Environmental Assessment of the Potential Human and Environmental Impacts of the Rebuild of the Great River Energy St. Joseph 69 kV Transmission Line to 115 kV

PUC Docket No. ET2/TL-22-235
May 1, 2023

COMMERCE DEPARTMENT

Project Contacts

Responsible Government Unit

Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
Saint Paul, MN 55101-2147

Commission Representative

Cezar Panait
651-201-2207
cezar.panait@state.mn.us

Preparer

Minnesota Department of Commerce
85 Seventh Place East, Suite 200
Saint Paul, MN 55101-2198

Commerce Representative

Jamie MacAlister
(651) 539-1775
jamie.macalister@state.mn.us

Project Applicant

Great River Energy
12300 Elm Creek Blvd.
Maple Grove, MN 55369

Project Representative

Mark Strohfus
763-445-5210
MStrohfu@GREnergy.com

Sources

Much of the information used to prepare this environmental assessment comes from the route permit application. Additional sources include new information provided by Great River Energy, information from relevant environmental review documents for similar projects, spatial data and site visits to the project area.

Project Mailing List

To place your name on the project mailing list contact docketing.puc@state.mn.us or 651-201-2254 and provide the docket number (18-755), your name, email address, and mailing address. Please indicate how you would like to receive notices—by email or U.S. mail.

Alternative Formats

This document can be made available in alternative formats, that is, large print or audio, by calling 651-539-1530 (voice).

Contents

List of Tables

List of Figures

Maps

Abstract
Under the Power Plant Siting Act, a route permit from the Minnesota Public Utilities Commission (Commission) is required to construct a high voltage transmission line (HVTL). Great River Energy (Applicant or GRE) filed an application with the Commission for a route permit to rebuild approximately 3.2 miles of new 69 kilovolt (kV) transmission line to 115 kV transmission line and substation upgrades to accommodate the new voltage. Great River Energy (GRE) owns and operates a municipal electric system that provides electric service to the citizens of St. Joseph and surrounding areas. The project is in the city of St. Joseph, Stearns County, Minnesota. The 69 kV line was built in 1980, with various system upgrades in the last decade. The proposed project will complete the system upgrade in the area and address load growth.

GRE submitted a route permit application on August 26, 2022. The application was filed pursuant to the alternative review process defined in Minnesota Statute 216E.04 and Minnesota Rules 7850.2800–3900. On November 21, 2011, the Commission issued an order accepting the route permit application as complete and requesting GRE to submit additional information as requested by Energy Environmental Review and Analysis (EERA). GRE submitted supplemental information on November 21, 2022.

Department of Commerce (Commerce), staff is responsible for conducting environmental review for route permit applications submitted to the Commission. EERA held scoping meetings on December 7-8, 2022 and has prepared this Environmental Assessment (EA) for the proposed GRE 115 kV HVTL and Substation project. This EA addresses the issues required in Minnesota Rules 7850.3700, subpart 4, and those identified in the EA Scoping Decision issued on January 31, 2023.

Following release of this EA, a public hearing will be held. The hearing will be presided over by an administrative law judge (ALJ) from the Office of Administrative Hearings. Upon completion of the environmental review and hearing process, the ALJ will provide a summary report to the Commission for its final permit decision. A decision on the route permit for the proposed project is anticipated in fall of 2023.

For additional information, or if you have questions, contact Commerce or Commission staff – Jamie MacAlister (651-539-1775 or jamie.macalister@state.mn.us) or Cezar Panait (651-201-2207 or cezar.panait@state.mn.us).

Additional documents and information, including the route permit application, can be found on eDockets by searching “22” for year and “235” for number: https://www.edockets.state.mn.us/EFiling/search.jsp or the EERA webpage https://apps.commerce.state.mn.us/web/project/14925

Introduction

Great River Energy (GRE) is proposing to replace approximately 3.2 miles of 69 kilovolt (kV) with a new 115 (kV) high voltage transmission line (HVTL) and substations in St. Joseph Township, the City of St. Joseph, and St. Wendell Township in Stearns County. The project will address load concerns and system deficiencies in the southern portion of GRE's service territory.

Under the Power Plant Siting Act, the Minnesota Public Utilities Commission (Commission) is charged with making sure that large electric power facilities are sited in a manner that minimizes adverse human and environmental impact while ensuring continuing electric power system reliability and integrity and fulfillment of electric energy needs in an orderly and timely fashion.[1] For HVTLs, the Commission fulfills this charge through their route permitting process. In the route permitting process, proposers of HVTLs file a route permit application with the Commission; the Commission conducts a review of human and environmental impacts with assistance from the Minnesota Department of Commerce (Commerce) Energy Environmental Review and Analysis (EERA) and then makes a permit decision. The permit defines the route for the project and appropriate mitigation measures.

This environmental assessment (EA) document provides information on the human and environmental impacts of the proposed project to the public and decision makers. The document analyzes potential impacts of the proposed project, alternatives under consideration, and how impacts of the project and alternatives can be mitigated. This EA only studies the proposed project. No alternative routes were proposed for study during the scoping period and EERA did not identify any reasonable alternatives to GRE's proposed route. Because there are no route alternatives, the primary permitting decision before the Commission focuses on the conditions in the route permit to mitigate impacts of the project.

Summary of Impacts

GRE provided a preferred route for the project in their application (Appendix A). The preferred route is largely within the existing right-of-way, except for expanded route widths near the end points and along 73rd Avenue North. No route or segment alternatives were proposed during scoping, so only GRE's proposed route is analyzed in the EA. Construction and operation of the project will impact human and environmental resources in the project area. Most of the impacts will be short-term and are common to any large construction project, such as noise, dust, and soil disturbance. These impacts can be mitigated through standard and site-specific construction practices. Long-term permanent (operational) impacts, such as aesthetics, avian fatalities, and future development cannot be mitigated, but can be minimized by routing choices. The project will not impact future development in the area and will support existing and new local load growth.

The standard mitigation measures included in the Commission's route permit address many impacts of the proposed project. A draft Route Permit is included in Appendix B. The draft Route Permit contains project-specific mitigation measures that will further reduce the HVTL's impact including:

- Coordinating with MnDOT and the cities of St. Cloud and St. Joseph on the project's alignment within the ROW.
- Coordinating with MDNR on the timing of tree removal and flight diverters.
- Developing a Vegetation Management Plan addressing site restoration and tree removal.

[1] Minnesota Statutes (Minn. Stat.) 216E.02

This EA is organized as follows:

- **Section 1** provides a brief overview of the proposed project.
- **Section 2** explains the regulatory framework and required permits and approvals.
- **Section 3** provides description of the design, engineering, and construction of the proposed project.
- **Section 4** identifies the potential impacts to human and natural resources and identifies measures to avoid, minimize, or mitigate adverse impacts.
- **Section 5** discusses cumulative impacts and unavoidable impacts.

SECTION ONE: Project Overview

This section provides information about the proposed project, who will own and construct the project, including a description of the route, right-of-way requirements, estimated cost and timeline.

Project Proposer

The Project is proposed by Great River Energy. Great River Energy is a not-for-profit generation and transmission cooperative based in Maple Grove, Minnesota.[2] Great River Energy provides electrical energy and related services to 28 member cooperatives, including Stearns Electric Association, the distribution cooperative serving the area in which the project is located, and transmission customers. Great River Energy's distribution cooperatives and customer supply electricity and related services to more than 720,000 residential, commercial, and industrial customers in Minnesota and Wisconsin.

Project Purpose

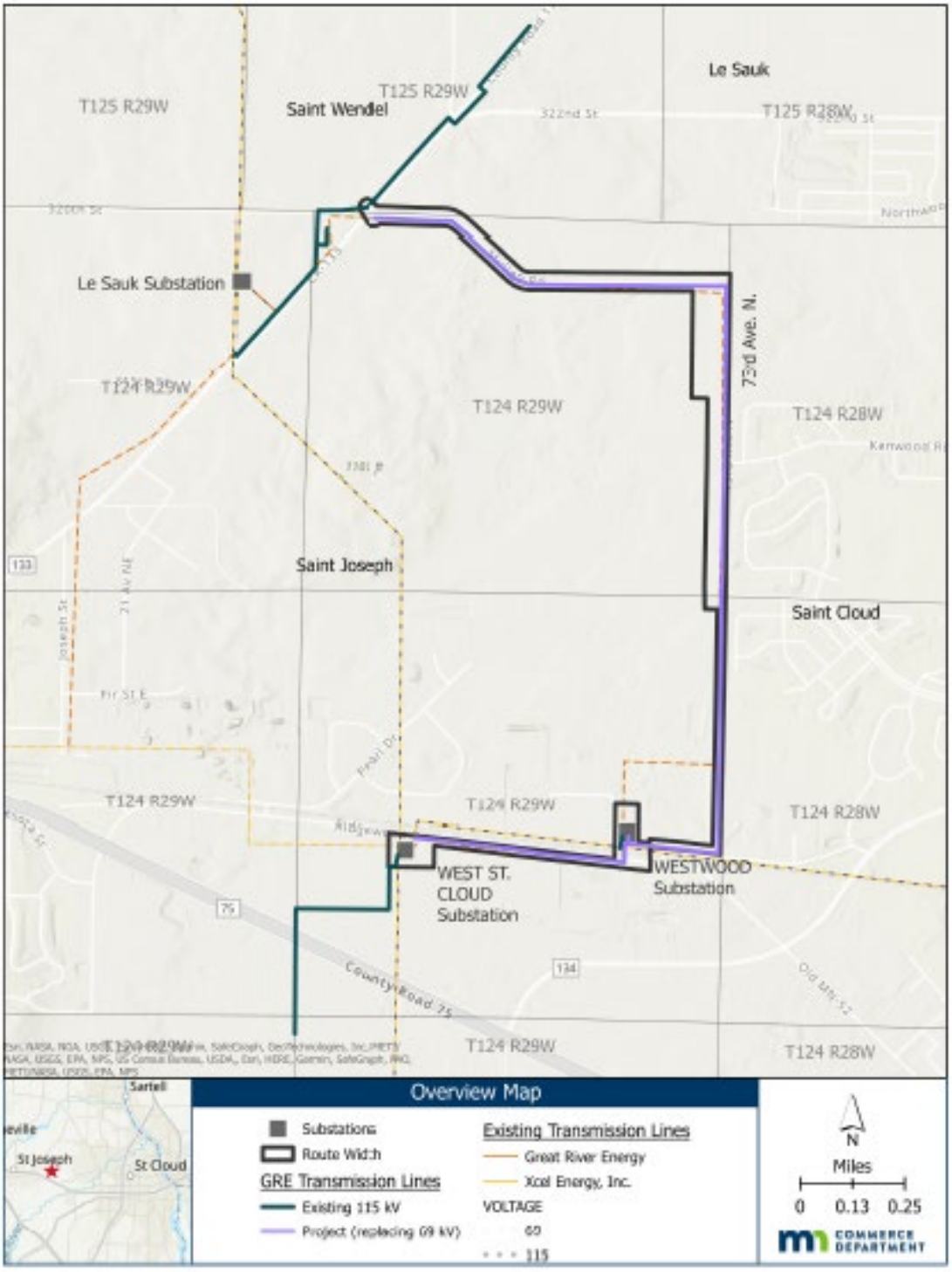
Great River Energy has been upgrading the St. Joseph area to a 115 kV transmission system to improve reliability and resiliency.[3] The electric transmission system in the area is shown on **Map 2**. This Project will complete the area upgrade and loop the 115-kV system by allowing power to the Westwood Substation to be provided either through the West St. Cloud Substation to the south or the Le Sauk Substation to the north.[4]

Proposed Project

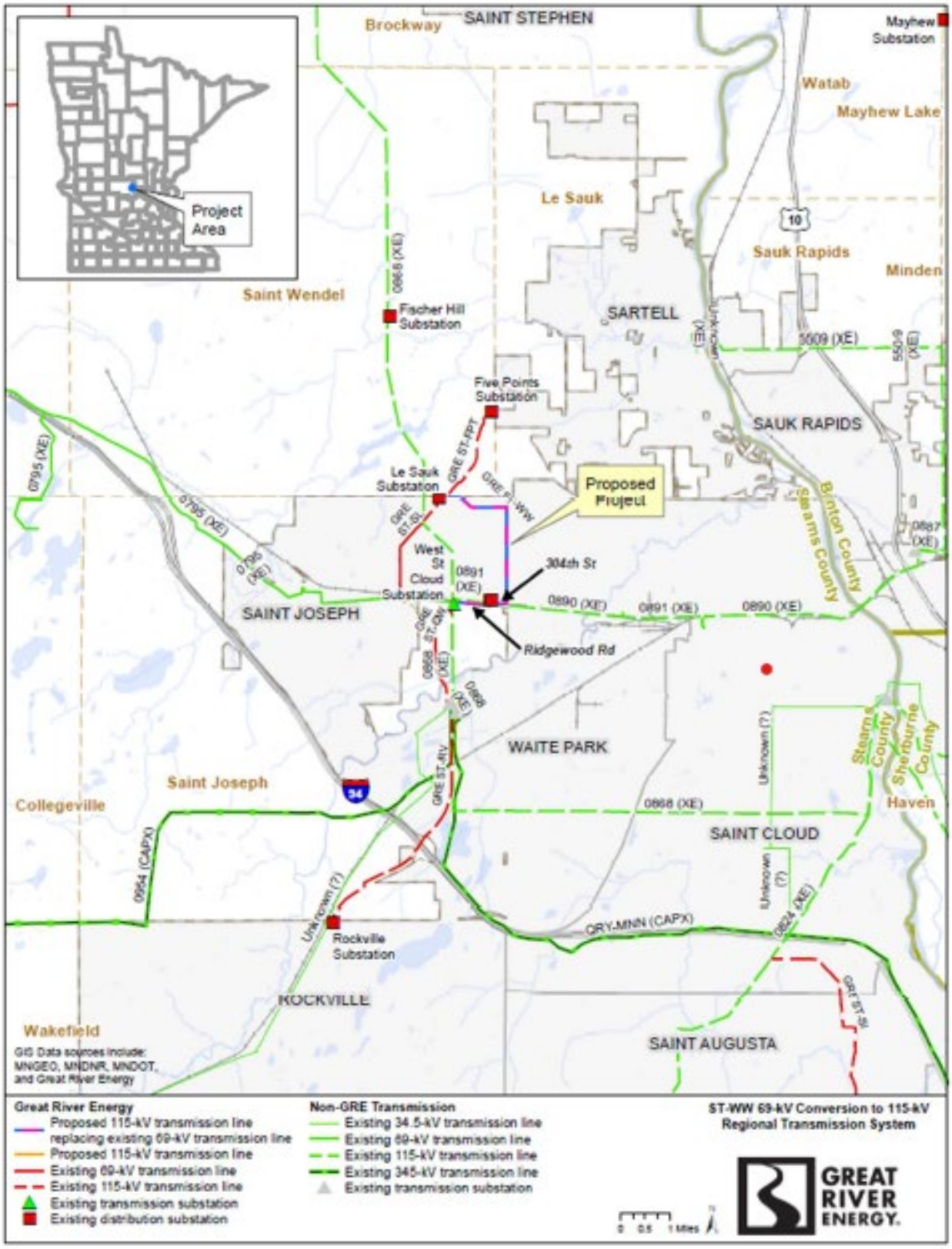
GRE is proposing to replace the existing 69-kV transmission line with a 115 kV line and associated structures (**Map 1 and Appendix A**). The new line will exit the east side of the West St. Cloud substation and run east on the south side of Ridgewood Road for approximately one-half mile, then cross over to an upgraded switch and tap line for Stearns Electric Association's Westwood Substation. From the Westwood Substation, the project continues east for 1,100 feet along the north side of Ridgewood Road before turning north for approximately 1.4 miles to Mullen Road, then westerly along Mullen Road for approximately 0.9 miles where the existing 69-kV line terminates on the east side of County State Aid Highway (CSAH) 133. The 115-kV line will then extend approximately 170 feet northwest on new ROW, crossing over Mullen Road and CSAH 133, to a new switch pole on Great River Energy's existing ST-FPT 115-kV line. The existing transmission line and structures will be removed.

[2] Great River Energy, *Application for a Route Permit* (August 28, 2022), eDockets Nos. 20228-188608-02, 20228-188608-03, 20228-188608-04.
[3] RPA P. 1-9.
[4] Id.

Map 1 Project Overview



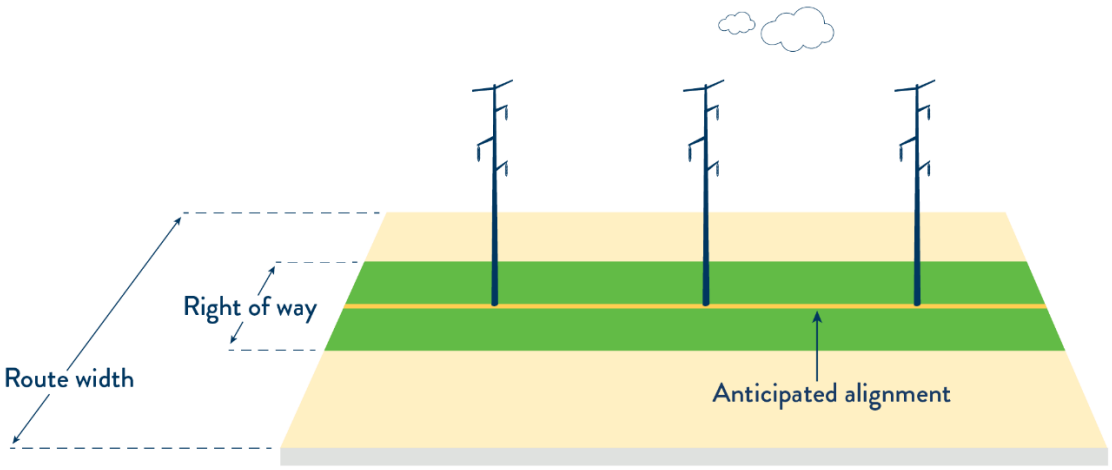
Map 2 Regional Transmission System



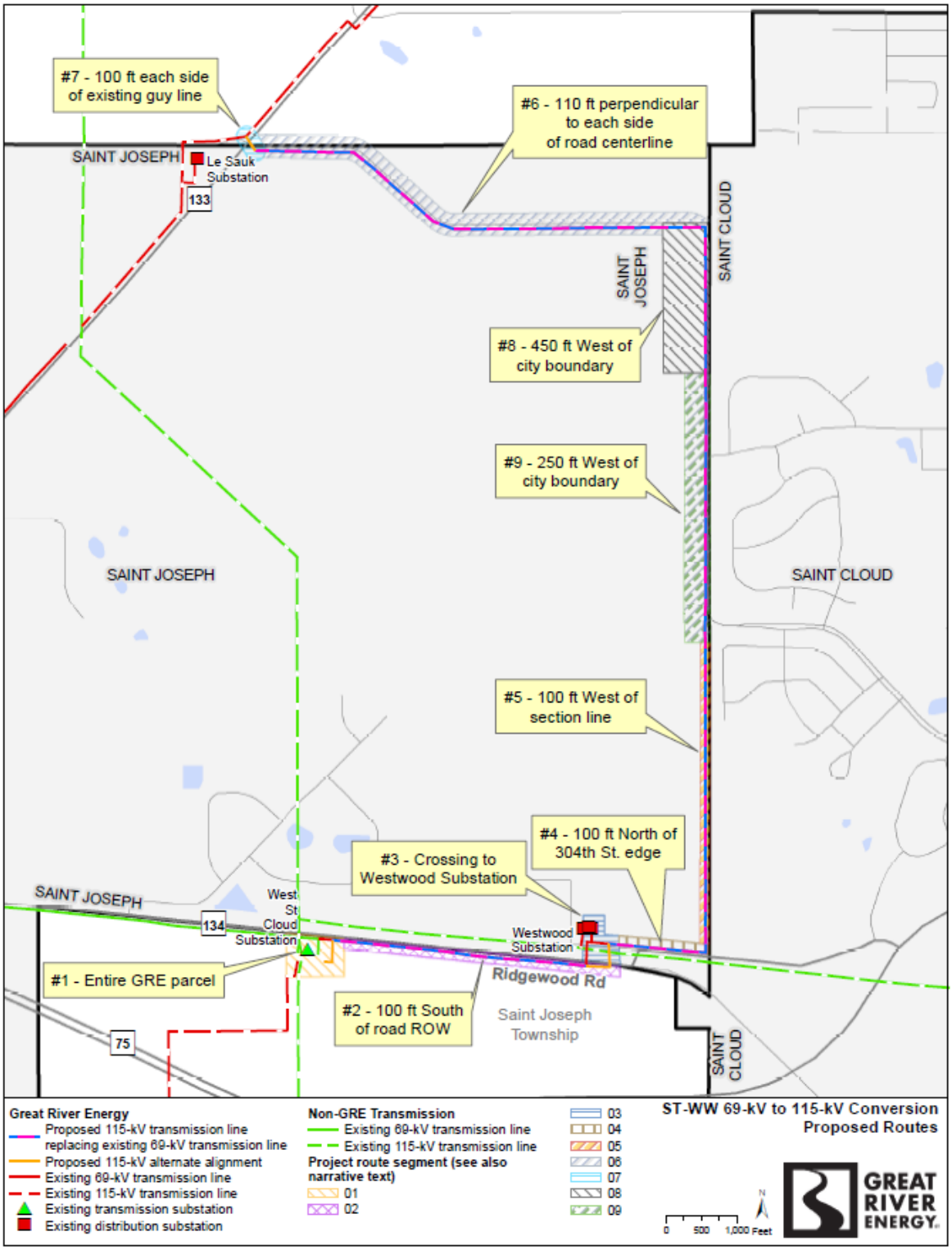
Route Widths and Right-of-Way

GRE is proposing several route width expansions (Map 3 and Appendix A) to accommodate changes to the alignment of the upgraded transmission line and at the substations. After construction the ROW will be 70 feet, 35 feet on either side of the transmission centerline. The largest route width expansion area is 450 feet at the intersection of Mullen Road and 73rd Avenue North. **Figure 1** depicts an anticipate alignment within a ROW.

Figure 1 Alignment within a Right-of-Way



Map 3 Route Widths



Substations

Upgrades to the existing substations are planned to accommodate the new voltage of the line. This includes expanding the West St. Cloud substation by 6,500 square feet and installing an additional 115-kV breaker and associated equipment. Two 115 kV line switches are needed: one for the tap feeding the existing Westwood Substation, and one north of the existing Le Sauk Substation.

Transmission Line

The new transmission line includes new structures and wires. The structures will have three single conductor phase wires and one shield wire. GRE anticipates the need for three different types of structures. Details on structure types are discussed in Section 3.

Project Timeline and Cost

Construction of the project will take approximately 6 months, with construction beginning in summer of 2024 and the project being energized in early 2025.[5] GRE estimates the total cost of the project to be approximately $6.4 million, with the cost of the transmission line estimated at $3.3 million and the cost of the proposed substation and other facilities estimated at $3.1 million.[6]

Operation and maintenance costs for the proposed HVTL project will be minimal in the initial years of operation since the line and associated structures will be new. GRE estimates the annual operation and maintenance costs for the project to be approximately $2000 per mile.[7] The principal operation and maintenance costs will be incurred through scheduled inspections which GRE conducts annually, with maintenance and repair performed on an as-needed basis. Vegetation management within the ROW occurs every 3-7 years. This includes a combination of mechanical and hand clearing, along with targeted application of herbicides where permissible.

[5] Application, P. 4-9.
[6] Ibid.
[7] Application, P. 4-10.

SECTION TWO: Regulatory Framework

Under the Power Plant Siting Act, the Commission is charged with making sure that large electric power facilities are sited in a manner that minimizes adverse human and environmental impact while ensuring continuing electric power system reliability and integrity and fulfillment of electric energy needs in an orderly and timely fashion. For HVTLs like the one proposed by GRE, the Commission fulfills this charge through their route permitting process.[8] In this process, proposers of projects file an application with the Commission, EERA assists the Commission by reviewing human and environmental impacts of the proposal and alternatives to the proposal, and an Administrative Law Judge (ALJ) presides over a public hearing and compiles the record for the Commission. Finally, the Commission determines which route is most consistent with their charge and what permit conditions are needed to mitigate human and environmental impacts.

Route Permit Application

Project proposers must apply for (and receive) a permit from the Commission before building a HVTL. This project meets the definition of an HVTL, defined as a "conductor of electric energy and associated facilities [like substations] designed for and capable of operation at a nominal voltage of 100 [kV] or more and is greater than 1,500 feet in length."[9]

GRE filed a route permit application on August 25, 2022.[10] The application was filed for review under the alternative review process, which allows applicants to present a single proposed route instead of presenting and analyzing multiple routes for the Commission's consideration.[11] GRE is requesting a permit for their preferred route and associated substation upgrades. GRE also requested the route width described above and presented a proposed alignment for the centerline of the transmission line.

On November 21, 2022, the Commission issued an order accepting the route permit application as complete. The Commission also required GRE to provide additional information requested by EERA prior to the public information meeting. GRE filed this information on November 22, 2022.[12] After an application is accepted, the permitting process, including environmental review, can move forward.

Environmental Review

The environmental review process ensures that the Commission and other stakeholders understand the human and environmental impacts of a proposed project before a permit is issued. EERA staff assist the Commission with environmental review by working with stakeholders to identify issues, analyzing impacts of the proposed project or its alternatives, and mitigation measures to lessen them. This allows the

[8] Minn. Stat. 216B.243, Subd. 2 requires that large energy facilities obtain a Certificate of Need from the Commission prior to construction. The proposed project does not meet the definition of large energy facility in Minn. Stat. 216B.2421, Subd. 2 (a large energy facility is any HVTL with a capacity of 100 kV or more and greater than ten miles of its length in Minnesota or that crosses a state line) and therefore does not need to go through the Certificate of Need process.

[9] Minn. R. 7850.1000, Subp. 9.

[10] Great River Energy, *Application for a Route Permit* (August 26, 2022), eDockets Nos. 20228-188608-02, 20228-188608-03, 20228-188608-04 (hereinafter "Application").

[11] Minn. Stat. 216E.04 and Minn. R. 7850.2800–3900

[12] Great River Energy, *Supplemental Filing* (November 22, 2022), eDockets No. 202211-190847-01.

Commission to make informed decisions that avoid or reduce impacts to people and the environment, while allowing for reliable and efficient delivery of electricity.

Scoping

Scoping is the process used to determine the topics analyzed in the EA. Scoping focuses on: (1) the most relevant issues and impacts needed for a route permit decision, and (2) identifying and analyzing potential alternatives. The scoping process includes public meetings and comment periods.[13] EERA and Commission staff conduct the scoping meetings. EERA reviews comments provided during the comment period.

Other than the use of swan-flight type avian flight diverters as mitigation and the need to coordinate with MNDOT and the City of St. Cloud on potential roadway expansion, no unique issues critical to the Commission's decision were identified in the scoping process. No route alternatives were proposed during scoping and EERA was not able to independently identify other alternatives for study that use existing ROW and that are as direct as the route proposed by the applicant.

EERA and Commission staff jointly held scoping and public information meetings as noticed on December 7-8, 2022, to provide information about the permitting process and the project, answering questions, and gathering input on topics for study in the EA.[14] One person attended the in-person meeting, and one person attended the on-line meeting. The comment period was open from November 21 to December 30, 2022.[15]

EERA provided a generic scope for the EA, with study limited to impacts and mitigation for GRE's proposed route in a Scoping Summary Report issued on January 19, 2023.[16] Consistent with staff's recommendation, the Commission took no action on route alternatives.[17] On January 31, 2023, a scoping decision for the EA was issued and is included in **Appendix C**.[18]

Scoping Comments

Written comments were received from the Minnesota Department of Natural Resources (MDNR)[19], the Minnesota Department of Transportation (MNDOT)[20], and GRE.[21] During application acceptance, the City of St. Cloud submitted comments.[22] MDNR noted the presence of Northern Long Eared Bat (NLEB) in the vicinity, a species that was recently uplisted to federally endangered. They also note the proximity of the Audubon Society's Avon Hills Important Bird Area (IBA) which is less than a half mile from the project and recommending the installation of swan-type flight diverters to mitigate impacts to avian species.

---

[13] Minn. R. 7850.3700, subpart. 2.
[14] Minnesota Public Utilities Commission and Minnesota Department of Commerce, *Scoping Notice*, November 21, 2022, eDockets No. 202211-190763-01
[15] Id.
[16] Minnesota Department of Commerce (January 19, 2023) *Scoping Summary*, eDockets No. 20231-192286-01.
[17] Minnesota Public Utilities Commission (January 24, 2023), *Minutes,* eDockets No. 20231-192470-01.
[18] Minnesota Department of Commerce, EERA (January 31, 2023), *Scoping Decision,* eDockets No. 20231-192799-01
[19] Minnesota Department of Natural Resources (December 29, 2023) *Comments*, eDockets No. 202212-191679-01
[20] Minnesota Department of Transportation (December 20, 2019) *Comments*, eDockets No. 202212-191541-01 .
[21] Great River Energy (December 29, 2023) *Comments*, eDockets No. 202212-191693-01.
[22] City of St. Cloud (September 12, 2022) *Comments*, eDockets No. 20229-188984-01.

MnDOT's comments note that the proposed project does not directly affect current MnDOT right-of-way and that any alternatives would also need to be analyzed by MnDOT. GRE may need to apply for oversize/overweight hauling permits during construction of this project. MnDOT recommends GRE coordinate with District 3 staff prior to construction.

Comments submitted by GRE included an expanded route width on 73rd Avenue North. Starting at the northeast corner of the project at the intersection of 73rd Avenue and Mullen Road, the route width widens to 450 feet extending 1,480 feet south of the Mullen Road centerline. From this point, the route width decreases to 250 feet west of the City of St. Cloud boundary, extending 2,650 feet further to the south. From this point south to 304th Street, the route width returns to 100 feet west of the City of St. Cloud boundary (see Appendix A). The expanded route width addresses future roadway construction concerns raised by the Cities of St. Joseph and St. Cloud.

During the comment period for application acceptance, the City of St. Cloud submitted a comment noting several considerations:

- The City of St. Cloud requests the alignment account for the future widening of 73rd Avenue North and its potential future extension south of Westwood Parkway.
- The City of St. Cloud's Land Development Code requires a 100 foot right of way for Minor Collector roadways. 73rd Avenue North currently exists within a 66 foot right of way. The transmission line design and alignment should account for a westerly right of way expansion from 66 feet to 100 feet so as to avoid purchase and/or condemnation of easements on existing residential parcels east of the corridor.
- The City of St. Cloud Comprehensive Plan and the recently adopted Southwest Beltline Corridor Study both consider the western extension of Westwood Parkway to connect with the future southwest beltway. While the western terminus of said corridor is uncertain, the eastern terminus will be the intersection of Westwood Parkway and 73rd Avenue North. The placement of above and below ground improvements for the transmission line should account for a 120 foot right of way to extend Westwood Parkway.

Alternatives

No route alternatives were proposed during scoping and EERA was not able to independently identify other alternatives for study that use existing ROW and that are as direct as the route proposed by the applicant. No alternative routes or segments are not analyzed in this EA.

EA Preparation

EERA Staff prepared the EA, focusing on mitigation of impacts from GRE's proposal. The topics covered reflect the scoping decision for the EA[23]. Because there are no route alternatives to consider, the primary permitting decision before the Commission focuses on conditions to include in the route permit to mitigate human and environmental impacts. Therefore, EERA staff focused on studying issues relevant to the identification of appropriate mitigation measures.

EERA derived much of the information used in the preparation of the EA from documents prepared by GRE, including the Route Permit Application. In addition to material provided by GRE, information from

[23] Id.

the comments received, relevant environmental review documents for similar projects, spatial data, and information gathered during EERA visits to the project area were used to prepare this document.

Consistent with the scoping decision, there are some issues that this EA does not address because they are beyond the scope of what is relevant to the Commission's decision-making. Specifically, this EA does not address:

- A no-build alternative.
- Issues related to project need, size, type, or timing.
- Impacts of specific energy sources.
- Landowner compensation for right-of-way easements.
- The ability of GRE to use eminent domain to acquire easement(s) for the project.

Public Hearing

A public hearing will be held after the EA is issued.[24] An Administrative Law Judge (ALJ) from the Office of Administrative hearings leads the public hearing. The hearing is an opportunity for stakeholders to comment on the project, the EA, and the Commission's permit decision. People can do this by attending the hearing and speaking, presenting evidence, asking questions, and making comments. Written and oral comments received during the hearing become part of the record in the proceeding. EERA staff will be available to respond to questions and comments about the EA. These questions and answers become part of the record, but staff does not revise or supplement the EA document.

After the public comment period is over, the judge provides a report and a recommendation to the PUC based on all of the information in the record.

Route Permit Decision

Once the Commission has received the ALJ's report, they schedule a meeting to decide on issuing permit. When the Commission issues a route permit it draws on the record (application, comments, environmental review, and all other documents in the project docket) to approve a route, route width, and an anticipated alignment. Route permits also outline conditions specifying construction and operation standards and mitigation measures that must be taken to reduce project impacts. A Draft Route Permit is included in **Appendix B.**

At the Commission meeting for permitting the project, the Commission will weigh human and environmental factors as well as factors related to cost and efficient delivery of energy. The specific factors the Commission must weigh are specified in statute and rule[25] and include the following.

Site Permit

If the Commission determines the project is needed, it must determine where it will be located. Minnesota Statutes 216E.03 lists considerations that guide the study, evaluation, and designation of site permits. Minnesota Rule 7850.4100 lists the factors the commission must consider when making a site permit decision:

[24] Minn. R. 7850.3800, Subp. 1

[25] Minn. Stat. 216E.03, subdivision 7(b) identifies 12 considerations that the Commission must take into account when designating a route for a HVTL. These considerations are further clarified and expanded by Minn. R. 7850.4100, which identifies 14 factors the Commission must consider when making a permit decision.

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 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.
N. Irreversible and irretrievable commitments of resources.

The Commission is also 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".[26]

The Commission must make a final decision on the route permit within 60 days after receiving the ALJ report. A final decision must be made within six months after the Commission's determination the application is complete; however, this time limit may be extended for up to three months for just cause or upon agreement of the applicant.[27] A decision by the Commission on a route permit application for the proposed HVTL project is anticipated early in the second half of 2023.

The HVTL must be constructed within the Commission's designated route and along the anticipated alignment unless subsequent permissions are requested and approved by the Commission. "Any right-of-way modifications within the designated route [must be] located so as to have comparable overall impacts relative to the factors in Minnesota Rule 7850.4100 and shall be specifically identified and documented in and approved as part of the plan and profile."[28] Modifications to the anticipated alignment generally result from landowner requests or unforeseen conditions.

[26] Minn. Stat. 216E.03, subd. 7(a).
[27] Minn. R. 7850.3900 Subp. 1
[28] Generic Route Permit Template at Section 4

Other Permits, Approvals, and Applicable Codes

A route permit from the Commission is the only state permit required for routing the project. The Commission's route permit supersedes local planning and zoning and binds state agencies.[29] Thus, state agencies like MDNR and MNDOT are required to participate in the Commission's permitting process to aid the Commission's decision-making and to indicate routes that are not permittable.[30]

After the Commission issues a route permit, however, various federal, state, and local permits may be required for activities related to the construction and operation of the Proposed Project in the route that the Commission has authorized. All permits subsequent to the Commission's route permit, and necessary for the project (commonly referred to as "downstream permits"), must be obtained by a permittee. **Table 1** identifies potential permits that might be required in addition to a route permit.

Table 1 Potential Permits and Permitting Authorities

Federal	
U.S. Army Corps of Engineers	Section 404 of the Federal Clean Water Act
U.S. Fish and Wildlife Service	Threatened and Endangered Species Consultation
Part 7460 Airport Obstruction Evaluation	Federal Aviation Administration / Minnesota Department of Transportation
State of Minnesota	
Department of Natural Resources	Endangered Species Consultation
	License to Cross Public Lands and Waters
	Temporary Construction Dewatering Permit
Department of Transportation	Utility Accommodation on Trunk Highway Right-of-Way
	Driveway/Access Permits
	Oversize and/or Overweight Permit
Pollution Control Agency	National Pollutant Discharge Elimination System Permit
	Clean Water Act Section 401 Certification
State Historic Preservation Office	Minnesota Statutes Chapter 138 (Minnesota Field Archaeology Act and Minnesota Historic Sites Act)
Board of Water and Soil Resources, County, City, Townships	Wetland Conservation Act

[29] Minn. Stat. 216E.10, Subd. 3.
[30] Minnesota Statute 216E.10, subdivision 3

Local	
Stearns County, St. Joseph Township, City of St. Joseph, St. Wendell Township	Road Crossing/ROW Permits
	Overwidth Load Permits
	Driveway/Access Permits
	Utility Permits
Other	
Other Utilities, pipelines, or railroads	Crossing Permits/Agreements

Federal Permits

The United States Army Corps of Engineers (USACE) "regulates the discharge of dredged or fill material into waters of the United States, including wetlands."[31] Dredged or fill material could impact water quality. A permit is required from USACE if the potential for significant adverse impacts exists.

A permit is required from the United States Fish and Wildlife Service (USFWS) for the incidental "taking"[32] of any endangered species. As a result, USFWS encourages project proposers to consult with the agency to determine if a project has the potential to impact federally listed threatened and endangered species. Additionally, consultation can lead to the identification of mitigation measures for potential impacts associated with the project.

State Permits

Potential impacts to state lands and waters, as well as fish and wildlife resources are regulated by DNR. Utilities are required to obtain a License to Cross State Lands and Waters.[33] Projects affecting the course, current, or cross-section of lakes, wetlands, and streams that are public waters may require a Public Waters Work Permit.[34] Not unlike the USFWS, DNR encourages project proposers to consult with the agency to determine if a project has the potential to impact state-listed threatened or endangered species. Additionally, consultation can lead to the identification of mitigation measures for potential impacts associated with the project.

A permit from MnDOT is required for construction, placement, or maintenance of utility lines adjacent or across trunk highway rights-of-way.[35] MnDOT requires these permits to ensure that use and occupancy of the right-of-way does not interfere with the free and safe flow of traffic, among other reasons.[36]

---

[31] U.S. Environmental Protection Agency (October 27, 2015) *Section 404 Permit Program*, Retrieved April 20, 2023, from: http://www.epa.gov/cwa-404/section-404-permit-program.

[32] 16 U.S. § 1532(19) (defining "take" to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct).

[33] Minn. Stat. 84.415.

[34] Minnesota Department of Natural Resources (n.d.) *Requirements for Projects Involving Public Waters Work Permits*, Retrieved April 20, 2023, from: http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/requirements.html.

[35] Minn. R. 8810.3300, subp. 1.

[36] Minnesota Department of Transportation (n.d.) *MnDOT Policies*, Retrieved April 20, 2023, from: http://www.dot.state.mn.us/policy/operations/op002.html.

Construction projects that disturb one or more acres of land require a general National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater Permit from the Minnesota Pollution Control Agency (MPCA). This permit is issued to "construction site owners and their operators to prevent stormwater pollution during and after construction."[37] The NPDES/SDS permit requires (1) use of best management practices; (2) development of a Stormwater Pollution Prevention Plan or "SWPPP"; and (3) adequate stormwater treatment capacity once the project is complete. Additionally, MPCA regulates generation, handling, and storage of hazardous wastes.

A Clean Water Act Section 401 Water Quality Certification from MPCA might also be required. Section 401 of the Clean Water Act requires that persons conducting activities that may result in a discharge of a pollutant into waters of the United States obtain certification from relevant States that the discharge complies the applicable water quality standards.[38]

Local Permits

Commission route permits preempt local zoning, building, and land use rules, regulations, or ordinances promulgated by regional, county, local, and special purpose government; however, coordination with local governments may be required for the issues listed below:

- Access/Driveway — Coordination may be required to construct access roads or driveways from county or township roads.
- Public Lands — Coordination would be required to occupy county or township lands such as forest lands, park lands, watershed districts, and other properties owned by these entities.
- Overwidth Load — Coordination may be required to move over-width or heavy loads on county or township roads.
- Road Crossing and Right-of-Way — Coordination may be required to cross or occupy county or township road rights-of-way.

Applicable Codes

In addition to these downstream permits, all transmission lines, regardless of route location, must meet requirements of the National Electrical Safety Code (NESC) for HVTLS. NESC standards are designed to safeguard human health "from hazards arising from the installation, operation, or maintenance of … overhead and underground electric supply and communication lines." They also ensure that the transmission line and all associated structures are built from materials that will withstand the operational stresses placed upon them over the expected lifespan of the equipment, provided routine operational maintenance is performed.

Route permits issued by the Commission require permittees to comply with North American Electric Reliability Corporation (NERC) standards.[39] NERC standards define the reliability requirements for planning and operating the electrical transmission grid in North America.

---

[37] Minnesota Pollution Control Agency (November 19, 2015) *Stormwater Program for Construction Activity*, Retrieved April 20, 2023, from: http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/construction-stormwater/index.html.

[38] Minnesota Pollution Control Agency (n.d.) *Clean Water Act Section 401 Water Quality Certifications*, Retrieved April 20, 2023, from: https://www.pca.state.mn.us/water/clean-water-act-section-401-water-quality-certifications.

[39] Route Permit Section 5.5.

SECTION THREE: Engineering, Operational Design, and Construction

Construction begins after a route permit is issued and all the necessary downstream permits have been obtained. The project must be constructed according to the design and construction procedures outlined in the route permit application, applying any mitigation that is required by permit. This section summarizes the engineering, operational design and construction of the proposed project detailed in the route permit application.

Route Design

GRE selected the proposed route because it minimizes overall impacts while avoiding the need to exercise eminent domain. GRE considered the factors (discussed above) that the Commission must consider and designed a route that:

- Utilizes an existing developed corridor
- Minimizes the number of residences in proximity to the transmission
- Provides the shortest route between the tie-in with GRE's 115 kV line and the proposed substation, minimizing cost as well as land requirements.

The proposed route is designed to minimize overall impacts while avoiding the need to exercise eminent domain.

Transmission Line Engineering and Design

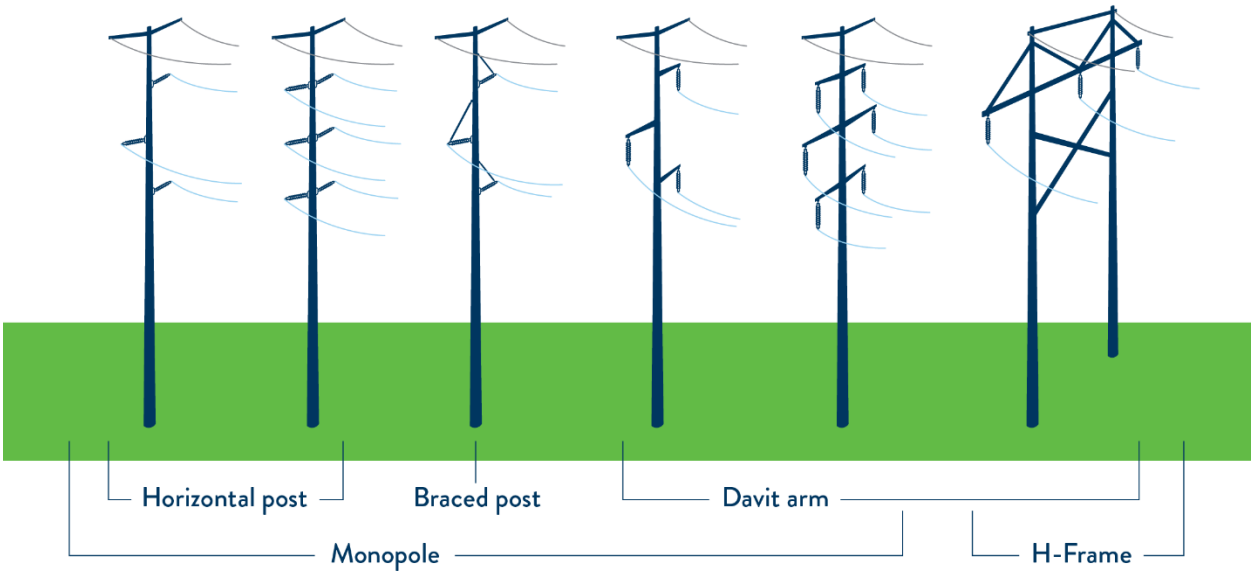
The proposed project requires removal of the existing transmission poles (structures) and 69 kV transmission line and rebuilding with new structures and the 115 kV transmission line. There are currently 61 structures associated with the existing line, which will be reduced to approximately 45 new structures.[40] The new structures will largely consist of single circuit, monopole wood structures spaced approximately 300 to 400 feet apart. Transmission structures will typically range in height from 70 to 90 feet above ground. Other structures, such as dead-end and H-frame will be used as necessary. Anticipated dead-end structures and locations are shown in **Appendix A**. **Table 2** shows the types and sizes of the proposed structures. Depictions of structure types are shown in Figure 2.

[40] Great River Energy (November 22, 2022), *Supplemental Filing*, P.3., eDockets No. 202211-190847-01.

Table 2 Structure Types and Dimensions

Structure Type	Material	Approximate Height Above Ground (feet)	Structure Base Diameter (inches)	Span Between Distances (feet)	Potential number of poles
Monopole with horizontal post or braced post	Wood, steel or ductile iron	70 - 90	18 - 36	300 – 400	38 - 49
H-Frame	Wood, steel or ductile iron	40 - 60	18 - 60	300 - 400	1
Dead-end	Wood, steel	70 - 90	18 - 60	300 - 400	6 - 10

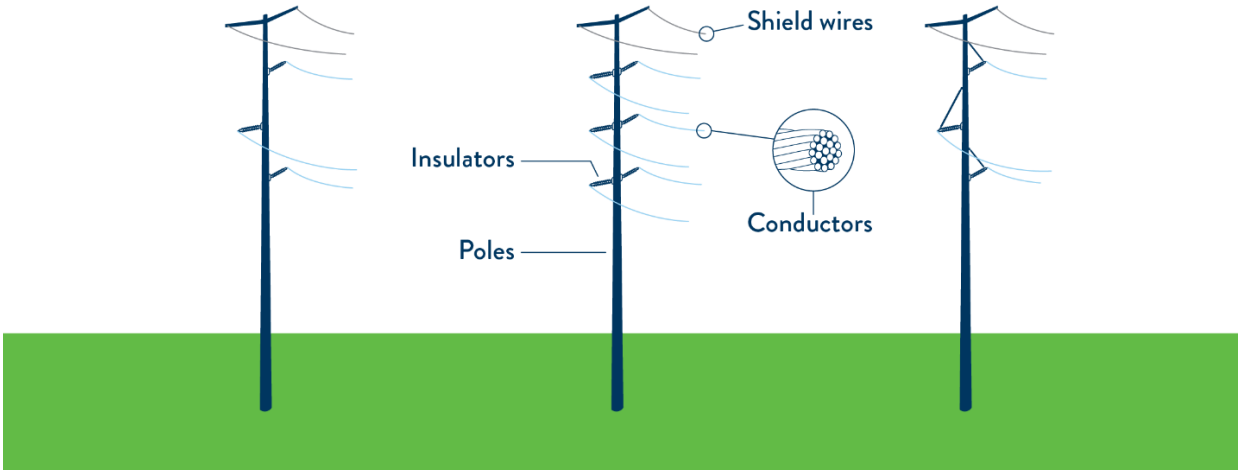
Figure 2 Structure Types



The new single-circuit structures will be direct embedded by auguring a hole to a depth of 10 to 15 feet and 2 to 4 feet in diameter.[41] The structures will have three single conductor phase wires and one shield wire (Figure 2). Some of the proposed structures will be steel poles, which may be directly imbedded or set on a concrete foundation that are approximately 5 to 7 feet in diameter and generally are exposed one foot above the existing ground level.

[41] Application, P. 4-6.

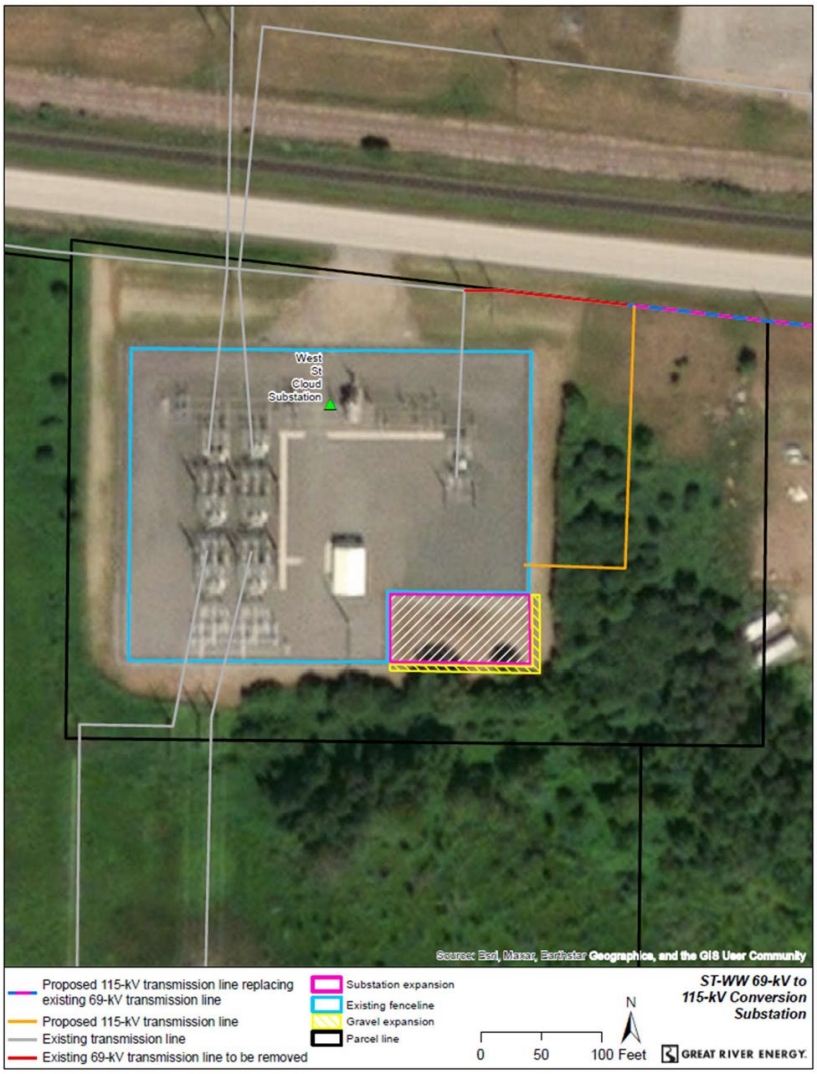
Figure 3 Components of a Transmission Line



Substation Engineering and Design

The existing West St. Cloud substation will require modifications to accommodate the new 115 kV line. The modifications include expanding the footprint of the substation by approximately 6,500 square feet, installation of structural rigid metal conductors called buswork, breakers, fencing, switches, and control equipment. **Map 4** shows the proposed expansion of the West St. Cloud Substation.

Map 4 Expansion of the West St. Cloud Substation



Design Options to Accommodate Future Expansion

The proposed HVTL project can support future energy needs.

The proposed HVTL will be designed with enough capacity to meet current and future needs of the GRE system. The proposed substation site can accommodate a second transformer if necessary.

Construction

Construction activities will comply with permit conditions and follow established best management practices. Construction will not begin until GRE has all the necessary approvals, land rights, and final design is complete. The company will notify landowners of the anticipated construction schedule, which will depend on permit conditions, weather conditions, and availability of workforce and materials. GRE anticipates construction to begin in 2024.

GRE indicates that construction of the project will follow industry best management practices (BMPs)[42]. These BMPs address transmission specifics such as right-of-way clearing, staging, and erecting transmission line structures and stringing transmission lines. They also address general construction best practices, including, but not limited to safety and stormwater pollution prevention planning.

Typical construction equipment includes: tree removal equipment, mowers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, dump trucks, front-end loaders, bucket trucks, bulldozers, pullers, tensioners, flatbed tractor-trailers, flatbed trucks, pickup trucks, concrete trucks, and various trailers. Excavation equipment can be wheel or track-driven.

Steps in the construction process include right-of-way preparation, staging, structure installation, conductor stringing, and collector substation work. Special construction methods will be used in sensitive areas.

Right-of-Way Preparation

Surveyors will stake the construction corridor within the approved right-of-way and the pole locations of the approved alignment in preparation for the construction crew arriving on site. Construction begins by removing trees and other vegetation from the right-of-way that will interfere with safe construction and operation of the HVTL. The Commission requires that applicants minimize tree removal to the maximum extent practicable and leave undisturbed low growing species that will not interfere with operation or construction.[43]

Structures are generally installed at existing grade and GRE does not expect grading at structure locations unless it is necessary to provide a level area for construction access and activities. All disturbed areas will be returned to–pre-construction conditions. All imported fill, including temporary culverts and road approaches, will be removed from the site and disturbed areas will be returned to pre-disturbance conditions.

Crews will install erosion control where needed. The crew will install temporary culverts and field approaches where needed to access the route and to maintain adequate access and drainage throughout construction.

Staging Areas

Designated staging areas store equipment, structures, and other necessary materials used during construction. In some cases, additional space (temporary laydown areas) may be required. Sufficient rights to use the temporary laydown areas outside of the transmission line right-of- way will be obtained from affected landowners through rental agreements. Insulators and other hardware are attached to the structure while it is on the ground adjacent to the location where the structure is to be placed.

GRE will evaluate the need for temporary easements during project design and preliminary survey work.[44] If temporary easements are needed, GRE will work with landowners to obtain easements for temporary construction or staging areas for storage of poles, vehicles, or other related items.[45]

[42] Application, P. 13.
[43] Generic Route Permit Template at 5.3.6.
[44] Application, P. 6-15.
[45] Id.

Removal of Existing Transmission Line

The removal of the existing line and installation of the new line will be done in two phases to minimize outages at the Westwood Substation.[46] Removal of the existing 69-kV lines consists of removing the existing wires from the structures and pulling the existing poles from the ground using a crane. Sometimes, it is necessary for some soil to be excavated from around the base of the structure. The holes are then backfilled with clean fill. Removal of an existing transmission line and construction of a new 115-kV transmission line typically takes about three weeks per mile pending all materials being available.

During the first phase, the West St. Cloud Substation will continue to supply power to the Westwood Substation at 69 kV, and the existing transmission line extending east of the Westwood Substation, then north along the city boundary and finally west along Mullen Road will be removed and the new 115-kV line will be constructed. The new line will be connected to Great River Energy's existing 115-kV ST-FPT transmission line at the north end and to a new 115-kV stepdown transformer at the Westwood Substation. Stearns Electric Association owns the Westwood Substation and will be responsible for the buildout. At this time, the Westwood Substation can be energized by the new 115-kV transmission line.

During the second phase, the 69-kV line from the West St. Cloud Substation to the Westwood Substation will be removed, and the new 115-kV transmission line will be constructed and connected to the two substations. The only outage that might occur is when the Westwood Distribution Substation is changed from operating on the 69-kV line to the 115-kV line. Great River Energy will coordinate the timing with Stearns Electric Association's work in the Westwood Substation to minimize any outages to end consumers.

Structure Installation

When it is time to install the poles, structures are moved from the staging areas, delivered to the staked location, and placed within the right-of-way until the structure is set. Typically, access to the transmission line right-of-way corridor is made directly from existing roads or trails that run parallel or perpendicular to the transmission line right-of-way. In some situations, private field roads or trails are used. Permission from the property owner is obtained prior to accessing the transmission line corridor outside of public rights-of-way. Where necessary to accommodate the heavy equipment used in construction (including cranes, concrete cement trucks, and hole- drilling equipment), existing access roads may be upgraded or new roads may be constructed. Once construction is complete any temporary field approaches and access roads installed for the Project will be removed and revegetated. Previously removed woody vegetation may be allowed to regrow so long as it does not encroach on NESC prescribed clearances and MNDOT safety requirements.

GRE anticipates the predominant method for securing the poles for the Project to be direct-embedded. To place direct-embedded single poles in the ground, the spoils are removed from the ground. Temporary casing may be required if the hole does not stay open during the excavation process. The pole is set and backfilled with crushed rock. The spoils will be removed from site unless other arrangements are made with the landowner. GRE will not dispose of spoil materials within remnant prairie lands, areas restored to native plant communities, wetlands, protected water bodies, protected watercourses, or in a manner that could impact these areas through erosion or transport of the spoil materials. Concrete foundations will be used when warranted by site specific design criteria or circumstances. For concrete foundations, the excavation process will utilize temporary steel casing and rebar, concrete and anchor bolts will be placed in the hole. The standard projection of a concrete foundation is one foot above grade. Structures

[46] Mark Strohfus, pers. Communication.

located in wet environments may require additional foundation support, typically consisting of a concrete foundation or placement of the structure base inside a vertical, galvanized steel culvert.

Conductor Stringing

Once structures are installed, conductors are strung along the line. Typically setup areas are approximately three times the height of the structure and as wide as the right-of-way width. Puller-tensioner sites are locations where the contractor will set up equipment to pull in and tension the conductor. Exact locations are unknown at this time. These locations are most often located at major obstacles such as turning points in the alignment. Conductors and a shield wire will be strung, tightened, and, once appropriate tension is obtained, secured to each structure. Crews will use temporary guard or clearance structures to provide adequate clearance over roads, existing power lines, waterways, or other potential obstructions, as well as to protect the conductor. Lastly, crews will install bird diverters on the shield wire in select locations; their placement will be coordinated with MDNR.

Other Construction Techniques

A number of construction techniques will be utilized for the project. These techniques, such as the timing of construction to minimize impacts, are common construct throughout the industry.

GRE indicates that GRE, or its contractor, will maintain sound water and soil conservation practices during construction and operation of the facilities to protect topsoil and adjacent water resources and minimize soil erosion.[47] Practices may include containing excavated material, protecting exposed soil and stabilizing restored soil.

GRE indicates that impacts to wetlands will be minimized through construction BMPs[48]. This means avoiding construction in wetlands if possible and avoiding major disturbance of individual wetlands and drainage systems during construction. This will be accomplished by strategically locating new access roads and spanning wetlands and drainage systems where possible. When it is not feasible to span the wetland, construction crews will rely on several options during construction to minimize impacts:

- When possible, construction will be scheduled during frozen ground conditions.
- Crews will attempt to access the wetland with the least amount of physical impact to the wetland (i.e., shortest route).
- The structures will be assembled on upland areas before they are brought to the site for installation.
- When construction during winter is not possible, construction mats will be used to minimize impacts to the extent practicable.

Restoration

Restoration will follow industry best practices and be completed as soon as possible after construction activities are over. The ground will be disturbed during the normal course of work (as is typical of most construction projects), which can take several weeks in any one location. GRE will restore areas disturbed by construction in accordance with BMPs and the Project's permit conditions. This will begin with a pre-

[47] Application, P. 7-27
[48] Id.

construction survey that will identify areas requiring special restoration procedures. During construction, crews will also attempt to limit ground disturbance wherever possible. As construction on each parcel of land is completed, disturbed areas will be restored as nearly as possible to their original condition.

GRE or its contractor will contact each property owner after construction is completed to identify and address any damage that may have occurred due to construction of the project. If damage has occurred to crops, fences or the property, typically terms and conditions or the transmission easement agreement require the permittee to fairly compensate the landowner for damages.

In some cases, GRE may engage an outside contractor to restore the damaged property to its original condition. Permanent vegetation that is disturbed or removed during construction of transmission lines will be reestablished to pre-disturbance conditions. Resilient species of common grasses and shrubs typically reestablish naturally with few problems after disturbance. Areas with significant soil compaction and disturbance from construction activities along the route will require assistance in reestablishing the vegetation stratum and controlling soil erosion.

Maintenance

Regular inspections will identify needed maintenance and repairs. Transmission lines are designed to operate for decades, typically requiring only moderate maintenance, particularly in the first few years of operation. The estimated service life of the proposed project is approximately forty years. However, HVTLs are seldom completely retired.

Transmission infrastructure includes very few mechanical elements, which results in reliability. It is built to withstand weather extremes, with the exception of severe weather such as tornadoes and heavy ice storms. Transmission lines are automatically taken out of service by the operation of protective relaying equipment when a fault is sensed on the system. Such interruptions are usually momentary. Scheduled maintenance outages are also infrequent. As a result, the average annual availability of transmission infrastructure is very high, in excess of 99 percent.

The principal operating and maintenance cost for transmission facilities is the cost of inspections, which will be performed monthly by either truck or by air. Inspections will be conducted to ensure that the transmission line is fully functional, and that no vegetation has encroached, violating NESC prescribed clearances. Construction costs for 115 kV transmission lines in rural Minnesota are approximately $600,000 per mile.[49] GRE anticipates costs for this project to be higher due to congestion from existing roads, railroad tracks, other utilities' transmission lines, buildings, and removal of the existing 69-kV transmission line.[50] Average operation costs of HVTLs in Minnesota are approximately $2000/mile.[51] Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used, and the age of the line.

[49] Application, P. 4-9.
[50] Id.
[51] Id.

SECTION FOUR: Affected Environment, Potential Impacts and Mitigation

Chapter 4 describes the environmental setting, affected resources, potential impacts, and mitigation of potential impacts.

Construction and operation of the project will impact human and environmental resources in the project area. Some impacts will be short term and like those of any large construction project—e.g., noise, dust, soil disturbance. These impacts are independent of the route selected for the project. However, they can be mitigated by measures common to most construction projects, for example, the use of erosion-control blankets and silt fencing.

Other impacts will exist for the life of the project and may include aesthetic impacts, impacts to community development, and impacts to agriculture. These long-term impacts are generally not well mitigated by construction measures. That is, these impacts do not flow from how the project is constructed but rather where it is located and its design. Long-term impacts can be mitigated through prudent selection of the route and design of the project.

Potential Impacts and Mitigation

Impacts vary based on duration, size, intensity, and location. This context is used to determine an overall resource impact level using qualitative descriptors. These descriptors ensure a common understanding among readers and allow for comparison of resource impacts between alternatives.

Minimal—Minimal impacts do not considerably alter an existing resource condition or function. Minimal impacts may, for some resources and at some locations, be noticeable to an average observer. These impacts generally affect common resources over the short term.

Moderate—Moderate impacts alter an existing resource condition or function and are generally noticeable or predictable for the average observer. Effects may be spread out over a large area, making them difficult to observe, but can be estimated by modeling or other means. Moderate impacts may be long term or permanent to common resources but are generally short- to long-term for rare and unique resources.

Significant—Significant impacts alter an existing resource condition or function to the extent that the resource is severely impaired or cannot function. Significant impacts are likely noticeable or predictable for the average observer. Effects may be spread out over a large area making them difficult to observe but can be estimated by modeling. Significant impacts can be of any duration and may affect common and rare and unique resources.

Direct— Direct impacts are caused by the proposed action and occur at the same time and place.

Indirect— An indirect impact is caused by the proposed action but is further removed in distance or occurs later in time.

Cumulative— Cumulative potential effects are the result of the incremental impacts of the proposed action in addition to other projects in the environmentally relevant area.

This EA also discusses ways to avoid, minimize, or mitigate specific impacts. These actions are collectively referred to as mitigation.

Avoid—Avoiding an impact means that the impact is eliminated altogether by moving or not undertaking parts or all of a project.

Minimize—Minimizing an impact means to limit its intensity by reducing the project size or moving a portion of the project from a given location.

Mitigate—Impacts that cannot be avoided or minimized could be mitigated. Impacts can be mitigated by repairing, rehabilitating, or restoring the affected environment, or compensating for it by replacing or providing a substitute resource elsewhere.

Region of Influence

Potential impacts to human and environmental resources are analyzed within specific geographic areas called regions of influence ("ROI"). This EA uses the following ROIs:

Table 3 Regions of Influence for Human and Environmental Resources

Resource Category	Resource Type	Region of Influence (ROI)
Human Settlements	Displacement	ROW[1]
	Aesthetics, Property Values, Electronic Interference	1,000 Feet[2]
	Socioeconomics, Cultural Values, Public Utilities, Emergency Services, Zoning and Land Use Compatibility	Project Area
Public Health and Safety	Electric and Magnetic Fields, Implantable Medical Devices, Stray Voltage, Induced Voltage	Route Width[3]
	Air Quality	Project Area
Land-Based Economies	Agriculture, Forestry, Mining	ROW[1]
	Tourism and Recreation	Project Area
Archaeological and Historic Resources	—	One Mile
Natural Environment	Water Resources, Soils, Flora, Fauna	ROW[1]
Rare and Unique Species	—	One Mile

1 The ROW is 75 feet wide and includes the transmission line and the permanent footprint of all associated facilities.

2 On each side of the anticipated alignment for the project.

3 The route width varies and is 450 feet at the widest point.

Impacts to resources may extend beyond these distances but are expected to diminish quickly. ROIs vary between resources. **Table 3** summarizes the ROIs used in this EA.

This section describes the existing resources that may be impacted by the proposed project, assesses potential project impacts, and identifies measures that to mitigate project impacts. The impacts of HVTL projects on the human and natural environment have been studied extensively by EERA staff in other environmental review documents. The effect of HVTLs on the human and natural environment are well documented and the general impacts and mitigation are well understood. Where relevant, this EA draws on the existing body of work.

The level of detail in the analysis in this section focuses on decisions about potential mitigation. Therefore, where a quantitative data analysis is relevant to the selection of appropriate mitigation, impact numbers are presented. However, where a more qualitative discussion of the nature and magnitude of impacts is sufficient to inform decisions regarding mitigation, detailed data analysis has not been included.

Because there is only one route under consideration, the Commission's permitting decision centers on avoiding and minimizing impacts consistent with state goals to conserve resources, to minimize environmental impacts, and to minimize human settlement and other land use conflicts.[52]

Finally, where other planned projects will have overlapping impacts on the resources affected by the proposed project, these cumulative effects have also been evaluated in the sections that follow.

Environmental Setting

The environmental setting of the project area includes hydrologic features, such as wetlands areas, rivers, small lakes, and the Sauk River. The physical geography is shown in the Appendix A. The characteristics of the Project area is typical of the surrounding areas. Pre-settlement vegetation included maple-basswood forests interspersed with oak savannas, tallgrass prairies, and oak forests. Remnants of these vegetation types still exist, but are restricted to smaller, scattered "islands" surrounded by cropland.[53] Topography is level to gently rolling.

The project is in an area with a mix of developed and undeveloped land (light industrial, commercial, agricultural, and residential uses) bordering the city of St. Cloud (Appendix A). Urban and suburban development are expanding in the area, with the population of St. Joseph expected increase by 40 percent by 2040.[54] The West St. Cloud Substation and the proposed 115-kV transmission line south of Ridgewood Road are in St. Joseph Township. The remainder of the Project is located almost entirely within the city of St. Joseph, except approximately 100 feet of the tap line to the new switch on the existing ST-FPT line, which is located in St. Wendell Township. The project is immediately adjacent to the western border of the city of St. Cloud.

Land Cover

Land cover in the project area is a mix of developed and agricultural cover types, with scattered wetlands, forests, and pasture (**Map 5**) Some areas are intensely developed, such as the commercial and residential areas. The project Area is surrounded by intensely developed commercial and industrial areas to the south

[52] Minnesota Rules 7850.4000 Standards and Criteria

[53] Minnesota DNR, *Natural Vegetation of Minnesota*, https://files.dnr.state.mn.us/eco/mcbs/natural_vegetation_of_mn.pdf.

[54] *City of St. Joseph Comprehensive Plan* (Adopted September 17, 2018), https://www.cityofstjoseph.com/DocumentCenter/View/966/Adopted-City-of-St-Joseph-Comprehensive-Plan.

and east, with agricultural areas and farmsteads at the northern end of the project. The number of acres for each land cover type within the route width is shown in Table 4.

Map 5 Land Cover in the Project Area

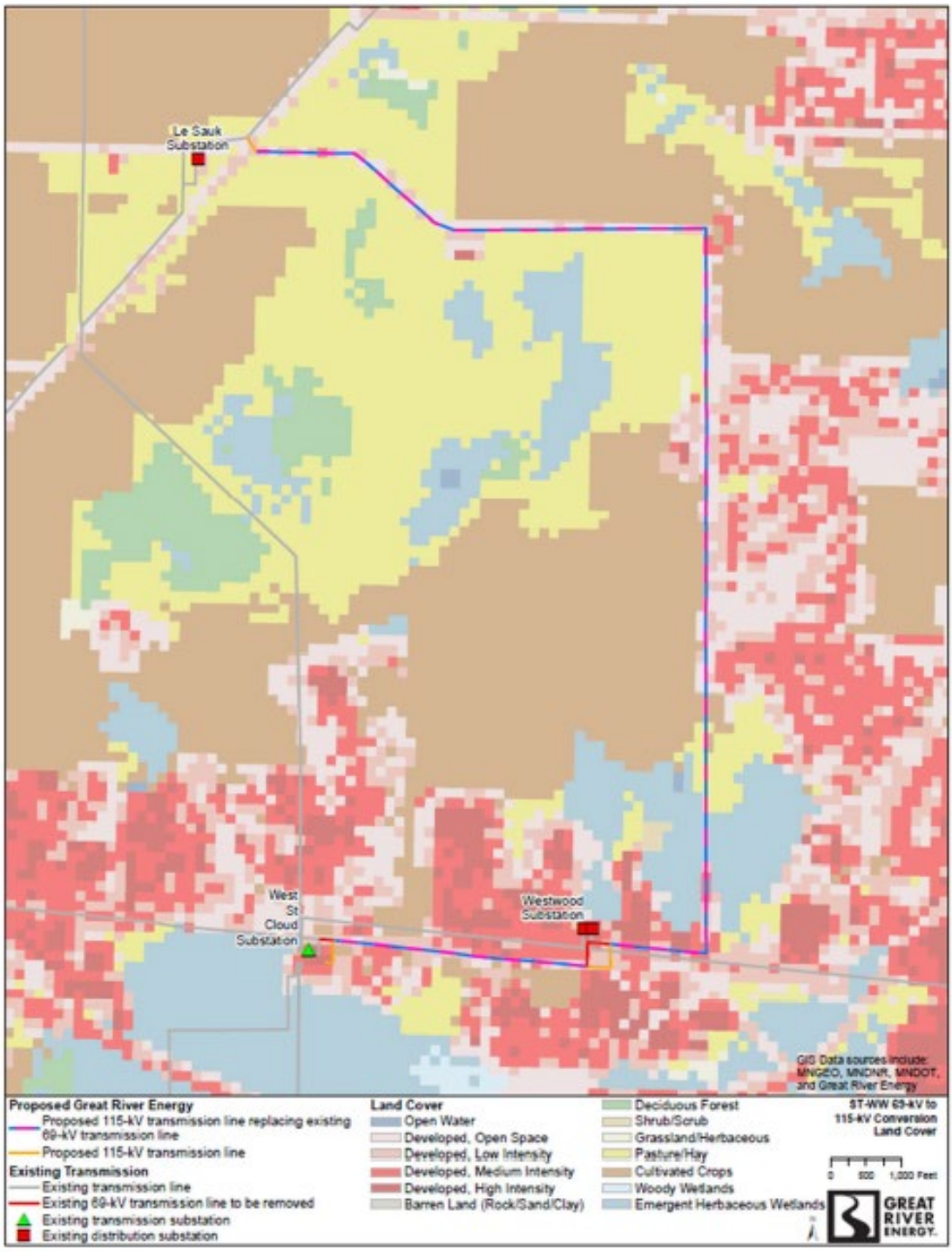


Table 4 Land Cover within the Route Width

Land Cover Type	Number of Acres within Existing Route	Number of Acres in the Expanded Route Width	Total Acres within the Route Width
Cultivated	9.34	5.67	15.01
Developed	32.69	3.61	36.3
Forested	2.25	16.24	18.49
Pasture/Hay	9.18	0.15	9.33
Wetland	2.92	0	2.92
Total	**56.38**	**25.67**	**82.05**

Human Settlement

Transmission lines have the potential to negatively impact human settlements through a variety of means. Transmission line structures and conductors could change the aesthetics of the project area, displace homes or businesses, introduce new noise sources, lower property values, be incompatible with local zoning, and interfere with electronic communications.

Impacts to human settlements resulting from the project are anticipated to range from minimal to significant. Impacts to human settlements can be minimized by prudent routing (i.e., by choosing routes and alignments that avoid residences, businesses, and other places where people congregate). Impacts could also be mitigated by limiting the aesthetic impacts of the structures themselves and by the use of structures which are, to the extent possible, compatible with human settlements and activities.

While the proposed project is located within an existing GRE right-of-way, GRE has identified areas where pole placement may occur outside of the existing ROW (Map X). Factors which may ultimately affect structure locations include but are not limited to: underground utilities; soil analysis; drain tile; landowner plantings/garden; picture windows; driveways; natural resources issues (wetlands, habitat, etc.); and, any known future development plans. If structures are placed outside the existing ROW, Great River Energy would the design and draft easement documents, as appropriate, including exhibit documents and compensation offers.[55]

Aesthetics

Aesthetic and visual resources include the physical features of a landscape such as land, water, vegetation, and structures. Determining the relative scenic value or visual importance of these features is a complex process that depends on what individuals perceive as being aesthetically appealing. Viewers' perceptions are based on their psychological connection to the viewing area and their physical relationship to the view, including distance to the structures, perspective, and duration of the view. Landscapes which are, for the average person, harmonious in form and use are generally perceived as having greater aesthetic value. Infrastructure which is not compatible with a landscape or negatively impacts existing features of a landscape could negatively affect the aesthetics of an area.

[55] GRE, Supplemental Filing (November 22, 2022).,

The proposed transmission line will have visual impacts. The project will occupy the same space as the current line, but the poles will be larger and there will be fewer of them. Most of the structures will be wood poles approximately 70 to 90 feet above ground with spans between poles ranging from 300 to 400 feet.[56] Design standards for a 115-kV line require taller structures than for 69-kV lines, and the new poles are expected to be 20-30 feet taller than existing poles. The visual impact will depend largely on the perceptions of the observers across these various landscapes but will remain similar to current conditions.

Impacts

The visual impact of the project is expected to be most noticeable for residents and businesses in the immediate vicinity of the transmission line and substation. **Appendix A** shows the location of commercial and residential properties along the length of the proposed project. There is 1 residence and no commercial buildings within fifty feet of the project alignment. There are a total 18 residences and 1 commercial buildings within 200 hundred feet of the project alignment (**Table 5**). Impacts to residences have been minimized in project design by routing the transmission line within the existing ROW.

Some visual impacts may decrease if the existing distribution lines owned by Xcel Energy and Stearns Electric Association are buried, as expected.[57] The new transmission line structures will be 20 to 30 feet taller with larger insulators, which may increase the visual impacts perceived by a viewer; however, the number of structures will decrease.

Table 5 Residential and Commercial Buildings within 200 Feet of the Anticipated Alignment

Building Type	0-50 ft.	50-100 ft.	100-150 ft.	150-200 ft.	Total
Residential	0	13	0	18	31
Commercial	0	2	0	1	3
Outbuildings	1	5	0	7	13
Total	**1**	**20**	**0**	**26**	**47**

Mitigation

Aesthetic impacts cannot be fully avoided. GRE is committed to working with landowners on pole placement and alignment adjustments. Most of the maintained ROW will not significantly change, however, the expanded route width along 73rd Avenue North will require tree clearing, which will be a noticeable visual impact. GRE will coordinate with landowners to identify concerns related to the transmission line and aesthetics.[58] Efforts to mitigate visual impacts include:

- Locating structures in the existing ROW to the extent possible
- Working with landowners to minimize visual impacts.

[56] Application, P. 7-9 and *Supplemental Filing* (November 22, 2022), eDockets. No. 202211-190847-01, and Appendix D.
[57] Id.
[58] Id.

- Reducing the amount of tree clearing to the extent possible
- Compensating landowners for tree removal and vegetation
- Restoring the route width to it pre-construction construction conditions

The design of the project is consistent with the conditions included in the Commission's generic route permit.[59] While burying transmission lines significantly reduce the aesthetic impacts of HVTL projects, it is cost-prohibitive compared to conditions in the generic route permit and those proposed by GRE.

Cultural Values

Cultural values can be described as shared community beliefs or attitudes, among a given area or population that define what is collectively important and worthwhile to the group. Major infrastructure projects can be inconsistent with the cultural values of an area, resulting in a deterioration of a community's shared sense of self.

St. Joseph has a vibrant arts community and is home to the College of St. Benedict, both of which are important to the city's identity. The city also hosts many events throughout the year, from farmer's markets, fall festivals, to the "small shop crawl," that attract local residents and visitors.[60]

Impacts

Construction and operation of the project is not likely to impact cultural values in the project area, natural resource amenities, recreational opportunities, or tourism. There may be localized disruptions along local roadways during construction, but any disruptions would be of short duration and localized to the project area.

Mitigation

No mitigation is proposed as there no impacts are anticipated. There are no conditions included in the Commission's route permit that directly address mitigation for impacts to cultural values.

Displacement

For electrical safety code and maintenance reasons, utilities generally do not allow residences or other buildings within the ROW of a transmission line. Any residences or other buildings located within a proposed ROW are generally removed or displaced. Displacements are relatively rare and are more likely to occur in populated areas where avoiding all residences and businesses is not always feasible.

Displacements can be avoided by structure placement, the use of specialty structures, and modifications of the right-of-way width. The applicants indicate that they are committed to working with landowners to ensure adequate clearances from buildings and to address landowner concerns. Though the general rule is that buildings are not allowed within the ROW of the transmission line, there are instances where the activities taking place in these buildings are compatible with the safe operation of the line.

Impacts

There are no permanent residences, churches, schools, daycares, or nursing homes within the rights-of-way of the proposed project. The nearest residences are in the City of St. Cloud where the Project is

[59] Generic Route Permit Template Section 5.3.6

[60] City of St. Joseph *Comprehensive Plan*, Adopted September 17, 2018, https://www.cityofstjoseph.com/DocumentCenter/View/966/Adopted-City-of-St-Joseph-Comprehensive-Plan.

adjacent to the city line.[61] The closest home is approximately 70 feet from the proposed transmission centerline (Appendix A). **Table 6** summarizes the residential and non-residential buildings at various distances to the expected centerline for the project.

Table 6 Residential and Commercial Buildings within 200 Feet of the Anticipated Alignment

Building Type	0-50 ft.	50-100 ft.	100-150 ft.	150-200 ft.	Total
Residential	0	13	0	18	31
Commercial	0	2	0	1	3
Outbuildings	1	5	0	7	13
Total	**1**	**20**	**0**	**26**	**47**

Mitigation

Because no displacement impacts are anticipated, no mitigation is necessary.

Electronic Interference

This section summarizes the potential impacts of the project on electronic communications and communication devices, including radios, televisions, and microwave communications.

Electronic interference refers to an electronic signal disturbance that impairs the proper functioning of an electronic device. HVTLs can interfere with electronic communications (radios, two-way radios, TV, and microwave communication) in two ways. First, corona from transmission line conductors can generate electromagnetic "noise" at the same frequencies that communication signals are transmitted. This noise is not sound, but rather electromagnetic signals that can cause interference with the reception of communications depending on the frequency and strength of the signal. Second, transmission line towers can physically block communication signals through a "shadowing" effect.

Impacts from corona "noise" primarily occur in the radio frequency range. Radio interference from HVTLs is most relevant for AM signals. It typically occurs immediately under a transmission line and dissipates rapidly within the right-of-way to either side of the transmission line. FM radio receivers, however, usually do not pick up interference from transmission lines because corona-generated noise currents are quite small in the FM broadcast frequency band. Additionally, FM radio systems have inherent interference rejection properties that make them virtually immune to corona-noise type disturbances. GPS is typically not affected by transmission lines. If interference with electronic devices, including precision farming systems.

The blocking effect of transmission towers primarily impacts two-way mobile radio communications and television signals. Television interference is rare but may occur when a large transmission structure is aligned between the receiver and a weak distant signal, creating a shadow effect. Loose and/or damaged hardware may also cause television interference. A two-way mobile radio located immediately adjacent to and behind a large metallic structure (such as a steel tower) may experience interference because of signal-blocking effects. Telecommunication pathways can be blocked by transmission towers; however, in the case of this project, the route is located away from such towers and will not impact these communications.

[61] Application, P. 7-5.

Impacts

The impacts of corona noise are minimized by designing the project to avoid locating the line close to homes and business to the extent possible, thereby decreasing interference. Generally, electronic interference from the project is not expected, however, there may be audible noise due to corona discharges from the conductors.

Mitigation

Electronic interference can be mitigated through route permit conditions. Corona noise impacts to radio frequencies can mitigated by increasing signal strength through antenna modifications. Where towers create a blocking effect, use of different antennas or satellite dishes, or adjusting their locations, will typically resolve any impacts to television signals.

In situations where a HVTL does cause electronic interference, Commission route permits include standard language requiring permittees to take actions which are feasible to restore or provide reception equivalent to reception levels before construction of the HVTL.[62]

Land Use and Zoning

Land use planning and zoning are tools used to manage land resources in a way that encourages orderly development and protects the resources and uses that are valued by people living in an area. If transmission lines are routed in areas where they are incompatible with existing or planned land uses, it can restrict land use, landowners and communities from using their land resources in ways they prefer, getting in the way of efficient and organized use and development of land or compromising land and water quality (**Appendix A**)

Zoning within the project area includes:

- City of St. Joseph – Rural Residential and Light Industrial
- Stearns County/St. Joseph Township – Industrial
- Stearns County/St. Wendell Township – Agricultural District A

The City of St. Joseph adopted a comprehensive plan in 2018.[63] The proposed project is consistent with the land use plan and will support growth and development in the area.

Impacts

Impacts to land use are expected to be minimal. Some agricultural land may be temporarily removed from production during transmission line construction. A very small, but permanent, amount of agricultural land will be lost due to the increase in diameter of the new structures. The new pole diameter will be approximately 20 inches, compared to the 16-inch diameter of the existing poles. Construction of the line will not change current land uses. Agricultural impacts will be mitigated through restoration and compensatory payments. No additional mitigation is proposed.

The route permit does not address land use or zoning because the project is subject to Minnesota's Power Plant Siting Act. Under this statute, the route permit issued for a transmission line "shall be the sole site or route approval required to be obtained by the utility. Such permit shall supersede and

[62] Generic Route Permit Template at Section 5.4.3.

[63] City of St. Joseph Comprehensive Plan (September 17, 2018), retrieved April 18, 2023, https://www.cityofstjoseph.com/DocumentCenter/View/966/Adopted-City-of-St-Joseph-Comprehensive-Plan.

preempt all zoning, building or land use rules, regulations or ordinances promulgated by regional, county, local and special purpose government." (Minnesota Statute, section 216E.10).

Mitigation

The project conforms to the land uses and future growth and development identified in the comprehensive plan and will not impact future growth and development in the area.

The route permit does not include mitigation for land use or zoning. The project is subject to permitting under Minnesota's Power Plant Siting Act. Under this statute, the route permit issued for a transmission line "shall be the sole site or route approval required to be obtained by the utility. Such permit shall supersede and preempt all zoning, building or land use rules, regulations or ordinances promulgated by regional, county, local and special purpose government" (Minnesota Statute, section 216E.10).

Noise

Noise is defined as unwanted and objectionable sound. Sound levels are usually measured and expressed in decibels (dB), which are logarithmic units that can be used to conveniently compare wide ranges of sound intensities. The A-weighted decibel (dBA) scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. On the logarithmic decibel scale, a 70 dBA sound level is approximately twice as loud as a 60 dBA sound level and four times as loud as a 50 dBA sound level.

The Minnesota Pollution Control Agency (MPCA) has developed protective standards for daytime and nighttime noise levels that vary based on land use at the location where the sound is heard ("noise area classification"). MPCA noise standards are provided in **Table 5**. These standards are expressed as a range of permissible A-weighted decibels (dBA) over the course of an hour. "L_{10}" is the noise level may be exceeded 10 percent of the time, or six minutes per hour, while "L_{50}" may be exceeded 50 percent of the time, or 30 minutes per hour. Standards vary between daytime and nighttime hours.

The primary noise receptors in the project area are residences and businesses. Residences are in noise area classification one (NAC 1). Noise receptors could also include individuals working outside or using recreational facilities in the project area. In most of the project area, ambient noise levels are in the range of 30 to 50 dBA, with temporary higher noise levels associated with wind, vehicular traffic, and the use of gas-powered equipment, e.g., tractors, chain saws.

Table 7 Noise Area Classifications (dBA)[64]

Noise Area Classification by Type (NAC)	Daytime (7:00 a.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
	L_{10}	L_{50}	L_{10}	L_{50}
1 Residential-type Land Use Activities	65	60	55	50
2 Commercial-type Land Use Activities	70	65	70	65
3 Industrial-type Land Use Activities	80	75	80	75

Community noise levels are usually closely related to the intensity of human activity. Noise levels are generally considered low when below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, noise levels is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas, and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with noisy urban residential and residential commercial zones, high noise levels are considered adverse to public health.

Surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. As noted earlier, the project area is zoned agricultural, with a mix of residential and commercial uses within the highway corridor. Stands of trees are common outside of the road ROW and can buffer unwanted sound. Ambient noise in the area is considered moderate and generally between 45 and 60 dBA. Generally, noise concerns with HVTL projects are related to heavy equipment used in construction of the line, but minor amounts of noise are also generated during operation of transmission lines. The primary noise receptors within the route would be residences and local businesses.

Construction of the proposed project will cause intermittent increases in day-time noise levels at residences and businesses along the proposed route due to heavy equipment operation and increased vehicle traffic. Noise associated with heavy equipment can range between 80 and 90 dBA at full power, and this equipment generally runs at full power up to 50 percent of the time, so noise in the 80 and 90 dBA range could persist for more than 30 minutes per hour. Although this noise will dissipate over distance, the equipment noise will contribute 72 dBA at 400 feet and a 60 dBA sound at 1,600 feet. As a result, during construction, noise levels at adjacent homes may periodically exceed state noise standards. Any exceedance of noise standards would be short-term and confined to daytime hours.

[64] Minnesota Pollution Control Agency, May 2015. A Guide to Noise Control in Minnesota. Accessed online, April, 18, 2023, **https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf**.

Noise will also be generated during operation of the proposed substation. Substation transformers produce a humming noise. In addition, transformers and transmission lines are equipped with circuit breakers which, in the rare event that they are opened produce a sound associated with the mechanical operation of the breakers. This noise is not expected to notably affect existing background levels. Because noise dissipates over distance, the small amount of substation noise is not expected to notably change overall noise levels at nearby residences. Thirteen residences are located within 100 feet and 2 businesses are located within 50-100 feet of the project and substations **(see Table 2**). Substation noise is not expected to cause or significantly contribute to exceedances of the MPCA's total noise standards and no impacts to human health and wellbeing are anticipated.

Impacts

Potential noise impacts from the project can be grouped into three categories: construction noise, transmission line noise, and substation noise.

Construction Noise

During the construction of the project, temporary, localized noise from heavy equipment and increased vehicle traffic is expected to occur along the ROW during daytime hours. Construction activity and crews would be present at a particular location during daytime hours for a few days at a time but on multiple occasions throughout the period between initial ROW clearing and final restoration. Construction noise could temporarily affect residences, schools, businesses, libraries, etc., that are close to the ROW. Any exceedances of the MPCA daytime noise limits would be temporary in nature and no exceedances of the MPCA nighttime noise limits are expected for the project.

Transmission Line Noise

Noise from transmission lines (electrical conductors) is due to small electrical discharges which ionize surrounding air molecules. This phenomenon is known as corona. The level of noise from these discharges depends on conductor conditions, voltage levels, and weather conditions. Noise emissions are greatest during heavy rains when conductors are consistently wet. However, during heavy rains, the background noise level is usually greater than the noise from the transmission line and few people are in close proximity to the transmission line in these conditions. As a result, audible noise is not noticeable during heavy rains.

In foggy, damp, or light rain conditions, transmission lines may produce audible noise higher than background levels. During dry weather, noise from transmission lines is a perceptible hum and sporadic crackling sound. The applicants modeled and estimated noise levels for the project's transmission line (Table 5-4). This modeling indicates that the highest noise level from the project would be approximately 41 dBA at the edge of the transmission line ROW and 44 dBA directly under the line. These noise levels are within Minnesota noise standards (i.e., < 50 dBA), and would only be perceptible when ambient noise levels in the project area fall below 40 dBA.

Substation Noise

Substation noise results from the operation of transformers and switchgear. Transformers produce a consistent humming sound, resulting from magnetic forces within the transformer core. This sound does not vary with transformer load. Switchgear produces short-term noises during activation of circuit breakers. These activations are infrequent.

Noise impacts from the project are anticipated to be minimal and within Minnesota's noise standards. However, this does not mean that noise impacts would not occur. Even if the operational noise levels for the project are within state standards, the project would introduce a new noise source that, in certain situations (e.g., a calm evening) may be heard by residents in the project area.

Mitigation

Standard language in Commission route permits requires permittees to adhere to MPCA noise standards which protect against impacts human health and welfare.[65] Operational noise from the transmission line is not anticipated to significantly contribute to exceedances of the MPCA's total noise standards, therefore, no mitigation is proposed after construction is completed.

Construction noise can be mitigated to minimize the impact of any exceedances of the standard that may occur. Possible mitigation measures include the following:

- Conducting construction activities during normal business hours
- Equipping construction equipment with residential-grade mufflers
  Combining noisy operations to occur in the same time period. The total noise level produced will not be significantly greater than the level produced if the operations were performed separately.

Recreation

Recreation includes outdoor leisure activities done for enjoyment, amusement, and pleasure. From hiking, to boating, and nature watching to hunting, transmission lines are a concern for recreation because they can 1) alter recreational resources in a way that diminishes their utility or 2) alter the visual setting in a way that changes the experience and reduces the user's enjoyment, amusement, or pleasure. Both types of impacts tend to occur where the transmission line is located immediately adjacent to the recreational resource.

Stearns County has numerous year-round recreational opportunities such as trails for hiking, biking, and cross-country skiing, lakes and rivers for swimming, boating, and fishing. Existing recreational resources in the project area, include trails, rivers, lakes, and parks (**MAP 6).** The Lake Wobegon Regional Trail and snowmobile trail number 211 are adjacent to the proposed project.[66] A portion of the Lake Wobegon Trail was built in 2018 and runs parallel along the north side of Ridgewood Road. The Lake Wobegon Trail Association and Stearns County Park Department manage the trail. The snowmobile trail follows alongside CSAH 33 and passes near the Le Sauk and Five Points substations.

Impacts

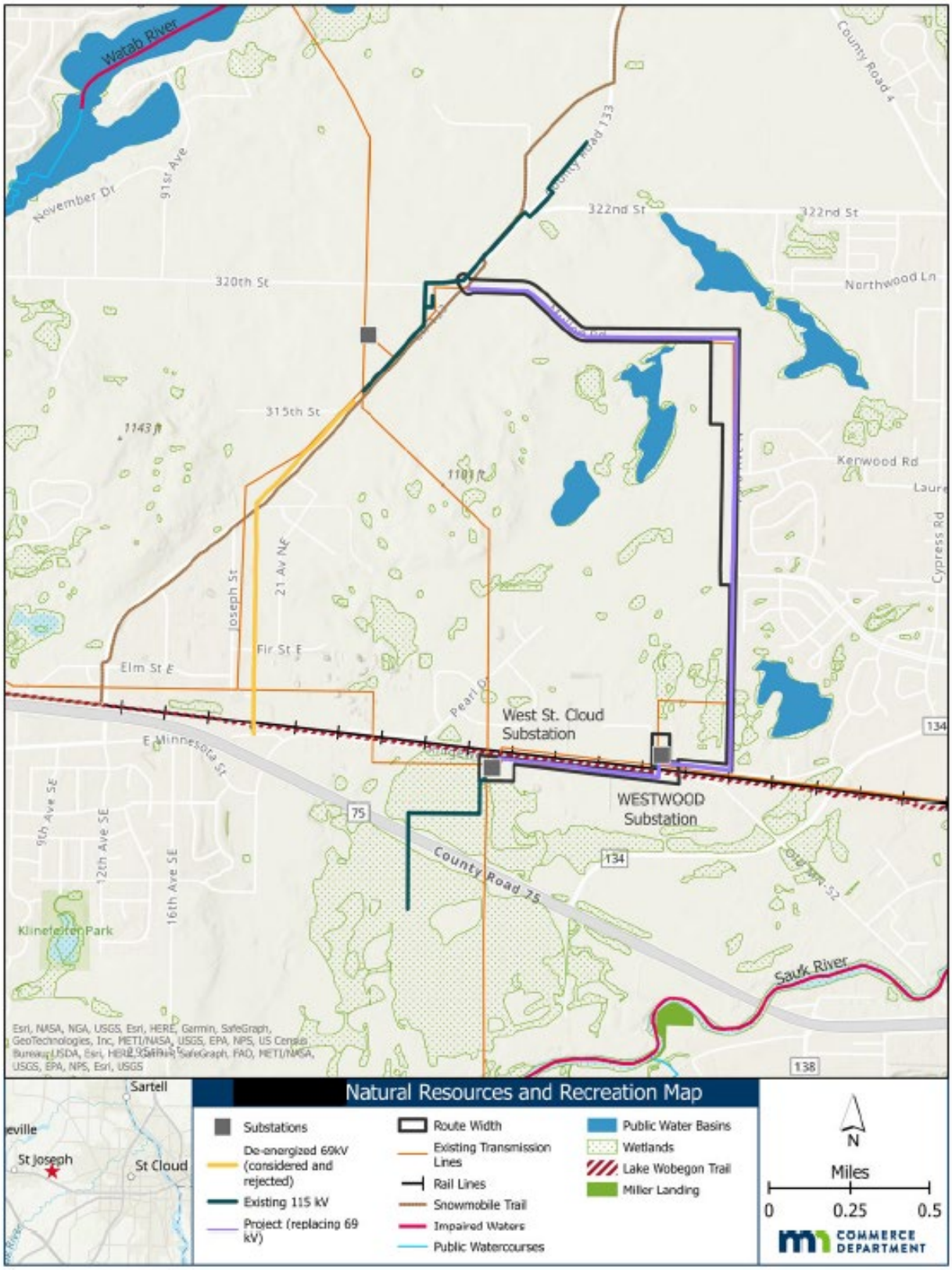
The proposed transmission line will cross the Lake Wobegon Trail where the line crosses from the south side of Ridgewood Road to the north side of 304th Street. It will also cross over the snowmobile trail were the transmission line crosses over CSAH 33 to connect with the switch structure. The existing 69-kV line already crosses the bike trail and there are other existing transmission and substations in this area, which will help to mitigate the transmission line's visual impacts. Great River Energy does not anticipate closures of the Lake Wobegon Trail or the snowmobile trail during construction.

[65] Generic Route Permit Template at Section 5.3.5.
[66] Application, P. 7-12.

Mitigation

No impacts to local recreational activities are expected. Because no additional impacts to recreation are anticipated, no mitigation is proposed.

Map 6 Recreation and Natural Resources in the Project Area



The Commission's route permit does not include conditions that directly address impacts to recreation. Since the project is not expected to have long-term permanent impacts to recreation amenities or pursuits along the project ROW, no mitigation is proposed. Potential impacts to avian species can be mitigated by following the recommendation made by the DNR during scoping and installing Swan-Flight type avian flight diverters on the transmission line.[67]

Socioeconomics

Socioeconomic factors provide an indication of how economic activity affects and is shaped by social processes. Socioeconomic measures tell us how societies progress, stagnate, or regress because of their local or regional economy, or the global economy. HVTL projects like this one can contribute to growth and progress at the local level over time, but it is not expected to have a significant socioeconomic impact.

Approximately 16 workers will be required for construction of the transmission line and the substation.[68] GRE expects construction of the transmission line and substation to take approximately one year. There will be minor short-term positive economic impacts as a result of construction activity and an influx of contractor employees during construction of the project. GRE will use contractors for all construction activities. Local businesses will likely experience short-term positive economic impacts through the use of the hotels, restaurants and other services used by contractors during construction. In addition, construction materials, such as concrete, may be purchased from local vendors where feasible. There will be no permanent positions created as a result of the project.

Impacts

During construction, there may 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.

Long term benefits of the Project include the ongoing reliable electrical services and the ability to serve existing and new local load growth. The benefits apply to the local community regardless of economic status, race, and personal identification.

Mitigation

Because impacts to socioeconomics will be generally short-term and beneficial, no mitigation is proposed.

[67] Minnesota Department of Natural Resources (December 29, 2023) *Comments*, eDockets No.
[68] Data Request to GRE (May 6, 2020) and Application P. 23.

Property Values

One of the primary socioeconomic concerns of those residing near existing or proposed transmission lines is impacts to property values. There are three primary concerns raised regarding the potential impact of a nearby high-voltage transmission line on property value:

- Concern or fear of possible health effects from electric or magnetic fields: While no conclusive evidence of the effects of EMF on health exists, it is recognized that people's concerns about this issue can influence their decisions related to purchase of property.

- The potential noise and visual unattractiveness of the transmission line: The visual profile of transmission lines structures and wires may decrease the perceived aesthetic quality of property. The transmission facility would not generate noise above the state noise standards and is not considered an issue.

- Potential interference with farming operations or foreclosure of present or future land uses: On properties that are farmed, installation of a power line can remove land from production, interfere with operation of equipment, create safety hazards, and foreclose the opportunity to consolidate farmlands or develop the land for another use.

A recent literature review examined 17 studies on the relationship between transmission lines and property values.[69] The reviewers concluded that the studies indicate small or no effects on the sale price of properties due to the presence of transmission lines.[70]

Impacts

Direct impacts to property values from the new transmission line are anticipated to be minimal. While impacts to property values could occur, any potential impact would be difficult to attribute to the proposed project. Because the new transmission line uses the existing ROW, any impact from the transmission line would be minimal. The new transmission line would not significantly impact businesses or agriculture along the route.

Mitigation

While the Commission's route permit does not address property value impacts directly, potential for impacts to property values can be mitigated by utilizing existing rights-of way, locating the project away from homes, and reducing aesthetic impacts. Property value impacts can also be mitigated through inclusion of specific conditions in individual easement agreements with landowners along the route. These agreements, however, are not within the scope of this EA.

Public Services and Infrastructure

Public services and infrastructure include the systems that supply essential amenities like public water supplies, electricity, gas, internet and transportation by road, rail, and air. Construction activities can cause temporary disturbances to public services and infrastructure through traffic restrictions or utility outages. Typical operational concerns related to infrastructure are mainly compatibility with roadway expansion plans, and transportation safety requirements. The proposed project will have minor impacts

[69] The Effects of Transmission Lines on Property Values: A Literature Review, Journal of Real Estate Literature, 2010, www.real-analytics.com/Transmission Lines Lit Review.pdf.

[70] Ibid.

to roadways during construction and operation. Other public services and infrastructure will not be impacted.

Transportation

Roadways can be impacted temporarily during construction and during maintenance of the transmission line. Impacts during construction and maintenance can include temporary traffic delays, road closures, and detours in the project area. The Project is bounded by Ridgewood Road to the south, 73rd Avenue North to the east, Mullen Rd to the North and County Rd 133 to the northeast (**Appendix A**). The proposed route follows an existing transmission line for nearly the entire route.

Traffic volumes on Ridgewood Road (MnDOT Monitoring Point SEQ 67040) were 3,200 vehicles per day in 2017.[71] Traffic volumes on Mullen Road (MnDOT Monitoring Point SEQ 70052) were 2,050 cars per day in 2017.[72] The St. Cloud Regional Airport is more than 8 miles west of the project. The proposed project does not include any structures greater than 200 feet above ground level and will not impact the airport. A portion of the BNSF railroad is located between Ridgewood Rd and 304th St.

Impacts

Traffic disruptions are expected to be temporary during construction of the transmission line and substation. GRE indicates that it will coordinate with appropriate county and state roadway authorities to develop appropriate traffic control measures during construction and maintenance activities.[73]

Structure placement along roadways can also impact future road expansions, particularly if structures are placed within the road ROW. In such cases, utilities are responsible for any adjustments and/or relocation of the HVTL as necessary. GRE is coordinating state and local roadway authorities to avoid re-location of any infrastructure.

Mitigation

The use of the existing electric utility ROW will mitigate most impacts to transportation services. Road or lane closures due to construction would be temporary and infrequent. Any necessary road or lane closures will be coordinated with the appropriate jurisdictional authority to limit impacts to the travelling public. The Commission's route permit includes conditions to mitigate impacts to roadways.[74]

Utilities

Xcel Energy and the Stearns Electric Association have distribution lines in the existing ROW. GRE anticipates that these lines will be buried.[75] There is an existing natural gas pipeline which will be crossed by the project. Other utilities, such as gas/oil pipelines and electric distribution lines, and site improvements such as septic systems and wells, will be identified during survey activities to avoid impacts.[76]

---

[71] Application, P. 7-14
[72] Id.
[73] Application, P.7-15.
[74] Generic Route Permit Template at Section 5.3.13.
[75] Application, P.
[76] Application, P. 7-14.

Impacts

An outage may occur when the Westwood Distribution Substation is changed from operating on the 69-kV line to the 115-kV line. Great River Energy will coordinate the timing with Stearns Electric Association's work in the Westwood Substation to minimize any outages to end consumers.

Mitigation

GRE will coordinate construction schedules, including any outages, with the local distribution cooperative, to avoid and/or minimize disruptions to service in the area. Additionally, construction impacts to utilities can be avoided by marking underground utilities and avoiding these areas during construction.

Emergency Services

Transmission lines have the potential to impact emergency services through interference with electronic communication systems or traffic delays. No impacts to communication systems are anticipated. Any temporary roadway closures will be coordinated with local jurisdictions and local emergency services providers to allow for safe access of police, fire, and other emergency vehicles.

Impacts

No impacts are anticipated.

Mitigation

GRE will coordinate with local jurisdictions and emergency service providers during construction and operation to ensure emergency services are not disrupted.

Environmental Justice

Utility infrastructure can adversely impact low-income, minority or tribal populations. Environmental justice is the" fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[77] The goal of this "fair treatment" is not to shift risks among populations, but to identify potential disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.[78]

Minnesota Statute 216B.1691, subd. 1 (e) was recently updated to reflect the definition of an environmental justice area[79]. The data does not define the project area as an environmental justice area based on the population residing in surrounding census tracts. This means that none of the census tracts contain:

1) 40 percent or more nonwhite populations

[77] US EPA Environmental Justice, https://www.epa.gov/environmentaljustice.

[78] US EPA, Guidance for Incorporating Environmental Justice Concern in EPA's NEPA Compliance Analyses (pdf).

[79] "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.

2) 35 percent or more households with income ≤ 200 percent of the poverty level
3) 40 percent or more residents with limited English proficiency, or;
4) Indian country.

Impacts

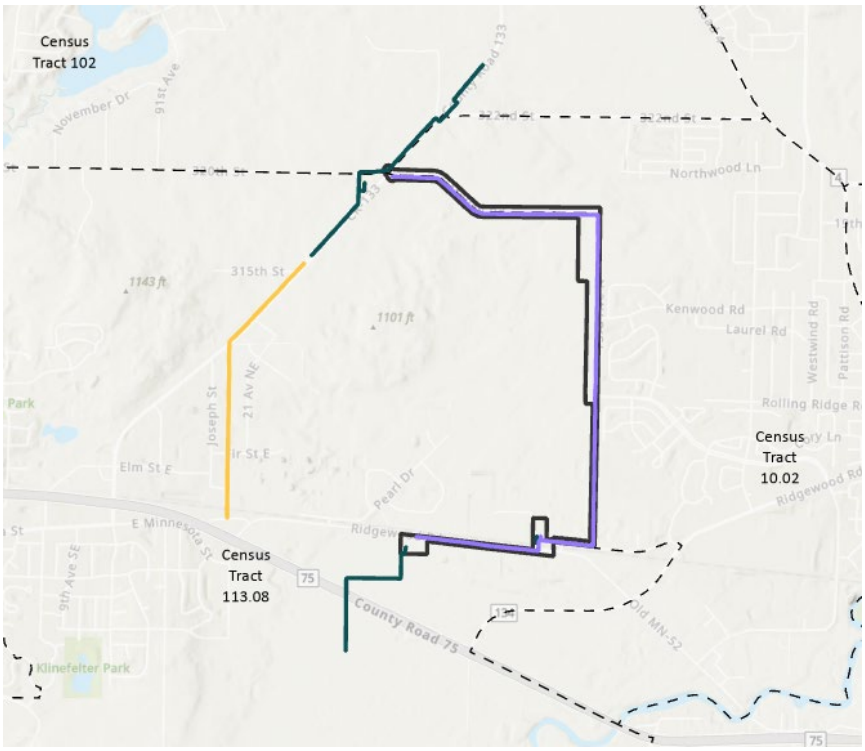
The socioeconomic setting of the proposed Project area was evaluated on a regional basis, comparing data for the City of St. Joseph with average data for Stearns County and the State of Minnesota. Data compiled from the 2010 and 2020 U.S. Censuses are summarized in **Table 8**. Census tracts analyzed in relation to the project area are shown on **Map 7**.

Table 8 Socioeconomic Characteristics

Area	% Below Poverty	Median Household Income ($)	% Minority**	% Non-English spoken at home
Minnesota	9.3	77,706	17	12
Stearns County	13.5	68,212	14	10.4
St. Joseph	21.9	70,292	10.9	7.2
Tract 102	3.5	42,154	3.1	2
Tract 1002	18	31,948	18.4	12
Tract 11308	14	26,306	16.1	7

Source: U.S. Census Bureau 2020 Decennial Census and 2021 American Community Survey estimates.

Map 7 Census Tracts Near Project Area



The US EPA's Environmental Justice Screening Tool (EJ Screen)[80] was also used to evaluate the project route plus a 0.25 mile buffer to consider the composition of the affected area to determine whether low-income, minority or tribal populations are present and whether there may be disproportionately high and adverse human health or environmental effects on these populations. This tool suggests the population in the project area's exposure to environmental hazards is similar to, or less than, the state and national average exposure values across a range of variables.

Mitigation

The project will not have disproportionately high and adverse human health or environmental effects on low-income, minority, or tribal populations. No further mitigation is proposed. The Commission's route permit does not include conditions to mitigate environmental justice, however, special permit conditions could mitigate impacts.

Public Health and Safety

Impacts to human health and safety are assessed by looking at two main issues: electric and magnetic fields (EMF), and stray voltage.

The extent to which a project may raise concerns around EMF and stray voltage is correlated with the voltage of the line and how close the route is to human settlement areas. The sections that follow evaluate how the project may impact human health and safety and how these impacts may be mitigated. Given the distance from homes, the voltage of the line and the permittee's obligations for safe operation and proper maintenance of the line, no notable impacts to human health and safety are expected.

Electric and Magnetic Fields

Electric and magnetic fields (EMF) are invisible forces that result from the presence of electricity. EMF occurs naturally and is caused by weather or the geomagnetic field. Human-made EMF is caused by all electrical devices and is found wherever people use electricity.

In the case of transmission lines electric fields are created by the electric charge (i.e. voltage) on a conductor and are easily shielded or weakened by most objects and materials, such as trees and buildings.

Magnetic fields are created by the electrical current (i.e. amps) moving through a conductor. Like electric fields, the strength of a magnetic field decreases rapidly to background levels as the distance from the source increases. Unlike electric fields, magnetic fields are not easily shielded or weakened by objects or materials.

Concerns have been raised about the potential for adverse health effects due to EMF exposure. Studies in the 1970s found a statistical correlation between childhood leukemia and EMF exposure. After several decades of study, a cause-and-effect relationship has not been established between EMF and health effects.[81]

[80] https://www.epa.gov/ejscreen

[81] National Institute of Environmental Health Sciences and the National Institutes of Health (2002), *Electric and Magnetic Fields Associated with the Use of Electric Power,* Retrieved May 3, 2020,

There are no federal regulations regarding allowable electric or magnetic fields produced by transmission lines in the United States. In Minnesota, the Commission has adopted a prudent avoidance approach in routing transmission lines. This means avoiding highly populated areas in routing when possible and maximizing the distance from homes (by placing the line across the road instead of in a front yard, for example). Since EMF levels drop off quickly to background levels with increasing distance from the centerline of a transmission line, these avoidance strategies minimize human exposure to EMF created by the HVTL. The prudent avoidance approach has been incorporated into project design by avoiding population centers and minimizing the proximity of homes and businesses to the HVTL.

In addition to prudent avoidance, the Commission has adopted a maximum electric field under HVTLs in Minnesota to 8.0 kV/m. It has not adopted a standard for magnetic fields. Maximum modeled electric field levels associated with the project are 0.78 kV/m directly under the centerline, below the Commission's limits.[82]

Another concern with EMF is potential interference of electric fields with implantable electromechanical medical devices, such as pacemakers, because at high levels electric fields may interfere with a pacemaker's ability to sense normal electrical activity in the heart, causing temporary asynchronous pacing (commonly referred to as reversion mode or fixed rate pacing). The pacemaker returns to its normal operation when the person moves away from the source of the interference.

In the case of transmission lines, however, electric field strength is well below the levels that cause such interference, and the proposed project will not impact implantable medical devices.

Impacts

Impacts to public health and safety resulting from the project are not expected. No adverse health impacts due to EMF, stray voltage, induced voltage, or air emissions are anticipated. The project would have protective devices to safeguard the public from the line if an accident occurred and a structure or conductor fell to the ground. These protective devices are circuit breakers and relays located within connecting substations. The protective equipment would de-energize the transmission line, should such an event occur.

Mitigation

The proposed project aligns with the Commission's prudent avoidance approach in routing transmission lines, minimizing the potential for health related impacts to the extent possible. EMF exposure levels can also be minimized by conductor configurations that facilitate phase cancellation between circuits. However, given the rapid dissipation of EMF with distance, such mitigation will not materially affect exposure levels at homes and businesses along the route.

https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf.

[82] Application P. 6-25.

Stray Voltage

Electrical systems that deliver power to end-users and electrical systems within the end-user's business, home, farm, or other buildings are grounded to the earth for safety and reliability reasons. The grounding of these electrical systems results in a small amount of current flow through the earth.

Transmission lines do not, by themselves, create stray voltage because they do not connect to businesses and residences. Transmission lines can, however, induce a current on a distribution circuit that is parallel and immediately under the transmission line.[83] If a landowner has stray voltage concerns on their property, Great River Energy suggests they contact their electric service provider to discuss the situation with technical staff, including the possibility of an on-site investigation.

Impacts

Impacts to residences, businesses, or farming operations resulting from NEV are not anticipated. The proposed project does not directly connect to businesses or residences at any point along the route and does not change local electrical service.

Induced Voltage

When an electric field reaches a nearby conductive object, such as a vehicle or a metal fence, it can induce a voltage on the object.[84] The magnitude of this voltage is dependent on many factors, including the object's capacitance, shape, size, orientation and location, resistance with respect to ground, and the weather conditions. If the object is insulated or semi-insulated from the ground and a person touches it, a small current could pass through the person's body to the ground. This might be accompanied by a spark discharge and mild shock, like what occurs when a person walks across a carpet and touches an object or person.

Most shocks from induced current are more of a nuisance than a danger. To ensure the safety of persons in proximity to a transmission line, the NESC requires that any discharge be less than 5 milliamps (mA).[85] In addition, the Commission's electric field limit of 8 kV/m is designed to prevent serious hazard from shocks due to induced voltage under transmission lines. Route permits issued by the Commission require that transmission lines be constructed and operated to meet NESC standards and the Commission's electric field limit.

Impacts

Impacts due to induced voltage are not anticipated to occur as a result of the operation of the new transmission line. The new transmission line may induce a voltage on insulated metal objects near the transmission line ROW; however, the Commission requires that transmission lines be constructed and operated to meet NESC standards as well as the Commission's own electric field limit of 8 kV/m, reducing these impacts.

Mitigation

No impacts to public health and safety are anticipated. To ensure the safety of persons in the proximity of high voltage transmission lines, the NESC requires that any discharge be less than five (5) milliAmperes root mean square (mA rms). Great River Energy would ensure that any fixed conductive

[83] Application, P. 6-27, Route Permit Section 5.4.2.
[84] Application, P. 6-23
[85] Id.

object in close proximity or parallel to the Project, such as a fence or other permanent conductive fixture, would be grounded so any discharge would be less than the 5 mA rms NESC limit.[86]

Potential impacts as a result of induced voltage are reduced or avoided by the Commission's permit requirements for grounding and electric field strength.[87] As a result, potential impacts are not anticipated and further mitigation is not proposed.

Land-Based Economies

High Voltage Transmission Lines can impact land-based economies such as mining, forestry and agriculture. The extent to which a project may impact these sectors is closely correlated with how much the project will impact lands earmarked for use by the industry. Resources can be renewable, such as forests or agriculture, or non-renewable, such as mining, or other extractive industries. Impacts to land-based economies are tied to land use impacts like those discussed above in the Human Settlement impact analysis.

There may be impacts to agriculture dues to construction of the project. There are no other land-based economies (forestry, mining) in the area potentially impacted by the project.[88]

Agriculture

The project will have a minor impact on agricultural lands. According to the 2017 United States Department of Agriculture (USDA) Census of Agriculture, Stearns County has 2,951 individual farms with an average farm size of 390 acres, and covers approximately 650,821 acres (73 percent) of the county.[89] Over $180 million was generated from both crop and livestock sales in 2017.[90]

Agricultural lands within the proposed route consist primarily of pasture, hay, and cultivated lands (Table 4) The transmission line will cross approximately 6.4 acres of agricultural land (assuming a 70-foot ROW).[91] Some agricultural land may be temporarily removed from production during construction. Permanent and incrementally negligible agricultural land conversion will occur due to marginally larger structure diameters for the 115-kV circuit.[92] The diameter of the 69-kV structure at ground level are approximately 16 inches, whereas the 115-kV structures will typically be 20 inches.

Impacts

Agricultural land will be impacted by construction. Equipment used in the construction process includes backhoes, cranes, boom trucks and assorted small vehicles that can cause rutting and soil compaction, particularly during springtime and otherwise wet conditions. It is anticipated that some temporary construction space on property immediately adjacent to the ROW and on private property will be needed, apart from limited equipment access. GRE will obtain all necessary easements and permissions for temporary workspace.

[86] Application, P. 6-23
[87] Route Permit Sections 5.4.1 and 5.4.2.
[88] Application, P. 7-20, 21.
[89] Application, P. 7-15.
[90] Id.
[91] Application, P. 7-16.
[92] Application, P. 7-19.

Mitigation

GRE will work with landowners to minimize impacts to agriculture along the route and will compensate landowners for any crop damage/loss and soil compaction that may occur during construction. Areas disturbed during construction will be repaired and restored to pre-construction contours to facilitate revegetation, provide for proper drainage, and prevent erosion.
Specific mitigation measures to be implemented include:

- Local roads will be used as practicable for moving equipment and installing structures. Where local roads cannot be used, movement of crews and equipment will be limited to the ROW to the greatest extent possible, including access to the route. Contractors employed by Great River Energy will limit movement on the ROW to minimize damage to grazing land or property. If movement outside of the ROW is necessary during construction, permission will be obtained and any damage will be paid to the landowner.
- Construction will be scheduled during periods when agricultural activities will be minimally affected to the extent possible or the landowner will be compensated accordingly.
- Ruts that are hazardous to agricultural operations will be repaired or compensation will be provided as an alternative if the landowner desires. In pastures, compacted soils will be loosened, and ruts will be leveled by scarifying, harrowing, discing, or by other approved methods. Damage to ditches, terraces, roads, and other features of the land will be corrected using approved methods and indigenous plants where necessary. The land and facilities will be restored as nearly as practicable to their original conditions.
- ROW easements will be purchased through negotiations with each landowner affected by the project. Restoration or compensation will subsequently be made for reasonable crop damages or other property damages that occurs during construction or maintenance as negotiated.
- Fences, gates, and similar improvements that are removed or damaged will be promptly repaired or replaced.

Tourism

Transmission lines may impact recreational activities if the transmission line interferes with the natural resources that provide these activities, for example, changing the aesthetic of a recreational destination in a way that reduces visitor use. Transmission lines can impact tourism if they affect the overall experiences of visitors, either through aesthetic impacts, noise, or degradation of the recreational resources. There are no State Parks, State Forests, Scientific and Natural Areas (SNA), Wildlife Management Areas (WMA), county parks, or federal forests or refuges within the proposed route. Tourist destinations near the proposed route include the Lake Wobegon Trail, rivers, and lakes. Popular activities include fishing, boating, swimming, biking, hiking, and scuba diving. The recently constructed portion of Lake Wobegon Trail within the Project area provides opportunities for biking, picnicking, viewing wildlife and ecosystems.

Impacts

The proposed route would have minimal impacts on tourism activities and nearby tourist destinations. Tree clearing along 73rd Avenue North will permanently displace wildlife and nesting birds in that location and may impact wildlife viewing opportunities locally.

Mitigation

No impacts to tourism are anticipated, and no mitigation is proposed. The Commission's route permit does not include conditions that directly address impacts to tourism. Long-term impacts resulting from tree clearing will be minimized by reducing the amount of tree clearing to the extent practicable and

restoring the area following construction. Impacts to avian species can mitigated by following the recommendation made by the DNR during scoping and installing Swan-Flight type avian flight diverters.

Forestry

According to the 2017 USDA Census of Agriculture, Stearns County has six percent (approximately 53,376 acres) of commercial forested land.[93] There are no commercially operated forestlands with the project area.

Impacts

There will be no impacts to commercial forest lands and no mitigation is proposed.

Mining

There are no known gravel pits or other mining activity in the vicinity of the Project. As no impacts on mining are anticipated, no mitigation is proposed.

Archeological and Historic Resources

Cultural resources, including archaeological and historic artifacts and features, contribute to the record of human occupation and alteration of the landscape. Archaeological resources include historic and prehistoric artifacts, structural ruins, or earthworks, and are often partially or completely below ground. Historic resources include extant structures, such as buildings and bridges, as well as districts and landscapes. Traditional cultural properties (TCPs) are also considered historic or cultural resources that reflect cultural or religious importance.

A cultural resource literature review of the proposed transmission line and a one-mile buffer was conducted online and at the Minnesota State Historic Preservation Office (SHPO).[94] There are six previously recorded historic/archaeological sites within the study area.[95] SHPO concluded that "there are no properties listed in the National or State Registers of Historic Places in the area that will be affected by this project and no known or suspected archaeological properties in the area that will be affected by this project."[96]

GRE requested feedback on the project from the 11 federally recognized Tribes geographically located within Minnesota and the Minnesota Indian Affairs Council.[97] Currently, no TCPs or cultural resources that reflect cultural or religious importance have been identified.

Impacts

Because no impacts to archaeological and historic resources are anticipated, no mitigation is proposed.

---

[93] Application, P. 7-20.
[94] Id.
[95]
[96] Application, p. 7-21
[97] Application, Appendix E.

Mitigation

Avoidance of known archaeological and historic resources is the primary mitigation strategy. The Commission's standard route permit conditions require that permittees mitigate potential impacts by requiring stopping construction and contacting SHPO to determine how best to proceed.[98] The standard permit condition requires that ground disturbing activity stop and local law enforcement be notified should human remains be discovered.[99] Continued coordination with SHPO and supplying information of known cultural and archaeological resources within the ROW and substation parcel is needed prior to the start of construction.

[98] Generic Route Permit Template at Section 5.3.14.
[99] *Ibid*.

Natural Resources

Impacts to the natural environment are assessed by looking at a variety of resources including air quality, geology and soils, water resources, flora, fauna, and rare and unique resources. Impacts of an HVTL project on these resources are associated with construction directly across or through a resource area. For example, water resource impacts primarily occur where the route requires a wetland or waterbody crossing. In some cases, however, routing in close proximity, even without a crossing, can affect natural resources. Wildlife near the construction area, for example, may be disturbed by noise from construction equipment.

The proposed project will be generally located in the existing ROW. **Appendix A** shows the location of natural resources relative to the project ROW. The sections that follow evaluate how the project may impact natural resources and how these impacts may be mitigated.

Air Quality

Air quality is a measure of how pollution-free the ambient air is and how healthy it is for humans, other animals, and plants. Emissions of air pollutants during construction and operation of new infrastructure can cause concern about degradation of air quality.

Overall air quality in Minnesota has improved over the last 20 years, but current levels of air pollution still contribute to health impacts.[100] Air quality in the project area is relatively better than more populated areas of the state such as the Twin Cities metro region.

Potential air quality impacts due to the project are of two types: (1) emissions of ozone and nitrous oxide during operation, and (2) fugitive dust caused by construction activities.

Impacts

Ozone and Nitrous Oxide

Transmission lines have the potential to produce small amounts of ozone (O_3) and nitrous oxide (NO_X). These compounds are created by the ionization of air molecules surrounding the conductor. Ozone production from a conductor is proportional to temperature and sunlight and inversely proportional to humidity.

Nitrogen oxides can react to form ground-level ozone. Ozone is one of the most impactful pollutants in Minnesota and can contribute to health issues even as the State continues to meet all current federal standards. Ozone and nitrous oxide are reactive compounds that contribute to smog and can have adverse impacts on human respiratory systems.[101] Accordingly, these compounds are regulated and have permissible concentration limits. The State of Minnesota has an ozone standard of 0.07 parts per million (ppm) through an 8-hour averaging time[102] which conforms to the federal ozone standard.[103]

Nitrous oxide is regulated indirectly through the state and federal standards for nitrogen dioxide (NO_2). Nitrogen oxides are a criteria pollutant under the Clean Air Act, and the standards for them are set by

[100] The State of Minnesota's Air Quality, January 2023 Report to the Legislature, https://www.pca.state.mn.us/sites/default/files/lraq1sy23.pdf.

[101] https://www.epa.gov/criteria-air-pollutants

[102] Minn. R. 7009.0800, https://www.revisor.mn.gov/rules/?id=7009.0080.

[103] The Clean Air Act, 40 CFR part 50, https://www.epa.gov/criteria-air-pollutants/naaqs-table

using NO_2 as the indicator of the larger group of nitrogen oxides[104]. Ozone and nitrous oxide emissions from the new 115 kV line are anticipated to be well below these limits.[105] Impacts are unavoidable and do not affect a unique resource.

Construction Dust
Dust from construction activities, or fugitive dust, is a particulate air pollutant. Construction activities along the proposed route, such as clearing vegetation and driving utility poles, may create exposed areas susceptible to wind erosion. All projects that involve movement of soil, or exposure of erodible surfaces, generate some type of fugitive dust emissions. Motorized equipment will emit exhaust. This includes construction equipment and vehicles travelling to and from the project. Exhaust emissions, primarily from diesel equipment, would vary according to the phase of construction. The magnitude of emissions is dependent on weather conditions and the specific construction activity taking place. For example, traveling to a construction site on a dry gravel road will result in more fugitive dust than traveling the same road when wet. Any adverse impacts are anticipated to be localized, minimal, and temporary.

Mitigation

Exhaust emissions can be minimized by keeping vehicles and equipment in good working order, and not running equipment unless necessary.

Construction related best practices can be used to mitigate fugitive dust. GRE will implement appropriate dust control measures during construction.[106] These practices include application of water or other commercially available dust control agents on unpaved areas subject to frequent vehicle traffic, reducing the speed of vehicular traffic on unpaved roads, and covering open-bodied haul trucks.

Several sections of the draft route permit indirectly mitigate impacts to air quality, including sections related to soils, vegetation removal, restoration, pollution and hazardous wastes. Since operation of the project will not measurably impact air quality, no operational mitigation measures are necessary.

Greenhouse Gases

Greenhouse gases (GHG) are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The most common GHGs emitted from human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Impacts

Construction activities will result in short-term increases in GHG emissions because of the combustion of fossil fuels in construction equipment and vehicles. These emissions would be short-term and dispersed over the region; therefore, total emissions would be minimal and not result in a direct impact to any one location. Impacts are unavoidable, but can be minimized.

Deforestation is another source of carbon dioxide release to the atmosphere, as trees act as a carbon sink, absorbing carbon dioxide from the atmosphere and storing it. Removing trees releases most of the stored carbon stock, either through burning or decay. In addition, future carbon dioxide capture is eliminated. Minimal vegetation clearing will be a part of the project, resulting in minimal impacts.

[104] https://www.epa.gov/no2-pollution/setting-and-reviewing-standards-control-no2-pollution
[105] Application, P. 7-22.
[106] Id.

Construction of the transmission line will result in the most notable GHG emissions for the project. GRE's preliminary estimate for fuel use on a typical construction day averages 120 gallons, depending on the size and type of equipment used.[107] The typical fuel used is a mixture of number 1 and 2 diesel. Project construction is anticipated to take approximately nine months; conservatively assuming four weeks per month and five workdays per week, total fuel consumption would be 10,800 gallons of each number 1 and 2 diesels. This estimate likely overestimates fuel use.

Using EPA emissions factors[108], **Table 9** shows an estimate of the GHG emission calculations for CO_2, CH_4, and N_2O. Total GHG emissions for project construction are estimated to be approximately 244 tons of CO_2e. Potential impacts due to construction GHG emissions are anticipated to be negligible.

Table 9 Greenhouse Gas Emission Estimate

Fuel Type	Estimated Total Fuel Use (gal)	Heating Value (mmBtu/gal)	CO2 Emission Factor (kg/mmBtu)	Total CO2 Emissions (kG)	CH4 Emission Factor (kg/mmBtu)	Total CH4 Emissions (kG)	N2O Emission Factor (kg/mmBtu)	Total CH4 Emissions (kG)
Distillate No. 1	10,800	0.139	73.25	109,963	0.003	4.5	0.0006	0.90
Distillate No. 2	10,800	0.138	73.96	110,230	0.003	4.5	0.0006	0.89
TOTAL (kG)	---	---	---	220,193	---	9.0	---	2
Global Warming Potential	---	---	---	1	---	25	---	298
Grandtotal as CO2e (kG)	---	---	---	220,193	---	224	---	535
Grandtotal as CO2e (tons)	---	---	---	**243**	---	**0.25**	---	**0.59**

Operational GHG emissions would occur from vehicle usage to and from the transmission line and substation for regular maintenance activities as well as emergency maintenance. Operational emissions would be considerably less than construction. In addition to GHG emissions from vehicles during operation, sulfur hexafluoride, a GHG, will be used at the West. St. Cloud substation. Small releases will occur as part of breaker operation and maintenance but are sealed in regular circumstances with no active emissions. GHG emissions in the scope of this project's operation are so minimal that they did not warrant calculation. Potential impacts due to operational GHG emissions are anticipated to be negligible.

Mitigation

Currently, there are no Minnesota-specific thresholds of significance for determining impacts of GHG emissions from an individual project on global climate change. In the absence of such a threshold, Minnesota Rule 4410.4300, Subpart 15, Part B, establishes a mandatory category requiring preparation of an EAW for stationary source facilities generating 100,000 tons of GHGs per year. The purpose of an EAW is to assess whether a proposed project has the potential to result in significant environmental

[107] Application, p. 7-22.

[108] 40 CFR 98 Table A-1 for global warming potentials, Table C-1 for heating values and CO2 emission factors, and Table C-2 for CH4 and N20 emissions factors. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98

effects, which aids in determining whether an Environmental Impact Statement is needed. Regarding GHG emissions, state regulations establish 100,000 tons per year as the threshold to prepare an EAW to aid in determining if potential significant environmental effects might exist. A reasonable conclusion is that a project with GHG emissions below 100,000 tons per year does not have the potential to result in significant GHG effects.

Exhaust emissions can be minimized by keeping vehicles and equipment in good working order, not running equipment unless necessary, minimizing the number of driving trips, and restricting idling vehicles except during extreme cold weather. Additionally, utilizing existing power sources, for example, grid supplied-power, or cleaner fuel generators and vehicles rather than diesel-powered generators and vehicles, wherever practical could reduce emissions.

Climate Change

Climate change refers to any significant change in measures of climate lasting for an extended period. GHGs trap heat in the atmosphere and contribute to climate change. The project's design incorporates elements that minimize impacts from more extreme weather events such as increased rainfall and flooding, storms, high winds, and heat waves that are expected to accompany a warming climate.

Impacts

Construction emissions will have a short-term negligible increase in GHG that contribute to climate change. Once operational, the project will generate minimal GHG emissions as described in the GHG impacts section of this EA. GHG emissions from vehicle usage and sulfur hexafluoride are minimal and potential impacts are anticipated to be negligible.

A warming climate is expected to cause increased flooding, storms, and heat wave events. These events, especially an increased number and intensity of storms, could increase risks to the project, e.g., high winds or flooding could impact the substation, transmission line or poles. Heavy rainfall events could also lead to increased soil erosion. Soils in the project are generally rated to have 1 to 4 percent slopes, with excessively to well drained soils. There are also several wetlands in the area, which serve as flood abatement to a certain extent for a heavy rainfall or flooding event. The project is also not within a Federal Emergency Management Agency (FEMA) floodplain. All of these features will assist in managing impacts from increased storm intensity and frequency but may not fully mitigate the anticipated effects from climate change.

Tree and vegetation loss from construction eliminates related climate resilience benefits, leading to more intense runoff during storms or flooding (thus increasing erosion and reducing water retention), increased heat extremes, and potential reductions in air quality. Removal of or impacts to wetlands due to construction eliminates the ability for the land to retain and absorb stormwater, leading to more intense stormwater runoff and nutrient loading.

If flooding were to occur, it could damage the project's pole structures and possibly the corresponding transmission lines and associated facilities. Heat wave events could change demands on the electrical transmission and generation systems, especially as more indoor space is equipped with cooling systems. Because this project is increasing the voltage and reliability of GRE's electric transmission system, it may improve overall resiliency by reducing the potential for peak overloads during heat wave events. Service reliability is also expected to increase since the project will eliminate low voltage problems and provide

another transmission line to serve the load in the event of another being taken out of service due to weather and climate related events.

Mitigation

Mitigation to reduce emissions during construction is discussed in the Air Quality and GHG sections of this EA.

Project developers can employ location, design, and construction strategies to mitigate impacts resulting from a warmer, wetter, and more energetic climate by:

- Avoiding sites with high probability for extreme weather events to the extent possible.
- Designing transmission lines and poles to withstand stronger storms and winds as well as resistance to flooding damage.
- Planning for the potential repair and replacement of equipment damaged by storms.
- Avoiding or mitigating impacts to wetlands and vegetation during construction to the extent possible.

Increased chance of severe climate events require adequate planning and preparation. Maintenance and repair plans should anticipate future changes to climate. GRE is assessing risks to the reliable operation of its transmission system from the potential impacts of extreme weather events such as high winds and excessive rainfall and is working on opportunities to mitigate those risks. Over the last three years, GRE has invested over $67 million in transmission resiliency improvement projects.[109]

Geology

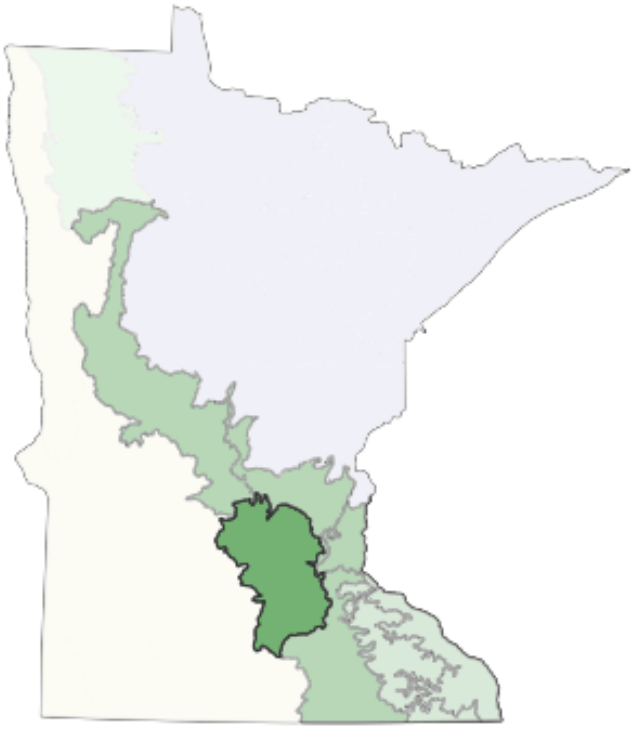
Geology is the study of the structure, evolution and dynamics of the Earth and its natural mineral and energy resources.[110] Geology is important for the exploration of minerals, evaluating water resources, remediation of environmental hazards, and understanding climate change. Geology is critical to understanding the hydrology and soils of an area and dominant vegetation types. Underlying geology and hydrological systems often determine land use choices and is a factor in siting energy infrastructure.

The Minnesota Department of Natural Resources and the U.S. Forest Service have developed an Ecological Classification System (ECS) for ecological mapping and landscape classification in Minnesota.[111] Ecological land classifications are used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. The system uses associations of biotic and environmental factors, including climate, geology, topography, soils, hydrology, and vegetation.

The project area is in the Big Woods subsection of the Eastern Broadleaf province (**Map 8**). This subsection transitions to prairie on the west, savanna and prairie communities to the east. The northern boundary is defined by the Mississippi River and extensive outwash and lake plains.

[109] Application, p. 7-23.
[110] UK Geology Society, Retrieved April 19, 2023, https://www.geolsoc.org.uk/Geology-Career-Pathways/What-is-Geology.
[111] Minnesota DNR Ecological Land Classification Systems, Retrieved April 19, 2023, https://www.dnr.state.mn.us/ecs/index.html.

Map 8: Big Woods Subsection



Depth of glacial drift over bedrock in in this subsection varies from 100 to over 400 feet. Underlying bedrock includes Ordovician and Cambrian sandstone, shale, and dolomite to the south and Cretaceous shale, sandstone, and clay to the north.[112] The Minnesota River runs through the middle of this subsection, with the Mississippi River forming part of the eastern boundary. The other major river in this subsection is the Crow River and its associated forks. The subsection has an undeveloped drainage network, due to landform characteristics. Lakes are common. There are over 100 lakes greater than 160 acres in size. Many of these are groundwater controlled with no inlets or outlets.

Impacts

The project is not expected to impact geologic resources. Any impacts to the water table would be localized and short term, not affecting geologic resources.

Mitigation

Construction of the project will not alter the geology along the route; therefore, no mitigation additional mitigation is proposed.

[112] Minnesota DNR Ecological Classification System, Big Woods Subsection, Retrieved April 19, 2023, https://www.dnr.state.mn.us/ecs/222Mb/index.html.

Soils

Soil is a mix of living and non-living material. Soil health is defined as "the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans."[113] Healthy soil provides a multitude of benefits: clean air and water, bountiful crops and forests, productive grazing lands, diverse wildlife, and beautiful landscapes. Soil performs five essential functions:

- Regulating water
- Sustaining plant and animal life
- Filtering and buffering potential pollutants
- Nutrient Cycling
- Providing physical stability and support

Soils are often grouped into categories known as "associations." A soil association has a distinctive pattern of soils, relief and drainage. Typically, an association consists of one or more major soils and some minor soils. There are two soil associations along the proposed route.[114] These soil associations are listed in **Table 10** and shown in **Map 9**.

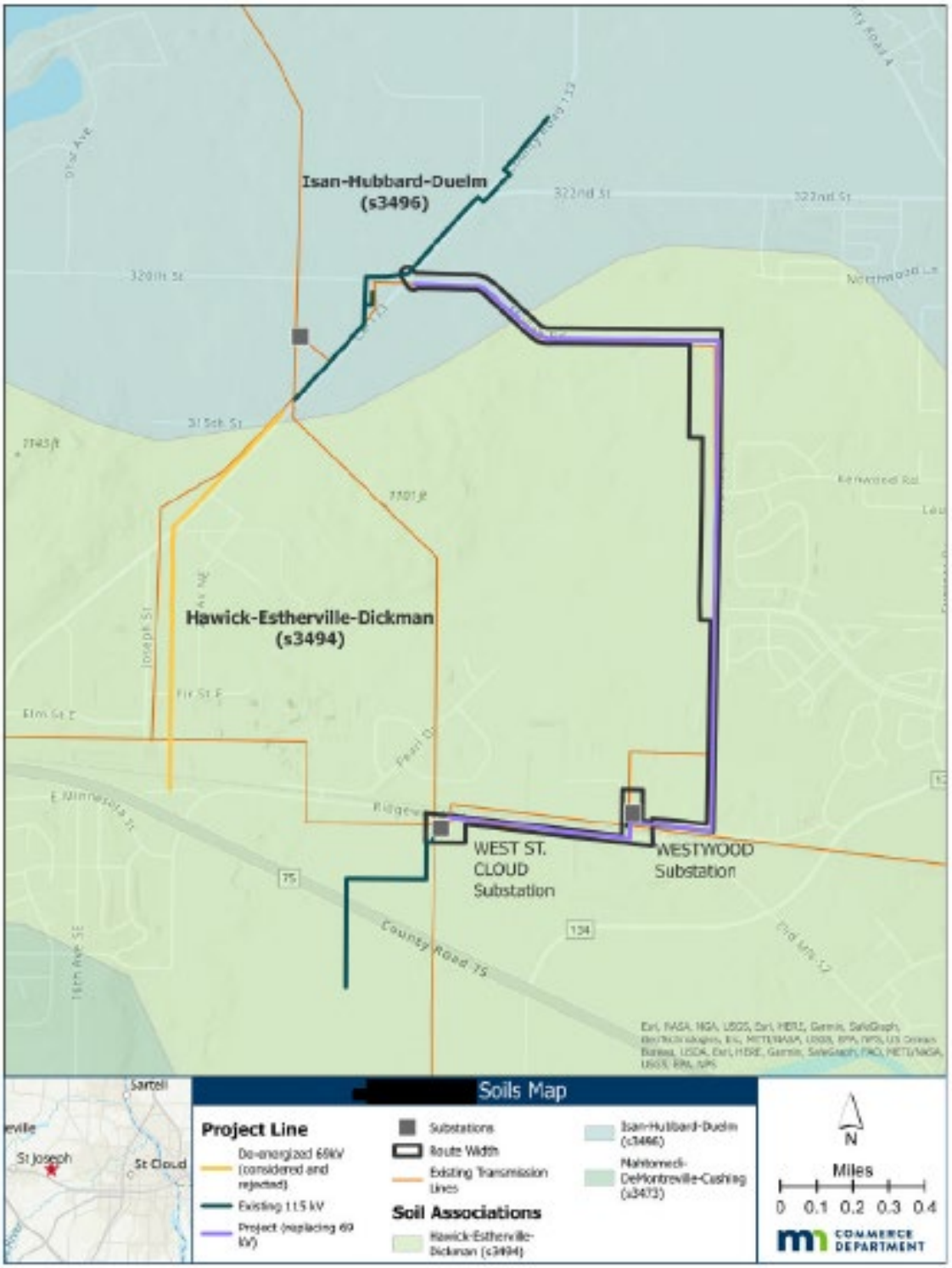
Table 10 Soil Associations in the Project Area

Soil Association	General Description
Isan-Hubbard-Duelm	**Isan-Hubbard-Duelm** are excessively to well drained soils (loamy sands) with 0-2 percent slopes, found in level to undulating outwash planes, stream terraces, flood plains, and valley trains.
Hawick-Estherville-Dickman	**Hawick-Estherville-Dickman** are very deep, nearly level (1 to 4 percent slopes), excessively drained soils (sandy loams) formed in sandy outwash plains found in cultivated fields.

[113] Natural Recourses Conservation Service, Retrieved April 19, 2023, https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soils/soil-health.

[114] Application, P. 7-31.

Map 9 Soil Associations in the Project Area



Impacts

Geology and soils form surface and sub-surface landscape features where HVTL structures are anchored. Geologic and soil conditions can impact a project and likewise, a project can impact geology and soils. Local geology and soil conditions can affect the structural viability of placing power poles in certain sites, but construction activities can also affect local geology and soil conditions through degradation and erosion.

The topography along the project area is relatively level. Depth of glacial drift over bedrock in the Hardwood Hills Subsection varies from 100 to 400 feet. Underlying bedrock is diverse and includes areas of sandstone, shale, and dolomite. Soils are dominantly loamy, with textures ranging from loam to clay loam.[115]

Soil compaction and rutting will occur from movement of construction vehicles along the right-of-way. Installing structures requires removing and handling soils, which, along with vegetation clearing and minor grading, will expose soils to wind and water erosion. Topsoil could be lost to improper handling or erosion.

Structures for the GRE project will generally be installed at existing grade; therefore, landscape-level impacts to soils and geology are expected to be minimal. Because there is very little elevation change along the proposed route only minimal grading will be needed. GRE will grade the site back to as close to its original condition as possible, and all imported fill, including temporary culverts and road approaches, will be removed from the site and disturbed areas will be returned to pre-disturbance conditions. Because the physical footprint of the proposed HVTL project does not overlap with other projects proposed nearby, cumulative impacts to the same soil and geological resources are not expected.
Long-term impacts of the project on geology and soils are not anticipated. During final design geotechnical analysis will ensure that placement of poles is compatible with local geology and post construction restoration will prevent ongoing erosion issues.

Impacts to geology and soils can be addressed through final engineering design and the application of construction best practices and standard Commission permit conditions.

Mitigation

Potential impacts to soils can be mitigated by using BMPs and standard construction practices. A variety of methods can be used to minimize soil erosion. Common mitigation measure employed to minimize soil erosion include:

- Promptly seeding to establish temporary or permanent vegetative cover on exposed soil.
- Using mulch to form a temporary and protective cover on exposed soils. Mulch can help retain moisture in the soil to promote vegetative growth, reduce evaporation, insulate the soil, and reduce erosion. A common mulch material used is certified weed free hay or straw.
- Erecting or using sediment control fences that are intended to slow water flow, filter runoff, and promote the settling of sediment out of runoff via ponding behind the sediment fence.
- Using erosion control blankets and turf reinforcement mats that are typically single or multiple layer sheets made of natural and/or synthetic materials that provide structural stability to bare surfaces and slopes.

[115] Minnesota DNR Ecological Classification System, Big Woods Subsection, Retrieved April 19, 2023, https://www.dnr.state.mn.us/ecs/222Mb/index.html.

- Separating topsoil and subsoil and covering stockpiled soils.
- Returning locations where grading or temporary access is required to their original land contour and elevation to the greatest extent possible.

Soil erosion mitigation measures are standard Commission permit conditions[116] and GRE's route permit application commits to implementation of common BMPs.

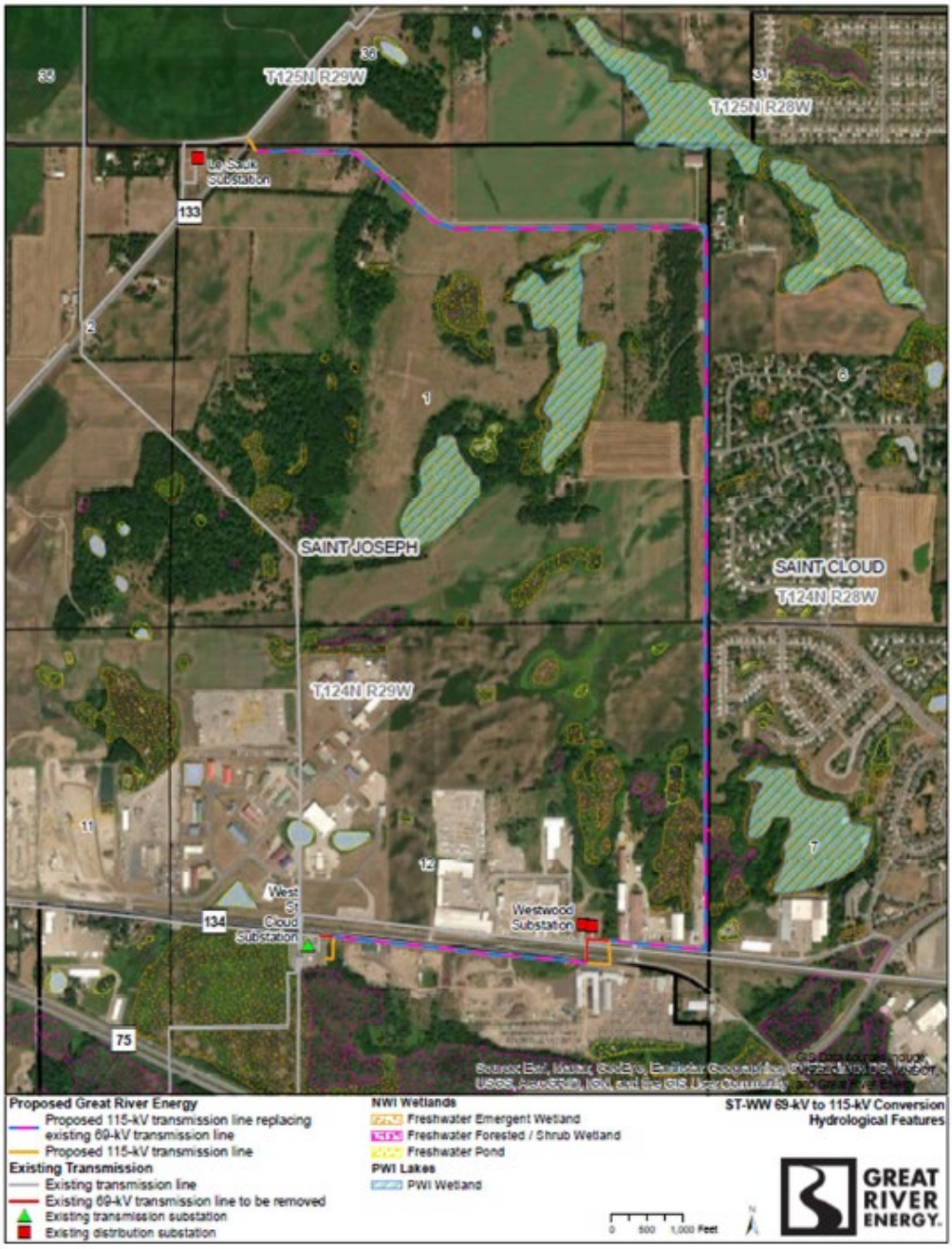
Water Resources

Water resources include surface water bodies and water courses, wetlands, and ground water that supply water for drinking, irrigation and industrial uses, provide wildlife habitat, and serve as swimming and fishing resources for people. The extent of water resources (their amount and distribution) and their condition (physical, chemical, and biological attributes) are critical to ecosystems, human uses, and the overall function and sustainability of the hydrologic cycle.[117]

There are a variety of water resources in the vicinity of the project but few within the project area (**Map 10**). The project lies within the Mississippi River - Sartell watershed, in the south portion of the Upper Mississippi River Basin.[118] It is the largest of Minnesota's 10 major river basins and is the only major drainage basin with all of its watersheds contained entirely within Minnesota's borders.[119]

[116] Generic Route Permit Template Section 5.3.7
[117] Id.
[118] Application, P. 7-23.
[119] [119] Minnesota Pollution Control Agency, Watershed Information, Retrieved April 19, 2023, https://www.pca.state.mn.us/sites/default/files/wq-ws4-38b.pdf.

Map 10 Water Resources in the Project Area



Impacts

Impacts from construction may include sedimentation resulting from ground disturbed by excavating, grading, and construction traffic. Similarly, short term water quality impacts could be experienced at wetlands along the route due to sedimentation. Long term impacts, however, are not expected as the poles will be placed outside of wetlands. Construction of the substation is not expected to impact water resources.

Public Waters
The Project will not cross any MDNR Public Waters; no impacts are anticipated, and no mitigation is proposed.

Lakes, Rivers, and Streams
The nearest lakes, rivers and streams are more than one-half mile from the Project and the transmission line will not cross any lakes, rivers or streams, no navigable waters will be affected by the Project.

Impaired Waters
There are no impaired waters within the project area. The project will not impact impaired waters and will not cause a water to be newly listed as impaired.
There is minimal potential to increase turbidity due to sedimentation from construction activities because of the significant distance to any receiving waters, and appropriate erosion and sediment control measures will be implemented to avoid or minimize such impacts. Regardless of whether or not a General Construction Stormwater Permit is required for the Project, Great River Energy will utilize BMPs (e.g, silt fencing) to mitigate the potential for sediments to reach any impaired waters.

Mitigation

Potential water resource impacts associated with construction can be mitigated by routing and utilizing Best Management Practices (BMPs) during construction. While transmission lines are not a direct source of ongoing pollutant discharge to either surface or groundwater, temporary impacts associated with construction runoff and long-term changes in vegetative cover within the right of way can cause degradation of water resources.

Structures will not be placed in wetlands, waterbodies, and PWI watercourses. Watershed scale impacts and overlapping impacts with other proposed projects in the area are not expected.

Wetlands

Wetlands are important resources for flood abatement, wildlife habitat, and water quality. Wetlands that are hydrologically connected to the nation's navigable rivers are protected federally under Section 404 of the Clean Water Act. In Minnesota, wetlands are also protected under the Wetland Conservation Act. The National Wetland Inventory (NWI) provides data and information on wetlands across the United States.[120] There are two emergent wetland basins (type PEM1C) within the project ROW.[121] The proposed transmission line will cross an approximately 160-feet segment of one wetland and another approximately 85-feet segment of the other wetland.

Impacts

Temporary impacts to wetlands may occur if they are crossed during construction. GRE will span wetlands if possible to avoid impacts. If spanning the wetlands is not possible, permanent impacts to

[120] United States Fish and Wildlife Service, National Wetlands Inventory, https://www.fws.gov/program/national-wetlands-inventory.
[121] Application, P. 7-26.

wetlands would occur where a structure is located in the wetland (approximately 20 square feet of permanent impact per structure).[122]

Mitigation

GRE plans to span wetlands to avoid impacts and will implement established BMPs, such as silt fencing and erosion control during construction to prevent sedimentation. This mitigation measure is consistent with standard conditions in the Commission's generic route permit.[123]

If spanning wetlands is not possible, the following measures will be implemented:

- Constructing during frozen ground conditions
- Use of construction mats (wooden mats or the Dura-Base Composite Mat System) to protect wetland vegetation
- Use of all-terrain construction vehicles to minimize impact to soils in damp areas
- Assembly of structures on upland areas before installation
- Post-construction site restoration

Groundwater

Groundwater is water that exists underground in saturated zones beneath the land surface. The upper surface of the saturated zone is called the water table. Groundwater is the source of about 37 percent of the water that county and city water departments supply to households and businesses (public supply). It provides drinking water for more than 90 percent of the rural population who do not get their water delivered to them from a county/city water department or private water company. Groundwater is the source of about 40 percent of water used for public supplies and about 39 percent of water used for agriculture in the United States.[124]

Potential impacts to groundwater can occur where installation of structures requires drilling to depths that can penetrate shallow water tables or open access channels to deeper aquifers. As noted earlier, structures are anticipated to be directly embedded. If concrete foundations are used, some portion of the soluble components of the concrete can leach into groundwater prior to the setting and hardening of the concrete. If dewatering is necessary to place the foundations, the water removed from foundation sites could contain sediments or pollutants that may be introduced into surface waters, which can have an impact on groundwater.

Impacts to surface waters can also lead to impacts to groundwater. For example, construction activities can directly or indirectly lead to increased turbidity of surface waters through sedimentation. These contaminated surface waters might then flow to groundwater. Such impacts are typically minor and localized.

Impacts

No impacts to groundwater in the Project area are anticipated. Dewatering activities are not expected for this Project, and any effects on water tables would be localized and short term and would not affect hydrologic resources.

---

[122] Application, P. 7-27.
[123] Generic Route Permit Template Section 5.3.9.
[124] United States Geological Survey (USGS), https://www.usgs.gov/faqs/what-groundwater.

Mitigation

Impacts to groundwater can primarily be mitigated by avoiding or minimizing impacts to surface waters. Mitigation measures to protect surface water is discussed above.

Floodplains

A floodplain is any area subject to flooding from any source, such as rivers, stream, lakes, reservoirs, the Great Lakes, the Gulf of Mexico, and the Atlantic and Pacific Oceans.[125] Natural floodplains provide flood risk reduction benefits by slowing runoff and storing flood water. They also provide other benefits of considerable economic, social, and environmental value that are often overlooked when local land-use decisions are made.[126]**.** Some of the benefits of floodplains to a functioning natural system include:

- Fish and wildlife habitat protection
- Natural flood and erosion control
- Surface water quality maintenance
- Groundwater recharge
- Biological productivity
- Higher quality recreational opportunities (fishing, bird watching, boating, etc.)

Developing floodplains or siting infrastructure in floodplains can present problems if flooding occurs, damaging infrastructure, homes, and businesses.

Impacts

The proposed project is not located in a floodplain.[127] The project will not impact floodplains and is not expected to be damaged by any flooding that may occur in nearby areas.

Mitigation

No impacts to or from flood plains is expected and no mitigation is proposed.

Vegetation

Construction of transmission lines often requires the removal or disturbance of vegetation during construction. Additionally, vegetation may be impacted if invasive or non-native species is introduced to the ROW during construction or restoration, or by changes to habitat (e.g., soils, water flows) that adversely impact plant growth.

Construction and operation of the proposed project may cause short-term and/or long-term impacts on vegetation. Land cover along the proposed route is a mix of developed and undeveloped land, with the undeveloped land consisting of agricultural land, pasture, and wooded areas. The expanded route width area along 73rd Avenue North has a large, wooded area adjacent to the ROW.

---

[125] Association of State Floodplain Managers, https://floodsciencecenter.org/products/elected-officials-flood-risk-guide/introduction/.

[126] Federal Emergency Management Agency (FEMA), Benefits of Natural Floodplains, https://www.fema.gov/floodplain-management/wildlife-conservation/benefits-natural.

[127] Federal Emergency Management Agency (FEMA) Flood Map (number27145C0605E), https://msc.fema.gov/portal/search?AddressQuery=st%20joseph%20mn#searchresultsanchor.

Photo 1 Prairie Restoration and Pollinator Habitat on Mullen Rd.

Photo Credit: Jamie MacAlister

Impacts

Long-term impacts will primarily be a result of tree trimming and removal in the ROW. Removal of trees may also impact the visual aesthetics of the corridor. Maintenance of the ROW must meet electrical safety standards, therefore woody vegetation that is removed from the ROW is unlikely to be replaced. Impacts to trees and woody vegetation may also occur due to the expansion of the West. St. Cloud Substation. Removal of trees may also impact the visual aesthetics of the corridor.

Use of the existing right-of-way will minimize impacts to vegetation in most areas.[128] Vegetation may be impacted if invasive or non-native species is introduced to the ROW during construction or restoration, or by changes in habitat (e.g., soils, water flows) that adversely impact plant growth.

Pollinator habitat has been established on the south side of Mullen Rd. Depending on the alignment of the project, construction would impact the vegetation and require specific seed mixes and restoration techniques.

[128] Route Permit Application, P. 7-29.

Mitigation

Except for tree removal, most of the impacts to vegetation will be mitigated by using the existing ROW. GRE could remove up to 18.5 acres of trees depending on the alignment of the project. To maintain safety standards in the ROW, trees would not be replaced.

Measures to reduce the spread of nonnative plant species during construction include: regular frequent cleaning of construction equipment and vehicles; minimization of ground disturbance to the greatest degree practicable and rapid revegetation of disturbed areas with native or appropriately certified weed-free seed mixes; conducting field surveys of the ROW prior to construction to identify areas that currently contain noxious weed (weed surveys during construction would identify infestations of the ROW and staging sites); attending to any new infestations within the ROW as soon as practicable.

The use of pollinator friendly seed mixes for restoration of the ROW would mitigate impacts to herbaceous vegetation. It would provide additional benefits beyond standard seed mixes, which often do not contain forbs or other pollinator friendly species.

The Commission's permit contains conditions sufficient to minimize impacts to vegetation.[129] Special permit conditions can address restoration of native prairie and pollinator habitat.

Wildlife

Land cover and vegetation communities in the project area provide forage, shelter, nesting, overwintering, and stopover habitat for a wide range of resident and migratory wildlife species; wildlife species may include ruffed grouse, sharp-tail grouse, partridge, rabbits, squirrels, red and gray fox, raccoon, deer, bear, muskrat, mink, beaver, migratory waterfowl (geese, ducks, trumpeter swans, herons) and various birds (meadowlark, field sparrow, thrush, woodpeckers, shore birds). Habitat types in the project area are diverse and range from grasslands habitat types to forested habitat types.

Construction and operation of the proposed project may cause short-term and long-term impacts on wildlife resources. Impacts on wildlife are assessed by evaluating the vegetation cover/habitat in the ROW, the proximity of the ROW to sensitive wildlife habitats, and known occurrences of sensitive wildlife species. In this case, the proposed project will be located in an existing utility corridor, minimizing impacts associated with habitat fragmentation and destruction.

As discussed above, the ROW will be maintained to meet roadway and electrical safety standards, which favors low-growing non-woody vegetation. Emergency repairs may require additional vegetation clearing. Operation, maintenance, and emergency repair activities may have long-term indirect impacts on wildlife, including the displacement of birds, burrowing animals, and other species utilizing the ROW or its vicinity for foraging, breeding, or nesting. These impacts are expected to be long-term and localized.

The Audubon Society's Avon Hills Important Bird Area (IBA) is less than a half mile from the project. There are no MDNR Wildlife Management Areas, MDNR Scientific and Natural Areas, or USFWS Waterfowl Production Areas in the Project area.[130]

[129] Generic Route Permit Template Section 5.3.9
[130] Application, P. 7-28.

Impacts

The primary risk to wildlife in the project area is the potential risk of avian collisions with transmission conductors and equipment, which could result in injury or death of individuals. There are no public lands, county parks, or federal forests or refuges within or adjacent to the proposed route, which minimizes impacts and disturbances to wildlife. However, due to the proximity and number of lakes and wetlands in the project area, there may be impacts such as changes in flight patterns, nesting, foraging, and potential collision risk.

As mentioned previously, tree removal will displace wildlife in the immediate project area.

Mitigation

To help mitigate any avian collisions with the HVTL, GRE will install bird flight diverters in areas that are migratory bird flight areas and near wetlands. MDNR recommends installing Swan-Flight type avian flight diverters on the shield wire. Great River Energy will address avian issues by working with the MDNR and USFWS to identify any areas that may require marking transmission line shield wires and/or to use alternate structures to reduce the likelihood of collisions.

The timing of tree removal activities can reduce impacts to wildlife. Special permit conditions can also mitigate impacts to wildlife.

Rare and Unique Resources

Rare and unique resources include assemblages of species or habitat that are designated for special care and conservation by state and federal agencies because loss of habitat and small or shrinking population is cause for concern. Construction activities and clearing of habitat for projects like transmission lines can cause habitat damage and loss or result in injury or death of individuals of these rare and unique population.

To help track special habitat, the MDNR maps sites of biodiversity significance. A site's biodiversity rank is based on the presence of rare species populations, the size and condition of native plant communities within the site, and the landscape context of the site. There are four biodiversity significance ranks: outstanding, high, moderate, and below.[131] There are not sites of biodiversity significance within or adjacent to the proposed route. [132]

Impacts

Constructing within and/or adjacent to an existing utility ROW minimizes impacts to habitat in this area. Great River Energy will continue to coordinate with the MDNR and USFWS to avoid and minimize Project impacts on sensitive species.
Impacts to rare and unique resources are not expected because the project avoids sensitive habitat.

A calcareous fen is located over 4.5 miles from the proposed project.[133] Calcareous fens are rare and distinctive peat-accumulating wetlands. They depend on a constant supply of upwelling groundwater rich in calcium and other minerals. This calcium-rich environment supports highly diverse and unique

[131] Minnesota Department of Natural Resources, Minnesota Biological Survey, https://www.dnr.state.mn.us/eco/mcbs/biodiversity_guidelines.html.
[132] Application, 7-30.
[133] Id.

rare plants that tolerate low oxygen conditions, calcium carbonate deposits, low nutrient availability, and relatively cold organic soils (peat)—the calcareous fen ecosystem[134]. Because the project is not located near any lakes, streams or rivers, impacts to the black sandshell, a rare mussel species, are not expected. The Northern Long-Eared Bat (NLEB) is a wide-ranging species that has been severely impacted by White Nose Syndrome, a deadly fungal disease impacting cave-dwelling bat species.[135] It has been listed by the US Fish and Wildlife Service as Endangered.[136]

In addition to looking at habitat, reviewing state and federal databases can help identify the potential presence of rare and unique species in a project area. Twenty one threatened, endangered, and species of special concern have been identified in Stearns County.[137] No rare species are present within the route width.

Mitigation

The proposed project is not expected to impact threatened, endangered, or species of special concern. Coordinating with MDNR and USFWS on the timing of tree clearing and other minimization efforts to minimize impacts to NLEB.

Photo 2 Northern Long-Eared Bat

Photo Credit: Bat Conservation International

[134] Minnesota Department of Natural Resources, *Calcareous Fens*, https://files.dnr.state.mn.us/natural_resources/water/wetlands/calcareous_fen_fact_sheet.pdf.
[135] *See* US Fish and Wildlife Service, https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis.
[136] Id.
[137] Application, Appendix A2.

Section Five: Cumulative Potential Effects

Cumulative impacts include those associated with the proposed project and impacts from other projects in the area. Cumulative potential effects result when impacts from the proposed project are combined with impacts associated with past, present, or reasonably foreseeable future actions within the area. Analysis of cumulative potential effects accounts for the possibility that the minor impacts of many separate actions could be significant. considers resources that are expected to be affected by the proposed project and assesses past, present, and reasonably foreseeable future actions to identify any geographic or temporal overlap in impacts on these resources.

When making the determination as to what is "reasonably likely to occur," EERA considers whether any applications for permits have been filed with any units of government or whether detailed plans and specifications have been prepared for the project, among other considerations.[138] A project is not required to be permitted to be reasonably likely to occur.

Past actions are those actions and their associated impacts that occurred within or influenced the geographic region of influence of each resource and have shaped the current affected environment of the proposed project area. For the purposes of this EA, actions that have occurred in the past (e.g. expansion of US 59) and associated impacts are now part of the existing environment and are included in Section Four.

In addition to temporal factors, the potential for cumulative impacts also depends on spatial factors within the environment, which can vary for the resources evaluated in this EA. For example, the geographic area of consideration for cumulative impacts could be limited to the discrete area of disturbance for vegetation resources but also include all vantage points for visual resources.

Future projects identified in the area include[139]:

Potential local or state roadway improvements.

- The City of St. Cloud identified one potential future road expansion in the project area. The timing of this expansion is undetermined, and it is not slated to occur within the next five years.
- Stearns County has plans to add a roundabout at County Road 133 and County Road 4 in 2023.
- Stearns County also plans to construct a concrete divider on County Road 133 from County Road 75 to County Road 4 starting in 2024.

Potential developments within the business park

No improvements to the adjacent BNSF railroad or water/sewer lines have been identified.

Even if limited development in the area occurs in the future, the cumulative effects of the proposed project would be minimal within the existing corridor given the relatively small size of the proposed project, the anticipated minimal human and environmental impact, and its location within the existing ROW.

[138] Id.

[139] Appendix D, Supplemental Filings and Data Requests.

Associated Actions

Associated actions occur as a result of the proposed project. There are no associated actions identified with the project.

Unavoidable Impacts

Resource impacts are unavoidable when an impact cannot be avoided even with mitigation strategies. Transmission lines are infrastructure projects that have unavoidable adverse human and environmental impacts. These potential impacts and the possible ways to mitigate against them were discussed above. However, even with mitigation strategies, certain impacts cannot be avoided.

Unavoidable adverse impacts associated with construction of the proposed project include:

- Possible traffic delays and fugitive dust on roadways.
- Visual and noise disturbance to nearby residents and recreationalists.
- Soil compaction and erosion.
- Vegetative clearing.
- Disturbance and temporary displacement of wildlife, as well as direct impacts to wildlife inadvertently struck or crushed during structure placement or other activities.
- Minor amounts of habitat loss.

Unavoidable adverse impacts associated with the operation of the proposed project include:

- Visual impact of structures and conductors.
- Injury or death of avian species that collide with, or are electrocuted by, conductors.
- Potential decrease to property values.
- On-going maintenance of woody vegetation (tree trimming and removal).

Irreversible and Irretrievable Resource Commitments

Resource commitments are irreversible when it is impossible or very difficult to redirect that resource to a different future use; an irretrievable commitment of resources means the resource is not recoverable for later use by future generations.

Irreversible impacts include the land required for construction of the transmission line. While it is possible that the structures and conductors could be removed, the ROW would still be maintained for transportation safety purposes.

An irretrievable commitment of resources means the resource is not recoverable for later use by future generations. These impacts are primarily related to project construction, including the use of water, aggregate, hydrocarbons, steel, concrete, wood, and other consumable resources. The commitment of labor and fiscal resources is also considered irretrievable.

List of Acronyms

ACRONYMS	
AIMD	Active Implantable Medical Devices
ALJ	Administrative Law Judge
Application	Route Permit Application
BMPs	Best Management Practices
BPA	Bonneville Power Administration
Brookings Project	Brookings County – Hampton 345 kV Proroject
CH4	Methane
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
Commission	Minnesota Public Utilities Commission
CSAH	County State Aid Highway
dBA	Decibel – A weighted
DOC	Department of Commerce
EA	Environmental Assessment
EERA	Energy Environmental Review and Analysis
EF	Electric Fields
EJ Screen	Environmental Justice Screening Tool
ELF	Extremely Low Frequency
EMF	Electromagnetic Fields
EPA	United States Environmental Protection Agency
EQB	Minnesota Environmental Quality Board
G	Gauss
HVTL	High Voltage Transmission Line
ICNIRP	International Commission on Non-Ionizing Radiation Protection
iPaC	Information for Planning and Consultation
IEEE	Institute of Electrical and Electronic Engineers
IMDs	Implantable Medical Devices
kV	Kilovolt
kV/m	Kilovolts Per Meter
LGUs	Local Government Units
mA rms	MilliAmperes Root Mean Square
MDNR	Minnesota Department of Natural Resources
MF	Magnetic Fields
mG	Milligauss
MISO	Midcontinent Independent System Operator
MnDOT	Minnesota Department of Transportation
MPH	Miles per hour
MPCA	Minnesota Pollution Control Agency
MRO	Midwest Reliability Organization
MW	Megawatt

ACRONYMS	
N2O	Nitrous Oxide
NAC	Noise Area Classifications
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHIS	Natural Heritage Inventory System
NIEHS	National Institute of Environmental Health Sciences
NLEB	Northern Long-eared Bat
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
Project	Rebuild the existing 69-kV ST-WW transmission line to a new 115-kV transmission line to be named the ST-WS line
Proposed Route	The corridor in which Great River Energy proposes to rebuild the approximately 3.2 mile transmission line presented in this Route Permit Application.
PWI	Public Waters Inventory
ROW	Right-of-Way
SHPO	State Historic Preservation Office
ST	Stearns Electric Association
ST-FPT Line	Existing Stearns Electric to Five Points line
ST-WS Line	The proposed new 115-kV transmission line
ST-WW Line	The existing 69kV ST-WW transmission line
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
Westwood	Westwood Professional Services
WHO	World Health Organization

Appendices

Appendix A Maps

Appendix B Draft Route Permit Template

Appendix D Scoping Decision

Appendix D Response to Data Requests