ROUTE PERMIT APPLICATION
FOR THE
FORKS 161 kV SWITCHING STATION AND FORKS-ROST 161 kV TRANSMISSION LINE PROJECT

ITC MIDWEST LLC

Docket Number

ET6675/TL-24-232

Prepared by:

merjent

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LIST OF TERMS AND ABBREVIATIONS

ACSR	aluminum conductor steel reinforced
Alignment	the proposed location of the transmission line within the Route
APLIC	Avian Power Line Interaction Committee
AQI	Air Quality Index
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
BMP	Best Management Practice
CAA	Clean Air Act
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
Commission	Minnesota Public Utilities Commission
CSW	Construction Stormwater
CWA	Clean Water Act
CWI	County Well Index
dBA	decibels on the A-weighted scale
DWSMA	Drinking Water Supply Management Area
EA	Environmental Assessment
EEI	Edison Electric Institute
EERA	Department of Commerce, Energy Environmental Review and Analysis
EJ	environmental justice
EJScreen	Environmental Justice Screening Tool (USEPA)
ELF	extremely low frequency
EMF	Electric and Magnetic Fields
EMS	Emergency Medical Services
ESA	Endangered Species Act
Exemption	Federal Approval Exemption for Utilities
FEMA	Federal Emergency Management Agency
G	gauss
GHG	greenhouse gases
HVTL	high voltage transmission line
ICES	International Committee for Electromagnetic Safety
ICNIRP	International Commission for Non-Ionizing Radiation Protection
IPaC	Information for Planning and Conservation (USFWS)
ITC Midwest	ITC Midwest LLC
kV	kilovolt
kV/m	kilovolts per meter
L_{eq}	Energy-based time-averaged noise level
LEPF	Large Electric Power Facilities

LGU	local government unit
LiDAR	Light Detection and Ranging
MBS	Minnesota Biological Survey
MCE	Minnesota Conservation Explorer
MDH	Minnesota Department of Health
Merjent	Merjent, Inc.
mG	milligauss
MGS	Minnesota Geological Survey
MISO	Midcontinent Independent System Operator
MNDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MRES	Missouri River Energy Services
NAAQS	National Ambient Air Quality Standards
NAC	Noise Area Classifications
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NEV	neutral-to-earth voltage
NHIS	Natural Heritage Information System
NIEHS	National Institute of Environmental Health Sciences (U.S.)
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OSA	Office of the State Archaeologist (Minnesota)
Pb	lead
PEM	palustrine emergent
PM	Particulate matter
PM_{10}	PM less than 10 microns in diameter
$PM_{2.5}$	PM less than 2.5 microns in diameter
Project	Proposed 161 kilovolt transmission line from new Forks Switching Station to new Rost Substation in Jackson County, Minnesota and the new Forks Switching Station
PWI	Public Waters Inventory
Route	“Route” means the location of a high voltage transmission line between two end points. The route may have a variable width of up to 1.25 miles. (Minnesota Statute § 216E.01, subd. 8)
ROW	right-of-way

RPA	Route Permit Application
SCADA	supervisory control and data acquisition
SCS	Soil Conservation Service (USDA)
SDS	State Disposal System
SHPO	State Historic Preservation Office (Minnesota)
SNA	Scientific and Natural Areas
SO_2	sulfur dioxide
SOB	Sites of Biodiversity Significance
SPCC	Spill Prevention, Control and Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WCA	Wetland Conservation Act
WHO	World Health Organization
WHP	Wellhead Protection (Minnesota State Rule 4720.5100-4720.5590)
WHPA	Wellhead Protection Area
WMA	Wildlife Management Areas
WPA	Waterfowl Production Area
WQC	Water Quality Certification

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

ITC Midwest LLC (ITC Midwest) is applying to the Minnesota Public Utilities Commission (Commission) for a Route Permit to construct a new 161 kilovolt (kV) transmission line (the Project) from the new Forks Switching Station to the new Rost Substation in Jackson County, Minnesota. The Project will include the construction of the new Forks Switching Station southwest of the City of Lakefield, Minnesota, and a new approximately 8.5 mile long 161 kV high voltage transmission line from the Forks Switching Station to the new Rost Substation, which will be permitted and constructed as a separate project by Great River Energy.

ITC Midwest anticipates starting construction in the second quarter of 2026 and energizing the switching station and transmission line in December 2026.

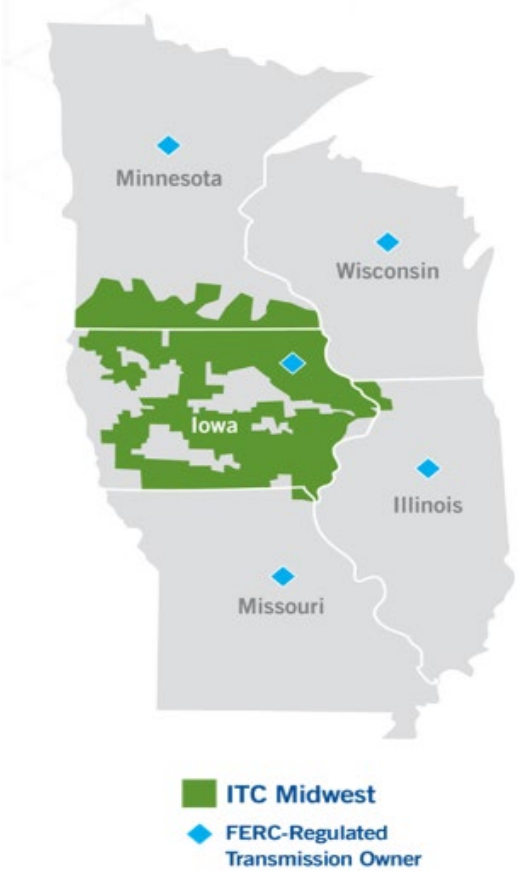
1.2 ITC MIDWEST

ITC Midwest operates more than 6,600 circuit miles of transmission lines in Iowa, Minnesota, Illinois, Missouri, and Wisconsin, as shown in Figure 1.2-1 below. ITC Midwest is a subsidiary of ITC Holdings Corp., the largest independent electricity transmission company in the U.S. with operations in seven states. ITC Midwest connects a variety of customers at transmission-level voltages. These include large generation and distribution utilities, municipal utility systems, rural electric utility cooperatives, and large commercial and industrial customers that require high-voltage electricity. ITC Midwest is headquartered in Cedar Rapids, Iowa, and maintains warehouses in Dubuque, Iowa City, and Perry, Iowa, and Albert Lea and Lakefield, Minnesota.

To date, ITC Midwest has completed 40 new generator interconnections, adding approximately 4,939 megawatts of new generating capacity to the grid, including approximately 4,230 megawatts of wind energy production capacity.

Over the past decade, ITC Midwest completed more than 600 miles of 34.5 kV to 69 kV line rebuilds. This is part of ITC Midwest's continuing commitment to improve the reliability of the electric transmission system and serve the growing needs of customers in the region. These transmission line upgrades are enhancing grid efficiency, increasing the system's capacity, and reducing outages by building the lines to modern construction standards.

Figure 1.2-1 – ITC Midwest Transmission System



1.3 PROJECT CONTACT

ITC Midwest is the requested permittee for the Project, who will have ownership of the Project at the time of filing this application and after commercial operation. Phone number, email address, and website for the Project are:

Project phone number:	(763) 257-6821
Project email address:	mrothfork@itctransco.com
Project website:	www.forks-rost.com

ITC Midwest's contact for the Project is:

Mark Rothfork
Lead Permitting Specialist
ITC Midwest LLC
20789 780th Avenue
Albert Lea, MN 56007
(763) 257-6821

1.4 PROJECT PURPOSE AND NEED

The proposed Project is the result of a joint study between ITC Midwest, Great River Energy, and Missouri River Energy Services (MRES) to determine long-term reliability and load serving needs for the Worthington area and to identify potential upgrades that may be needed to the transmission system for area reliability. The existing configuration of the transmission system in the Worthington area leaves the system susceptible to low voltage conditions when certain transmission facilities are out of service. The Forks-Rost 161 kV transmission line and Forks Switching Station are components of an overall area plan that will include complementary projects by MRES and Great River Energy to ensure the long-term reliability and resilience in the area's transmission system. This Project, in conjunction with the MRES Lorraine Substation project in Worthington and Great River Energy Rost Substation project and Rost to Lorraine 69 kV transmission line project, mitigates the existing system low voltage issues and helps ensure long term area reliability when considering existing load and potential future area load growth.

1.5 PROPOSED PROJECT

ITC Midwest is applying to the Commission for a Route Permit to construct the Project. At this time, ITC Midwest proposes that the Project will follow the Proposed Route as depicted on Figure 1.5-1 below and on the attached maps.

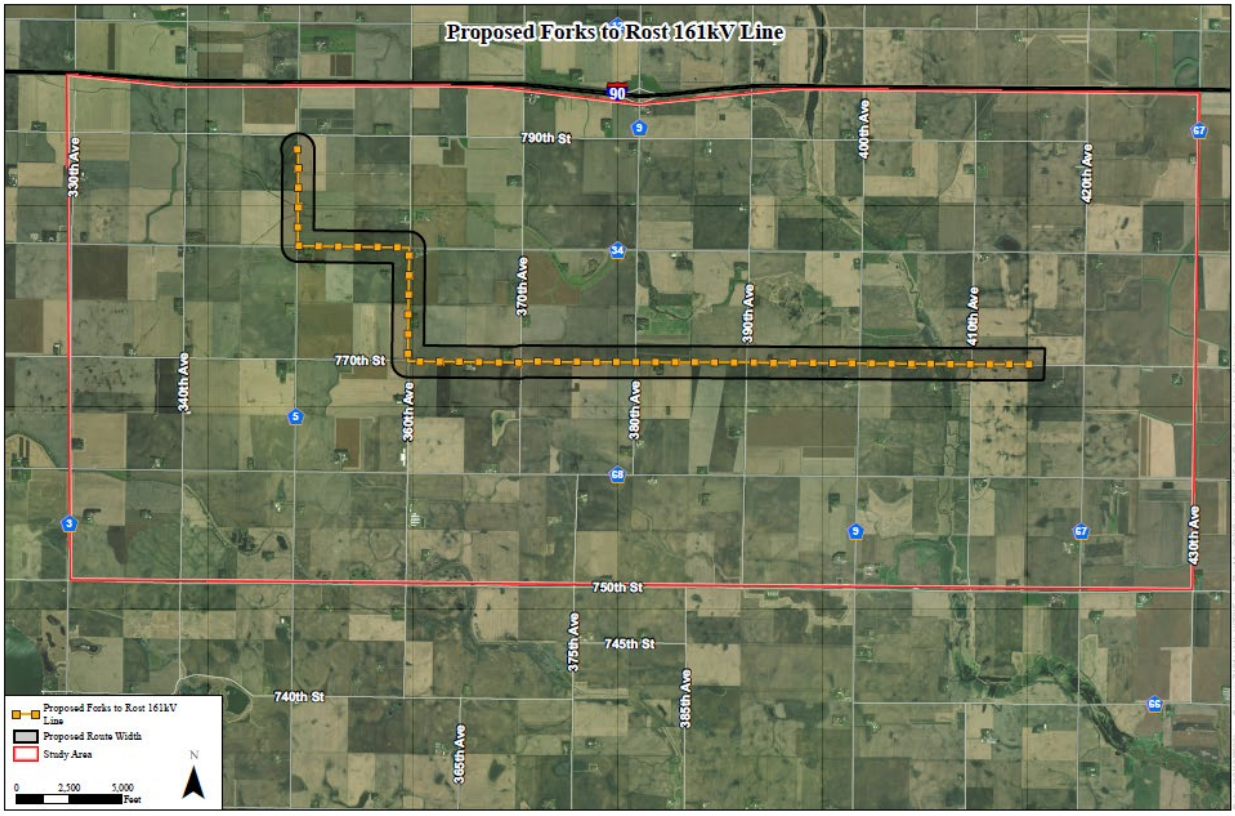
ITC Midwest plans to begin construction of the Project in the second quarter of 2026.

ITC Midwest is requesting approval of the Proposed Route as depicted in Figure 1.5-1 below and the maps found in Appendix B, showing the proposed alignment, right-of-way (ROW), and route width for the Project. ITC Midwest is requesting a route width of 1,500 feet (750 feet on either side of the proposed transmission centerline). At a minimum, the Project will require a total ROW of 100 feet wide (typically 50 feet on each side of the transmission centerline).

Steel monopole structures with horizontal braced post insulators will be used for the 161 kV transmission line. Typical pole heights will range from 80 to 120 feet above ground, and spans between poles will range from 600 to 800 feet. The Project will be sited on private land except where it crosses road ROWs, and the alignment will typically be set back approximately 5 to 8 feet from road ROWs. ITC Midwest will work with Great River Energy and MRES to coordinate interconnection facility designs and other routing considerations.

ITC Midwest started gathering stakeholder, agency, tribal, and public input on the Project in 2023 through letters, meetings, and open houses. The input received from these efforts has been applied and documented throughout this application.

Figure 1.5-1 – Proposed Route



1.6 POTENTIAL ENVIRONMENTAL IMPACTS

ITC Midwest analyzed the potential environmental impacts from the Project. No significant unavoidable impacts will result from construction and operation of the Project. Additional information about the potential environmental impacts of the Project and proposed mitigation measures is provided in Chapter 7.0.

The Department of Commerce, Energy Environmental Review and Analysis (EERA) is responsible for environmental review of the Project and will prepare an Environmental Assessment (EA) that analyzes potential human and environmental impacts of the Project.

1.7 PUBLIC INPUT AND INVOLVEMENT

ITC Midwest held an open house at the Lakefield Community Center, Lakefield, Minnesota on January 10, 2024. ITC Midwest staff were available to provide information and answer questions from members of the public concerning the Project.

The public and interested stakeholders will have additional opportunities to participate in this proceeding and comment on the Project. The first opportunity for public involvement in the regulatory process is at a public information and scoping meeting for the EA that will be conducted by the Commission and EERA after the Commission's acceptance of the Application is complete.

There are several options for interested persons to receive information about the route permit process. Persons wanting to have their name added to the Project mailing list can send an email to eservice.admin@state.mn.us or call 651.201.2246. If sending an email or leaving a phone message please include:

1) how you would like to receive mail (regular mail or email); and

2) the docket number (TL-24-232), your name, and your complete mailing address or email address.

Persons wanting to subscribe to the Project's route permit docket and receive email notifications when information is filed in the docket should visit: https://www.edockets.state.mn.us/, select "Subscribe to Dockets", enter your email address and select "Docket Number" from the Type of Subscriptions dropdown box. Select "24" for the first Docket number drop down box and enter "232" in the second box. Then click on the "Add to List" button. You must then click the "Save" button at the bottom of the page to submit your subscription request. You should receive an email from Efiling.Admin@state.mn.us to the e-mail address you provided; you must click the link in this email to confirm your subscription to the Project's docket.

A copy of this Route Permit Application (RPA) is available at the following location for the public to review:

Lakefield Public Library
410 Main Street
Lakefield, MN 56150

If you have questions about the state regulatory process, you may contact the Minnesota state regulatory staff for this Project listed below:

Minnesota Public Utilities Commission	**Minnesota Department of Commerce EERA**
Jacques Harvieux	Larry Hartman
121 7th Place East, Suite 350	85 7th Place East, Suite 280
St. Paul, MN 55101	St. Paul, MN 55101
651-201-2233	612-210-4810 cell
1-800-657-3782	651-539-1839 office
jacques.harvieux@state.mn.us	larry.hartman@state.mn.us
https://mn.gov/puc/	https://MN.gov/eera/

1.8 STATE ROUTING PROCESS

Minnesota Statute Ch. 216E, also known as the Minnesota Power Plant Siting Act, provides the Commission with siting and routing authority for Large Electric Power Facilities (LEPF). Pursuant to this authority, Minn. R. ch. 7850 lays out the process by which the Commission selects routes for high voltage transmission lines. Minn. Rule 7850.1000, subp. 9, defines "high voltage transmission line," or HVTL, as "…a conductor of electric energy and associated facilities designed for and capable of operating at a nominal voltage of 100 kV or more either immediately or without significant modification. Associated facilities shall include, but not be limited to, insulators, towers, substations, and terminals."

This application is submitted under the alternative permitting process set forth in Minn. Stat. § 216E.04 and Minn. R. 7850.2800 to 7850.3900. The Project qualifies for review under the alternative permitting process authorized by Minn. Stat. § 216E.04, subd. 2(3) and Minn. R. 7850.2800, subp. 1(C) because the Project is a high voltage transmission line between 100 and 200 kV.

ITC Midwest notified the Commission on July 30, 2024, that ITC Midwest intended to use the alternative permitting process for the Project. The letter complied with the requirements of Minn. R. 7850.2800, subp. 2, to notify the Commission of its intent at least 10 days prior to submitting an application for a Route Permit. A copy of this letter is attached as Appendix D.

The Commission has adopted rules for the consideration of Route Permit Applications in Minn. R. 7850.4000 to 7850.4400. A RPA completeness checklist is provided in Appendix A with cross references indicating where the information required by Minnesota Statutes and Administrative Rules can be found in this application.

1.9 APPLICANT'S REQUEST

ITC Midwest respectfully requests that the Commission approve a Route Permit for the Project along the Proposed Route.

This RPA demonstrates that issuance of a Route Permit for construction of the Project along the Proposed Route considers, and satisfactorily addresses factors as set forth in Minn. Stat. § 216E.03, subd. 7, and Minn. R. 7850.4100. The Project will support the State's goals to conserve resources and to minimize environmental and human settlement impacts and land use and will ensure the State's electric energy security through the construction and modernization of efficient, cost-effective transmission infrastructure.

2.0 PROPOSED PROJECT

2.1 PROJECT DESCRIPTION

The Project is located entirely in Jackson County, Minnesota (see Figure 1.5-1 above) in Ewington and Rost Townships.

As shown in Figure 1.5-1 above, ITC Midwest proposes to:

- Construct approximately 8.5 miles of new 161 kV transmission line starting at the new Rost Substation. The Rost Substation will be permitted and constructed separately by Great River Energy;

- Connect the new 161 kV transmission line to the new Forks Switching Station to be constructed by ITC Midwest.

Great River Energy will secure a county conditional use permit and other required approvals for construction of its proposed Rost Substation. The permitting and construction of the Rost Substation will be completed by Great River Energy.

2.2 TRANSMISSION LINE

The Proposed Route is shown in Figure 1.5-1 above, and Appendix B contains a series of aerial photo maps depicting the proposed alignment, route, and ROW for the Project.

2.2.1 Proposed Route

The Project will begin at the new Rost Substation, to be permitted and built separately by Great River Energy, near the intersection of County Road 5 and 790th Street in Jackson County. The 161 kV transmission line will exit the substation and run south along County Road 5 to 780th Street for approximately 1 mile, where it will turn east and run for 1 mile to 360th Avenue. The transmission line will run south on 360th Avenue for 1 mile before turning east and continuing on 770th Street for approximately 5.5 miles, where it will then enter the new Forks Switching Station on the west. The new Forks Switching Station will be built, owned, and operated by ITC Midwest.

2.2.2 Route Width and Transmission Line ROW

The route width is the area in which the Commission authorizes a permittee to place the proposed transmission line facilities. A “route” may have “a variable width of up to 1.25 miles”, within which the ROW for a HVTL can be located (Minn. Stat. § 216E.01, subd. 8). The transmission line ROW is the specific area within a route that is required for the construction, maintenance, and operation of a HVTL.

For this Project, ITC Midwest is requesting a route width of 1,500 feet (750 feet on either side of the proposed transmission centerline). ITC Midwest is requesting a route width that is wide enough to provide flexibility to make alignment adjustments during the final design to work with landowners, to avoid sensitive natural resources, and to manage construction constraints as needed.

Once a Route Permit is issued, ITC Midwest land agents will work directly with individual landowners to acquire the necessary easements for the Project. At a minimum, the Project will require a total ROW of 100 feet wide (typically 50 feet on each side of the transmission centerline) and in some cases up to 150 feet wide.

2.2.3 Transmission Structure and Conductor Design

Potential structure designs are provided on Figure 2.2-1 below. Structure dimensions are provided in Table 2.2.3-1 below.

TABLE 2.2.3-1

Structure Design Summary

Structure type	Structure material	Right-of-way width (feet)	Structure height (feet)	Foundation	Foundation diameter (feet)	Span between structures (feet)
Monopole	Steel	100 - 150	80 – 120	Direct Embed or Vibratory Caisson	3 - 5	600 – 800
Monopole (Deadends and Tangents)	Steel	100 - 150	80 – 120	Concrete Foundation	10 - 12	600 – 800

Note: The values in the table above are typical values expected for the majority structures based on similar facilities. Actual values may vary.

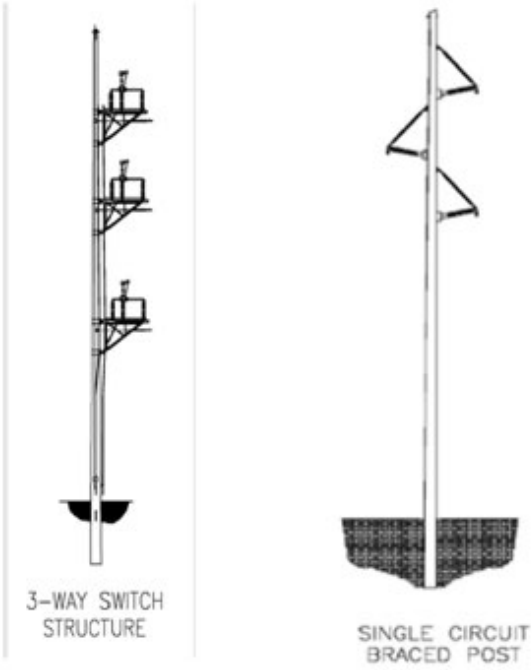
The majority of the 161 kV transmission line will consist of single-circuit, braced post monopole steel structures, spaced approximately 600 to 800 feet apart. Transmission structures will typically range in height from 80 to 120 feet above ground, depending upon the terrain and environmental constraints. The average diameter of the steel structures at ground level is 3 to 5 feet.

A deadend is a structure used to change direction and/or wire tension on a transmission line. Deadend structures are also used as a “storm structure” to limit the number of structures damaged by a cascading effect due to higher line tensions when a pole is knocked down by a storm. Anticipated deadend structure locations are shown in the Appendix B map series.

The single circuit structures will have three single conductor phase wires and one shield wire. It is anticipated that the phase wires will be “T2 Grosbeak” which consists of two aluminum conductor steel reinforced (ACSR) “Grosbeak” conductors in a twisted pair configuration, or a conductor with similar electrical capacity and mechanical strength properties. The shield wire will be a 48-count optical ground wire.

Some Project structures may be installed using a vibratory caisson foundation. Vibratory caissons are a foundation type that can be used in place of typically installed direct embed structure foundations. A vibratory caisson is a straight steel pole section with no bottom that is driven into the ground with a vibratory hammer. The caisson is attached to the hammer, lifted into place, and dropped until it contacts the ground. Then, the hammer vibrates at a high frequency while applying a downward force. This foundation installation method does not produce spoils as would a drilled pier or other traditional foundation type.

Figure 2.2-1 – Typical Transmission Structure Types



2.2.4 Design Options to Accommodate Future Expansion

Minnesota rules require RPAs to include a description of possible design options to accommodate expansion of the high voltage transmission line in the future (Minn. R. 7850.1900, subp. 2[L]). The Project is designed to maintain reliability requirements in the area and is sized to accommodate electric demand growth. The Project transmission line will not be designed to accommodate future double-circuiting, but the Forks Switching Station will be laid out to accommodate future expansion for future additional transmission line interconnections.

2.3 FORKS SWITCHING SUBSTATION

The new Forks Switching Station will be equipped with SF6 gas circuit breakers with current sensing transformers, voltage sensing and station service type transformers, and a control enclosure which will house required relaying equipment and supervisory control and data acquisition (SCADA) equipment. This equipment is designed to protect human health as well as the other equipment on the transmission system by isolating the fault and de-energizing a transmission line should any unsafe line faults occur on it, while keeping the other transmission lines connected to the Forks Switching Station in-service. The Forks Switching Station will initially have three 161 kV line connected to it and the Switching Station will initially have a ring bus configuration. In addition to the new Forks – Rost 161 kV line that will be constructed, the existing ITC Midwest Lakefield Junction – Dickinson County 161 kV line will be cut into Forks creating a Forks – Lakefield Junction and Dickinson County – Forks 161 kV lines.

2.4 PROJECT COST

2.4.1 Project Costs

Estimated costs to construct the Project are approximately $13.5 to $18.8 million. Costs by component are summarized in Table 2.4.1-1 below.

TABLE 2.4.1-1

Estimated Project Construction Costs

Project Component	Lower-Range (2023$) ($Millions)	Mid-Range (2023$) ($Millions)	Upper-Range (2023$) ($Millions)
Transmission Line	$8.2	$9.5	$10.7
Switching Station	$5.3	$6.2	$8.1
TOTAL	**$13.5**	**$15.7**	**$18.8**

2.4.2 Operations and Maintenance Costs

The estimated annual cost of ROW maintenance and operation of ITC Midwest's transmission lines in Minnesota currently averages about $2,000 per mile. Storm restoration, annual inspections, and ordinary replacement costs are included in these annual operating and maintenance costs.

2.5 PROJECT SCHEDULE

The anticipated permitting and construction schedule for the Project is provided in Table 2.5-1 below. It is anticipated that construction of the Project will begin in Q2, 2026 and the Project will be in service in December 2026. This schedule is based on information known as of the date of the filing of this Application and may be subject to change.

TABLE 2.5-1

Anticipated Project Schedule

Activity	Anticipated Schedule
Pre-Application Outreach	June 2023 – June 2024
Route Permit Application Filed	September 2024
Route Permit Issued	July 2025
Land Acquisition Begins	August 2025
Survey and Transmission Line Design	July 2025 – March 2026
Other Federal, State and Local Permits Issued	January 2026
Start ROW Clearing	March 2026
Start Construction	April 2026
Project In-Service	December 2026

3.0 ROUTE ALTERNATIVES TO THE PROJECT

3.1 ANALYSIS OF ROUTE ALTERNATIVES

Minnesota Statutes § 216E.04, subd. 3 and Minn. R. 7850.3100 require an applicant to identify any alternative routes that were considered and rejected for the Project. ITC Midwest evaluated four routes, including three alternative routes and the Proposed Route (see Figure 3.1-1 below) for the Project.

The three alternative routes would be similar to the Proposed Route in that they would include similar connection points to the new Rost Substation and new Forks Switching Station. Descriptions of the three alternative routes that were evaluated by ITC Midwest, including how they differ from the Proposed Route, are provided below.

Route Alternative 1 – This route alternative is the same length as the Proposed Route (8.5 miles); however, this alternative differs in that it would travel north from the Forks Switching Station through agricultural fields along the quarter-section line between 410th Avenue and 420th Avenue for 2 miles, where it would then head west along 790th Street for 6.5 miles to the connection point with the Rost Switching Station. The north-south alignment of this alternative would parallel ITC Midwest's existing Lakefield Junction 161 kV transmission line, with the remaining east-west portion (6.5 miles) consisting of new construction. This route alternative was rejected for the following reasons:

- Near the intersection of 790th Street and 400th Avenue, this route would cross through or be directly adjacent to the U.S. Fish and Wildlife Service (USFWS) Ulbricht Waterfowl Production Area, which ITC Midwest considers a major avoidance area. This area was avoided in consideration of the state's routing factors in Minn. Stat. § 216E.03, subd. 7(b) and Minn. R. 7850.4100.

- This alternative would entail building 2 miles of the 161 kV transmission line as a double-circuited line on ITC Midwest's Lakefield Junction line, which would pose single pole contingency concerns. Specifically, double-circuiting the proposed line on the Lakefield Junction line would expose two 161 kV lines to an outage risk if any of the double-circuit poles were impacted. An outage on the Lakefield Junction 161 kV line would cause curtailment issues for several wind farms in the region.

Route Alternative 2 – This route alternative is the same length as the Proposed Route (8.5 miles) and also parallels the Proposed Route from its origin at the Forks Switching Station to the west for 5.5 miles but would then continue west along 770th Street for 1 mile before turning north along 350th Avenue for 2 miles to the connection point with the Rost Switching Station. The 2 miles that this alternative route would run north-south along 350th Avenue would parallel an existing Great River Energy 69 kV transmission line. This alternative was rejected for the following reasons:

- This alternative would entail building 2 miles of double-circuit on a Great River Energy 69 kV transmission line, which would pose single pole contingency concerns. Specifically, double-circuiting the proposed line on the Great River Energy line would expose the proposed 161 kV line and the Great River Energy 69 kV line to an outage risk if any of the double-circuit poles were impacted.

- The intersection of 780th Street and 350th Avenue is congested with an existing distribution substation in the southwest quadrant and a homestead in the southeast quadrant. Routing through this area would require modifications to the distribution substation or impacts to the homestead.

- The existing Great River Energy 69 kV line is only three years old. Rebuilding this line as a double circuit would be costly and would not be an efficient use of resources.

- There is a wind farm tap along this route on the west side of 350th Avenue. Maintenance on the double-circuited line would require total curtailment of the wind farm.

Route Alternative 3 – This route alternative would be 2 miles longer than the Proposed Route. This alternative would originate at the Forks Switching Station and then travel south through agricultural fields along the quarter-section line between 410th Avenue and 420th Avenue for 1 mile, where it would then head west for 6.5 miles along 760th Street, before turning north along 350th Avenue for 3 miles to the connection point with the Rost Switching Station. The 1-mile segment running north-south from of the Forks Switching Station would parallel ITC Midwest's existing Lakefield Junction 161 kV transmission line. The 6.5-mile east-west segment would parallel a Great River Energy 69 kV transmission line. The 3-mile north-south segment that connects to the Rost Switching Station would also parallel a Great River Energy 69 kV transmission line. This alternative was rejected for the following reasons:

- This alternative would entail building 1 mile of the 161 kV transmission line as a double-circuited line on ITC Midwest's Lakefield Junction line, which would pose single pole contingency concerns. Specifically, double-circuiting the proposed line on the Lakefield Junction line would expose two 161 kV lines to an outage risk if any of the double-circuit poles were impacted. An outage on the Lakefield Junction 161 kV line would cause curtailment issues for several wind farms in the region.

- This alternative would entail 9.5 miles of double-circuit on a Great River Energy 69 kV transmission line, which would pose single pole contingency concerns. Specifically, double-circuiting the proposed line on the Great River Energy line would expose the proposed 161 kV line and the Great River Energy 69 kV line to an outage risk if any of the double-circuit poles were impacted.

- The intersection of 780th Street and 350th Avenue is congested with an existing distribution substation in the southwest quadrant and a homestead in the southeast quadrant. Routing through this area would require modifications to the distribution substation or impacts to the homestead.

- The existing Great River Energy 69 kV line is only three years old. Rebuilding this line as a double circuit would be costly and would be an inefficient use of resources.

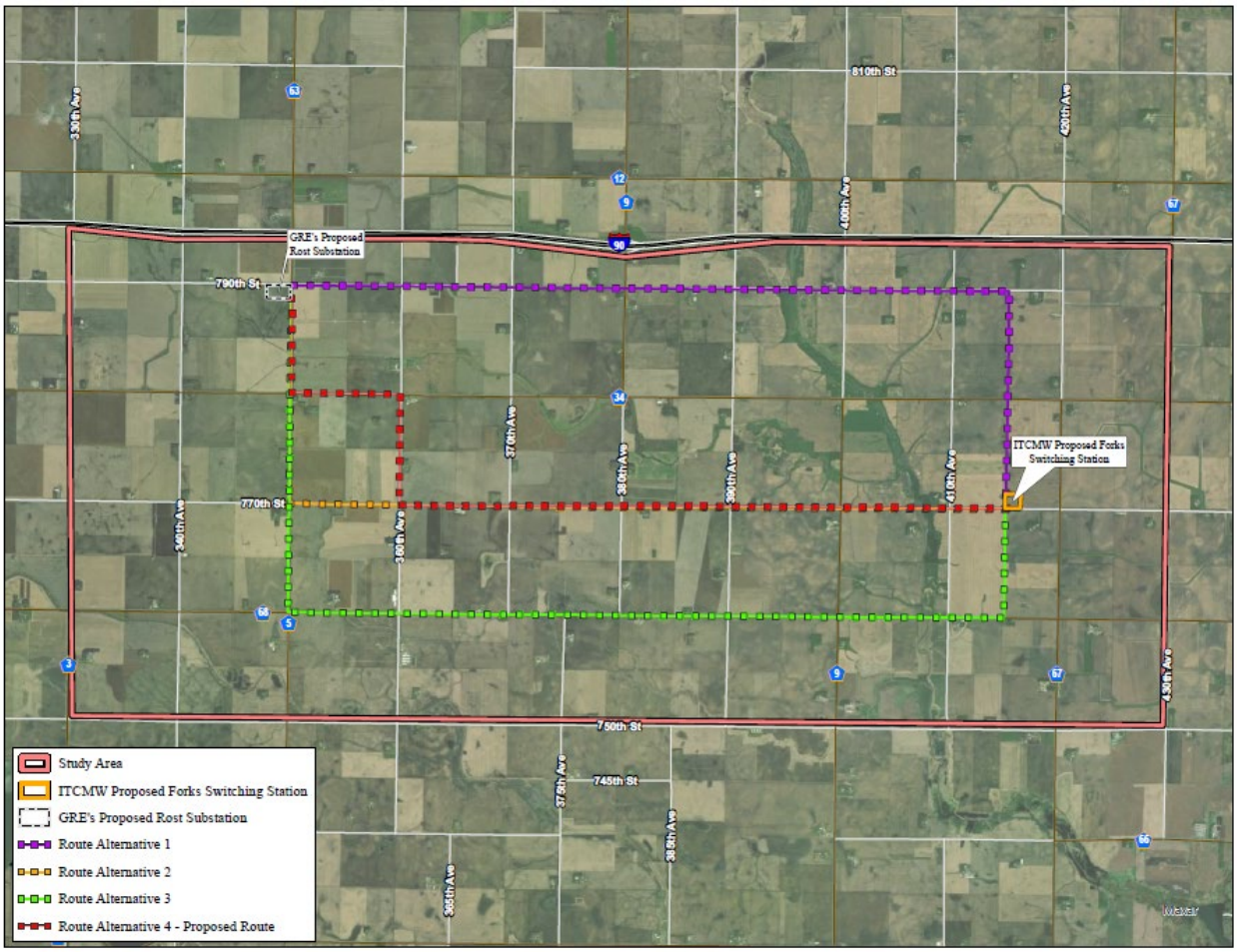
- There is a wind farm tap along this route on the west side of 350th Avenue. Maintenance on the double-circuited line would require total curtailment of the wind farm.

- This alternative would be 2 miles longer than the Proposed Route, which would increase the overall cost of the Project.

ITC Midwest also evaluated four options for the location of the Forks Switching Station, all of which are in close proximity along 770th Street. All four options were immediately adjacent to the existing roadway and consisted of agricultural lands. Given that each option would result in the same types of impacts, ITC Midwest selected the Forks Switching Station option based on the ability to enter into an option agreement with the landowner and to avoid potential wetland impacts.

In summary, ITC Midwest considered but rejected the alternative routes due to sensitive biological resource concerns, constructability, and single pole contingency concerns, as well as the increased cost and coordination of re-building double-circuited lines, preferred avoidance of congested areas, and an attempt to minimize the overall length of the Project.

Figure 3.1-1 Route Alternatives Considered and Rejected



4.0 ROUTE SELECTION PROCESS

4.1 SUMMARY OF ROUTE SELECTION PROCESS AND GUIDING FACTORS

4.1.1 Route Development Process Summary

ITC Midwest used a comprehensive siting and vetting process to identify route options for the Project. Based on the applicable Minnesota Statutes and Rules, potential state, federal, and local permits or approvals necessary for the Project, and the purpose and need for the Project, ITC Midwest identified a Proposed Route for consideration by the Commission. The route development process leading to the identification of the Proposed Route is discussed in detail in Section 4.2 below.

4.1.2 Routing Factors

The factors for route development are set forth in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4100, and these factors directed ITC Midwest's route development process.

Minn. Stat. § 216E.03, subd. 7(a) states that the Commission's route permit determinations "must be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure." Subdivision 7(e) of the same section requires the Commission to "make specific filings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway ROW and, to the extent those are not used for the route, the Commission must state the reasons."

In addition to the statutory factors noted above, Minn. Stat. § 216E.03, subd. 7(b) and Minn. R. 7850.4100 provide factors that the Commission will consider in determining whether to issue a route permit for a high voltage transmission line. These routing factors from Minn. R. 7850.4100 are:

A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

B. effects on public health and safety;

C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

D. effects on archaeological and historic resources;

E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;

F. effects on rare and unique natural resources;

G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;

H. use of or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;

I. use of existing large electric power generating plant sites;

J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

K. electrical system reliability;

L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;

M. adverse human and natural environmental effects which cannot be avoided; and

N. irreversible and irretrievable commitments of resources.

In 2023, the Minnesota Legislature amended Minn. Stat. § 216E.03, subd. 7(b) to also include the following considerations when designating routes:

- evaluation of the benefits of the proposed facility with respect to (i) the protection and enhancement of environmental quality, and (ii) the reliability of state and regional energy supplies;
- evaluation of the proposed facility's impact on socioeconomic factors; and
- evaluation of the proposed facility's employment and economic impacts in the vicinity of the facility site and throughout Minnesota, including the quantity and quality of construction and permanent jobs and their compensation levels. The commission must consider a facility's local employment and economic impacts and may reject or place conditions on a site or route permit based on the local employment and economic impacts.

ITC Midwest used these statutory and rule routing criteria, routing experience, engineering considerations, and stakeholder feedback to develop the Proposed Route for the Project. To minimize impacts to humans and the environment, ITC Midwest first identified routing opportunities and constraints.

Opportunities are resources or conditions that create a potential for transmission line development. They include pre-existing linear infrastructure or other features (e.g., transmission lines, roads, and public land survey divisions of land) along which Project development would be particularly compatible. Opportunities also facilitate Project development by reducing impacts on constraints. Furthermore, Minn. R. 7850.4100 requires the Commission to consider when issuing a route permit the use or paralleling of existing ROWs (e.g., transportation corridors, pipelines, and electrical transmission lines), survey lines, natural division lines, and agricultural field boundaries, where practicable.

Constraints are resources or conditions that could limit or prevent transmission line development. Avoiding those resources or conditions is a goal, but not necessarily a requirement, of the routing process. Constraints might include areas restricted by regulations, or areas where impacts to

resources would be difficult to mitigate. Constraints can include, for example: existing land uses such as homes, religious facilities, and schools; federal, state, and locally designated environmental protection areas; sensitive habitats or areas; cultural resources, such as national landmarks and archaeological sites; and, public infrastructure, such as airports and aeronautical and commercial telecom structures. It is important for the routing process to account for the fact that Project development may affect constraints differently.

In addition, technical considerations can affect the routing process. These include specific engineering requirements, standards, system objectives, and opportunities for efficiency associated with construction of the Project. Other engineering objectives may include line entrance into the substations; minimizing the overall line length; good access for construction, inspections and maintenance; and minimizing the need for specialized structures. These technical guidelines are specific to the Project and inform the technical limitations related to Project design, land requirements, and operational reliability concerns.

The Proposed Route was identified because it takes advantage of routing opportunities, such as co-location with transportation routes, existing access routes for construction and maintenance, land available for ROW, and the minimization of impacts to resources (routing factors) identified in Minnesota Rule 7850.4100. Additionally, the identification, avoidance, and minimization of impacts to Routing Constraints is discussed in detail in Chapter 7.0 of this RPA.

4.2 ROUTE DEVELOPMENT PROCESS

4.2.1 Project Study Area

ITC Midwest identified a Project Study Area that would help guide the corridor development process. The purpose of identifying a Study Area for the Project was to establish boundaries and limits for the information-gathering process (e.g., identifying environmental and land use resources, routing constraints, and routing opportunities) and the subsequent development of a Proposed Route for the Project. The Project Study Area was initially developed based on proximity to existing infrastructure and the proposed station locations. Further consideration was given to major physiographic features, jurisdictional boundaries, sensitive land uses and ownerships, existing utility corridors, and the availability of land for transmission ROW. The Project Study Area is shown on Map 1.

4.2.2 Proposed Route

ITC Midwest developed the Proposed Route by reviewing data, meeting with stakeholders, and performing broad environmental and engineering analyses on the Project Study Area.

In general, the Proposed Route was developed by considering the following:

- optimal locations for new station facilities to be built as a result of this Project, including land available for purchase for the new Forks Switching Station;
- existing ROWs (e.g., transmission lines, roads);
- availability of sufficient areas of land for purchase or ROW acquisition;

- avoidance of densely populated areas;
- avoidance of major environmental / natural features;
- maximizing transmission system efficiency and reliability; and
- minimizing the distance between Project facilities, and between individual Project components.

The Proposed Route is generally 1,500 feet wide and 8.5 miles in length. The Proposed Route is shown in Map 1. The width of the Proposed Route provides flexibility in the routing process to take advantage of practical routing opportunities and to promote the avoidance of routing constraints.

4.2.3 Public Participation and Stakeholder Involvement in the Process

The Project Study Area was presented to the public at an open house in January 2024. In addition, individual Tribal, local, state, and federal agencies were introduced to the Project via written correspondence and in-person meetings during the summer and fall of 2023. These communications provided information about the Project to key stakeholders and allowed them to provide comments that would be used in the next steps of the routing process. See Chapter 7.0 for a summary of public and agency comments.

4.3 ROUTE REFINEMENT AND ANALYSIS

Based on feedback from stakeholders and the public, as well as technical guidelines, routing constraints, and routing opportunities, ITC Midwest identified a single Proposed Route as identified in Map 1. The Proposed Route maximizes the need for Project proximity to existing and proposed facilities. The Proposed Route includes land owned in fee by ITC Midwest for the Forks Switching Station and easements acquired for transmission line ROW, while avoiding Routing Constraints to the extent practicable.

5.0 ENGINEERING, OPERATIONAL DESIGN, CONSTRUCTION, RESTORATION, MAINTENANCE, AND ROW ACQUISITION

Design and construction of a transmission line and associated facilities occurs through multiple stages, including transmission line design; identification of existing ROW; ROW acquisition; construction; restoration; and operation and maintenance. Each stage is discussed in further detail in the sections that follow.

5.1 PROPERTY ACQUISITION AND WIDTH OF ROW REQUIRED

5.1.1 Transmission Line ROW Width and Acquisition

The Project will be constructed almost entirely within ROW to be acquired for the Project and will parallel existing road ROW.

After a route permit is issued, ITC Midwest will evaluate what land rights are needed for the Project. Then, ITC Midwest land agents will work directly with individual landowners to acquire the necessary easements for the Project. At a minimum, the Project will require a total permanent

ROW width of 100 feet (typically 50 feet on each side of the transmission centerline). As stated in Section 1.5, the Project will be sited on private land except where it crosses road ROWs, and the alignment will typically be set back approximately 5 to 8 feet from road ROWs.

While easement negotiations will not formally begin until after the Commission approves a route, ITC Midwest will continue to engage with landowners throughout the permitting process to answer any questions they may have regarding the easement process or the Project.

During any necessary formal land rights acquisition, landowners are given a copy of the Route Permit, the transmission line easement, offer of compensation, information on the Project schedule, construction practices, vegetation removal, and damage settlement. Additional information may also be given to each landowner regarding preliminary pole placement (if available at that time), structure design or photos, and power line safety. ITC Midwest will respond to any comments or questions landowners may have, including those with respect to the transmission line construction practices or operations of the transmission line.

In addition to permanent easements necessary for the construction of the line, agreements may be obtained from certain landowners for temporary construction or staging areas for storage of poles, vehicles, or other related items.

As part of early transmission design work, ITC Midwest will need to complete preliminary survey work and may need to acquire some soil characteristics data. ITC Midwest will notify landowners in the event site access for soil borings is required to determine soil suitability in areas where special transmission structure design may be required.

5.1.2 Transmission Structure Design and ROW Requirements

Transmission structure design and the ROW requirements are discussed in Section 2 above. A schematic of typical structures is provided on Figure 2.2-1 above.

5.1.3 Switching Station

Land for the Forks Switching Station will be purchased in fee simple by ITC Midwest. The final area and design of the station will be determined after approval of the Route Permit, but the anticipated dimensions are approximately 375 feet by 325 feet.

5.2 PROJECT SCHEDULE AND SEQUENCING, CONSTRUCTION, MITIGATION AND RESTORATION PRACTICES, INCLUDING WORKFORCE REQUIRED

5.2.1 Transmission Line

As described further below, construction will follow ITC Midwest's standard construction and mitigation best practices. Construction typically occurs as follows:

- Surveying and staking the ROW;
- ROW clearing and preparation;
- Grading/filling, as needed;
- Installation of foundations;
- Installation of poles and related equipment;

- Conductor stringing; and
- Installation of any required aerial markers.

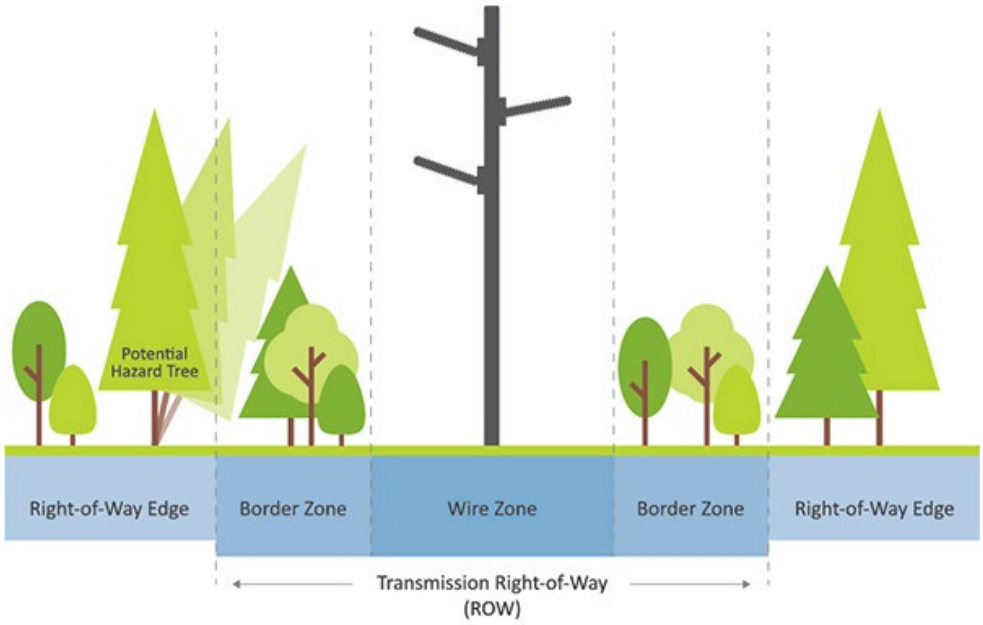
Procedures to be used for construction of the transmission line are discussed below. Equipment used in the transmission line construction process includes backhoes, cranes, boom trucks, and assorted small vehicles. Small grading equipment will also be used at the switching station.

After land rights have been secured and prior to any construction activities starting, landowners will be notified regarding the Project schedule and other related construction activities.

The first phase of the transmission line construction activities involves survey staking of the transmission line centerline and/or pole locations, followed by removal of trees and other vegetation from the ROW. ITC Midwest uses an integrated vegetation management plan that incorporates a wire/border zone practice for ROW clearing and maintenance. As a general practice, low-growing brush or tree species are allowable at the outer limits (the “border zone”) of the easement area. Taller tree species that endanger the safe and reliable operation of the transmission facility will be removed. In developed areas and to the extent practical, existing low--growing vegetation that will not pose a threat to the transmission facility or impede construction or maintenance may remain in the border zone, as agreed to during easement negotiations. The area below the outer conductors plus 10 to 15 feet (the “wire zone” or “clear zone”) is cleared of all shrubs and trees to ensure maintenance trucks can access the line and no vegetation interferes with the safe operation of the transmission line. Due to the nature of the Proposed Route (open land and cultivated fields), very little tree trimming, or removal is anticipated.

The National Electrical Safety Code (NESC) states that “vegetation that may damage ungrounded supply conductors should be pruned or removed.” Trees beyond the easement area that are in danger of falling into the energized transmission line, that could grow into the wire zone, or are otherwise deemed to be a hazard to the safe operation of the line (“danger trees”) may be removed or trimmed to eliminate the hazard as shown on Figure 5.2-1 below, if allowed by the terms in the easement. Danger trees generally are those that are dead, diseased, weak, or leaning towards the energized conductors. Tree trimming may be possible to minimize tree removal based on negotiations with individual landowners.

Figure 5.2-1 – Standard Vegetation Management Practices



All materials resulting from clearing operations will either be chipped on site and spread on the ROW, stacked in the ROW for use by the property owner, or removed and disposed of otherwise as agreed to with the property owner during easement negotiations or in accordance with agency requirements.

The final survey staking of pole locations may again occur after the vegetation has been removed and just prior to structure installation.

The second phase of construction will involve structure installation and stringing of conductor wire. During this phase, existing underground utilities are identified along the route through the required Gopher State One Call process.

If temporary removal or relocation of fences is necessary, installation of temporary or permanent gates will be coordinated with the landowner. Depending on the timing of construction, the ROW agent may work with the property owner for early harvest of crops, where possible, with compensation to be paid for any actual crop losses. During the construction process, it may be necessary for the property owner to remove or relocate equipment and livestock from the ROW. Compensation related to these activities will be discussed with the landowner during easement negotiations.

Transmission line structures are generally designed for installation at existing grades. Therefore, structure sites will not be graded or leveled unless it is necessary to provide a reasonably level area for construction access and activities. For example, if vehicles or installation equipment cannot safely access or perform construction operations properly near the structure, minor grading of the immediate terrain may be necessary.

ITC Midwest will employ standard construction and mitigation practices as well as industry--specific best management practices (BMPs). BMPs address ROW clearing, erecting

transmission line structures, and stringing transmission lines. BMPs for each specific project are based on the proposed schedules for activities, prohibitions, maintenance guidelines, inspection procedures, and other practices. In some circumstances, these activities, such as schedules, are modified to incorporate BMP installation that will assist in minimizing impacts to sensitive environments. Any contractors involved in construction of the transmission line will adhere to these BMP requirements.

Most of the proposed structures will be steel poles, which may be directly embedded by augering a hole, typically 10 to 15 feet deep and 3 to 5 feet in diameter for each pole, installed on a vibratory caisson foundation, or set on a concrete foundation. The concrete foundations will be approximately 6 to 9 feet in diameter and generally are exposed 1 foot above the existing ground level. Any excess soil from the excavation will be spread and leveled near the structure or removed from the site if requested by the property owner or regulatory agency. Concrete trucks are used to bring the concrete in from a local concrete batch plant.

After a direct-embedded pole is set into the hole, the void space is backfilled with crushed rock. Based on typical soil types in Minnesota, it is anticipated that the 80-foot above ground pole would be buried approximately 15 feet into the ground. In poor soil conditions (e.g., peat, marl, soft clay, or loose sand) a galvanized steel culvert is sometimes installed vertically with the structure set inside.

After a number of proposed structures have been erected, ITC Midwest will begin to install the shield wire and conductors by establishing stringing setup areas within the ROW. These stringing setup areas are located at deadend structures along a project route and occupy approximately 15,000 square feet for linear segments of the line and approximately 30,000 square feet for angled segments of the line. Conductor stringing operations require brief access to each structure to secure the conductor wire and shield wire once the final sag is established. Temporary guard or clearance structures are installed, as needed, over existing distribution or communication lines, streets, roads, highways, railways, or other obstructions after any necessary notifications are made or permits obtained. This ensures that conductors will not obstruct traffic or contact existing energized conductors or other cables. In addition, the conductors are protected from damage.

5.2.2 Switching Station

The final switching station fence line will include an area of approximately 122,000 square feet.

The site will be surveyed for initial grading work. A Gopher State One-Call utility location will be completed. Once the initial grading is completed, the site will be re-surveyed to establish equipment and structure locations.

The footprint for the switching station typically includes installing a layer of sand and a layer of compacted class 5 aggregate as a base material. Excavation or drilling will be completed as necessary for concrete foundations and piers to support the station equipment, and concrete will be poured for the foundations or piers.

Buildings, structural rigid metal conductors called buswork, breakers, fencing, necessary switches and control equipment, and the transmission line structures for the new 161 kV line will be erected. Once the majority of the equipment has been erected, the station footprint is topped with 4 to 6 inches of crushed rock.

A short outage will be needed to connect the existing 161 kV line to the new Forks Switching Station. Any and all outages would be coordinated through Midcontinent Independent Systems Operator (MISO) to mitigate potential impacts to load or generation. MISO ensures that no other planned outages during the same time frame would negatively impact system reliability, evaluating and planning of switching within the transmission system to enhance reliability of the system, and if necessary, scheduling the outage during low demand periods or low generation output periods.

All construction will be completed in accordance with state, NESC, and ITC Midwest construction standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, erection of power poles (to connect the line to the substation) and stringing of transmission line conductors.

5.2.3 Workforce Required

Construction of the Project will be performed using 3 crews, totaling 14 workers, with 1 general foreman.

5.3 RESTORATION PROCEDURES

Disturbed areas are restored to their original condition to the maximum extent practicable, or as negotiated with the landowner.

Post-construction reclamation activities will include removing and disposing of debris, removing all temporary facilities (including staging and laydown areas), employing appropriate erosion control measures, reseeding areas disturbed by construction activities with vegetation similar to that which was removed with a seed mixture certified as free of noxious or invasive weeds, and restoring the areas to their original condition to the extent possible. In cases where soil compaction has occurred, the construction crew or a restoration contractor uses various methods to alleviate the compaction, or as negotiated with landowners.

The ROW agent will contact landowners after construction is complete to determine if the cleanup measures have been to their satisfaction, and if any other damage may have occurred. If damage has occurred to crops, fences or the property, ITC Midwest will compensate the landowner. In some cases, an outside contractor may be hired to restore the damaged property as near as possible to its original condition.

5.4 OPERATIONS AND MAINTENANCE PRACTICES

Access to the ROW of a completed transmission line is required to perform periodic inspections, conduct maintenance, and repair damage. Regular maintenance and inspections will be performed during the life of the transmission line to ensure its continued integrity. Generally, ITC Midwest will inspect the condition of the transmission line and structures once per year. Inspections will be limited to the ROW and to areas where off-ROW access is required due to ROW obstructions or terrain impediments. If problems are found during inspection, repairs will be performed and property restoration will occur, or the landowner will be provided reasonable compensation for any damage to the property.

The ROW will be managed to remove vegetation that interferes with the operation and maintenance of the transmission line. Shrubs that will not interfere with the safe operation or

accessing and traversing the ROW of the transmission line will be allowed to reestablish in the ROW. ITC Midwest's practice generally provides for the inspection of 161 kV transmission lines every three years to determine if clearing is required. ROW clearing practices include a combination of mechanical and hand clearing, along with herbicide application (where allowed), to remove or control vegetation growth.

The estimated annual cost of ROW maintenance and operation and maintenance of ITC Midwest's transmission lines (69 kV to 500 kV) in Minnesota currently averages about $2,000 per mile. Actual transmission line specific maintenance costs will depend on factors including the environmental setting, the amount of vegetation management necessary, storm damage occurrences, structure types, and the age of the line.

5.4.1 Workforce Required

Operations and maintenance of the transmission line and switching station will be performed by the existing local ITC Midwest workforce based in Lakefield, Minnesota.

6.0 ENVIRONMENTAL ANALYSIS OF ROUTE

This portion of the RPA provides a description of the human and environmental resources in the Project area, potential impacts to these resources, and any proposed mitigative measures. The Project Study Area and Proposed Route are shown in Figure 1.5-1 above.

6.1 ENVIRONMENTAL SETTING

The Proposed Route is in Ewington and Rost townships in Jackson County, Minnesota. Table 6.1-1 below provides the township, range, and sections of areas crossed by the Proposed Route.

TABLE 6.1-1

Project Location

Township	Range	Section(s)
102N	37W	26, 27, 28, 29, 30, 31, 32, 33, 34, 35
102N	38W	22, 23, 24, 25, 26, 27, 35, 36

The Project Study Area lies within the Prairie Parkland Province, as defined by the Ecological Classification System of Minnesota, and more specifically the North Central Glaciated Plains Section and the Coteau Moraines subsection (MNDNR 2024a). The Minnesota Department of Natural Resources (MNDNR) describes the Coteau Moraines subsection as:

> The southwestern boundary of this subsection occurs in an area of transition from shallow deposits of windblown silt (loess) over glacial till to deeper deposits of loess. The northeastern boundary is marked by a steep escarpment which becomes less pronounced to the south.
>
> This subsection is part of a high glacial landform occupying Southwestern Minnesota, Southeastern South Dakota, and Northwestern Iowa. It is topped by Buffalo Ridge (1995 feet above sea level) in northern Pipestone County. The high elevation is caused by thick deposits of pre-Wisconsin age glacial till (up to 800

feet thick). There are two distinct parts to the subsection, the middle Coteau, and the outer Coteau.

The environmental setting within several miles of the Project Study Area includes open agricultural areas, scattered small, forested areas, rural residential development, and hydrologic features, including streams, wetlands, and small ponds.

There are existing utilities within the Project Study Area, including the Heron Lake to Miloma 69 kV line, owned and operated by Great River Energy; the Dickinson County – Lakefield Junction 161 kV transmission line owned and operated by ITC Midwest; and a Northern Natural Gas pipeline (see Map 2 in Appendix B). There are also county highways and township roads throughout the Project Study Area (see Section 6.2.8 below).

6.2 HUMAN SETTLEMENT

6.2.1 Displacement

6.2.1.1 Existing Environment

No displacement of residential homes, structures, or businesses will occur as a result of the Project. The NESC and ITC Midwest standards require certain clearances between transmission line structures and buildings or structures within the ROW for safe operation of the proposed transmission line. The Proposed Route provides sufficient design flexibility and distances from existing homes and structures for a transmission line design that achieves the requisite clearances.

Based on aerial photography and site visits by ITC Midwest and Merjent, no residences or outbuildings are located within 50 feet of the proposed centerline as shown in Table 6.2.1-1 below and Map 3 in Appendix B. No businesses are present within 200 feet of the proposed centerline.

TABLE 6.2.1-1

Building Distances from Proposed Centerline

Building Type	0-50 feet	50-100 feet	100-150 feet	150-200 feet	Total
Home	0	0	1	2	3
Business	0	0	0	0	0
Outbuilding	0	0	2	6	8
TOTAL	**0**	**0**	**3**	**8**	**11**

6.2.1.2 Impacts on Displacement

No residences or businesses will be displaced by the Project. The Project will be designed in compliance with local, state, NESC, and ITC Midwest standards regarding clearance to buildings (including residences), strength of materials, and ROW widths. ITC Midwest will work with landowners to address alignment adjustments or pole placement, as necessary.

6.2.1.3 Mitigation

No residences or businesses are anticipated to be displaced by the Project; therefore, no mitigation is proposed.

6.2.2 Public Health and Safety

6.2.2.1 Existing Environment

The Project will be designed in compliance with NESC requirements regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths. Safeguards will be implemented for construction and operation of the Project transmission line and Forks Switching Station. Construction and/or contract crews will comply with state and NESC standards regarding installation of facilities and standard construction practices.

ITC Midwest's established safety procedures, as well as industry safety procedures, will be followed during construction of the Project and after installation of the transmission line, including clear signage during all construction activities. The proposed HVTL will be equipped with switching devices.

6.2.2.2 Impacts on Public Health and Safety

No adverse impacts to public health and safety are anticipated as a result of the Project. ITC Midwest will ensure that safety requirements are met during construction and operation of the transmission line and proposed Forks Switching Station. During active construction, measures will be made to ensure the safety of local residents, including but not limited to signage where active construction is occurring, flaggers at roads, and barriers around active construction zones. Additionally, when crossing roads during stringing operations, guard structures will be used to provide safeguards for the public.

6.2.2.3 Mitigation

No negative impacts to public health and safety are anticipated; therefore, no mitigation is proposed.

For additional analysis see Section 6.9, Additional Human and Environmental Impact Considerations.

6.2.3 Audible Noise

Noise is generally considered to be unwanted sound that may be an annoyance, loud or disruptive to hearing. It may be comprised of a variety of sounds of different intensities across the entire frequency spectrum. Noise is measured in units of decibels on the A-weighted scale (dBA). Because human hearing is not equally sensitive to all frequencies of sound, the most noticeable frequencies of sound are given more "weight" in most measurement schemes. The A-weighted decibel scale corresponds to the sensitivity range for human hearing. A noise level change of 3 dBA is barely perceptible to human hearing. A 5-dBA change in noise level, however, is clearly noticeable. A 10-dBA change in noise level is perceived as doubling (or halving) of noise loudness. For reference, Table 6.2.3-1 below shows noise levels in dBA associated with common, everyday sources, providing context for the Project noise levels discussed later in this section.

TABLE 6.2.3-1

Common Noise Sources and Levels

Common Indoor and Outdoor Noises	Sound Pressure Levels (dBA)
Rock Band	110
Jet Flyover	100
Gas Lawnmower	90
Food Blender	80
Vacuum Cleaner	70
Normal Speech	60
Quiet Urban Daytime	50
Quiet Urban Nighttime	40
Quiet Suburban Nighttime	30
Quiet Rural Nighttime	20
Broadcast Recording Studio	10
Threshold of Human Hearing	0

Source: Minnesota Pollution Control Agency (MPCA), 2015

The Minnesota Pollution Control Agency (MPCA) has established standards for the maximum noise allowable in certain areas based on the type of activities occurring in the area. Within the Proposed Route, the most limiting standard is 50 dBA (nighttime limit) in any residential land use location. The daytime and nighttime noise standards by Noise Area Classifications (NAC) are provided in Table 6.2.3-2 below (Minn. R. 7030.0040). Noise standards are expressed using the L50 and L10 statistical descriptors, which represent the range of permissible dBA within a one-hour period. The L50 noise level represents the level exceeded 50 percent of the time, or for 30 minutes in an hour. The L10 noise level represents the level exceeded 10 percent of the time, or for 6 minutes in an hour. NACs are categorized by the type of land use activities at a location and the sensitivity of those activities to noise. Residential-type activities, including homes; churches; camping and picnicking areas; public, health, and education services; and hotels are included in NAC-1. Commercial-type activities including transit terminals and retail, business, and government services are included in NAC-2. Industrial-type activities including manufacturing, fairgrounds and amusement parks, agriculture, and forestry activities are included in NAC-3. NAC 4 is for undeveloped or unused land, and there are no noise standards for these areas.

TABLE 6.2.3-2

MPCA Noise Limits by Noise Area Classification

	Daytime		Nighttime	
Noise Area Classification	L_{10}	L_{50}	L_{10}	L_{50}
1	65	60	55	50
2	70	65	70	65
3	80	75	80	75

Source: MPCA, 2015

6.2.3.1 Existing Environment

Common sound sources within a rural, agricultural environment such as the Project Study Area include, but are not limited to farm equipment such as tractors and combines; farm support

vehicles and equipment; grain handling, storage, and/or drying operations; traffic on surrounding roadways; birds; and wind rustling through the vegetation. Typically, the ambient acoustic environment of a rural or agriculturally oriented community has continuous sound levels (L_{eq}), which is an energy-based time-averaged noise level, ranging from 30 dBA to 60 dBA. Rural residential areas have a typical daytime noise level of 40 dBA and a typical nighttime noise level of 34 dBA (American National Standards Institute, 2013).

6.2.3.2 Impacts from Audible Noise

Audible noise will occur as part of the construction and operation phases of the Project. Noise-sensitive land uses within the vicinity of the Project primarily include residential homes.

During construction, intermittent noise will be emitted by the construction vehicles and equipment, including pile drivers for installation of piers. These noise impacts will be temporary, and the amount of noise will vary based on what type of construction is occurring at the Project on a given day, and the distance from the receptor to the noise source. Table 6.2.3-3 below shows the typical sound pressure levels in dBA at 50 feet for various construction equipment (U.S. Department of Transportation Federal Highway Administration, 2006).

TABLE 6.2.3-3

Typical Sound Levels from Construction Equipment

Equipment	Max Sound Pressure Level 50 feet (dBA)
Backhoe	80
Compactor	82
Concrete Mixer	85
Dozer	85
Generator	81
Grader	85
Loader	85
Pile Driver (Impact)	101
Truck	88

Noise calculations were conducted using a desktop analysis to calculate Project sound levels at the edge of the ROW for the transmission line. As described below, predicted maximum total sound levels as a result of Project operation do not exceed the applicable nighttime limit of 50 dBA set forth in Minn. Admin. R. 7030.0040. Accordingly, minimal sound impacts, within regulatory limits, are expected from Project operation.

Project equipment and details are shown below in Table 6.2.3-4, along with overall A-weighted sound pressure levels. Levels represent the maximum sound output for Project components, which is at the source of the sound.

TABLE 6.2.3-4

Calculated L50 Audible Noise (dBA) for Proposed Project

Structure Type	Line Voltage	Edge of ROW L_{50} Noise (dBA)
161 kV Single-Circuit Steel Monopole	161 kV	35.49

Noise calculations were conducted using a probabilistic desktop analysis for the Forks Switching Station. The station will not have a transformer, shunt reactor, or backup emergency generator sited permanently at the station. As a result, the only expected noises will be from: 1) the inconsistent, extremely short-term noise from planned switching or unplanned fault-clearing operations; and 2) any sounds from humans on-site, such as cars, doors, etc.

Three line positions will terminate at the new 161 kV switching station. In analyzing the number of planned switching events on the ITC Midwest 161 kV system, an average of 2.8 planned switching events have occurred per substation per year over the past five years. Analyzing unplanned switching events on the 161 kV system in ITC Midwest over the past 10 years has identified 0.3044 faults per line per year, which means 0.91 unplanned switching events can be anticipated to take place at the new Forks Switching Station per year. A total of 3.71 switching events can be anticipated at the Forks Switching Station per year. Switching requires three cycles during an unplanned event and 3+20+20 cycles during a planned event (circuit breaker plus two disconnect switches). ITC Midwest does not have measurements or vendor-provided specifications for audible noise produced by the circuit breaker or the disconnect switches, but field experience has described the results as similar to a .22 caliber rifle at worst case. This is roughly the equivalent of 140 dB at the source, conservatively, and will dissipate further from the source and will be very short in duration.

Humans will be on-site for planned switching, as well as bi-monthly inspections and any capital work. This means that standard vehicle noises and human conversation might exist during these visits.

From this analysis, the switching station noise is compliant with Minnesota noise requirements in that the occasions when noise may occur in excess of MPCA limits will be extremely rare and very limited in duration. In addition, the closest occupied residence is approximately 0.25 mile from the proposed site of the new Forks Switching Station. Therefore, no mitigation is required.

6.2.3.3 Mitigation

During construction, the Project will generate a temporary increase in ambient noise levels in the vicinity of the Project that may exceed state noise standards. The Project will mitigate potential noise impacts by limiting construction to daylight hours and using construction equipment and vehicles with properly functioning mufflers and noise-control devices.

During operation, the Project will not generate an increase in ambient noise levels in the vicinity of the Project that exceed state noise standards; therefore, no operational mitigation measures are necessary.

6.2.4 Aesthetics

6.2.4.1 Existing Environment

The Project is generally surrounded by agricultural development and the easements acquired by ITC Midwest primarily follow existing road ROWs. There are four wind turbines east of the Proposed Route near Great River Energy's proposed Rost Substation. In addition, the Proposed Route is collocated with an existing 69 kV transmission line for approximately 0.86 mile, and a 161 kV transmission line is perpendicular to the Proposed Route (see Map 2 in Appendix B).

The proposed Forks Switching Station will be located southwest of the City of Lakefield, Minnesota. The proposed Forks Switching Station will be a new feature in the Project Study Area that will be visible off-site. Construction activities will be visible throughout the Proposed Route.

6.2.4.2 Impacts on Aesthetics

Since the Project will be constructed adjacent to existing county road ROWs, collocated with an existing 69 kV transmission line, and near an existing wind farm, the Project does not constitute a new use in the area and aesthetic impacts are anticipated to be minimal. The proposed Forks Switching Station will be visible from nearby public roads. The Proposed Route was designed in part to minimize the amount of tree clearing, which helps to minimize visual impacts.

6.2.4.3 Mitigation

ITC Midwest will work with landowners to identify aesthetic concerns related to the proposed transmission line and proposed Forks Switching Station.

6.2.5 Socioeconomics and Environmental Justice

6.2.5.1 Existing Environment

The Project Study Area is in Jackson County in southwest Minnesota. The socioeconomic setting of the Project Study Area was evaluated on a regional level comparing data from the State of Minnesota, Jackson County, and the cities of Worthington and Lakefield. Data compiled from U.S. Census Bureau QuickFacts are summarized in Table 6.2.5-1 below.

TABLE 6.2.5-1

Socioeconomic Characteristics within the Project Study Area

Location	Population 2010	Population 2020	Median Household Income	Population below poverty level (%)
State of Minnesota	5,303,925	5,706,494	$84,313	9.6%
Jackson County	10,266	9,989	$68,368	9.1%
City of Worthington	12,764	13,947	$58,690	15.4%

Source: U.S. Census QuickFacts, downloaded April 24, 2024: https://www.census.gov/quickfacts/fact/table/worthingtoncityminnesota,jacksoncountyminnesota,MN/PST045223.

An environmental justice (EJ) analysis for the Project was completed using the methodology in Minn. Stat. § 216B.1691, subd. 1(e) (rev.2023), which provides:

> Environmental justice area means an area in Minnesota that, based on the most recent data published by the United States Census Bureau, meets one or more of the following criteria:
>
> (1) 40 percent or more of the area's total population is nonwhite;
>
> (2) 35 percent or more of households in the area have an income that is at or below 200 percent of the federal poverty level;

(3) 40 percent or more of the area's residents over the age of five have limited English proficiency; or

(4) the area is located within Indian country, as defined in United State Code, title 18, section 1151.[1]

The Proposed Route and associated 100-foot-wide ROW intersects with Census Tract 4802 in Jackson County. Census Tract 4802 was analyzed for EJ areas consistent with the above referenced statute. For this analysis, census tracts are the best approximation of a geographic area where adverse impacts can occur from the Project. Jackson County was used as a reference population for the census tract.

ITC Midwest used MPCA's "Understanding Environmental Justice in Minnesota" web-based mapping tool by drawing the Proposed Route into the mapping tool to determine whether the Project intersects any census tracts with EJ populations based on the definitions above. It is important to note that MPCA's web-based tool accounts for a margin of error in determining EJ areas of concern.

According to the data provided in MPCA's web-based mapping tool, 7.3 percent of the population of Census Tract 4802 are people of color; 18.7 percent reported income less than the 200 percent of the federal poverty level; and 1.5 percent are reported as residents with limited English proficiency (MPCA, 2024a). Based on this data, Census Tract 4802 is not considered an EJ community under the definition provided in Minn. Stat. § 216B.1691, subd. 1(e). Additionally, the Proposed Route does not cross any areas located within "Indian country," as defined in 18 United States Code 1151.

Additionally, ITC Midwest conducted this EJ analysis in accordance with the U.S. Environmental Protection Agency (USEPA) Federal Interagency Working Group on Environmental Justice and National Environmental Policy Act (NEPA) Committee's publication, Promising Practices for EJ Methodologies in NEPA Reviews (Promising Practices) given that analyses in prior Route Permit Applications have used this methodology.

Using this methodology, ITC Midwest first used the USEPA's Environmental Justice Screening Tool (EJScreen) as an initial step to gather information regarding: minority and/or low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors. The USEPA recommends that screening tools, such as EJScreen, be used for a "screening-level" look and a useful first step in understanding or highlighting locations that may require further review. EJScreen was used to evaluate the Proposed Route plus a 0.25-mile buffer. Using EJScreen, the communities in the Proposed Route are estimated to have 1 percent people of color and 16 percent low income (U.S. Census Bureau, 2024a).

According to Promising Practices, minority populations are those groups that include American Indian or Alaskan Native; Asian or Pacific Islander; Black, nor of Hispanic origin; or, Hispanic. Following the recommendations set forth in Promising Practices, the 50 percent and the meaningfully greater analysis methods were used to identify minority populations. Using this

[1] Although this statute does not prescribe requirements for a route permit application, ITC employs this methodology here consistent with the methodology used by DOC-EERA in a recently issued EA. See Docket No. ET2/22-235.

methodology, minority populations are defined where either (a) the aggregate minority population of the block groups in the affected area exceeds 50 percent; or (b) the aggregate minority population in the block group affected is 10 percent higher than the aggregate minority population percentage in the county. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using Promising Practices' low-income threshold criteria method, low-income populations are identified as block groups where the percent of low-income population in the identified block group is equal to or greater than that of the county. Jackson County is the comparable reference community to ensure that any affected EJ communities are properly identified.

Table 6.2.5-2 below identifies the minority populations by race and ethnicity and low-income populations within Minnesota, Jackson County, and Census Tract 4802, Block Group 2, crossed by the Proposed Route. U.S. Census 2022 American Community Survey 5-Year Estimate Data File# B17017 and File# B03002 for the race, ethnicity, and poverty data were analyzed at the block group level.

TABLE 6.2.5-2

Minority Populations by Race and Ethnicity and Low-Income Populations within the Project Area

State/County/Census Block Group	% Total Minority[a]	% Below Poverty Level
Minnesota	22.3%	9.4%
Jackson County	9.0%	10.0%
Census Tract 4802, Block Group 2	2.0%	2.5%

[a] "Minority" refers to people who reported their ethnicity and race as something other than White, non-Hispanic.

Source: U.S. Census Bureau, 2022a; 2022b

As presented in Table 6.2.5-2 above, based on the analysis, the block group crossed by the Proposed Route is not an EJ community.

6.2.5.2 Impacts on Socioeconomics

Local and regional impacts to socioeconomics will be minor due to the short-term timeframe of construction of the Project. Revenue may increase for local businesses from purchases made by utility personnel and contractors during construction. Long-term societal benefits of the Project will include increased property tax revenue for the County in which the Project is located and continued clean, reliable electric service to local customers supporting the local economy.

During the construction phase, activities will provide a seasonal influx of additional dollars into the communities with labor procured from local employment resources and construction materials purchased from local vendors where practicable. Traffic impacts to local communities will be insignificant (see Section 6.2.8 below). Noise impacts associated with the Project will be temporary in nature and construction activities will generally be limited to daytime hours between 7 a.m. and 9 p.m. weekdays (see Section 6.2.3 above). Air quality impacts during construction are also anticipated to be minimal and temporary; no impacts to air quality are anticipated due to the operation of the Project (see Section 6.5.1 below). During construction, there may also be short-term positive impacts to the nearby communities. Potential increases in local revenue may occur for businesses, such as hotels, grocery stores, gas stations, and restaurants to support utility personnel and contractors.

As no areas of concern for EJ were found within the Project Study Area, this Project will not negatively impact minority groups or other groups/areas of concern.

6.2.5.3 Mitigation

Because impacts to socioeconomics will be generally short-term and beneficial, no mitigation is proposed. There are no EJ communities impacted by the Project, so no mitigations for EJ communities are proposed.

6.2.6 Cultural Values

6.2.6.1 Existing Environment

Cultural values include those shared community attitudes expressed within a given area, where they provide a framework for community unity. The Project Study Area is in a rural setting with a local economy based on agriculture. Tourism and recreation opportunities exist through potential recreation on the Little Sioux River and a USFWS Waterfowl Production Area (WPA). Per the Jackson County website, a rural way of life and access to outdoor recreation are important cultural values for the area (Jackson County, 2022).

6.2.6.2 Impacts on Cultural Values

The Project is not expected to conflict with the cultural values within the Project Study Area. The area is rural in nature with an economy based on agriculture and is anticipated to remain so during the operation of the Project. The Project will be constructed on privately-owned lands and therefore no public recreation or tourism will be affected. No commercial logging or mining currently happens on lands within the Proposed Route. None of these aspects of the culture of the area are anticipated to be significantly impacted or changed due to the construction and operation of the Project.

6.2.6.3 Mitigation

No impacts on cultural values are expected, therefore no mitigation is proposed.

6.2.7 Recreation

6.2.7.1 Existing Environment

Recreational activities in Jackson County include hunting, biking, snowmobiling, hiking, camping, fishing, boating, and swimming. The Little Sioux River is located within the Project Study Area and may provide recreational opportunities, such as kayaking or canoeing. The USFWS Ulbricht WPA and several state-funded conservation easements are located within the Project Study Area (USFWS, 2023; see Map 5 in Appendix B). WPAs are part of the National Wildlife Refuge System and are owned, leased, or contain easements held by USFWS.

6.2.7.2 Impacts on Recreation

Construction of the Project is not anticipated to disrupt nearby recreational activities. The Proposed Route crosses the Little Sioux River where the river flows through culverts beneath 770th Street. Recreational users would be required to exit Little Sioux River and reenter

downstream of 770th Street. In addition, the Little Sioux River will be spanned by the Project, so impacts to recreational users are not anticipated. The Little Sioux River is a Public Water Inventory (PWI) waterway; therefore, ITC Midwest will work with the MNDNR and other agencies to avoid and minimize impacts to the Little Sioux River. ITC Midwest will also secure a License to Cross Public Waters from the MNDNR for all Minnesota PWI waterway crossings prior to Project construction.

The USFWS Ulbricht WPA is located outside of the Proposed Route and therefore impacts to WPAs are not anticipated.

6.2.7.3 Mitigation

No impacts to recreation are anticipated; therefore, no mitigation is proposed. As stated above, ITC Midwest will work with the MNDNR and other agencies to avoid and minimize impacts to the PWI waterway. For instance, ITC Midwest will add swan diverters to all spans that cross Minnesota public waters, including one span on either side of each crossing.

6.2.8 Public Services and Transportation

6.2.8.1 Existing Environment

The Proposed Route is located in a rural area containing agricultural fields and rural residential houses, with typical public services, such as waste collection, cable, electric, telephone, water, and natural gas utilities, septic systems, wells, Emergency Medical Services (EMS), and law enforcement.

Roads crossed by the Proposed Route are provided in Table 6.2.8-1 below.

TABLE 6.2.8-1

Roads Crossed by Proposed Route

Road Name	Jurisdiction	Parallel/Perpendicular	Traffic Volume (SEQ #/Year)
350th Avenue	County State Aid Highway	Parallel	95 (24655/2016)
780th Street	County State Aid Highway	Parallel & Perpendicular	430 (24625/2012)
360th Avenue	Township	Parallel	No Data
770th Street	Township	Parallel & Perpendicular	No Data
370th Avenue	Township	Perpendicular	No Data
380th Avenue	Township	Perpendicular	No Data
390th Avenue	Township	Perpendicular	No Data
400th Avenue	County State Aid Highway	Perpendicular	255 (24626/2016)
410th Avenue	Township	Perpendicular	No Data

6.2.8.2 Impacts on Public Services and Transportation

ITC Midwest will coordinate with the Minnesota Department of Transportation (MnDOT) to confirm that construction of the Project will not interfere with routine roadway maintenance. Temporary, infrequent localized traffic delays may occur when heavy equipment enters and exits local roadways near the Project or equipment and materials are delivered to the Project construction site. To minimize traffic impacts, ITC Midwest will coordinate with local road authorities (county and townships) to schedule large material and or equipment deliveries to avoid periods when traffic volumes are high whenever practical. Traffic control barriers and warning devices will also be used when appropriate. Safety requirements to maintain the flow of public traffic will be followed at all times and construction operations will be conducted to offer the least obstruction and inconvenience to public travel as practicable.

The Proposed Route will not disturb any existing utilities or other public services. No impacts to public services are anticipated.

6.2.8.3 Mitigation

Since the coordination and safety procedures outlined above will be implemented during Project construction and significant impacts to public services and transportation during and after Project construction are not expected, no mitigation is proposed.

6.3 LAND-BASED ECONOMIES

6.3.1 Agriculture

6.3.1.1 Existing Environment

Most of the land within Jackson County is used for agriculture. The U.S. Department of Agriculture (USDA) 2022 Census of Agriculture for Jackson County indicates that there are 845 farms within the county, which is an increase of 6 percent from 2017. The average farm size in Jackson County is 455 acres and there is a total of 384,337 acres of farmland in the county. In 2022, the total market value of products sold from farms in Jackson County was over $501 million, which is a 59 percent increase from 2017 (USDA, 2022).

Prime farmland is defined by the Natural Resources Conservation Service (NRCS) as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, and oilseed crops, and is also available for these uses. The Proposed Route includes approximately 1,530 acres of area designated as prime farmland, which is comprised of approximately 878 acres of prime farmland, 31 acres of farmland of statewide importance, and 621 acres of prime farmland if drained. The proposed Forks Rost Switching Station includes approximately 11.8 acres of area designated as prime farmland, which is comprised of approximately 5.5 acres of prime farmland and 6.3 acres of prime farmland if drained.

The NRCS classifies farmland of statewide importance as lands other than prime farmland that are used for production of specific high-value food and fiber crops, such as tree nuts, fruits, and vegetables. Farmland of statewide importance is similar to prime farmland, but with minor shortcomings such as greater slopes or less ability to store soil moisture. The Proposed Route includes approximately 31 acres of land classified as farmland of statewide importance.

6.3.1.2 Impacts on Agriculture

Some agricultural land may be temporarily removed from production during construction of the Project. Repeat access to structure locations during construction will be required. Operation of construction vehicles, such as cranes, backhoes, boom trucks, and others, may cause rutting or soil compaction. Total acreage of potential temporary impacts depends on the final design.

Permanent impacts include agricultural land conversion to maintain buffers around proposed structures. Based on the preliminary Project design, the substation will permanently impact up to 11.8 acres of land previously used for agriculture and each transmission line pole will have a diameter of 6 to 8 feet for direct embed, including vibratory caissons, and 8 to 10 feet for drilled pier foundations, which will impact agricultural land. Total acreage of potential permanent impacts depends on the final design.

6.3.1.3 Mitigation

ITC Midwest will work with landowners to minimize impacts to agricultural activities. The following mitigation measures are proposed:

- To the extent practicable, construction will be scheduled during periods when agricultural activities will be minimally affected.
- Local roads will be used as much as possible to move equipment and install structures. If local roads cannot be used, equipment will be limited to the ROW to the full extent. If movement outside the ROW is required, permission from landowner's will be obtained.
- All temporary workspace required to construct the Proposed Route will be leased from landowners through agreements.
- All material and debris during construction will be removed and properly disposed of.
- Landowners will be compensated for any crop damage, crop loss, and/or soil compaction.
- All areas disturbed during construction will be repaired and restored to pre-construction conditions. In addition to agricultural fields, this may include fences, gates, ditches, terraces, roads, or other features.

6.3.2 Forestry

6.3.2.1 Existing Environment

Based on aerial photographs, desktop review, and field observations, there are no commercial forestry activities within the Proposed Route.

6.3.2.2 Impacts on Forestry

Because there are no commercial forestry operations within the Proposed Route, the Project will have no impact on commercial forestry operations.

6.3.2.3 Mitigation

No impact to commercial forestry operations is anticipated; therefore, no mitigation is proposed.

6.3.3 Tourism

6.3.3.1 Existing Environment

Tourism activities within Jackson County include farm and home shows, town and country days, the Jackson County Fair, several golf events, and holiday parades and fireworks. Tourism destinations include Fort Belmont; Jackson Speedway; the Historic State Theatre; Jackson County Historical Society Museum; and the Round Lake Vineyards and Winery (Jackson Chamber of Commerce, 2024).

Based on aerial photographs and the Jackson County Park Location Map, no City, County, or State Parks, or State Recreation Areas exist within the Project Study Area (Jackson County, 2015).

Aquatic recreation and tourism activities are discussed in detail in Section 6.2.7 above.

6.3.3.2 Impacts on Tourism

The Proposed Route does not cross any areas that host tourism activities or tourism destinations, and the proposed activities would not preclude tourism activities or destinations.

6.3.3.3 Mitigation

No impacts on tourism are anticipated; therefore, no mitigation is proposed.

6.3.4 Mining

6.3.4.1 Existing Environment

Based on aerial photographs, and data from the Aggregate Source Information System (MnDOT, 2023), four mine/gravel pits are located within the Project Study Area but outside of the Proposed Route (see Map 7 in Appendix B). These mines/gravel pits are discussed in detail below.

Mine 32038 is a commercial aggregate source, which indicates a source of aggregate that is being tested and tracked by MnDOT for potential use. Aerial photography (MnDOT, 2023) shows no activity or disturbance within the record's location.

Mine 32003 is an inactive aggregate source, which indicates a source that is either depleted or at least unavailable for future use. If future circumstances make such sources available, the status may be changed. Aerial photography (MnDOT, 2023) shows surface disturbance near the record's location.

Mine 32043 is an inactive aggregate source, which indicates a source that is either depleted or at least unavailable for future use (If future circumstances make such sources available, the status may be changed). Aerial photography (MnDOT, 2023) shows surface disturbance near the record's location.

Mine 32065 is a commercial aggregate source, which indicates a source of aggregate that is being tested and tracked by MnDOT for potential use. Aerial photography (MnDOT, 2023) shows surface disturbance to the northwest of the record location.

6.3.4.2 Impacts on Mining

No mining operations are present within the Proposed Route; therefore, impacts are not anticipated.

6.3.4.3 Mitigation

No impacts to mining are anticipated; therefore, no mitigation is proposed.

6.4 ARCHAEOLOGICAL AND HISTORIC RESOURCES

6.4.1 Existing Environment

Information on known archaeological sites and historic structures was gathered in March 2024 from the Minnesota State Historic Preservation Office (SHPO) and the Minnesota Office of the State Archaeologist (OSA), both in St. Paul, Minnesota. The desktop investigation and literature review queried the entire Project Study Area. The sources of the SHPO and OSA datasets include previous professional cultural resources surveys and otherwise reported archaeological sites, historic structures (also known as architectural history sites), and historic cemeteries. Sites in these datasets typically include, but are not limited to, Native American mounds and earthworks, prehistoric burial grounds and habitation sites, remains of Euro American home- and farmsteads, logging camps or other industrial land use, and standing buildings, bridges, or other features of the built environment. Sites not included in these datasets may include locations known to Native Americans to have cultural importance.

6.4.1.1 Previously Recorded Archaeological Sites

There is one previously recorded archaeological site in the Project Study Area. Site 21JK0041 is located approximately 1.95 miles to the south-southwest of the Proposed Route, in Section 2 of Township 101 North, Range 38 West. The site consists of a prehistoric lithic scatter that remains unevaluated for listing to the National Register of Historic Places (NRHP). The overall density of previously documented sites in the Project Boundary is low and potentially reflects the lack of previous survey.

6.4.1.2 OSA Historical Cemeteries

According to the Historical Cemeteries layer provided on the OSA Portal, there are three historical cemeteries located within the Project Study Area (see Table 6.4.1-1 below). Review of modern aerial imagery shows these as platted cemeteries, suggesting low potential to encounter unmarked burials. These cemeteries do not intersect the Proposed Route and will not be impacted by construction.

TABLE 6.4.1-1

OSA Historical Cemeteries within the Study Area

Cemetery Name	Cemetery ID	Township	Range	Section
St. Paul's Cemetery/Old Lutheran Cemetery/Old Rost Cemetery	21293	102N	37W	28
Grace Church Cemetery	21280	102N	38W	22
Ewington Township Cemetery	21281	102N	38W	28

6.4.1.3 Previously Recorded Historic Resources

Results of the SHPO data request and Minnesota's Statewide Historic Inventory Portal review identified 14 recorded historic architectural resources within the Project Study Area (see Table 6.4.1-2 below). These structures consist of bridges and culverts. All 13 structures are outside of the Proposed Route.

TABLE 6.4.1-2

Previously Recorded Architectural Structures within the Study Area

Inventory Number	Property Name	Township	Range	Sections	Property Category	Property Type	NRHP Status
JK-EWT-001	Ewington Town Hall	102N	38W	16	Government	Township Hall	Unevaluated
JK-EWT-002	Grace Lutheran Church	102N	38W	22	Religion	Religious Facility	Unevaluated
JK-RST-004	Rost Town Hall	102N	37W	21	Government	Township Hall	Unevaluated
JK-RST-005	Richard Voehl Farmhouse	102N	37W	23	Domestic	Residence	Unevaluated
JK-RST-006	Richard Voehl Barn	102N	37W	23	Agriculture	Barn (Gable)	Unevaluated
JK-RST-007	Richard Voehl Granary	102N	37W	23	Agriculture	Outbuilding	Unevaluated
JK-RST-008	Richard Voehl Corncrib	102N	37W	23	Agriculture	Outbuilding	Unevaluated
JK-RST-009	Richard Voehl Metal-Sided Barn	102N	37W	23	Agriculture	Barn	Unevaluated
JK-RST-010	Bridge No 0593	102N	37W	16	Transportation	Bridge	Unevaluated

6.4.1.4 Archaeological Survey

The Project is under the jurisdiction of the Commission and applicable state and local laws. If potential impacts to historic properties are indicated through agency consultations, a Phase I archaeological survey where direct impacts are proposed may be conducted prior to construction. Archaeological work, if performed, would comply with the *State Archaeologist's Manual for Archaeological Projects in Minnesota* (Anfinson, 2011) and the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (National Park Service, 1983).

6.4.2 Impacts

As stated above, the closest previously recorded archaeological site is almost 2 miles away from the proposed route; three historic cemeteries are not crossed by the proposed Project; and no previously recorded architectural structures are crossed by the proposed route. Based on the desktop review, no recorded sites eligible for inclusion on the NRHP would be adversely affected

by Project construction, operations, or maintenance. The Proposed Route was not previously surveyed and is located almost entirely in areas that have been previously disturbed by farming activities and transportation corridors. No previously recorded archaeological sites have been identified in the Project Study Area.

6.4.3 Mitigation

Should an NRHP-eligible site be identified during construction, ITC Midwest will coordinate with SHPO and OSA to avoid, minimize, or mitigate adverse effects. Such efforts may be achieved through, but not limited to, Project design changes (avoidance), engineering or construction controls (minimization), or data recovery excavation (mitigation). While not expected, in the event archaeological materials and/or human remains are identified during Project construction activities, such activities will cease in the immediate area, and a professional archaeologist will be contacted to investigate the find. In the event of a confirmed archaeological site, steps will be taken to record and evaluate the site in consultation with SHPO and the OSA. If the site is determined to be eligible for inclusion on the NRHP, consultation among these parties will determine any procedures for avoidance, minimization, or mitigation. Should human remains be identified, the procedures as outlined in United States Code, title 25, section 3001 “Native American Graves and Repatriation Act” and Minnesota Statutes Chapter 307, “Private Cemeteries” will be followed in coordination with the OSA and Minnesota Indian Affairs Council.

6.5 NATURAL ENVIRONMENT

6.5.1 Air Quality

Section 109(b) of the Clean Air Act (CAA) requires that the USEPA establish National Ambient Air Quality Standards (NAAQS) requisite to protect public health and welfare (40 Code of Federal Regulations Part 50). The CAA identifies two classes of NAAQS: primary standards, which are limits set to protect the public health of the most sensitive populations, such as asthmatics, children, and the elderly; and, secondary standards, which are limits set to protect public welfare, such as protection against visibility impairment or damage to vegetation, wildlife and structures. The USEPA has promulgated NAAQS for six criteria pollutants: ozone (O_3), particulate matter (PM) less than 10 microns in diameter (PM_{10}), PM less than 2.5 microns in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and lead (Pb). Minnesota is in compliance with the primary and secondary NAAQS for all criteria pollutants except lead, which has one nonattainment area in Dakota County (USEPA, 2024; MPCA, 2024b).

In Minnesota, air quality is tracked using air quality monitoring stations across the State. The MPCA uses data from these monitors to calculate the Air Quality Index (AQI) on an hourly basis for O_3, $PM_{2.5}$, SO_2, NO_2, and CO. The pollutant with the highest AQI value for a particular hour sets the overall AQI for that hour. The AQI is used to categorize the air quality of a region as one of five levels of quality: good, moderate, unhealthy for sensitive groups, unhealthy, or very unhealthy (MPCA, 2024b).

6.5.1.1 Existing Environment

The air quality monitor located nearest to the Project is in Marshall, Minnesota, approximately 55 miles to the northwest. This station monitors O_3 and $PM_{2.5}$. The days in each AQI for Marshall between 2018 and 2022 are provided in Table 6.5.1-1 below (MPCA, 2024c). Note that data from 2023 was not available at the time this Application was prepared.

TABLE 6.5.1-1

Days in Each Air Quality Index Category (Marshall, Minnesota)

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy
2022	324	30	0	2	0
2021	289	65	3	2	0
2020	330	30	0	0	0
2019	326	35	0	0	0
2018	333	32	0	0	0

Source: MPCA, 2024c.

Air quality has generally been considered good for the majority of the past five reported years in Marshall. Since 2018, the largest number of days classified as moderate, unhealthy for sensitive groups, or unhealthy occurred in 2021. In that year, 65 days were classified as moderate, 3 days were classified as unhealthy for sensitive groups, and 2 days were classified as unhealthy.

6.5.1.2 Air Quality Impacts

Impacts on air quality from construction of the Project will be minimal and limited to the period of construction. Exhaust emissions from construction vehicles will be minimized by keeping construction equipment in good working order. When necessary, dust from construction traffic will be controlled using standard construction practices such as watering of exposed surfaces, covering of disturbed areas, and reducing vehicle speeds. Overall, dust emissions currently experienced annually in the area through farming activities will be reduced for the life of the Project through the establishment of perennial vegetative cover.

During operation of the line and proposed Forks Switching Station, air emissions would be minimal. Small amounts of oxides of nitrogen (NOx) and ozone are created due to corona from the operation of transmission lines. The production rate of ozone due to corona discharges decreases with humidity and, less significantly, with temperature. Rain causes an increase in ozone production, but also accelerates the decay of ozone. Ozone production by high voltage transmission lines is not detectable during fair weather conditions. Ozone production under wet weather conditions is detectable, but resulting emissions are insignificant with respect to national ambient air quality standards. The design of the transmission line may also influence ozone production rates. The ozone production rate decreases significantly as the conductor diameter increases and is greatly reduced for bundled conductors over single conductors. Conversely, the production rate of ozone increases with applied voltage. The emission of ozone from the operation of a transmission line of the voltage proposed for the Project would be minimal and is not anticipated to have a significant impact on the air quality.

6.5.1.3 Greenhouse Gas Emissions and Climate Change

Construction and operation of the Project will release greenhouse gases (GHG), contributing to global warming. However, operation of the Project will provide additional transmission capacity to support interconnection with, and transmission of, additional renewable energy generation from wind and solar facilities.

Activities associated with the construction of the Project will result in GHG emissions from the combustion of diesel and gasoline in heavy construction equipment, delivery vehicles, and worker passenger vehicles. Emissions from construction activities were calculated by estimating the volume of fuel expected to be consumed by each piece of equipment and determining the GHG emissions released upon combustion of those fuel volumes. Construction activities are expected to produce a total of 1,182 tons of carbon dioxide equivalent (CO_2e). GHG emissions from construction vehicles will be minimized by keeping construction equipment in good working order. Upon completion of the construction activities, emissions from heavy equipment, delivery vehicles, and construction personnel will cease.

TABLE 6.5.1-2

Preliminary Emission Estimates for Greenhouse Gas Emissions

	Greenhouse Gas Emissions from Construction Engines (tons)			
Description	CO_2	(Methane) CH_4	NO_2	CO_2e [a]
Off-Road Engine Emissions	723.78	0.03	0.01	726.26
Commuters and Delivery Vehicles	455.52	0.00	0.00	455.52
TOTAL	**1,179.30**	**0.03**	**0.01**	**1,181.78**

[a] CO_2e = carbon dioxide equivalent. Includes global warming potentials from 40 CFR 98 Table A-1.

During the operational stage, ITC Midwest will perform routine line inspections and vegetation maintenance approximately every three years. The commuter vehicles and maintenance trucks required for these inspections and maintenance will generate a minor amount of GHG emissions.

6.5.1.4 Corona: Air Impacts

Corona can also produce ozone and oxides of nitrogen in the air surrounding the conductor. Ozone is a very reactive form of oxygen molecule that combines readily with other elements and compounds in the atmosphere, making it relatively short lived. Ozone forms naturally in the lower atmosphere from lightning discharges and from reactions between solar ultraviolet radiation and air pollutants such as hydrocarbons from auto emissions. The natural production rate of ozone is directly proportional to temperature and sunlight, and inversely proportional to humidity.

Like audible and radio frequency noise, corona-induced ozone and nitrogen oxides are typically not a concern for power lines with operating voltages at or below 161 kV because the electric field intensity is too low to produce significant corona. Therefore, ITC Midwest expects ozone and nitrogen oxide concentrations associated with the Project to be negligible, and well below all federal standards (nitrogen dioxide – 100 parts per billion as 1-hour average, 53 parts per billion as annual average; ozone 75 parts per billion as 8-hour average).

6.5.1.5 Mitigation

Soils in the Project Study Area are not highly susceptible to wind erosion. If wind erosion becomes an issue during construction, standard industry practices may be implemented, including mulching exposed soils, wetting exposed soils, maintaining vegetative cover (both cover crops and permanent vegetation), and reducing vehicle speeds. Emissions from construction and maintenance vehicles will be minimized by keeping construction equipment in good working order.

During operation, corona effects will be minimized by using good engineering practices. Since a corona signifies a loss of electricity, ITC Midwest will design the transmission line to limit corona effects.

6.5.2 Water Resources

Hydrologic features in the Proposed Route are shown in Map 8 of Appendix B. Hydrologic features such as wetlands, lakes, rivers, and floodplains perform several important functions within a landscape, including flood attenuation, groundwater recharge, water quality protection, and wildlife habitat production. The Proposed Route is within the Missouri River–Big Sioux River watershed, in the northern portion of the Missouri River Basin.

6.5.2.1 Groundwater

Existing Environment

The MNDNR divides Minnesota into six groundwater provinces. The Project Study Area is in the South-central Province (Province 2), characterized by fine-grained clay and silt and may contain limited extents of surficial and buried sand aquifers. Sedimentary bedrock aquifers are commonly used.

The Minnesota Department of Health (MDH) enforces the federal Safe Drinking Water Act including the National Primary Drinking Water Regulations created under the Act. These regulations are legally enforceable standards and treatment techniques that apply to public water systems to protect drinking and source water. As a result, Minnesota adopted the State Wellhead Protection (WHP) Rule 4720.5100-4720.5590 in 1997. The MDH is responsible for administering the State WHP Program. Under the WHP Program, public water systems are required to develop and implement a plan that protects its drinking water source. Wellhead Protection Areas (WHPA) are approved surface and subsurface areas surrounding a public water supply well or well field that supplies a public water system, through which contaminants are likely to move toward and reach the well or well field. Drinking Water Supply Management Areas (DWSMAs) contain the WHPA but are outlined by clear boundaries, like roads or property lines. The DWSMA is managed in a WHPA plan, usually by a city.

There are no WHPA or DWSMAs in the Proposed Route or the Project Study Area.

The County Well Index (CWI) is a database that contains subsurface information for over 533,000 water wells drilled in Minnesota (MDH, 2024). CWI is maintained by the Minnesota Geological Survey (MGS) in partnership with the MDH. The data are derived from well contractors' logs of geologic materials encountered during drilling and later interpreted by geologists at the MGS.

The CWI indicates that there are 24 wells (see Table 6.5.2-1 below) located within the Project Study Area and one well (ID 247698) is located within the Proposed Route. This scientific investigation well was drilled in 1978 and is 17 feet deep.

TABLE 6.5.2-1

Wells Within the Project Study Area

Unique Well ID	Use	Date Drilled	Depth (feet)	Aquifer
642698	Domestic	5/13/2003	107	Quaternary buried artesian aquifer

TABLE 6.5.2-1

Wells Within the Project Study Area

Unique Well ID	Use	Date Drilled	Depth (feet)	Aquifer
172139	Domestic	5/25/1978	115	Quaternary buried artesian aquifer
136177	Domestic	1/19/1979	530	Cretaceous,undiff.
136182	Domestic	5/4/1979	133	Quaternary buried artesian aquifer
111877	Domestic	4/18/1989	140	Quaternary undiff.
247697	Scientific Investigation	7/25/1978	12	
726589	Other	10/17/2006	572	
111853	Domestic	6/3/1977	110	Quaternary buried artesian aquifer
247699	Scientific Investigation	7/26/1978	17	
136194	Domestic	6/29/1979	245	Quaternary buried artesian aquifer
172145	Domestic	11/22/1978	352	Cretaceous,undiff.
172147	Domestic	3/7/1980	391	Cretaceous,undiff.
102830	Domestic	5/2/1977	385	Cretaceous,undiff.
247698	Scientific Investigation	7/26/1978	17	
500410	Domestic	9/26/1989	370	Cretaceous,undiff.
222763	Domestic	7/15/1970	407	Cretaceous,undiff.
174177	Abandoned	12/9/1981	130	Quaternary buried artesian aquifer
171941	Domestic	5/22/1981	223	Quaternary buried artesian aquifer
174166	Domestic	2/28/1981	292	Cretaceous,undiff.
131512	Domestic	6/25/1976	230	Cretaceous,undiff.
111854	Domestic	6/4/1977	96	Quaternary buried artesian aquifer
112817	Domestic	2/18/1976	420	Cretaceous,undiff..
586343	Domestic	9/15/2001	101	
844561	Domestic	12/3/2019	396	

Impacts on Groundwater

Impacts to groundwater during construction and operation of the Project are not anticipated. Structure foundations will generally range from 25 feet to 40 feet in depth. All foundation materials will be non-hazardous. Any effects on water tables would be localized and short term and would not affect hydrologic resources. Prior to construction, geotechnical investigations will be completed to help identify shallow depth to groundwater resource areas, which may require special foundation designs. The one scientific investigation well within the Proposed Route will be located prior to construction and avoided during construction. ITC Midwest will continue to work with landowners to identify springs and wells near the Proposed Route.

Mitigation

No impacts to groundwater are anticipated; therefore, no mitigation is proposed.

6.5.2.2 Floodplains

Existing Environment

A floodplain is any land area susceptible to being inundated by floodwaters from any source, and is usually flat, or nearly flat, land adjacent to a river or stream that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent

areas that carry flood flows, and the flood fringe, which includes areas covered by the flood but that do not experience strong current. Floodplains function to prevent damage to downstream areas by detaining debris, sediment, water, and ice. The Federal Emergency Management Agency (FEMA) delineates floodplains and determines flood risks in areas susceptible to flooding. FEMA designates floodplain areas based on the percent chance of a flood occurring in that area every year. These designations include the 100-year floodplain, which has a 1 percent chance of flooding each year, and the 500-year floodplain, which has a 0.2 percent chance of flooding each year.

At the state level, the MNDNR oversees the administration of the state floodplain management program by promoting and ensuring sound land use development in areas to promote the health and safety of the public, minimize loss of life, and reduce economic losses caused by flood damages. The MNDNR also oversees the national flood insurance program for the state of Minnesota. Floodplains are also regulated at the local level by each county. Associated ordinances allow for utility transmission lines as a conditional use for floodway and floodplain districts.

There are no FEMA floodplains within the Proposed Route.

Impacts on Floodplains

There are no FEMA floodplains within the Proposed Route; therefore, impacts are not anticipated.

Mitigation

No permanent impacts to floodplains are anticipated; therefore, no mitigation is proposed.

6.5.2.3 Impaired Waters

Existing Environment

Under Section 303(d) of the Clean Water Act (CWA), the MPCA assesses all waters of the state and creates a list of impaired waters every two years. The listings are based on water quality monitoring of lakes and major streams and are used to set pollutant reduction goals needed to restore waters to the extent that they meet water quality standards for designated uses, which are referred to as total maximum daily loads. The list, known as the 303(d) list, is based on violations of water quality standards. In Minnesota, the MPCA has jurisdiction over determining 303(d) waters. These waters are described as “impaired.” The 303(d) list was approved by the USEPA on April 29, 2022.

The Proposed Route crosses one impaired waterbody, Little Sioux River (AUID 10230003-554), which is listed as having an impaired designated use for aquatic life, due to *Escherichia coli* (MPCA, 2022) (see Map 8 in Appendix B).

Impacts on Impaired Waters

ITC Midwest will place new transmission line structures outside of the impaired waterbody and transmission lines will span the waterbody. Direct impacts to impaired surface waters are not anticipated, and no Project activities are likely to exacerbate the existing impairment for *E. coli*. The new Forks Switching Station will not require a well or have a septic system. ITC Midwest will

employ BMPs during construction and in compliance with local and state permits to prevent erosion and sedimentation near surface waters.

Mitigation

No impacts to impaired waters are anticipated; therefore, no mitigation is proposed.

6.5.2.4 Lakes and Other Waterbodies

Existing Environment

ITC Midwest conducted a desktop review for lakes and other waterbodies within the Proposed Route. Publicly available resources including the Minnesota PWI (MNDNR, 2011), Light Detection and Ranging (LiDAR) topography (MnGeo, 2023), and multiple years of aerial images were reviewed to identify potential lakes and other waterbodies within the Proposed Route. Based on that review, no lakes are present within the Proposed Route. Plum Lake, the closest lake, is approximately three miles southwest of the Proposed Route.

Impacts on Waterbodies

No lakes and other waterbodies are located within the Proposed Route; therefore, no impacts are anticipated.

Mitigation

No impacts to lakes and other waterbodies are anticipated; therefore, no mitigation is proposed.

6.5.2.5 Rivers and Streams (Waterways)

Existing Environment

Based on a review of aerial photography, Judicial Ditch 28 and the Little Sioux River are crossed by the Proposed Route. Both features are included in the MNDNR PWI (MNDNR, 2011).

ITC Midwest conducted a desktop determination for rivers and streams within the Proposed Route. Publicly available resources including the Minnesota PWI (MNDNR, 2011), LiDAR topography (MnGeo, 2023), and multiple years of aerial images were reviewed to identify potential rivers and streams within the Proposed Route. The desktop review identified five potential waterways within the Proposed Route in addition to the two PWI waterways. All five potential waterways appear to be ephemeral agricultural drainages.

Impacts on Rivers and Streams

ITC Midwest will place new transmission line structures outside of the waterways; therefore, no impacts are anticipated.

ITC Midwest will work with the MNDNR and other agencies to avoid and minimize impacts to the PWI waterway. ITC Midwest will secure a License to Cross Public Waters from the MNDNR for all PWI waterway crossings prior to Project construction.

Mitigation

No permanent impacts to waterbodies are anticipated; therefore, no mitigation is proposed.

6.5.2.6 Wetlands

Existing Environment

ITC Midwest's consultant, Merjent, Inc. (Merjent), conducted a desktop wetland determination using guidance from the *USACE Wetland Delineation Manual for Level 1 wetland determination methods* (Environmental Laboratory, 1987). This method is used to review available resources including the Minnesota update to the National Wetland Inventory (MNDNR, 2015), the Minnesota PWI (MNDNR, 2011), NRCS-USDA Soil Survey Geographic Database for hydric soils (Soil Survey Staff, 2019), LiDAR topography (MnGeo, 2023), and multiple years of aerial images to identify potential wetland areas within the Proposed Route. The result of the Level 1 wetland determination identified 50 potential palustrine emergent (PEM) wetlands within the Proposed Route (see Map 8 in Appendix B). All are farmed wetlands or wet roadside ditches adjacent to farmed wetlands.

In April 2024, Merjent conducted a field-based wetland delineation within the proposed Forks Switching Station; no wetlands were identified.

Additionally, a review of the MNDNR Natural Heritage Information System (NHIS) identified the presence of a calcareous fen near the Proposed Route (see Appendix G). The identified calcareous fen is located approximately 6.5 miles northeast of the Proposed Route.

Impacts on Wetlands

No permanent impacts to wetlands are anticipated. Wetland areas that may potentially be crossed for construction access that are not dry, stable, and/or frozen will be matted to reduce ground disturbance and will result in temporary impacts to vegetation. All wetlands will be spanned by the transmission line and no permanent impacts to wetlands will occur.

Mitigation

Permanent impacts to wetlands are not anticipated; therefore, no mitigation is proposed.

6.5.3 Flora and Fauna

6.5.3.1 Flora

Existing Environment

Vegetation within the Proposed Route is primarily farmed row crops, shelter belts associated with farmsteads, and public road ditches. The Proposed Route lies within the Prairie Parkland Province as defined by the Ecological Classification System of Minnesota and more specifically the North Central Glaciated Plains Section and the Coteau Moraines subsection (MDNR 2024a).

The North Central Glaciated Plains Section is characterized by a historic pattern of vegetation that reflects the frequency and severity of fires. The landforms in this section are supported by

marshes, wetland prairies, and wet meadow communities. Areas with rugged terrain or deeply dissected rivers support a mosaic of prairie and wooded communities (MNDNR 2024a).

The Coteau Moraines Subsection is currently characterized by agricultural use with a few areas of pre-settlement vegetation (MNDNR 2024a).

There are no MNDNR Scientific and Natural Areas within or near the Proposed Route. In addition, there are no Native Plant Communities or Sites of Biodiversity Significance crossed by the Proposed Route.

Impacts on Flora

Minimal impacts to native vegetation are anticipated. The Proposed Route crosses agricultural land, adjacent to existing public road ROWs, which will minimize impacts to previously undisturbed vegetation. Minimal tree clearing is anticipated. Further, the transmission line will span sensitive resources, such as streams and wetlands, to the extent practical. Impacts on specific land cover types are discussed in Section 6.6.3 below, Land Cover.

Construction within the Proposed Route could lead to the introduction or spread of invasive species and noxious weeds. Construction activities that could potentially lead to the introduction of invasive species include ground disturbance that leaves soils exposed for extended periods, introduction of topsoil contaminated with weed seeds, vehicles importing weed seed from a contaminated site to an uncontaminated site, and conversion of landscape type, particularly from forested to open settings.

ITC Midwest will implement the measures described in the Project's Vegetation Management Plan (Appendix K), including measures to reduce the spread of invasive species and noxious weeds.

Mitigation

Potential impacts due to invasive species and noxious weeds can be mitigated by:

- Revegetating disturbed areas using weed-free seed mixes and using weed-free straw and hay for erosion control.
- Removal of invasive species/noxious weeds via herbicide and manual means.
- Cleaning and inspecting construction vehicles to remove dirt, mud, plants, and debris from vehicles prior to arriving at and leaving construction sites.

6.5.3.2 Fauna

Existing Environment

Wildlife species with the potential to occur within or near the Project were researched and are described below using information from the USFWS, MNDNR, and other publicly available sources. These species include fish, reptiles and amphibians, birds, and mammals described below. In addition, pollinator insects may be present in the Project area including native bees, butterflies, and moths. The following section includes a discussion of general wildlife resources

within the Project Area with a focus on species that commonly occur in cultivated agricultural lands. Additional details regarding protected species and other rare and unique resources that may be present in the Project Study Area are provided in Section 6.7 below.

Reptile and amphibian species that may occur in agricultural lands include red-bellied snake (*Storeria occipitomaculata*), plains garter snake (*Thamnophis radix*) and common gartersnake (*Thamnophis sirtalis*), painted turtle (*Chrysemys picta*), spiny softshell (*Apalone spinifera*), and snapping turtle (*Chelydra serpentina*) (MNDNR, 2023).

The Project Area is within the Mississippi Flyway, one of the primary north-south migration routes between migratory bird nesting and wintering habitat, and within the Prairie Potholes Bird Conservation Region (BCR; USFWS, 2021a). The USFWS identified 26 species of birds that breed within Prairie Potholes BCR as Birds of Conservation Concern (BCC); BCC are avian species that represent the agency's highest conservation priorities. BCC species that breed in the Prairie Potholes BCR and may nest or forage around agricultural lands or grasslands include the bobolink (*Dolichonyx oryzivorus*), chimney swift (*Chaetura pelagica*), and grasshopper sparrow (*Ammodramus savannarum*) (USFWS, 2021a).

Species of mammals that may use agricultural and grassland areas within the Project Area include white-tailed deer (*Odocoileus virginianus*), striped skunk (*Mephitis mephitis*), red fox (*Vulpes vulpes*), Virginia opossum (*Didelphis virginiana*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), and thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*) (MNDNR, 2024c).

Due to the temporary nature of vegetative cover in cultivated agricultural areas and lack of diversity in plant assemblages and habitat structure, occurrence and habitat quality for these species in the Project Area is limited.

Impacts on Fauna

There is minimal potential for the displacement of wildlife and loss of habitat from construction of the Project. Wildlife that inhabits natural areas could be impacted in the short-term within the immediate area of construction. The distance that animals will be displaced will depend on the species. Additionally, these animals will be typical of those found in rural agricultural settings and should not incur population level effects due to construction.

Due to the confined nature of the Project, impacts on raptors, waterfowl and other bird species are anticipated to be minimal.

Mitigation

Impacts on fauna species are anticipated to be temporary in nature and Edison Electric Institute (EEI) Avian Power Line Interaction Committee (APLIC) design recommendations will be considered in the Project design where practicable.

6.6 ZONING AND LAND USE

6.6.1 Zoning

6.6.1.1 Existing Environment

Based on the Jackson County Zoning map, the Proposed Route is in an area zoned as agricultural (Jackson County, 2009). Zoning information is shown on Map 9 in Appendix B. The Proposed Route also crosses protected waters, as identified by the Jackson County Zoning Map (Jackson County, 2009).

6.6.1.2 Impacts on Zoning

Construction and operation of the Project will not require a zoning change as the issuance of a Route Permit by the Commission supersedes or preempts all county and local zoning pursuant to Minn. Stat. § 216E.10, subd. 1.

6.6.1.3 Mitigation

In accordance with Minn. Stat. § 216E.10, subd. 1, after the Commission approves a Route Permit, local zoning, building, and land use regulations are preempted; therefore, no mitigation is anticipated.

6.6.2 Land Use

6.6.2.1 Existing Environment

Current land use within the Proposed Route is mainly agricultural and road ROWs (Google Earth, 2024).

6.6.2.2 Impacts on Land Use

Transmission lines are compatible with agricultural activities and construction and operation of the transmission lines is not anticipated to have a significant impact on agricultural activities. The proposed Forks Switching Station will convert approximately 11.8 acres of agricultural land, which will be removed from production.

6.6.2.3 Mitigation

ITC Midwest will minimize impacts to existing land uses to the extent practical and impacts are anticipated to be minimal; therefore, no mitigation is proposed. Private landowners will be compensated for ITC Midwest's acquisition of the transmission line right-of-way and the land to be purchased for the Forks Switching Station site.

6.6.3 Land Cover

6.6.3.1 Existing Environment

Based on U.S. Geological Survey Gap Analysis Project data, the total acreage of each land cover type within the Proposed Route is provided in Table 6.6.3-1 below and shown on Map 10 in Appendix B.

TABLE 6.6.3-1

Land Cover Within Proposed Route

Land Cover Type	Acres	Percentage of Total
Barren Land	0.1	0.004%
Cultivated Crops	1,412.6	90.4%
Developed, High Intensity	2.9	0.2%
Developed, Low Intensity	12.2	0.8%
Developed, Medium Intensity	12.3	0.8%
Developed, Open Space	100.2	6.4%
Emergent Herbaceous Wetlands	7.6	0.4%
Herbaceous	10.4	0.7%
Mixed Forest	3.9	0.3%
TOTAL	**1562.2**	**100%**

6.6.3.2 Impacts on Land Cover

The Project will be constructed on private land, obtained through easements, adjacent to public road ROW. Impacts to forests and wetlands are anticipated to be minimal. Based on the preliminary Project design, the proposed Forks Switching Station will permanently impact up to 11.8 acres of land previously used for agriculture and each transmission line pole will have a diameter of 6 to 8 feet for direct embed and 8 to 10 feet for drilled pier foundations, which will impact agricultural land.

6.6.3.3 Mitigation

Impacts to land cover are anticipated to be minimal; therefore, no mitigation is proposed.

6.7 RARE AND UNIQUE RESOURCES

6.7.1 Existing Environment

6.7.1.1 Threatened and Endangered Species

Merjent, on behalf of ITC Midwest, submitted a formal Natural Heritage Review Request (2023-00566) on July 27, 2023, through the MNDNR's Minnesota Conservation Explorer (MCE), which is included in Appendix G. An official response was received on July 27, 2023, and is included in Appendix G.

In addition, ITC Midwest reviewed the USFWS Information for Planning and Conservation (IPaC) website for a list of federally threatened and endangered species, candidate species, and designated critical habitat that may be present within the Project area (USFWS, 2024a).

State Listed Species

Based on the official response from the MNDNR, the Minnesota Biological Survey (MBS) identified one or more Sites of Biodiversity Significance (SOB) within or adjacent to the Project Boundary; the SOB identified in the letter has a ranking of "below" in the MBS system. Additionally, one or more calcareous fens has been documented within the vicinity of the Project. The MNDNR indicated that no state-listed endangered, threatened, or special concern species have been documented within the vicinity of the Project.

On September 12, 2023, the MNDNR provided comments on the Project and indicated that several rare bird species have been observed near the Project, including the trumpeter swan (Cygnus buccinator; special concern), Forster's tern (Sterna forsteri; special concern), and Henslow's sparrow (Ammodramus henslowii; state-endangered). These species were not identified through the MCE review and are at least 3.4 miles from the Proposed Route.

Trumpeter Swan

Trumpeter swans, a large white bird, prefer small ponds and lakes or bays on larger waterbodies with extensive emergent vegetation, during the breeding season. Their ideal habitat includes 100 square meters of open water, low levels of human disturbance, and the presence of muskrats. Trumpeter swans generally migrate to central or southern Minnesota or nearby states to overwinter (MNDNR, 2024d).

Forster's Tern

Forster's tern is a slender, gull-like bird, that prefers extensive marshes with emergent vegetation and open water during the breeding season. They prefer deeper, open portions of marshes. In Minnesota, the Forester's tern is found in the western prairies and towards the east through the prairie-woods transition. In the last 50 years, the Forster's tern has expanded towards the Twin Cities (MNDNR, 2024e).

Henslow's Sparrow

Henslow's sparrow is a small, secretive bird with a flat, olive-colored head with dark stripes, streaked chest, and short tail. They prefer uncultivated grasslands and old fields with stalks for singing perches, litter depth, height of vegetation, and the presence of dead herbaceous stems. Ideally, grasslands larger than 247 acres are preferred; however, they will use smaller areas of suitable habitat (MNDNR, 2024f).

Federally Listed Species

TABLE 6.7.1-1

Federally Listed Species Previously Documented within the Proposed Route

Common Name	Scientific Name	Federal Status
Prairie bush clover	*Lespedeza leptostachya*	Threatened

TABLE 6.7.1-1

Federally Listed Species Previously Documented within the Proposed Route

Common Name	Scientific Name	Federal Status
Western prairie fringed orchid	*Platanthera praeclara*	Threatened
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered
Monarch butterfly	*Danaus plexippus*	Candidate

No critical habitat is present within the Proposed Route.

Prairie Bush Clover

Prairie bush clover is found only in the tallgrass prairie region of four Midwestern states. It is a member of the bean family and a midwestern "endemic"; known only from the tallgrass prairie region of the upper Mississippi River Valley. In southern Minnesota, prairie bush clover, is typically found on bedrock outcrop prairie or north facing mesic to dry prairie slopes. The majority of Minnesota populations are in prairies that have been or are presently used as pasture (MNDNR, 2024g).

Western Prairie Fringed Orchid

The western prairie fringed orchid is a single-stalked plant that blooms with large white flowers along the stalk. The plant occurs most often in mesic to wet unplowed tallgrass prairies and meadows (native prairie areas and prairie remnants) though it has also been recorded in old fields and roadside ditches. The species is well-adapted to survive both fire and light grazing (USFWS, 2024b).

Tricolored Bat

The tricolored bat is one of the smallest bat species native to North America. The species overwinters in caves and mines where available. However, throughout much of its range in the southern United States, roadside culverts, tree cavities, and abandoned water wells may also serve as suitable overwintering habitat.

During the active season (generally, April 1 to October 31), the species may be found roosting among leaf clusters (living and dead) on living or recently dead deciduous hardwood trees. Roost choice may also vary by region and this species has been observed roosting in eastern red cedar trees and pine needles, as well as within manufactured structures such as barns and bridges (USFWS, 2024c).

On September 13, 2022, the USFWS published a proposed rule listing the tricolored bat as federally endangered under the Endangered Species Act (ESA). A final rule is expected by fall 2024 (USFWS, 2022).

Monarch Butterfly

The monarch butterfly is a large butterfly with an approximate 3- to 4-inch wingspan and characterized by bright orange coloring on the wings, with distinctive black borders and veining. The species can be found in a wide variety of habitats including prairies, grasslands, urban

gardens, road ditches, and agricultural fields, provided a supply of nectaring plants are available for adult foraging and milkweed plants are present for laying eggs and as a food source for caterpillars (USFWS, 2024d).

On December 17, 2020, the USFWS published the result of its 12-month review of the monarch butterfly and determined that listing the species under the ESA was "warranted but precluded," meaning the species meets the criteria for listing as an endangered or threatened species, but the USFWS cannot currently implement the listing because there are other listing actions with a higher priority. The species is now a candidate for listing; candidate species are not protected under the ESA (USFWS, 2020). The USFWS intends to reassess the species and determine if it is warranted for listing under the ESA by December 4, 2024. If listing is still warranted and an endangered or threatened status is proposed at that time, a final rule would be published within 12 months of the proposed rule and protections would be effective within 30 to 60 days, or around January 2026.

ITC Midwest holds a Certificate of Inclusion in the Nationwide Candidate Conservation Agreement with Assurances/Candidate Conservation Agreement for Monarch Butterfly on Energy and Transportation Lands (ITC202101).

6.7.2 Impacts

6.7.2.1 State-Listed Species

Suitable breeding and foraging habitat for the Trumpeter swan, Forester's tern, and Henslow's sparrow is not present within the Proposed Route; however, it is possible that they will fly through the Project area.

6.7.2.2 Federally Listed Species

Prairie Bush Clover

Suitable habitat for the prairie bush clover is not present within the Proposed Route; therefore, impacts are not anticipated.

Western Prairie Fringed Orchid

Suitable habitat for the western prairie fringed orchid is not present within the Proposed Route; therefore, impacts are not anticipated.

Tricolored Bat

Potential impacts to individual tricolored bats may occur if clearing or construction takes place when the species is roosting in its summer habitat, in trees outside of hibernacula. Bats may be injured or killed if occupied trees are cleared during this active window. Tree clearing activities conducted when the species is in hibernation and not present on the landscape will not result in direct impacts to individual bats but could result in indirect impacts due to removal of suitable roosting habitat (USFWS, 2021).

Suitable habitat for the tricolored bat is present within the Proposed Route. ITC Midwest will consult with USFWS on any necessary tricolored bat avoidance or mitigation measures.

Monarch butterfly

Suitable habitat for monarchs may be present within the Project Study Area. If the USFWS determines the species should be listed and protections for the species will coincide with Project planning, permitting, and/or construction, the Applicant will review Project activities for potential impacts to the species, develop appropriate avoidance and mitigation measures, and consult with the USFWS as appropriate.

6.7.3 Mitigation

This Project will occur almost entirely within active agricultural land, which does not provide suitable breeding or foraging habitat for state or federally listed species. Further, ground disturbance activities will be limited to the installation of new poles and proposed Forks Switching Station. This minimizes impacts to potentially suitable habitat in this area.

The following general measures will be used to help avoid or minimize impacts to area wildlife and rare natural resources during and after the completion of the proposed transmission line:

- BMPs will be used to prevent erosion of the soils in the areas of impact.
- Sound water and soil conservation practices will be implemented during construction and operation of the Project to protect topsoil and adjacent water resources and minimize soil erosion. Practices may include containing excavated material, protecting exposed soil, and stabilizing restored soil.
- Bird diverters will be installed across the listed PWI waterways, in accordance with the MNDNR's License to Cross Public Waters.

6.7.4 Natural Resource Sites

6.7.4.1 Existing Environment

There are no MNDNR Wildlife Management Areas (WMA) and MNDNR Scientific and Natural Areas (SNA) in the Project Study Area. Additionally, there are no MNDNR Minnesota Biological Survey SOBs located within the Project Study Area. The Ulbricht WPA is located within the Project Study Area; however, the Proposed Route does not cross the Ulbricht WPA.

6.7.4.2 Impacts

No natural resource sites are located within the Proposed Route; therefore, impacts are not anticipated.

6.7.4.3 Mitigation

No natural resource sites will be impacted by the Project; therefore, no mitigation is proposed.

6.8 PHYSIOGRAPHIC FEATURES

6.8.1 Topography

6.8.1.1 Existing Environment

The Proposed Route is located within the Minnesota River Prairie Subsection of the North Central Glaciated Plains Section of the Prairie Parklands Province as defined by the MNDNR Ecological Classification System (MNDNR, 2024a). The Minnesota River Prairie Subsection includes gently rolling topography and is approximately 60 miles wide, spanning from west central Minnesota to south central Minnesota. Till plain is the dominant landform, but end moraines, and lake plains also occupy a significant area (Hobbs et al., 1982).

Surface elevations within the Proposed Route range from 1,406 to 1,489 feet above sea level (MNDNR, 2024h). Slopes vary throughout the Proposed Route, but the terrain is predominantly flat (see Map 11 in Appendix B).

6.8.1.2 Impacts on Topography

The proposed switching station will require grading and leveling for construction access and activities, therefore localized impacts to topography will occur. Transmission line structures are typically designed at existing grades. Construction of transmission lines will have minimal to no impact on the topography of the Proposed Route.

6.8.1.3 Mitigation

Because construction of the Project will have only localized impacts to the topography of the area, no mitigation is proposed.

6.8.2 Geology

6.8.2.1 Existing Environment

Surficial geology features within Jackson County are relatively flat and derived from glacial origin as a result from the Des Moines lobe, during the last glaciation approximately 10,000 years ago. Surface deposits within the Project Study Area consist of Pleistocene aged clay and silt from glacial environments. Additionally, Holocene aged sand from alluvium deposits are present near tributaries (MGS, 2023). Glacial deposits are approximately 250 feet thick or greater, overlaying the bedrock with the Proposed Route (MGS, 2018). Underlying bedrock within the Proposed Route consists of Cretaceous aged conglomerate, sandstone, mudstone, shale, marlstone, siltstone, and minor lignite (Jirsa, et al., 2011). According to the University of Minnesota Karst Feature Inventory, karst features such as sinkholes, springs, and stream sinks are not present in the Project Study Area. The nearest karst feature is a stream sink, which is approximately 60 miles north of the Proposed Route.

6.8.2.2 Impacts on Geology

Construction of the Project will not alter the geology of the region because construction methods will not cause significant bedrock and geologic structure modification.

6.8.2.3 Mitigation

No alteration of the geologic structure of the region will occur due to Project construction; therefore, no mitigation is proposed.

6.8.3 Soils

6.8.3.1 Existing Environment

The USDA Soil Conservation Service (SCS) Soil Survey of Jackson County (Genrich, 1988) indicates that the soils of Jackson County are primarily clay and silt loams. Throughout Jackson County the surface is near level. Jackson County is covered entirely by Pleistocene aged glacial drift, deposited by glacial ice or by meltwater streams flowing from the ice (Quade, H. et al., 1991). The different parent materials, topography, native vegetation, and type of glacial deposit account for the variety of soils in the County.

Soils within the Proposed Route mainly consist of silty clay loams, clay loams, and loams (USDA, 2019; see Map 12 in Appendix B). Approximately 41 percent of the Proposed Route is classified as hydric soil where historic wetlands were present prior to drainage (e.g., installation of drain tiles and ditches) or where wetlands are presently located. Approximately 59 percent of the Proposed Route is classified as non-hydric soils (MNDNR, 2022a; see Map 12 in Appendix B).

Approximately 40 percent of the Proposed Route is prime farmland if drained, 56 percent prime farmland, 2 percent farmland of statewide importance, and 2 percent not prime farmland (USDA, 2022).

TABLE 6.8.3-1

Soil Types within the Proposed Project Route

Soil ID	Soil Type	Farmland Designation	Acres	Percent of Total
102B	Clarion loam, 2 to 6 percent slopes	All areas are prime farmland	435.56	27.88
102B2	Clarion loam, 2 to 6 percent slopes, moderately eroded	All areas are prime farmland	100.66	6.44
921C2	Clarion-Storden complex, 6 to 10 percent slopes, moderately eroded	Farmland of statewide importance	16.88	1.08
96	Collinwood silty clay loam, 1 to 3 percent slopes	All areas are prime farmland	89.98	5.76
118	Crippin loam, 1 to 3 percent slopes	All areas are prime farmland	61.12	3.91
336	Delft clay loam, 0 to 2 percent slopes	Prime farmland if drained	38.32	2.45
27B	Dickinson sandy loam, 1 to 6 percent slopes	All areas are prime farmland	10.11	0.65
27C	Dickinson sandy loam, 6 to 12 percent slopes	Not prime farmland	4.02	0.26
327B	Dickman sandy loam, 2 to 6 percent slopes	Farmland of statewide importance	14.56	0.93
197	Kingston silty clay loam, 1 to 3 percent slopes	All areas are prime farmland	7.64	0.49
1907	Lakefield silty clay loam	All areas are prime farmland	13.58	0.87
211	Lura silty clay, 0 to 1 percent slopes	Prime farmland if drained	43.29	2.77
L85A	Nicollet clay loam, 1 to 3 percent slopes	All areas are prime farmland	73.47	4.70
960D2	Omsrud-Storden complex, 10 to 16 percent slopes, moderately eroded	Not prime farmland	1.70	0.11

TABLE 6.8.3-1

Soil Types within the Proposed Project Route

Soil ID	Soil Type	Farmland Designation	Acres	Percent of Total
813	Spicer-Lura complex	Prime farmland if drained	232.68	14.89
101B	Truman silt loam, 2 to 6 percent slopes	All areas are prime farmland	85.72	5.49
229	Waldorf silty clay loam, 0 to 2 percent slopes	Prime farmland if drained	282.70	18.10
113	Webster clay loam, 0 to 2 percent slopes	Prime farmland if drained	23.98	1.54
664	Zook silty clay loam, 0 to 2 percent slopes, frequently flooded	Not prime farmland	26.19	1.68
TOTAL			**1,562.16**	**100.00**

6.8.3.2 Impacts on Soils

Based on the preliminary Project design, the Forks Switching Station will permanently impact up to 11.8 acres of land previously used for agriculture and each transmission line pole will have a diameter of 6 to 8 feet for direct embed, including vibratory caissons, and 8 to 10 feet for drilled pier foundations, which will impact agricultural land. Total impacts will be based on final design.

6.8.3.3 Mitigation

ITC Midwest will prepare and submit a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater (CSW) Permit application and Stormwater Pollution Prevention Plan (SWPPP) to MPCA for review and approval prior to construction to obtain coverage under the General Construction Stormwater Permit Program. Measures outlined in ITC Midwest's Agricultural Impact Mitigation Plan (Appendix J) will be implemented during and after Project construction.

Construction activities may include containment of excavated material, protection of exposed soil, stabilization of restored material, and treating stockpiles to control fugitive dust. In accordance with the MPCA-approved SWPPP, the Project's construction contractor will implement BMPs such as silt fencing (or other erosion control devices), revegetation plans, and management of exposed soils to prevent erosion.

6.9 ADDITIONAL HUMAN AND ENVIRONMENTAL IMPACT CONSIDERATIONS

6.9.1 Electric and Magnetic Fields

As it pertains to the Project, the term "Electric and Magnetic Fields (EMF)" refers to the extremely low frequency (ELF) effectively-decoupled electric and magnetic fields that are present around any electrical device or conductor and can occur indoors or outdoors from natural and man-made sources. Electric fields are the result of unbalanced electric charge, or voltage, on a conductor or object. The strength of an electric field is related to the magnitude of the voltage on the source as well as the geometric relationship between a variety of sources and the distance one is from those sources. Magnetic fields are the result of the flow of electricity, or current, traveling through a

conductor. The intensity of a magnetic field is related to magnitude of the current flow through the conductor, the geometric relationship between conductors, and the distance one is from those conductors. Both electric and magnetic fields decrease rapidly with distance from the source. Electric and magnetic fields can be found in association with transmission lines, local distribution lines, substation transformers, household electrical wiring, household water pipes, rotating vehicle tires, and common household appliances.

6.9.1.1 Electric Fields

Voltage on a wire produces an electric field in the area surrounding the wire. The voltage on the conductors of a transmission line generates an electric field extending from the energized conductors. The strength of transmission line electric fields is measured in kilovolts per meter (kV/m), and the magnitude of the electric field rapidly decreases with distance from the transmission line conductors. The presence of trees, buildings, or other solid structures between the source of the electric field and the area of interest can also significantly reduce the magnitude of the electric field at the area of interest. Because the magnitude of the voltage on a transmission line is near-constant the magnitude of the electric field will be near-constant regardless of the power flowing on the line.

Although there is no federal standard for transmission line electric field exposures, the Commission has adopted a maximum electric field limit of 8 kV/m at one meter above ground. ITC Midwest has calculated the approximate electric field for the Project's transmission line configuration and estimates the peak magnitude of electric field strength to be well below the Commission standard at approximately 2.76 kV/m underneath the conductors, 10 feet from the structure centerline, on the two-conductor side of the structure. Table 6.9.1-1 below summarizes the electric fields calculated for the proposed single-circuit transmission line.

TABLE 6.9.1-1

Calculated Electric Fields (kV/M) for Proposed Project

Structure Type	Voltage (kV)	Horizontal Distance from Pole Centerline (feet) (- dimensions = on the single conductor side of the pole [west or south])												
		-300	-200	-100	-75	-50	-25	0	25	50	75	100	200	300
161 kV Single-Circuit Monopole														
Nominal Voltage	161	0.012	0.026	0.11	0.201	0.431	0.903	1.931	1.291	0.348	0.183	0.114	0.03	0.013
Maximum Short-term [5 minutes] Emergency Voltage	189.2	0.014	0.031	0.13	0.236	0.506	1.061	2.268	1.516	0.409	0.215	0.134	0.035	0.016

Note: Electric field values are calculated at a height of 1 meter above ground.

6.9.1.2 Magnetic Fields

Current passing through any conductor, including a wire, produces a magnetic field. The intensity of the magnetic field associated with a transmission line is proportional to the amount of current flowing through the line's conductors, and the intensity of the magnetic field rapidly decreases with the distance from the conductors. Unlike electric fields, magnetic fields are not significantly shielded by the presence of trees, buildings, or other solid structures nearby. The value of the magnetic field flux density is expressed in the unit of gauss (G) or milligauss (mG). Standards to limit public exposure to magnetic fields have not been adopted by the United States or by Minnesota.

Internationally recognized expert organizations such as the International Commission for Non-Ionizing Radiation Protection (ICNIRP) and the International Committee for Electromagnetic Safety (ICES) have developed guidelines for safe public exposure to EMF. The guidelines for public exposure developed by these organizations range from 2,000 to 9,040 mG. These exposure guidelines have been endorsed by the World Health Organization (WHO)

Over the past 40 years, a large amount of scientific research has been conducted on EMF and health. This large body of research has been reviewed by many leading public health agencies such as the U.S. National Cancer Institute, the U.S. National Institute of Environmental Health Sciences (NIEHS), and the WHO, among others. These agencies have concluded that exposure to EMF has not been shown to cause or contribute to any adverse health effects. For example, the WHO reports that "[D]espite extensive research, to date there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health." Similarly, the U.S. National Cancer Institute concludes that "no consistent evidence for an association between any source of non-ionizing EMF and cancer has been found" (see Section 6.9.2 below).

Mean magnetic field levels associated with some common electric appliances are provided in Table 6.9.1-2 below.

TABLE 6.9.1-2

Table of Magnetic Fields of Common Electric Appliances

Appliance	6 Inches from Source	1 Foot from Source	2 Feet from Source
Hair Dryer	300 mG	1 mG	Not measured
Electric Shaver	100 mG	20 mG	Not measured
Can Opener	600 mG	150 mG	20 mG
Electric Range	30 mG	8 mG	2 mG
Television	Not measured	7 mG	2 mG
Portable Heater	100 mG	20 mG	4 mG
Vacuum Cleaner	300 mG	60 mG	10 mG
Copy Machine	90 mG	20 mG	7 mG
Computer	14 mG	5 mG	2 mG

ITC Midwest has calculated the approximate magnetic field levels for the Project's transmission line configuration and has determined that the magnetic field levels from this transmission line are

not unusual and are within the range of magnetic field levels found in homes, schools, offices, hospitals, stores, and other public locations. Table 6.9.1-3 below summarizes the electric fields calculated for the proposed single circuit 161 kV transmission line.

TABLE 6.9.1-3

Calculated Magnetic Fields (in mG) for Proposed Project (Maximum Continuous Rating)

Structure Type	Nominal Voltage (kV)	Line Current per Phase (Amps)	Load Case	Horizontal Distance (feet) from Pole Centerline (- dimensions = on the single conductor side of the pole [west or south])												
				-300	-200	-100	-75	-50	-25	0	25	50	75	100	200	300
161kV Single Circuit Monopole	161	71.7	Average Load	0.086	0.19	0.67	1.1	2.2	5.2	10.7	7	2.9	1.4	0.84	0.21	0.094
	161	268	Maximum Rated Load	0.32	0.7	2.5	4.1	8.1	19.3	40.1	26.1	10.9	5.4	3.1	0.8	0.35

6.9.2 EMF and Health Effects

A large amount of scientific research has been conducted on EMF. EMF studies have been done on leukemia, breast cancer, brain cancer, DNA damage, cancer clusters, birth defects, immune system damage, nervous system damage, Alzheimer's, ALS (Lou Gehrig's disease), Parkinson's disease, high blood pressure, heart disease, sleep disruption, and a number of other diseases and conditions. EMF may be one of the most studied exposures. In fact, more than 2,900 studies have been performed since the 1970s, costing more than $490 million.

Reviews by independent governmental and health authorities, including those conducted by the WHO and the NIEHS have not concluded that exposure to electric power EMF causes or contributes to adverse health effects.

Minnesota, Wisconsin, and California have also all performed literature reviews or research to examine this issue. In 2002, Minnesota formed an Interagency Working Group to evaluate EMF research and develop policy recommendations to protect the public health from any potential problems arising from EMF effects associated with high-voltage transmission lines. The Working Group included staff from a number of state agencies and published its findings in *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options.* The Working Group summarized its findings as follows:

> Research on the health effect of EMF has been carried out since the 1970s. Epidemiological studies have mixed results—some have shown no statistically significant association between exposure to EMF and health effects, some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a biological mechanism for how magnetic fields may cause cancer. A number of scientific panels convened by national and international health agencies and the United States Congress have reviewed the research carried out to date. Most concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe.

Based on findings like the Working Group and U.S. National Cancer Institute, the Commission has consistently found that "there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects."[2]

[2] *In the Matter of the Application for a HVTL Route Permit for the Tower Transmission Line Project*, Docket No. ET-2, E015/TL-06-1624, Findings of Fact, Conclusions of Law and Order Issuing a Route Permit to Minnesota Power and Great River Energy for the Tower Transmission Line Project and Associated Facilities (August 1, 2007); see also In the Matter of the Route Permit Application by Great River Energy and Xcel Energy for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota, Docket No. ET-2/TL-08-1474, Order Issuing Route Permit (Sept. 14, 2010); OAH Docket No. 7-2500-20283-2, ALJ Findings of Fact, Conclusions and Recommendation at Finding 216 (April 22, 2010 and amended April 30, 2010) ("there is no demonstrated impact on human health and safety that is not adequately addressed by the existing State standards for exposure"); *In the Matter of the Application of Xcel Energy for a Route Permit for the Lake Yankton to Marshall Transmission Line Project in Lyon County*, Docket No. E002/TL-07-1407, Findings of Fact, Conclusions of Law and Order Issuing a Route Permit to Xcel Energy for the Lake Yankton to Marshall Transmission Project at 7-8 (Aug. 29, 2008).

6.9.3 Stray Voltage

"Stray voltage" is a small voltage resulting from the normal delivery or use of electricity which may be present or measured between two possible contact points that can be simultaneously contacted by members of the general public or animals; historically it described only voltages that exist at animal accessible locations in the vicinity of confined livestock. More precisely, stray voltage is a neutral-to-earth voltage (NEV) that exists between the neutral wire of the service entrance and grounded objects in buildings such as barns and milking parlors. There are several common sources of stray voltage and it is not uncommon for more than one source to be present at the same time. Common causes of stray voltage are as follows: voltage drop on a utility multi-grounded distribution line neutral; voltage drop on customer overhead or underground neutral wires between buildings; improperly grounded electric fence systems; bad connections; and improper premises wiring.

Transmission lines do not, by themselves, create stray voltage because they do not directly connect to businesses and residences. Transmission lines can induce a current on a distribution circuit parallel and adjacent to the transmission line. For additional information regarding stray voltage, please see the Minnesota Stray Voltage Guide that is available online at www.minnesotastrayvoltageguide.com. If a landowner has stray voltage concerns on their property, ITC Midwest suggests they first contact their electric service provider. Because stray voltage is not a feature of the operation of a transmission line, no problems related to stray voltage are expected from this Project.

6.9.4 Corona

Under certain conditions, the localized electric fields near an energized transmission line conductor can produce small electric discharges, ionizing nearby air. This is commonly referred to as the "corona" effect. Most often, corona formation is related to some sort of irregularities on the conductor, such as scratches or nicks, dust buildup, or water droplets. The air ionization caused by corona discharges can result in the formation of audible noise and radio frequency noise.

Corona formation is a function of the conductor radius, surface condition, line geometry, weather condition, line hardware, and most importantly, the line's operating voltage. Corona-induced audible noise and radio and television interference are not expected to be a concern for this power line, because the electric field gradient is too low to produce significant corona.

6.9.5 Telecommunications Interference

For electrical interference to occur to any of these systems (the listed ones), there must be a source of undesired electrical noise in the frequency band used by these systems. This 60 Hertz transmission line, as designed, does not produce any significant level of noise at the much higher frequencies of these systems. A second possible method of interference might be partial blocking of the transmitted signals by the overhead wiring or the poles. An engineering analysis showed that this is not considered practically possible for most of these systems, considering the small electrical size of the power line conductors, the height of the conductors above ground, and the multi-path and diffractive nature of most communication systems from source to receiver.

The likelihood of telecommunications interference (e.g., radio, television, cell phones, Global Positioning Systems) associated with the Project is minimal. ITC Midwest is unaware of any complaints related to radio or television interference resulting from the operation of any of its existing 161 kV facilities and does not expect radio and television interference to be an issue along the Proposed Route.

6.9.6 Noise

Transmission lines can cause audible noise due to corona discharges. The impacts and mitigation of audible noise due to the Project, including that due to corona, are discussed further in Section 6.2.3 above. Due to the insignificant expected corona production from this line, audible noise is not expected to cause any issues.

6.10 UNAVOIDABLE IMPACTS

The design, construction, and operation of the Project will use the procedures and process described in this Application to specifically mitigate potential impacts. Minimal impacts from construction activities are unavoidable and could include short-term traffic delays, soil compaction and erosion, vegetative clearing, temporary wetland impacts, visual impacts, habitat loss, disturbance and displacement of wildlife, and loss of land use for other purposes. Nominal impacts include conversion of agricultural land and visual impacts related to the switching station.

The Project will require only minimal commitments of resources that are irreversible and irretrievable. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. Irreversible commitments of resources are those that result from the use or destruction of a specific resource that cannot be replaced within a reasonable timeframe. Irretrievable resource commitments are those that result from the loss in value of a resource that cannot be restored after the action.

Those commitments that do exist are primarily related to construction. Construction resources include aggregate resources, concrete, steel, and hydrocarbon fuel. Surplus concrete and steel will be reused or recycled to the extent practicable. During construction, vehicles necessary for these activities will be deployed on site and will need to travel to and from the construction area, consuming hydrocarbon fuels. Other resources would be used in structure construction, structure placement, and other construction activities.

7.0 AGENCY, TRIBAL, AND PUBLIC OUTREACH

7.1 AGENCY AND TRIBAL OUTREACH

As part of the pre-application process, ITC Midwest initiated outreach to federal, tribal, state, and local agencies through in-person meetings and Project notification letters. Appendix F provides copies of correspondence and meeting notes from discussions with agency representatives.

In August 2023, ITC Midwest mailed Project introduction letters with maps of the Project Study Area to federal, state, and local agencies whose constituents may have an interest in the Project. The letter introduced the Project and requested agency input regarding public and environmental resources that may be located within the Project Study Area, or resources that could potentially

be affected by the Project. Copies of the letters and any responses received are available in Appendix F

On November 20, 2023, ITC Midwest sent a letter to each local government unit (LGU) within which the Proposed Route is located, as required by Minn. Stat. § 216E.03, subd. 3a. A copy of the letter and affidavit of mailing is available in Appendix C.

On November 20 and December 7, 2023, ITC Midwest sent Project introduction letters and maps of the Project Study Area to representatives of all Tribal Nations listed on the Commission's formal Tribal Engagement contact list. The letter introduced the Project and invited tribal comments and ongoing communications with Tribal sovereign nations having an historical interest in the Project Study Area. Copies of the letters and one response are available in Appendix F.

A summary of communications with tribes and public agencies is included below. ITC Midwest will continue to communicate with federal, Tribal, state, and local agencies as the Project moves forward. Table 7.1-1 below identifies agencies that were contacted through meetings or a notification email outside of the public outreach outlined in Section 7.2 below and the date that the consultation was conducted.

TABLE 7.1-1

Agency and Tribal Contacts

Tribe or Agency	Date and Type of Communication
U.S. Fish and Wildlife Service	August 8, 2023, Introduction letter
U.S. Army Corps of Engineers	August 8, 2023, Introduction letter
U.S. Department of Agriculture – Natural Resources Conservation Services	August 8, 2023, Introduction letter
Tribal Government Contacts	November 20 and December 7, 2023, Tribal Engagement Letter
Minnesota Department of Transportation District 7	August 8, 2023, Introduction letter
Minnesota Department of Natural Resources – Ecological Services	August 8, 2023, Introduction letter
Minnesota Department of Agriculture	August 8, 2023, Introduction letter
Minnesota State Historic Preservation Office	August 8, 2023, Introduction letter
Minnesota Office of State Archaeologist	August 8, 2023, Introduction letter
Jackson County Land Management Dept.	August 8, 2023, Introduction letter
Jackson County Engineering Dept.	August 8, 2023, Introduction letter
Jackson Soil and Water Conservation District	August 8, 2023, Introduction letter
Jackson County Commissioners	November 20, 2023 LGU Letter
Jackson County Administrative Offices	November 20, 2023 LGU Letter
City of Worthington City Administrator	August 8, 2023, Introduction letter
City of Lakefield City Clerk	August 8, 2023, Introduction letter
City of Worthington Administrative Offices	November 20, 2023 LGU Letter
City of Lakefield Administrative Offices	November 20, 2023 LGU Letter
Ewington Township	November 20, 2023 LGU Letter
Round Lake Township	November 20, 2023 LGU Letter
Sioux Valley Township	November 20, 2023 LGU Letter
Rost Township	November 20, 2023 LGU Letter
State Representatives	November 20, 2023 LGU Letter
Federal Representatives	November 20, 2023 LGU Letter

7.1.1 Federal Agencies

7.1.1.1 U.S Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) will be consulted regarding potential impacts to Waters of the United States as the Project's design becomes better defined in relation to any delineated features identified during field surveys in 2024.

7.1.1.2 U.S. Fish and Wildlife Service

The USFWS will be consulted regarding potential impacts to federally listed species as the Project's design becomes better defined.

7.1.2 Tribal Nations

ITC Midwest sent Project introduction letters to all Tribal Nations on the Commission's contact list maintained on the eDockets. ITC Midwest will provide Project updates to any Tribal representatives who express interest in Project.

7.1.3 State Agencies

7.1.3.1 Minnesota Department of Commerce – Energy Environmental Review and Analysis and Minnesota Public Utilities Commission Staff

ITC Midwest exchanged informational emails with staff members from the EERA and the Commission throughout the application development process. ITC Midwest provided an overview of the Project, Project need, Project scope, the anticipated schedule for submitting a Route Permit application, and the Project construction and completion schedule.

7.1.3.2 Minnesota Department of Natural Resources

The MNDNR participates in the Commission review process, MCE concurrence, and PWI crossings. These discussions included the following:

- On behalf of ITC Midwest, Merjent submitted a formal Natural Heritage Review Request (2022-0070) on July 27, 2023 (see Appendix G) through the MNDNR's MCE.

- On behalf of ITC Midwest, Merjent sent agency introduction letters on August 8, 2023 (see Appendix F).

7.1.4 Local Government Units

7.1.4.1 County

On December 12, 2023, ITC Midwest met with Tim Stahl, Jackson County Engineer, to discuss the upcoming Fork-Rost Project, potential routes, timelines, and plans for a public open house.

7.2 PUBLIC OUTREACH

7.2.1 Open House

On January 10, 2024, ITC Midwest hosted an open house at the Lakefield Multi-Purpose Room in Lakefield, Minnesota. Landowners located within 0.25 mile of the Project Study Area received a mailer inviting them to the open house. See Appendix H for open house materials. Staff from ITC Midwest were on hand to describe the Project and answer questions from attendees.

7.2.2 Key Communication Channels

For additional information on the Project please contact Mark Rothfork at (763) 257-6821, or Lori Broghammer at (641) 220-4600.

8.0 REQUIRED PERMITS, APPROVALS, AND CONSULTATIONS

In addition to the route permit sought in this application, several other permits may be required to construct the Project depending on the actual route selected and the conditions encountered during construction. A list of the local, state, and federal permits that may be required for this Project is provided in Table 8.0-1 below. Any required permits will be obtained by ITC Midwest prior to Project construction.

TABLE 8.0-1

Permit and Approval List

Permit, Approval, or Consultation	Administering Agency
Local Approvals	
Road Crossings / ROW Permits	Jackson County, Ewington Township, Rost Township
Oversize/Overweight Permits	Jackson County, Ewington Township, Rost Township
Driveway/Access Permits	Jackson County, Ewington Township, Rost Township
Utility Permits	Jackson County, Ewington Township, Rost Township
Minnesota State Approvals	
Endangered Species Consultation	Minnesota Department of Natural Resources – Ecological Services
Licenses to Cross Public Waters	Minnesota Department of Natural Resources – Lands and Minerals
National Pollutant Discharge Elimination System Stormwater Permit	Minnesota Pollution Control Agency
Wetland Conservation Act	Board of Water and Soil Resources, County, Townships
Minnesota Statutes Chapter 138 (Minnesota Field Archaeology Act and Minnesota Historic Sites Act)	State Historic Preservation Office
Driveway/Access Permits	Minnesota Department of Transportation
Utility Accommodation on Trunk Highway ROW	Minnesota Department of Transportation
Oversize / Overweight Permits	Minnesota Department of Transportation
Federal Approvals	
Section 404 Clean Water Act Permit	U.S Army Corps of Engineers
Section 10 Rivers and Harbors Act Permit	U.S Army Corps of Engineers
Endangered Species Consultations	U.S. Fish and Wildlife Service
Part 7460 Airport Obstruction Evaluation	Federal Aviation Administration / Minnesota Department of Transportation
Other Approvals	
Crossing Permits/Agreements	Other Utilities such as pipelines or railroads

8.1 LOCAL APPROVALS

After the Commission approves a route and any appropriate design engineering is completed, ITC Midwest will work with LGUs to obtain any of the above approvals if necessary. In accordance with Minn. Stat. § 216E.10, subd. 1, after the Commission approves a Route Permit, local zoning, building, and land use regulations are preempted.

8.1.1 Road Crossing/ROW Permits

These permits may be required to cross or occupy state, county, or township road ROW.

8.1.2 Oversize/Overweight Load Permits

These permits may be required to move over-width or heavy loads on state, county, or township roads.

8.1.3 Driveway/Access Permits

These permits may be required to construct access roads or driveways from state, county, or township roads to Project facilities.

8.1.4 Utility Permits

A permit from the state, county or township may be required for conductors crossing public roads. ITC Midwest will apply for these permits once the transmission line design is complete and will acquire them prior to applicable construction activities.

8.2 STATE APPROVALS

8.2.1 Endangered Species Consultation

The MNDNR Natural Heritage and Nongame Research Program collects, manages, and interprets information about nongame species. Merjent, on behalf of ITC Midwest, submitted a formal Natural Heritage Review Request 2023-00566 on July 27, 2023 (see Appendix G) through the MNDNR's MCE. An automated response provided by the MNDNR on July 27, 2023, indicated that no state-listed endangered or threatened species have been documented within the vicinity of the Project (see Appendix G).

8.2.2 License to Cross Public Waters

The MNDNR Division of Lands and Minerals regulates utility crossings over, under, or across any state land or public water identified on the Public Waters and Wetlands Maps. A License to Cross Public Waters is required under Minn. Stat. § 84.415, and Minn. R. ch. 6135, because the Project would cross a MNDNR Public Water. ITC Midwest will work with the MNDNR to obtain the license once sufficient engineering work is completed to support the MNDNR application process.

8.2.3 NPDES Construction Stormwater Permit

A NPDES permit from the MPCA is required for stormwater discharges associated with construction activities disturbing one or more acres. A requirement of the permit is to develop and implement a SWPPP, which includes BMPs to minimize discharge of pollutants from the site. This permit will be acquired if construction of the Project will cause a disturbance in excess of one acre.

8.2.4 Section 401 Water Quality Certification

A Section 401 Water Quality Certification (WQC) under the federal CWA is necessary to obtain a federal permit for a project that could result in a discharge to navigable waters. A Section 401 WQC is a part of the Section 404 process and would be obtained with the joint applications for Wetland Conservation Act (WCA) and the Section 404 permit. While the CWA is a federal statute, the MPCA has delegated authority under the Act to administer the Section 401 WQC process in Minnesota.

8.2.5 Wetland Conservation Act

The Minnesota Board of Water and Soil Resources administers the state WCA, under Minn. R. ch. 8420. In accordance with these rules, A Federal Approval Exemption for Utilities (Exemption) is available and states that a replacement plan is not required for wetland impacts resulting from the construction, maintenance, or repair of utility lines and associated facilities when certain conditions are met. The Project may require federal approval for anticipated permanent and temporary impacts to wetlands from Project construction. If approval is required and the Applicant applies for USACE permits (a joint application with the Section 404 permit) or for a USACE non-reporting general permit, the Project may meet the conditions of the Exemption. The use of the Exemption will be evaluated, if applicable once more detailed transmission engineering and design is completed.

If the Exemption does not apply to the Project and if a Wetland Replacement Plan is required under WCA, the applicable LGU will oversee the process.

8.2.6 Oversize and/or Overweight Permit

In accordance with Minnesota Commercial Truck and Passenger Regulations, Section 05, an Oversize and/or Overweight permit is required by MnDOT when a vehicle is transporting an oversize/overweight load on Minnesota trunk highways. If the Project requires the transport of oversize or overweight loads, the Applicant and its contractors will work with MnDOT to obtain any required permits.

8.3 FEDERAL APPROVALS

8.3.1 Section 404 CWA Permit

A Section 404 permit is required from the USACE under the federal CWA for discharges of dredged or fill material into waters of the United States. Once the Commission approves a final route and a more detailed design of the switching station construction and transmission line is completed, ITC Midwest will determine if impacts exceed the permitting threshold. If impacts exceed the permitting threshold, ITC Midwest will apply for any required permits.

8.3.2 Spill Prevention, Control and Countermeasure Plan

A non-transportation related facility is subject to Spill Prevention, Control and Countermeasure Plan (SPCC) regulations if the total aboveground storage capacity exceeds 1,320 gallons or the underground oil storage capacity exceeds 42,000 gallons and the facility could reasonably expect to discharge oil into or upon the navigable waters of the United States. SPCC plans are prepared and implemented according to USEPA regulations Title 40, Code of Federal Regulations, Part 112. ITC Midwest's new switching station will not have a total aboveground oil storage capacity of over 1,320 gallons; therefore, no SPCC plan is required.

8.3.3 Endangered Species Act Consultation

ITC Midwest reviewed the USFWS IPaC website for a list of federally threatened and endangered species, candidate species, and designated critical habitat that may be present within the Project Study Area (see Section 6.7 above). ITC Midwest will work with the USFWS regarding Project--specific construction considerations after the Commission approves a route for the Project, and the mechanism for consultation will be based on whether there is a federal nexus. The Applicant will work with the USFWS to comply with the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act, to identify any areas that may require marking transmission line shield wires, and/or to use alternate structures to reduce the likelihood of avian collisions and electrocution to the extent practical.

9.0 APPLICATION OF RULE CRITERIA

9.1 ROUTE PERMIT FACTORS

According to Minn. Stat. § 216E.02, subd. 1, it is the policy of the State of Minnesota to locate high voltage transmission lines in an orderly manner that minimizes adverse human and environmental impacts and ensures continuing electric power system reliability and integrity. Under Minn. R. 7850.4000, the Commission's rules require that applicants for route permits meet applicable standards and factors under Minn. Stat. §§ 216E.03 and 216E.04, and under other Minnesota law and Commission rules. The Commission shall issue a route permit for a high voltage transmission line that is consistent with state goals to conserve resources, minimizes environmental impacts and impacts to human settlement, minimizes land use conflicts, and ensures the state's electric energy security through efficient, cost-effective transmission infrastructure.

The Proposed Route for the Project addresses these criteria:

- The Project is consistent with state goals to conserve resources because it is proposed to be routed adjacent to existing public road ROWs, thus avoiding and minimizing potential additional impacts.

- The Project will minimize environmental impacts because it is proposed to be routed almost entirely on agricultural land, which avoids and minimizes potential impacts on vegetation and wildlife.

- The Project will minimize impacts on human settlement and other land use conflicts because it is proposed to be sited adjacent to existing public road ROWs and avoids farmsteads, thus minimizing impacts to landowners and existing land uses.

- The Project is consistent with state goals to ensure electric energy security because it will help ensure continued reliable and secure electrical service to consumers in the region.

9.2 CONCLUSION AND REQUEST FOR COMMISSION APPROVAL

For all the reasons set forth in this Application and as supported by the attached Appendices, ITC Midwest respectfully requests that the Commission issue a Route Permit authorizing construction of the Project along the Proposed Route.

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Appendix A

Route Permit Application Completeness Checklist

Appendix B

Project Route Maps

Appendix C

90-Day Pre-Application Letter to Local Units of Government

Appendix D

Notice of Intent to File a Route Permit Application under the Alternative Route Permit Process

Appendix E

Wetland and Other Waters Delineation Report

Appendix F

Agency and Tribal Outreach

Appendix G

Confidential – Natural Heritage Information System, USFWS Species List, and Phase Ia Cultural Resources Literature Search

Appendix H

Open House Materials

Appendix I

Affected Landowner List

Appendix J

Agricultural Impact Mitigation Plan

Appendix K

Vegetation Management Plan

APPENDIX A

ROUTE PERMIT APPLICATION COMPLETENESS CHECKLIST

Forks 161 kV Switching Station and Forks-Rost 161 kV Transmission Line Project
Route Permit Application (Alternative Review)
Completeness Checklist

Authority	Required Information	Location in Application
Minn. Stat. § 216E.04 – Notice of Application		
Subd. 4	Upon submission of an application under this section, the applicant shall provide the same notice as required by section 216E.03, Subdivision 4. 216E.03, Subd. 4: Within 15 days after submission of an application to the commission, the applicant shall publish notice of the application in a legal newspaper of general circulation in each county in which the site or route is proposed and send a copy of the application by certified mail to any regional development commission, county, incorporated municipality, and town in which any part of the site or route is proposed. Within the same 15 days, the applicant shall also send a notice of the submission of the application and description of the proposed project to each owner whose property is on or adjacent to any of the proposed sites for the power plant or along any of the proposed routes for the transmission line. The notice must identify a location where a copy of the application can be reviewed. For the purpose of giving mailed notice under this subdivision, owners are those shown on the records of the county auditor or, in any county where tax statements are mailed by the county treasurer, on the records of the county treasurer; but other appropriate records may be used for this purpose. The failure to give mailed notice to a property owner, or defects in the notice, does not invalidate the proceedings, provided a bona fide attempt to comply with this subdivision has been made. Within the same 15 days, the applicant shall also send the same notice of the submission of the application and description of the proposed project to those persons who have requested to be placed on a list maintained by the commission for receiving notice of proposed large electric generating power plants and high voltage transmission lines.	To be provided
Minn. R. 7850.2800 – Notice to PUC		

Authority	Required Information	Location in Application
Subp. 2	An applicant for a permit for one of the qualifying projects in subpart 1, who intends to follow the procedures of parts 7850.2800 to 7850.3700, shall notify the PUC of such intent, in writing, at least ten days before submitting an application for the project.	Appendix D
Minn. R. 7850.3100 - Contents of Application		
	(Alternative Review). The applicant shall include in the application the same information required in part 7850.1900, except the applicant need not propose any alternative sites or routes to the preferred site or route. If the applicant has rejected alternative sites or routes, the applicant shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them.	§ 3
Minn. R. 7850.1900, subp. 2 - Route Permit for High Voltage Transmission Line (HVTL)		
A.	A statement of proposed ownership of the facility at the time of filing the application and after commercial operation;	§ 1.1
B.	The precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated;	§ 1.3
C.	At least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference;	Not required by Minn. R. 7850.3100.
D.	A description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line;	§ 1.5
E.	The environmental information required under subpart 3;	Chapter 6
F.	Identification of land uses and environmental conditions along the proposed routes;	§§ 6.1, 6.6
G.	The names of each owner whose property is within any of the proposed routes for the high voltage transmission line;	Appendix I
H.	United States Geological Survey topographical maps or other maps acceptable to the commission showing the entire length of the high voltage transmission line on all proposed routes;	Appendix B, Map 11

Authority	Required Information	Location in Application
I.	Identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share the right-of-way with the proposed line;	§§ 4.1, 4.2, 4.3, 5.1, Map 2
J.	The engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line;	§§ 2.2, 6.9
K.	Cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route;	§ 2.4
L.	A description of possible design options to accommodate expansion of the high voltage transmission line in the future;	§ 2.2.4
M.	The procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line;	§§ 5.1, 5.2, 5.3, 5.4
N.	A listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line; and	Chapter 8
O.	A copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required.	Certificate of Need not required
Minn. R. 7850.1900, subp. 3 - Environmental Information		
A.	A description of the environmental setting for each site or route;	§ 6.1
B.	A description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services;	§ 6.2
C.	A description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;	§ 6.3
D.	A description of the effects of the facility on archaeological and historic resources;	§ 6.4
E.	A description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna;	§ 6.5

Authority	Required Information	Location in Application
F.	A description of the effects of the facility on rare and unique natural resources;	§ 6.7
G.	Identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route; and	§ 6.10
H.	A description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures.	§§ 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8