort Collins, CO 80525

Stephen Tromly, Archeologist
Western Area Power Administration, Corporate Services Office
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Jeff Irwin
Archaeologist, Upper Great Plains
Western Area Power Administration
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Tribal Leaders Distribution List

Chairman Kevin Keckler
Cheyenne River Sioux Tribe
PO Box 590
Eagle Butte, SD 57625

Chairman Duane Big Eagle
Crow Creek Sioux Tribe
PO Box 50
Fort Thompson, SD 57339

President John Yellow Bird Steele
Oglala Sioux Tribe of the Pine Ridge Reservation
PO Box 2070
Pine Ridge, SD 57770

Chairwoman Rebecca White
Ponca Tribe of Nebraska
PO Box 288
Niobara, NE 68760

Chairman Douglas Rhodd
Ponca Tribe of Oklahoma
20 White Eagle Drive
Ponca City, OK 74601

Chairman Roger Trudell
Santee Sioux Nation
108 Spirit Lake Avenue West
Niobara, NE 68760-7219

Chairman Charles Murphy
Standing Rock Sioux Tribe
PO Box D
Fort Yates, ND 58538

Chairman Michael B. Jandreau
Lower Brule Sioux Tribe
187 Oyate circle
Lower Brule, SD 57548

President Rodney M. Bordeaux
Rosebud Sioux Tribe
PO Box 430
Rosebud, SD 57570

APR 2 2 2011

Clair Green, Director
Cultural Resource Office
Lower Brule Sioux Tribe
187 Oyate Circle
Lower Brule, South Dakota 57548

Dear Mrs. Green:

As you know, the Rural Utilities Service (RUS), an agency of the U.S. Department of Agriculture, is considering an application for financial assistance from Basin Electric Power Cooperative (BEPC) to construct and operate a new 230-kilovolt (kV) transmission line in Lyman and Tripp Counties, South Dakota. The proposed Big Bend to Witten Transmission Line (Project) will interconnect with the Western Area Power Administration (Western) transmission system in order to meet existing and future electric power requirements in south central South Dakota, including the proposed Keystone XL Pipeline. The proposed Project will transfer power from Western's transmission system, at a new substation to be located near Big Bend Dam, South Dakota to the Rosebud Electric Cooperative Witten Substation near Witten, South Dakota.

The proposed Project plans to construct the following components: (1) a 230-kV single circuit transmission line predominately using steel single-pole self-supporting structures within a 125-foot-wide right-of-way (ROW) approximately 70 miles long; (2) an addition to the existing Witten Substation; and (3) a new substation to be built by Western, designated as the Lower Brule Substation. BEPC anticipates that other communication facility additions or enhancements will be necessary for the Project, including radio towers and buildings at the substations and one or two intermediate sites.

Approximately six miles of the proposed transmission line as well as the new Lower Brule substation will be located on the Lower Brule Indian Reservation. Furthermore, the remainder of the proposed Project will be located on lands considered to be the historic homeland of the Lower Brule Sioux and the Rosebud Sioux Tribes.

Both RUS and Western have responsibilities to conduct review for the referenced proposal under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800). In order to streamline this review, Western has designated RUS as the lead Federal agency fulfilling their collective responsibilities under Section 106 in accordance with 36 CFR § 800.2(a)(2).

Through early coordination, consultations, meetings over the past year, and the assistance of both Tribes, BEPC was able to develop a Project corridor and route alternatives, as shown on the enclosed map, that are more likely to avoid or minimize impacts to the cultural resources important to your tribe. Now that RUS is taking the lead on this proposed project, the intent of this letter is to formalize the government to government consultation requirements under the National Environmental Policy Act and NHPA Section 106 process. RUS, Western and BEPC will continue to work closely with you as the environmental assessment and review under Section 106 proceeds.

As discussed at an earlier meeting, public scoping meetings are being planned for two communities (Reliance and Winner) along the route of this proposed project. The public scoping meetings have been scheduled for April 26 and 27, 2011. It was agreed that we would have a tribal meeting during that timeframe, however due to conflicting meetings we would like to plan a consultation meeting for the week of June 6, 2011. Please let us know which day that week would be best for you. For your information, you will find enclosed detailed information about the upcoming scoping meetings to be held on April 26 and 27, 2011. Also enclosed is the letter sent to other tribes should they want to participate in this consultation.

RUS looks forward to working closely with you. Should you have any questions or require additional information, and to let us know which date in June is best for you, please contact Mr. Richard Fristik, Senior Environmental Protection Specialist, at (202) 720-5093 or via email at Richard.Fristik@wdc.usda.gov.

Sincerely,

Mark S. Plank

MARK S. PLANK
Director
Engineering and Environmental Staff
Water and Environmental Programs

Enclosures (*map, scoping notice, letter to other tribes*)

Cc: EES file EES RFristik EES MPlank

Rod O'Sullivan, Environmental Protection Specialist
Western Area Power Administration, Corporate Services Office
12115 W. Alameda Parkway
P.O. Box 281213
Lakewood, CO 80228-8213

Kevin L. Solie
Senior Environmental Analyst
Basin Electric Power Cooperative
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Jon Alstad, Senior Project Manager
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AECOM
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Stephen Tromly, Archeologist
Western Area Power Administration, Corporate Services Office
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David Kluth, Regional Preservation Officer
Western Area Power Administration
South Dakota Maintenance Office
200 4th Street SW
Huron, South Dakota 57350-2474

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Recall: s\WEP\RFristik\Big Bend to Witten 2 THPOS ltr 4-12-11.docx

THPO Distribution List

Mr. Dana Q. Dupris,
Acting Tribal Historic Preservation Officer
Cheyenne River Sioux Tribe Preservation Office
PO Box 590
Eagle Butte, SD 57625

Wanda Wells
Tribal Historic Preservation Officer
Crow Creek Sioux Tribe
PO Box 50
Fort Thompson, SD 57339

Wilmer Mesteth
Tribal Historic Preservation Officer
Oglala Sioux Tribe
PO Box 320
Pine Ridge, SD 57770

Gary Robinette
Tribal Historic Preservation Officer
Ponca Tribe of Nebraska
PO Box 288
Niobara, NE 68760

Paula Mendoza
Tribal Council Secretary/Treasurer
Ponca Tribe of Oklahoma
20 White Eagle Drive
Ponca city, OK 74601

Franky Jackson
Tribal Historic Preservation Officer
Santee Sioux Nation
108 Spirit Lake Avenue West
Niobara, NE 68760

Waste'Win Young
Tribal Historic Preservation Officer
Standing Rock Sioux Tribe
PO Box D
Fort Yates, ND 58538

Clair Green
Director, Cultural Resources Office
Lower Brule Sioux Tribe
187 Oyate Circle
Lower Brule, SD 57548

Russell Eagle Bear
Rosebud Sioux Tribe of Indians
Tribal Historic Preservation Officer
PO Box 809
Rosebud, SD 57570

Appendix F

Representative Relay Tower Viewshed Simulations at the Lower Brule Switchyard


Observation Point #2
150 foot Tower
Observation Point #1