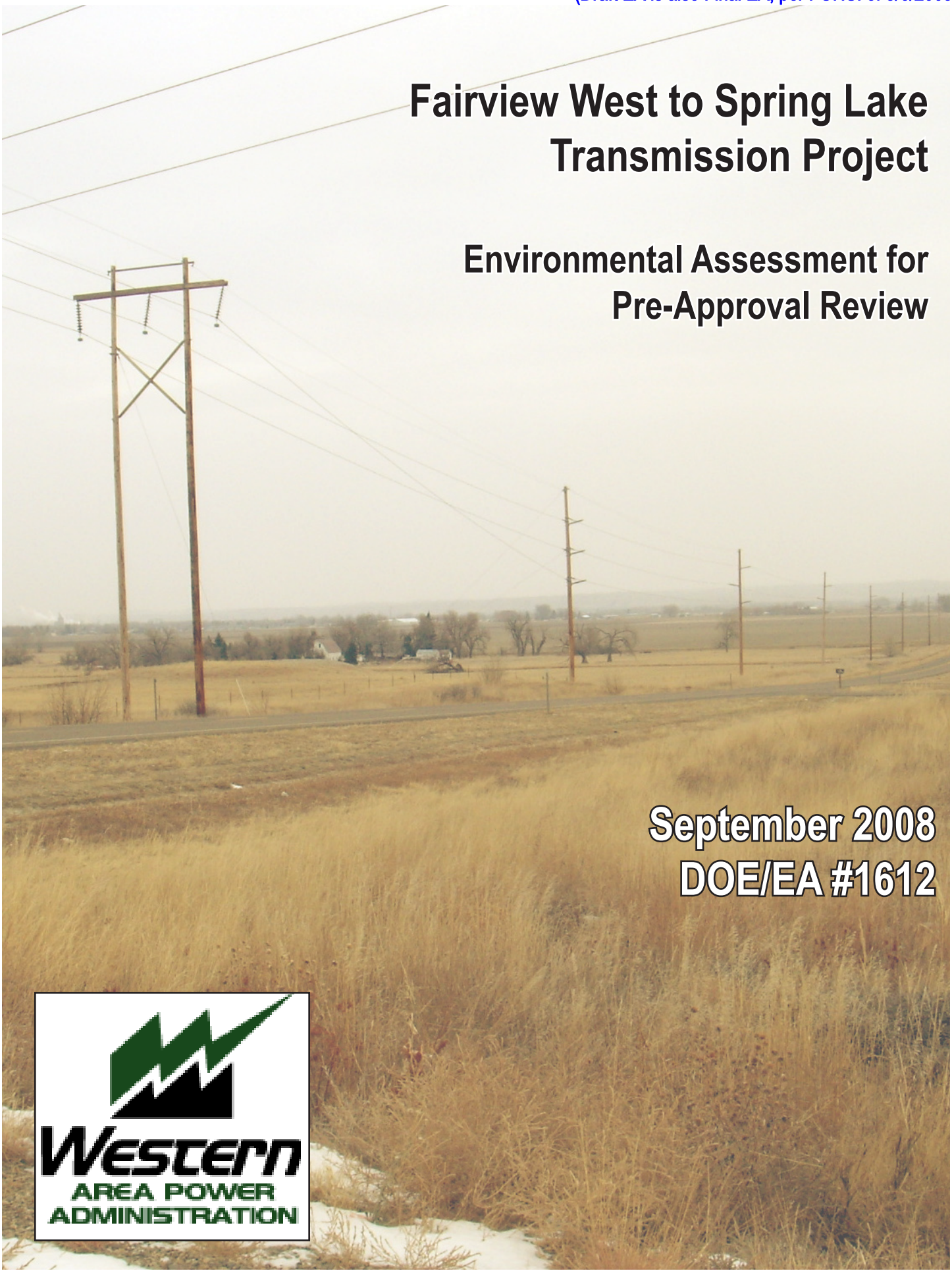
(Draft EA is also Final EA, per FONSI of 3/6/2009)



Fairview West to Spring Lake Transmission Project

Environmental Assessment for Pre-Approval Review

September 2008
DOE/EA #1612

Western
AREA POWER
ADMINISTRATION

FAIRVIEW WEST TO SPRING LAKE TRANSMISSION PROJECT

ENVIRONMENTAL ASSESSMENT FOR PRE-APPROVAL REVIEW

SEPTEMBER 2008

DOE/EA #1612

Western
AREA POWER
ADMINISTRATION

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ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

Abbreviation	Definition
Access Road	A dirt or graveled road or driveway used in areas where structures are not adjacent to township roads.
ACSR	aluminum core steel reinforced
ACSS	aluminum core steel supported
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
Applicant	Lower Yellowstone Rural Electric Association (LYREA)
Basin	Basin Electric Power Cooperative
BCC	Birds of Conservation Concern
BIA	United States Bureau of Indian Affairs
BLM	United States Bureau of Land Management
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
dB	decibel
dBA	A-weighted sound level recorded in units of decibels
DOE	Department of Energy
EA	Environmental Assessment
EMF	Electric and Magnetic Fields
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
Fort Peck	Fort Peck Indian Reservation
G	gauss
kV	kilovolt
LYREA	Lower Yellowstone Rural Electric Association
MBTA	Migratory Bird Treaty Act
MCA	Montana Code Annotated
MDEQ	Montana Department of Environmental Quality
MDU	Montana Dakota Utility
MFSA	Major Facility Siting Act
MFWP	Montana Fish, Wildlife and Parks
MNHP	Montana Natural Heritage Program
NAIP	National Agriculture Imagery Program
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System

Abbreviation	Definition
NRCS	National Resources Conservation Service
NRHP	National Register of Historical Places
NWI	National Wetlands Inventory
PEP	Population Estimates Program
ROW	right-of-way
RUS	Rural Utilities Service
SH	State Highway
Sheridan	Sheridan Electric Cooperative
SHPO	State Historic Preservation Office
SITLA	State Institutional and Trust Land Administration
SOC	species of concern
SPCC	Spill Prevention Control and Countermeasure Plan
Tariff	Notice of Final Open Access Transmission Service Tariff
UMG&T	Upper Missouri Generation and Transmission Electric Cooperative
USCB	U.S. Census Bureau
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Western	Western Area Power Administration
YRVP	Yellowstone River Valley Project

1.0 INTRODUCTION

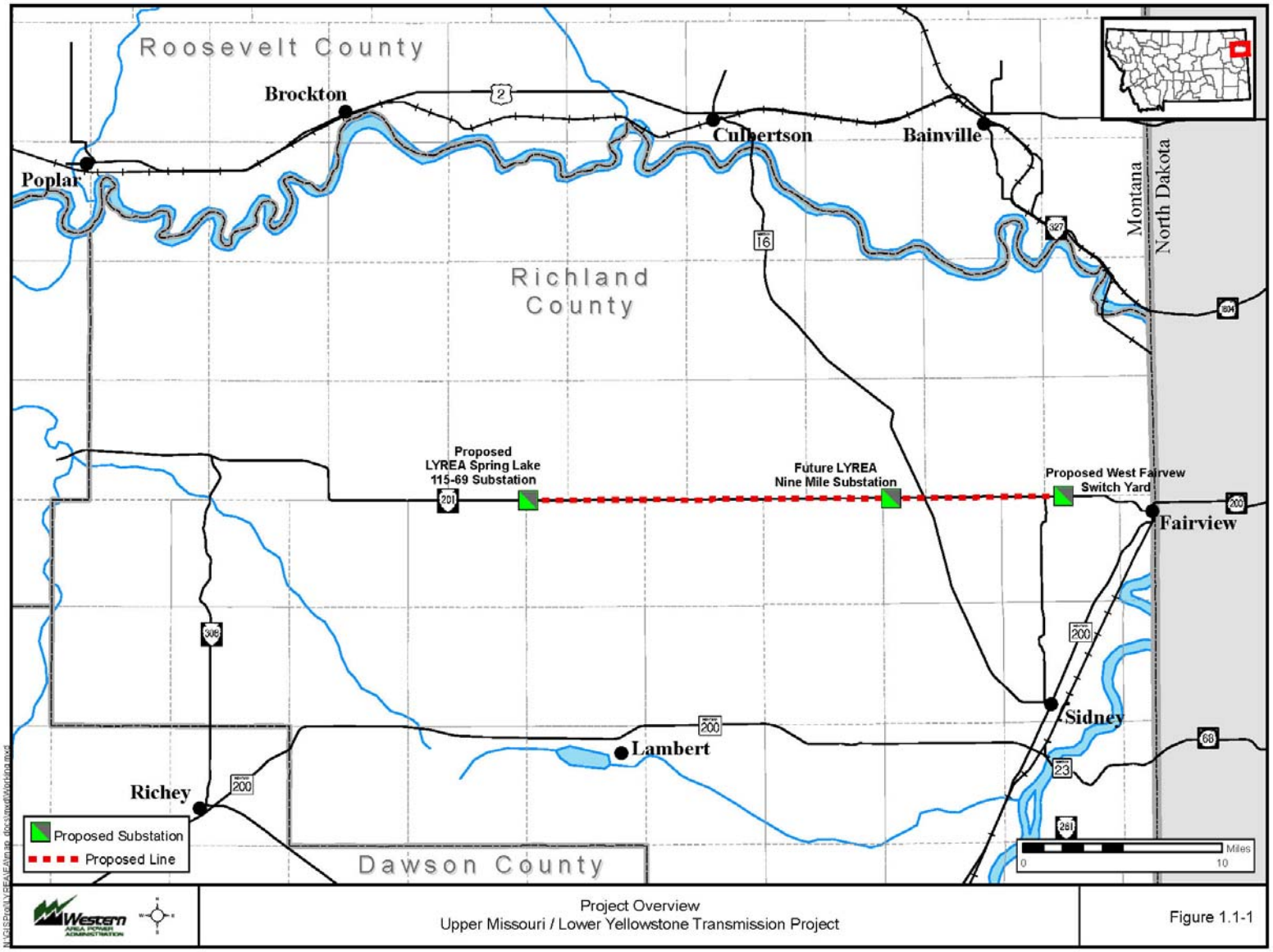
Lower Yellowstone Rural Electric Association (LYREA) has applied to the U.S. Department of Energy (DOE) Western Area Power Administration (Western) for a new electrical interconnection. Part of this project will require the construction of the new Fairview West switchyard which will be constructed, owned, operated and maintained by Western. LYREA is proposing to construct a new 115-kilovolt (kV) transmission line which will interconnect with an existing Western transmission line at the new Fairview West switchyard described above. The LYREA transmission line would extend about 27 miles, starting about 5 miles northwest of Fairview, Montana at Western's existing 115kV transmission line and terminating at the new LYREA Spring Lake substation on its western end. The Fairview West switchyard would be designed to accommodate future LYREA substation equipment, if needed to meet future load increases. In addition, one other potential future LYREA substation location is proposed, if needed to provide additional reliability.

The entire proposed project would be located in Richland County, Montana. Figure 1.1-1 provides an overview of the project facilities and locations, and a detailed description of the Proposed Action is provided in Section 2.0. In order for the Proposed Action to be constructed, Western must approve LYREA's interconnection request. Western's approval or denial of LYREA's interconnection request constitutes a Federal action under the National Environmental Policy Act (NEPA), Section 102(2) (1969), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulation (CFR) parts 1500-1508), DOE NEPA Implementing Procedures (10 CFR part 1021), and other regulations. Western prepared this environmental assessment (EA) under these regulations to analyze the environmental effects of the Proposed Action and alternatives, including the no-action alternative.

1.1 PURPOSE OF AND NEED FOR ACTION

LYREA is experiencing unplanned load growth related to new oil and gas activity in the area generally from northwest of Sidney, in Richland County, Montana, to the Elmdale vicinity. LYREA also anticipates that additional future load growth may occur in this area associated with increased electrical needs at an existing compressor station and potential future oil and gas development activities in this area. The current transmission system is not capable of reliably meeting this load growth due to existing load demands and the existing system design limitations. As a result, LYREA is proposing to construct a new transmission facility to meet the increased demand, and potential future demands, in the most reliable manner possible to avoid jeopardizing the existing transmission system and the service provided to its existing or new customers. The new transmission line and substations will ensure that the new area has reliable infrastructure for existing and future load demands.

FIGURE 1.1-1 PROJECT OVERVIEW



1.1.1 NEED FOR AGENCY ACTION

Western needs to respond to LYREA's application for interconnection to the Federal power system and ensure reliability of the Federal power system. In responding to the need for agency action, Western must abide by the following purposes:

- **Providing Transmission Service.** Western published its *Notice of Final Open Access Transmission Service Tariff (Tariff)* in the Federal Register on January 6, 1998 amended on January 25, 2005. Under Western's *Tariff*, Western offers transmission capacity in excess of the capacity Western requires for the delivery of long-term, firm capacity and energy to current contractual electrical services customers of the Federal government. The *Tariff* also requires Western to provide firm and non-firm, point-to-point transmission service and network integration transmission service to the extent that Western has available transmission capability.

- **Addressing Interconnection Requests.** Western's *General Guidelines for Interconnection* provides a process for addressing applications for interconnection. The process dictates that Western respond to an application as presented by an applicant. Section 211 of the Federal Power Act requires transmission service be provided upon application if transmission capacity is available.

- **Protecting Transmission System Reliability and Service to Existing Customers.** Western's purpose is to ensure that existing reliability and service is not degraded. Western's *General Guidelines for Interconnection* provides for transmission and system studies to ensure that system reliability and service to existing customers is not adversely affected.

- **Consideration of the Applicant's Objectives.** Since the statement of purpose and need affects the extent to which alternatives are considered reasonable, it is important to understand both the agency's purpose and need and that of the Applicant.

1.2 AUTHORIZING ACTIONS

In addition to Western's action, other Federal, State, and local agencies have jurisdiction over certain aspects of the Proposed Action. Table 1.2-1 provides a listing of agencies with permitting and authorizing responsibilities for the Proposed Action.

TABLE 1.2-1
PERMITS THAT MAY BE REQUIRED

Permit	Jurisdiction	Status
Local Approvals		
Conditional Use Permits (for Spring Lake Substation and Fairview West Switchyard)	Richland County, Montana	To be applied for, if necessary.
State of Montana Approvals		
Montana Major Facility Siting Act (MFSA) Certification	Montana Department of Environmental Quality	To be applied for, if necessary.
Utility Occupancy Agreement	Montana Department of Transportation	Pending
Right-of-Way Grant	Montana State Trust Lands	Pending
National Pollutant Discharge Elimination System Permit	Montana Department of Environmental Quality	To be applied for where ground disturbance would disrupt more than 1 acre.
Section 401 Water Quality Certification	Montana Department of Environmental Quality	To be applied for, if necessary
Federal Approvals		
Interconnection Approval	Western Area Power Administration	Pending
Endangered Species Act (ESA) Section 7 Consultation	U.S. Fish and Wildlife Service	Biological assessment to be completed as part of final EA
National Historic Preservation Act Section 106 Consultation	Montana State Historic Preservation Officer	To be completed prior to Final EA
Section 404 Approval	U.S. Army Corps of Engineers	To be applied for, if necessary.

1.3 AGENCY CONSULTATION AND PUBLIC PARTICIPATION

Western has consulted with the various Federal and State agencies and tribes in the development of this analysis (see Section 4.0). In addition to these consultations, Western would consider comments to this EA from agencies, tribes, landowners, and other interested persons.

Two meetings were held regarding the proposed project; one on October 25, 2007, and another on February 12, 2008.

LYREA first held a meeting at Girard Hall on October 25, 2007, to inform the landowners about the proposed project. The following is a summary of comments raised during that meeting.

Transmission Line Location

Several individuals expressed concern about the alignment and location of the transmission line and substations. In places where there is an existing distribution line, landowners at the public meeting

also wanted to know if the distribution line could be under-built on the new transmission line instead of having one line on each side of the road.

Land Use

One landowner was concerned about farming around the transmission line poles.

Land Values

Several landowners were concerned about the impact on the value of their property once the transmission line is built.

Compensation

Concerns were raised about the compensation to the property owners affected by the proposed project.

Western held a public scoping meeting as part of the EA process on February 12, 2008, at the Elks Lodge in Sidney, Montana. Western staff, Montana Department of Environmental Quality (MDEQ) staff, and LYREA representatives were available to address questions and concerns. The following is a summary of the issues raised at that meeting.

Transmission Line

- Several individuals requested that the EA include all the alternatives considered and the factors that were used to select the preferred alternative. The discussion should include cost, source of funding and engineering considerations.
- Concerns were raised with respect to the pole structures interfering with farming practices and future road improvement.
- One commenter asked whether the new transmission line would result in new distribution lines to oil pads.
- Several individuals would like the EA to include a discussion on under-building the transmission line.
- One individual recommended that the EA include an analysis of the impacts on distribution lines that would result from the Proposed Action.

Health Impacts

- One individual would like the potential health impacts of the Proposed Action to be discussed in the EA.

Interferences

- One individual would like the EA to address the potential for electromagnetic interference with TV, radio, and GPS devices.

Noise

- One individual would like the EA to include a discussion of potential power line noise impacts from the Proposed Action.

Western has considered these comments in the development of this EA. Alternatives to the Proposed Action are evaluated in Section 2.5, cumulative impacts are evaluated in Section 3.5, and environmental impacts are evaluated in Section 3.0, below.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Proposed Action, as shown in Figure 1.1-1, consists of the components identified below:

- A new Fairview West Switchyard which Western would own and operate. The Fairview West Switchyard initially would contain three 115-kV circuit breakers that would facilitate the interconnection with the proposed LYREA transmission line on its eastern end;
- A new Spring Lake substation which LYREA will own and operate. The Spring Lake Substation would provide a 115- to 24.9/12.47-kV service outlet to meet increased demand on the western end of the proposed LYREA transmission line;
- The new 27-mile-long 115-kV Fairview West transmission line which LYREA will own and operate between the Fairview West Switchyard and the Spring Lake Substation;
- Accommodations for a possible new LYREA substation at the Fairview West Switchyard. The new substation would not be constructed unless justified by future demand; and
- Accommodations for a possible new LYREA "Nine Mile" Substation, which would be located approximately nine miles west of the Fairview West Switchyard. This substation would tie the new 115-kV Girard/Souix Pass transmission line to the existing radial 69-kV transmission system. The new substation would not be constructed unless necessary to provide additional reliability and meet additional demand.

Table 2.2-1 provides legal descriptions of where the proposed facilities would be located in Richland County:

TABLE 2.1-1
LOCATION OF PROPOSED ACTION

County	Township	Range	Sections
Richland	24	54	1
		55	1-6
		56	1-6
		58	1-6
		59	3-6
	25	54	34-36
		56	31-36
		57	31-36
		58	31-36
		59	31-32

2.2 PRECONSTRUCTION ACTIVITIES

Preconstruction activities include literature searches, site engineering surveys, environmental surveys and studies, landowner agreements, and engineering design. Preconstruction activities would apply to all components of the Proposed Action.

2.2.1 PRECONSTRUCTION SURVEYS AND STUDIES

A summary of completed and planned surveys are as follows:

- Geotechnical borings to provide detailed information for foundation design of the proposed facilities; and
- Cultural and natural resource surveys to assess existing conditions. These surveys identify sensitive resources and assure that the placement of the proposed facilities avoid them, or minimize/mitigate potential impacts in the event avoidance is not possible.

2.2.2 LANDOWNER AGREEMENTS

LYREA would negotiate agreements with affected landowners in advance of construction. LYREA would negotiate with landowners to secure easements for the transmission lines and purchase the parcels proposed for the proposed Spring Lake Substation.

2.2.3 PROJECT PLANNING AND DESIGN

The Proposed Action has been designed to comply with applicable Federal, State, and local regulations. All facilities would be constructed in accordance with the National Electrical Safety Code (NESC) U.S. Department of Labor Occupational Safety and Health Standards. The LYREA and Western facility components would be built to their respective transmission engineering and construction standards, substation and design standards and control engineering and design standards. In addition, the Proposed Action would avoid sensitive resources, such as sensitive habitat, native prairie remnants, wetlands, cultural resources and residential areas; and construction schedules would be planned to avoid breeding seasons for nesting birds and other sensitive wildlife, to the extent practicable. General land requirements and disturbance areas for each of the components are shown in Table 2.2-1.

TABLE 2.2-1
SUMMARY OF DISTURBANCES

Component	Impact (acres)	
	Construction Requirements (temporary)	Maintenance Requirements (long-term)
Fairview West Switchyard	5.0	2.6
Spring Lake Substation	2.0	0.8
115-kV transmission line	8.6	0.1
Fairview West Substation (future) *	0	0
Nine Mile Substation (future)	0.8	0.8
Total Impacts	17.2	4.3

Impacts were calculated based on preliminary design layouts for the substations and preliminary structure type and span lengths for the transmission lines. Temporary construction impacts include temporary impacts associated with pole and substation construction, as described in Section 2.3.

* No temporary or permanent impacts would be required since the facilities would be installed and maintained within the Fairview West Switchyard.

2.3 PROPOSED ACTION COMPONENTS

The proposed Fairview West Switchyard is anticipated to be constructed immediately upon approval. The initial design of Fairview West Switchyard will include grading and other work to facilitate the addition of a transformer and distribution bay. This work is necessary for the proposed LYREA interconnection with the existing Western transmission line. LYREA anticipates that the Spring Lake Substation and the 27-mile-long, 115-kV transmission line would be operational 12 months from the start of construction. Construction impacts would be temporary and would include the use of bulldozers, graders, concrete trucks, tractor-trailer trucks, and large cranes.

2.3.1 FAIRVIEW WEST SWITCHYARD AND FUTURE SUBSTATION

Western would construct the proposed Fairview West Switchyard which would occupy about 2.6 acres of an 8.7-acre parcel of land to be owned by Western in Section 31 of Township 25 North, Range 59 East. There will be no facilities built initially. The future substation construction will include a control house, one 115-12.47-kV transformer and three 12.47 kV circuit closers. The Fairview West Switchyard would be designed by Western and would allow for the interconnection of LYREA's facilities, plus additional future substation facilities to accommodate future growth and demand. LYREA would have their own gate into their portion of the substation, if constructed. All grading and initial site preparation work would be done by Western.

2.3.2 SPRING LAKE SUBSTATION

LYREA would construct the new Spring Lake Substation in Richland County located just north of Highway 201 approximately 20 miles west of SH 16 in Section 34 of Township 25 North, Range 54 East. The substation site would be located northwest of the intersection of Highway 201 and Country Road (CR) 324. The Spring Lake Substation would occupy approximately 0.8 acre of a 2.7 acre parcel. Access to the substation would be from CR 324. All initial and anticipated construction activities would be within the 2.0 acre area. Table 2.3-1 summarizes the equipment to be installed at the Spring Lake Substation.

TABLE 2.3-1
SPRING LAKE SUBSTATION EQUIPMENT

Equipment	Installation (Total)
Control House	1
115-24.9 kV Transformer	1
24.9 – 12.47 kV Transformer	1
24.9-kV Circuit Recloser	3
12.47-kV Circuit Recloser	2

2.3.3 FUTURE NINE MILE SUBSTATION

LYREA may construct a new Nine Mile Substation in Richland County located approximately nine miles west of the proposed Fairview West Switchyard site and about two miles west of State Highway 16 in Section 35 of Township 25 North, Range 57 East. The substation site would be located as near as possible to where the proposed transmission line would intersect LYREA's existing Girard/Sioux Pass 69-kV transmission line, adjacent to Highway 201. Detailed design for this facility would not be initiated until and unless a final determination is made that the facility would be required to meet future demand or to provide increased system reliability. However, if needed, it is anticipated the substation would be similar to the proposed Spring Lake Substation in that it would occupy an approximately 0.8 acre site. Access to the substation would be from

Highway 201 or CR 342, and the anticipated construction activities would be expected to remain within the 0.8-acre area.

2.3.3.1 Substation and Switchyard Construction

Construction of the Spring Lake Substation and Fairview West Switchyard would begin once all environmental requirements are met and permits obtained, the final design is complete, and any necessary property is acquired. A detailed construction schedule would be developed based upon availability of crews, outage restrictions, weather conditions, biological and cultural resource restrictions, spring load restrictions on roads, and any other restrictions placed on certain areas for minimizing permanent impacts from construction.

The new sites would be surveyed, cleared, and graded prior to construction. Work for the Fairview West Switchyard would be completed by Western. Because the existing vegetation is generally agricultural crops or grasslands, no clearing would be required for construction. Each site would need to be graded to create structure foundations and proper facility drainage. For all facilities, crews would excavate and trench, and then place concrete foundations to accommodate the appropriate equipment and facilities.

Once grading is complete, each site would be leveled with imported gravel. Gravel would be delivered and leveled after completion of all subsurface work, including concrete pads or footings and the installation of control cables, which would be housed in trenches within four feet of the surface. Crews would then erect the control houses and substation equipment. Transformer foundations would be at-grade. The 115-kV dead end structure would be drilled piers, consisting of structures that are anchored in concrete poured in holes approximately 15 to 20 feet deep. Smaller pole structures on the distribution side would be on drilled piers, constructed in holes approximately 10 to 15 feet deep. The control houses for the new substations would be approximately 12 feet long by 16 feet wide. Substation equipment would be delivered on tractor-trailer trucks and installed atop of concrete foundations. Following completion of construction and before the facility is energized and placed in service; a grounded perimeter fence would be installed to secure each site.

The proposed new Fairview West Switchyard would require a National Pollutant Discharge Elimination System (NPDES) permit for stormwater runoff because the proposed project will be disturbing more than an acre of land. The proposed Spring Lake Substation would not require an NPDES permit, but LYREA would utilize best management practices to ensure that disturbed areas would not be exposed to erosion or runoff of sediment-laden water. All new transformers and other oil filled equipment would have secondary containment for spill prevention in accordance with construction standards, applicable codes, and a Spill Prevention Control and Countermeasure Plan (SPCC) developed for the facilities prior to construction.

Upon completion of construction, disturbed areas around the substation sites outside the fenced areas would be restored to pre-existing conditions. Post-construction reclamation activities would include removing and disposing of debris, dismantling all temporary facilities (including material storage areas), employing appropriate erosion control measures, and reseeding areas disturbed by construction activities with vegetation similar to that which was removed.

2.3.3.2 Operation and Maintenance

Western and LYREA maintenance personnel would perform periodic inspections of their facilities, maintain equipment, and make repairs over the life of each substation according to ownership. Facility owners would also periodically manage vegetation within their respective facility sites.

2.3.4 PROPOSED TRANSMISSION LINE

Figure 2.3-1 and Figure 2.3-2 provide illustrations of the proposed structures to be installed for the transmission line. LYREA is proposing to use a combination of single-pole wooden structures placed approximately 300 feet apart and two-pole wooden H-frame structures placed 600-800 feet apart. The proposed permanent right-of-way width for the single-pole 115-kV transmission line would be 50 feet, and for the two-pole 115-kV H-frame structure is 80 feet. During construction of single- and two-pole structures, each pole and anchor facility would typically involve up to 600 square feet of ground disturbance. The height of the new structures would vary from 60 feet above ground to 90 feet, depending on terrain and structure type. Based on the length of each structure type that will be used (see Table 2.3-2), the total ground disturbance that would be impacted for pole and anchor placement has been estimated to be about 8.6 acres. In most cases the transmission line would be located next to existing roads or highways. Two-pole H-frame structures would be utilized as much as possible because this structure can cover more territory in between poles. Single pole structures would be used to accommodate specific landowner requests. Single pole structures are also typically used when the alignment needs to follow a boundary. Distribution from the new transmission line would take place to accommodate the growing oil and gas development that is occurring in the project area. Table 2.3-2 identifies transmission line segments.

TABLE 2.3-2
PROPOSED 115-KV TRANSMISSION LINE SEGMENTS

Segment	Right of Way (ROW)	Conductor	Length (miles)	Structure Type	Height Range (feet)	Average Spans (feet)
A	50 feet	397.5 T2 Aluminum Core Steel Reinforced (ACSR)	17	Single Circuit 115-kV single wood pole,	65-80	300 feet
B	80 feet	397.5 T2 Aluminum Core Steel Reinforced (ACSR)	10	Single Circuit 115-kV H-frame wood pole	80-100	600 feet

FIGURE 2.3-1
STANDARD SINGLE POLE 115-KV STRUCTURE

FIGURE 2.3-2
STANDARD H-FRAME 115-KV STRUCTURE

2.3.4.1 Site Clearing

Because the majority of the proposed 115-kV transmission line would be constructed in cultivated agricultural fields and pastures, minimal vegetation clearing would be required. The proposed 115-kV transmission line would be constructed at-grade for the majority of the right-of-way (ROW). In some isolated cases, grading could be required at structure locations if there is sloping or uneven ground. Grading may be necessary in that situation to provide a level working area. Equipment used for this grading would likely consist of a front end loader or a small bulldozer. A summary of disturbances is included in Table 2.2-1 in Section 2.2.

2.3.4.2 Equipment Delivery and Transportation

Most of the material required for construction of the transmission line (e.g. poles, conductors, insulator bells) and substations would be delivered to temporary material storage areas located in the project vicinity. Table 2.3-3 summarizes the location, acreage, and existing conditions at each identified areas. Up to six potential areas have been identified for the project (see Figure 2.3-3); however, not all of these areas may be required for construction. If they were, the total acreage required for temporary material storage areas would be 4.5 acres. The materials and equipment, including concrete, would then be transported to the construction ROW along the route as construction progresses.

TABLE 2.3-3
TEMPORARY MATERIAL STORAGE AREAS

Name and Location	Acreage	Site Description	Figure Number
Tesoro Crude Shipping Yard T25N, R58E Sec 36	0.5	Fenced gravel and oil shipping yard area.	2.3-3-A
Salsbury Fresh water Tank T24N, R58E Sec 5	0.5	Fresh water well for trucks. There is an existing gravel road.	2.3-3-B
M & P Kilen T25N, R57E Sec 35	0.5	The property is currently farmed and is the location of the possible future Nine Mile Substation	2.3-3-C
J. D. Farms T25N, R55E Sec 33	0.5	Gravel area containing a quonset bin site.	2.3-3-D
Continental Disposal Site T25N, R55E Sec33	0.5	Salt water disposal site.	2.3-3-E
Spring Lake Substation T25N, R54E Sec 34	2.0	Proposed site for the new Spring Lake Substation	2.3-3-F

2.3.4.3 Excavation, Foundations and Structure Erection

Insulators and other hardware would be attached to each structure while on the ground. Each wooden pole structure would require excavating or auguring a hole approximately 8.5 to12 feet deep and approximately 2 to 4 feet in diameter. Excavation dimensions would depend upon soil conditions, whether the structures would support an angle, and guying room available.

The pole would then be lifted, and placed in the hole by a crane or similar heavy-duty equipment. The holes would be back-filled with native material or select backfill.

2.3.4.4 Conductor Stringing

Conductors would be installed by establishing stringing setup areas within the ROW, typically every two miles, which would store the spools of conductor cable. Temporary guard or clearance poles would be installed as needed over existing distribution or communication lines, streets, roads, highways, or other obstructions after any necessary notifications are made and permits obtained. This ensures that conductors would not obstruct traffic or contact existing energized conductors or other cables. Once the structures have been erected, crews would drive along the ROW, securing the conductor line through the insulators on the poles and installing shield wire clamps once final sag is established. The structures would be accessed by a hydraulic bucket system vehicle or "cherry picker."

2.3.4.5 Access Roads

Where the transmission line parallels existing county or township roads, access to the structures would be obtained from existing roads. The Proposed Action follows an existing highway and would not require any cross-country segments.

2.3.4.6 Gravel and Fill

Various construction activities associated with the Proposed Action would require access to gravel. The proposed Fairview West Switchyard and Spring Lake Substation, and future substations, may require fill materials and would be surfaced with gravel. The source for gravel will be at an already disturbed gravel pit. Gravel would not be needed for any of the transmission structures.

2.3.5 RIGHT-OF-WAY RESTORATION PROCEDURES

During construction, crews would attempt to limit ground disturbance wherever possible. Temporary disturbance areas would be restored to their original condition to the extent practicable, as negotiated with the landowner. Reclamation activities would include removing and disposing debris, dismantling all temporary facilities (including staging and temporary material storage areas), leveling or filling tire ruts, and erosion control. Reseeding areas disturbed by construction activities would be done with a seed mix, free of noxious weeds, containing vegetation similar to that which

was removed. County or agriculture extension office seed mixes will be used if there are local recommendations.

2.3.6 ROW MAINTENANCE PROCEDURES

The ROW defines the area where the proposed transmission line can be operated safely and reliably. Maintenance crews would perform inspections, maintain equipment, and make repairs over the life of the transmission line. Since the Proposed Action follows the highway, inspection would occur by vehicle on the highway or on foot. Routine maintenance would be performed approximately every five years or more frequently, if necessary, to remove vegetation that may interfere with the safe and reliable operation of the proposed transmission line.

2.3.7 DECOMMISSIONING

If the Proposed Action is decommissioned in the future, the decommissioning process would follow LYREA's typical decommissioning process. The transmission line would be de-energized, and crews would move along the transmission line in a bucket truck and trailer removing conductors. After the conductors are removed, crews would remove the wood poles. Holes would be filled with clean fill. In areas that are within cultivated agricultural fields, the landowner would re-seed the pole locations with whatever crop is planted that season. In pasture and other non-cultivated areas, disturbed areas would be re-seeded with a weed-free seed mixture similar to nearby vegetation.

2.3.8 CONSTRUCTION WASTE MANAGEMENT

All waste and scrap, such as wire reels and pallets, would be removed from the area and disposed of properly at an approved disposal site. Personal waste generated by the construction crew, such as bottles, cans, and paper would be disposed of in receptacles placed at the construction sites and disposed of at approved disposal sites

2.4 ENVIRONMENTAL PROTECTION MEASURES

All facilities would be constructed in accordance with the NESC, U.S. Department of Labor Occupational Safety and Health Standards and Rural Utilities Service (RUS) Transmission Engineering and Construction Standards, Substation and Design Standards, Vegetation Management Guidelines, and the Control Engineering and Design Standards, as applicable. For the Fairview West switchyard Western construction standards would also apply. In addition, LYREA and Western would further minimize impacts during construction by implementing Best Management Practices (BMPs) (i.e. silt fencing, spanning sensitive habitat) as outlined in the resource discussions contained in chapter 3 and summarized in Appendix D.

2.5 ALTERNATIVES

In evaluating the purpose and need for this project, a variety of alternatives were evaluated, including the no-action alternative. A summary of this evaluation is provided below followed by Western's determination regarding how these alternatives compare to the Proposed Action.

2.5.1 NO-ACTION OR NO-BUILD ALTERNATIVE

Under the no-action alternative, Western would not approve the Applicant's interconnection request and LYREA would not be allowed to interconnect to serve the new loads in the vicinity of the proposed Spring Lake Substation. Although this would avoid the construction of any new facilities and associated environmental impacts, the overall benefits of developing the proposed facility would not be realized. Currently, oil and gas development in the area is limited to what can be extracted from individual wells that are typically powered by either gas or diesel engines, ranging from about 60 to 75 horsepower (Hp) each. As these individual wells decrease in production over time, additional wells are being drilled (up to a current maximum of about four wells per mile) to maximize recovery of oil and gas resources. Further recovery of oil and gas resources is being sought by "enhanced recovery methods," which involves injecting pressurized water, CO_2, air, nitrogen, or a combination of these into the oil or gas-bearing formation at selected well sites. Each injection site can then increase well yields in the surrounding wells (typically one injection site can increase yields at up to 40 nearby wells). These methods involve using much larger motors that typically require between about 6,000 to 10,000 Hp (4.5 to 7.5 megawatts) at each injection site. Due to the large power requirements of enhanced recovery methods, and the current limitations of power supply in the area, enhanced recovery methods using electric driven motors would not possible under the no action or no-build alternative.

Under the no-build scenario, current electrical service capacity would remain unchanged and LYREA's customers would need to seek other energy alternatives or recovery methods which may be less attractive economically and environmentally. It would be speculative to try to guess what alternative generation energy sources or recovery methods that oil and gas developers would use. It is possible that they could further increase the density of wells per mile which would require additional use of the smaller, inefficient on-site generation units. Drilling more wells may be less desirable in terms of cost, energy efficiency, and other environmental impacts such as increased ground disturbance, air emissions, noise and visual impacts to the landscape. Alternatives to using electric powered engines for the enhanced recovery methods could include using large diesel or natural gas powered engines, but using those types of engines and providing the regular energy supplies needed to run them at each injection site would result in specific environmental impacts that could be less than, similar to or greater than using electric driven motors. Electric powered motors are quieter than gas or diesel powered engines, can be powered with a more efficient use of

natural resources (e.g., from a centralized power plant), and would avoid local air emissions. Large natural gas or diesel powered engines may be more expensive to operate and create more noise than electric driven motors, and would require regular refueling through local supply lines or delivery that may cause environmental impacts that could be less than, similar to or greater than using electric driven motors. No alternative power generation facilities are known to have been proposed in the Project area that could meet the purpose and need of the Proposed Action, or are known to be under consideration as reasonable, technically feasible or economically viable alternatives. Therefore, the no action or no-build alternative would delay or limit new oil and gas development activities. The potential impacts of the no-action alternative on specific resources are analyzed further in Section 3.0.

2.5.2 ROUTE AND SITE ALTERNATIVES

Routes and substation site locations for the Proposed Action were selected after careful analysis of the regional electrical system and after consideration of other factors related to construction and operation requirements, environmental impacts, reasonableness, technical feasibility, and economic viability. This analysis was focused on routes and sites that would: 1) meet the project purpose and need; 2) be consistent with planned and anticipated system needs; 3) meet design and reliability standards; 4) avoid and minimize impacts to environmentally-sensitive resources; 5) be reasonable; 6) be technically feasible; and 7) be economically viable. A variety of data sources, including regional electrical system models, system plans, aerial photographs, topographic maps, geographic information system (GIS) data, site visits and landowner input were considered prior to selection of the proposed route and substation locations. This included analyses by Western's system engineers, information provided by LYREA, and consultation with permitting agencies and affected landowners.

The route alternatives evaluated for this project but dropped from further consideration are discussed below, depicted on Figure 2.5-1 and summarized in comparison to the proposed route in Figure 2.5-1.

2.5.2.1 Culbertson Alternative

The "Culbertson Alternative" would involve tapping into existing and planned facilities located near Culbertson, Montana. Currently, the Upper Missouri Generation and Transmission Electric Cooperative (UMG&T) owns and operates the "Culbertson Substation", and Basin Electric Power Cooperative (Basin) is adding a 100-MW generation station about six miles east of the Culbertson Substation. Western has already notified UMG&T that their substation will need to be removed and that the existing equipment will have to be relocated to the new Basin substation. In addition, an existing Western 115-kV transmission line must be converted to 230-kV once the Basin generation is on-line.

Due to the timing of the LYREA loads in comparison to the new Basin generation station, the LYREA interconnect facilities would need to be constructed twice as part of the Culbertson Alternative, which is double what the Proposed Action would require. A new LYREA tap would need to be initially located at the UMG&T Culbertson Substation until the Basin substation location is ready. The new LYREA tap would then need to be relocated to the Basin Substation when the UMG&T Culbertson Substation is moved. Based on the current schedule, all of the new equipment that would be initially installed at the Culbertson Substation would need to be retired after about five years and new breakers would then be required during the construction and relocation to the new Basin Substation.

Two alternative transmission routes were considered under the Culbertson Alternative. One route, labeled as "Culbertson West" on Figure 2.5-1, would run due south from the existing UMG&T Culbertson Substation along a 16-mile-long "greenfield" route until reaching the proposed route. A greenfield is an area that has not been disturbed by construction activity. Then, it would follow the proposed route due west for about 12 miles until reaching the Spring Lake Substation site. The other route, labeled as "Culbertson East" on Figure 2.5-1, would run due south from the planned new Basin substation along a 19.5-mile-long greenfield route, and then would follow the proposed route due west for about 15 miles to the Spring Lake Substation site. As summarized in Table 2.5-1, both of these routes would be slightly longer than the proposed route. In addition, each of these routes would require a new crossing of the Missouri River, a federally-listed navigable river. Any river crossing has greater potential to affect protected species (e.g., whooping crane, shovelnose sturgeon, migratory birds) than the proposed route.

FIGURE 2.5-1 PROJECT ALTERNATIVES

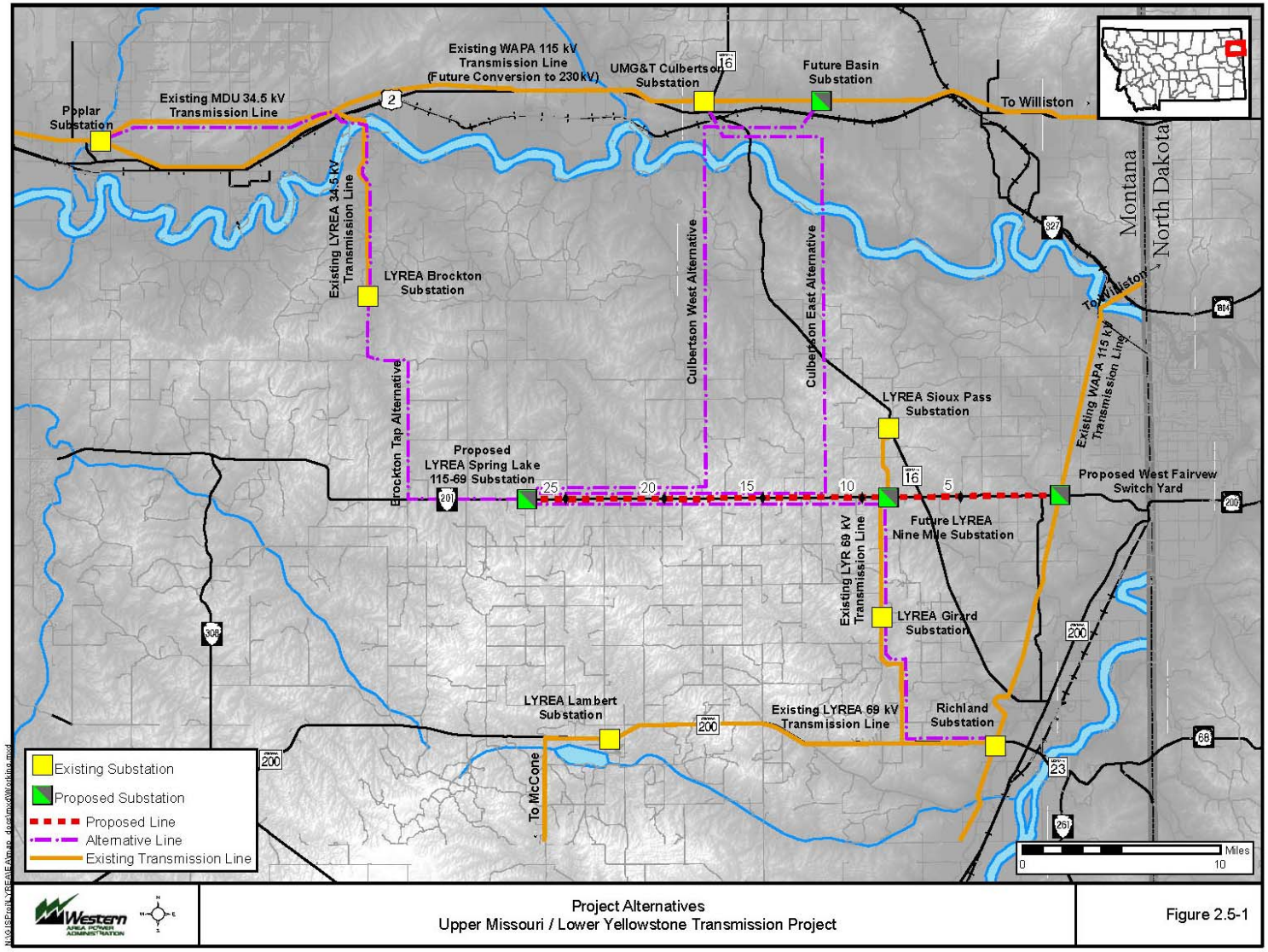


TABLE 2.5-1
ROUTE ALTERNATIVES COMPARISON

Factor	Unit	Proposed Route	Culbertson West	Culbertson East	Brockton	Richland
ROW Length						
Total	Miles	27.0	35.0	41.0	43.1	36.0
Co-located with existing ROW	Miles	27.0	19.0	21.5	43.1	36.0
New (Greenfield) ROW	Miles	0.0	16.0	19.5	0.0	0.0
Land Ownership						
BLM	Miles (No. Parcels)	0.0 (0)	5.6 (15)	1.7 (4)	1.3 (2)	0.0 (0)
State/Local	Miles (No. Parcels)	2.0 (6)	1.4 (8)	4.9 (13)	2.3 (4)	3.0 (4)
BIA	Miles (No. Parcels)	0.0 (0)	0.0 (0)	0.0 (0)	9.5 (21)	0.0 (0)
Private	Miles (No. Parcels)	25.0 (86)	28.0 (125)	34.4 (119)	30.0 (102)	33.0 (86)
Environmental Resources						
Missouri River Crossing	Yes/No	No	Yes	Yes	Yes	No
Known Protected Species	Yes/No	No	Yes	Yes	Yes	Unknown
Land Cover/Use (half mile buffer off centerline)						
Crop/Pasture	Percent	77.8	33.4	55.1	57.6	71.3
Open Rangeland	Percent	22.2	63.0	42.5	41.1	28.7
Residential	Percent	<0.1	0.4	<0.1	<0.1	<0.1
Surface Water or Wetlands	Percent	<0.1	2.3	0.8	0.7	<0.1
Other	Percent	<0.1	0.9	1.6	0.6	<0.1
Engineering						
New Temporary or Permanent Access Roads	Miles	0	16.0	19.5	0	6.0
Estimated Cost	Dollars	$9,948,500	$18,894,000	$19,894,000	$17,119,250	$11,154,750

[1] Geographic Information Retrieval and Analysis Land Cover and Land Use Data 1980

[2] "Other" includes deciduous forest, commercial, transportation/utility, and other urban land uses and land covers.

Substantial portions of each alternate route do not follow an existing road or other existing corridors. Therefore, access roads would need to be constructed which would increase the cost of constructing and maintaining the transmission line, and may have other environmental consequences that would be avoided by the proposed route (e.g., increased access for off-road vehicles). Also, both of these routes would generally cross much more rugged terrain in association with the greenfield segments and the Missouri River valley, and both would need to include an additional six miles of new transmission line between the Culbertson Substation and Basin substation once the Culbertson Substation facilities are relocated to the Basin substation location. These issues would also increase the project cost and potential for environmental impacts when compared to the proposed route.

The Culbertson East and West routes would cross a greater number of private parcels than the proposed route, and both routes would involve crossings of land managed by the U.S. Bureau of Land Management (BLM), characterized as "open rangeland", which would not be crossed by the proposed route. Open rangeland is generally valued as a resource that holds a diversity of plant and animal species, and which has a greater likelihood to contain sensitive or protected species than agricultural (e.g., crop or pasture) land. Crossings of BLM land would also require additional Federal environmental review and approvals to ensure the proposed facility would be compatible with the current and proposed BLM land management plans. This is likely to add additional cost and time to the project, which would not be necessary for the proposed route.

The Culbertson Alternative offers no clear and compelling reason that makes it preferable to the proposed route, and is not considered as reasonable as the proposed route. The Culbertson Alternative is likely to have greater environmental impacts associated with the interconnection facilities based solely on total length, greenfield length, access, protected species, number of landowners, and crossings of open rangeland. It is also estimated to add significant costs due to the additional and staggered facilities that would need to be constructed. Due to the delayed construction of the Basin facilities, it is not clear whether this alternative would be economically viable. At a minimum, LYREA anticipates it would have to bear all costs associated with integrating its facilities into the new Basin Substation. Based on these reasons, the Culbertson East and West routes were dropped from further consideration.

2.5.2.2 Brockton Alternative

The "Brockton Alternative" was recommended during the public scoping meeting as an alternative that could involve tapping into the existing Brockton Substation, which is located about 11 miles northwest of the proposed Spring Lake Substation, and about 10 miles due south of Brockton, Montana. However, the Brockton Substation is currently just a 34.5-kV facility that is energized by a

transmission line that is heavily loaded, and technically, is not a feasible option without implementation of significant additional new facilities.

The transmission line that provides electricity to the Brockton Substation originates at a Montana Dakota Utility (MDU) substation facility located near Poplar, Montana. The 34.5-kV transmission line also energizes three other substations, including two operated by MDU and one operated by Sheridan Electric Cooperative (Sheridan). As a relatively small transmission line that is currently serving multiple "taps", including the Brockton Substation, this facility is currently heavily loaded and unable to accept additional service requests. As such, the Brockton Alternative is not capable of meeting the project purpose and need without significant system improvements. In order to implement the Brockton Alternative, a new 115-kV transmission line would need to be constructed "upstream" of the Brockton Substation. However, LYREA has determined that the other two utilities (MDU and Sheridan) are not interested in contributing to upgrading the 34.5-kV transmission line to 115-kV at this time. Their participation would be technically necessary because upgrading this transmission line would require that each of the other utilities upgrade their existing taps. This makes this alternative technically infeasible.

Assuming the matter of getting all cooperatives to contribute to upgrading this system can be resolved on a timeline consistent with the Proposed Action, there are two potential system alternatives that could be implemented to upgrade the upstream facilities. One of the system alternatives would involve tapping into an existing 230-kV transmission line operated by Western that extends between Poplar, Montana, and Williston, North Dakota. That transmission line is located about 10 miles north of the Brockton Substation at its nearest point. However, due to Western's current system reliability standards, only one interconnect is allowed to occur along this 230-kV transmission line segment, which already exists at the current Culbertson Substation facility. As described above, the Culbertson Substation facility is currently planned to be moved to the new Basin substation location in about six years. Western did evaluate the possibility of providing a new interconnect to the 230-kV transmission line for the Brockton Alternative, but determined a new interconnect would not be granted due to the existence of the existing interconnect (Culbertson Substation). Therefore, that system alternative is technically infeasible and was dropped from further consideration.

The other system alternative that was considered would be to construct a new 115-kV transmission line from the nearest possible substation, either the MDU Poplar Substation or the Culbertson (future Basin) Substation, to the Brockton Substation and then the Spring Lake Substation. Building a 115-kV transmission line from the Culbertson Substation to the Spring Lake Substation (through the Brockton Substation location) would be considerably longer and would provide no overriding

benefit over the Culbertson Alternative already analyzed above. Therefore, that system alternative is considered unreasonable and was dropped from further consideration.

As summarized in Table 2.5-1, the only technically feasible system alternative that could be implemented under the "Brockton Alternative" would need to involve building a new transmission line from the MDU Poplar Substation to the Brockton Substation and then the Spring Lake Substation. As with the Proposed Action, this alternative does provide some reliability on the distribution end by providing a second strong source in the area. This would be considerably longer than the proposed route and would also involve crossing the Missouri River which would be avoided by the proposed route. The Missouri River crossing would also require a new double circuit to replace the existing 34.5-kV transmission line crossing with both 115-kV and 34.5-kV transmission lines, which would be much more challenging and costly than the Proposed Action. Similar to the proposed route, this alternative could be collocated with existing corridors (e.g., transmission line or roadways) for most if not all of its length. However, the Brockton Alternative would cross significantly more open rangeland, and more private parcels than the proposed route, including a considerable length of the Fort Peck Indian Reservation (Fort Peck) that would be avoided by the proposed route. Crossings of Fort Peck may result in the need for tribal and U.S. Bureau of Indian Affairs (BIA) approvals to ensure the proposed facility would be compatible with the current and proposed tribal and BIA land management plans, and this is likely to add additional cost and time to the project, which would not be necessary for the proposed route. Lastly, it is anticipated that the Poplar Substation may need to be upgraded to 230-kV when the Basin 100 MW generation station is added in the Culbertson area. This would result in the need for LYREA, UMG&T and MDU to upgrade the Poplar station to include 230-kV equipment and a 230-115kV transformer. This would add costs that are unknown at this time and would not be needed for the Proposed Action. Due to the delayed construction of these facilities, it is not clear whether this alternative would be economically viable. At a minimum, LYREA anticipates it would have to bear at least a portion of the costs associated with other necessary facility upgrades, and it is not reasonable to assume the other utilities would be willing to assume the balance of costs associated with future improvements. Based on these reasons, this system alternative was dropped from further consideration.

The Brockton Alternative is technically infeasible because significant upstream facilities would need to be constructed in cooperation with other utilities that are not interested in cooperating. This alternative would also add significant costs due to the additional length and may not be economically viable due to the potential need to construct additional facilities if the Poplar Substation would need to be upgraded to a 230-kV line. Finally, this alternative would also have greater environmental impacts based solely on total length, access, protected species, and landowners. Because this

alternative offers no clear and compelling reason that makes it preferable to the proposed route, this alternative was dropped from further consideration.

2.5.2.3 Richland Alternative

The "Richland Alternative" would involve serving the loads from the UMG&T existing Richland Switchyard. The total transmission line length would be 36 miles. About the first 18 miles of this alternative would be located directly adjacent to or within the corridor currently occupied by LYREA's existing 69-kV transmission line, up to the point it crosses the proposed route at Highway 201 about two miles west of Highway 16. Then, the route would turn due west for about 18 miles to the Spring Lake Substation on the same route as the proposed route. Within the first 18 miles, where LYREA's existing 69-kV transmission line is being followed, LYREA could build a double circuit, 69- and 115-kV transmission line from Richland Substation to Highway 201 and then continue west with the 115-kV transmission line to the proposed Spring Lake Substation. The other possibility is to convert the existing 69-kV transmission line to 115-kV and convert the existing substations to 115-kV.

Although the Richland Alternative would eliminate about nine miles of new transmission line corridor that would be crossed by the proposed route, this would require about 18 miles of transmission line facilities to do so. Within those 18 miles, the corridor has more rugged topography and would cross open rangeland that is less accessible than the proposed route. This would increase construction costs due to length and construction conditions and is likely to have greater environmental impact. The Richland alternative would require an additional nine miles of transmission line compared to the proposed action. The additional transmission line would increase the potential for avian collisions, such as for whooping cranes, due to the greater length. The remote and rugged nature of this alternative alignment would also require construction and use of about six miles of temporary access road which would not be needed for the proposed route. This temporary access road would increase the amount of ground disturbance and associated environmental effects (e.g., vegetative impacts, potential for erosion), and would also increase the project costs. In addition, the Richland Alternative would not provide the increased system reliability that the proposed route would provide, which would not meet the project purpose and need. The Richland Alternative would require more length, increase the acreage of ground disturbance, increase costs, provide less reliability, and is subsequently not a reasonable alternative. Therefore, this alternative was dropped from further consideration.

2.5.2.4 Substation Site Alternatives

In general, substation sites locations were located to minimize environmental impacts by selecting locations in close proximity to existing facilities and anticipated demand areas, and include adequate access and minor or low potential for environmental impacts.

The Fairview West Switchyard site was identified as a location where Western facilities exist that would be nearest to the demand areas, which could be tapped for an interconnection without causing power system problems, and which would be adequate to meet the project purpose and need. Similarly, the use of this site as a future LYREA substation would be compatible with the goal of collocating facilities to the extent practical, and would facilitate the need to provide future service to the area around the substation such as nearby existing compressor station to the north, in the event future demand must be met in that area. The proposed Fairview West site also is available from the landowner for development and is very accessible from an existing public road (SH 201), and has no environmental factors that would make the site unacceptable. No other alternative sites have been identified that are available and would meet the project purpose and need.

The Spring Lake Substation site was identified as a location that lies roughly in the center of surrounding substations and which would be located in close proximity to the future load center of existing and anticipated new oil and gas development wells and other related facilities that need to be serviced by this project. The proposed Spring Lake Substation site was also determined to be available from the landowner for development and no environmental factors have been identified that would make this site unacceptable. In addition, no other alternative sites have been identified that are available and would meet the project purpose and need.

The LYREA Nine Mile Substation site was identified as a location that would provide a future backup to the existing radial 69-kV transmission system because the 69-kV transmission system is over 40 years old and is anticipated to require more maintenance or suffer reliability issues in the near future. Constructing a future 115- to 69-kV substation where the proposed 115-kV transmission line would cross LYREA's existing 69-kV transmission line would be compatible with the goal of collocating facilities to the extent practical and would be in a location that would be very accessible from an existing public road (Highway 201). The proposed site was also determined to have no environmental factors that would make this site unacceptable and no other alternative sites have been identified that would meet the project purpose and need. This location eliminates the need for new transmission lines to loop in and out of a substation elsewhere.

2.5.3 WESTERN'S DETERMINATION

Based on the summary of evaluations, impacts and considerations discussed above, Western determined that, compared to the Proposed Action, none of the alternative routes or substations were found to be entirely reasonable, technically feasible, and/or economically viable. Additionally, none offered substantive environmental and /or economic benefits that would warrant further, more detailed investigation. For these reasons, the route and substation alternatives described above were not carried forward for detailed analysis in this EA.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the existing environmental resources in the Project area and the direct, indirect, and cumulative impacts that could result from the construction, operation, and maintenance of the Proposed Action. An environmental impact is a change in the status of the existing environment as a result of the Proposed Action. Direct impacts are those that result from construction, operation, and/or maintenance. Indirect impacts generally occur following construction and may or may not be directly related to the Proposed Action. Indirect impacts can be positive (beneficial), negative (adverse), permanent (long-term) and/or temporary (short-term). Short-term impacts are generally associated with the construction phase of the Proposed Action, while long-term impacts remain for the life of the Proposed Action and beyond.

The following environmental resource areas and factors are analyzed for direct and indirect impacts in this EA:

- Soils; Air; Water; Wetlands; Vegetation; Wildlife; Endangered, Threatened, Proposed, and Candidate Species, and Designated Critical Habitat; Socioeconomics; Environmental Justice; Land Use; Visual; Noise; Safety and Health; Cultural and Historic; and Native American Religious Concerns.

For those resources that would be impacted, the measures that would be implemented to avoid, minimize, or mitigate environmental impacts are analyzed to assess their effectiveness in reducing impacts and environmental consequences. This includes an analysis of cumulative impacts and a comparison to resource impacts under the no-action alternative.

The Proposed Action would not affect the following resource areas:

Recreation

The predominant recreational activities within the Project area are hunting and snowmobiling. Review of pertinent data bases showed that there are no designated recreational lands that would be affected by the Proposed Action.

Geology and Paleontology

Geologic base map reference searches did not identify any areas of geologic instability in the immediate vicinity of the Proposed Action. The seismic activity in the Project area is low. According the U.S. Geographical Survey (USGS) website no earthquakes have been reported in Richland County. Of the few earthquakes recorded in Montana, the majority occurred in the southwest part

of the State near Yellowstone National Park. A web search of the Paleontology Portal and the USGS website did not identify any known paleontological resource in the project area.

3.2 RESOURCE AREAS

3.2.1 SOILS

A regional discussion of geology is necessary for an understanding of the soil types within the Project area. The analysis of soils focused on soils crossed by the proposed ROW, temporary material storage areas, switchyard, substation and soils that would be subject to actual disturbance due to construction.

3.2.1.1 Existing Environment

The underlying geology in the Project area consists of the Paleocene formation. This formation consists of stream-deposited sediments of the coal-bearing Fort Union Formation. The Fort Union Formation is a geologic unit containing sandstones, shales, and coal beds that extend through large portions of Wyoming, Montana and parts of North Dakota.

Soils crossed by the ROW consists of Benz Series loams, Bowbell Series silt loam, Cherry Series silty clay loam, Lambert Series silt loams, Savage Series silty clay loam, Shambo Series loam, Vida Series clay loam, Williams Series loam, and Zahill Series loam. Slopes range from nearly flat to up to 65 percent, which is characteristic of the area topography. The typical landscape is gently rolling. Soils of the Benz Series, Lambert Series, Savage Series, Vida Series, and Zahill Series are highly susceptible to water or wind erosion, the remaining soil series erosion potential is slight to moderate (USDA 1980). Over the past 100 years, soil resources in the study area have been suitable for agricultural activities (e.g., crops or pasture land) and this is expected to continue for the reasonably foreseeable future.

3.2.1.2 Environmental Consequences

A significant impact to soils would occur under the following conditions:

- Erosion or siltation resulting in measurable loss in soil productivity (e.g., loss of topsoil), or which contributes to air or water degradation; or
- Contamination causing a decline in agricultural or habitat productivity.

Proposed Action

Soil disturbance would result from site clearing and excavation activities at structure locations; pulling and tensioning sites; substations; setup and staging areas; and during transport of crews, machinery, materials, and equipment over access roads. To the extent practicable, excavation

activities would be limited to locations of pole placement and would avoid steep slope areas. Where excavation in steep slope areas cannot be avoided entirely it would be minimized and Best Management Practices (BMPs) would be implemented to minimize erosion during construction. BMPs would include installation of silt fencing, straw bales, ditch blocks, covering bare soils with mulch, plastic sheeting, or fiber rolls as necessary to ensure that disturbed areas are protected from erosion, and drainageways and streams are not impacted by sediment runoff from exposed soils, especially during significant precipitation events. Disturbed areas would be revegetated with an approved native mix after construction is completed. Therefore, a measurable loss in soil productivity and a contribution to air or water degradation would not occur as a result of the Proposed Action. There is the possibility with any construction activity of spilling fuel, hydraulic fluid, or other regulated materials. LYREA would minimize the likelihood of such an event by ensuring that refueling takes place at secure areas. Spill kits would be maintained at these sites to contain and clean up any spills that may occur. Construction crew members would be trained in spill prevention to properly clean up any accidental spill.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to soils would occur under the no action alternative. However, it is likely that greater impacts to soils would occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts to soils could be greater than, equal to, or less than the proposed action if fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods, depending on the location and distance of fuel sources to each well injection site. The use of fuels at these individual sites could also potentially increase the likelihood of accidental spills.

Cumulative Effects

The Proposed Action would take a relatively small amount of soil out of agricultural use approximately 1.4 acres for the transmission line and 6.4 acres for all facilities combined. With implementation of the BMPs, soil erosion would be prevented and contained. Farming practices and development would contribute more effects on soil resources in the study area than would the Proposed Action or No Action Alternative. The transmission projects in the area would have similar construction methodology as the Proposed Action and would not be expected to contribute to erosion potential. BMPs would be implemented to ensure that erosion is avoided, minimized, and

contained during construction. Adherence to NPDES permits would require adequate design, grading, and use of BMPs to ensure that the water quality is not affected by these projects. The wide spacing of the transmission line poles associated with the project would take a relatively small area of soils out of agricultural uses. The Proposed Action and reasonably foreseeable projects therefore would not result in erosion or siltation that would lead to measurable degradation, and would not result in a loss of topsoil that would cause a measurable decline in agricultural or habitat uses.

No substantive direct, indirect, or cumulative impacts to soils would result from the Proposed Action or the No Action Alternative.

3.2.2 AIR RESOURCES

3.2.2.1 Existing Environment

The study area for air quality includes northeastern Montana. This area is not part of a specific Air Quality Control Region. Present air quality trends in the area are affected primarily by fugitive dust from agricultural operations and traffic along unimproved roads. These effects may be exacerbated by wind conditions. The study area is in attainment for both National and State Ambient Air Quality Standards. The nearest air quality monitoring site is located in Billings, Montana approximately 300 miles southwest of the Proposed Action.

3.2.2.2 Environmental Consequences

A significant impact to air quality would occur under the following condition:

- Violation of National or State Ambient Air Quality Standards.

Proposed Action

During construction of the Proposed Action, there would be limited, temporary emissions from vehicles and equipment and fugitive dust from construction activities, especially on unpaved roads. Emissions would be influenced heavily by weather conditions and the specific construction activity occurring. Exhaust emissions, primarily from diesel equipment, would vary according to the phase of construction. Fugitive dust would be controlled by spraying the working area with water, as needed. Due to the temporary and intermittent nature of these emissions and the fact that the study area is currently in attainment for both Federal and State ambient air quality standards, impacts anticipated from the proposed action would not result in a violation of ambient air quality standards.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the

use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to air quality would occur under the no action alternative. However, it is likely that there would be a greater number of noise-generating engines and associated increased local emissions than the Proposed Action.

Cumulative Effects

Neither the Proposed Action nor the No Action Alternative, in combination with other projects, would result in a violation of Federal or State air standards. Predicted emission levels during construction and maintenance of any facilities would be low and resulting concentrations would not exceed State or Federal standards.

No substantive direct, indirect, or cumulative impacts to air resources would result from the Proposed Action or the No Action Alternative.

3.2.3 WATER RESOURCES AND WATER QUALITY

3.2.3.1 Existing Environment

The study area for water resources and water quality is the proposed ROW, temporary material storage areas, switchyard and substation of the Proposed Action, with some discussion of regional resources. Northeastern Montana is a semi-arid region, receiving 10 to 15 inches of moisture annually (USGS 2005). Water resources within the Project area include groundwater aquifers, streams, rivers, and associated wetlands, isolated prairie pothole wetlands and man-made lakes. Many of the historic small ponds, streams, and wetlands in the region have been drained for cultivation. Agriculture, cattle and oil facilities, are the most likely sources of degraded water quality.

Groundwater

Groundwater resources in the study area are included in the Fort Union Formation Tertiary aquifer. Tertiary aquifers consist mostly of semi-consolidated to consolidated sandstone beds of Oligocene to Paleocene age (USGS 1996). These water-yielding sandstones are an important water source in the region. Groundwater is the most common source for drinking water, although the Yellowstone River is an important water source for the Sidney and Fairview municipalities. According to the Montana Ground-Water Information Center (GWIC), water supply wells typically access groundwater resources as shallow as 15 feet below the ground surface (GWIC 2008). According to the Montana Department of Agriculture's 2005 Yellowstone River Valley Project (YRVP), groundwater in Richland County has levels of pesticides and nitrates in groundwater well within

human health and aquatic life standards (YRVP 2005). Groundwater may be encountered during excavations for transmission line structures.

Surface Water

Surface water resources in the study area are found within the Redwater, Charlie-Little Muddy, and Lower Yellowstone River watersheds (EPA 2008). Surface water features including streams, rivers, wetlands, and ponds are shown in Appendix B. No major rivers are found in the Project area. Ten streams and several lesser intermittent streams cross the proposed alignment. These streams include Second Hay Creek, North Fork First Hay Creek, Main Hay Creek, Timber Creek, East Charlie Creek, and their tributaries. Individual stream crossings are listed in Table 3.2-1 and depicted in Appendix B. In general, surface water in the Project area drains southeast toward the Yellowstone River.

TABLE 3.2-1
WATER CROSSINGS

Waterbody Name	# of Crossings
Second Hay Creek	1
South Fork of Cherry Creek	1
First Hay Creek	1
Timber Creek	2
East Charlie Creek	1
Tributary to East Charlie Creek	3
Middle Charlie Creek	1
West Charlie Creek	3

Source: (USGS 1971)

Water Quality

Widespread agricultural practices in the region (e.g., feedlots, application of pesticides, herbicides, fertilizers, cattle grazing and trampling of streams and riparian areas and absence of erosion control) have contributed to a general decline in water quality over the last 100 years. Recent and ongoing oil extraction may also contribute to water quality degradation. According to the YRVP, surface water in Richland County has levels of pesticides and nitrates well within human health and aquatic life standards (YRVP 2005).

Wetlands

The study area for wetlands includes the proposed ROW , temporary material storage areas, switchyard and substation and surrounding lands that may be affected by temporary construction sites. Typical wetland vegetation is emergent vegetation with seasonally saturated to ponded hydrologic regimes, and the majority of the wetlands are associated with streams and stream

impoundments. Prairie pothole wetlands also occur in the area. Many of the historic wetlands in the region have been drained for cultivation. Agriculture and grazing are likely the sources contributing to degraded wetland quality in the study area.

Wetland resources within the study area were initially identified by reviewing National Agriculture Imagery Program (NAIP) aerial photographs (NAIP 2006), and Richland County Soil Survey data published by the Soil Conservation Service (SCS 1980), now known as the Natural Resources Conservation Service (NRCS). National Wetlands Inventory (NWI 2005) data has not been digitized for this area, but NWI maps (hard-copy) were reviewed. Following review of this information, on-site wetland delineations took place in May 2008 according to the 1987 Army Corps of Engineers Field Guide for Wetland Delineation methods.

Wetlands in the ROW are generally associated with streams and stream impoundments utilized for livestock ponds. Thirteen wetlands were located within the ROW. Wetlands and other surface water features are shown in Appendix B. Wetland crossing widths and acreage calculations are shown in Table 3.2-2. The listed wetlands are typically temporarily or seasonally flooded, palustrine, emergent-type wetlands. Some of the wetlands were created or modified by earth dams to create livestock ponds. Many wetlands in the area have been affected by agricultural practices, grazing and trampling by cattle, partial drainage or tillage into the wetlands, or by runoff of fertilizers and herbicides.

Typical wetland vegetation includes cattail (*Typha angustifolia*), hardstem bulrush (*Scripus acutus*), prairie cord grass (*Spartina pectinata*), and curly dock (*Rumex crispus*). Wetlands found in pasture areas are generally used by cattle for watering. Species diversity within these areas tends to be low, and impacts from soil disturbance by cattle are noticeable in many locations. Hydrologic regimes ranged from temporarily saturated in some swales to deep-water habitat at some man made stock ponds that were created by stream impoundments.

TABLE 3.2-2
WETLANDS WITHIN ROW

Wetland Number	Cowardin Classification	Acres[1]
1	PEMCh	0.24
2	PEMBh	0.03
3	PEMBh	0.05
4	PEMCh	0.20
5	PEMB	0.21

Wetland Number	Cowardin Classification	Acres[1]
6	PEMB	0.06
7	PEMBh	0.21
8	PEMC	0.06
9	PEMC	0.16
10	PEMC	0.22
11	PEMA	0.03
12	PEMB	0.09
13	PEMB	0.05
Total Count: 13	-	1.60

[1] Acres of wetland crossed by a 75-foot (assumed average) ROW. Actual ROW width will vary between 50 and 80 feet, depending on transmission line structure type. Source: Wetland Delination Report, June 2008

3.2.3.2 Environmental Consequences

A significant impact to water resources would occur under any of the following conditions:

- Groundwater, surface water quality or wetland degradation resulting in violations of Federal and/or State standards, including stormwater discharge events in violation of NPDES permit requirements;
- Increased susceptibility to on-site or off-site flood damage due to altered surface hydrology;
- Unmitigated discharge of dredged or fill material into jurisdictional waters of the United States under Section 404 of the Clean Water Act or in violation of a Section 404 permit or applicable State wetland regulations; or
- Unmitigated drainage or dewatering of jurisdictional waters of the United States under Section 404 of the Clean Water Act or in violation of a Section 404 permit or applicable State wetland regulations.
- Loss of wetland area

Proposed Action

The Proposed Action is not expected to require dewatering that could affect groundwater resources. If dewatering is found to be necessary during construction (i.e., during pole embedding), the effects on water tables would be localized and short-term. Dewatered groundwater would be properly discharged to minimize erosion and facilitate infiltration back into the ground. The Proposed Action would have no impact on either municipal or private water uses in the Project area. No

water storage, reprocessing, or cooling is required for either the construction or operation of the transmission line or substations. Therefore the Proposed Action would not result in violations of groundwater quality standards.

The 115-kV transmission lines and the substation additions would be designed to span and/or avoid surface water features, including drains, streams, and wetlands. Construction of the transmission lines would not be expected to alter existing surface water drainage patterns, due to the small cross section per pole and their relatively wide spacing. The typical distance between structures would be 300 to 600 feet. Use of H-frame structures would allow for longer span across wider wetlands. No wetlands or wetland complexes within the ROW are wider than the maximum span distances. Although construction of the proposed substations would involve a very small increase in impermeable surfaces (from the control houses and structure footings), the change to local surface drainage patterns due to this and any necessary grading would be negligible. The small area of impermeable surfaces created by the pole structures and substation outbuildings would not cause an increase in the susceptibility of the region to flooding.

Sediment reaching tributaries to the Yellowstone River has the potential to adversely affect water quality downstream. LYREA would employ BMPs and adhere to the terms and conditions of the NPDES permits during construction. These actions would protect topsoil and adjacent water resources and minimize and trap soil erosion before it would reach surface water resources.

Maintenance and operation activities for substation or transmission line facilities are not expected to have an adverse impact on surface water quality. The small increase in impermeable surface area resulting from construction and expansion of the project substations could increase the likelihood of sediment in runoff reaching surface water features. However, the majority of the substation areas would remain as permeable surfaces, and erosion potential is not expected to be noticeably higher than under the existing land use at the sites.

There is the possibility with any construction activity of spilling fuel, hydraulic fluid, or other regulated materials that could reach surface water resources. LYREA would minimize the likelihood of such an event by ensuring that refueling takes place at secure areas away from drainages. Spill kits would be maintained at these sites to contain and clean up any spills that may occur. Construction crew members would be trained in spill prevention and clean up to insure proper handling of any accidental spill.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the

use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to groundwater or surface water resources would occur under the no action alternative. However, it is likely that the increased use of fuels and fuel delivery to individual sites could increase the likelihood of spills and increase the potential for groundwater or surface water impacts if a spill were to occur.

Cumulative Effects

The effect of the Proposed Action on water resources, in combination with the projects described in Section 3.5, would not be expected to degrade water resources. The transmission projects in the area would have a similar construction methodology as the Proposed Action and would not be expected to contribute to impacts to water resources. BMPs would be employed by LYREA to ensure that erosion and sedimentation is avoided, minimized, and contained during construction, and that sediment does not reach surface water bodies. Adherence to NPDES permits would require adequate design, grading, and use of BMPs to ensure that water quality is not affected by these projects.

No substantive direct, indirect, or cumulative impacts to surface water resources would result from the Proposed Action or the No Action Alternative.

3.3 BIOLOGICAL RESOURCES

Biological resources evaluated for the Proposed Action include vegetation, wildlife, and special status species.

3.3.1 VEGETATION

Aerial photograph interpretation and on-site habitat verification took place in February and May of 2008. The study area for vegetation is the ROW, switchyard, substation, and material storage areas of the Proposed Action with some discussion of regional resources.

3.3.1.1 Existing Environment

Historically, vegetation in the Project area consisted of shortgrass and mixed prairie. The present vegetative covers are primarily row crops, pasture, and grassland (MT-GAP 1998). Native prairie remnants, wetlands, and woodlots associated with homesteads are also found in the Project area.

Most of the vegetation found within the study area consists of agricultural and pasture land. areas. Crops, such as small grains, sugar beets, and hay dominate the tilled land. Pastureland is dominated

by common grasses and forbs typical of pasture in the region, such as smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum),* purple coneflower (*Echinacea angustifolia*), and prairie rose (*Rosa arkansana*). Woodlots associated with homesteads within the Project area are comprised of commonly occurring trees, such as rural windrow evergreens, ash (*Fraxinus pennsylvanica*), cottonwood (*Populus deltoides*), elm (*Ulmus americana*), and box elder (*Acer negundo*). The Department of Transportation has planted the road ROW with smooth brome. Natural community types likely to be found in the Project corridor included mesic prairie, dry hill prairie, wet prairie, and mixed emergent marsh.

Grassland areas determined to meet certain criteria were designated native prairie remnant. Native prairie remnants occurred in areas that did not show signs of tillage or intensive grazing and were dominated by native grasses such as little bluestem, threadleaf sedge *(Carex filifolia),* or blue grama grass. These areas also contained at least ten native grasses and forbs. Areas that were dominated by grass species but did not meet all the criteria for native prairie remnant were labeled "grassland." Pasture is a subset of grassland where evidence of grazing was noted. Evidence of grazing did not exclude an area from native prairie remnant determination as many prairie species are adapted to tolerate grazing.

Noxious Weeds

Montana County Noxious Weed Control Act (7 MCA 2101-2153), amended in 1991, was established in 1948 to protect Montana from destructive noxious weeds. Nine of these listed weeds are known to occur in Richland County (Zoanni 2008). Table 3.3-1 shows the Montana noxious weed list and those noxious weeds that have been identified in Richland County. Although these species occur in Richland County, they may not be present in the Project area.

Native Prairie

Native prairie includes areas that have not recently been tilled and have been protected from intensive grazing. Areas with steep topography, wet meadows, and railroad right-of-ways often support native prairie remnants. Wet, mixed grass and short grass prairies include the following characteristics:

- Mixed grass prairies are dry to wet-mesic plant communities dominated by grasses and sedges. They generally are located on level to rolling glacial till. Species typically observed in this habitat type are little bluestem (*Schizachyrium scoparium*), western wheatgrass (*Agropyron smithii*), and prairie dropseed (*Sporobolus heterolepis*).

- Shortgrass prairies contain dry to dry-mesic plant communities dominated by grasses and sedges. Buffalo grass (*Bouteloua dactyloides*), prairie junegrass (*Koeleria macrantha*), and blue grama grass (*Bouteloua gracilis)* are typical within these areas.

TABLE 3.3-1
MONTANA NOXIOUS WEEDS

State ID	Common Name	Scientific Name	MT	Richland County
Category 1 Noxious Weeds (Widespread)				
A	Canada thistle	*Cirsium avense*	X	X
B	Field bindweed	*Convolvulus arvensis*	X	X
C	Whitetop or Hoary cress	*Cardaria draba*	X	X
D	Leafy spurge	*Euphorbia esula*	X	X
E	Russian knapweed	*Acroptilon repens*	X	X
F	Spotted knapweed	*Centaurea maculosa*	X	X
G	Diffuse knapweed	*Centaurea diffusa*	X	
H	Dalmatian toadflax	*Linaria dalmatica*	X	
I	St. Johnswort	*Hypericum perforatum*	X	
J	Sulfur cinquefoil	*Potentilla recta*	X	
K	Common tansy	*Tanacetum vulgare*	X	
L	Oxeye daisy	*Chrysanthemum leucanthemum L.*	X	
M	Houndstongue	*Cynoglossum officinale L.*	X	X
N	Yellow toadflax	*Linaria vulgaris*	X	X
O	Hoary alyssum	*Berteroa incana*	X	
Category 2 Noxious Weeds (Introduced and rapidly spreading)				
A	Purple loosestrife or *Lythrum*	*Lythrum salicaria, L. virgatum,* and hybrids	X	
B	Tansy ragwort	*Senecio jacobea*	X	
C	Meadow hawkweed complex	*Hieracium pratense, H. floribundum, H. Piloselloides*	X	
D	Orange hawkweed	*Hieracium auratiacum*	X	
E	Tall buttercup	*Ranunculus acris*	X	
F	Tamarisk [saltcedar]	*Tamarix spp.*	X	X
G	Perennial pepperweed	*Lepidium latifolium*	X	
H	Rush skeletonweed	*Chondrilla juncea*	X	
I	Yellowflag iris	*Iris pseudocorus*	X	
J	Blueweed	*Echium vulgare*	X	
Category 3 Noxious Weeds (Not yet introduced or small infestations)				
A	Yellow starthistle	*Centaurea solstitialis*	X	
B	Common crupina	*Crupina vulgaris*	X	
C	Eurasian water milfoil	*Myriophyllum spicatum*	X	
D	Dyers woad	*Isatis tinctoria*	X	
E	Flowering Rush	*Butomus umbellatus*	X	
F	Japanese knotweed complex	*Polygonum cuspidatum, P. sachalinense, P. Polystachyum*	X	
Category 4 Noxious Weeds (Not introduced or established but significant potential impacts)				
A	Scotch broom	*Cytisus scoparius*	X	

Source: Montana County Noxious Weed Control Act (MCA 122-2101 through 7-22-2153) Weeds G-2 (Misc) -- Revised March 2008. 1000-0603SF

CRP Areas

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), and Farm Service Agency (FSA) administer a Conservation Reserve Program (CRP) to conserve soil and water resources and provides wildlife habitat by removing enrolled tracts from agricultural production for a period of 10 to 15 years. Crested wheat grass, smooth broom grass, or western wheat grass typically dominate vegetation on CRP lands. CRP parcels found within the study area are discussed in Section 3.4.3.

3.3.1.2 Environmental Consequences

A significant impact to vegetation resources would occur under the following conditions:

- Loss of vegetation resulting in the listing of or jeopardizing the continued existence of any non-noxious plant species; or eliminate or decrease a local plant population to below self-sustaining levels
- Introduction of noxious weeds to areas presently free of noxious weed.

Proposed Action

Since the majority of the Proposed Action would be constructed along roads and within agricultural and pasture lands that have been previously disturbed, minimal impacts to agricultural vegetation and CRP would be anticipated. No sensitive vegetation communities were identified during field surveys that would be affected by the Proposed Action. The Proposed Action would limit impacts to existing vegetation primarily to the locations where poles are located. Areas disturbed due to construction activities would be restored to pre-construction contours and, if acceptable to the affected landowner, would be reseeded with weed-free regionally native seed mixes recommended by local land management agencies.

Introduction of noxious weeds would be mitigated through prompt re-vegetation with regionally native species. Additionally, all vehicles would be washed, especially the under carriage, prior to construction start. Vehicles would also be washed when traveling from an area identified as contaminated by noxious weeds to an uncontaminated area.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be

speculative to define exactly what impacts to biological resources would occur under the no action alternative. However, it is likely that greater impacts to vegetation and potentially sensitive habitat areas would occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts to biological resources could be greater than, equal to, or less than the proposed action if fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods, depending on the location and distance of fuel sources to each well injection site.

Cumulative Effects

The effects on vegetation from the Proposed Action, in combination with projects described in Section 3.5 would not be expected to significantly impact vegetation. Almost all of the past, present, and reasonably foreseeable projects would involve temporary or permanent loss of vegetation in the footprint and adjacent to the work. These losses are not expected to contribute to a measurable change to the vegetative landscape in the study area. Any resulting changes in vegetation will not jeopardize the continued existence of any non-noxious plant species or contribute to its listing.

No substantive direct, indirect, or cumulative impacts to vegetation resources would result from the Proposed Action or the No Action Alternative.

3.3.2 WILDLIFE

The study area for wildlife resources is the ROW ,switchyard, substation, and material storage areas of the Proposed Action with some discussion of regional resources. Existing literature and other information related to known species distributions were reviewed for relevance to the Proposed Action. This information was supplemented with visits to the Project area. A biological survey of the study area was conducted in May 2008. Appropriate agency personnel were contacted by telephone, mail, e-mail, or in person to collect additional information relevant to this study. Sensitive species within the Project area are discussed in Section 3.3.3.

3.3.2.1 Existing Environment

In general the wildlife species present within the study area are typical of agricultural landscapes, pasture grasslands, and wetland habitat in the region. Common mammals for these habitats include raccoon *(Procyon lotor)*, mink *(Mustela vison)*, skunk *(Mephitis* spp.*)*, weasel *(Mustela nivalis)*, white-tailed deer *(Odocorleus virginianus)*, coyote *(Canis latrans)*, red fox *(Vulpes vulpes)*, badger *(Mustilidae* family), and rabbit *(Syvilagus* spp.*)*. Common birds include songbirds such as the western meadow lark *(Sturnella neglecta),* Say's phoebe *(Sayornis saya)*, and dark-eyed junco *(Junco hyemalis)*, waterfowl such as blue winged teal *(Anas discors)*, and Canada goose *(Branta canadensis)*, raptors such as American kestrel *(Falco sparverius)* and red-tailed hawk *(Buteo jamaicensis)* and upland game birds, such as ringneck pheasant *(Phasianus colchinus)* or wild turkey *(Meleagus gallopavo)*. Most of the bird species nest in

fencerow trees and on the ground in the grasslands associated with prairie remnants, CRP land, and riparian corridors. Terrestrial wildlife is most common in fallow farm fields, pasture, fencerows, woodlots, and the areas along First Hay and Charlie Creeks and their tributaries. These areas provide corridors for migration and foraging as well as ample cover for small mammals, raptors, waterfowl, upland game birds, and other common wildlife in the Project area.

No game production areas, State recreation areas, lakeside use areas, or State game refuges are located within one mile of the Proposed Action. The Proposed Action does not affect any U.S. Fish and Wildlife Service (USFWS) easements or other federally-owned land.

3.3.2.2 Environmental Consequences

Impacts to wildlife would be short-term if they impact one or two reproductive seasons, generally during the construction period; or long-term if they affect several generations during the life of the Proposed Action. Impacts would be direct if they affect an individual, population, or its habitat, or indirect if the effect results from other actions. A significant impact to wildlife resources would occur under the following condition:

- Loss of habitat resulting in the listing of or jeopardizing the continued existence of any wildlife species

Proposed Action

Minor displacement of wildlife and alteration of habitat would occur from construction of the Proposed Action. No designated wildlife areas occur in the Project area and undesignated areas of high-quality wildlife habitat including native prairie and wetlands are not common. Wildlife species inhabiting natural areas may be displaced during construction, however due to their mobility and ability to use habitat altered by the Proposed Action, impacts would be minor.

Raptors, waterfowl, and other bird species may be affected by the construction and placement of the transmission lines. Avian collisions are a possibility after the completion of the transmission line. Waterfowl, wading birds, and shorebirds are typically more susceptible to transmission line collision, especially if the transmission line is placed between agricultural fields that serve as feeding areas, or between wetlands and open water, which serve as resting areas. However, impacts to bird species due to collisions with the transmission line would be minimized by LYREA's plan to use mostly H-frame transmission line structures, which place lines in parallel and make them easier to see, and LYREA's plan to install line markers in areas where H-frame structures are not used and the line is within one-half mile of potential nesting and roosting wetland areas. Based on these measures, bird impacts would be minimized to the extent practical, and would not be expected to be significant or to jeopardize the continued existence of any bird species.

Electrocution of large birds, such as raptors, can occur when birds come in contact with either two conductors or a conductor and a grounding device. Larger voltage lines, those above 69 kV, are less likely to cause electrocutions because the wires are spaced further apart than on lines that are less than 69 kV. LYREA's transmission line design will meet Avian Power Line Interaction Committee (APLIC 2006) guidelines to provide adequate spacing between the conductors to minimize risk of raptor electrocution. As such, electrocution is not a concern related to the transmission line.

Nesting bird species may be affected by the operation of vehicles, equipment, and personnel associated with construction of the Proposed Action. These bird species and their young would be expected to occur in pasture, grassland, and prairie areas. Nesting season is approximately April 15 to July 15. Construction activities are planned to take place outside this season. If any construction or maintenance activities do occur during the season, LYREA would survey work areas prior to work to identify and avoid nest locations.

Raptors may use the transmission structures as hunting perches. Concerns have been raised that raptors could impact the prairie nesting bird population due to this increase in perch availability. While this may occur, impacts are expected to be minor and localized to areas under the transmission line. Raptor perches already exist in the project area associated with existing distribution lines in the project area.

LYREA would avoid areas known as major flyways or migratory resting spots, if practicable, or would attempt to use the more visible H-frame transmission line structure design (which puts lines in parallel and makes them more visible) to avoid avian collisions with the transmission line. Where those measures are not possible, LYREA would install line marking devices within one-half mile of nesting, roosting or feeding areas (i.e., wetlands) to increase line visibility and reduce the potential for avian collisions.

Based on these measures, the Proposed Action would not result in the listing of or jeopardizing the continued existence of any wildlife species.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to wildlife resources would occur under the no action alternative. However, it is likely that greater impacts to potentially sensitive habitat areas would

occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts to wildlife could also be greater than, equal to, or less than the proposed action if fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods, depending on the location and distance of fuel sources to each well injection site. Potential impacts to avian species would be less under the no-action alternative due to the absence of new transmission line facilities under this scenario.

Cumulative Effects

The effects on wildlife from the proposed action, in combination with projects described in Section 3.5 would not be expected to impact wildlife to a measurable degree. Past, present, and anticipated developments with transmission and distribution lines could cause avian collisions to increase over current conditions. The Proposed Action and future projects in the area would conform to APLIC guidelines to insure that proper designs are incorporated into electrical transmission and distribution development.

No substantive direct, indirect, or cumulative impacts to wildlife resources would result from the Proposed Action or the No Action Alternative.

3.3.3 SPECIAL STATUS SPECIES

The study area for special status species is the ROW , switchyard, substation, and material storage areas of the Proposed Action, with a discussion on regional issues. Threatened and endangered species within the Project area were identified using data obtained from the Montana Natural Heritage Program (MNHP), MFWP, and the USFWS), and by conducting field surveys for identified species and habitats. The Endangered Species Act of 1973 (ESA) (16 USC 1531–1544) requires protection of federally-listed threatened or endangered species and any habitat designated as essential to maintenance and recovery of a listed species designated as Critical Habitat. Critical Habitat areas are designated by the USFWS.

3.3.3.1 Existing Environment

The USFWS identified five federally protected species that could occur in the study area (Table 3.3-2). Pallid sturgeon (*Scaphirhynchus albus*), the interior least tern (*Sterna antillarum*), the whooping crane (*Grus americana*), and the black footed ferret (Mustela nigripes) are federally listed as endangered, and piping plover (*Charadrius melodus*) is Federally-listed threatened.

Consultation with MFWP indicated that State Species of Concern (SOC) may occur in the Project area. MFWP did not provide a list of species; instead, they indicated that surveys for suitable habitats of wetlands, native prairie, and rock outcrops should occur, and project design should avoid these features as much as practicable. Wetlands are addressed in Section 3.2.3. Native prairie and

rock outcrops are addressed in Section 3.3.1. MFWP also expressed concern over sharptail grouse leks, which will be discussed later in this section.

TABLE 3.3-2
FEDERAL SPECIES THAT MAY OCCUR IN THE PROJECT AREA

Species		Habitat and Range	ESA Status[1]
Common Name	**Scientific Name**		
Pallid sturgeon	*Scaphirhynchus albus*	Bottom dwelling, Missouri and Yellowstone Rivers	E
Piping plover	*Charadrius melodus*	Missouri River sandbars, alkali beaches; northeastern MT	T, CH
Interior least tern	*Sterna antillarum*	Yellowstone and Missouri River sandbars; beaches; eastern MT	E
Whooping crane	*Grus americana*	Wetlands; migrant eastern MT	E
Black footed ferret	*Mustela nigripes*	Prairie dog complexes; eastern MT	E/XN

[1] E = Endangered, T = Threatened, CH = Critical Habitat, XN = Experimental Non-Essential

Pallid Sturgeon

The pallid sturgeons' native habitat in the Mississippi and Missouri Rivers and their tributaries includes large river ecosystems with high turbidity, free flow, and warm water, according to the Pallid Sturgeon Recovery Plan (USFWS 1993). Preferred habitat includes a diversity of depths and velocities formed by braided channels, sandbars, islands, and sandy and gravely bottom areas. Current pallid sturgeon populations near the proposed Project area are fragmented by dams on the Missouri River. Pallid sturgeons are scarce in the upper Missouri River above Ft. Peck Reservoir; in the Missouri and lower Yellowstone Rivers between Ft. Peck Dam and Lake Sakakawea; and in the Missouri River downstream of Gavins Point Dam. The pallid sturgeon has been listed as endangered under the ESA since 1990.

Pallid sturgeons are long-lived, with some individuals reaching 60 years of age or more. Spawning likely occurs from early June until mid July, coinciding with increased river flows which initiate the spawning migrations. Their diet is primarily composed of aquatic invertebrates and small fish. Human alteration of river systems due to dams and shoreline modification are the primary cause of decline in pallid sturgeon survivability.

The nearest suitable habitat for pallid sturgeon to the Project area is located over five miles to the east at the Lower Yellowstone River.

Piping Plover

The piping plover breeding range stretches from south central Canada into the Midwest United States. The majority of piping plover breeding pairs found in the United States are concentrated in Montana, the Dakotas and Nebraska. This population of piping plover winters in the Gulf of Mexico. Current boundaries of their breeding range are thought to be similar to historic boundaries, but distribution is much more fragmented with population isolation is now common. The piping plover has been listed as threatened under the ESA since 1985 (Atkinson and Dood 2006).

Piping plover nest along sparsely vegetated sand and gravel bars of the Missouri River and alkali lakes and wetlands. Piping plover are opportunistic and will breed at different sites in different years based on suitable water levels and habitat conditions.

Increasing raptor predation, reduced habitat availability caused by shoreline housing development, habitat degradation caused by alteration of river flow dynamics due to channelization and dams, and impoundment and drainage of prairie wetlands and other agricultural impacts are the leading causes of species decline.

There is no USFWS-designated Critical Habitat for the piping plover in the Project area (50 CFR Part 17). The Missouri River in most of Richland County has been designated Critical Habitat; however the Project Area is about 10 miles south of that area. Other suitable habitat for the piping plover is found along the Lower Yellowstone and Missouri Rivers, particularly near the Fort Peck Dam, about 100 miles west of the Project area (MFWP 2006). Consultation with MFWP indicates that no piping plover are located near the Project area, and surveys for the species would be unnecessary (Thompson 2008; Rauscher 2008a).

Interior Least Tern

The interior least tern is a migratory species that breeds along the Pacific, Atlantic and Gulf coasts as well as the major interior rivers of North America. Historically the interior population bred along the Mississippi, Missouri, Arkansas, Red, Rio Grande and Ohio River systems (USFWS 1994). While the current breeding range is similar to historic boundaries, the interior least tern distribution is fragmented. Breeding colonies are restricted to less altered river segments where suitable habitat still remains. Interior least terns have been reported in three distinct areas in Montana: the Yellowstone River below Miles City, the eastern end of Fort Peck Reservoir above Fort Peck Dam, and the Missouri River below Fort Peck Dam. The Lower Yellowstone River flows just over five miles east of the eastern terminus of the Project, and the Missouri River is located about 10 miles north of the Project area. The Fort Peck Reservoir and Dam are about 100 miles west of the Project area.

Breeding Interior lest terns typically nest on sandbars and sandy islands in the Missouri and Mississippi Rivers and their tributaries (Sidle et al 1988). Gravel pits, river channel environments, and lake and reservoir shorelines are also used for nesting and foraging. Nest sites include gravelly substrate, lack of vegetative cover, existence of favorable water conditions and proximity to food sources (Atkinson and Dood 2006). Characteristic riverine nesting sites are dry, flat, barren to sparsely vegetated sections of sand or pebble beach within a wide, unobstructed, river channel. Nests are usually located on dry, isolated sandbars after the spring high flows recede.

Suitable habitat for the interior least tern is found along the Yellowstone and Missouri Rivers, particularly at the Fort Peck Reservoir and on the Yellowstone River (Atkinson and Dood 2006). Consultation with MFWP (Thompson 2008, Rauscher 2008a) indicate that no interior least terns are located in or near the Project area, and surveys for interior least tern and Interior least tern habitat would be unnecessary.

Whooping Crane

Historic nesting ranges for the whooping crane are thought to have extended throughout the northern Great Plains (Whooping Crane International Recovery Plan, USFWS 2007) Principal wintering range was the tall grass prairies in southwestern Louisiana, along the Gulf Coast of Texas, and in northeastern Mexico near the Rio Grande Delta. USFWS estimates that 10,000 whooping cranes once ranged across North America (Stehn and Wassenich 2008). In 2007, 509 birds survived in North America, including only 360 in the wild. The whooping crane has been federally protected since 1967 and was grandfathered into the ESA as an endangered species in 1973 (USFWS 2007).

The Aransas-Wood Buffalo population of whooping cranes winters in the Aransas National Wildlife Refuge on the Texas Gulf Coast, and then migrates across the Great Plains to breed in the summer in the Wood Buffalo National Park in Northwest Territories, Canada. This population contained 236 individuals in October 2007 (Stehn and Wassenich 2008), and is the only self-sustaining wild population (USFWS 2007).

Whooping cranes are diurnal migrants, using daily thermal drafts and prevailing winds to make the more than 2,000-mile migration possible. Whooping cranes are opportunistic, and will fly when conditions are favorable, and will roost whenever they are not. Roosting and stopover sites include prairie pothole wetlands and other wetland complexes within the migratory corridor. Whooping cranes primarily use shallow, seasonally and semi-permanently flooded wetlands for roosting, and various cropland and emergent wetlands for feeding. Whooping cranes appear to use the nearest suitable roosting site when favorable migratory conditions deteriorate, typically at the end of the day.

The Project area is within the 200-mile wide migratory corridor based on sightings since 1975 (USFWS 2007). Although whooping cranes would not breed in the Project area, prairie pothole wetlands of all sizes provide suitable migratory roost and stopover sites, particularly those in near proximity to foraging grounds including agricultural fields. Based on field surveys, roost and stopover sites may exist in association with field delineated wetlands.

Black-footed Ferret

Historically, black-footed ferrets occupied much of the Great Plains region of North America, collocating with prairie dog (*Cynomys* sp.) colonies and complexes. Suspected to be extinct in 1973, a re-discovery of the black-footed ferret near Meeteetse, Wyoming in 1981 initiated recovery efforts and a captive breeding program. The black-footed ferret has been federally protected since 1967 and was grandfathered into the ESA as an endangered species in 1973 (USFWS 1988).

Black-footed ferrets depend on prairie dog complexes for food and habitat. With conversion of prairie lands to agriculture, poisoning of prairie dogs, and disease epidemics, prairie dog and black-footed ferret populations have declined dramatically from their historic levels. Black-footed ferrets use prairie dog burrows for shelter. Only large prairie dog complexes can support and sustain a breeding population of black-footed ferrets (Miller et al. 1996). Prairie dogs and black footed ferrets prefer level topography in grasslands, steppe, and shrub steppe. Plowed lands, forests, wetlands, and water are avoided (USFWS 1988).

A non-essential experimental population of black-footed ferret was introduced into Phillips County in north central Montana in 1994. This population is located across the Missouri River, more than 150 miles west of the Project area,. Consultation with MFWP (Thompson 2008, Rauscher 2008b) and an independent biological consultant (Knowles 2008) indicate that no prairie dog colonies are located in or near the Project area, and surveys for prairie dog towns or black-footed ferrets would be unnecessary. No prairie dog towns were identified during field surveys.

State protected Species of Concern

The MNHP database search identified no State protected species of concern within three miles of the proposed alignment. While no State-protected species are documented in this area, surveys for these species are likely to be incomplete. Initial consultation with the MFWP identified no particular species of concern. MFWP did identify suitable habitats to be native prairie, rock outcrops, and wetlands and requested surveys for these habitats. MFWP also asked that possible impacts to sharptail grouse leks be considered. Sharptail grouse are protected by the State through regulated hunting seasons and license requirements. Sharptail grouse have no federal protection, and are not listed under the MBTA or the BCC.

3.3.3.2 Environmental Consequences

A significant impact to endangered, threatened, proposed, and candidate species would occur under the following conditions:

- Loss of individuals that would jeopardize the continued existence of a species; or
- Loss of individuals leading to their being listed or a change in listing from threatened to endangered or the addition of a species to the Federal list.

Proposed Action

No permanent, adverse impacts to special status species would be expected from the Proposed Action. Habitat for many of the listed species includes large river or lake habitat, wetlands or remnant prairies. Direct impacts to these environments would be avoided by placement of pole structures whenever feasible. In cases where sensitive areas cannot be spanned, LYREA would minimize the number of structures in the area by maximizing span length. Additional species-specific analyses are provided below.

Pallid Sturgeon

The nearest large river habitat necessary for pallid sturgeon is located more than five miles from the Project area. Based on this information, the Proposed Action would have no effect on the pallid sturgeon.

Piping Plover and Interior Least Tern

Large river sandbars and shoreline habitat of the Missouri and Lower Yellowstone Rivers preferred by both piping plover and interior least tern are located more than five miles from the Project area. Consultation with wildlife biologists at MFWP indicated that no documented breeding pairs of either piping plover or least tern occur in or near the Project area (Thompson 2008, Rauscher 2008a). The Proposed Action would have no effect on the piping plover or interior least tern.

Whooping Crane

Wetlands in the Project area may provide suitable roosting and stopover habitat for migrating whooping cranes. Collisions with power lines are a cause of whooping crane mortality during migration. Since whooping cranes migrate at high elevations above transmission lines, collisions are most likely to occur when the species is approaching or leaving wetland roost and stopover areas.

The Proposed Action would cross small palustrian wetlands that could be suitable roosting and stopover habitat for migrating whooping cranes. Surveys for whooping crane are impractical and not likely to give conclusive results, as migration paths and stop-over areas vary from year to year. The boundaries of wetlands have been surveyed along the transmission line and wetland areas have been identified within a half mile of the proposed centerline by analysis of aerial photography, hydric soils and field surveys (see Section 3.2.3). In order to prevent whooping crane collisions with the

transmission lines during take-off and landing, the lines would be marked with devices that would alert the birds to the presence of a line in the air within one mile of these wetland areas and where the lines cross between feeding and roosting areas. By following these mitigation measures, the Proposed Action would not have significant effects on whooping crane populations.

Black footed Ferret

The existence of prairie dog colony complexes would indicate suitable black-footed ferret habitat. Consultation with wildlife biologists at MFWP indicated that no prairie dog colonies or complexes occur in or near the Project area (Thompson 2008; Rauscher 2008b; Knowles 2008), and none were found during field surveys. Based on this information, the Proposed Action would have no effect on the black footed ferret.

State-Protected Species of Concern

Correspondence with MFWP indicated that State-protected species of concern may occur in the Project area Surveys for native prairie, rock outcrops, and wetlands were conducted in May 2008 to document suitable habitat for these species. Results from these surveys did not identify any State species of concern. See also Section 3.3.1 – Vegetation.

Native Prairie and Rock Outcrops

Impacts to native prairie include loss of habitat at the pole locations. Areas with native vegetation that has been degraded by grazing have been identified along the project route. No rock outcrops were identified. H-frame structures would be used in native prairie areas to maximize spanning distance. There would be minimal impact to the vegetation because the construction would only involve boring holes and no earth moving would be required. In addition, construction would occur outside the growing season to reduce disruption to the vegetation. Impacts to these areas would be minimized as much as practicable. Permanent impacts would be expected to be negligible.

Wetlands

Impacts to wetlands include loss of habitat at the pole locations. Wetland areas within the construction footprint have been identified. These areas would all be avoided by pole placement, and no impacts are expected.

Sharptail Grouse Leks

Sharptail grouse are known to abandon leks following construction of transmission and distribution structures. A lek is a gathering of males, for the purposes of competitive mating display. MFWP conducted lek surveys in the area in 2007 and no leks were identified within a quarter mile of the proposed alignment. One lek was located within a half mile of the alignment and six more leks were located within one mile of the alignment. Construction timing and location of the proposed facilities would avoid direct impacts to lek habitat. Since this species' populations are stable and not listed on any protected species list, the Proposed Action would not negatively affect population levels. Sharptail grouse are protected by the State through regulated hunting seasons and license

requirements. Sharptail grouse have no federal protection, and are not listed under the MBTA or the BCC. Based on this information, the Proposed Action is not likely to affect sharptail grouse leks.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to special status species would occur under the no action alternative. However, it is likely that greater impacts to special status species could occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts to special status species could be greater than, equal to, or less than the proposed action if fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods, depending on the location and distance of fuel sources to each well injection site.

3.3.3.3 Cumulative Effects

The effects on special status species from the Proposed Action, in combination with the projects described in Section 3.5 would not be expected to result in significant impacts to any species. Future projects as a result of the Proposed Action include new construction of distribution lines from the proposed substations to new oil facilities and other outlets.

Pallid sturgeon

Future distribution projects in the area would have no effect on pallid sturgeon individuals or populations.

Piping plover and Interior least tern

Future distribution projects in the area would have no effect on piping plover or least tern individuals or populations.

Whooping crane

Any additional distribution or transmission line construction throughout the principal migration corridor would increase the opportunity for whooping crane collision mortalities. Assuming future projects would also mark lines in the vicinity of whooping crane roosting and feeding areas, it is not anticipated that these future facilities would have significant effects on whooping crane populations.

Black-footed ferret

Since large prairie dog colonies are generally are not negatively affected by structures such as oil wells or transmission lines (USFWS 1988), impacts from future distribution lines to possible new

prairie dog colonies and black-footed ferret future distribution would be minimal. These projects would be likely to have negligible effect on black-footed ferret individuals or populations.

State-Protected and Other Species of Conservation Concern

Since pole placement takes up minor areas of land, and pole placement in wetlands and rock outcrops is structurally undesirable, future distribution projects in the area would be expected to have a minimal effect on native prairie, rock outcrops, and wetland habitats.

Sharptail Grouse Leks

Future distribution projects in the area could promote lek abandonment. Since this sharptail grouse populations are stable and not listed on any protected species list, cumulative effects would not be expected to negatively affect population levels.

No substantive direct, indirect, or cumulative impacts to special status species resources would result from the Proposed Action or the No Action Alternative.

3.4 SOCIAL RESOURCES

3.4.1 SOCIOECONOMICS

The socioeconomic setting and potential impacts of the Proposed Action were evaluated on a regional basis with particular emphasis on Richland County.

3.4.1.1 Existing Environment

The Proposed Action would be located in rural Richland County. The closest communities to the Proposed Action are Sidney and Fairview, Montana. Sidney, Montana is located about 10.5 miles south of the proposed Fairview West Switchyard and has a population of approximately 4,774. Fairview, Montana is located about 4.5 miles east of the proposed Fairview West Switchyard and has a population of approximately 709. Each community offers a range of services, including restaurants, grocery stores, bars, and gas stations. The nearest hospital to the Proposed Action is located in Sidney, Montana.

Table 3.4-1 shows the demographic characteristics of the Project area.

TABLE 3.4-1
DEMOGRAPHIC CHARACTERISTICS OF PROJECT AREA

Area	Population			Percent Change 2000 -2007	Percent White	Percent in Poverty	Median HH Income
	1990	2000	2007				
Montana	799,065	902,195	957,861	16.6	90.6	14.6	33,024.00
Richland County	10,716	9,667	9,182	-14.3	96.4	12.2	32,110.00
North of 201	732	666	**	**	98.6	8.3	30,000.00
South of 201	669	623	**	**	98.4	22.5	27,855.00

Sources: United States Census Bureau (USCB) 1990, 2000a, 2000b, 2008b.
*** No census Data available.*

Unemployment rates in Richland County in 2006 were 2.5 percent. This rate was lower than Montana's 2006 unemployment rate of 3.2 percent (USCB 2008a).

3.4.1.2 Environmental Consequences

Proposed Action

Socioeconomic impacts resulting from the Proposed Action would be primarily positive in the short term. Construction of the Proposed Action is expected to occur over approximately 12 months. The relatively short-term nature of the Proposed Action construction would require up to approximately 16 workers who would likely be hired from outside of the Project area and should result in short-term positive economic impacts in the form of increased spending on lodging, meals, and other consumer goods and services. The Proposed Action would create temporary construction jobs that would provide a one-time influx of additional income to the area.

The socioeconomic impacts from the Proposed Action on a long term basis would be primarily positive. The Bakken Formation, an oil deposit located in an area stretching approximately 10 miles east and 40 miles west of Sidney, Montana (Lambert, Montana is on the southern edge of the formation), has had increasing activity with respect to oil development over the past few years. The additional power that would be supplied to the area will allow the oil extraction activities to continue to grow, which would create new job opportunities. Contractors are needed for activities like concrete work and well completion. Once a well is in production a variety of support personnel are needed. These individuals perform such tasks as hauling water, maintaining pipelines, doing road work, maintaining pads (weed control, fence repair, etc.), maintaining the pumps and other machinery necessary for production, and administrative support work. Oil development activities have had a ripple effect throughout the local economy. It has played a role in reducing unemployment rates, increasing personal income, and bringing in many workers who stay for both short- and long-term assignments.

The increased availability of reliable power in the area would have a positive effect on local businesses and the quality of service provided to the general public. Therefore the Proposed Action would not cause a degradation or over-commitment of goods and services that would limit the sustainability of existing communities.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to socioeconomic resources would occur under the no action alternative. However, it is likely that greater impacts would occur in terms of road traffic if more drill sites are developed due to the associated increase in number of well pad sites that would require refueling and maintenance activities. Impacts could be greater than, equal to, or less than the proposed action depending on how large engines used for enhanced recovery methods are re-fueled, such as by regular fuel deliveries or by use of fuel supply lines to each well injection site. The no action alternative is also anticipated to delay or limit new oil and gas development in the area, which would decrease the positive socioeconomic benefits of the Proposed Action that are identified above.

Cumulative Effects

No substantive direct, indirect, or cumulative impacts to socioeconomic resources would result from the Proposed Action or the No Action Alternative.

3.4.2 ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) is intended to ensure that adverse human health and environmental effects of agency actions would not disproportionately impact minority and low-income populations, including Native American Indian tribes. For purposes of this section, minority and low-income populations are defined as follows:

Minority Populations

Ethnic origins include blacks or African Americans, American Indians or Alaska Natives, Asians, Hispanics or Latinos, and Native Hawaiian and other Pacific Islanders.

Low-Income Populations

This includes people living below the national poverty level. In 2007, the weighted-average poverty threshold for a family of four was $21,386 and $10,787 for an individual (USCB 2008c). The poverty threshold is calculated by the U.S. Census Bureau each year as a means to estimate the number of Americans in poverty.

3.4.2.1 Existing Environment

The Project area is located in a predominantly ethnically white area that has historically been an agricultural economy. Table 3.4-1 shows the minority and low-income populations for Montana, Richland County and two communities (Culbertson and Sidney) immediately north and south of SH 201.

Based on the information gathered from the U.S. Census Bureau, low-income persons within the study area comprise approximately 13.9 percent of the population (as a weighted average), which is at about the same level for the State of Montana and Richland County (14.6 and 12.2 respectively). As Table 3.4-1 shows, approximately 22 percent of the population south of Highway 201 is below the poverty level compared to 8.3 percent north of Highway 201. Examinations of the proposed alignment have not identified low income population concentrations in the area south of Highway 201. There was no obvious reason to explain the difference between the two poverty level percents in the areas north and south of Highway 201.

3.4.2.2 Environmental Consequences

A significant impact would occur under the following condition:

- Low-income, minority, or subsistence populations in the region of the Proposed Action are disproportionately affected by the Proposed Action.

Proposed Action

The Proposed Action would not displace any residents. The proposed transmission line has been routed to avoid placing the line within 300 feet of occupied residences. Maximizing the distance from residences was a primary factor in choosing the preferred route. No minority population would be expected to bear disproportionate adverse effects for any environmental or social resource.

No Action (No-build)

No facilities would be built under this scenario. No changes to existing conditions would result.

Cumulative Effects

No substantive direct, indirect, or cumulative impacts to environmental justice would result from the Proposed Action or the No Action Alternative.

3.4.3 LAND USE

The study area for land use is the ROW of the Proposed Action, switchyard, substation, and material storage areas with a discussion of regional issues. Acreage values used to describe the existing environment were calculated using a half-mile buffer centered on the proposed transmission line alignment and do not indicate areas of land to be impacted by the Project activities. Instead, the values are used to represent the general project area (USGS 1985).

3.4.3.1 Existing Environment

The study area is located in rolling hills, farmland, and grassland typical of northeastern Montana. Land use in the area is predominantly agricultural and grassland. A number of pasture, CRP, and State Institutional Trust Land tracts are also found in the study area. Oil wells and oil infrastructure have become common in the past 10 years, and occupied and abandoned farmsteads are found throughout the area. Wetlands, coulees, woodlands, and native prairie are also found scatted in the landscape, although these habitats occupy a very small percentage of the land area. Soils in the Project area consist of a variety of loams, silt loams, and clay loams derived from underlying glacial tills and alluvium (USDA 1980, NRCS 1999).

Nine different land cover types were documented along the proposed route based on aerial photo analysis and visits to the Project area. These include row crops and hay, grassland (pasture, fallow, and potential native vegetation), CRP land, road and road ROW, stream/ditch and riparian zone, home site, oil and gas, wooded, and potential wetland. Maps of land cover are shown in Appendix C, and a summary of the land cover analysis within a quarter mile of the proposed route is presented in Table 3.4-2.

The major crops in the area are wheat and other small grains, corn, and hay (USDA 2007). Within a quarter mile of the Project area, 15.3 percent of land is considered prime farmland if irrigated. An additional 1.5 percent is considered prime farmland if irrigated and if soils are not subject to excessive erosion. Based on field visits and aerial imagery analysis, no centerpoint or other irrigation appears to be in use within a quarter mile of the route. Approximately 28.5 percent of the land is classified as farmland of statewide importance (USDA 1980; SSURGO 1999). Federal regulations define prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses" (7 CFR, 657.5 (a) (1)). Farmland of Statewide Importance includes land that supports production of crops important to Montana. Farmland of Statewide Importance is often the same

TABLE 3.4-2
EXISTING LANDCOVER WITHIN A QUARTER MILE OF ALIGNMENT

Habitat and Land Use Type	Approximate Acres*	Land Area
Row Crop	3187.4	36.4%
Pasture	1675.7	19.1%
Conservation Reserve Program (2007)	1465.8	16.7%
Grassland (Fallow, Potential Native Vegetation, other)	1262.9	14.4%
Road and Road ROW	489.7	5.6%
Hay	313.9	3.6%
Stream/Ditch and Riparian Zone	107.8	1.2%
Home Site	99.9	1.1%
Wooded	57.6	0.7%
Oil and Gas	54.8	0.6%
Potential Wetland	40.6	0.5%
Total	8,756.1	100.0%

**Land use types were identified based on 2008 site visits, 2006 NAIP aerial photos, hydric soils maps, and USGS 1:24.000 topographic maps. Acreage calculated by overlaying 1/2-mile-wide corridor (centered on transmission line) over land use types.*

soil types as Prime Farmland but at steeper slopes. In Montana, these lands are also less reliant on a dependable water source than prime farmland, and much of it is dryland farmed.

Grassland includes pasture, fallow field, unmanaged grassland, and native prairie. Pasturelands are grazed predominately by cattle. Fallow and unmanaged lands are naturally reclaimed by invasive and native grasses and forbs. Native prairie remnants are usually found only in areas that have not been tilled in many years and that do not experience intensive grazing. The delineation between degraded grassland and native prairie can be difficult in some areas. See the discussion on Native Prairie in Section 3.3.1 – Vegetation.

CRP and Conservation Reserve Enhancement Program (CREP) lands are common along the proposed route. Under these programs, landowners are compensated to remove marginal farmland from agriculture for 10 to 15 years in the CRP to perpetual easement under CREP. Purchase of transmission line easements across lands currently under CRP easements will require a review of the CRP contract by the NRCS/FSA.

Five sections along the Project alignment are State Institutional and Trust Land Administration (SITLA) lands. These State-owned lands are often leased out to generate income for counties and

townships. Transmission line easements are a compatible land use on SITLA lands. No other land management easements or other land use limitations occur in the Project area.

Road and road ROW includes paved and gravel roads and grassy road ROW. Home sites include residential structures, yards, barns, and other farm and home site facilities. Wetlands, streams, and woodlands compose a minor portion of the land near the Project area. Wetlands are addressed in Section 3.2.3 – Wetlands and Hydrology. Woodlands are typically scattered trees, wind shelters, and small areas of unmanaged forest.

3.4.3.2 Environmental Consequences

Land use impacts would pertain to physical and operational effects of the Proposed Action on existing and future land use. In the Project area, these impacts are primarily related to agricultural practices.

A significant impact to land use would occur under the following conditions:

- Uncompensated loss of crop production; or
- Foreclosure of future land uses.

Proposed Action

The Proposed Action would result in permanent and temporary impacts to farmland. Temporary and short-term impacts would occur from construction activities due to removal of existing agricultural land from crop or forage production. During construction, temporary impacts such as soil compaction and crop damages, are likely within the working ROW and along any temporary work space. LYREA would compensate landowners for crop damages that may occur as the result of the Proposed Action. This compensation may be by either providing financial compensation to landowners, or by using contractors to chisel plow the disturbed area. .

Permanent impacts would result from the construction of the proposed Fairview West Switchyard, the proposed Spring Lake Substation and at pole locations. Long-term impacts would include:

- Loss of cropland under substation sites and immediately around structures;
- Modified farming operations around transmission structures; and
- Modified aerial application of herbicides and fertilizers to avoid transmission structures.

Permanent impacts to Prime Farmland and Farmlands of Statewide Importance will be localized to pole placement and will be minimal. The proposed route segments minimize impacts to farmland by

paralleling existing road ROW wherever possible. For the majority of the Proposed Action, structures would be placed approximately five feet from the edge of the road ROWs and field margins to minimize the loss of farmland, and to ensure access to the land near the poles.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to land use would occur under the no action alternative. However, it is likely that greater impacts to land would occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts to land use could be greater than, equal to, or less than the proposed action if fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods, depending on the location and distance of fuel sources to each well injection site.

Cumulative Effects

Almost all of the past, present, and reasonably foreseeable projects involve temporary and permanent loss of land use in the footprint and adjacent to the work. These losses are not expected to contribute to a measurable change to the long-term land uses in the study area. In most cases, except where permanent disturbance is located, current uses can continue for the life of the project. The total land removed from agricultural production would be a very small fraction of the total land currently in production.

No substantive direct, indirect, or cumulative impacts to land use would result from the Proposed Action or the No Action Alternative.

3.4.4 VISUAL

The study area for visual resources includes a regional perspective. Scenic quality is determined by evaluating the overall character and diversity of landform, vegetation, color, water, and cultural or manmade features in a landscape. Typically, more complex or diverse landscapes have higher scenic quality than those landscapes with less complex or diverse landscape features.

3.4.4.1 Existing Environment

Agricultural fields, farmsteads, fallow fields, large open vistas, natural prairie areas, oil facilities, gently rolling topography, and ravines visually dominate the Project area. Existing electric

infrastructure, such as transmission lines, distribution lines and substations, are also scattered throughout the landscape. Local vegetation in the Project area is a mixture of pasture and other grasslands with small grains, corn, and forage crops, creating a low uniform cover. Prairie remnants, containing a mixture of native grasses, are scattered throughout the Project area. A mix of deciduous and coniferous trees planted for windbreaks typically surround farmsteads. Hardwood wooded areas are found in some ravines and areas with steep topography.

The settlements in the Project area are residences and farm buildings (inhabited and uninhabited) scattered along the rural county roads. These structures are focal points in the dominant open space character of the vicinity. A number of the farm structures date back to the early 20th century and are representative of that era of farm architecture. Typically, the farmsteads and residences are located at lower elevations and/or are surrounded by wind-breaks to avoid winds common to the area.

LYREA currently delivers power to several existing oil wells and oil extraction facilities in Richland County. These facilities are located throughout the Project area. Additional oil development is planned for the Project area.

A remote rural character is present in the Project area, although oil and gas facilities and activities have impacted this character somewhat. Highway 201 is a paved two lane highway which carries local and oil industry-related traffic. The topography of the area would not typically allow expansive views of the Proposed Action; instead people in the area would have close views of specific elements of the Proposed Action. However, in any area of the proposed route where the roads are at a higher elevation, there would be intermittent, expansive views of the area. There are no Federally- or State-designated scenic byways in the Project area or other unique or sensitive viewsheds.

3.4.4.2 Environmental Consequences

Visual resources reflect aesthetic qualities of the landscape in terms of its public viewing value and sensitivity to change. A significant impact to visual resources would occur under the following condition:

- Visual interruption that would dominate a unique viewshed or scenic view.

Proposed Action

All project components would contribute to visual impacts to the area. The proposed Fairview West Switchyard will occupy approximately 2.6 acres and the proposed Spring Lake Substation will occupy approximately 0.8 acres. The switchyard and substation will be surrounded by agricultural land that is sparsely populated. The proposed 115-kV transmission line structures would be single

wood poles or H-frame wood pole structures ranging from 65-100 feet tall with spans of 300 to 600 feet, depending on structure and landscape. Structures are described in Section 2.3.

The Proposed Action would be visible to those traveling on highways and county and township roads. Isolated trees may need to be removed for the Proposed Action, but large-scale tree clearing would not be required. The landscape within the Project area is dotted with oil facilities and crossed by 12.47kV and 24.9 kV distribution lines; a 69 kV transmission line and Western's 115-kV transmission line. For most of the route, the visual impact from the proposed transmission line would be negligible or only incremental compared to existing conditions.

Routing the Proposed Action parallel to existing road and distribution ROW would help to minimize the Proposed Action's visual disruption to the landscape. All of the Proposed Action would parallel the existing Highway 201 ROW.

Due to the presence of oil, transmission, and distribution facilities in the Project area, and because no sensitive viewsheds occur, the Proposed Action is not expected to dominate any unique or scenic viewshed.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to visual impacts would occur under the no action alternative. However, it is likely that greater impacts would occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts could be greater than, equal to, or less than the proposed action if fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods, depending on the location and distance of fuel sources to each well injection site.

Cumulative Effects

Almost all of the past, present, and reasonably foreseeable projects would involve long term visual impacts. This area is expected to continue to experience oil facility development. State, county and local officials would have the appropriate jurisdiction to regulate visual impacts to manage cumulative effects. While the cumulative effects would result in a noticeable change to the visual setting, the change is not considered adverse, based on the necessity of oil resources to local landowners and the general public.

No substantive direct, indirect, or cumulative impacts to visual resources would result from the Proposed Action or the No Action Alternative.

3.4.5 NOISE

The study area for noise was limited to the nearest residential receptors to the Project area.

3.4.5.1 Existing Environment

Noise is defined as unwanted sound. Conductors on transmission lines and transformers at substations produce noise under certain conditions. The level of noise, or its loudness, depends on conductor conditions, voltage level, and weather conditions.

Noise is measured in units of decibels (dB) on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight". The A-weighted (dBA) scale corresponds to the sensitivity range for human hearing. A 10 dBA change in noise levels is perceived as a doubling of noise loudness. Noise levels decrease with increasing distance from the source. From a point source, such as a substation, noise levels decrease by 6 dBA for every doubling of distance; for a line source, such as a transmission line, noise levels decrease between 3 and 4.5 dBA, depending on ground cover. Cumulative noise increases occur on a logarithmic scale. If a noise source is doubled, there is a 3 dBA increase in noise, which is barely discernible to the human ear. For cumulative increases resulting from sources of different magnitudes, the rule of thumb is that if there is a difference of greater than 10 dBA between noise sources, there will be no additive effect (only the louder source will be heard and the quieter source will not contribute to noise levels). Table 3.4-3 shows noise levels associated with common, everyday sources, and places the magnitude of noise levels discussed here in context.

TABLE 3.4-3
COMMON NOISE SOURCES AND LEVELS

Sound Pressure Level (dB)	Typical Sources
120	Jet aircraft takeoff at 100 feet
110	Same aircraft at 400 feet
90	Motorcycle at 25 feet
80	Garbage disposal
70	City street corner
60	Conversational speech
50	Typical office
40	Living room (without TV)
30	Quiet bedroom at night

Source: Rau and Wooten 1980

The study area is located in a rural area. Ambient noise in rural areas is commonly made up of wind and rustling vegetation, intermittent farm equipment operation, and infrequent vehicle pass-bys. The area in the vicinity of the Spring Lake Substation and the Fairview West Switchyard experiences steady and sometimes high winds.

Average noise levels in typical range areas are commonly in the 40 dBA range and are considered acceptable for residential land use activities. Higher ambient noise levels, typically 40 to 55 dBA, are expected near rural roadways during peak traffic hours, such as SH 201. Due to the prevalence of wind-induced noise, the current, average, background noise levels in the vicinity of the Spring Lake Substation are higher than typical background noise levels in agricultural areas. Peak wind hours experience noise levels in the 40 to 55 dBA range.

The nearest receptor is located approximately 300 feet west of the Proposed Spring Lake Substation. The property is used occasionally as a shop area and is not an occupied residence. Existing background noise levels expected at this property are similar to the noise levels expected, and are in the 40 to 55 dBA range.

3.4.5.2 Environmental Consequences

A significant noise impact would occur under the following condition:

- Violation of local, State, or Federal noise standard or guidance.

Proposed Action

Construction Noise

The Proposed Action would result in construction noise, resulting from equipment such as heavy trucks and bulldozers. To avoid and minimize construction noise, LYREA would fit internal combustion engines associated with construction activities with approved mufflers and spark arresters, and conform to any county or other applicable regulations that restrict construction hours.

Conductor Noise

Conductor noise levels were estimated using the CFIX8 model distributed by Bonneville Power Administration. The maximum conductor noise levels would occur at the conductor itself; noise levels drop off as the distance from the conductor increases. Worst case noise emissions from the single proposed 115-kV transmission line are predicted to be approximately 9 dBA in fair conditions directly on the centerline.

The nearest receptor to the proposed 115-kV line would be over 300 feet away. The worst-case transmission line noise levels at these receptors are expected to be no more than 2 dBA. This level is inaudible and significantly lower than the background noise level at this receptor, and would not contribute to a change in overall noise levels.

Substation Noise

The proposed substation that will be located in the Fairview West Switchyard would consist of one 115-12.47-kV transformer. The proposed Spring Lake Substation will consist of one 115-24.9 kV transformer and one 24.9-12.47 kV transformer.

The nearest receptor, which is an unoccupied farm used on an occasional basis, is approximately 300 feet from the proposed Spring Lake Substation and approximately 2,800 feet from the proposed Fairview West Switchyard. Using sound pressure levels for the proposed transformers based on the National Electrical Manufacturers Association's (NEMA) Standard TR-1 1993, noise levels from the proposed Spring Lake Substation are predicted to be 39 dBA at the nearest receptor (300 feet). This estimate is considered conservative, and below expected existing background noise levels in the Project area. Substation noise would not likely not be perceptible to the nearest residence.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local

power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to noise would occur under the no action alternative. However, it is likely that greater impacts would occur if more drill sites are developed due to the associated increase in number of small engines powering well pads and increased noise from traffic supporting additional well sites. Impacts are likely to be greater than the proposed action if large diesel or natural gas-driven engines are used for enhanced recovery methods at well injection sites, rather than electric driven engines.

Cumulative Effects

No substantive direct, indirect, or cumulative noise impacts would result from the Proposed Action or the No Action Alternative.

3.4.6 HEALTH AND SAFETY

Evaluation of safety and health issues was limited to the Project area specifically focused on the construction and maintenance activities associated with the Proposed Action.

3.4.6.1 Existing Environment

Public and Worker Safety

The predominant activities that currently occur within the Project area include agriculture, oil and gas development, and vehicular travel.

Electric and Magnetic Fields

The Proposed Action would result in electric and magnetic fields (EMFs) created by the flow of electricity and the voltage of transmission lines. The voltage of the transmission line, current flow in the conductors, weather conditions, and the design of the transmission line can cause electrical environmental effects. Electric and magnetic fields arise from the voltage of a line and the flow of electricity, respectively.

Electric Fields

Voltage on any wire (conductor), be it home wiring or a transmission line, produces an electric field in the area surrounding the wire. The electric field associated with transmission lines extends from the energized conductors to other nearby objects, such as the ground, towers, vegetation, buildings, and vehicles. The electric field from a transmission line gets weaker with increasing distance from the transmission line. Nearby trees and building material also greatly reduce the strength of transmission line electric fields and act as a shield..

The intensity of electric fields is associated with the voltage of the transmission line and is measured in kilovolts per meter (kV/m). Transmission line electric fields near the ground are designated by

the difference in voltage between two points (usually one meter). With respect to public health and safety, the presence of an electric field is not a predominant concern during normal operations. The electric field is of major concern only during a line to ground fault (a short circuit between a conductor and the ground).

Magnetic Fields

Current passing through any wire conductor produces a magnetic field in the area around the wire. The magnetic field associated with a high voltage transmission line surrounds the conductor and decreases rapidly with increasing distance from the conductor. The magnetic field is expressed in units of magnetic flux density, expressed as gauss (G). The normal magnetic field can interfere with telephone and railroad communications equipment near the line.

The magnetic field associated with transmission line operation can induce currents and voltage in long, parallel conductors such as fences or telephone cables, if they are not properly grounded. The potential induced voltage is dependent on line geometry, the current carried on the line, the distance to the conducting object, the length of parallel structures, the grounding of the conducting object, and the shielding of the conducting object. There are no Federal regulations establishing maximum magnetic field levels.

Stray Voltage

Stray voltage is a natural phenomenon that can result in low levels of electrical current between two contact points where electricity is grounded. Electrical systems, including farm systems and utility distribution systems, must be grounded to the earth by code to ensure continuous safety and reliability. Some current flows through the earth at each point where the electrical system is grounded and a small voltage develops. This voltage is called neutral-to-earth voltage (NEV). When a portion of this NEV is measured between two objects that may be simultaneously contacted by an animal, it is frequently called stray voltage. Stray voltage does not cause electrocution and is not related to ground currents, EMFs or earth currents. Stray voltage is more commonly associated with distribution lines, which are not insulated, than transmission lines, which are insulated.

Environmental Consequences

A significant impact would occur under the following conditions:

- Design of components causes an increase in the frequency or severity of worker injuries to a level above average;
- Children are disproportionately impacted by adverse human health and environment effects;

- Increase of electric and magnetic fields at or outside the ROW to levels above best industry practice; or
- Increase in risk of injuries or fatalities to the public from construction and operation of the Proposed Action.

3.4.6.2 Proposed Action

Public and Worker Safety

The Proposed Action would be designed to comply with applicable local, State, and NESC standards regarding worker safety, clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials and ROW widths. Construction crews would comply with local, State, NESC, Western regulations and LYREA standards regarding installation of facilities and standard construction practices. Established LYREA and industry safety procedures would be followed during and after installation of the transmission line. This would include clear signage during all construction activities.

The proposed transmission line would be equipped with protective devices to safeguard the public from the transmission line in the unlikely event that an accident occurs and a structure or conductor falls to the ground. The protective devices are breakers and relays located where the line connects to the substation. This protective equipment would de-energize the line in the unlikely event that such a situation occurs. In addition, the substation facility would be fenced and access limited to authorized personnel. Therefore, the Proposed Action would not be expected to cause an increase in the frequency or severity of worker injuries to a level above LYREA's average.

Electric and Magnetic Fields

Electric Fields

Electric field levels at electric substations drop off rapidly. At 100 feet away from a substation fence, the electric field levels from the substation equipment are typically at background levels. Any measured fields in that area and beyond would be from transmission and distribution lines entering and exiting the substation, and not from the substation. The nearest residence to any of the project facilities is an unoccupied farm located about 300 feet from the Spring Lake Substation. Since the location of the Project is in a remote area, and there are no residences in close proximity to the proposed facilities, electric field levels are not anticipated to have a significant effect.

The proposed 115-kV transmission line would have a maximum magnitude of electric field density of approximately 0.87 kV per meter underneath the conductors one meter above ground level in a double circuit configuration.

Magnetic Fields

Magnetic field levels at electric substations also drop off rapidly from transformers, which are the main source of magnetic fields from the substation equipment. At 100 feet away from a substation fence, the magnetic field levels from the substation equipment are at background levels. Any measured fields in that area and beyond would be from transmission and distribution lines entering and exiting the substation, and not substation equipment. In addition, the nearest residence to any of the Project substations is approximately 300 feet away from the Proposed Spring Lake Substation. Since the location of the Project is in a remote area, and there are no residences nearby, magnetic field level would also not be a concern.

The maximum calculated ground level magnetic field produced by the normal operating current for the 115-kV portion of the Proposed Action is 87 milligauss (mG) for the proposed transmission line. This maximum reading would be directly under the conductors at mid-span, where the conductors would be closer to the ground.

The proposed transmission line has been routed to avoid placing the line within 300 feet of occupied residences. Maximizing the distance from residences was a primary factor in choosing the preferred route. Therefore no impacts to human health and safety are anticipated as a result of the Proposed Action.

Stray Voltage

The new 115-kV transmission line would be double circuited with existing distribution lines in some locations, and those existing lines may have some stray voltage associated with them. However, the transmission line is not likely to increase stray voltage levels above existing conditions since the transmission line will be insulated. Therefore, no impacts associated with stray voltage issues are anticipated due to the Proposed Action.

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 a 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 substations. Theft frequently involves equipment and salvageable metal at substations and switchyards. Vandalism often includes shooting out insulators. Sabotage and terrorism would most likely involve destruction of key transmission line components with the intent of interrupting the electrical grid.

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

Vandalism and theft within the substations would be minimized as equipment would be protected by fencing. Little or no preventative 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.

3.4.6.3 No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to safety would occur under the no action alternative. However, it is likely that safety impacts would be relatively similar except that additional traffic could increase the potential for more accidents under the no action alternative.

3.4.6.4 Cumulative Effects

No substantive direct, indirect, or cumulative noise impacts would result from the Proposed Action or the No Action Alternative.

3.4.7 CULTURAL RESOURCES

Cultural resources include archaeological and historical sites, buildings, structures and objects of historic, scientific or social value, or places of spiritual and cultural significance. The primary legislation that mandates Federal management and protection of cultural resources is the National Historic Preservation Act (NHPA) of 1966 (as amended in 1976, 1980 and 1992), specifically Section 106, and its implementing regulations in 36 CFR 800. Also considered are the Montana State Antiquities Act, the Montana Environmental Protection Act, the Unmarked Burial Act and the Montana Repatriation Act. Western is responsible for Section 106 consultation with the Montana State Historic Preservation Office (SHPO), tribes, and interested members of the public.

In compliance with the Section 106 regulations, a cultural resources records search was conducted for previous surveys and reports that had been conducted within one mile of the proposed

transmission line, switchyard, and substations. The records search included a review of existing cultural resources documentation on file at the SHPO and a review of 19th Century plat maps. In addition, an intensive pedestrian survey was conducted within the Area of Potential Effect (APE), including within a 200-foot-wide corridor centered on the transmission line (300 feet wide at locations where the route turns), and within 200 feet of substation and material storage areas footprints. Two types of cultural properties were included in the survey, archaeological sites and historic standing structures.

A previously recorded lithic scatter located within the survey area was re-identified, recorded, and the site form updated for SHPO records. Preliminary indications are all other previously recorded sites are located well away and outside the Project area. Montana SHPO standards for recording tipi rings and rock cairns were also employed (SHPO 2003). The pedestrian survey methodology to examine the potential impacts of the Proposed Action on archaeological resources involved conducting shovel tests at not more than 30-meter intervals (or no less than 10 tests per acre) in areas with poor surface visibility (less than 25 percent). During shovel testing, soil is screened through a one-eighth inch mesh hardware cloth and evaluated for the presence of archaeological resources. Tilled agricultural fields with a surface visibility of 25 percent or more were walked over at not greater than 30 meter spacing intervals. No shovel tests or walkovers were done in steeply sloped areas or in areas with standing water or saturated soils. Standing historic structures were photographed on all sides to illustrate architectural features, labelled with a description and orientation, and then entered into a photographic record or log. All cultural properties documented during the survey were recorded on Montana State Historic Preservation Office approved forms. These forms will be sent to Archaeology Records at the University of Montana for assignment of Smithsonian system catalog number.

Preliminary information from the records search and surveys conducted in June and July of 2008 are summarized below.

3.4.7.1 Existing Environment

Archaeological and Historic Resources

Cultural resource information in Richland County includes 25 surveys or investigations recorded in the SHPO files that fall within one mile of the Project area. Of those, most have been surveys related to pipeline and oil and gas development projects.

The SHPO files indicate that there are eight previously recorded cultural or historic resources within one mile of the Project area. The sites include two possible rock cairns, one of which has been determined to be ineligible for the National Register of Historical Places (NRHP) (NPS 1991). One additional site recorded has a precontact Native American affiliation as a firehearth or roasting pit.

The remaining sites are recorded as historic properties, and include a vehicular/foot bridge, two coal mines, a historic Euro-American site, and a railroad or stage route property. Other than the one rock cairn, none of the cultural resources mentioned above appear to have ever been evaluated for potential eligibility to the NRHP.

Based on the records review and pedestrian survey, one previously recorded lithic scatter was re-located within the pedestrian inspection corridor, and two newly discovered prehistoric sites consisting of a prehistoric cairn and lithic scatter, and a possible tipi ring site, were recorded within the APE. Several historic homesteads, farmsteads and a community meeting hall were also located within the APE.

Nine Native American Tribes or Communities having with a historical affiliation to the general Project area were identified and consultations were initiated by Western in May 2008. The Tribes and Communities contacted are identified in Section 4.3. Based on these consultations, no traditional cultural properties have been identified within the APE.

3.4.7.2 Environmental Consequences

A significant impact to cultural resources would occur under the following condition:

- Unmitigated adverse effect to an eligible cultural resource or traditional cultural property.

Proposed Action

The Proposed Action would not result in an adverse impact to cultural resources. Preliminary results indicate spanning site areas to avoid prehistoric cultural resources would be viable mitigation measure. Both archaeological and architectural cultural resources were identified within the APE. Impacts to these properties can be avoided where necessary by spanning the site areas. Because there is an existing transmission line in the area of the historic standing structures there will be little additional visual impact beyond what currently exists. In the event that an unanticipated discovery of cultural resources occurs during construction, LYREA would stop construction, notify the SHPO and Western's archaeologist, and the significance of the find would be evaluated to ensure no significant impacts to cultural resources would occur. In the event an impact may occur, LYREA would cooperate with the SHPO and Western to come up with a treatment plan to address any impacts.

No traditional cultural properties were identified that would be affected by the Proposed Action.

No Action (No-build)

As discussed in the Section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development. The no action alternative could also result in the use of louder, less efficient local power sources (e.g., large diesel or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. It would be speculative to define exactly what impacts to cultural properties would occur under the no action alternative. However, it is likely that greater impacts could occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts could be greater than, equal to, or less than the proposed action if fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods, depending on the location and distance of fuel sources to each well injection site.

Cumulative Impacts

No significant direct, indirect, or cumulative impacts to cultural resources would result from the Proposed Action or the No Action Alternative.

3.5 CUMULATIVE EFFECTS

The CEQ Regulations for Implementing the Procedural Provisions of the NEPA defines cumulative impacts as:

> … the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7).

Cumulative impacts are considered direct effects, which are "caused by the action and occur at the same time and place" (40 CFR 1508.8). The CEQ regulations require a discussion of cumulative actions and connected actions in the scope of the environmental review. These terms are defined as follows:

- Cumulative actions are those "which when viewed with other Proposed Actions have cumulatively significant impacts and should therefore be discussed in the same [environmental review]" [40 CFR 1508.25(a) (2)].

- Connected actions are those that are closely related. "Actions are connected if they: (i) automatically trigger other actions which may require environmental review; (ii) cannot or will not proceed unless other actions are taken previously or simultaneously; or (iii) are interdependent parts of a larger action and depend on that larger action for their justification" [40 CFR 1508.25(a) (1)].

Indirect effects, also termed secondary effects, are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8).

Cumulative impact analyses are based on the existing conditions and consider those issues identified in individual resource sections. Discussions focus on critical resources. The past, present, and reasonably foreseeable future projects are analyzed according to incremental impacts in combination with the Proposed Action.

3.5.1 PAST AND PRESENT

Agricultural practices, oil and gas development, vehicle travel along gravel and paved township, county, State, and Federal roadways and operation of existing electric transmission facilities are the primary activities that have occurred and are presently occurring in the Project area and more generally in Richland County.

3.5.2 REASONABLY FORESEEABLE FUTURE

A number of reasonably foreseeable development activities and projects have been identified for this Project that may impact resources common to this Project. Projects considered as part of this analysis include:

- **Basin Electric Generation Station:** Basin is adding a 100 MW unit generation station six miles east of the UMG&T Substation at Culbertson. Western has already notified UMG&T that their substation will need to be removed and that the existing substation will have to be relocated to the future Basin Substation location.

- **Western Area Power Administration 115-kV Line Upgrades:**

  - When the Basin Substation near Culbertson is completed, Western is planning on upgrading their existing 115-kV transmission line that runs from Culbertson to Williston North Dakota, to a 230-kV line.

  - Western is planning on upgrading an existing 115-kV transmission line that runs north from Charlie Creek, North Dakota, thru Watford City and on to Williston, North Dakota, to a 230-kV line.

- **Oil and Gas Development:** Oil and gas development is ongoing in the Project area. According to the Richland County website, "oil and gas development is evident in Richland County by location of wells and from the infrastructure used

to access the wells, including roads, power lines, and pipelines. Once developed, the wells can operate in proximity to other operations such as farming. Approximately 200 new wells have been drilled since 2000 when the Bakken field came into play. Although the exact extent of the Bakken potential is not entirely determined, current estimates are for another 200 wells to be drilled over the next few years."

As indicated above, oil and gas development is occurring and, based on the current demand for new energy supplies and high price for crude oil (currently over $120 a barrel), is likely to continue occurring for the foreseeable future. Specific information on the size and location of future oil and gas development projects in proximity to the Proposed Action was requested from all of the oil companies operating in the Project area (e.g., ConocoPhillips, XTO Energy, Continental Resources, Newfield Production, Slawson, Petro-Hunt, EnerPlus, EOG, Zenergy, Whiting Petroleum). However, information about the exact locations and scope of future developments was not available or otherwise not known at this time. This is because that information is generally confidential and proprietary, is still being defined, or is subject to further analysis. As a result, the exact well locations, the number of new wells, and associated impacts are not known at this time, and the specific impacts from these type of developments in the area are not reasonably foreseeable.

Based on recent oil and gas developments in the area, general observations about the type of impacts that future oil and gas development may cause can be made. However, because of the lack of specific information about future oil and gas development in the area, any analysis completed would be considered speculative. In general, it is anticipated that the oil and gas industry would have to comply with existing state and federal regulations. The primary surface impacts of oil and gas development typically include ground disturbing impacts at each drill site, totaling about 2 acres. There may also be access roads and utility lines of various lengths, and tanks and other site facilities to stockpile and house equipment and supplies. These facilities would convert existing land use to industrial purposes. In addition, transportation system impacts would occur related to vehicles transporting water, salt water, and site personnel, and the viewshed of the area would change as the number of oil rigs increase across the landscape.

- **Plains Pipeline Four Mile Station:** Currently, there is an existing pumping station located east of LYREA's Sioux Pass Substation and referred to as the Plains Pipeline Four Mile Station. This facility is currently operating an 800 Hp

pump, but the pumping load is projected to increase to 1,600 Hp of additional load to accommodate additional quantities of oil to be moved. This is not projected to happen for a few more years. The existing circuit can carry up to 800 Hp with one set of line voltage regulators, but modifications would be required to carry the full load.

The potential cumulative impacts of these past, present and reasonably foreseeable projects evaluated as part of this environmental assessment are addressed in chapter 3.0 for each resource area.

4.0 AGENCIES CONTACTED AND CONSULTED

4.1 FEDERAL AGENCIES

U.S. Fish and Wildlife Service
U.S. Department of Agriculture Natural Resources Conservation Service

4.2 STATE AND LOCAL AGENCIES

Montana Department of Environmental Quality
Montana Fish, Wildlife and Parks
Montana State Historic Preservation Office
Montana Department of Natural Resources and Conservation Office
Montana Natural Heritage Program
Richland County Department of Planning and Zoning
Montana Trust Lands
Montana Board of Oil and Gas Conservation

4.3 NATIVE AMERICAN TRIBES AND COMMUNITIES

Fort Belknap Indian Community
Cheyenne River Sioux Tribe
Fort Peck Tribes
Standing Rock Sioux Tribe
Northern Cheyenne Tribe
Oglala Sioux Tribe
Crow Tribal Council
Rosebud Sioux Tribe
Three Affiliated Tribes

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