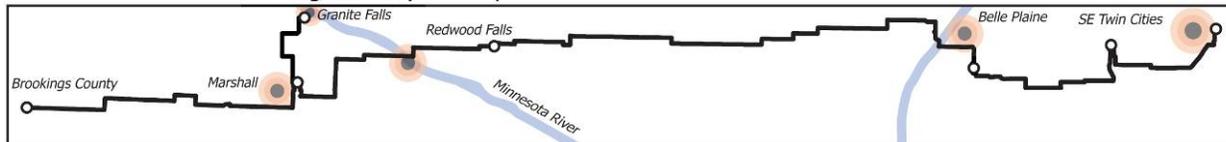


Alternate Route: Brookings County - Hampton



8.0 ENVIRONMENTAL INFORMATION: ALTERNATE ROUTE

A description of the environmental resources and impacts associated with the Alternate Route is provided below. Much of the analysis focuses on the resources between each of the substations along the route. The data in the environmental analyses only reflect the area from the South Dakota border east to the proposed Hampton Substation. To assist in clarifying the resources along this route, it is broken into the following sections:

- “Brookings County to Lyon County” – the route section between the South Dakota Border and the existing Lyon County Substation northeast of Marshall, Minnesota.
- “Lyon County to Minnesota Valley” – the route section between the Lyon County Substation and the existing Minnesota Valley Substation near Granite Falls, Minnesota.
- “Lyon County to Cedar Mountain” – the route section between the Lyon County Substation and the Cedar Mountain Substation North area, northwest of the existing substation in Franklin, Minnesota.
- “Cedar Mountain to Helena” – the route section between the Cedar Mountain Substation North area and the Helena Substation North area located along the existing 345 kV transmission line in Helena Township in Scott County.
- “Helena to Lake Marion” – the route section between the Helena Substation North area and the existing Lake Marion Substation located northeast of Elko New Market, Minnesota.
- “Lake Marion to Hampton” – the route section between the existing Lake Marion Substation and a new Hampton Substation to be located near Hampton, Minnesota.

The Alternate Route is described in detail in Section 5.2.

The Applicants reviewed environmental information in their analysis of the Project area and compared the existing environmental conditions with the Project impacts associated with each route section. The environmental resource impacts are tabulated in Appendix E.

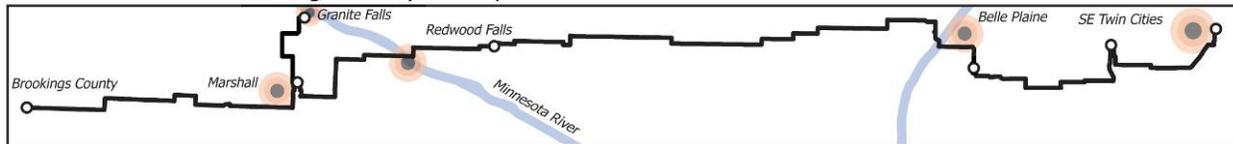
8.1 DESCRIPTION OF ENVIRONMENTAL SETTING

Both the Preferred Route and the Alternate Route have the same general environmental setting. A detailed description is provided in Section 6.1.

8.1.1 BROOKINGS COUNTY TO LYON COUNTY

This section of the Alternate Route is located in Lincoln and Lyon counties and extends from the South Dakota border to the existing Lyon County Substation northeast of Marshall. According to ECS, the route lies within the Coteau Moraines and the Minnesota River Prairie subsections of the Prairie Parkland Province. The Coteau Moraines Subsection was formed by glacial erosion and deposition, and is characterized by gently rolling hills, streams, rivers, and shallow prairie lakes and wetlands. The Minnesota River Prairie landscape is dominated by large till plains on either side of the Minnesota River, and is characterized by gently rolling terrain, except where it is split by the

Alternate Route: Brookings County - Hampton



broad Minnesota River Valley. Elevations along this section of the Alternate Route range from 1,100 feet AMSL in the east to 1,929 feet in the west, with a steady decline in elevation from west to east.

Pre-settlement vegetation consisted primarily of tallgrass prairie with small islands of wet prairie. Wet prairies and wooded areas were restricted to instream margins and ravines adjacent to rivers. The primary present-day use of the land along the Alternate Route is agriculture; few remnants of native vegetation are present (DNR 2008a). Many of the wetlands have been drained and most of the smaller watercourses have been channelized to increase the acreage of land available for agricultural production.

The majority of this Alternate Route section crosses cropland used primarily to grow corn and soybeans. With the exception of Marshall, most of the communities located within or near this section are small farm-based towns, including Ivanhoe, Arco, and Lynd. Marshall is a level two regional trade center that is defined as a secondary wholesale retail center (Casey 1999).

8.1.2 LYON COUNTY TO MINNESOTA VALLEY

Refer to Section 6.1.2. for a description of the environmental setting of this section.

8.1.3 LYON COUNTY TO CEDAR MOUNTAIN

This section of the Alternate Route extends from the existing Lyon County Substation to the proposed Cedar Mountain Substation North area. This section is located in Lyon, Redwood, and Renville counties and includes a major Upper Minnesota River crossing and two Redwood River crossings. According to the ECS, the route lies within the Minnesota River Prairie Subsection of the Prairie Parkland Province. The Minnesota River Prairie landscape is dominated by large till plains on either side of the Minnesota River, and is characterized by gently rolling terrain, except where it is split by the broad Minnesota River Valley. Elevations along this section of the Alternate Route range from 825 feet AMSL to 1,130 feet AMSL. The highest elevations occur in the west and the lowest occur in the Minnesota River Valley.

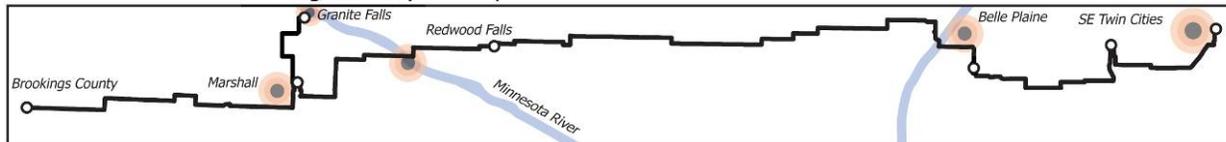
Presettlement vegetation consisted primarily of tallgrass prairie with small islands of wet prairie. Forested areas grew within the floodplains of the Minnesota River. The primary present-day use of the land along the Alternate Route is agriculture; few remnants of native vegetation are present (DNR 2008a). Many of the wetlands have been drained and most of the smaller watercourses have been channelized to increase the acreage of land available for agricultural production. The Minnesota River Prairie Subsection has been called the heart of the Minnesota Cornbelt (Wright 1972).

The majority of this Alternate Route section crosses cropland used to grow corn and soybeans. With the exception of Redwood Falls, most of the communities within or near this section are small farm-based towns, including Vesta, Delhi, Morton, and Franklin. Redwood Falls is a level three regional trade center that is defined as a complete shopping center (Casey 1999).

8.1.4 CEDAR MOUNTAIN TO HELENA

This section of the Alternate Route extends from the proposed Cedar Mountain Substation North area to the proposed Helena Substation North area. The Alternate Route is located within two distinct ecological provinces. According to the ECS, Renville and western Sibley counties are within

Alternate Route: Brookings County - Hampton



the Minnesota River Prairie Subsection of the Prairie Parkland Province, and Scott and eastern Sibley counties are within the Big Woods Subsection of the Eastern Broadleaf Forest Province. The Minnesota River Prairie landscape is dominated by large till plains on either side of the Minnesota River, and is characterized by gently rolling terrain, except where it is split by the broad Minnesota River Valley. The Big Woods Subsection is characterized by gentle to moderate rolling hills and large forested areas. This section of the Alternate Route also includes a Lower Minnesota River crossing near Belle Plaine (West Belle Plaine). Elevations along this section of the Alternate Route range from 698 feet to 1,089 feet AMSL, with the highest elevations in the west and the lowest in the Minnesota River Valley.

Pre-settlement vegetation was dominated by tallgrass prairies with areas of wet prairies in the western portion of the section, and basswood, Northern red oak, sugar maple, and American elm forests were more common in the eastern portion of the section. The primary present-day use of the land along the Alternate Route is agriculture; few remnants of native vegetation are present (DNR 2008a). Many of the wetlands have been drained and most of the smaller watercourses have been channelized to increase the acreage of land available for agricultural production. A small percentage of the area remains wetlands or upland forests.

The majority of this Alternate Route section crosses cropland used to grow corn and soybeans. Most of the communities within or near this section are small farm-based towns including Fairfax, Gibbon, Lafayette, Winthrop, Gaylord, Arlington, Le Sueur, Henderson, and Belle Plaine.

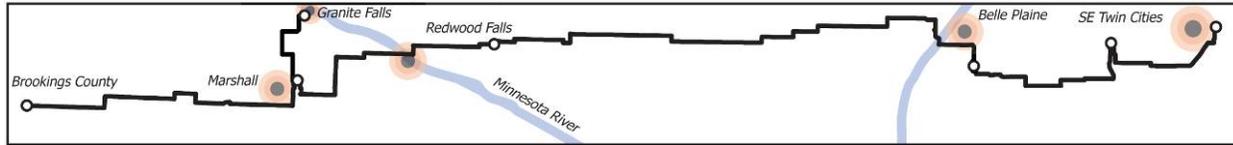
8.1.5 HELENA TO LAKE MARION

This section of the Alternate Route extends from the proposed Helena Substation North area to the existing Lake Marion Substation, and is located in two subsections within the Eastern Broadleaf Forest Province. According to the ECS, Scott County is located within the Big Woods Subsection and Rice County is located within the Oak Savanna Subsection. The Big Woods Subsection is characterized by gentle to moderate rolling hills and large forested areas. The Oak Savanna Subsection is distinguished by rolling plains over till and bedrock with oak openings rather than forested areas, due to frequent fires on the adjacent southern prairies. Elevations along this section of the Alternate Route range from 977 feet to 1,182 feet AMSL. Elevation increases from west to east to about three miles from where the route turns north. The elevation decreases for the next three miles, then primarily increases from south to north.

Pre-settlement vegetation was dominated by maple-basswood and oak woodland forests in the northern portion of the Project area and bur oak savannas with areas of tallgrass prairies in the southern portion of the Project area. The primary present-day use of the land along this Alternate Route section is agriculture; few remnants of native vegetation are present (DNR 2008a). Many of the wetlands have been drained and most of the smaller watercourses have been channelized to increase the acreage of land available for agricultural production. Urban development has started to encroach on the northern border of the farming communities in this area.

The majority of this Alternate Route section crosses cropland used to grow corn and soybeans. Most of the communities within or near this section of the Alternate Route are small farm-based towns, including New Prague and Elko New Market.

Alternate Route: Brookings County - Hampton



8.1.6 LAKE MARION TO HAMPTON

This section of the Alternate Route extends from the existing Lake Marion Substation to a proposed substation area north of Hampton. According to the ECS, Dakota and eastern Scott counties are located in the Oak Savanna Subsection of the Eastern Broadleaf Forest Province. The Oak Savanna subsection is distinguished by rolling plains over till and bedrock with oak openings rather than forested areas, due to frequent fires on the adjacent southern prairies. Elevations along this section of the Alternate Route range from 889 feet to 1,143 feet AMSL, with the highest elevations in the west and the lowest near the Cannon River.

Pre-settlement vegetation was primarily bur oak savannas with areas of tallgrass prairies. The primary present-day use of the land along the Alternate Route is agriculture; few remnants of native vegetation are present (DNR 2008a). Many of the wetlands have been drained and most of the smaller watercourses have been channelized to increase the acreage of land available for agricultural production. Urban development is beginning to encroach on the northern border of the farming communities in this area.

The primary crops in the area are corn and soybeans. With the exception of Northfield, the majority of the communities within or near this section of the Alternate Route are small farm-based towns, including Farmington and Hampton. Northfield is near the Alternate Route and is a level two regional trade center that is defined as a secondary wholesale retail center (Casey 1999).

8.2 HUMAN SETTLEMENT

8.2.1 PUBLIC HEALTH AND SAFETY

A discussion of public health and safety concerns regarding HVTLs along with impacts and mitigative measures is provided in Section 6.2.1.

8.2.2 COMMERCIAL, INDUSTRIAL, RESIDENTIAL LAND USE

This section discusses existing and future land uses, major development activities, and zoning controls within the Alternate Route. Minor differences exist between the land uses of the Preferred Route and the Alternate Route. Land use and zoning information was obtained for the counties and cities along the Alternate Route, which include Lincoln, Lyon, Redwood, Renville, Sibley, Le Sueur, Rice, Scott, and Dakota counties. Table 8-1 provides the area acreage and percentage of land cover for the Alternate Route.

Alternate Route: Brookings County - Hampton

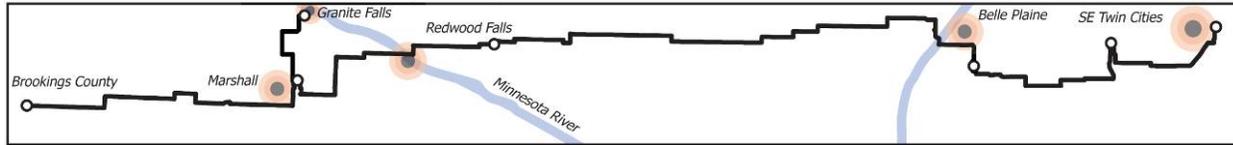


Table 8-1. Alternate Route Land Use Summary

Land Cover Type	Total	
	Area (Acres) ¹	Percent of Route
Cropland	30,942	84.8
Grassland	3,397	9.3
Shrubland	638	1.7
- Lowland Shrub	55	0.2
- Upland Shrub	583	1.6
Forest	763	2.1
- Bur/White Oak	458	1.2
- Red Oak	106	0.3
- Maple/Basswood	67	0.2
- All Others	132	0.4
Aquatic	401	1.1
- Open Water	57	0.2
- Marshland	344	0.9
Urban	361	1.0
- High Intensity Urban	44	0.1
- Low Intensity Urban	316	0.9
- Transportation	0.5	0
Total	36,502	100.0

Source: Minnesota Department of Natural Resources, 2005

¹ All acreages rounded to the nearest whole number

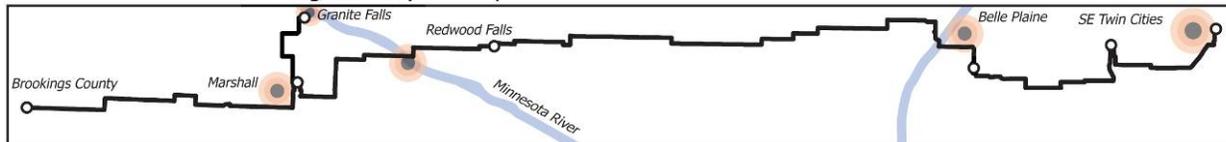
8.2.2.1 Lincoln County

Land uses and zoning districts crossed by this Alternate Route section in Lincoln County are similar to those crossed by the Preferred Route. This section passes through areas of Lincoln County where wind energy turbines have been built in recent years along County Highway 15. For additional information on land uses and zoning districts in Lincoln County, refer to Section 6.2.2.1.

8.2.2.2 Lyon County

The Alternate Route travels across central Lyon County, where the majority of land is used for agriculture. Several residential developments have clustered along the river, which offers both scenic views and privacy to residents. The homes per mile density is 1.6 for the roads paralleled in central Lyon County. The land area near the Redwood River is unincorporated land, governed under the county zoning jurisdiction and zoned as rural residential. No commercial or industrial land uses have been identified in this area of the county. Additional information on land uses in Marshall is provided in Section 6.2.2.1.

Alternate Route: Brookings County - Hampton



8.2.2.3 Yellow Medicine County

The land uses crossed by the Alternate Route in Yellow Medicine County are similar to the land uses crossed by the Preferred Route. A description of the current and planned future land uses within Yellow Medicine County is provided in Section 6.2.2.1.

8.2.2.4 Redwood County

The land uses crossed by the Alternate Route are similar to the land uses and zoning districts crossed by the Preferred Route in Redwood County (described in Section 6.2.2.1). Residential land uses along the roads the Alternate Route would follow in this section have a homes per mile density of 0.3. Extractive land uses and mining operations for sand, gravel, and Morton Gneiss (a crystalline rock formation) are proximate to the Alternate Route; however, impacts are not anticipated to any mining facility. Redwood Falls is the largest municipality in Redwood County, and serves as a regional destination for employment and social services. The Alternate Route would be located on the northern side of the city, passing by the Redwood County Landfill and the city's wastewater treatment facility.

8.2.2.5 Renville County

The land area crossed by the Alternate Route in Renville County is similar to the land area crossed by the Preferred Route. The homes per mile density along the roads paralleled by this Alternate Route section is 0.42. A description of the land uses and zoning districts crossed by the transmission line in Renville County is provided in Section 6.2.2.1.

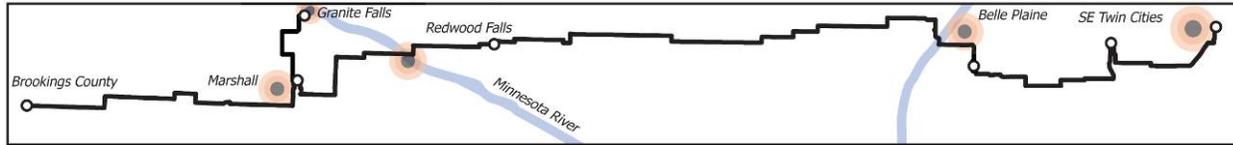
8.2.2.6 Sibley County

The land area crossed by the Alternate Route in Sibley County is similar to the land area crossed by the Preferred Route. There are several lakes and small streams located on the eastern side of Sibley County north of Gaylord and west of Arlington. In addition to these water features, the Alternate Route would cross through an area with several wetlands. Aerial photograph analysis and field observation work suggest that many of these wetlands are currently used for agricultural purposes. A description of the land uses and zoning districts crossed by the transmission line in Sibley County is provided in Section 6.2.2.1.

8.2.2.7 Scott County

The majority of land crossed by the Alternate Route in southwestern Scott County is similar to the land crossed by the Preferred Route. Residential land uses are focused around Belle Plaine, a growing municipality along the Minnesota River. Significant residential development has been planned for the city's southwest side, where new schools and municipal facilities have already been constructed. According to the City's 2030 comprehensive plan, the city expects to annex land in this direction, and has slated this land for future residential land uses. The Alternate Route alignment was routed with the city's future plans in mind. The majority of commercial and industrial development has occurred along the TH 169 corridor, and the city expects that this trend will continue. At the West Belle Plaine crossing, the city currently operates a series of wastewater treatment ponds. The homes per mile density is 4.4 along the roads paralleled by the Alternate Route in Scott County. Refer to Section 6.2.2.1 for a description of the land area and zoning districts crossed by the transmission line in Scott County.

Alternate Route: Brookings County - Hampton



8.2.2.8 Le Sueur County

Land uses and zoning districts crossed by the Alternate Route in Le Sueur County are similar to those crossed by the Preferred Route. The homes per mile density along the roads followed by the Alternate Route in Le Sueur County is 2.82. Refer to Section 6.2.2.1 for a description of the land area crossed in Le Sueur County.

8.2.2.9 Rice County

The majority of land crossed by the Alternate Route in Rice County is cultivated agricultural land zoned under the Agricultural District (A). Farmsteads and rural residences are more prevalent than in counties west of Rice County, and in several cases, homes are located near the proposed Alternate Route centerline along the roads followed. The Alternate Route would also travel across or adjacent to a small lake and the City of Lonsdale. The route would parallel 70th Street as it approaches the northwestern corner of Lonsdale. According to the city comprehensive land use plan, the city intends to locate future industrial and highway business (such as automotive-related businesses) land uses on the northern side of 70th Street, land uses considered compatible with high-voltage transmission lines. The county has zoned lands around lakes as Natural Environment Shoreland and Urban Reserve around each of the communities in the county.

8.2.2.10 Dakota County

The land uses crossed by the Alternate Route in Dakota County are similar to the land uses crossed by the Preferred Route. For the roads paralleled in Dakota County, the homes per mile density is calculated to be approximately 3.1. A description of the current and planned future land uses of Dakota County, along with the cities and townships the line would cross, is provided in Section 6.2.2.1.

8.2.2.11 Impacts and Mitigation

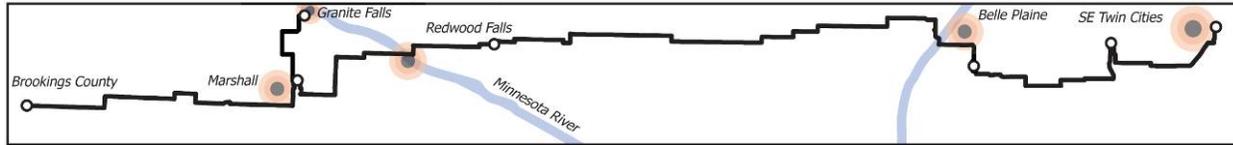
Land uses near the Alternate Route are not expected to change with the construction and operation of the transmission line. Agriculture is the dominant land use surrounding the Alternate Route, and the majority of land area under or adjacent to the transmission line could still be used for agricultural purposes following construction. Current land use plans, zoning ordinances and public policies of the counties and cities along the Alternate Route indicate that agriculture will continue to be the predominant land use the proposed transmission line would cross in the future.

Compared to the Preferred Route, the Alternate Route covers a greater distance and therefore more land acres. Direct impacts and short-term construction impacts to land uses are similar between the two routes. Refer to Section 6.2.2.1 for a discussion of impacts and mitigation to land uses.

8.2.3 DISPLACEMENT

Displacements result from ROW acquisitions that require the use of a property occupied by a residence or business. A displacement was defined by the Applicants as any home or business whose structure fell within the ROW of the proposed transmission line. In this case a structure that is within 75 feet of the proposed transmission line would constitute a displacement. The Project will be designed to avoid displacement of existing homes or businesses.

Alternate Route: Brookings County - Hampton



Residences near the Alternate Route were identified through field observation, analysis of high resolution aerial photography, and comments received at public work group meetings and open houses. To identify potential displacements, parcels located within 75 feet of the Alternate Route centerline were identified using GIS software. When potential for displacement was identified, the Alternate Route centerline was adjusted to avoid a displacement of that structure.

However, because the route is a 345 kV transmission line, there may be instances where property is purchased per Minnesota Statutes Section 216E.12, subdivision 4 (sometimes referred to as “Buy the Farm”). This gives the property owner the option of having the Applicants purchase the property that the transmission line crosses, for the fair market value of the land. This option is the landowner’s choice and it is difficult to determine which landowners, if any, will elect it. Table 8-2 provides an estimate of the number of residences located between the substation locations and the ROW requirements for the Alternate Route.

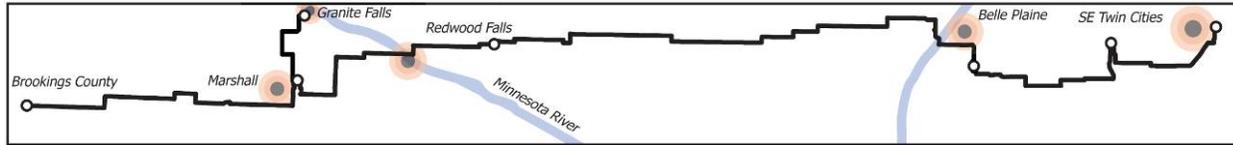
Table 8-2. Residences within 500 Feet of the Alternate Route Centerline

Proximity	South Dakota Border to Lyon County Substation	Lyon County Substation to Minnesota Valley Substation	Lyon County Substation to Cedar Mountain Substation	Cedar Mountain Substation to Helena Substation	Helena Substation to Lake Marion Substation	Lake Marion Substation to Hampton Substation
ROW Required	150	150	150	150	150	150
Residences 0-75 Feet	0	0	0	0	0	0
Residences 75-150 Feet	2	1	0	8	10	7
Residences 150-300 Feet	14	8	7	30	32	45
Residences 300-500 Feet	10	6	9	34	39	57
Total Residences	26	15	16	72	81	109
Density (homes/mile)	0.5	0.5	0.3	1.0	2.5	4.5

8.2.3.1 Impacts and Mitigation

It is the intention that the Project will be routed so that no person will be displaced from their residence or business. Property easement acquisition would be conducted in accordance with State and federal regulations, as addressed above. The location of the transmission line structures would be coordinated with individual property owners to the extent possible. The Applicants will work with landowners to make route alignment adjustments to avoid any potential displacements. No

Alternate Route: Brookings County - Hampton



public properties would be impacted beyond the existing public ROW for the roads the Alternate Route would follow.

8.2.4 NOISE

Refer to Section 6.2.4 for general noise information. Table 8-3 presents the L_5 and L_{50} noise levels predicted for proposed transmission line structures and voltages for the Project.

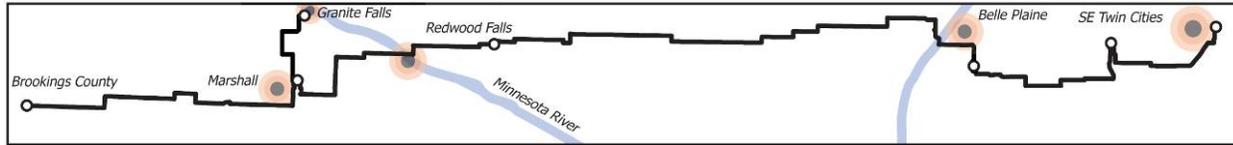
Table 8-3. Calculated Audible Noise for Proposed Single/Double/Triple Circuit Transmission Line Designs (Five feet Above Ground)

Structure Type	Noise L_5 (Edge of ROW) (dBA)	Noise L_{50} (Edge of ROW) (dBA)
Single Pole, Davit Arm, 345 kV/345 kV Double Circuit with both Circuits In Service	51.6	41.8
Single Pole, Davit Arm, 345 kV/345 kV Double Circuit with one Circuit In Service	54.1	45.8
Single Pole, Davit Arm, 345 kV/345 kV/69 kV Triple Circuit	57.4	49.7
Single Pole, Davit Arm, 345 kV/345 kV/ 115 kV Triple Circuit	57.5	49.8
Single Pole, Davit Arm, 115 kV Single Circuit	24.3	19.3
Single Pole, Davit Arm, 345 kv/345 kV Double Circuit with one Circuit operating at 230 kV	36.0	26.0

8.2.4.1 Impacts and Mitigation

The triple circuit structures that would be used for the Redwood and West Belle Plaine crossings of the Minnesota River on the Alternate Route create higher levels of noise than the double circuit structures proposed for the remainder of the route. However, these levels are not predicted to exceed the MPCA Noise Limits outside the ROW for all Noise Area Classifications. The nearest receptor to the triple circuit segment is a home located outside the ROW, 240 feet from the proposed centerline of the Alternate Route. Noise propagation through the outdoor atmosphere typically decreases in level with increasing distance between the source and receiver. The noise attenuation is the result of several mechanisms including geometrical spreading of the sound waves, shielding provided by physical structures, atmospheric absorption of the acoustic energy and ground effects on the sound waves. In general, the noise or sound pressure level emitted from the

Alternate Route: Brookings County - Hampton



transmission line decreases 3 dB for each doubling of distance from the source to the receiver. Therefore the estimated noise levels at the reception point located 240 feet from the centerline are predicted to be lower than the noise levels shown in Table 8-3.

8.2.5 AESTHETICS

This section discusses the visual characteristics and aesthetic resources in proximity to the Alternate Route. For a description of the analysis methods used, refer to Section 6.2.5.

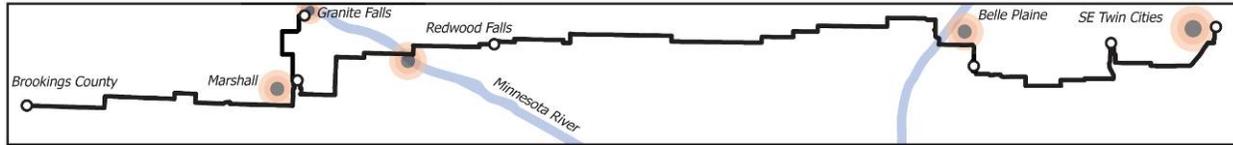
The visual and aesthetic characteristics of the landscape along the Alternate Route are similar to those of the Preferred Route. The majority of the land area crossed by the Alternate Route is rolling hillside and flat, open farmland. Housing densities along the roads followed are typically very low, gradually increasing as the transmission line moves from west to east. As with the Preferred Route, the Alternate Route would be built near or on lands held in conservation easements for wildlife habitat.

In Lincoln County, the Alternate Route would be located along County Highway 15, a road identified by the public as a potential route for the transmission line, compatible with surrounding wind energy developments. The transmission line would pass less than one mile south of Lake Shaokotan in Lincoln County, where rural residential development has concentrated in recent years. The viewshed of residents living near the lake may be affected by the poles.

The aesthetic character surrounding the Alternate Route between the Lyon County Substation and the Minnesota Valley Substation is similar to the Preferred Route.

At the crossing of the Redwood River in Lyon County, the Alternate Route would cross through an area of significant tree cover. The dense tree cover surrounding the river provides natural privacy barriers to area residents. Several homes have been built within 500 feet the river, and the new crossing has the potential to impact the residents living near the line. Several route options were investigated in this region. The presence of the two cities, Marshall and Granite Falls; housing developments, and the Southwest-Marshall Municipal Airport limit the space in which the line may cross the river. In addition to crossing the Redwood River in central Lyon County, the Alternate Route would cross the Redwood River in Redwood County, following a township road. As with the initial crossing in Lyon County, this area is characterized by dense forested areas and few residents. The road ROW would be paralleled by the transmission line through this area; and trees would need to be removed.

Alternate Route: Brookings County - Hampton



Similar to the Preferred Route, the Alternate Route crosses the Minnesota River at three locations. The first crossing would be north of Redwood Falls in Redwood County. (Redwood crossing). At this crossing the route is designated scenic by the State. At this crossing, the river is designated by the Minnesota DNR as Wild and Scenic. The Redwood crossing parallels a road (County Road 25) and an existing 115 kV transmission line. The land use north of the City of Redwood Falls includes industry such as, the Redwood Falls Municipal Solid Waste Facility, several wastewater treatment ponds, and a new wastewater treatment facility. These uses are compatible with transmission line structures, and minimize visual impacts to area residents who may be used to views of industrial facilities. Despite the industrial land use, biodiversity in the remaining natural region remains, and much of the land ownership adjacent to the river is held in a variety of conservation easements. The DNR has identified threatened or endangered species along this segment of the river, many of which are plants. Furthermore, geologic resources such as outcroppings of Morton Gneiss, a crystalline rock formation, occur near the river. These geologic features serve as an industrial economic resource for aggregate mines and a scenic attraction for river users.

The second crossing would be 2.5 miles northwest of Belle Plaine in Scott County (West Belle Plaine). In both cases, the crossing points utilize existing transportation or utility corridors to avoid creating new visual impacts to the landscape bordering the river. This crossing of the Minnesota River parallels an existing 69 kV transmission line at the West Belle Plaine crossing. This area of the city is currently used for large wastewater treatment ponds. The landscape is characterized by dense deciduous tree cover. As with the initial crossing near Redwood Falls, parcels of land around the river are managed by natural resource agencies for recreation and conservation. Like the Preferred Route, the Alternate Route would cross TH 93, a Scenic Byway. Few homes are located south of Belle Plaine though housing developments have been started southwest of the city. Future land use plans designate areas for single family residences on the southern and southwestern side of the City.

The third crossing is at Granite Falls at the same location as the Preferred Route (See Section 6.2.5 for a discussion of this crossing).

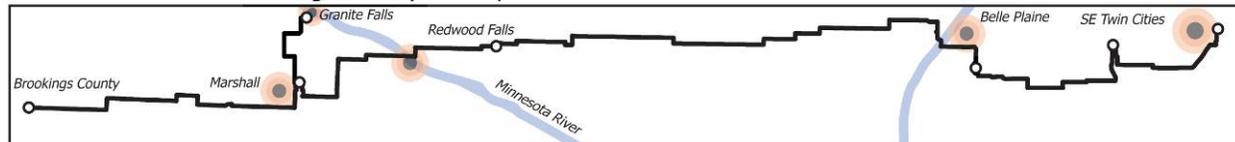
Both of the crossings are considered moderate to high visual sensitivity resources.

8.2.5.1 Impacts and Mitigation

Construction and operation of the Alternate Route would create a new visual element in the landscape. Like the Preferred Route, the visual impact of the transmission line would have the most effect on residents who live along or near roads the route will follow. Visitors and travelers using these roads would experience aesthetic impacts from the transmission line.

As with the Preferred Route, the Alternate Route would be collocated with existing transmission lines or located in areas where similar land uses (such as around substation locations) have been identified by the public and public agencies in an effort to minimize the visual impact of the transmission line in visually sensitive areas. At the three crossing locations along the Minnesota River, the Alternate Route is collocated with existing transmission lines or, in the case of the Granite Falls crossing, replaces the existing transmission line but uses the same ROW.

Alternate Route: Brookings County - Hampton



The crossing locations were chosen as the optimal crossing locations based on the existing transmission lines and the opportunity to collocate the proposed transmission line facilities to minimize impacts to land, visual quality, and aesthetic resources. Like the Preferred Route, the Alternate Route would cross the same Scenic Byways at the Granite Falls, Redwood and West Belle Plaine crossings.

In addition to the river crossings, the Alternate Route would be visible from the Birch Coulee Battlefield site, a Minnesota Historic Site. The Alternate Route travels along County Highway 2 in southern Renville County before connecting with the proposed Cedar Mountain Substation North area. The battlefield site is located at the corner of County Highway 2 and County Road 18 north of Morton.

The Applicants will continue to work with landowners and land management agencies to minimize the visual impact created by the transmission line. A discussion of potential impacts and mitigative measures relating to visual and aesthetic resources is provided in Section 6.2.5.

8.2.6 SOCIOECONOMICS

This section describes the primary social and economic characteristics of the Alternate Route. Socioeconomic factors analyzed include population, income, households, employment, per capita personal income, and poverty.

8.2.6.1 Social Characteristics

Based on the 2000 U.S. Census, the Alternate Route Project area population is estimated to be 47,244 persons, comprising 8.2 percent of the total population for the counties the route crosses (Region of Comparison). Table F-2 in Appendix F provides selected social characteristics of the population in the block groups the Alternate Route crosses.

8.2.6.2 Economic Characteristics

The economic characteristics of the counties the Alternate Route transmission line crosses are provided in Section 6.2.6. Rice County is the only county the Alternate Route would travel through that is in addition to the counties crossed by the Preferred Route.

Table 8-4 provides a list of leading county industries in Rice County. Refer to Section 6.2.6 for information on the economic characteristics of the remaining counties the Alternate Route would traverse.

Alternate Route: Brookings County - Hampton

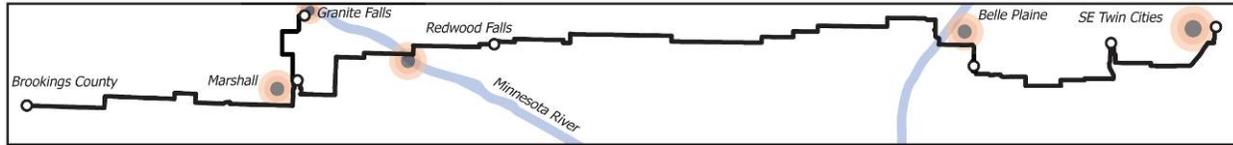


Table 8-4. Leading County Industries, Alternate Route, Rice County

County	Industry	Percent of Workforce
Rice County	Educational, Health & Social Services	27.8
	Manufacturing	18.8
	Retail Trade	9.7
	Arts, Entertainment, Accommodation	7.4
	Construction	6.9

8.2.6.3 Population by Race and Ethnicity

As shown in Table 8-5, the racial and ethnic composition of the Alternate Route is primarily persons who self-identified themselves as White/Caucasian. Persons of Hispanic or Latino ancestry along with Native American populations represented the next largest ethnicity groups, followed by persons of Asian heritage. The population characteristics of the Alternate Route are very similar to those of the ROC and the State of Minnesota.

Table 8-5. Race or Ethnic Heritage for the Alternate Route

		White or Caucasian	Black or African American	Hispanic or Latino	Asian	All Other Races	Total
Alternate Route	Number of Persons	45,962	65	707	164	1,023	47,921
	Percent	96	0.1	1.5	0.3	2.1	
Region of Comparison	Number of Persons	600,629	10,130	20,582	13,872	22,032	646,663
	Percent	92.9	1.6	3.2	2.1	3.4	
State of Minnesota	Number of Persons	4,400,282	171,731	143,382	141,968	205,498	4,919,479
	Percent	89.4	3.5	2.9	2.9	4.2	

8.2.6.4 Impacts and Mitigation

Impacts to adjacent populations of the Alternate Route are similar to those experienced by adjacent populations of the Preferred Route. Refer to Section 6.2.6.1 for general impact and mitigation information.

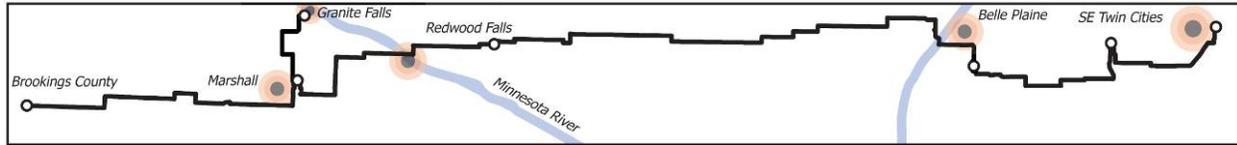
8.2.7 CULTURAL VALUES

Cultural values identified in Section 6.2.7 are applicable to the Alternate Route.

8.2.8 RECREATION

Refer to Section 6.2.8 for general recreational resource information for the routes under consideration.

Alternate Route: Brookings County - Hampton



Beaver Falls County Park is located near Redwood Falls along County Highway 2, within a mile of the Lyon County to Cedar Mountain section of the Alternate Route. The park provides several types of habitat for wildlife observation, including woods, thickets, grassland, and riparian areas. The county park also has hiking trails and picnic areas (Minnesota Valley Birding Trail).

A public recreational area used for horseback riding along the river valley is located just east of the South Dakota border in the Brookings County to Lyon County section of the Alternate Route. The exact trail location is unknown and may extend into the Project area.

A baseball diamond is located on the west side of U.S. Highway 52 within the Alternate Route.

Blue Devil Valley SNA, located outside of the route but within a mile of the Alternate Route, provides hiking opportunities within unique bedrock outcrop areas and provides habitat to skinks that hikers can see basking on the exposed bedrock. This SNA is located outside of the route, but is within a mile of the Alternate Route.

8.2.8.1 Impacts and Mitigation

Refer to Section 6.2.8.7 for general impact and mitigation information for the routes under consideration.

There are 166 acres of WMA property within the Alternate Route. The Applicants used the width of each WMA to approximate the number of poles that would potentially be placed within the WMA property. The Applicants determined temporary impacts by calculating one acre per pole for construction. The permanent impacts are 55 feet² per pole. The Applicants will work to avoid any direct impacts to WMAs within the route. The Applicants may need to acquire an easement within an adjacent WMA if impacts are unavoidable. Table 8-6 provides impact calculations of WMA acreage within the Alternate Route.

Alternate Route: Brookings County - Hampton

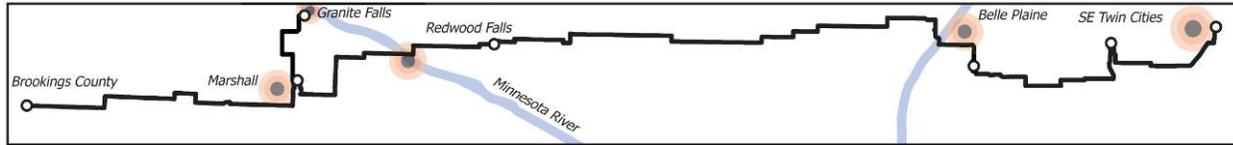


Table 8-6. WMA Impacts Within the Alternate Route

WMA	Section	Acreage Impacts ¹	No. of Poles	Temporary Impacts (acres)	Permanent Impacts (ft ²)
Coot WMA	Brookings County to Lyon County	19	1	1	55
Furgamme WMA	Brookings County to Lyon County	11	0	0	0
Muskrat Junction WMA	Brookings County to Lyon County	7	0	0	0
Thostenson WMA	Brookings County to Lyon County	31	3	3	165
Michel Marsh WMA	Cedar Mountain to Helena	0.7	0	0	0
Gabriel Anderson WMA	Lyon County to Minnesota Valley	31	0	0	0
O'Brien WMA	Cedar Mountain to Helena	22	1	1	55
Klabunde WMA	Lyon County to Cedar Mountain	23	3	3	165
Chub Lake WMA	Lake Marion to Hampton	15	1	1	55
Total Impacts		159.7	9	9	440

¹ Acreage Impacts were calculated by the total WMA acreage within the Project area. Each pole has a temporary impact of one acre and a permanent impact of 55 square feet.

The proposed transmission line will likely be visible from Blue Devil Valley SNA, the Minnesota River, and other recreational resources within one mile of the Alternate Route near Granite Falls, but will not be a new visual feature because the route is a rebuild of an existing transmission line along this section. The Applicants do not anticipate the Alternate Route will interfere with the use of those recreational resources.

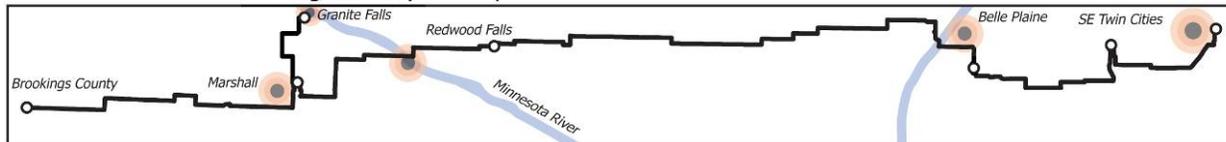
The Alternate Route bisects O'Brien WMA, making impacts unavoidable. An easement for O'Brien WMA is anticipated with the Alternate Route.

Chub Lake WMA runs adjacent on the north side of the Alternate Route. The Applicants may have the option to place the transmission line on the south side of the road to limit direct impact to the WMA.

The Gabriel Anderson WMA may be impacted if the Alternate Route is chosen. The Applicants will minimize impacts by avoiding placement of structures in Gabriel Anderson WMA if possible.

The Applicants do not anticipate any impacts to snowmobile trails along the Alternate Route.

Alternate Route: Brookings County - Hampton



8.2.9 PUBLIC SERVICES

This section outlines public services in proximity to the Alternate Route. A full description of public services is provided in Section 6.2.9.

No municipal buildings, parks, nursing homes, daycare centers or hospitals are located within 1,000 feet of the Alternate Route between the Lyon County Substation and the Minnesota Valley Substation in Lyon or Yellow Medicine counties. The Alternate Route is not anticipated to impact or interrupt any public services or facilities between the Lyon County Substation and the Minnesota Valley Substation in Granite Falls, Minnesota.

No municipal buildings, parks, nursing homes or hospitals are located within 1,000 feet along the main portion of the Alternate Route between the South Dakota border and the proposed Hampton Substation area. In northern Sibley County east of TH 22, there is a home-based daycare facility located along a township road the Alternate Route would follow. A second home-based daycare center is located along Township Road 128 in Green Isle, a road also paralleled by the Alternate Route. In Scott County, several daycare facilities and home-based daycare centers are located around the City of Lonsdale. Finally, St. Mathias School and a daycare facility are located west of U.S. Highway 52 in the City of Hampton in Dakota County. The Alternate Route would parallel this portion of the highway to connect with the proposed Hampton Substation area.

The Redwood Falls Municipal Solid Waste facility is located along County Highway 25 west of the proposed Redwood crossing of the Minnesota River. In addition to this facility, the Alternate Route would travel along County Highway 25, directly south of the Redwood Falls Wastewater Treatment Facility, a collection of wastewater treatment ponds. A public park facility is located in a forested area paralleling the Minnesota River Scenic Byway east of the Minnesota River crossing at Redwood Falls. The Alternate Route would follow an existing road and river crossing through this area, where a 115 kV transmission line is presently located. The Alternate Route is not anticipated to directly impact the park facility or residential units in proximity to this area; however, indirect visual impacts could potentially occur. No other impacts are anticipated to public services or facilities.

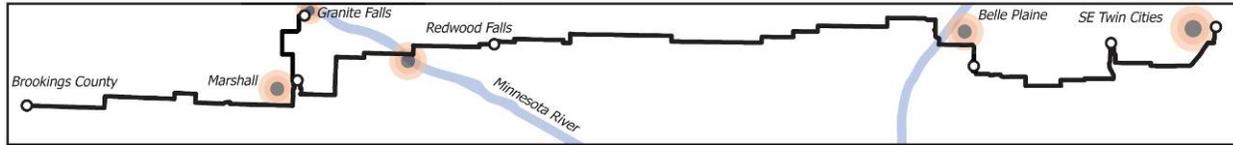
At the West Belle Plaine crossing of the Minnesota River, the Alternate Route would be collocated with an existing 69 kV transmission line in effort to reduce impacts to the land and avoid the creation of a new crossing. Belle Plaine has recently constructed new school facilities on the southwestern side edge of the city, and planned future land uses support the growth of residential development in this area of the city. At the route's closest point, the Alternate Route would be approximately 0.75 of a mile from the school grounds as the route travels along Stoppelmann Boulevard.

In Dakota County a series of underground pipelines extend throughout the county, and the Alternate Route would cross several underground pipelines in southern Eureka Township along County Highway 86 near Chub Lake. Additionally, pipelines would be crossed in Castle Rock Township and in Hampton Township.

8.2.9.1 Impacts and Mitigation

No direct long-term impacts to public buildings or infrastructure are expected, and as such, no mitigation would be required by the Project. Potential impacts to public services and facilities are

Alternate Route: Brookings County - Hampton



similar between the Alternate Route and the Preferred Route. The Applicants would work with Dakota County and local officials, local property owners, the pipeline companies and the METC to route the transmission line to avoid impacting pipelines or municipal sewer services. The Alternate Route is not located in proximity to any municipally-owned buildings or facilities. Construction and operation of the Alternate Route is not anticipated to result in any long-term impacts to public services or utilities. A discussion of proposed mitigative measures is provided in Section 6.2.9.1.

8.2.10 TRANSPORTATION

This section provides an overview of the roadways, railways, airports and pipeline facilities located in proximity to the Alternate Route.

8.2.10.1 Roadways

The Alternate Route crosses or parallels a variety of different roadway types as the route moves from western Minnesota to the Twin Cities metropolitan region. These roadways include Interstate Highways, U.S. Highways, Trunk Highways, County Highways and Roads, and local township roads. Generally, roads the Alternate Route would parallel or share a ROW with have low daily traffic volumes. Traffic volumes increase as the route moves from western Minnesota east; however, the roads the route would parallel in eastern Minnesota have relatively low to moderate daily vehicle volumes compared to other roads in the region. The availability of traffic data from the State for western Minnesota roads is limited, and data for many of the roads the Alternate Route would follow throughout the entire Project area are unavailable.

Table 8-7 provides available traffic data (AADT volumes) for the roads the Alternate Route would follow.

Alternate Route: Brookings County - Hampton

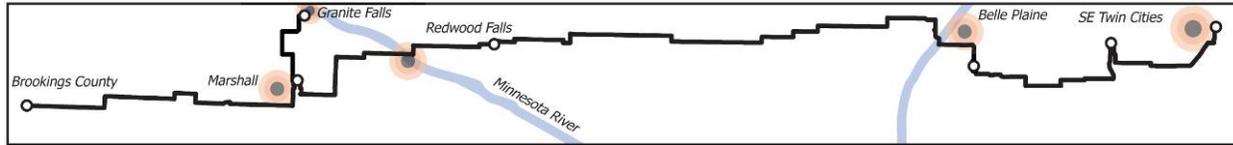
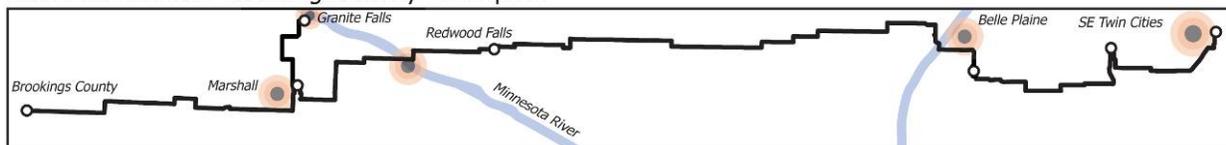


Table 8-7. Roadways and Annual Average Daily Traffic Volumes, Alternate Route

Roadway Section ¹	2006 AADT ²	Parallel Length (Miles)
Lincoln County		
County Highway 15	207	11
County Road 110	25	2
County Road 125	40	7
Lyon County		
County Highway 13	217	1
County Highway 15	202	1
TH 19	1,400	3.5
County Road 73	20	1
County Road 73	31	2.5
Yellow Medicine County		
County Highway 2	263	0
County Highway 3	25	0
County Highway 17	51	0
County Highway 18	369	0
Redwood County		
TH 68	750	4
County Road 59	52	1
County Highway 46/TH-19	2,200	7
County Highway 25	1,170	2.5
Renville County		
County Highway 2	350	12
Sibley County		
County Highway 10	570	10
County Highway 12	268	2
TH 25	2,100	4
Scott County		
German Road	224	1
U.S. Interstate 35	42,000	4
Pillsbury Drive	4,006	4
Le Sueur County		
County Road 122	98	4
County Road 146	77	1.5
County Highway 28	1,633	1
Rice County		
County Highway 2	1,139	4
TH-19	3,950	1
County Road 54	302	3.5
U.S. Interstate 35	40,000	3
Dakota County		

Alternate Route: Brookings County - Hampton



Roadway Section ¹	2006 AADT ²	Parallel Length (Miles)
County Highway 86	3,434	5.5
County Highway 47	3,798	6
U.S. Highway 52	30,000	2.5

Source: Minnesota Department of Transportation, 2006

¹ Table 7-7 lists only those roadway segments for which traffic data are available from MnDOT. The Alternate Route parallels other roadway segments without names or traffic data in each of the counties the route would traverse.

² Average Annual Daily Traffic count volumes are sometimes spread across segments of roads, including some roads that the Alternate Route does not parallel. Therefore, data on exact roadway volumes for the segments of road the Alternate Route would parallel are generally unavailable, and the above table provides an example of typical roadway volumes.

The two most significant roadways paralleled or in proximity to the Alternate Route are I-35 from northern Rice County into Scott County and U.S. Highway 52. The Alternate Route would also cross two scenic byways, U.S. 75 in Lincoln County and TH 93 north of Belle Plaine. The majority of the I-35 highway paralleled by the Alternate Route would be in southeastern Scott County. With an average daily traffic volume of 42,000 vehicles, I-35 serves as a major commercial corridor connecting the Twin Cities with San Antonio, Texas, and eventually Laredo, Texas, on the U.S.-Mexico border. According to the METC, future interchanges are expected to be constructed in central Rice County, but none are planned along the portion of the interstate paralleled in Scott County. In addition to I-35, the Alternate Route would parallel U.S. Highway 52 as the line connects with the proposed Hampton Substation. TH-52 serves as the primary connection between the Twin Cities and Rochester, Minnesota.

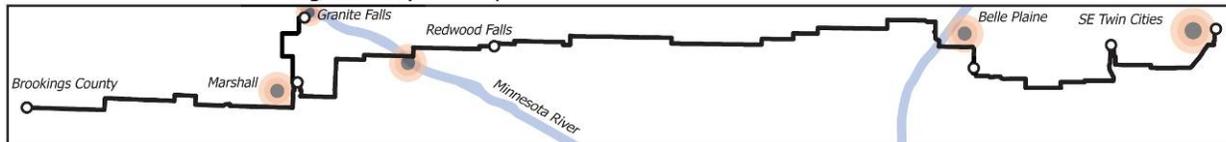
8.2.10.2 Railways

The Alternate Route would cross multiple rail lines in several counties across the entire Project area.

In Lyon County, between the cities of Marshall and Lynd, the proposed transmission line would cross a railway owned and operated by BNSF paralleling the Redwood River. Between the Lyon County Substation and the Minnesota Valley Substation, the Alternate Route would cross two rail lines in Hanley Falls. The BNSF Railroad owns and operates both rail lines the Alternate Route would cross north of Marshall, following County Highway 22. This rail line parallels TH 23 between the cities of Cottonwood and Marshall. The Alternate Route would cross this rail line in three places: south of Cottonwood along County Road 73 (290th Avenue) in Lyon County, north of Hanley Falls along a township road (the route would parallel the tracks, utilizing the railroad ROW for approximately 1.5 miles, before turning north and paralleling an existing 69 kV transmission line), and south of Granite Falls prior to crossing the Minnesota River to connect with the Minnesota Valley Substation. North of Redwood Falls, the line would cross a second railway that runs parallel to the Minnesota River and is owned and operated by the Twin Cities and Western Railroad.

In Sibley County, the Alternate Route would cross the same railway owned by the Minnesota Prairie Line northeast of Arlington. Immediately following the West Belle Plaine crossing, the Alternate Route would cross a Union Pacific rail line in Scott County. Union Pacific operates a second rail line the transmission line would cross south of New Prague in Le Sueur County. Finally, in Dakota

Alternate Route: Brookings County - Hampton



County, the Alternate Route would cross two rail lines in southern Eureka and northern Greenvale townships along County Highway 86, with a second railway crossing in northern Waterford Township. These rail lines are operated by Canadian Pacific Railway.

8.2.10.3 Airports and Aviation Facilities

Airport and aviation facilities are located in each of the counties the Alternate Route travels through. These facilities are a mixture of public and private facilities, used most frequently for general aviation, recreational flying, or crop dusting activities. These facilities range from grass or dirt-topped turf airstrips to paved and electrified runways measuring a variety of lengths and widths. The majority of aircraft using these facilities are single or double engine propeller planes, while some larger airports are capable of serving jet engine aircraft. The Alternate Route would travel around airport facilities in the cities of Ivanhoe, Marshall, and Redwood Falls.

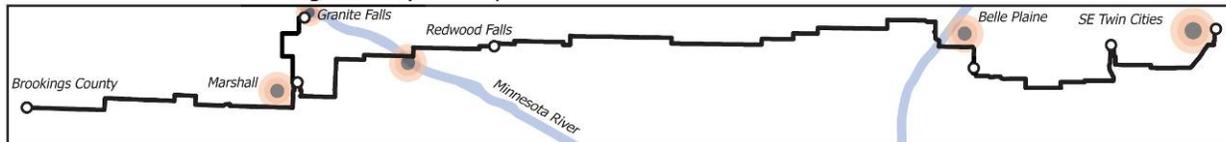
The Southwest Minnesota Regional Airport (Ryan Field) is a public use facility located in Marshall. The two runways located on the facility grounds include a primary runway (Runway 12/30) aligned northwest to southeast and a second runway (Runway 02/20) heading north-south. In addition to these runways, a VOR station is located on the airport grounds. The Alternate Route is 2.25 miles from the southern end of the primary surface of Runway 2/20. The current approach slope for Runway 2/20 is 20:1. Future airport planning supports the extension of this runway, with an approach slope of 34:1. The Alternate Route would cross the Redwood River between the cities of Marshall and Lynd on the edge of the 10,000 foot horizontal zone radius surrounding the airport, thereby limiting the structure height to less than 150 feet. Metallic structure height distance requirements pursuant to FAA and MnDOT regulations specify that structures at 170 feet must be 8,115 feet from a VOR station.

The Redwood Falls Municipal Airport is a public use airport facility with two operating runways. The primary runway (Runway 12/30) is aligned northwest to southeast with an approach slope of 34:1. The second runway (Runway 05/23) is a grass-topped turf facility directionally aligned northeast to southwest, diagonally bisecting the primary runway, with an approach slope of 20:1. The northern edge of the primary surface of Runway 12/30 is approximately two miles from the Alternate Route. The horizontal zone circles the airport to 10,000 feet. The Alternate Route would follow Redwood County Highway 25 as it crosses the Minnesota River north of Redwood Falls. According to the current airport layout plan and airspace development restrictions, the Alternate Route would pass through the 10,000 foot horizontal zone radius of the airport, restricting structures to less than 150 feet in accordance with FAA and State development restrictions governing airport and airspace obstructions.

Following the West Belle Plaine crossing, the Alternate Route travels south along Stoppelmann Boulevard, crosses U.S. Highway 169 and runs parallel to German Road south for approximately one mile. A private airstrip is located less than one-half mile to the southwest from the point at which the route turns east. From field observation and aerial photograph analysis, there appear to be two landing strips, both grass-topped turf facilities directionally located north-south and east-west. While the Alternate Route would be in proximity to this facility, it is not anticipated to impact the normal operations of this airstrip. No approach slope information is available for this facility.

The Sky Harbor Residential Airpark is the only aviation facility located between the proposed Helena Substation North area and the Lake Marion Substation. This air facility is a privately owned

Alternate Route: Brookings County - Hampton



and operated air park for aviation enthusiasts. The landing strip (Runway 12/30) runs northwest to southeast and is a grass-topped turf facility. The southern end of the runway is approximately 1.5 miles northwest of the Alternate Route. No approach slope information is available for this facility.

8.2.10.4 Pipelines

Extensive networks of underground pipelines extend across all of the counties the Alternate Route would travel through, and the route would cross or parallel different pipelines at different points. Between the South Dakota border and the Lyon County Substation, Northern Natural Gas Company and Williams Pipeline Company operate pipelines that carry natural gas and liquid throughout Lincoln and Lyon counties. The Alternate Route would cross these pipelines southeast of Ivanhoe and south of Marshall. In Redwood County, Northern Natural Gas Company owns and operates a pipeline between the cities of Granite Falls and Redwood Falls. The Alternate Route would cross this pipeline facility northwest of Redwood Falls along County Highway 25. The Alternate Route next crosses pipelines owned by the Dome Pipeline Company and Northern Natural Gas Company in central and northern Sibley County.

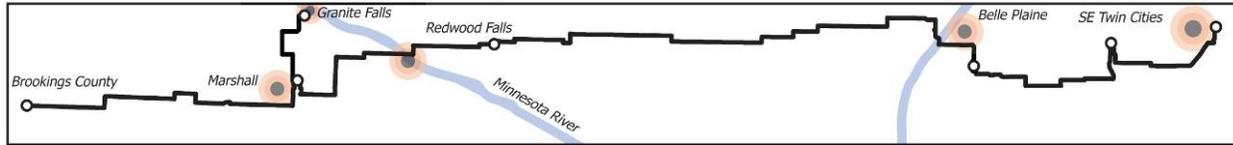
Natural gas pipelines stretching from the Twin Cities metropolitan region are present throughout the eastern portion of the Project area, extending from the southern edge of the Twin Cities into Scott, Le Sueur, and Rice counties. From the Helena Substation North area to the Lake Marion Substation, the Alternate Route would cross a natural gas pipeline south of New Prague, with a second pipeline crossed along County Road 28 in Le Sueur County. In Rice County, the transmission line would cross pipelines north and east of Lonsdale, the first crossing along TH 19 and the second along 57th Street. As the line travels back into Scott County paralleling I-35, the Alternate Route would cross a pipeline east of Elko New Market. The Alternate Route would cross pipelines at five points, but would not parallel any pipeline ROW in Rice County or Scott County along this portion of the transmission line. Available data indicate that these pipelines are owned and maintained by Northern Natural Gas Company and Mid-American Pipeline Company. There are two crossings located in Le Sueur County, two in Rice County, and one south of the Lake Marion Substation in Scott County.

Pipelines extend throughout Eureka Township and Dakota County. When the Alternate Route deviates from County Highway 86 in southern Eureka Township, the transmission lines would share the ROW with a pipeline running east to west, owned by Northern Natural Gas Company. The Alternate Route would be collocated with this pipeline for approximately four miles before turning north and following TH 49 to connect with the proposed Hampton Substation. The route would cross a final pipeline owned by Williams Brothers Pipeline Company south of Hampton on TH 49. The transmission line would span these pipelines and is not anticipated to impact these facilities.

8.2.10.5 Impacts and Mitigation

Refer to Section 6.2.10.5 for a description of potential impacts and mitigative measures relating to transportation facilities for the routes under consideration.

Alternate Route: Brookings County - Hampton



8.2.11 RADIO, TELEVISION, CELLULAR PHONE AND GPS

Refer to Section 6.2.11 for general radio, television, cellular phone, and GPS information.

Table 8-8 identifies the number of communication towers by section located within the Alternate Route. The tower locations are identified in the detailed maps in Appendix B.

Table 8-8. Communication Towers Along the Alternate Route

Section	No. of Towers
Brookings County to Lyon County	4
Lyon County to Minnesota Valley	1
Lyon County to Cedar Mountain	2
Cedar Mountain to Helena	2
Helena to Lake Marion	8
Lake Marion to Hampton	9
Total	26

8.3 LAND-BASED ECONOMIES

8.3.1 AGRICULTURE

Refer to Section 6.3.1 for general agriculture information for the routes under consideration.

8.3.1.1 Brookings County to Lyon County

In this section of the Alternate Route, the overall production trend of the agriculture industry has increased.

Along the Alternate Route from the South Dakota border to the Lyon County Substation, 85.6 percent of the land is used for agriculture (USGS 2004), and 85.4 percent of the soils are listed by the NRCS as prime farmland, prime when drained, or farmland of statewide importance (NRCS 2005).

Refer to Section 6.3.1.1 for agricultural information in Lincoln and Lyon counties.

There is one known organic farmer within one mile of the Brookings County to Lyon County section of the Alternate Route. This is a certified organic farm as reported by the MnDOA. The State does not depict the exact location of an organic farm field.

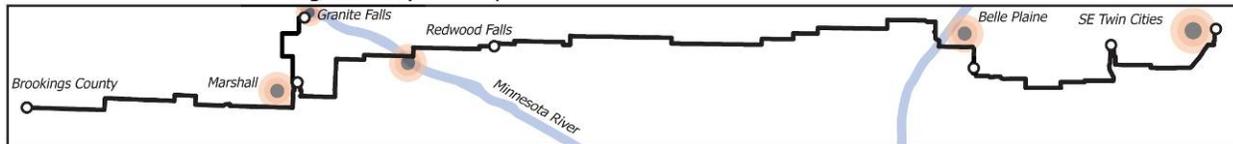
There are no known center pivot irrigation systems within the Brookings County to Lyon County Alternate Route section.

8.3.1.2 Lyon County to Minnesota Valley

In this section of the Alternate Route, the overall production trend of the agriculture industry has increased. Yellow Medicine County did see a slight decrease in the average size of farms while the number of farms increased.

Along this section of the Alternate Route, 90.2 percent of the land is used for agriculture (USGS 2004), and 89.3 percent of the soils are listed by the NRCS as prime farmland, prime when drained, or farmland of statewide importance (NRCS 2005).

Alternate Route: Brookings County - Hampton



Refer to Section 6.3.1.1 for agricultural information in Lyon County, and Section 6.3.1.2 for agricultural information in Yellow Medicine County.

There is one known organic farmer within a mile of the Lyon County to Minnesota Valley section of the Alternate Route. This is a certified organic farm as reported by the MnDOA. The State does not depict the exact location of an organic farm field.

There are no known center pivot irrigation systems within the Lyon County to Minnesota Valley Alternate Route section.

8.3.1.3 Lyon County to Cedar Mountain

In this section of the Alternate Route, the overall production trend of the agriculture industry has increased. Yellow Medicine County did see a decrease in the average size of farms with an increase in the overall number of farms, and Brown County had a slight decrease in the number of farms with a slight increase in the average size of farms.

Along the Alternate Route from the Lyon County Substation to the Cedar Mountain Substation, 93 percent of the land is used for agriculture (USGS 2004), and 99 percent of the soils are listed by the NRCS as prime farmland, prime when drained, or farmland of statewide importance (NRCS 2005).

Refer to Section 6.3.1.1 for agricultural information in Lyon County, and Section 6.3.1.2 for agricultural information in Redwood and Renville counties.

There are no known organic farms within one mile of the Alternate Route and no known center pivot irrigation systems within the Lyon County to Cedar Mountain Alternate Route section.

8.3.1.4 Cedar Mountain to Helena

In this section of the Alternate Route section, there is not an overall production trend of the agriculture industry. Each county has a unique trend in the size and number of farms.

Along the Alternate Route from the Cedar Mountain Substation North area to the Helena Substation North area, 92 percent of the land is used for agriculture (USGS 2004), and 96 percent of the soils are listed by the NRCS as prime farmland, prime when drained, or farmland of statewide importance (NRCS 2005).

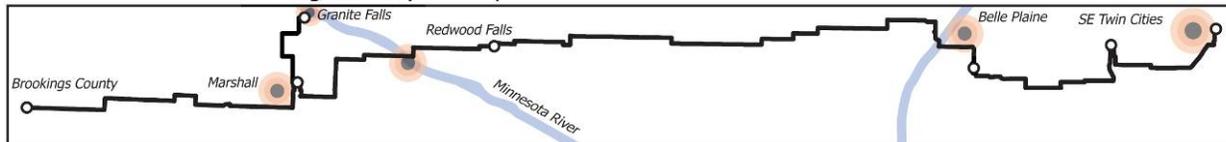
Refer to Section 6.3.1.3 for agricultural information in Renville County, and Section 6.3.1.4 for agricultural information for Sibley and Scott counties.

There are known livestock anthrax outbreak locations within Scott County, on the eastern end of this Project section.

There is one certified organic farm as reported by MnDOA within one mile of this Alternate Route section. The State does not depict the exact location of an organic farm field.

There are no known center pivot irrigation systems within the Cedar Mountain to Helena Alternate Route section.

Alternate Route: Brookings County - Hampton



8.3.1.5 Helena to Lake Marion

This section of the Alternate Route is located within Scott County, which has seen a decrease in the average size of farms but an increase in the number of farms as the overall production trend of the agriculture industry.

Along the Alternate Route from the Helena Substation to the Lake Marion Substation, 61 percent of the land is used for agriculture (USGS 2004), and 73 percent of the soils are listed by the NRCS as prime farmland, prime when drained, or farmland of statewide importance (NRCS 2005).

Refer to Section 6.3.1.4 for agricultural information in Scott County.

There are known livestock anthrax outbreak locations within Scott County (see maps in Appendix G).

There are no known organic farms within one mile of the Alternate Route and no known center pivot irrigation systems within the Helena to Lake Marion Alternate Route section.

8.3.1.6 Lake Marion to Hampton

This section of the Alternate Route is located within Scott and Dakota counties, which have seen a decrease in the size of farms but an increase in the number of farms as the overall production trend of the agriculture industry.

Along the Alternate Route from the Lake Marion Substation to the Hampton Substation, 69 percent of the land is used for agriculture (USGS 2004), and 85 percent of the soils are listed by the NRCS as prime farmland, prime when drained, or farmland of statewide importance (NRCS 2005).

There are 17 center pivot irrigation systems along the this section of the Alternate Route.

Refer to Section 6.3.1.4 for agricultural information in Scott County, and Section 6.3.1.6 for agricultural information in Dakota County.

There are no known organic farms within one mile of the Lake Marion to Hampton Alternate Route section.

Dakota County has a Farmland and Natural Area Program (“FNAP”) that allows landowners the opportunity to place agricultural and natural areas into permanent conservation easements. The FNAP program restricts the future development of the property. There are approximately 66 acres of the FNAP land (Hallcock Farmland Area) within the Lake Marion to Hampton section of the Alternate Route.

8.3.1.7 Impacts and Mitigation

Refer to Section 6.3.1.7 for general impacts and mitigation information.

Along the Alternate Route, the Applicants estimate permanent impacts to agricultural lands at 27 acres. The Applicants estimate that 1,152 acres of agricultural land will be impacted temporarily by the Alternate Route due to transmission line construction, including stringing and staging and access roads within the ROW. Clearing of the ROW in these areas will be limited to the amount necessary to permit the safe and reliable operation of the transmission line. Table 8-9 shows the temporary and permanent impacts within the ROW for each route section along the Alternate Route.

Alternate Route: Brookings County - Hampton

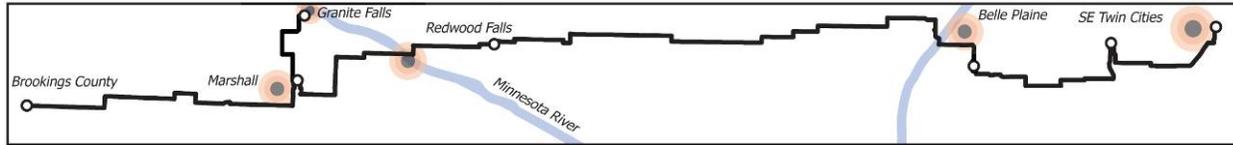


Table 8-9. Agricultural Impacts by Section in Acres Within the ROW, Alternate Route

Section	Temporary Impacts (Acres)	Permanent Pole Impacts (Acres)
Brookings County to Lyon County	219	5
Lyon County to Minnesota Valley	158	4
Lyon County to Cedar Mountain	261	6
Cedar Mountain to Helena	344	8
Helena to Lake Marion	96	2
Lake Marion to Hampton	74	2
Total Agricultural Impacts	1,152	27

The Applicants will work with landowners to minimize impacts to all farming operations, including organic farms, along the route. By aligning the transmission line along section and field lines, impacts can be minimized. Landowners commented at the public meetings that they would prefer structures as close to field lines and roadways as possible. The Applicants will compensate landowners for any crop damage, soil compaction or interference with center pivot irrigation systems that may occur during construction.

According to the Scott County Environmental Health Manager, anthrax should not be a major issue for the Project because construction involves digging 30 foot holes to set the poles rather than long ranges of shallow soil disruption that may occur with other types of projects (phone record in Appendix J). The Applicants will create a safety plan and potential stop work order for the Project if there becomes a potential for an anthrax outbreak.

The Alternate Route bisects the Hallcock Farmland area. There are 66 acres of FNAP land within the Alternate Route area. Development in this area is limited because of the conservation easement on the FNAP land. The Applicants will work with the landowners and Dakota County to avoid or minimize impacts to the FNAP if the Alternate Route is selected.

8.3.2 FORESTRY

Refer to Section 6.3.2 for general forestry information for the routes under consideration.

8.3.2.1 Impacts and Mitigation

Refer to Section 6.3.2.1 for impacts and mitigation information for the routes under consideration.

8.3.3 TOURISM

Refer to Section 6.3.3 for tourism information for the routes under consideration.

8.3.4 MINING

Refer to Section 6.3.4 for general mining information for the routes under consideration. Table 8-10 shows mining resources within the Alternate Route.

Alternate Route: Brookings County - Hampton

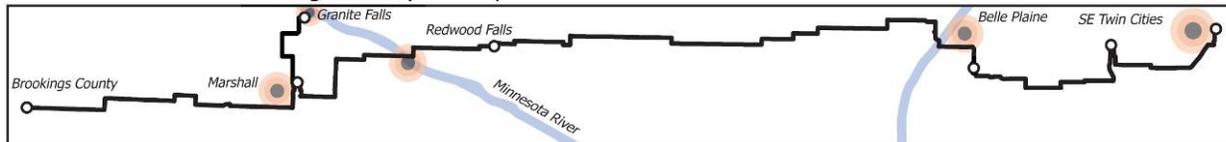


Table 8-10. Mining Resources Within the Alternate Route Sections

Section	Number of Mines	Status
Brookings County to Lyon County	4	1 - Inactive site 1 - Commercial Source Identified (never mined) 1 - Aggregate Site Identified (never mined or sampled) 1 - Aggregate Site Identified (unknown status)
Lyon County to Minnesota Valley	1	1 - Aggregate Site Identified (never mined or sampled)
Lyon County to Cedar Mountain	0	
Cedar Mountain to Helena	1	1 - Prospective Site leased by MnDOT
Helena to Lake Marion	0	
Lake Marion to Hampton	0	

Source: Data produced by the MnDOT Aggregate Source Information.

There are no active mineral-based mining operations within the Alternate Route.

Karst geologic formations were identified along the Lake Marion to Hampton section of the Alternate Route. Karst geologic formations are developed by an erosional process that removes limestone and dolostone at the surface or underground that over time may create enlarged joints, sinkholes, or become part of a vast network of underground caves. This area is located southwest of Chub Lake WMA and may have unstable geologic conditions that may cause potential problems when digging the transmission line pole foundations (U of M, 1995).

8.3.4.1 Impacts and Mitigation

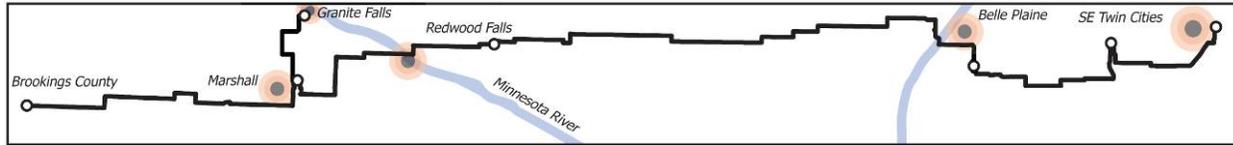
The transmission line will be routed to avoid direct impacts to existing and future (if known) mining operations whenever feasible. The Applicant will work to avoid all mining operations, but especially granite mining locations because of the unique geology of the outcrop areas along the Minnesota River. If mining operations cannot be avoided, the Applicants will work with existing mine operators to identify the extent of current and planned mining operations and develop appropriate mitigative measures.

8.4 ARCHAEOLOGICAL AND HISTORIC RESOURCES

See Section 6.4 for a general overview of notable regulatory requirements for the Project regarding archaeological and historic resources.

As mentioned in Section 6.4, the Applicants reviewed the location of the Routes relative to known aquatic environments to ascertain the relative number of locations that may have a high probability for pre-contact archaeological sites. The GAP analysis discussed in Section 6.4 shows that in total the Alternate Route will impact more acres (44 acres) of aquatic environments than the Preferred Route (27 acres). One would expect, supposing that pre-contact archaeological sites are more common near permanent water sources, that more sites would be impacted by the construction and operation of the Alternate Route.

Alternate Route: Brookings County - Hampton



8.4.1 ARCHAEOLOGY

In July 2008, the Applicants reviewed SHPO records in St. Paul to identify known archaeological resources within one mile of the proposed transmission lines (the Preferred Route and Alternate Route). The literature was also searched for reports of previously surveyed areas relevant to the Project area. Results were requested for Lincoln, Lyon, Yellow Medicine, Redwood, Renville, Brown, Nicollet, Sibley, Le Sueur, Scott, and Dakota counties. Section-specific discussions of archaeological sites within one mile of the Alternate Route are provided below.

8.4.1.1 Brookings County to Lyon County

Sixteen archaeological resources were previously recorded within one mile of the Alternate Route centerline between the South Dakota border and the Lyon County Substation outside Marshall, Minnesota (Table H-11, Appendix H).

One of these sites, 21LY0053, is eligible for listing on the NRHP but will not be impacted by the Project. None of the other 15 sites have been evaluated for listing on the NRHP. Sites 21LN0037, 21LN0038, 21LN0039, and 21LN0047 are within the Alternate Route along the Brookings County to Lyon County section. The Project planning and engineering effort will work to avoid the sites. Once the ROW is accessible, the Applicants will sponsor an archaeological investigation to locate each site within the Alternate Route. A report will be provided to the OES and SHPO on the existing condition, site management recommendations, and recommended efforts, if known, to avoid, minimize, or treat impacts related to construction and maintenance of the Project at sites considered eligible for listing on the NRHP. No other known sites within one mile of the Brookings County to Lyon County Alternate Route section of the Project will be impacted.

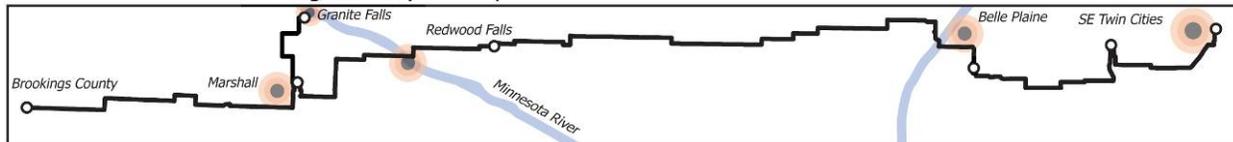
8.4.1.2 Lyon County to Minnesota Valley

Forty archaeological sites were previously identified within one mile of the Alternate Route centerline in the Lyon County to Minnesota Valley section (Table H-23, Appendix H). This is a culturally and historically rich area of Minnesota, particularly on the margins of the Minnesota River. The identified archaeological sites illustrate the broad cross section of pre-contact and historic period occupations and activities, as represented by the sites in Table H-23. Pre-contact earthworks are common along the margins of the Minnesota River Valley, as well as habitations and more limited occupations. Historic-period townsites and cemeteries are also present.

Three sites are considered eligible for listing on the NRHP. The remaining 37 sites have not been evaluated for listing on the NRHP.

Four sites are within the Alternate Route along the Lyon County to Minnesota Valley section. Sites 21YM0084, 21YM0092, 21YMy, and 21YMz have not been evaluated for listing on the NRHP, but the Project planning and engineering effort will strive to avoid these four sites. Once the Project ROW is accessible, the Applicants will sponsor an archaeological investigation to locate these sites. A report will be provided to the OES and SHPO on the existing conditions, site management recommendations, and efforts, if known, to avoid, minimize, or treat impacts related to construction and maintenance of the Project. No other known sites within the Alternate Route will be impacted by construction or maintenance of the Project.

Alternate Route: Brookings County - Hampton



8.4.1.3 Lyon County to Cedar Mountain

Eighteen previously identified archaeological sites are within one mile of the Alternate Route centerline in the Lyon County to Cedar Mountain section (Table H-12, Appendix H).

The 18 archaeological sites include pre-contact cultural occupation and habitation sites, earthworks, and burials. Historically documented locations of townsites are also included in this assemblage of sites. Site 21RN0018, the location of Birch Coulee Battlefield, is within one mile of the Alternate Route section and is listed on the NRHP. It will not be impacted by the Project.

None of the other 17 sites have been evaluated for listing on the NRHP nor will they be impacted by construction or maintenance of the Project.

8.4.1.4 Cedar Mountain to Helena

There are 11 archaeological sites within one mile of the Cedar Mountain to Helena Alternate Route section (Table H-13, Appendix H). These sites include pre-contact lithics and ceramics artifacts, as well as the suspected locations of historic-period townsites. None of these sites have been evaluated for listing on the NRHP.

No previously recorded sites within one mile of the Cedar Mountain to Helena Alternate Route section centerline of the Project will be impacted by construction or maintenance of the Project.

8.4.1.5 Helena to Lake Marion

There are nine previously recorded archaeological sites within one mile of the Alternate Route centerline in the Helena to Lake Marion section (Table H-14, Appendix H).

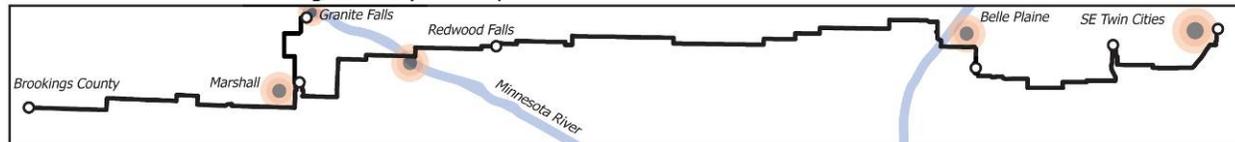
None of these sites have been evaluated for listing on the NRHP. Site 21RC0042 is within the Alternate Route along the Helena to Lake Marion section. The Project planning and engineering effort will work to avoid the site. Once the Project ROW is accessible, the Applicants will sponsor an archaeological investigation to locate the site within the Alternate Route. A report will be provided to the OES and SHPO on the existing condition, site management recommendations, and recommended efforts, if known, to avoid, minimize, or treat impacts (if the site is found to be eligible for listing on the NRHP) due to construction and maintenance of the Project. No other previously recorded sites within one mile of the Helena to Lake Marion Alternate Route section centerline will be impacted by the Project.

8.4.1.6 Lake Marion to Hampton

There are 13 previously inventoried archaeological sites within one mile of the Lake Marion to Hampton section centerline of the Alternate Route (Table H-15, Appendix H). Six sites were previously recorded earthworks shown in the SHPO database as Non-Sites after field verification, or other methods determined that they were not cultural resources. The remaining seven sites have not been evaluated for listing on the NRHP, nor will they be impacted by construction or maintenance of the Project.

None of these sites have been evaluated for listing on the NRHP. Sites 21DKae, 21DKaj, and 21DK0078 are within the Alternate Route along the Lake Marion to Hampton section. The Project planning and engineering effort will work to avoid the sites. Once the Project ROW is accessible, the Applicants will sponsor an archaeological investigation to locate each site within the Alternate

Alternate Route: Brookings County - Hampton



Route. A report will be provided to the OES and SHPO on the existing condition, site management recommendations, and recommended efforts, if known, to avoid, minimize, or treat impacts to NRHP-eligible sites due to construction and maintenance of the Project. No other previously recorded sites within one mile of the Lake Marion to Hampton Alternate Route section will be impacted by the Project.

8.4.2 ARCHITECTURAL HISTORY

In July 2008, the Applicants reviewed SHPO records in St. Paul to identify known historical structures and cultural resources within one mile of the proposed transmission lines (the Preferred Route and the Alternate Route). More information on the sites that lie within one mile of the Alternate Route is provided below.

8.4.2.1 Brookings County to Lyon County

Four historic architecture properties were located within one mile of the proposed Alternate Route centerline in the Brookings County to Lyon County Substation section (Table H-16, Appendix H). Site LY-LDT-003, the Kiel & Morgan Hotel/First Lyon County Courthouse, is listed on the NRHP. The other three sites have not been evaluated.

8.4.2.2 Lyon County to Minnesota Valley

There are 111 historic architecture properties located within one mile of the proposed Alternate Route centerline between the Lyon County Substation and the Minnesota Valley Substation (Table H-24, Appendix H). Three sites are either eligible or listed on the NRHP. They include CP-GRN-005 (the Pillsbury & Susan House); YM-GRN-016 (the Andrew J. Volstead House); and YM-GRN-046 (the World War Memorial Park). None of the remaining 108 sites are listed on the NRHP.

8.4.2.3 Lyon County to Cedar Mountain

There are 25 previously identified historic architecture properties within one mile of the Alternate Route centerline in the Lyon County to the Cedar Mountain section (Table H-17, Appendix H). Sites RN-BCO-001 (the Birch Coulee Battle Site), RW-NRC-003 (the Honnor-Hosken House), and RW-RFC-018 (the Ramsey Park Swayback Bridge) are listed on the NRHP. The other 22 have not been evaluated.

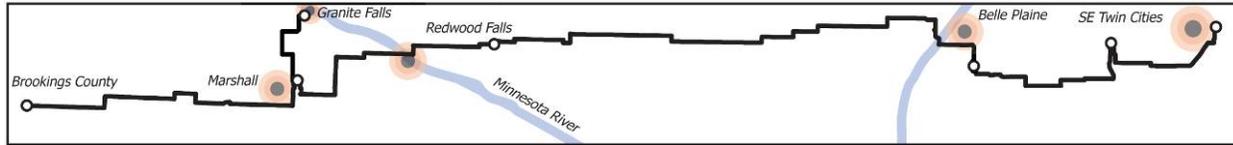
8.4.2.4 Cedar Mountain to Helena

Fourteen historic architecture properties were identified within one mile of the Cedar Mountain to Helena Alternate Route centerline (Table H-18, Appendix H). None of these sites have been evaluated for listing on the NRHP.

8.4.2.5 Helena to Lake Marion

Twenty-four previously recorded historic architecture properties were located within one mile of the Helena to Lake Marion Alternate Route centerline (Table H-19, Appendix H). Sites RC-LON-003 (the Lonsdale Public School) and RC-WEB-005 (the Annunciation Church of Hazelwood) are both listed on the NRHP. The other 22 sites have not been evaluated.

Alternate Route: Brookings County - Hampton



8.4.2.6 Lake Marion to Hampton

Twenty-two previously recorded historic architecture properties are located within one mile of the Lake Marion to Hampton section centerline of the Alternate Route (Table H-20, Appendix H). None of these sites are listed on the NRHP.

8.4.3 HISTORIC LANDSCAPES

The methods used to identify historic landscapes are discussed in Section 6.4.3. There are no historic landscapes identified on the Alternate Route.

8.4.4 IMPACTS AND MITIGATION

See Section 6.4.4 for a discussion of proposed resolution for potential impacts to archaeological and historic resources.

8.5 NATURAL ENVIRONMENT

8.5.1 AIR QUALITY

Refer to Section 6.5.1 for a discussion of air quality impacts.

8.5.2 WATER QUALITY AND RESOURCES

See Section 6.5.2 for a discussion of water quality and water resources across the Project area. This discussion includes hydrologic units and major watersheds, streams and rivers, wetlands, public waters, FEMA floodplains, and federal and State regulations. A summary of water bodies crossed by the Alternate Route is provided in Table 8-11. A complete list is included in Appendix I.

Table 8-11. Water Body Crossings at Alternate Route Centerline

Section	Stream Count ¹	PWI Stream Count
Brookings County to Lyon County	37	10
Lyon County to Minnesota Valley	20	9
Lyon County to Cedar Mountain	28	11
Cedar Mountain to Helena	57	25
Helena to Lake Marion	22	9
Lake Marion to Hampton	26	3
Alternate Route Total	190	67

¹ Includes all streams, ditches, and other linear water systems
Source: DNR 24K Streams DNR 2004 Public Waters Inventory

A summary of wetlands encountered within the Alternate Route is provided in Table 8-12. A complete list is included in Appendix I.

Alternate Route: Brookings County - Hampton

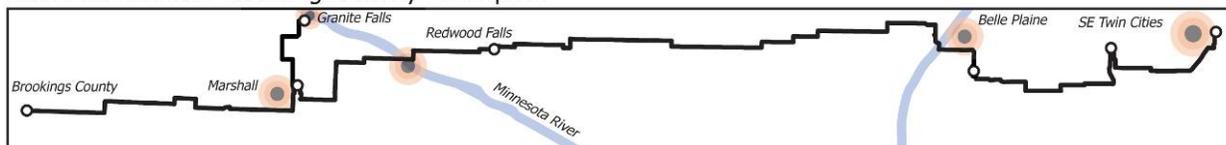


Table 8-12. NWI Wetland Crossings within Alternate Route ROW

Section	Total Wetlands			Forested Wetland			> 1,000 ft: Ct/Poles ¹	DNR PWI ²
	Count	Acres	% of Route	Count	Acres	% of Route		
Brookings County to Lyon County	36	8.5	1.0	2	1.8	0.2	0/0	0
Lyon County to Minnesota Valley	26	18.9	3.1	4	2.4	0.4	1/1	1P, 1W
Lyon County to Cedar Mountain	12	4.0	0.4	1	0.3	<0.1	0/0	0
Cedar Mountain to Helena	83	57.4	4.3	9	4.0	0.3	4/7	1W
Helena to Lake Marion	56	36.9	6.7	1	0.2	<0.1	2/5	1W
Lake Marion to Hampton	27	28.9	6.6	4	1.9	0.4	1/6	2W
Alternate Route Total	240	154.6	3.2	21	10.6	0.2	8/19	1P, 5W

¹ Ct = count of wetlands greater than 1,000 feet long at proposed centerline; Poles refers to the approximate total number of poles to be placed within the wetlands greater than 1,000 feet

² P=Public Water - Lake, W=Public Water - Wetland

Source: USFWS NWI, DNR PWI

8.5.2.1 Brookings County to Lyon County

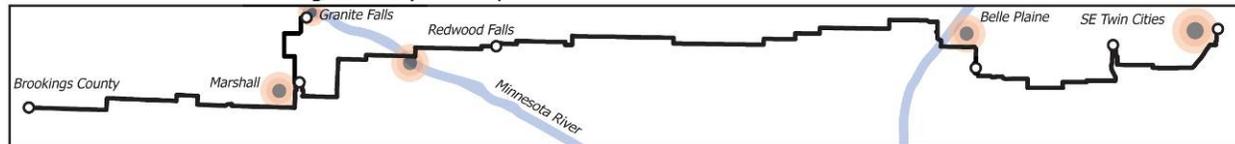
This section of the Alternate Route crosses the Upper Big Sioux, Hawk-Yellow Medicine, Redwood, and Cottonwood major watersheds. The route ROW crosses 37 streams and ditches, including the South Branch and main channel of the Yellow Medicine River, Three Mile Creek, and the Redwood River. The MPCA list of impaired waters includes the South Branch of the Yellow Medicine River (turbidity, fecal coliform), Three Mile Creek (fecal coliform, turbidity), the Redwood River (low biological integrity for fish, chloride, fecal coliform, turbidity, mercury), Clear Creek (fecal coliform), Judicial Ditch 29 (fecal coliform), and an unnamed creek (fecal coliform). This ROW crosses 10 PWI streams and no PWI lakes. The Alternate Route crosses approximately 0.9 miles of FEMA floodplains at rivers and major streams, requiring approximately three poles within the floodplains.

There are 36 NWI wetlands located within the ROW of this Alternate Route section. Wetland acres total approximately 8.5 acres, or 1.0 percent of the total ROW acreage. Approximately 1.8 acres are forested wetlands. No wetlands are longer than typical span distance, and no PWI wetlands are crossed.

8.5.2.2 Lyon County to Minnesota Valley

Water in this Alternate Route section flows through the Redwood and Hawk-Yellow Medicine watersheds to the Minnesota River. Annual average precipitation is approximately 25 inches (State Climatology Office 2003). The route ROW crosses 20 streams and ditches. The Alternate Route crosses the Minnesota River east of Granite Falls replacing an existing 115 kV transmission line. The State designates the Minnesota River as Recreational at this location. The MPCA impaired waters list includes the Yellow Medicine River (turbidity), the Redwood River (low biological integrity for fish, mercury), and the Minnesota River (mercury). This ROW crosses nine PWI streams and one PWI

Alternate Route: Brookings County - Hampton



lake. The route crosses approximately 4.6 miles of FEMA floodplains at rivers and major streams, requiring approximately 23 poles within the floodplains.

The ROW of this Alternate Route section crosses 26 NWI wetlands totaling approximately 19 acres, or 3.1 percent of the total ROW acreage. Approximately 2.4 acres are forested. One wetland is longer than typical span distance, requiring that one pole be placed in the wetland. One PWI wetland is crossed.

8.5.2.3 Lyon County to Cedar Mountain

This section of the Alternate Route crosses the Redwood, Cottonwood, Hawk-Yellow Medicine, and Middle Minnesota major watersheds. The route ROW crosses 28 streams and ditches including the Redwood River, the Minnesota River, and Beaver Creek. The Minnesota River is designated as Scenic at the Redwood crossing, where it follows a 115 kV transmission line and Renville CR 1.

Impaired river crossings include the Minnesota River (PCB, turbidity, mercury), the Redwood River (low biological integrity for fish, mercury), Clear Creek (fecal coliform), and Beaver Creek (fecal coliform, turbidity). This ROW crosses 11 PWI streams and no PWI lakes. The route crosses approximately 1.7 miles of FEMA floodplains at rivers and major streams, requiring approximately nine poles within the floodplains.

The ROW of this Alternate Route section crosses 12 NWI wetlands totaling approximately 4.0 acres, or 0.4 percent of the total ROW acreage. Approximately 0.3 acres are forested wetlands. No wetlands are longer than typical span distance and none are PWIs.

8.5.2.4 Cedar Mountain to Helena

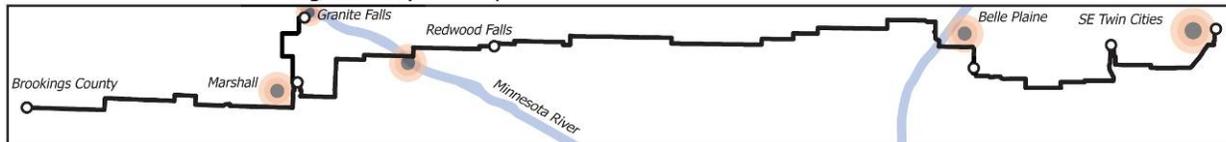
This section of the Alternate Route crosses the Middle Minnesota and Lower Minnesota major watersheds. The route ROW crosses 57 streams and ditches including High Island Creek, the Minnesota River, and Robert Creek. The Minnesota River has no Wild, Scenic, or Recreational designation at this location west of Belle Plaine, where it follows a 69 kV transmission line. Impaired waters include the Minnesota River (fecal coliform, PCB, mercury), High Island Ditch 2 (fecal coliform, turbidity), High Island Creek (low biological integrity for fish, fecal coliform, turbidity), and West Branch Raven Stream (fecal coliform). This ROW crosses 25 PWI streams and no PWI lakes. The route crosses approximately 1.5 miles of FEMA floodplains at rivers and major streams, requiring approximately five poles within the floodplains.

The ROW of this Alternate Route section crosses 83 NWI wetlands totaling approximately 57 acres, or 4.3 percent of the total ROW acreage. Approximately 4.0 acres are forested wetlands. Four wetlands are longer than typical span distance, requiring that approximately seven poles be placed in wetlands. One PWI wetland is crossed.

8.5.2.5 Helena to Lake Marion

This section of the Alternate Route crosses the Lower Minnesota and Rush-Vermillion major watersheds. The route ROW crosses 22 streams and ditches, including the West Branch and main channel Raven Creek, Sand Creek, Credit River, and Porter Creek. No water bodies are listed as impaired by the MPCA in this section. This ROW crosses nine PWI streams and one PWI lake. The route crosses approximately 1.1 miles of FEMA floodplains at rivers and major streams, requiring approximately three poles within the floodplains.

Alternate Route: Brookings County - Hampton



The ROW of this Alternate Route section crosses 56 NWI wetlands totaling 37 acres, or 6.7 percent of the total ROW acreage. Approximately 0.2 acres are forested wetlands. Two wetlands are longer than typical span distance, requiring that approximately five poles be placed in wetlands. No PWI wetlands are crossed.

8.5.2.6 Lake Marion to Hampton

This section of the Alternate Route crosses the Rush-Vermillion and Cannon major watersheds. The route ROW crosses 26 streams and ditches including the Vermillion River, Chub Creek, and North Branch Chub Creek. Chub Creek and North Branch Chub Creek are listed as impaired due to fecal coliform. This ROW crosses three PWI streams and no PWI lakes. The route crosses approximately 4.2 miles of FEMA floodplains at rivers and major streams, requiring approximately 19 poles within the floodplains.

The ROW of this Alternate Route section crosses 27 NWI wetlands totaling approximately 29 acres, or 6.6 percent of the total ROW acreage. Approximately 1.9 acres are forested wetlands. One wetland is longer than typical span distance, requiring that approximately six poles be placed in the wetland. Two PWI wetlands are crossed.

8.5.2.7 Impacts and Mitigation

See Section 6.5.4.7 for a discussion of impacts and mitigation for water resources and water quality.

The Applicants calculate that approximately 19 poles will be placed in wetlands, resulting in approximately 1,045 square feet of permanent wetland impacts and 17.5 acres of temporary wetland impacts within the ROW of the Alternate Route. Approximately 11 acres of forested wetlands will be converted to emergent or shrub/scrub vegetation.

Structures in FEMA floodplains displace an amount of permeable surface within the floodplain. Across the Alternate Route, approximately 62 structures will be placed within FEMA floodplains, using 3,410 square feet, or 0.08 acres, for permanent structure foundations. Impacts of structures within FEMA floodplains are not anticipated to have an effect on flooding.

The Alternate Route will cross the Minnesota River at three locations: Granite Falls, Redwood, and West Belle Plaine crossings. The Minnesota River is distinct from other rivers in the Project area because it is regulated by the USACE and the DNR as described in Section 6.5.2.

8.5.3 FLORA

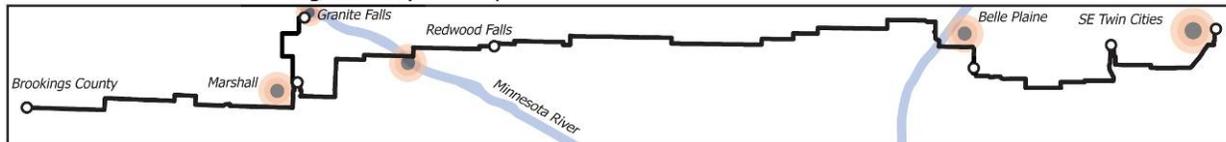
See Section 6.5.3 for a general discussion of vegetative communities across the Project area, noxious weeds, and lands managed for natural resources. Refer to Table 8-6 for impacts to WMAs in the Alternate Route.

8.5.3.1 Brookings County to Lyon County

See Section 6.5.3.1 for a discussion of vegetative resources in this part of the Project area. GAP land use data show that 86.4 percent of this ROW is used for agriculture, and 12.4 percent is grassland.

Portions of Muskrat Junction, Coot, Thostenson, and Furgamme WMAs and a USFWS habitat easement are within the ROW. The USFWS easement contains a mesic prairie. Approximately four poles may be placed within WMA lands, and one pole may be within the USFWS easement.

Alternate Route: Brookings County - Hampton



Vegetation on these habitat and conservation lands includes shallow wetlands, prairie, and woody species.

8.5.3.2 Lyon County to Minnesota Valley

See Section 6.5.3.2 for a discussion of vegetative resources in this part of the Project area. GAP land use data show that 90.6 percent of this ROW is used for agriculture, and 5.9 percent is grassland.

This ROW includes a portion of the Gabriel Anderson WMA and would cross a mesic railroad prairie along the BNSF Railroad southwest of Cottonwood. Routing will avoid pole placement in the WMA. See Section 6.5.3.2 for a description of flora resources along the route within 1.5 miles of the Minnesota Valley Substation.

8.5.3.3 Lyon County to Cedar Mountain

See Section 6.5.3.2 for a discussion of vegetative resources in this part of the Project area. GAP land use data show that 93.5 percent of this ROW is used for agriculture and 3.3 percent is grassland.

Areas identified by the MCBS as having moderate and high biodiversity are found at the Redwood crossing of the Minnesota River. Portions of Klabunde WMA are located within the ROW, requiring approximately three poles to be placed within the WMA. The eastern bluff area of the Minnesota River includes several areas of dry and mesic prairie and rock outcrops, though these resources are located outside of the Alternate Route. No other designated habitat or conservation areas that may contain native vegetation are found within the Alternate Route.

8.5.3.4 Cedar Mountain to Helena

See Section 6.5.3.4 for a discussion of vegetative resources in this part of the Project area. GAP land use data show that 89.2 percent of this ROW is used for agriculture, and 8.5 percent is grassland.

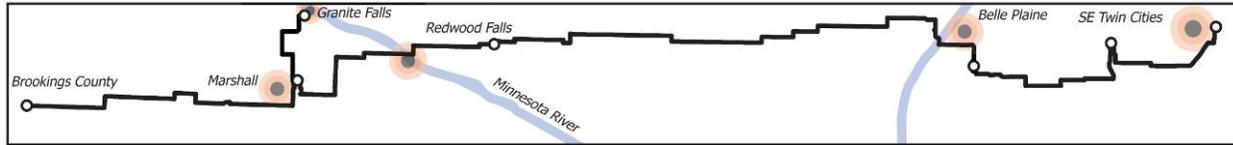
The route crosses the Minnesota River west of Belle Plaine. Vegetative communities at the West Belle Plaine crossing include oak-maple forests on the bluffs and dry gravel bluff top prairies. A large wetland area is crossed by the ROW in the floodplain. Agricultural activity occurs in the river valley. Areas identified by the MCBS as having moderate biodiversity are found within the ROW at the West Belle Plaine crossing. The ROW crosses a portion of designated railroad prairie northeast of Arlington. The route bisects the O'Brien WMA near the Cedar Mountain Substation North area, requiring approximately one pole to be placed within the WMA. The O'Brien WMA contains small wetlands and a patch of bur oak forest. An access road to the Michel Marsh WMA is within the Alternate Route but would be spanned.

8.5.3.5 Helena to Lake Marion

See Section 6.5.3.5 for a discussion of vegetative resources in this part of the Project area. GAP land use data show that 64.5 percent of this ROW is used for agriculture, 26.9 percent is grassland, and 3.7 percent is non-vegetated (developed).

A portion of a MSNRA is located within the Alternate Route but outside the ROW south of the Lake Marion Substation. No other designated habitat or conservation areas that may contain native vegetation are found within the Alternate Route.

Alternate Route: Brookings County - Hampton



8.5.3.6 Lake Marion to Hampton

See Section 6.5.3.6 for a discussion of vegetative resources in this part of the Project area. GAP land use data show that 59.2 percent of this ROW is used for agriculture, 25.5 percent is grassland, 9.3 percent is non-vegetated (developed), and 2.5 percent is wetland or open water.

This route crosses Chub Lake WMA, a MSNRA, and a MCBS area of high significance south of Chub Lake. Portions of each of these are within the ROW. Chub Lake WMA is longer than 1,000 feet at the ROW, requiring approximately one pole to be placed within the WMA. Chub Lake WMA is a Big Woods Heritage Forest Site, meaning it has old growth deciduous forest resources. Forests are composed of sugar maple, basswood, American elm, and northern red oak. A MSNRA overlapping with a MCBS area of moderate significance south of Hampton are within the ROW. These resources can be spanned. Dakota County manages FNAP, which is a land conservation easement program that restricts the future development of the property. A FNAP Natural Area found west of the Chub Lake WMA within the ROW can be spanned.

8.5.3.7 Impacts and Mitigation

See Section 6.5.3.7 for a discussion of impacts, mitigation, and coordination with State and federal agencies.

Within the Alternate Route ROW, pole placement in Muskrat Junction, Coot, Thostenson, and Furgamme, Klabunde, O'Brien, and Chub WMAs may be unavoidable. A total of nine poles would be placed in these WMAs. This would result in 440 square feet of land permanently removed from the existing habitat and 4.4 acres temporarily impacted. One pole will be located in a USFWS easement, creating 55 square feet of permanent impacts. Other resources would be spanned or avoided as much as possible.

8.5.4 FAUNA

See Section 6.5.4 for a discussion of wildlife resources in the Project area.

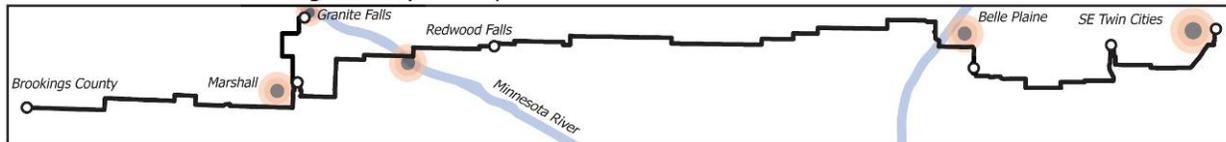
8.5.4.1 Brookings County to Lyon County

Muskrat Junction, Coot Lake, Thostenson, Furgamme, Sioux Prairie, White Prairie, Suhr, Herschberger, and Weeks WMAs are within one mile of the Alternate Route centerline in this section. The Shaokotan WPA, three USFWS habitat easements, and four Shallow Lakes are also within one mile of the route centerline. This route includes four land conservation easements. See Section 8.5.3.1 for habitat and conservation lands within the ROW.

8.5.4.2 Lyon County to Minnesota Valley

Gabriel Anderson WMA is located within one mile of the Alternate Route centerline. In the Minnesota River Valley, the route centerline crosses 2.4 miles of the Upper Minnesota River Valley IBA. Two areas of protected prairie, the Blue Devil SNA, nine USFWS easements, and one moderate and two high MCBS areas of biodiversity significance are within the one-mile buffer. A concentration of GBCAs occurs in the river valley. This Alternate Route section includes five land conservation easements. Lone Tree Lake and two other lakes are designated Shallow Lakes that provide habitat for waterfowl and several other wetland and shallow water dependent species. Due to the number of protected habitats in this area, wildlife and migratory birds are likely to occur in

Alternate Route: Brookings County - Hampton



high numbers. A colonial bird nesting site for great blue heron is documented near Green Valley WMA. See Section 8.5.3.2 for habitat and conservation lands within the ROW.

8.5.4.3 Lyon County to Cedar Mountain

See Section 6.5.4.2 for a discussion of wildlife resources in the Minnesota River Valley and this portion of the Project area. The Alternate Route centerline crosses approximately 4.8 miles of the Upper Minnesota River Valley IBA. Klabunde, Timm's Lake, Beaver Falls, Delhi, and Sandy Slough WMAs and one Shallow Lake are found within one mile of the route centerline. This Alternate Route section includes four moderate significance and one high significance MCBS areas near and in the Minnesota River Valley, and 16 land conservation easements. See Section 8.5.3.3 for habitat and conservation lands within the ROW.

8.5.4.4 Cedar Mountain to Helena

See Section 6.5.4.4 for a discussion of wildlife resources in this portion of the Project area. Approximately 2.3 miles of the Lower Minnesota River Valley IBA are crossed. This Alternate Route section includes 18 land conservation easements. Several of these are located in the Minnesota River Valley. Outside of the Minnesota River Valley, the Silver Lake FMA and O'Brien, Oak Isle, Pheasants Forever Module #3, Mahoney' Marsh, Indian Lake, Altnow Marsh, Boerner, and Michel Marsh WMAs are located within one mile of the Alternate Route centerline. The Redhead WPA, one USFWS easement, and 10 shallow lakes are also located within one mile of the route centerline. See Section 8.5.3.4 for habitat and conservation lands within the ROW.

8.5.4.5 Helena to Lake Marion

See Section 6.5.4.5 for more discussion on urban wildlife in this area. GBCAs are common across this Alternate Route section. Esker WMA and portions of six Shallow Lakes are within one mile of the route centerline. The route includes one land conservation easement. Otherwise, wildlife typical for rural and suburban land uses is found in this Alternate Route section. See Section 8.5.3.5 for habitat and conservation lands within the ROW.

8.5.4.6 Lake Marion to Hampton

Rural land uses are common along this section of the Alternate Route. The route crosses the southern edge of Chub Lake WMA. Chub Creek Marsh and Chub Creek Lake are designated Shallow Lakes within one mile of the route centerline. Portions of MCBS areas of moderate and high significance occur within the Alternate Route. No land conservation easements are found within the route. See Section 8.5.3.6 for habitat and conservation lands within the ROW.

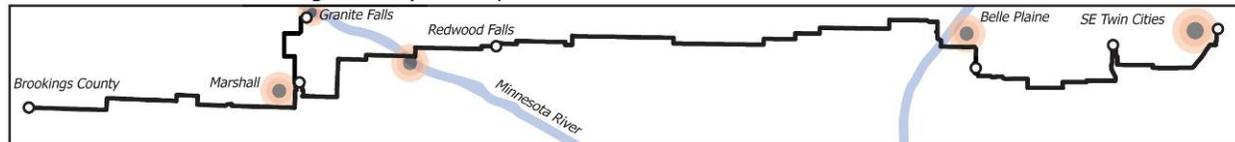
8.5.4.7 Impacts and Mitigation

See Section 6.5.4.7 for a discussion of impacts and mitigation for wildlife for the routes under consideration.

8.6 RARE AND UNIQUE NATURAL RESOURCES

See Section 6.6 for a discussion of rare and unique natural resources in the Project area. Tables listing all special status species and native communities within one mile of the Alternate Route centerline are found in Appendix I. See Section 6.5.3 for a discussion of lands with native habitats

Alternate Route: Brookings County - Hampton



that are managed for wildlife in the Project area. All species described in the following sections have been documented within one mile of the Alternate Route centerline.

8.6.1 BROOKINGS COUNTY TO LYON COUNTY

The ottoe skipper (State threatened) and slender milk-vetch (State species of concern) are found within one mile of the Alternate Route centerline near the South Dakota border. A mesic prairie community coincides with a USFWS habitat easement. A calcareous fen is also located within one mile of the route centerline. The poweshiek skipper (State species of concern) and regal fritillary butterflies have been identified east of the Redwood River south of Marshall. A low milk-vetch is located within one mile of the route centerline near the Furgamme WMA.

8.6.2 LYON COUNTY TO MINNESOTA VALLEY

Within one mile of the Alternate Route centerline, two sections of mesic prairie are located along the BNSF Railroad southwest of Cottonwood. Muckets have been recorded at multiple sites in the Yellow Medicine River. A Western fox snake was documented on Hazel Creek. A great blue heron colonial nesting site has been documented west of the Green Valley WMA.

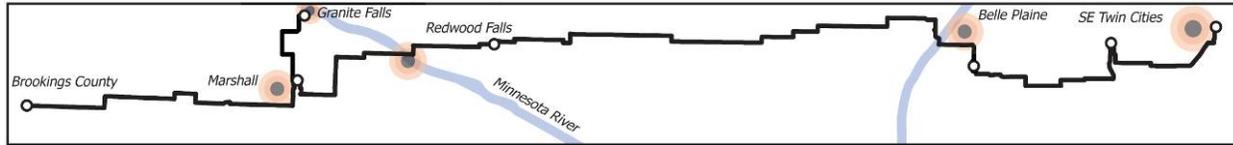
Several rare and unique species and habitats are found in association with the Blue Devil SNA, MCBS areas of moderate and high significance, and USFWS easements in the Minnesota River Valley and bluffs within one mile of the Alternate Route centerline. Dry hill prairie, mesic prairie, bedrock outcrop, and geologic formations are documented in these areas. Two areas of protected prairie are also located on the blufftop west of the Minnesota River. Species include populations of five lined skink, clustered broom rape, plains prickly pear cactus, a species of lichen (State endangered), and mucket. Non-status species include Western fox snake and little barley.

8.6.3 LYON COUNTY TO CEDAR MOUNTAIN

Several rare and unique species and habitats are found in the Minnesota River Valley within one mile of the Alternate Route centerline in this section. Eastern fox snake has been identified west of Redwood Falls. Western harvest mouse (State non-status) has been located in the Klabunde WMA and on the eastern bluff of the Minnesota River. Prairie bush clover (federal threatened, State threatened) has been identified in association with a mesic prairie north of Redwood Falls. Several species of mussel were identified at a mussel sampling site on the Minnesota River including black sandshell (State species of concern), creek heelsplitter (State species of concern), fluted-shell (State species of concern), mucket, round pigtoe (State threatened), and spike (State species of concern). Similarly, blue sucker (State species of concern) has also been located nearby in the Minnesota River. Several MCBS areas of moderate and high significance have been identified in the Minnesota River Valley, which include wet prairie, mesic prairie, dry prairie, and rock outcrops. Creek heelsplitter has been identified in Beaver Creek east of the Minnesota River.

Non-status species within one mile of the Alternate Route centerline include Western harvest mouse located in the Klabunde WMA and on the eastern bluff of the Minnesota River, and shovelnose sturgeon in the Minnesota River. Carolina foxtail and mouse-ear chickweed have been identified near MCBS areas of moderate and high significance. American Bitter is located near the Beaver Falls WMA.

Alternate Route: Brookings County - Hampton



8.6.4 CEDAR MOUNTAIN TO HELENA

Yellow fruited sedge (State species of concern) is found in Indian Lake WMA north of Winthrop within one mile of the Alternate Route centerline. Five areas of wet and mesic railroad prairie are found along the Minnesota Central Railroad northeast of Arlington. Two populations of kitten tails (State threatened) are each found in a dry sand-gravel prairie remnant, one in a MCBS area of high significance and one in an area of moderate significance, both east of the Minnesota River within one mile of the Alternate Route centerline. A maple-basswood native community is found in a MCSB area of moderate significance east of Belle Plaine. A similar community is found in the Karnitz WMA. A bald eagle nesting site was documented within the ROW at the West Belle Plaine crossing of the Minnesota River. NHIS notes indicate that the nest was inactive when last checked in 2005.

8.6.5 HELENA TO LAKE MARION

An area of MCBS moderate significance includes a deciduous forest native community to the south of the Lake Marion Substation. Two occurrences of cowbane are found within one mile of the Lake Marion Substation.

8.6.6 LAKE MARION TO HAMPTON

Chub Lake WMA and surrounding MCBS areas of moderate and high significance host several rare and unique species associated with wetlands and deciduous forest communities found in this area. American ginseng, big tick-trefoil, and waterwillow (State species of concern) are found here.

Twenty sightings of loggerhead shrike have been documented east of Chub Lake within one mile of the Alternate Route centerline. Mussel samplings have taken place on North Branch Chub Creek. A dry sand-gravel prairie is located south of Hampton. A seepage meadow community is located on a MCBS area of moderate significance. Non-status species within one mile of the Alternate Route centerline include cowbane and lilia-leaved twayblade.

8.6.7 IMPACTS AND MITIGATION

A search of the DNR's Minnesota NHIS within one mile of the Alternate Route centerline identified a total of 90 individual records of species. There is one instance of a federal threatened (and State threatened) species (prairie bush clover) and one instance of a State endangered species (a species of lichen and wolf's spike rush). Seven different State threatened species, 16 different species of special concern, and 12 different non-status species were documented within one mile of the Alternate Route. A total of 44 DNR-listed natural communities were also documented. No critical habitat occurs within one mile of the Alternate Route centerline.

See Section 6.6.7 for additional discussion on measures the Applicants will take to avoid and minimize impacts to rare and unique species and habitats.