

**GREAT RIVER ENERGY
MINNESOTA VALLEY ELECTRIC COOPERATIVE**

APPLICATION TO THE
MINNESOTA PUBLIC UTILITIES COMMISSION
FOR A ROUTE PERMIT FOR THE

**LAKETOWN 115-kV TRANSMISSION LINE
PROJECT IN CARVER COUNTY, MN**

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LIST OF ACRONYMS

ALJ	administrative law judge
APLIC	Avian Power Line Interaction Committee
Applicants	Great River Energy and Minnesota Valley Electric Cooperative
Application	Route Permit Application
BGEPA	Bald and Golden Eagle Protection Act
BMPs	best management practices
BWSR	Board of Water and Soil Resources
CFR	Code of Federal Regulations
CH ₄	Methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
Commission	Minnesota Public Utilities Commission
CR	County Road
CSAH	County State Aid Highway
CWI	County Well Index
dBA	Decibel – A weighted
DKey	Determination Key
DOC	Department of Commerce
EA	Environmental Assessment
DOC-EERA	Energy Environmental Review and Analysis
EF	electric fields
EJ	Environmental Justice
EJScreen	Environmental Justice Screening Tool
ELF	Extremely Low Frequency
EMF	electromagnetic fields
EQB	Minnesota Environmental Quality Board
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
G	Gauss
GLO	General Land Office
HVTL	High Voltage Transmission Line
IPaC	Information for Planning and Consultation
IMDs	implantable medical devices
kV	Kilovolt
kV/m	kilovolts per meter
Laketown Substation	Minnesota Valley Electric Cooperative Laketown Substation
LGU	Local Government Unit
mA rms	milliAmperes root mean square

MCE	Minnesota Conservation Explorer
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
Merjent	Merjent, Inc.
MF	magnetic fields
mG	Milligauss
MGS	Minnesota Geological Survey
MIAC	Minnesota Indian Affairs Council
Minn. R.	Minnesota Rules
Minn. Stat. §	Minnesota Statutes Section
MISO	Midcontinent Independent System Operator
MnDOT	Minnesota Department of Transportation
MVEC	Minnesota Valley Electric Cooperative
MP	Milepost
mph	miles per hour
MPCA	Minnesota Pollution Control Agency
MRO	Midwest Reliability Organization
N ₂ O	nitrous oxide
NAC	Noise Area Classifications
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NIEHS	National Institute of Environmental Health Sciences
NLEB	northern long-eared bat
NO	nitrogen oxide
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Services
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OSA	Office of the State Archaeologist
ppb	Parts per billion
PEM	Palustrine Emergent
PFO	Palustrine Forested
PM _{2.5}	fine particulate matter equal to or less than 2.5 microns in diameter
PM ₁₀	particulate matter equal to or less than 10 microns in diameter
Project	Build a new 115-kV transmission line and substation
Promising Practices	Promising Practices for EJ Methodologies in NEPA Reviews
Project Area	the general area within an approximate 2-mile radius of the Project, unless otherwise defined
Proposed Alignment	the general path that a transmission line will follow

Proposed ROW	100-foot-wide area for construction and operation of the Transmission Line
Proposed Route	The corridor in which Great River Energy proposes to build the approximately 4.3-mile Transmission Line presented in this Route Permit Application.
R2UB	Riverine, Unconsolidated Bottom
ROW	right-of-way
SF ₆	Sulfur hexafluoride
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
STATSGO2	Digital General Soil Map of the United States
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WMA	Wildlife Management Areas

Route Permit Application – Alternative Process Completeness Checklist

Authority	Required Information	Location in Application
Minn. Stat. § 216E.04, subd. 2(3)	Alternative Review of Applications. Alternative review is available for high voltage transmission lines (HVTL) of between 100 and 200 kV	2.2
Minn. R. 7850.2800, subp. 1(C)	Subpart 1. Eligible Projects. An applicant for a site permit or a route permit for one of the following projects may elect to follow the procedures of parts 7850.2800 to 7850.3900 instead of the full permitting procedures in parts 7850.1700 to 7850.2700: high voltage transmission lines of between 100 and 200 kilovolt (kV)	2.2; Appendix D
Minn. R. 7850.2800, subp. 2.	Subpart 2. Notice to Minnesota Public Utilities Commission (Commission). An applicant for a permit for one of the qualifying projects in subpart 1, who intends to follow the procedures of parts 7850.2800 to 7850.3700, shall notify the Commission of such intent, in writing, at least ten days before submitting an application for the project	2.2; Appendix D
Minn. R. 7850.3100	Contents of Application (alternative permitting process) The applicant shall include in the application the same information required in part 7850.1900, except the applicant need not propose any alternative sites or routes to the preferred site or route. If the applicant has rejected alternative sites or routes, the applicant shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them	Chapter 4
Minn. R. 7850.1900, subp. 2 (as applicable per Minn. R. 7850.3100)	Route Permit for HVTL A. a statement of proposed ownership of the facility at the time of filing the application and after commercial operation	3.3
	B. the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated	1.2
	C. at least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference (Note: alternatives not required under alternative process [2023 Minn. Stat. § 216E.04, subd. 2 and 3; Minn. R. 7850.3100])	Chapter 4
	D. a description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line	1.4; 3.1; 3.2
	E. the environmental information required under 7850.1900, subp. 3	Chapter 6
	F. identification of land uses and environmental conditions along the proposed routes	4.3.1; 6.4
	G. the names of each owner whose property is within any of the proposed routes for the high voltage transmission line	Appendix C

Authority	Required Information	Location in Application
	H. United States Geological Survey topographical maps or other maps acceptable to the chair showing the entire length of the high voltage transmission line on all proposed routes	Figure 1-1; Figure 3-1; Appendix A
	I. identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share right-of-way (ROW) with the proposed line	3.1.1
	J. the engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line	5.1, 6.3.1
	K. cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route	3.5
	L. a description of possible design options to accommodate expansion of the high voltage transmission line in the future	3.1.11
	M. the procedures and practices proposed for the acquisition and restoration of the ROW, construction, and maintenance of the high voltage transmission line	5.1
	N. a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line	2.3; Table 2.3-1
	O. a copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required	2.1
Minn. R. 7850.1900, subp. 3	Environmental Information A. a description of the environmental setting for each site or route	6.1
	B. a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services	6.2; 6.3
	C. a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	6.2.6, 6.5
	D. a description of the effects of the facility on archaeological and historic resources	6.6
	E. a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna	6.7.1, 6.7.2, 6.7.3
	F. a description of the effects of the facility on rare and unique natural resources	6.7.5
	G. identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route	6.10
	H. a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures	Chapter 6, 3.5

Authority	Required Information	Location in Application
Minn. R. 7850.2100, subp. 2 (applicable per Minn. R. 7850.3300)	Notice of Project Notification to persons on the Commission’s general list, to local officials, and to property owners	To be provided
Minn. R. 7850.2100, subp 4	Publication of notice in a legal newspaper of general circulation in each county in which the route is proposed to be located.	To be published
Minn. R. 7850.2100. subp. 5	Confirmation of notice by affidavits of mailing and publication with copies of the notices	Submit when available
Minn. R. 7850.4100	Factors to be Considered in Permitting a HVTL	
	A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services	6.2
	B. effects on public health and safety	6.3
	C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	6.5, 6.2.6
	D. effects on archaeological and historic resources	6.6
	E. effects on the natural environment, including effects on air and water quality resources and flora and fauna	6.7.1, 6.7.2, 6.7.3
	F. effects on rare and unique natural resources	6.7.5
	G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity	Chapters 3 and 5
	H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries	3.1.1
	I. use of existing large electric power generating plant sites	Not applicable
	J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way	3.1.1
	K. electrical system reliability	5.1.2, 7.1
	L. costs of constructing, operating, and maintaining the facility which are dependent on design and route	1.4, 3.5
	M. adverse human and natural environmental effects which cannot be avoided	6.10
	N. irreversible and irretrievable commitments of resources	6.10
Minn. R. 7850.4300, subps. 1 and 2	Prohibited Routes Wilderness areas. No high voltage transmission line may be routed through state or national wilderness areas Parks and natural areas. No high voltage transmission line may be routed through state or national parks or state scientific and natural areas unless the transmission line would not materially damage or impair the purpose for which the area was designated, and no feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line	No wilderness areas or parks are crossed

Authority	Required Information	Location in Application
Minn. Stat. §216E.03, subd.7(b) (2023) (applicable per Minn. Stat. §216E.04, subd. 8)	Considerations in designating sites and routes (1) Evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including base line studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment	Chapter 6
	(2) Environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air, and human resources of the state	4.3
	(3) Evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects	Not applicable
	(4) Evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants	Not Applicable
	(5) Analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired	6.4, 6.5
	(6) Evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted	Chapter 6
	(7) Evaluation of alternatives to the applicant’s proposed site or route proposed pursuant to subdivisions 1 and 2	Chapter 4
	(8) Evaluation of potential routes that would use or parallel existing railroad and highway rights-of way	3.1.1, 4.2, 4.3
	(9) Evaluation of governmental survey lines and other natural division lines of agricultural land to minimize interference with agricultural operations	6.5.1
	(10) Evaluation of the future needs for additional high voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications	1.4, 1.5, 3.1.11
	(11) Evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved	6.10
	(12) When appropriate, consideration of problems raised by other state and federal agencies and local entities	Chapter 4, Chapter 6
	(13) Evaluation of the benefits of the proposed facility with respect to (i) the protection and enhancement of environmental quality, and (ii) the reliability of state and regional energy supplies	1.5, 7.1
	(14) evaluation of the proposed facility’s impact on socioeconomic factors	6.2.4

Authority	Required Information	Location in Application
	(15) evaluation of the proposed facility’s employment and economic impacts in the vicinity of the facility site and throughout Minnesota, including the quantity and quality of construction and permanent jobs and their compensation levels. The commission must consider a facility’s local employment and economic impacts and may reject or place conditions on a site or route permit based on the local employment and economic impacts.	3.7, 6.11

1 INTRODUCTION

Great River Energy and Minnesota Valley Electric Cooperative (MVEC) (together, the Applicants) submit this Route Permit Application (Application) to the Minnesota Public Utilities Commission (Commission) for a Route Permit to build a new 4.3-mile 115-kilovolt (kV) double-circuit high voltage transmission line (HVTL or Transmission Line) in Laketown and Dahlgren Townships in Carver County, Minnesota, referred to as the Laketown 115-kV Transmission Line Project (Project). The Project also includes construction of a new MVEC substation (the Laketown Substation). As shown in **Figure 1-1**, the Project will connect Great River Energy's existing 115-kV MV-VTT transmission line to the proposed Laketown Substation. This Project will enable Great River Energy to provide 115-kV service to the Laketown Substation to meet long-term electricity planning needs. The Transmission Line will be constructed and owned by Great River Energy; the Laketown Substation will be constructed and owned by MVEC.

1.1 Great River Energy and MVEC Organization and System Background

Great River Energy is a not-for-profit wholesale electric power cooperative based in Maple Grove, Minnesota. Great River Energy provides electricity and related services to approximately 1.7 million people through its 27 member-owner cooperatives and customers. Through its member-owners, including MVEC, Great River Energy serves two-thirds of Minnesota and parts of Wisconsin. Great River Energy's electric system is interconnected directly with neighboring suppliers and is a member of the Midwest Reliability Organization (MRO) and Midcontinent Independent System Operator (MISO).

MVEC is the distribution cooperative serving the area in which the Project will be located. It is one of Great River Energy's transmission customers, and it will be the owner of the proposed Laketown Substation. MVEC provides electric service to a 968-square-mile service area which includes all or parts of nine Minnesota counties: Blue Earth, Carver, Dakota, Hennepin, Le Sueur, Rice, Scott, Sibley, and Waseca (**Figure 1-2**). MVEC does not generate power; rather, MVEC delivers electric energy supplied and transmitted by Great River Energy to their substations. MVEC then distributes that energy to homes and businesses through their distribution system.

Great River Energy's mission is to safely provide member-owners with affordable, reliable energy in harmony with a sustainable environment. Great River Energy owns and operates more than 5,100 miles of transmission line (69-kV or higher) and owns more than 100 substations in Minnesota, North Dakota, South Dakota, and Wisconsin. Great River Energy carefully designs and maintains a portfolio of power generation facilities and transmission resources to deliver reliable and affordable wholesale electricity to the regional electricity market and member-owner and customer cooperatives.

1.2 Permittee and Project Contacts

Great River Energy is the permittee for the Project.

The contacts for the Project and this Application are:

Michael Swenson
Great River Energy
Transmission Permitting Specialist
12300 Elm Creek Blvd.
Maple Grove, MN 55369
763-445-5979
MSwenson@GREnergy.com

Spencer Howe
Minnesota Valley Electric Cooperative
Power Engineer
125 Minnesota Valley Electric Dr
Jordan, MN 55352
952-334-2803
Spencerh@mvec.net

1.3 Project Location

The Project is located within Laketown and Dahlgren Townships in Carver County, Minnesota. The Project does not cross city boundaries. The Project is in the Township, Ranges, and Sections shown in **Table 1.3-1**.

Table 1.3-1. Townships, Ranges, and Sections Crossed by the Project

Township	Range	Sections
115	24	1, 2, 3
116	24	28 ^a , 33, 34

^a Location of the Laketown Substation.

1.4 Proposed Project

Great River Energy proposes to build a new 4.3-mile 115-kV double-circuit HVTL between its existing 115-kV MV-VTT transmission line and the new Laketown Substation. MVEC would build and maintain the Laketown Substation. An overview of the Proposed Route and the location of the Laketown Substation are shown in **Figure 1-1**. **Appendix A** contains a series of larger scale aerial photo maps depicting the Proposed Alignment, 100-foot-wide right-of-way (Proposed ROW) and requested route width (Proposed Route) for the Project, including the Laketown Substation location.

Great River Energy estimates the transmission infrastructure (the Transmission Line and the transmission infrastructure at the Laketown Substation) will cost approximately \$13.9 million. MVEC estimates that the Laketown Substation (distribution infrastructure) will cost

approximately \$4.1 million. The total cost of the Project will be approximately \$18.0 million. The Applicants anticipate starting construction on the Laketown Substation in spring 2027 and on the Transmission Line in fall 2027 and energizing the Project in the summer of 2028. A detailed breakdown of Project costs is included in **Section 3.3**.

Great River Energy will construct the Project primarily with direct-embedded steel poles, 70 to 95 feet above ground and placed 300 to 450 feet apart. Concrete foundation poles will be required at highway crossings and specialty poles may be required in some locations (e.g., to cross under an existing line, for angle poles, or in areas where soil conditions are poor, and guying is not practical). No switch poles will be needed.

Great River Energy would obtain a 100-foot-wide ROW for construction and operation of the Transmission Line (typically 50 feet off each side of the transmission centerline). Where the Project parallels road ROW, Great River Energy plans to place structures approximately two to seven feet outside of the road ROW, to the extent that there are no other conditions necessitating other placement (e.g., other buried utilities).

What is a route, alignment, and ROW?

A “route” is a wide corridor that is defined by the Public Utilities Commission in a route permit. It establishes the area in which Great River Energy will generally be authorized to construct its Transmission Line. As discussed later in this application, the route width varies along the length of the Transmission Line.

An “alignment” is the general path that a transmission line will follow. This application includes a Proposed Alignment, which is Great River Energy’s initial thoughts on where the line will be built and where it turns or crosses from one side of a road to the other. The final alignment will likely be somewhat different due to input from landowners, agencies, and owners of other utilities in the area.

A “ROW” or “right-of-way” is a space around HVTLs that Great River Energy maintains and protects from encroachments to ensure safe and reliable operation of the Transmission Line. Great River Energy anticipates seeking a 100-foot-wide ROW, 50 feet perpendicular from both sides of the transmission centerline, for the Project. Where the Transmission Line parallels roads, Great River Energy will seek approximately 55 feet of ROW from landowners. The landowner will be compensated for the ROW as part of the easement acquisition process.

MVEC has existing overhead distribution lines along portions of the Proposed ROW. Where this occurs, MVEC will either attach the distribution lines as under-build to the Project’s new structures or bury the distribution lines within the ROW. Because the distribution lines are owned and maintained by MVEC, MVEC will conduct any work related to those distribution lines, and that work is not included as part of this Application.

As part of this Project, MVEC proposes to build the new Laketown Substation on approximately 1.5 acres of an approximately 8.9-acre property at the corner of County State Aid Highway (CSAH) 10 and Laketown Road. The land is owned by MVEC. An initial Laketown Substation layout is included as **Figure 1-3**.

1.5 Project Need and Purpose

The new 115-kV Transmission Line is needed to provide electric energy to the new Laketown Substation. The Laketown Substation will provide service to end users within MVEC's service territory, which includes portions of Carver, Sibley, Scott, Rice, and LeSueur counties. The Project is needed to provide reliable electrical service to current and future end-use customers in the rapidly growing area near the Project. The ability to operate at the 115-kV voltage will ensure there is sufficient electrical capability to serve increased electrical demand in the future. The service territories for Great River Energy and MVEC are shown in **Figure 1-4**.

1.6 Potential Environmental Impacts

The Applicants have analyzed the potential environmental effects of the proposed Project. Generally, Project effects are anticipated to be temporary and/or minor.

No homeowners will be displaced by the Project. All land impacted during construction will be restored to the extent possible, and landowners will be compensated for any crop losses due to construction operations or structure and conductor placement. The electric fields (EFs) associated with the new line (1.7 kilovolts per meter (kV/m)) will be significantly less than the maximum levels permitted by state regulators (8 kV/m). No stray voltage issues are anticipated. Similarly, Project facilities will comply with applicable noise standards. The Project will parallel existing roads and electric distribution lines for much of its length. The routing of the Project minimizes potential tree removal but may require the permanent removal of approximately 5 acres of trees within its ROW. There are minimal wetlands within the proposed Transmission Line ROW; Great River Energy will span all wetlands. Unavoidable impacts include a change in aesthetics and the presence of additional traffic during construction on the local roads. These and other potential environmental effects, as well as applicable avoidance and minimization measures, are described in more detail in **Chapter 6** of this Application.

Great River Energy will develop its final Transmission Line alignment based on the permitted route to further avoid and minimize impacts to environmental resources, in compliance with federal, state, and local regulations and in coordination with applicable federal, state, and local agencies.

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

1.7 Public Involvement

The Applicants held two open house sessions at the Chaska Event Center in Chaska, Minnesota, on January 23, 2024. Great River Energy and MVEC staff were available to provide information to members of the public and answer questions concerning the Project. Large posters showing the Project and route options, pictures of what the pole structures would look like, and a conceptual design of the Laketown Substation were also available for review.

Invitations to the open house sessions, including a Project fact sheet with maps, were mailed to property owners of record for approximately 100 parcels. Prior to the open houses, Great River Energy was considering three potential routes for the new Transmission Line as depicted on the fact sheets (Option 1 [or, the Proposed Alignment], Option 2 [or, the Xcel Energy Powerline Alternative; see **Section 4.3**], or Option 3 [or, the CSAH 10 Alternative; see **Section 4.3**]). Therefore, the Applicants included landowners within 500 feet of each of the three route options considered in its open house mailing, to ensure that all interested parties along the considered routes were aware of the meeting. The mailing was also sent to representatives from regulatory agencies and local governments. Advertisements promoting the open houses were placed in two regional newspapers: the Sun Patriot and the Laker Pioneer. The mailing included information on the Project web site (see: https://greatriverenergy.com/transmission_project/laketown-115-kv-transmission-line-project). Copies of mailed and print materials are included in **Appendix B**.

Approximately 30 people attended the open house sessions. The majority of the attendees were landowners associated with the three route options. The remainder of the attendees included government representatives and landowners who wanted to confirm they were not proximate to the route.

Great River Energy and MVEC technical representatives provided information about the Project and answered questions and/or responded to comments concerning:

- the reason for the Project;
- the process for permitting;
- easement requirements and acquisition;
- use of existing corridors for a nearby Xcel Energy 230-kV transmission line (Option 2) or CSAH 10 (Option 3) to route the Transmission Line;
- concerns with planned and future development along Option 2 or Option 3 and how the Transmission Line might prevent or impact those development opportunities;
- questions regarding electric magnetic fields (EMF) and transmission line safety;
- project timeline; and
- questions on the impact on members' electrical service.

Following the open houses and based on discussions with local stakeholders and environmental and constructability reviews, Great River Energy has chosen to move forward with "Option 1" as the Proposed Route in this Application (see **Section 4.0**).

Since the open houses, the Applicants have met with the following local stakeholders to discuss the Project:

- Carver County Planning Department: January 17, 2024
- Carver County Highway Department: February 1, 2024
- City of Victoria: February 22, 2024
- Laketown Township: July 8, 2024
- Dahlgren Township: July 8, 2024

The public will be afforded additional opportunities to participate and comment on the Project in accordance with Minnesota laws and regulations. This process is described in **Section 2.2**.

There are two options for citizens/landowners/interested persons to receive Project information:

1. Subscribe to the Commission’s eDockets system (self-service, must subscribe for each docket of interest), receive email notifications when new documents are filed. Note - subscribing may result in a large number of emails.

- a). Visit the website: mn.gov/puc
- b). Select the green box labeled *Subscribe to a Docket*
- c). Type your e-mail address
- d). For *Type of Subscription*, select *Docket Number*
- e). For *Docket Number*, select *24* in the first box, type *132* in the second box
- f). Select *Add to List*
- g). Select *Save*

2. Sign up for the Project mailing list – sign up to receive notices about Project milestones and opportunities to participate (e.g., meetings, comment periods); may request email or U.S. Mail (not self-service, must contact Commission staff to sign up). Contact docketing.puc@state.mn.us or 651-201-2234 with the docket number (*24-132*), your name, mailing address, and email address.

2 REGULATORY PROCESS

2.1 Certificate of Need Not Required

Minnesota Statutes Section (Minn. Stat. §) 216B.243, subdivision 2, states that “[n]o large energy facility shall be sited or constructed in Minnesota without the issuance of a Certificate of Need by the Public Utilities Commission...” In relevant part, a large energy facility is defined as “any high-voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota.”¹ Because the Project is less than 10 miles in length, a Certificate of Need is not required.

2.2 Route Permit

Minn. Stat. § 216E.03, subdivision 2, provides that “[n]o person may construct a high voltage transmission line without a route permit from the commission.” An HVTL is defined by Minn. Stat. § 216E.01, subd. 4, as “a conductor of electric energy and associated facilities designed for and capable of operation at a nominal voltage of 100 kilovolts or more and is greater than 1,500 feet in length.” Because the Project consists of a 115-kV Transmission Line that is 4.3 miles long, which is greater than 1,500 feet in length, a Route Permit from the Commission is required.

Minn. Stat. § 216E.04 provides for an Alternative Review Process for transmission lines between 100- and 200-kV; the Project is proposed as 115-kV and thus qualifies for alternative review. The permitting timeline for the Alternative Review Process is shorter than the timeline required for transmission lines over 200-kV. The Applicants notified the Commission on July 10, 2024, pursuant to Minnesota Rules (Minn. R.) 7850.2800, subp. 2 of their intent to use the Alternative Review Process and file this Application under Minn. R. 7850.2800 to 7850.3900. A copy of the notification letter is provided in **Appendix D**.

The rules that apply to the review of Route Permit Applications are found in Minn. R. Chapter 7850. Minn. R. 7850.1900, subparts 2 and 3, set forth the information that must be included in a Route Permit Application.

Under the Alternative Review Process, an Applicant is not required to propose any alternative routes but must disclose any other routes that were considered but rejected by the Applicant (Minn. Stat. § 216E.04, subd. 3). Further, an Environmental Impact Statement is not required under the Alternative Review Process. Instead, DOC-EERA is required to prepare an EA (Minn. Stat. § 216E.04, subd. 5). Unlike the full Route Permit process for higher voltage lines, a formal contested case hearing is not required (Minn. Stat. § 216E.04, subd. 6). The Alternative Review Process procedures are discussed below in **Section 2.2.2**.

¹ Minn. Stat. § 216B.2421, subd. 2(3) (2024).

The regulatory process described in this section is the process that is followed to satisfy all the requirements under the Alternative Review Process Route Permit rules. *See* Minn. R. Chapter 7850.

2.2.1 Notice of Application

In accordance with Minn. Stat. § 216E.04, subd. 4, and Minn. Stat. § 216E.03, subd. 4, within 15 days of filing this Application, the Applicants will mail a notice of the filing to each owner whose property is along the Project's proposed route, to those persons who have registered their names with the Commission and expressed an interest in large energy projects, tribal governments, and local government units (LGUs) whose jurisdictions are reasonably likely to be affected by the proposed Project. A list of the names of each owner whose property is within the Proposed Route, along with relevant LGUs, agencies, and tribes, is included in **Appendix C**.

In addition, the Applicants will publish notice in a local newspaper in each county where the Project is proposed that announces the filing of this Application. *See* Minn. Stat. § 216E.04, subd. 4; Minn. R. 7850.2100.

An electronic version of the Application will be available on eDockets in docket number 24-132 and on the DOC-EERA webpage. The Application will also be available on Great River Energy's transmission projects webpage at: https://greatriverenergy.com/transmission_project/laketown-115-kv-transmission-line-project.

2.2.2 Environmental Review Process

Upon acceptance of an Application for a Route Permit as complete, DOC-EERA will conduct an environmental review of the Project, which requires preparation of an EA. *See* Minn. R. 7850.3700. The EA will contain information on the human and environmental impacts of the Project and addresses mitigation measures for all routes considered.

The process DOC-EERA must follow in preparing the EA is set forth in Minn. R. 7850.3700. This process requires DOC-EERA to schedule at least one scoping meeting and associated public comment period. The purpose of the meeting is to provide information about the Project and permitting process, answer questions, and gather input regarding potential impacts and mitigative measures that should be studied in the EA. The meeting also provides an opportunity to solicit potential route or route segment alternatives that mitigate impacts. The Applicants, DOC-EERA, and the Commission will have representatives available during the public meeting to answer questions and provide information for the public. The public meeting will be held within 60 days after the Application is accepted and deemed complete.

Once the scoping meeting has been held and after the public comment period closes, the Commissioner of the DOC will issue a scoping decision describing the issues and alternatives that will be evaluated in the EA. DOC-EERA will prepare the EA based on the scoping decision. Upon completion of the EA, DOC-EERA will publish notice of its availability in the *EQB Monitor*, a weekly publication of the Minnesota Environmental Quality Board (EQB) that can be accessed on the EQB webpage, www.eqb.state.mn.us/monitor.html. DOC-EERA will also send notice to persons who have placed their names on the Project mailing list (**Section 1.7**). A copy of the EA

will be available electronically through eDockets and the DOC-EERA webpage. The EA will become part of the record for consideration by the Commission.

After the EA is issued, a public hearing and associated public comment period will be held to again solicit public input and to create an administrative record. The Commission will select a person to preside over the hearing, which, in practice, is usually an administrative law judge (ALJ) from the Office of Administrative Hearings. The Commission will establish the procedures to be followed at the hearing. *See* Minn. R. 7850.3800.

Once the hearing is concluded, the ALJ will prepare a report based on the record. After the report is issued, the matter will come to the Commission for a decision. During an open meeting, the Commission will deliberate and decide as to the route for the Project, using the criteria set forth in Minn. Stat. 216E.03, subdivision 7(b), and Minn. R. 7850.4100 to guide its decision.

A route permit under the Alternative Review Process shall be issued six months after the Commission’s determination that the Application is complete. This timeframe may be extended up to three months for just cause or upon agreement by the Applicant. *See* Minn. Stat. § 216E.04, subd. 7.

2.3 Other Permits/Approvals

In addition to the Route Permit sought in this Application, several other permits, license, approvals, or consultations may be required to construct the Project depending on the actual route selected and the conditions encountered during construction. A list of the local, state, and federal permits that may be required for this Project as proposed is provided in **Table 2.3-1**. Each of these requirements and their applicability to the Project are discussed in Section 2.3.1 and in the relevant section of the application. **Appendix E** contains a record of correspondence with regulatory agencies and stakeholders to date.

Table 2.3-1. Summary of Possible Permits, Licenses, Approvals, and Consultations

Permit	Jurisdiction
Federal	
Section 404 Clean Water Act Permit	United States Army Corps of Engineers
Endangered Species Act / Migratory Bird Treaty Act Consultation	United States Fish and Wildlife Service
Part 7460 Airport Obstruction Evaluation	Federal Aviation Administration / Minnesota Department of Transportation
State	
State Endangered Species Consultation	Minnesota Department of Natural Resources – Ecological Services
National Historic Preservation Act Consultation Minnesota Statutes Chapter 138 (Minnesota Field Archaeology Act and Minnesota Historic Sites Act)	State Historic Preservation Office Tribal Historic Preservation Officers
Water Appropriation General Permit – Construction Dewatering	Minnesota Department of Natural Resources
Utility License to Cross Public Waters	Minnesota Department of Natural Resources
National Pollutant Discharge Elimination System Construction Stormwater General Permit	Minnesota Pollution Control Agency
Section 401 Clean Water Act Water Quality Certification	Minnesota Pollution Control Agency

Permit	Jurisdiction
Wetland Conservation Act	Carver County Water Management Organization Minnesota Board of Water and Soil Resources
Miscellaneous Work Permit for Trunk Highways	Minnesota Department of Transportation
Oversize and/or Overweight Permit	Minnesota Department of Transportation
Local	
Utility Permit	Carver County Public Works Department
Obstruction Permit	Carver County Public Works Department
Moving/Transportation Permit [Overweight/Over Size]	Carver County Public Works Department
Commercial/Street Access Permit (Substation)	Carver County Public Works Department
Other	
Crossing Permits/Agreements	Utilities and Railroads

2.3.1 Federal Approvals

Section 404 Permit Clean Water Act Permit

A Section 404 permit is required from the U.S. Army Corps of Engineers (USACE), St. Paul District if there are discharges of dredged or fill material into waters of the United States. If wetlands are impacted by the final alignment, impacts are anticipated to be eligible for coverage under the Minnesota Utility Regional General Permit. Great River Energy, in consultation with the USACE, St. Paul District, will seek coverage under the appropriate permit once design of the Transmission Line is complete. **Section 6.7.2** discusses the potential impacts to wetlands associated with the Proposed Route.

U.S. Fish and Wildlife Service Endangered Species Act, Bald and Golden Eagle Protection Act, and Migratory Bird Treaty Act

In accordance with the Endangered Species Act (ESA), Great River Energy will assess whether the activity may affect any federally listed threatened, endangered, or proposed threatened and endangered species, designated critical habitat, or proposed critical habitat. Great River Energy has conducted an early review of the Project using U.S. Fish and Wildlife Service (USFWS) tools (see **Appendix E**) and will again review the Project for changes once a route has been selected and design of the Transmission Line is complete. **Section 6.7.5** discusses the potential impacts to federally listed threatened and endangered species associated with the Proposed Route.

Bald and golden eagles are protected under the federal Bald and Golden Eagle Protection Act (BGEPA). The Migratory Bird Treaty Act prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS. Great River Energy will work with the USFWS to identify any areas that may require marking transmission line shield wires and/or to use alternate structures to reduce the likelihood of avian collisions once design of the Transmission Line is complete. **Section 6.7.5** discusses the potential impacts to eagles and migratory bird species associated with the Proposed Route.

Federal Aviation Administration Part 7460 Airport Obstruction Evaluation

Title 14 Code of Federal Regulations (CFR) Part 77 requires that anyone building a structure near an airport report their intentions to the Federal Aviation Administration (FAA). Great River Energy utilized the FAA's Notice Criteria Tool² to determine if it would be required to file notice to the FAA prior to construction. The Project does not exceed Notice Criteria based on location, elevation, and maximum pole height. **Section 6.2.7** discusses potential impacts to airports.

2.3.2 State of Minnesota Approvals

State Endangered Species and Sensitive Resource Consultation

Minn. Stat § 84.0895 prohibits the take, import, transport, or selling of any portion of an endangered species or wild animal or plant. To determine if a project will impact a state listed threatened or endangered species, Great River Energy has consulted with the Minnesota Department of Natural Resources (MDNR) Natural Heritage and Nongame Research Program, which collects, manages, and interprets information about nongame species, through the Minnesota Conservation Explorer (MCE) system (see **Appendix E**). MCE also provides information on other sensitive resources in the Project vicinity, such as calcareous fens. Great River Energy also submitted the Project to MDNR for an early coordination review; results are included in **Appendix E**. The results of initial consultation regarding the Proposed Route are provided in **Section 6.7.5**. Great River Energy will review the Project for changes once a route has been selected and the design of the Project is complete, as reviews under the MCE system are valid for one year.

Historic, Archaeological, and Tribal Cultural Resources

Great River Energy will assess whether the Project might have the potential to cause effects to an historic property, listed on, eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places (NRHP).

The Minnesota Field Archaeology Act (Minn. Stat § 138.32-138.42) establishes the Office of the State Archaeologist (OSA); requires licenses to engage in archaeology on nonfederal public land; establishes ownership, custody, and use of objects and data recovered during survey; and requires state agencies to submit development plans to the OSA, Minnesota State Historic Preservation Office (SHPO), and the Minnesota Indian Affairs Council (MIAC) for review when there are known or suspected archaeological sites in the area.

Minnesota's Private Cemeteries Act (Minn. Stat § 307.08) affords all human burial grounds and remains older than 50 years and located outside of platted or identified cemeteries protection from unauthorized disturbance. This statute applies to burials on either public or private lands or waters and includes prehistoric Indian burial mounds as well as historic cemeteries.

Great River Energy submitted a literature review of archaeological and historic properties in the Project vicinity to the Minnesota SHPO in a letter dated March 14, 2024; SHPO responded on

² <https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp>

May 14, 2024 (see **Appendix E**). SHPO requested that Great River Energy perform cultural resource surveys for the Project; Great River Energy will complete these surveys following completion of the Route Permit process.

Further, Great River Energy requested feedback on the Project from the 11 federally recognized Tribes with geography within Minnesota and the MIAC in its Project notification letters sent in April 2024. The Shakopee Mdewakanton Sioux Community and the Leech Lake Band of Ojibwe provided comments in April and May 2024, respectively; no other tribes have provided feedback to date. Further details of initial consultation regarding the Proposed Route are provided in **Section 6.6**, and correspondence is provided in **Appendix E**.

Utility License to Cross Public Waters

Minn. Stat. § 84.415, authorizes the Commissioner of the MDNR to establish rules for the sale of licenses which permit utilities to pass over, under, or across public lands and waters. Public waters are any waterbodies (lakes, rivers, public ditches, and some wetlands) identified as such on the MDNR's Protected Waters and Wetlands Maps. Great River Energy will need to obtain a license from the MDNR for the passage of the Transmission Line over any public water. If public waters are impacted by the final alignment, Great River Energy would submit a license application at that time. Public waters are further discussed under **Section 6.7.2**.

Water Appropriation General Permit – Construction Dewatering

Minn. Stat. § 103G.265 requires the MDNR to manage water resources to ensure an adequate supply to meet long-range seasonal requirements for domestic, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes. A water use permit from the MDNR is required for all uses withdrawing more than 10,000 gallons of water per day or 1 million gallons per year. Construction dewatering activities are sometimes required during the installation of transmission poles, as further discussed under **Section 6.7.2**.

National Pollutant Discharge Elimination System Construction Stormwater General Permit

Coverage under the Minnesota Pollution Control Agency (MPCA) National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit is required for stormwater discharges associated with construction activities disturbing one or more acres. A requirement of permit coverage is to develop and implement a stormwater pollution prevention plan (SWPPP), which includes Best Management Practices (BMPs) to minimize discharge of pollutants from the construction site. Great River Energy and MVEC expect that coverage under this permit will be required for the Transmission Line and Laketown Substation, as construction of each of these components will cause a disturbance of more than one acre.

Section 401 Water Quality Certification

A Section 401 certification is necessary to obtain a federal permit for a project to ensure that the federal government does not issue a permit or license for a project that will result in a violation of the state water quality standards set under the Clean Water Act in waters of the U.S. The federal agency cannot issue a permit until the MPCA has either certified that the project impacting waters

of the U.S. will comply with state water quality standards or waives its review of the project. As discussed above, should Section 404 coverage be required, the Project is likely to qualify for a coverage under the Minnesota Utility Regional General Permit; the MPCA has already issued a Section 401 Certification associated with this permit and no additional review or permit would be required should the Project meet applicable conditions.

Wetland Conservation Act

The Minnesota Board of Water and Soil Resources (BWSR) coordinates the state Wetland Conservation Act. Caver County Water Management Organization administers the Wetland Conservation Act for the entirety of the Proposed Route. Should wetlands be impacted along the final route, the Applicants anticipate being eligible for the Exemption for Utilities in accordance with Minn. Stat. § 103G.2241, subd. 6, and Minn. R. 8420.0420, subp. 6, which allows the utility exemption for installation, maintenance, repair, or replacement of lines if (a) the impacts have been avoided and minimized to the extent possible; and (b) the proposed project significantly modifies or alters less than one-half acre of wetlands. Alternatively, the Transmission Line may also qualify for a federal approvals exemption for utilities under Minn. R. 8420.0420, subp. 4, which waives the requirement for a replacement plan for impacts authorized under Section 404 of the Clean Water Act and if minimum state standards are met. Potential impacts to wetlands at the Laketown Substation would not be eligible for exemption under either Minn. Stat. § 103G.2241, subd. 6, and Minn. R. 8420.0420, subp. 6 nor Minn. R. 8420.0420, subp. 4. Impacts to wetlands at the Laketown Substation site would be regulated as impacts under the state Wetland Conservation Act.

Further discussion on the potential impacts to wetlands associated with the Proposed Route are provided in **Section 6.7.2**.

Miscellaneous Work Permit for Trunk Highways

A Miscellaneous Work Permit is required by the Minnesota Department of Transportation (MnDOT) for placement of temporary obstructions on the ROW (e.g., survey vehicles) and vegetation removal. After the Route Permit is issued, Great River Energy will apply for this permit as applicable.

Oversize/Overweight

An Oversize and/or Overweight permit is required by MnDOT when a vehicle is transporting an oversize/overweight load on Minnesota roadways. If any transport load qualifies as oversize or overweight, the transportation contractor will apply for the appropriate permit.

2.3.3 Local Approvals

After the Commission approves a route and any appropriate design engineering is completed, the Applicants will work with LGUs to obtain any of the following approvals, if necessary.

Utility Permit

The Carver County Public Works Department requires a Utility Permit for the construction or adjustment of public and private utility facilities within the county highway ROW. Great River Energy will apply for this permit once the Transmission Line design is complete and will acquire it prior to applicable construction activities.

Obstruction Permit

The Carver County Public Works Department requires an Obstruction Permit for any obstructions affecting the traveling public on a county highway as part of permitted construction work being done within the county highway ROW. Great River Energy will apply for this permit once the Transmission Line design is complete and acquire it prior to applicable construction activities.

Moving/Transportation Permit

The Carver County Public Works Department requires a Moving Transportation Permit for any vehicle or trailer using county highways exceeding legal load limits and specified dimensions. Great River Energy will apply for this permit once the Transmission Line design is complete and will acquire it prior to applicable construction activities.

Commercial/Street Access Permit

A Commercial/Street Access Permit is required for all new or reconstructed commercial or street access locations that connect to a county highway, or if the land use type or development intensity is being changed for an existing access to a county highway. MVEC will apply for this permit for the Laketown Substation driveway once the Laketown Substation design is complete and will acquire the permit prior to applicable construction activities.

3 PROPOSED PROJECT

Great River Energy is proposing to build a new 4.3-mile 115-kV double-circuit HVTL in Laketown and Dahlgren Townships in Carver County, Minnesota. MVEC is proposing to construct the new Laketown Substation. The Project will connect Great River Energy's existing 115-kV MV-VTT transmission line to the new Laketown Substation. This Project will enable Great River Energy to provide 115-kV service to a new MVEC Laketown Substation to meet long-term electricity planning needs.

The proposed Project is located within Dahlgren and Laketown Townships in Carver County, Minnesota. An overview of the Proposed Alignment and Proposed Route is shown in **Figure 1-1 and Figure 3-1. Appendix A** contains a series of larger scale aerial photo maps depicting the Proposed Alignment, Proposed Route, and the Proposed ROW (100-foot-wide construction and operational ROW for the Project).

3.1 Transmission Line

3.1.1 Proposed Alignment

As described in **Section 1.4**, the Proposed Alignment refers to the conceptual centerline of the Transmission Line. As part of this permitting process, the Commission will authorize a route for the Project that includes a route width, and the final alignment may be located within the authorized route. This Application includes a Proposed Alignment; the final alignment may differ because of this permitting process and/or due to input from landowners, agencies, and feedback received from other stakeholders.

The Proposed Alignment will begin at Great River Energy's existing MV-VTT line on the west side of Guernsey Ave near structure MV-VTT-55. The Proposed Alignment will then follow the north side of Hampshire Road northwesterly for approximately 1 mile, then will leave the road alignment and travel west across greenfield agricultural fields for 1.2 miles (**pages 1-2 of Appendix A**). The Proposed Alignment will then turn north, crossing the Twin Cities & Western Railroad, for 0.5 mile to the south side of Augusta Road. The Proposed Alignment will then turn east and follow Augusta Road for 0.5 mile before crossing over Augusta Road on the east side of Jersey Avenue. The Proposed Alignment will then travel along the east, then west sides of Jersey Avenue for 1 mile to the south side of CSAH 10. The Proposed Alignment will then travel 500 feet west on the south side of CSAH 10 before turning north into the Laketown Substation site, which is located northwest of the intersection of CSAH 10 and Laketown Road (**pages 2-3 of Appendix A**).

As described above and shown in the route maps provided in **Appendix A**, approximately 2.4 miles, or 53.5 percent of the Project will be collocated³ with existing ROW. Collocation is as follows: 1.0 mile with Hampshire Road; 0.5 mile with Augusta Road; 0.7 mile with Jersey Avenue; and 0.1 mile with CSAH 10. In some of these areas, the road ROWs are also adjacent to existing aboveground MVEC distribution lines, which are shown on maps in **Appendix A**.

3.1.2 Proposed Right-of-Way

The Proposed ROW is the physical land area that is needed to construct, operate, and maintain the Transmission Line; this is the area that will be maintained by Great River Energy. Great River Energy will require a new 100-foot-wide ROW for construction and maintenance of the Transmission Line. Great River Energy representatives will work directly with individual landowners to acquire the necessary easements and other land rights for the construction, operation, and maintenance of the Project once the final route and alignment are determined (see **Section 3.4**). MVEC owns the land on which the Laketown Substation will be located.

3.1.3 Route Widths

A “route” or “route width,” referred to herein as the Proposed Route, is a corridor that is defined by the Commission in a route permit. The Proposed Route is wider than the Proposed ROW to provide flexibility to address human and environmental concerns and physical constraints (e.g., other utilities) that arise during this permitting process and after the Route Permit has been issued.

Within this Application, Great River Energy is generally requesting a 1,400-foot route width; Great River Energy is also requesting varied route widths for specific portions of the route to account for existing infrastructure, mitigate potential engineering challenges, and/or to facilitate any necessary realignments to accommodate agency and/or landowner requests. The requested route widths are shown in **Figure 3-1** and include:

1. Approximately 1,900 feet wide where the Proposed Route crosses Hampshire Road.
2. Approximately 4,500 feet wide in the area south of Augusta Road and west of County Road 43.
3. Approximately 1,700 feet wide to encompass the 8.9-acre Laketown Substation parcel.
4. In all other locations, 1,400 feet wide.

3.1.4 Structures and Design Considerations

Proposed structure layouts are provided in **Diagram 3-1**. Photos are shown in **Diagram 3-2**. Structure dimensions are provided in **Table 3.1.4-1**.

³ As discussed in this Application, collocation is any utility located within 50 feet either side of the Proposed Alignment, with the understanding that ultimately, Great River Energy plans to place the Proposed Alignment approximately 5 feet outside of road ROW.

Diagram 3-1. 115-kV Transmission Structure Layouts

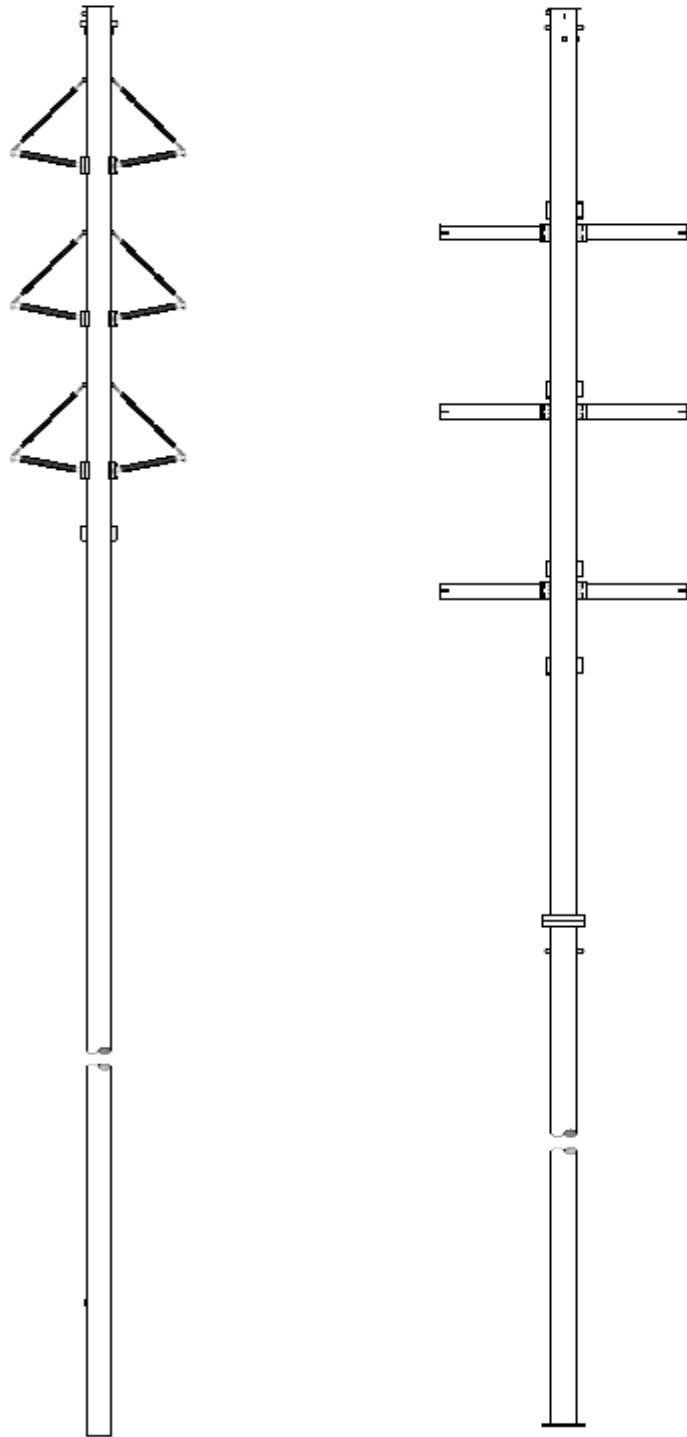


Diagram 3-2. Photos of 115-kV Transmission Structures



Table 3.1.4-1. Typical 115-kV Structure Dimensions

Structure Type	Material	Approximate Height Above Ground (feet)	Structure Base Diameter (inches)	Span Between Distances (feet)
Monopole with horizontal post or braced post	Steel	70 - 95	18 - 60	300 - 400
H-Frame	Steel	70 - 90	18 - 60	350 - 800
Three-pole	Steel	70 - 90	18 - 60	350 - 800

Great River Energy will construct the Project primarily with direct-embedded steel monopoles, 70 to 95 feet above ground and placed 300 to 450 feet apart. Direct-embed steel structures or steel structures on concrete foundations will be required at highway crossings and specialty structures may be required in some locations (e.g., to cross under an existing line, for angle locations, or in areas where soil conditions are poor, and guying is not practical). The average diameter of the direct-embedded steel structures at ground level would be approximately 30 inches.

Steel structures on concrete foundations may be needed for angled structures; the size of these structures is dependent on the tension on the line, and/or the angle of deflection the structure location causes on the Transmission Line. Specific sizing of these structures will be determined after a route permit is issued and detailed engineering design is initiated.

Multi-pole (e.g., 3-pole deadend) and/or H-frame structures are designed in a horizontal configuration, which maintains the Transmission Line conductors parallel to the ground. Horizontal configuration is sometimes desirable where the proposed Transmission Line crosses under other existing high voltage transmission lines. The horizontal configuration allows the Transmission Line to be as low as possible at the crossing point, while still maintaining the

required clearances set by the National Electrical Safety Code (NESC). Specific sizing of these structures will be determined after a Route Permit is issued and detailed engineering design is initiated. In some cases where overhead clearances require the use of H-frame structures, it may be necessary to also bury the optical ground shield/communication wire. In such a situation, the optical ground wire would be directionally bored underground between the two structures adjacent to the H-frame structure. Great River Energy does not currently anticipate the Proposed Route will require H-frame or 3-pole structures.

A deadend structure is used to change direction and/or wire tension on a transmission line. Deadend structures are also used as a “storm structure” to limit the number of structures damaged by a cascading effect due to higher line tensions when a pole is knocked down by a storm. Deadend structures can use wood, wood laminate, direct steel embedded, or steel on concrete foundation structures and can have a larger cross section than the typical structures. The location of deadend structures will be determined after a route permit is issued and detailed engineering design is initiated.

3.1.5 Transmission Line Clearance Requirements

NESC sets minimum clearances of the conductors from structures adjacent to or within the ROW. NESC clearance requirements are summarized in **Table 3.1.5-1**. For a 115-kV transmission line like the Project, the NESC minimum clearance under a 48 mile per hour (mph) wind is 8.6 feet. When there is no wind, the conductors must have a clearance of 9.1 to 11.6 feet from various structures as listed in **Table 3.1.5-1**. In addition, Great River Energy typically requires the blowout to remain within the ROW under a more extreme wind condition of 94 mph. The amount of blowout is dependent on a number of factors including the span length and conductor type. On a typical 115-kV transmission line with a 300-foot span, blowout is approximately five feet with 48 mph winds and approximately eight feet with 94 mph winds.⁴ The final line design evaluates blowout based on actual span distances and the type of conductor being used.

Table 3.1.5-1. NESC Clearance Requirements for 115-kV

Risk Case	Minimum Separation (feet)	
	No Wind	NESC 45 mph wind
From a lighting support, traffic signal support, or support structure for another line.	9.1	8.6
From any other buildings, walls, projections, structures, bridges, etc.	11.6	8.6

3.1.6 Outages

All necessary outages are coordinated in accordance with MISO requirements and procedures that are established and followed by all MISO members to meet personnel safety and NESC transmission grid reliability requirements. Coordination is accomplished through well-defined outage scheduling procedures that utilize web-based tools, allow for study affirmation and ultimate approval of the submitted outage. Once approved, detailed switching orders are developed and

⁴ NESC also has standards regarding vegetation management which necessitates typically greater clearance distances. See **Section 6.5** for vegetation management requirements.

shared with all parties involved using well-defined processes to ensure safety of personnel performing the work and transmission grid reliability. While distribution systems are not subject to MISO requirements, Great River Energy will also coordinate outages with MVEC.

3.1.7 Conductors

The double circuit structures will have six single-conductor phase wires (three conductors per circuit) and one shield wire. It is anticipated that the phase wires will be 795 thousand circular mil aluminum-clad steel supported (795 ACSS) or a conductor with similar capacity. The shield wire will be 0.528 optical ground wire.

3.1.8 Distribution Lines

Great River Energy does not own, operate, or install low voltage distribution lines. Great River Energy commonly allows other distribution utilities to attach distribution lines to its high voltage transmission line structures. This is commonly called “underbuild” or “underbuilt.” MVEC will either attach the distribution lines as under-build to the Project’s new structures or bury the distribution lines within the ROW. This work will be undertaken by MVEC and is not part of this Application.

3.1.9 Service Life

The service life of a transmission line and substation is approximately 40 years, although based on experience, it is quite possible that the line and structures will last longer than 40 years.

3.1.10 Annual Availability

An average 115-kV transmission line is expected to be available approximately 99.9 percent of the year. Great River Energy expects that this line should not be out of service for any extended period, other than the rare times when scheduled maintenance is required or when a natural event, such as a tornado, thunderstorm, or ice storm causes an outage.

3.1.11 Design Options to Accommodate Future Expansion

Minnesota statutes and rules require the consideration of the potential for a project to accommodate future improvements to the transmission system. The Project is designed to operate at 115-kV to serve increased electrical demand in the future.

3.2 Substation

Substations are a part of the electric generation, transmission, and distribution system and contain high-voltage electric equipment to monitor, regulate, and distribute electricity safely and reliably. The Laketown Substation fence line footprint will be approximately 1.5 acres. Distribution level components within the fence line will include a transformer, switch gear, and bus work. The transmission level equipment will include a 24-by 24-foot electrical equipment enclosure, bus work, circuit breaker, high side structures, and switches on approximately one third of an acre in a fenced in, secured, rocked pad. A stormwater treatment pond will also be constructed on the

Laketown Substation property. All the work at the Laketown Substation will be completed on the 8.9-acre existing parcel that MVEC owns.

3.2.1 Substation Design Considerations

The Laketown Substation will convert 115-kV electric energy to 12.47-kV. The Laketown Substation will have space available for a future second transformer for future load growth. The 115-kV Transmission Line will be terminated on 115-kV high side structures with one circuit into the Laketown Substation and the other circuit exiting the substation. System protection for the circuit breaker and future breakers will be housed in the electrical equipment enclosure for protection and reliability of the 115-kV transmission line network.

3.3 Proposed Ownership

Great River Energy will own the 4.3-mile 115-kV Transmission Line from the MV-VTT transmission line to its connection point with the Laketown Substation, as well as the transmission substation components within the Laketown Substation. MVEC presently owns the property on which the Laketown Substation is located, as well as its components, including the 115/12.47-kV stepdown transformer.

3.4 Landowner Coordination

Great River Energy has initiated landowner outreach by providing information on the Project via letters mailed to potentially impacted landowners, interested parties and federal, state, and local governmental officials; publishing notices in area newspapers; and holding an open house (**Section 1.7, Appendix B**).

Land crossed by the Proposed Route is primarily owned by private landowners. New easements will be needed for the 115-kV Transmission Line ROW from the MV-VTT transmission line to the Laketown Substation. Great River Energy representatives will work directly with individual landowners to negotiate the necessary easements. At a minimum, the Project will obtain a total ROW of 100 feet (typically 50 feet from each side of the transmission centerline) for the 115-kV transmission line system. Where the Transmission Line parallels roads, the Transmission Line structures are typically installed two to seven feet outside of road ROW, resulting in approximately 55 feet of ROW needed outside of the road ROW.

If a negotiated easement cannot be reached, Great River Energy can use the eminent domain process to obtain the rights necessary. *See* Minn. Stat. § 216E.12. With the eminent domain process, the landowner can be compensated for the ROW determined by impartial commissioners through a court process that is initiated by Great River Energy.

3.5 Estimated Costs

Estimated costs for the proposed Project are approximately \$18.0 million. Costs and tasks are divided into six phases as summarized in **Table 3.5-1**.

Table 3.5-1. Estimated Project Costs

Project	Planning and State Permitting	Land Acquisition/ Permits	Design	Procurement	Construction	Close Out	Total
GRE Transmission Line	950,000	1,915,000	442,000	2,689,000	4,891,500	156,000	11,043,500
GRE Transmission Substation Infrastructure	8,500	5,500	207,500	1,753,000	877,500	9,500	2,861,500
MVEC Substation		600,000	200,000	2,500,000	750,000	10,000	4,060,000
Total	958,500	2,520,500	849,500	6,942,000	6,519,000	175,500	17,965,000

All capital costs for the transmission line infrastructure, including Great River Energy’s equipment in MVEC’s substation, will be borne by Great River Energy. All capital costs for the Laketown Substation facilities will be borne by MVEC.

The estimated annual cost of ROW maintenance and operation and general maintenance of Great River Energy’s transmission lines (69-kV to 500-kV) in Minnesota is approximately \$4,000,000, which is equal to about \$2,000 per mile. Actual transmission line specific maintenance costs will depend on the environmental setting, the amount of vegetation management necessary, storm damage occurrences, structure types, age of the line, etc.

3.6 Project Schedule

The Applicants anticipate starting construction on the Laketown Substation in spring 2027 and on the transmission line in fall 2027 and energizing the Project in the summer of 2028. **Table 3.6-1** summarizes the permitting schedule that would enable the Project to be in service by the summer of 2028.

Table 3.6-1. Anticipated Permitting Schedule

Route permit application filed	August 2024
Scoping meeting	November 2024
Public hearing	April 2025
Commission meeting	August 2025
Written order issued	August – September 2025

3.7 Work Force Required

The Applicants anticipate that 22 to 35 daily contract workers (15 to 25 for the Transmission Line and 7 to 10 for the Laketown Substation) will be employed for the Project. MVEC and Great River Energy will also have a construction supervisor onsite throughout the construction phase of the Transmission Line and Laketown Substation.

Great River Energy has a buy local policy that states, “preference shall be given to local suppliers.” Local suppliers are those suppliers or contractors who are physically located in Great River

Energy’s service territory (Minnesota / Wisconsin) and/or in states where Great River Energy has a physical location (North Dakota). Great River Energy’s operating guideline, in order of importance, is to buy Local → Domestic → Eligible Countries. Sources from non-eligible countries will be considered in extreme circumstances or as a last resort.”

Great River Energy typically hires contractors who pay their employees at or better than prevailing wages.

3.8 Construction Practices

The Applicants intend to employ their standard practices to construct the Project. These standard practices have been established and incorporate BMPs to meet internal, state, and federal requirements, balance construction costs, and minimize impacts to landowners and the environment. Construction practices to be followed are described in more detail in **Section 6.2**.

3.9 Operation and Maintenance Practices

Great River Energy and MVEC will periodically perform inspections, maintain equipment, and repair damage to the Transmission Line and Laketown Substation. Regular maintenance and inspections will be performed over the life of the facility to ensure a reliable system. Annual inspections will be done by foot, snowmobile, All-Terrain Vehicle, pickup truck, or by aerial means. These inspections will be limited to the acquired ROW and areas where obstructions or terrain require access outside of the Transmission Line ROW but within the terms of the easement. If problems with the Transmission Line are found during inspection, repairs will be performed, and landowners will be compensated for any losses or damage incurred to their property.

Great River Energy’s Transmission Construction & Maintenance Department will conduct vegetation surveys and remove vegetation that will interfere with the safe operation of the Transmission Line (**Section 6.5**). A three to seven-year cycle of vegetation maintenance is desirable. ROW practices include a combination of mechanical and hand clearing, along with targeted application of herbicides where allowed.

4 ALTERNATIVE ROUTES CONSIDERED AND REJECTED

4.1 Alternative Requirement

Minn. Stat. § 216E.04, subd. 3, and Minn. R. 7850.3100 require an applicant to identify any alternative routes that were considered and rejected for the Project.

The first step in identifying route alternatives is to identify local, existing transmission lines and then determine if the line can sufficiently support the needs of the Project. That process identified five route options which were ultimately rejected and not studied further because they either would not meet the long-term reliability or transmission planning needs of the Project or would present threshold routing difficulties that present constructability and logistics concerns (see **Section 4.2**).

Then, as described in **Section 4.3**, Great River Energy considered two route alternatives that would connect the Laketown Substation to Great River Energy's existing MV-VTT line. These route alternatives were ultimately rejected in favor of the Proposed Route because the Project's Proposed Route better avoids and minimizes potential human and environmental impacts, consistent with the Commission's routing criteria.

Figures 4-1 and 4-2 present an overview of the Project as compared to the route alternatives considered and the human environmental impacts of the Project and route alternatives, respectively.

4.2 Route Options Considered but Not Studied Further

Great River Energy identified five route options that were ultimately rejected and not studied further because they either would not meet the long-term reliability or transmission planning needs of the Project or would present routing difficulties that present constructability and logistics concerns. These Route Options include the following:

- Interconnecting with Xcel Energy's 115-kV transmission system that runs east-west along County Road (CR) 140, south of the MVEC-owned existing Augusta Substation and the proposed Laketown Substation site (see **Figure 4-1**). This option was not considered further because it would result in multiple substations, including the proposed new Laketown Substation, to be co-dependent on a single 115-kV circuit. This would result in a higher level of exposure to outages resulting in less reliability. Therefore, this route option was not considered further.
- Interconnecting at the existing Augusta Substation, located at the intersection of Big Woods Boulevard/CR 140 and CR 43 (see **Figure 4-1**). This option was not considered further because the Augusta Substation site is limited in space for expansion to facilitate the tap due to topography and adjacent private homes. Therefore, this route option was not considered further.

- Interconnecting with the Great River Energy MV-VTT 115-kV transmission line (approximately 1,000 feet south of the proposed connection location at Hampshire Road), near the intersection of Guernsey Avenue and CR 140, and then following CR 140 west until heading north at CR 43 (see **Figure 4-1**). There is existing MVEC distribution infrastructure along the north side of the road, and an existing Xcel Energy 115-kV transmission line along the south side of the road. The intersection of Guernsey Avenue and CR 140 is constrained by two homes on the northwest and southeast corners of the intersection, in addition to an emergent wetland that stretches for 0.2-mile along the south side of CR 140 from the intersection of Guernsey Ave west. Another emergent wetland stretches for approximately 830 feet on both the north and south sides of CR 140 further west, and the alignment would have to deviate from the road to avoid two farms with residences. The home on the south side of the road is located only approximately 50 feet from the road ROW and only 33 feet from the existing Xcel Energy 115-kv transmission line. On the north side, the closest farm building is only approximately 25 feet from the road ROW. This route option would also require an interconnection with the existing Augusta Substation; these constraints are discussed above. Further west of CR 43, there are no existing north-south utility or transportation corridors to follow north towards the Laketown Substation. Although property lines could be followed, all options would involve tree removal associated with windbreaks, or forested areas, or require installation of the line near homes. Due to these constraints, this route option was not considered further.
- Interconnecting with the Great River Energy MV-VTT 115-kV transmission line following a straight line directly east from the Laketown Substation site was not considered further because it would be partially collocated with CSAH 10, would cross a large expansive greenfield area of open space, ponds, and forested wetlands, and would cross the Huntersbrook and Marsh Hollow housing developments west of Guernsey Avenue (see **Figure 4-1**). Issues with collocating along CSAH 10 are presented with the discussion of the CSAH 10 Alternative in **Section 4.3.1**. Therefore, this route option was not considered further.
- Interconnecting with the MV-VTT 115-kV transmission line northeast of the Laketown Substation site near the intersection of Marsh Lake Road and Victoria Drive/Guernsey Avenue (see **Figure 4-1**). This route would follow Marsh Lake Road west to CSAH 43, and then follow CSAH 43 south to CR 10, where it would turn west along CR 10 to the Laketown Substation. Issues with collocating along CR 10 are presented with the discussion of the CSAH 10 Alternative, below. There are existing distribution lines along CSAH 43, and the route could possibly be collocated with these and existing roads; however, there is dense residential development on the northside of Marsh Lake Road between Victoria Drive/Guernsey Avenue and CSAH 43, and there is additional residential development to the south of Marsh Lake. Collocation with CR 43 would also be constrained by residential development along Piersons Lake on the west, and Marsh Lake to the east. Therefore, this route option was not considered further.

4.3 Route Alternatives Considered but Rejected

Great River Energy considered two route alternatives that originate at the MV-VTT 115-kV transmission line along Victoria Drive/Guernsey Avenue and connect to the Laketown Substation: the CSAH 10 Alternative and the Xcel Energy Powerline Alternative. These Route Alternatives are shown on **Figures 4-1 and 4-2**. These Route Alternatives were chosen for study because they were each almost exclusively collocated with existing ROW. These route alternatives were presented to stakeholders and the public during the public outreach efforts described in **Section 1.7**, prior to Great River Energy's selection of a Proposed Route for inclusion in this Application, so that Great River Energy might consider feedback from stakeholders along each route alternative when determining which route to include as the Proposed Route in this Application.

- **CSAH 10 Alternative:** From Great River Energy's MV-VTT line on the west side of Guernsey Avenue near structure MV-VTT-34, this route alternative would parallel Guernsey Avenue south for 300 feet to CSAH 10, then follow CSAH 10 for 3.0 miles to the northwest, making multiple crossings to avoid homes, and then crossing CSAH 10 to the Laketown Substation site.
- **Xcel Energy Powerline Alternative:** From Great River Energy's MV-VTT line on the west side of Guernsey Avenue near structure MV-VTT-34, this route alternative would follow Guernsey Avenue north for 0.2 mile until meeting with the existing Xcel Energy 230-kV transmission line. The Route Alternative would then be collocated with the existing Xcel Energy 230-kV transmission line for 2.6 miles to Jersey Avenue. The Route Alternative would then follow Jersey Avenue for 0.5 mile north to CSAH 10 and then cross CSAH 10 to the Laketown Substation site. This Route Alternative would also involve modifications to a southerly switch near CSAH 10 and alternate connection points to MV-VTT on the east side of Guernsey Avenue near structure MV-VTT-30.

After considering the potential human and environmental impacts of these alternatives, Great River Energy selected the Proposed Route to present in this Application because the Proposed Route compares favorably when considering human and environmental impacts, as it avoids areas prioritized by Carver County and the City of Victoria for improvements and development; is collocated with existing ROW or within agricultural areas; and minimizes wetland impacts, including forested wetlands. The human and environmental impacts of the Proposed Route as compared to these two route alternatives are discussed below.

4.3.1 Environmental Impact Considerations

Great River Energy reviewed publicly available environmental datasets to complete a high-level comparative analysis of the Proposed Route,⁵ the CSAH 10 Alternative, and the Xcel Energy Powerline Alternative. A summary of the results is presented in **Table 4.3.1-1**. To provide a reasonable comparison between the Proposed Route and these route alternatives, resource impacts were assessed based on the Proposed Route, Proposed Alignment, and/or a 100-foot-wide buffer

⁵ This section uses "Proposed Route" terminology for consistency with the remainder of this Application but note that Great River Energy did not identify the Proposed Route as the route that would be included in this Application until after this underlying analysis was complete.

(50 feet either side) of the centerlines (i.e., the Proposed ROW), as appropriate depending on the resource. Features are shown on **Figure 4-2, pages 1-4.**

Table 4.3.1-1. Comparison of Human and Environmental Features Crossed by the Proposed Project and Route Alternatives

Resource / Characteristic	Proposed Project	CSAH 10 Alternative	Xcel Energy Powerline Alternative	Source
Length (miles)	4.3	3.2	3.5	N/A
Collocation ^a with Utilities and Roads				
Electric Transmission / Distribution Lines (miles)	1.0 ^b	3.1	2.6 ^b	Provided by utilities
Roads (miles)	2.4	3.1	0.8	https://mndot.maps.arcgis.com/apps/View/index.html?appid=ed7c29124e56472cbfba2d0cc3c557e2 (Undated)
Total (miles)	2.4	3.1	3.4	Measured in GIS
Percent Collocated	55%	97%	97%	
Land Use Features				
Residences within 100 feet of the Proposed Alignment	0	1	0	Digitized from aerial photographs (2021)
Residences within 200 feet of the Proposed Alignment	8	13	3	Digitized from aerial photographs (2021)
No. of parcels crossed by the Proposed Alignment	18	20	18	https://www.mngeo.state.mn.us/chouse/land_own_property.html (February 2024)
Snowmobile trail crossings	4	0	0	http://chaskasnohawks.com/files/2017/01/2017_SW_Trails_Map.pdf (2017) https://gisdata.mn.gov/dataset/trans-snowmobile-trails-mn (July 2022)
Easements				
USFWS Interest (no.)	0	0	0	https://gis-fws.opendata.arcgis.com/datasets/96898706f83f4df2863297dc20d477f2/explore (April 2024)
Agricultural Preserve Land	3.8	0.1	0.8	https://gisdata.mn.gov/dataset/us-mn-state-metc-agri-agricultural-preserves2021 (Dec 2021)
Minnesota BWSR / RIM Conservation Easement (no.)	0	0	0	https://gisdata.mn.gov/dataset/bdry-bwsr-rim-cons-easements (February 2024)
Surface Water Features				
National Wetlands Inventory (miles crossed)	<0.01	0.3	0.4	https://gisdata.mn.gov/dataset/water-nat-wetlands-inv-2009-2014 (May 2019)

Resource / Characteristic	Proposed Project	CSAH 10 Alternative	Xcel Energy Powerline Alternative	Source
MDNR Rivers and Streams (no. of crossings)	5	3	7	https://gisdata.mn.gov/dataset/water-dnr-hydrography (April 2024)
Calcareous Fens within 5 Miles	1	1	1	https://gisdata.mn.gov/dataset/biota-nhis-calcareous-fens (May 2024)
MDNR Public Water Basins (no. of crossings)	0	0	1	https://gisdata.mn.gov/dataset/water-mn-public-waters (March 2024)
MDNR Public Water Watercourses (no. of crossings)	1	0	0	https://gisdata.mn.gov/dataset/water-mn-public-waters (March 2024)
Rare and Sensitive Resources				
Potential for USFWS federally protected species	4	4	4	Information for Planning and Consultation (IPaC) System
Rusty Patch Bumblebee Low Potential Zones (miles)	2.7	1.8	2.3	https://www.arcgis.com/apps/mapviewer/index.html?webmap=2716d871f88042a2a56b8001a1flacae (April 2024)
Rusty Patch Bumblebee High Potential Zones (miles)	1.6	1.4	1.2	https://www.arcgis.com/apps/mapviewer/index.html?webmap=2716d871f88042a2a56b8001a1flacae (April 2024)
Minnesota Biological Survey Sites of Biodiversity Significance (no.)	0	0	0	https://gisdata.mn.gov/dataset/biota-mcbs-sites-of-biodiversity (April 2024)
Minnesota Land Cover Classification System Regional Ecological Corridors (miles)	0.0	0.8	0.7	https://gisdata.mn.gov/dataset/env-mlccs-regional-corr-areas (2008)
MDNR Regionally Sig. Ecological Areas (miles)	0.0	0.0	0.2	https://gisdata.mn.gov/dataset/env-dnr-r3-resource-sig-areas (2000)
<p>Notes:</p> <p>^a Collocation is defined as any utility located within 50 feet either side of the Proposed Alignment. Measurements were made visually understanding the intention of the alternative and Great River Energy’s anticipated goal of aligning any alternative approximately 5 feet outside of road ROW.</p> <p>^b The electric distribution lines in these instances are collocated with roads and may or may not be on the same side as the Proposed Route. Therefore, this mileage is not additive to the total mileage under the “Roads” category.</p>				

The Proposed Alignment within the Proposed Route is 1.1 and 0.8 miles longer than the CSAH 10 and Xcel Energy Powerline Alternative, respectively. The Proposed Route is also collocated with

fewer existing corridors (electric distribution/transmission and roads) than any of the route alternates, with 55% collocation as compared to 97% for both alternatives.

The Xcel Energy Powerline Alternative crosses a Public Water Basin where it also crosses the Twin Cities and Western Railroad (**Figure 4-2, page 2**). The crossing of the public water is approximately 475 feet long, but the National Wetlands Inventory (NWI) wetlands surrounding the public water shape is 603 feet. Depending upon ultimate span widths, a pole may need to be placed within the Public Water Basin, necessitating the need for additional MDNR permitting and permanent impacts to wetlands.

The Proposed Route crosses one perennial Public Water watercourse; neither Route Alternative crosses a Public Water watercourse (**Figure 4-2, page 2**). The Proposed Route would cross four additional non-public waterbodies. The Xcel Energy Powerline Alternative would cross seven non-public waterbodies and the CSAH 10 Alternative would cross three non-public waterbodies. All three routes are within 5 miles of the westernmost fen point associated with the Seminary Fen.

There is one large snowmobile trail in the vicinity of the Proposed Route and Route Alternatives. Both alternatives cross the trail in one location near the Laketown Substation (**Figure 4-2, pages 1-3**). The Proposed Route is first parallel with the trail for approximately 0.5 mile as it crosses east and west of CR 43, then crosses the trail near the crossing of the Twin Cities and Western Railroad, then again near Augusta Road, Jersey Avenue, and then near the Laketown Substation.

There were no Natural Heritage Inventory System element occurrences of state-listed species within one mile of the Proposed Route and Route Alternatives, and each route has the same federally listed species in the vicinity. The Proposed Route and alternatives are all located within low- or high-potential zones for the rusty patched bumblebee (**Figure 4-2, page 1**). Regarding high-potential zones, the Project would cross 1.6 miles, while the CSAH 10 and Xcel Energy Powerline Alternative would cross 1.4 and 1.2 miles, respectively.

The Proposed Route crosses the same number of miles of natural land use types as each Route Alternative (0.2 mile), as presented in **Table 4.3.1-2**. Natural land use types crossed by the Proposed Route are upland land types, while both Route Alternatives cross some wetland and floodplain land use types. All remaining mileage crossed is developed/disturbed or agricultural. All route options cross some lands included in the Metropolitan Council’s Agricultural Preserve Program, with the Proposed Route crossing the most land (see **Table 4.3.1-1**).

Table 4.3.1-2. Comparison of Land Use Types Crossed by the Proposed Alignment and Route Alternative Alignments

Land Use Type	Proposed Project	CSAH 10 Alternative	Xcel Energy Powerline Alternative
	Miles Crossed		
Row & Close Grain Crop Cultural Formation	2.9	2.0	2.9
Pasture & Hay Field Crop	0.0	0.1	0.1
<i>Agricultural Land Use Subtotals</i>	<i>2.9</i>	<i>2.1</i>	<i>3.0</i>
Developed & Urban	1.2	0.9	0.2

Land Use Type	Proposed Project	CSAH 10 Alternative	Xcel Energy Powerline Alternative
	Miles Crossed		
Recently Disturbed or Modified	0.0	0.0	0.1
<i>Developed / Disturbed Land Use Subtotals</i>	<i>1.2</i>	<i>0.9</i>	<i>0.3</i>
Eastern North American Freshwater Marsh	0.0	<0.1	0.1
North-Central Beech-Maple-Basswood Forest	0.2	0.1	<0.1
North-Central Oak – Hickory Forest & Woodland	<0.1	<0.1	0.0
Northern & Central Native Ruderal Forest	0.0	<0.1	0.0
Silve Maple – Sugarberry – Sweetgum Floodplain Forest	0.0	0.0	<0.1
Central Boreal Forest	<0.1	0.0	0.0
Silver Maple – Green Ash – Sycamore Floodplain Forest	0.0	<0.1	0.0
<i>Natural Land Use Subtotals</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>
Total	4.3	3.2	3.5
Source: https://www.usgs.gov/programs/gap-analysis-project/science/land-cover-data-download (2011)			

As shown in **Table 4.3.1-3**, based on NWI data, the Proposed Route crosses the least mileage of wetlands (less than 0.01 mile), which consists of a small “lotic river throughflow” within a drained/farmed wetland which could be easily avoided during pole placement (**Figure 4-2, page 3**). The CSAH 10 and Xcel Energy Powerline Alternative cross 0.3 mile and 0.4 mile of wetlands, respectively, with only the CSAH 10 Alternative having impacts to forested wetlands (0.1 mile) (**Figure 4-2, page 1-2**). This is a large block of contiguous forested wetland area on the southwest side of CR 10 which could likely not be wholly avoided due to a residence on the northeast side of CSAH 10.

Table 4.3.1-3. Comparison of Wetlands Crossed by the Proposed Alignment and Route Alternative Alignments

Wetland Type	Proposed Project	CSAH 10 Alternative	Xcel Energy Powerline Alternative
	Miles Crossed		
Freshwater Emergent Wetland	0	0.2	0.4
Freshwater Forested Wetland	0	0.1	0
Freshwater Pond	0	0	<0.1
Riverine	<0.01	0	0
Total	<0.01	0.3	0.4
Wetland Crossings that Exceed 400 Feet	0	1	2
Source: https://gisdata.mn.gov/dataset/water-nat-wetlands-inv-2009-2014 (May 2019)			

4.3.2 Human Impact Considerations

Carver County is one of the fastest growing counties in the state.⁶ Accordingly, the Applicants have considered planned and future development in the Project vicinity and potential conflicts, specifically with Carver County for the CSAH 10 Alternative and with the City of Victoria for the Xcel Energy Powerline Alternative. These are discussed in more detail below.

CSAH 10 Alternative

The CSAH 10 Route Alternative is collocated in its entirety with CSAH 10 and was initially designed in this manner to maximize collocation with an existing ROW. Considering the present alignment of CSAH 10, residential homes and businesses are located on either side, and near, to the highway. This would require that Great River Energy make several crossings of the road to avoid impacting existing structures and provide proper setbacks. Great River Energy would need to make 12 crossovers of CSAH 10 because of the density of structures that are close to the highway ROW as shown on **Figure 4-3**.

Great River Energy later met with Carver County in January 2024 to discuss the Project and the County’s plans for expansion of CSAH 10. Carver County, in collaboration with MnDOT and local townships, has been working to identify transportation system improvements on CSAH 10, between Highway 43 in Laketown Township (east of the Laketown Substation) to Highway 61 in Chaska, further to the east. Carver County held multiple engagement meetings with the public since the study began in 2018, including comments on an implementation plan in 2020, and city council resolutions in 2021.⁷ The final report was produced in December 2020⁸, and within the larger study, the CSAH 10 Alternative is located wholly within the area referred to as the “Highway 10 Western Subarea – West.”⁹ The vision for the Highway 10 Western Subarea is to expand the roadway to four lanes, improve several intersections, and allow flexibility for future development areas. Improvements include an expanded traffic signal at Highway 11 and reduced conflict intersections at Creek Road and CR 43.¹⁰

Carver County provided a letter on February 2, 2024, noting their concerns with an alignment along CSAH 10 (see **Appendix E**). The CSAH 10 Alternative was not recommended by Carver County due to the County’s plans for major reconstruction/realignment of CSAH 10 planned within 5 to 10 years, which would be after installation of the Transmission Line. On February 12, 2024, Carver County provided Great River Energy with the layout for the proposed CSAH 10 realignment within the “Highway 10 Western Subarea – West” (see **Appendix E**), which Great River Energy has reproduced alongside the CSAH 10 Route Alternative on **Figure 4-3**. Within the next 5 to 10 years, the alignment of CSAH 10 will significantly change in the vicinity of the CSAH 10 Alternative. The highway will be expanded to a four-lane divided highway between CR 43 to the west and CR 11 to the east; a potential grade separation/overpass will be added at the Twin

⁶ <https://www.carvercountymn.gov/government/about-carver-county>

⁷ <https://www.carvercountymn.gov/departments/public-works/transportation-plans/highway-10-study-victoria-chaska-area>

⁸ <https://www.carvercountymn.gov/home/showpublisheddocument/21071/637479617641700000>

⁹ <https://www.carvercountymn.gov/home/showpublisheddocument/21079/637479616734500000>

¹⁰ <https://www.carvercountymn.gov/home/showpublisheddocument/21620/637551332385330000>

Cities & Western Railroad; and a highway bypass/realignment of CSAH 10 will occur to the north of where CR 43 joins with CR 10 to the south. There are also possible plans to expand CR 43 where it joins CR 10.

This highway realignment presents significant difficulties when planning a new transmission line, in that should the transmission line would be built along the present highway alignment, there would be significant disruptions to the highway project and the operating transmission line when the roadway is expanded, and then moved in some locations. Depending on the location of the Project, Carver County may be responsible for those re-location costs. In this scenario, the line would also move closer to existing residences.

Because of long-standing and detailed plans for the reconstruction/realignment and expansion of CSAH 10 in this area as detailed by Carver County, as well as the proximity of existing residences along CSAH 10, Great River Energy rejected this route alternative for inclusion in the Application.

Xcel Energy Powerline Alternative

The Xcel Energy Powerline Alternative is collocated on the north side of an existing Xcel 230-kV transmission line. On January 22, 2024, the City of Victoria notified Great River Energy that this Route Alternative is located within land that will eventually become part of the City of Victoria through an annexation agreement with Laketown Township, and that the City would like to develop this property for commercial and industrial use in the near future. The City's position is that the presence of the transmission line and ROW building restrictions would deter such development (see correspondence in **Appendix E**). Great River Energy later met with the City of Victoria on February 22, 2024, to discuss the Project, and the City of Victoria submitted a letter to Great River Energy on February 27, 2024. The City of Victoria restated its concerns that many of the properties crossed by the Xcel Energy Powerline Alternative are "within the future commercial and flex-employment growth areas for the city. These properties have been highly anticipated for the last few decades to become the commercial hub for the city. An additional power line and easement adjacent to the existing Xcel Energy power line and easement would severely prohibit development of this highly anticipated growth area." The City of Victoria also provided an overlay map, which has been reproduced as **Diagram 4-1**, below.

Diagram 4-1. Potential Xcel Energy Powerline Route Alternative Easement and Impacts to Future Commercial/Flex-Employment Areas

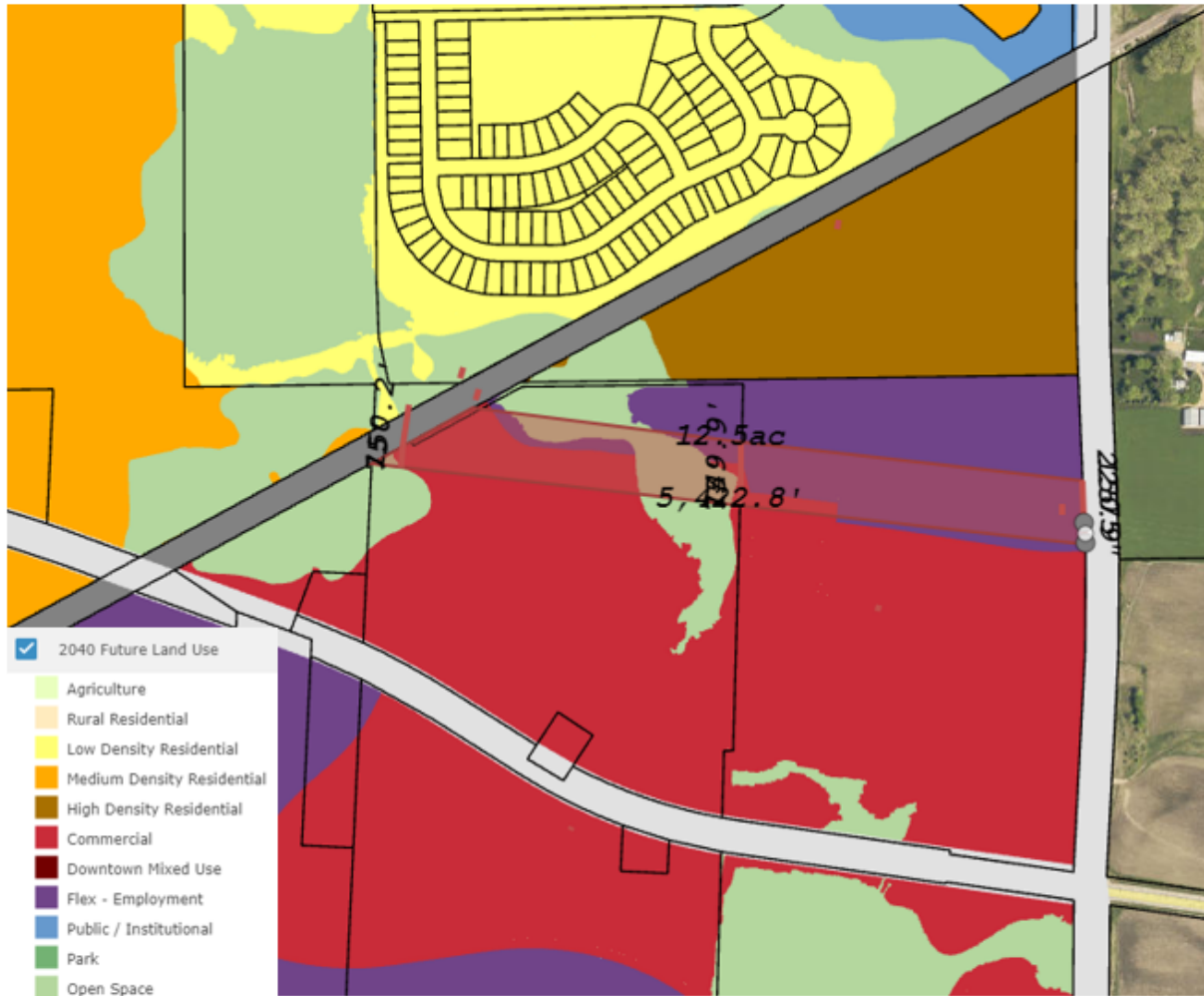


Diagram 4-1 identifies low- and high-density residential development areas north of the commercial land identified by the City of Victoria.

There are two subdivisions presently under development in this area as shown in **Figure 4-1**, in areas already annexed by the City of Victoria as shown on **Figure 4-2 (page 2 of 4)**. Huntersbrook, along with associated development Huntersbrook Creekside, are single-family custom home developments, located to the north along Creekside Lane, Harvest Trail, and Rolling Hills Parkway. All phases of Huntersbrook have been approved by the City of Victoria and construction is currently underway; for Huntersbrook Creekside (First Edition), the final plat has been approved for the first 20 lots, and more are expected soon. Development applications have been submitted to the City of Victoria for the Final Plat. Together, these developments will include 309 residential lots. To the south is Marsh Hollow, a rental home development constructed in phases with over 110 single-family rental homes and 103 owner-occupied townhomes. Marsh Hollow has reached substantial completion and home construction is underway. Finally, a new development called “Victoria South” has been proposed in the area. This development will include a new proposed

134-home/144-unit apartment development in the area marked as “high density residential” on **Diagram 4-1**.¹¹

4.3.3 Conclusions

The review of the various human and environmental data sets indicates that although there are differences in the Proposed Route and Route Alternatives, the Proposed Route compares favorably when considering human and environmental impacts as a whole. Although the Proposed Route is longer and less collocated than the two Route Alternatives, it avoids impacting the planned Carver County CSAH 10 highway improvements, and it avoids impacting land that the City of Victoria has already planned to host future commercial, industrial, and residential developments. As compared to the route alternatives, the Proposed Route has the support of the City of Victoria as well as Carver County.

The greenfield portions of the Proposed Route are also within agricultural areas, which are already cleared and therefore would largely minimize habitat fragmentation. The route alternatives also have greater wetland impacts, including forested wetland clearing along the CSAH 10 Route Alternatives. Ultimately, Great River Energy is requesting a Route Permit for the Proposed Route because, as compared to the Route Alternatives considered and rejected, the Proposed Route best balances the Commission’s routing criteria.

¹¹ https://www.ci.victoria.mn.us/community/projects/development_and_planning_projects/index.php

ENGINEERING, OPERATIONAL DESIGN, CONSTRUCTION, AND RIGHT-OF-WAY ACQUISITION

5 ENGINEERING, OPERATIONAL DESIGN, CONSTRUCTION AND RIGHT-OF-WAY ACQUISITION

Design and construction of transmission lines occur through multiple stages including identification of existing ROWs; transmission line design; ROW acquisition; construction; restoration; and operation and maintenance. Each stage is discussed in further detail in the sections that follow.

5.1 Transmission Line

5.1.1 Structure Design and Right-of-Way Requirements

Transmission structure design and the ROW requirements are discussed in **Section 3.1.4**. A schematic and photos of typical structures are provided in **Diagrams 3-1** and **3-2**.

5.1.2 Design Options to Accommodate Future Expansion

Minnesota statutes and rules require the consideration of the potential for a project to accommodate future improvements to the transmission system. The Project is designed to accommodate availability and reliability requirements in the area and, because it is proposed at 115- kV, it is sized to accommodate future expansion.

5.1.3 Identification of Existing Utility and Public Rights-of-Way

The Project will parallel existing road and/or utility ROW for approximately 2.4 miles, or 53.5 percent of the Project. Collocation is as follows: 1.0 mile with Hampshire Road; 0.5 mile with Augusta Road; 0.7 mile with Jersey Avenue; and 0.1 mile with CSAH 10. In some of these areas, the road ROWs are also adjacent to existing aboveground MVEC distribution lines, which are shown on maps in **Appendix A**.

5.1.4 Right-of-Way Acquisition Procedures

Great River Energy representatives will work directly with individual landowners to acquire the necessary easements and other land rights for the construction, operation, and maintenance of the Project. Great River Energy will typically obtain a total ROW of approximately 100 feet (typically, approximately 50 feet of each side of the transmission centerline) for the 115-kV transmission line system. This ROW width may be accomplished through overlapping with roads and other ROWs, which can reduce the amount of easement areas acquired from landowners. Great River Energy will continue to engage with landowners throughout the permitting process to answer any questions they may have regarding the easement acquisition process or the Project.

During formal land rights acquisition, Great River Energy will provide the landowners the transmission easement document and offer of compensation, as well as information on the Project

schedule, construction practices, vegetation removal, and construction damages settlement procedures. Additional information may also be given to each landowner regarding preliminary pole placement (if available at that time), structure design or photos, and power line safety. Great River Energy would also respond to any comments or questions landowner may have, including those with respect to the Transmission Line construction practices or operations of the Project.

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

As part of early transmission design work, Great River Energy will need to complete preliminary survey work and may need to acquire some soil characteristics data. Great River Energy will notify landowners in the event site access for soil boring is required to determine soil suitability in areas where special transmission structure design may be required.¹²

If a mutually acceptable agreement cannot be reached through Great River Energy's work with landowners, Minnesota law provides that Great River Energy can use its rights of eminent domain to obtain the rights necessary for the Project. *See* Minn. Stat. §§ 222.36, 301B.02, and 308A.201, subd. 13. If necessary, Great River Energy will commence a condemnation action, pursuant to Minn. Stat. Ch. 117, to obtain the necessary rights. Before the action is started, Great River Energy typically obtains an appraisal and provides it to the landowner. The landowner also has certain rights of reimbursement to obtain its own appraisal. Within a condemnation action, the landowner has the ability to contest the condemnation action. If the Court determines that Great River Energy may obtain the required easements through condemnation, then the Court appoints an impartial panel of qualified valuation commissioners. Those commissioners view the landowner's property and conduct a hearing at which the landowner and Great River Energy present their evidence about the fair market value impacts that the easement(s) have on the property. The commissioners then issue an award setting the amount of compensation. If a landowner or Great River Energy is not satisfied with the award, either may file an appeal in which the just compensation will be set following a trial. If no appeal is filed, Great River Energy pays the amount of the award. At any point in the condemnation process, the landowner and Great River Energy can reach a settlement and dismiss the action.

5.1.5 Construction Procedures

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

- surveying and staking the ROW;
- ROW clearing and preparation;
- grading / filling, as needed;
- installation of foundations;
- installation of poles and related equipment;
- conductor stringing; and

¹² Survey work and geotechnical studies do not require that the Commission issue a route permit for this work to occur. Minn. R. 7850.1200, subp. 5.

- installation of any required aerial markers.

Procedures to be used for construction of the Transmission Line are discussed below. Equipment used in the Transmission Line construction process includes backhoes, cranes, boom trucks, and assorted small vehicles.

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

The first phase of the Transmission Line construction activities will involve survey staking of the Transmission Line centerline and / or pole locations, followed by removal of trees and other vegetation from the ROW. The width of the ROW will be cleared of vegetation for construction to ensure safe and reliable access and construction; during Project operations and maintenance, Great River Energy will implement wire / border zone vegetation management practices, as discussed further in **Section 6.7**.

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

Where clearing is required in wetlands, no more than one inch of chips, shred, or mulch will be allowed in wetlands. Larger trees and shrubs will be moved outside of the wetlands for processing in upland areas to ensure no more than one inch of residue is left in wetlands. Clearing in wetlands will be conducted when the ground and wetlands are frozen, or construction mats will be used to minimize impacts to vegetation.

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

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

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

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

Great River Energy will employ standard construction and mitigation practices as well as industry specific BMPs. BMPs address ROW clearing, erecting transmission line structures, and stringing transmission lines. BMPs for each specific project are based on the proposed schedules for activities, prohibitions, maintenance guidelines, inspection procedures, and other practices. In some cases, these activities, such as schedules, are modified to incorporate BMP installation that will assist in minimizing impacts to sensitive environments. Any contractors involved in construction of the Transmission Line will adhere to these BMP requirements.

Most of the proposed structures will be installed directly in the ground by augering a hole typically 10 to 20 feet deep and 36 to 60 inches in diameter for each pole. Any excess soil from the excavation will be spread and leveled near the structure or removed from the site if requested by the property owner or regulatory agency. Most of the proposed structures will be steel poles, which may be directly embedded or set on a concrete foundation. The concrete foundations will be approximately 5 to 7 feet in diameter and generally are exposed one foot above the existing ground level. Concrete trucks will be used to bring the concrete in from a local concrete batch plant.

After a direct-embedded pole is set into the hole, the void space will be backfilled with crushed rock. Based on typical soil types in Minnesota, it is anticipated that the 70-to-95-foot above ground poles will be buried approximately 13 feet into the ground. In poor soil conditions (e.g., peat, marl, soft clay, loose sand) a galvanized steel culvert is sometimes installed vertically with the structure set inside.

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

All construction will be completed in accordance with state, NESC, and Great River Energy construction standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, erection of power poles, and stringing of Transmission Line conductors.

5.1.6 Restoration Procedures

Great River Energy has developed a Vegetation Management Plan for this Project (**Appendix H**). The Vegetation Management Plan describes vegetation management necessary to construct the Transmission Line and maintain the Transmission Line ROW to ensure safe and reliable operation.

Following construction, disturbed areas will be restored to their original condition to the maximum extent practicable, or as negotiated with the landowner. Post-construction reclamation activities will include removing and disposing of debris, removing all temporary facilities (including staging

and laydown areas), installing appropriate erosion and sediment control measures, reseeding areas disturbed by construction activities with vegetation similar to that which was removed with a seed mixture certified as free of noxious weeds, and restoring the areas to their original condition to the extent possible. In cases where soil compaction has occurred, the construction crew or a restoration contractor uses various methods to alleviate the compaction, or as negotiated with landowners.

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

5.1.7 Operation and Maintenance

Great River Energy will implement its Vegetation Management Plan (**Appendix H**) during operations of the Transmission Line. The Vegetation Management Plan reflects vegetation management practices which are consistent with applicable North American Electric Reliability Corporation requirements, as well as requirements anticipated to be required by the MPUC. This Plan also incorporates, where applicable, the Minnesota Department of Commerce's Generic Vegetation Establishment and Management Plan Guidance.

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

The ROW will be managed to remove vegetation that interferes with the operation and maintenance of the Transmission Line. Shrubs that will not interfere with the safe operation or accessing and traversing the ROW of the Transmission Line will be allowed to reestablish in the ROW. Great River Energy will use an integrated vegetation management plan that incorporates a wire / border zone practice for ROW clearing and maintenance. As a general practice, low-growing brush, or tree species will be allowable at the outer limits (e.g., the "border zone") of the easement area. Taller tree species that endanger the safe and reliable operation of the transmission facility will be removed. In developed areas and to the extent practical, existing low-growing vegetation that will not pose a threat to the transmission facility or impede construction or maintenance may remain in the border zone, as agreed to during easement negotiations. The area below the outer conductors plus 10 to 15 feet (e.g., the "wire zone" or "clear zone") will be cleared of all shrubs and trees to ensure maintenance trucks can access the line and no vegetation interferes with the safe operation of the Transmission Line.

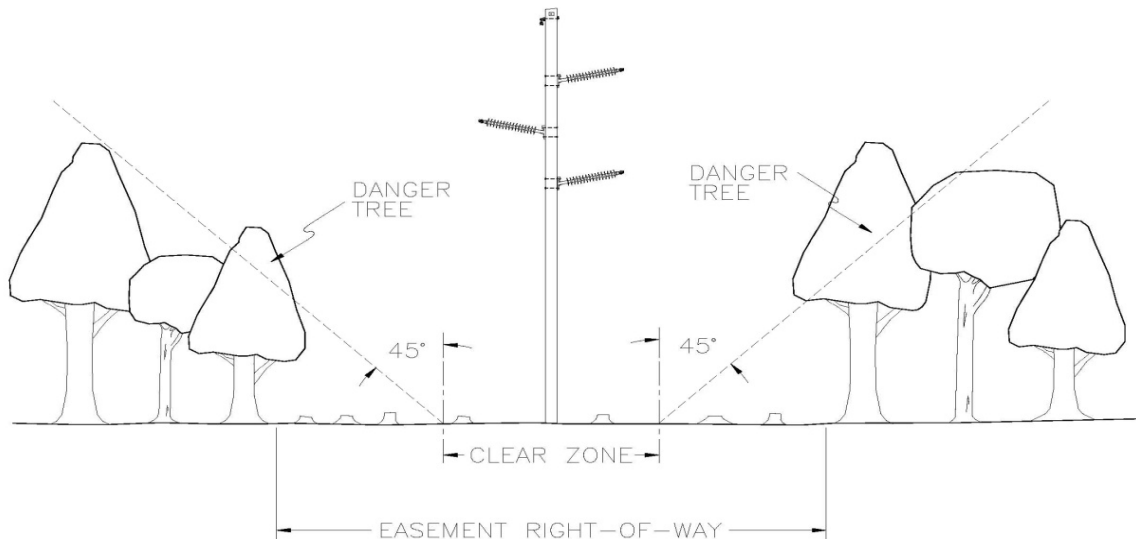
The NESC states that "vegetation that may damage ungrounded supply conductors should be pruned or removed." Trees beyond the easement area that are in danger of falling into the energized Transmission Line, could grow into the wire zone or are otherwise deemed to be a hazard to the

safe operation of the line (e.g., “danger trees”) may be removed or trimmed to eliminate the hazard as shown in **Diagram 5-1**, if allowed by the terms in the easement. Danger trees generally are those that are dead, diseased, weak, or leaning towards the energized conductors. Tree trimming may be possible to minimize tree removal based on negotiations with individual landowners.

Great River Energy’s practice generally provides for the inspection of 115-kV transmission lines every two years to determine if clearing is required. ROW clearing practices will include a combination of mechanical and hand clearing, along with herbicide application (where allowed), to remove or control vegetation growth.

The estimated annual cost of ROW maintenance and operation and general maintenance of Great River Energy’s transmission lines (69-kV to 500-kV) in Minnesota is approximately \$4,000,000, which is equal to about \$2,000 per mile. Actual Transmission Line-specific maintenance costs will depend on the environmental setting, the amount of vegetation management necessary, storm damage occurrences, structure types, age of the line, etc.

Diagram 5-1. Standard Tree Removal Practices during Transmission Line Operations



5.1.8 Stray Voltage

“Stray voltage” is a condition that can occur on the electric service entrances to structures from distribution lines. More precisely, stray voltage is a voltage that exists between the neutral wire of the service entrance and grounded objects in buildings such as barns and milking parlors.

Transmission lines (like the Project) 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. 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.

5.1.9 Corona

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

Corona formation is a function of the conductor radius, surface condition, line geometry, weather condition, and most importantly, the line’s operating voltage. As discussed in the subsections that follow, corona-induced audible noise and radio and television interference are typically not a concern for power lines with operating voltages below 161-kV (like the Project), because the EF intensity is too low to produce significant corona.

Corona: Radio and Television Interference

Because the likelihood of significant corona formation on the Project is minimal, the likelihood of radio and television interference due to corona discharges associated with the Project is also minimal. Great River Energy is unaware of any complaints related to radio or television interference resulting from the operation of any of its existing 115-kV facilities and does not expect radio and television interference to be an issue along the Proposed Route.

Corona: Audible Noise

Transmission lines can cause audible noise due to corona discharges from the conductors. The impacts and mitigation of audible noise due to the Project, including that due to corona, are discussed further in **Section 6.2.2**.

Corona: Air Impacts

Corona can also produce ozone and oxides of nitrogen in the air surrounding the conductor. Ozone is a very reactive form of oxygen molecule that combines readily with other elements and compounds in the atmosphere, making it relatively short lived. Ozone forms naturally in the lower atmosphere from lightning discharges and from reactions between solar ultraviolet radiation and air pollutants such as hydrocarbons from auto emissions. The natural production rate of ozone is directly proportional to temperature and sunlight, and inversely proportional to humidity. Thus, the conditions that are most likely to cause corona formation on a transmission line – humid, rainy, or foggy conditions – actually inhibit the production of ozone.

Like audible and radio frequency noise, corona-induced ozone, and nitrogen oxides (NO) are typically not a concern for power lines like the Project with operating voltages below 161-kV because the EF intensity is too low to produce significant corona. Therefore, Great River Energy expects ozone and NO concentrations associated with the Project to be negligible, and well below all federal standards (nitrogen dioxide (NO₂) – 100 parts per billion (ppb) as one-hour average, 53 ppb as annual average; ozone 70 ppb as 8-hour average).¹³

5.2 Substation

5.2.1 Design and Land Requirements

Substation design and land requirements are discussed in **Section 3.2.1**. A schematic and photos of typical structures are provided in **Figure 1-3**.

5.2.2 Land Acquisition Procedures

MVEC presently owns the land on which the Laketown Substation will be placed; therefore, no additional acquisition activities will be required.

5.2.3 Construction Procedures

The Laketown Substation facilities are proposed to be sited on 1.5 acres within a larger 8.9-acre parcel of land. Approximately 0.9 acre of the site will be used for the Laketown Substation, access drive, and stormwater drainage features. An initial layout of the Laketown Substation is provided in **Figure 1-3**.

Site preparation would include installing erosion and sediment control BMPs, stripping topsoil, and hauling in structural fill to build up the subgrade for the Laketown Substation pad. Once the Laketown Substation pad is built to the subgrade, all areas will be restored, and the site will be ready for use. This work will occur the year prior to Transmission Line and Laketown Substation construction to allow for one freeze/thaw cycle, which will allow the ground to settle.

Construction within the newly prepared Laketown Substation pad will consist of drilled pier foundations ranging in size from three to five feet in diameter and 8 to 15 feet deep. The foundations will be installed to support transmission line dead-end structures, static masts, and bus and equipment support structures. Slabs-on-grade eight feet square by two feet thick will be used for 115-kV circuit breakers. The control building will be on a 20-foot by 40-foot by 1-foot-thick concrete slab. Transformer and reactor secondary oil containment will be a concrete-lined pot filled with stone. Conduit for control and communication cables and grounding conductor will be installed prior to the placement of the final layer of crushed rock surfacing. The ground grid will

¹³ “The Clean Air Act, which was last amended in 1990, requires USEPA to set National Ambient Air Quality Standards (40 CFR part 50) for six principal pollutants ("criteria" air pollutants) which can be harmful to public health and the environment. The Clean Air Act identifies two types of national ambient air quality standards. *Primary standards* provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.” <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

be installed 18 inches below the subgrade surface throughout the Laketown Substation pad and extend four feet outside the Laketown Substation security wall.

5.2.4 Restoration Procedures

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

5.2.5 Operation and Maintenance

Regular maintenance and inspections will be performed during the life of the Laketown Substation to ensure its continued integrity. The estimated annual cost of Laketown Substation maintenance and operation is \$39,000.

6 ENVIRONMENTAL ANALYSIS

This portion of the Application provides a description of the human and environmental resources in the Project Area, potential impacts to these resources, and proposed mitigative measures. The Project Area is defined as the general area within an approximate 2-mile radius of the Project, unless otherwise defined in the following subsections.

6.1 Environmental Setting

The Project lies in the Eastern Broadleaf Forest Province, Minnesota & Northeast Iowa Morainal Section, and Big Woods subsection, according to the MDNR Ecological Classification System. The MDNR describes the Big Woods subsection as:

This subsection coincides with a large block of deciduous forest present at the time of Euro-American settlement. Topography characteristically is gently to moderately rolling across this subsection. Soils are formed in thick deposits of gray limy glacial till left by the Des Moines lobe. Northern red oak, sugar maple, basswood, and American elm were most common in this dominantly forested region. Presently, most of the region is farmed.¹⁴

The environmental setting of the Project Area includes several hydrologic features, such as wetlands, ditches, streams, and lakes, including Piersons Lake and Marsh Lake. Land use within the Project Area is primarily agricultural and rural residential areas. Increasingly, agricultural land is being converted into use for housing developments as the population of Carver County grows (see additional discussion in **Section 6.2.4**). There are existing transmission and distribution lines within the Project Area as shown in **Figure 1-1**.

The landscape and characteristics of the Project Area are further described in the following subsections. The characteristics of the Project Area are typical of the surrounding areas and does not preclude development of this Project.

6.2 Human Settlement

6.2.1 Displacement/Proximity of Project to Businesses and Residences

No displacement of residential homes, structures, or businesses will occur because of this Project. The NESCS and Great River Energy's standards require certain clearances between transmission line structures and buildings or structures within the ROW for safe operation of the proposed Transmission Line (**Table 3.1.5-1**). The Proposed Route provides sufficient design flexibility and distances from existing homes and structures for a transmission line design that achieves the requisite clearances.

¹⁴ <https://www.dnr.state.mn.us/ecs/222Mb/index.html>

There are no residences within 100 feet of the Project. The nearest residence is located 125 feet from the Proposed Alignment, north of Augusta Road near milepost (MP) 2.7 (see **page 2 of Appendix A**). The closest home to the Laketown Substation is approximately 178 feet to the east, to the east of Laketown Road (see **page 3 of Appendix A**). **Table 6.2.1-1** summarizes the residential and non-residential buildings at various distances to the Project. There are no businesses within 200 feet of the Project.

Table 6.2.1-1. Building Distances from Proposed Alignment

Building Type	0-50 feet	50-100 feet	100-150 feet	150-200 feet	Total
Home	0	0	2	6	8
Outbuilding	0	0	2	3	5
Total	0	0	4	9	13

Impacts and Mitigation

No residences or businesses will be displaced by the Project. The Project will be designed in compliance with local, state, NESC, and Great River Energy/MVEC standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths.

Great River Energy will work with landowners to address alignment adjustments or pole placement, to the extent possible.

6.2.2 Noise

There will be temporary noise associated with the construction phase of the Project, and from operation of the Project.

Because human hearing is not equally sensitive to all frequencies of sound, the most noticeable frequencies of sound are given more “weight” in most measurement schemes. The A-weighted scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in dBA, which is the A-weighted sound level recorded in units of decibels.

A noise level change of 3 dBA is considered the lowest change that is generally perceptible to human hearing. A 5 dBA change in noise level is considered clearly noticeable. A 10 dBA change in noise level is perceived as a doubling of noise loudness, while a 20 dBA change is considered a dramatic change in loudness. **Table 6.2.2-1** shows noise levels associated with common, everyday sources.

Table 6.2.2-1. Common Noise Sources and Levels

Sound Pressure Level (dBA)	Noise Source
110	Rock band at 5 meters
100	Jet flyover at 300 meters
90	Gas lawnmower at 1 meter
80	Food blender at 1 meter
70	Vacuum cleaner at 3 meters
60	Normal speech at 1 meter
50	Dishwasher next room, quiet urban daytime
40	Library, quiet urban nighttime
30	Bedroom at night
20	Quiet rural nighttime
10	Broadcast recording studio
0	Threshold of hearing

Source: Minnesota Pollution Control Agency. 2015. A Guide to Noise Control in Minnesota. Available online at: <https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf>.

Established daytime and nighttime noise standards per Minn. R. 7030.0040 by Noise Area Classifications (NAC) are provided in **Table 6.2.2-2**. The standards are expressed as limiting levels of dBA within a one-hour period; L₅₀ is the dBA not to be exceeded over 50 percent of the time (30 minutes) within an hour, while L₁₀ is not to be exceeded over 10 percent of the time (6 minutes) within the hour.

Table 6.2.2-2. MPCA Noise Limits by Noise Area Classification (dBA)¹⁵

Applicable Noise Area Classification	Description	Daytime (7a – 10p)		Nighttime (10p – 7a)	
		L ₅₀	L ₁₀	L ₅₀	L ₁₀
1	Residential-type Land Use Activities	60	65	50	55
2	Commercial-type Land Use Activities	65	70	65	70
3	Industrial-type Land Use Activities	75	80	75	80

Land areas are assigned an NAC based on the land use activities at the location of the receiver and determine the noise standards applicable to that land use activity. The NAC is listed in the MPCA noise regulations to distinguish the categories. Residential areas, churches, educational and health services, and similar type land use activities are included in NAC 1; commercial-type land use activities are included in NAC 2; and industrial-type land use activities are included in NAC 3.

Noise-sensitive receptors along the Project Route include nearby residences (see **Section 6.2.1**).

Noise Related to Construction

Construction noise is generally expected to occur during daytime hours as the result of heavy equipment operation and increased vehicle traffic associated with the transport of construction

¹⁵ This table identifies the classifications potentially relevant to this Project. See Minn. R. 7030.0050 for the complete text of the rule.

personnel and materials to and from the work area. Construction activities will be performed with standard heavy equipment such as backhoes, cranes, boom trucks, and assorted small vehicles. Construction equipment noise levels will typically be less than 85 dBA at 50 feet when equipment is operating at full load¹⁶ and will only occur when equipment is operating. Upon completion of construction activities, noise associated with construction equipment will cease.

Noise Related to the Transmission Line

Operational noise levels produced by a 115-kV transmission line are generally less than outdoor background levels and are therefore not usually perceivable. As such, appreciable operational noise impacts are not anticipated as a result of the Project. Further, proper design and construction of the Transmission Line in accordance with industry standards will help to ensure that noise impacts are not problematic.

Transmission lines can generate a small amount of sound energy during corona activity where a small electrical discharge caused by the localized EF near energized components and conductors ionizes the surrounding air molecules. Corona is the physical manifestation of energy loss and can transform discharge energy into very small amounts of sound, radio noise, heat, and chemical reactions of the air components. Several factors, including conductor voltage, shape and diameter, and surface irregularities such as scratches, nicks, dust, or water drops can affect a conductor's electrical surface gradient and its corona performance.

Noise emission from a transmission line occurs during certain weather conditions. In foggy, damp, or rainy weather, power lines can create a crackling sound due to the small amount of electricity ionizing the moist air near the wires. During heavy rain, the background noise level of the rain is usually greater than the noise from the transmission line. As a result, people do not normally hear noise from a transmission line during heavy rain.

The industry standard for utilities is calculated based on L₅₀ and L₅ for audible noise emissions. The worst-case scenario is when the transmission line is exposed to heavy rain conditions (i.e., one inch per hour). Anticipated noise levels for heavy rain conditions for a typical 115-kV line based on the results from the Bonneville Power Administration Corona and Field Effects Program version 3 (U.S. Department of Energy, Bonneville Power Administration, Undated) are listed in **Table 6.2.2-3**.

¹⁶ United States. Federal Highway Administration, 2006. FHWA highway construction noise handbook. No. DOT-VNTSC-FHWA-06-02; FHWA-HEP-06-015. Available online at: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook00.cfm.

Table 6.2.2-3. Anticipated Transmission Line Noise Levels with Heavy Rain

L ₅	L ₅₀	Location
17.7 dBA	14.2 dBA	edge of ROW
18.8 dBA	15.3 dBA	directly under line

The Project is in a rural residential area. Ambient noise level in a rural residential area is about 40 dBA, day/night average sound level L_{dn}.¹⁷ As shown in **Table 6.2.2-4**, the noise contribution due to corona effects will result in a change of 0.0 dBA above ambient.

Table 6.2.2-4. Anticipated Total Noise Levels Associated with Heavy Rain

Item	Sound Level (dBA)
Ambient Sound Level - Rural Residential	40.0
Sound Contribution of Project Corona (maximum calculated)	18.8
Sound Contribution of Corona Noise plus Ambient	40.0
Potential Increase above the Ambient Level	0.0

Noise Related to the Substation

MVEC is proposing to construct a 115-kV substation as part of the Project. A conceptual layout of the Laketown Substation equipment is provided in **Figure 1-3**. The nearest residence to the Laketown Substation is approximately 178 feet from the eastern edge of the Laketown Substation property boundary (see **page 3 of Appendix A**).

As presented in **Table 6.2.2-2**, the most stringent applicable MPCA noise standard for Class 1 Property is the L₅₀ daytime and nighttime standards equivalent to 60 dBA and 50 dBA, respectively. Households, including farmhouses, are considered Class 1 property in Minn. R. 7030.0050 NAC. Agricultural land is considered Class 3 which corresponds to the actual Laketown Substation site. The Class 3 daytime and nighttime standard is 75 dBA for both time periods.

The primary noise source from the Laketown Substation will be the transformers. The Laketown Substation will initially be constructed with one transformer, and as electricity demand increases, a second transformer will be installed. The transformers will have a noise level design specification of 75 dBA or less with the cooling fans running. The nearest residence is approximately 200 feet from the edge of the Laketown Substation property. Based on the ultimate location of the Laketown Substation and the transformers within the Laketown Substation, this distance may be greater.

The Applicants modeled the noise impacts assuming a 550-foot distance from the transformer to the nearest residence.¹⁸ Noise impacts at the nearest residence were modeled at 39 dBA with one transformer and 42 dBA with the second transformer. With one transformer in operation, noise levels will attenuate to the 50 dBA NAC1 limit within approximately 50 feet of the transformer. With two transformers in operation, noise levels will attenuate to 50 dBA within approximately

¹⁷ USEPA. 1978. Protective Noise Levels

¹⁸ <https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf>

75 feet. These levels are well below the applicable noise standards and Laketown Substation noise will not cause excursions of the most stringent 50 dBA noise standard.

Impacts and Mitigation

The noise associated with construction of the Project will be temporary in nature. To mitigate noise impacts associated with construction activities, work will generally be limited to daytime hours between 7 a.m. and 9 p.m. weekdays. Occasionally, there may be construction outside of those hours mentioned or on a weekend if the Applicants must work around customer schedules, line outages, or if the schedule has been significantly impacted due to permitting delays or other factors. The Applicants will work with applicable stakeholders in the event construction becomes necessary outside of these hours. Heavy equipment will also be equipped, as required by local ordinances, with sound attenuation devices such as mufflers to minimize the daytime noise levels.

Operational noise levels are expected to be below the state noise limits; therefore, the Project is not anticipated to contribute to an exceedance of noise standards, and no mitigation is proposed.

6.2.3 Aesthetics

The proposed Transmission Line will be visible along the Proposed Route, similar to the other distribution and transmission lines in the Project Area. Portions of the Proposed Route already have overhead Minnesota Valley distribution lines. For reference, the location of existing distribution lines along the Proposed Alignment, 100-foot-wide Proposed ROW, and Proposed Route is depicted in **Appendix A**.

Most of the new structures will be with direct-embedded steel poles, 70 to 95 feet above ground and placed 300 to 450 feet apart. Concrete foundation poles will be required at highway crossings and specialty poles may be required in some locations (e.g., to cross under an existing line, for angle poles, or in areas where soil conditions are poor, and guying is not practical).

Where the Project overtakes distribution lines, MVEC will attach distribution lines to the new 115-kV structures installed by Great River Energy or bury the distribution lines within the ROW. Design standards for a 115-kV line require taller structures than for distribution lines¹⁹. Where the Project overtakes the existing MVEC distribution lines, there will be fewer 115-kV structures than distribution structures because the taller structure heights allow for longer spans between structures.

Where the Project is not collocated with existing distribution or transmission lines, there will be new visual impacts. These impacts will be similar in form to other transmission and distribution lines in the area.

The landscape in the Project area is a mix of agricultural land, rural residential, open space, commercial / industrial, and utility infrastructure (see **Section 6.4**). The visual effect will depend on the perceptions of the observers across these various landscapes but will remain similar to current conditions. Although some areas already have existing distribution lines in the viewshed,

¹⁹ The existing 69-kV structures are typically approximately 50-60 feet above ground.

the visual contrast added by the taller transmission structures and lines may be perceived as a visual disruption.

Impacts and Mitigation

Where the Project utilizes existing MVEC distribution line ROW, aesthetic impacts are anticipated to be minimal. The existing MVEC distribution lines have been in place for a decade or more, as the area has developed. Visual impacts might be perceived by a viewer as less because Great River Energy anticipates that the existing distribution lines will be either be under-built or buried and there will be fewer structures. However, the new Transmission Line structures will be 20 to 30 feet taller with larger insulators, which might increase the visual impacts perceived by a viewer.

Where the Transmission Line does not utilize existing MVEC ROW, or where trees need to be cleared, this change to the landscape is typically a noticeable visual impact to receptors. The Proposed Route crosses limited areas where trees are present, which minimizes the amount of tree clearing, as well as the impact. The presence of transmission and distribution lines are a common occurrence in rural residential areas and are compatible with rural residential aesthetics; however, where there are new lines, there will be new permanent aesthetic impacts.

The Laketown Substation will have a new permanent visual impact as compared to present conditions. Presently, this land is maintained as a grassy, cleared area with sparse trees. MVEC's final design of the Laketown Substation will include design features to lessen visual impacts.

The Applicants will work with landowners to identify concerns related to Project aesthetics. In general, mitigation includes enhancing positive effects as well as minimizing or eliminating negative effects. Potential mitigation measures include:

- Locating structures, ROW, and other disturbed areas by considering input from landowners to minimize visual impacts.
- Care shall be used to preserve the natural landscape. Construction and operation shall be conducted to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work.
- Landowners may be compensated for the removal of trees and vegetation based on easement negotiations.

Structures will be placed at the maximum feasible distance from trail and water crossings, within limits of structure design and applicable regulations.

6.2.4 Socioeconomics & Environmental Justice

The socioeconomic setting of the Project Area was evaluated on a regional basis, comparing U.S. Census data for Carver County and the State of Minnesota. Data compiled from the U.S. Census Bureau QuickFacts are summarized in **Table 6.2.4-1**.

Table 6.2.4-1. Socioeconomic Characteristics within the Project Area²⁰

Location	2020 Census Population	White Alone Population	Median Income (2018-2022)	Persons in Poverty, Percent	Language Other than English Spoken at Home (2018-2022)
State of Minnesota	5,706,494	82.6%	\$84,313	9.6%	12.0%
Carver County	106,922	91.3%	\$116,308	4.5%	7.4%

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

“Environmental justice area means an area in Minnesota that, based on the most recent data published by the U.S. 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.”²¹

Census tracts that intersect with the Proposed Route were analyzed for environmental justice areas, consistent with this statute. Census tracts are the best approximation of a geographic area where adverse impacts can occur from the Project. Census tracts are shown in **Figure 6-1**. Carver County was used as a reference population for the census tracts.

Table 6.2.4-2 identifies the minority populations by race and ethnicity, low-income populations, and populations with a language other than English spoken at home for Carver County and census tracts crossed by the Project Route. The most recent U.S. Census Bureau American Community Survey 5-Year Estimate Data (2022) was used.

²⁰ Data Source: US Census QuickFacts, downloaded 5/23/2024: U.S. Census Bureau QuickFacts: Carver County; Minnesota

²¹ Although this statute does not prescribe requirements for a route permit application, Great River Energy employs this methodology here consistent with the methodology used by EERA in a recently issued EA. See Docket No. ET2/22-235.

Table 6.2.4-2. Environmental Justice Data for Census Tracts Crossed by the Project Route²²

County/Census Tract	Population	Percent Total Minority^a	Income in the Last 12 Months Below Poverty Level	Language Other Than English Spoken at Home
Carver County	106,293	13.1%	4.2%	7.4%
Census Tract 911	7,756	9.1%	3.1%	6.3%
Census Tract 904.01	7,301	8.3%	2.7%	6.0%

^a “Minority” refers to people who reported their ethnicity and race as something other than non-Hispanic White.

The Project does not cross federally recognized Tribal Areas. As presented in **Table 6.2.4-2**, no census tracts within the Project Area are considered environmental justice communities under the definition provided in Minn. Stat. § 216B.1691, subd. 1(e).

In addition, because analyses in prior route permit applications have utilized this methodology, the Applicants also conducted this environmental justice analysis in accordance with the U.S. Environmental Protection Agency (USEPA) Federal Interagency Working Group on Environmental Justice (EJ) and National Environmental Policy Act (NEPA) Committee’s publication, Promising Practices for EJ Methodologies in NEPA Reviews (Promising Practices).

Using this methodology, the USEPA’s Environmental Justice Screening Tool (EJScreen) was used as an initial step to gather information regarding minority and/or low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors. The USEPA recommends that screening tools, such as EJScreen, be used for a "screening-level" look and a useful first step in understanding or highlighting locations that may require further review. EJScreen did not identify any areas of concern crossed by the Proposed Route plus a 0.25-mile buffer.

According to Promising Practices, minority populations are those groups that include American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Following the recommendations set forth in Promising Practices, the 50 percent and the meaningfully greater analysis methods was used to identify minority populations. Using this methodology, minority populations are defined where either (a) the aggregate minority population of the block groups in the affected area exceeds 50 percent; or (b) the aggregate minority population in the block group affected is 10 percent higher than the aggregate minority population percentage in the county. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using Promising Practices’ low-income threshold criteria method, low-income populations are identified as block groups where the percent of low-income population in the identified block group is equal to or greater than that of the county. Carver County is the comparable reference community to ensure that all affected environmental justice communities are properly identified.

²² US Census 2022 ACS 5-Year Estimates Detailed Tables File# B03002, File #B17017, and File#DP02, downloaded 5/23/2024: <https://data.census.gov/>

Table 6.2.4-3 identifies the minority populations by race and ethnicity and low-income populations within Minnesota, Carver County, and U.S. Census block groups crossed by the Project. U.S. Census 2022 American Community Survey data were analyzed at the block group level.

Table 6.2.4-3. Minority Populations by Race and Ethnicity and Low-Income Populations within the Project Area²³

State/County/Census Block Group	% White	% Black/African American	% American Indian or Alaskan Native	% Asian	% Native Hawaiian/Pacific Islander	% Some Other Race	% Two or More Races	Hispanic or Latino	% Total Minority ^a	% Below Poverty Level
State of Minnesota	79.7	6.7	0.9	5.0	0.0	2.3	5.3	5.7	22.3	9.4
Carver County	88.7	1.6	0.2	3.3	0.0	1.5	4.7	4.4	13.1	4.2
Census Tract 904.01, Block Group 3	96.0	0.0	0.3	0.2	0.0	1.5	2.0	3.4	6.0	2.3
Census Tract 911, Block Group 4	85.0	0.7	0.0	6.8	0.0	4.7	2.8	7.3	18.8	5.2
Census Tract 911, Block Group 6	96.9	0.0	0.2	0.0	0.0	0.2	2.7	0.0	3.1	6.7

^a “Minority” refers to people who reported their ethnicity and race as something other than non-Hispanic White.

As presented in **Table 6.2.4-3**, no block groups are considered environmental justice communities.

Impacts and Mitigation

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.

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

6.2.5 Cultural Values

Cultural values include those perceived community beliefs or attitudes in each area, which provide a framework for community unity. According to the Carver County 2040 Comprehensive Plan, Carver County’s population is expected to grow 50% by 2040. By this time, 27% of the land within the county will be part of a city. Growth will especially affect Dahlgren and Laketown Townships – where the Project is located – as the cities of Waconia, Victoria, and Carver are planning to

²³ US Census 2022 ACS 5-Year Estimates Detailed Tables File# B03002, File #B17017, downloaded 5/23/2024: <https://data.census.gov/>

annex large portions of these townships. Carver County has committed to carefully considering where and how growth will take place. As the County grows, the transportation, parks and trails networks will need to be expanded, upgraded, and maintained to meet increased demand. Carver County plans to grow while preserving the viability of the agricultural economy for future generations and maintain the County's unique and rural agricultural character.²⁴

The majority of Carver County supports agriculturally based industries; however, it has diversified with commercial, industrial, and housing developments in 11 separate communities. The nearest city to the Project is the City of Victoria. Within the county, there are 4,000 acres of managed parks and 115 lakes in addition to the 1,200-acre Minnesota Landscape Arboretum, managed by the University of Minnesota. Other attractions include the Chaska Curling Center, Chanhasen Dinner Theater, Hazeltine Golf Course, and Prince's Paisley Park. The county is known for its combination of urban amenities and a small-town atmosphere, rolling farmland, natural prairies, woodlands, and lakes.²⁵

Impacts and Mitigation

Construction of the proposed Project is not expected to conflict with the cultural values of the area; therefore, no mitigation is proposed. The Project will support the growth being experienced in the county, both now and into the future.

6.2.6 Tourism and Recreation

Tourism and recreational resources near the Proposed Route are shown on **Figure 6-2**. Recreational opportunities include fishing, boating, swimming, biking, hunting, and snowmobiling. There are no public lands within the Proposed Route that are open and available for recreation.

Piersons Lake and the MDNR-administered Piersons Lake Public Water Access Site are located approximately 0.8-mile northeast of the Laketown Substation site off of Laketown Road. The MDNR public access site offers parking, dock, restroom, and boat launch facilities.²⁶ Other lakes nearby include Wasserman Lake, Marsh Lake, and Bavaria Lake.

The main facilities for the Marsh Lake Hunting Preserve are located to the southeast of Marsh Lake, and approximately 1.6 miles northeast of the Proposed Route. The Marsh Lake Hunting Club is a private hunting club located on 400 acres with five private hunting areas consisting of corn fields, grasslands, and hills; a kennel; a clay target and rifle range; and clubhouse.²⁷

²⁴ <https://www.carvercountymn.gov/departments/public-services/planning-water-management/planning/plans/2040-comprehensive-plan>

²⁵ <https://www.choosecarvercounty.com/>

²⁶ https://www.dnr.state.mn.us/water_access/site.html?id=WAS01255

²⁷ <https://marshlakehuntingclub.com/>

The Augusta Ball Field is located northwest of the Proposed Route along Hampshire Road. The ball field was built in 1951 and hosts seasonal baseball games and tournaments, and an adjacent building hosts family reunions, wedding receptions, and graduation parties.²⁸

There are several parks associated with the City of Victoria and Chaska to the northwest, but over 2 miles away from the Proposed Route including Lakeside Estates Park, Ketzner Park, Community Park, Veterans Park, and Friendship Park.

The Proposed ROW crosses, and at one point is parallel to, snowmobile trails managed by the Southwest Trails Organization.²⁹ The trail is located entirely on private land parcels. The Proposed ROW parallels and once intersects the trail between MPs 1.5 to 2.1, and crosses over the trail at MPs 2.3, 2.8, and 3.4. The trail also follows the western boundary of the property owned by MVEC where the proposed Laketown Substation is located before cutting across the property on the northwest side.

Impacts and Mitigation

The Augusta Ball Field is not located within the Proposed Route. The Transmission Line would be visible from the Augusta Ball Field as it is approximately 0.3 mile away; however, existing distribution lines are already in the viewshed. The Marsh Lake Hunting Preserve and city parks are located at such a distance that construction and operation of the Project will not be visible.

The Proposed ROW parallels the local snowmobile trail around CR 43 for about 0.6 mile (**Figure 6-2**). Transmission line ROWs are compatible with snowmobile trails, but the Transmission Line will be a new visual impact and the presence of poles will also be a new impact. Great River Energy currently plans to construct the Transmission Line from fall 2027 to summer of 2028. If construction activities overlap the seasonal use of this trail system, Great River Energy will coordinate with the trail association regarding any trail closures to mitigate impacts by assisting in finding alternate routes. Where the trail system crosses the Laketown Substation parcel, MVEC will work with the trail organization to determine the need for alternate routes. Depending on the ultimate final location of the Laketown Substation components and fence line, the trail location may need to be permanently modified.

The Proposed Route avoids areas that are considered tourist destinations and avoids public lands. As no impacts on tourism and recreation are anticipated, no mitigation is proposed.

6.2.7 Public Services and Transportation

The Project is in a principally agricultural and rural residential area. Private landowners in the Project Area have their own private wells and individual sewage treatment systems. The residents also have access to other utility services by various providers, including waste collection, natural gas, cable television, electricity, and telephone.

²⁸ https://www.swnewsmedia.com/chaska_herald/news/sports/diamond-in-the-cornfields/article_c9a92adc-9067-54f3-addc-b5ee5c66aec2.html

²⁹ <https://www.mnsnowmobiler.org/get-involved/our-clubs/club-listing/southwest-trails-association>

Several existing overhead transmission and distribution lines are in the Project Area (see **Figure 1-1**). Xcel Energy maintains an existing 230-kV transmission line that runs east-west, crossing Great River Energy’s existing MV-VTT 115-kV transmission line and passing approximately 0.7 mile south of the Laketown Substation location. Great River Energy’s MV-VTT 115-kV transmission line, where the Project originates, travels north-south along Guernsey Avenue. Finally, Great River Energy’s 115-kV MV-AUT line runs east-west along Big Woods Boulevard/CR 140, entirely south of the Proposed Route.

There are no operating oil or gas pipelines through this area. Twin Cities & Western maintains a railroad that runs southwest from Great River Energy’s MV-VTT 115-kV transmission line, approximately 2.1 miles south of the new Laketown Substation location; the Proposed ROW crosses the railroad near MP 2.2 (see **page 2 of Appendix A**).

The Proposed ROW will follow existing distribution lines maintained by MVEC for a short distance along Hampshire Road, along Augusta Road, and along CSAH 10 (**pages 1-3 of Appendix A**). The Proposed ROW is collocated with existing distribution lines for about 2.4 miles.

The Proposed ROW will parallel and/or intersect with township and county roads and highways as described in **Table 6.2.7-1** and shown in the maps in **Appendix A**.

Table 6.2.7-1. Highways or Roads Crossed by the Proposed ROW

Milepost	Highway / Road Name	Jurisdiction	Parallel / Intersects	Traffic Volumes (SEQ#/AADT/Year) ³⁰
0.0 – 1.0	Hampshire Road	Dahlgren Township	Parallel	Not Available
1.6	County Highway 43	Carver County	Intersects	41881/860/2018
2.6 – 3.1	Augusta Road	Dahlgren Township	Parallel	Not Available
3.1 – 4.1	Jersey Avenue	Laketown Township	Parallel / Intersects	Not Available
4.1	CSAH 10	Carver County	Intersects	41913/12,300/2019

The Minneapolis-St. Paul International Airport is located approximately 20 miles northeast of the Proposed Route in the city of Bloomington. The Flying Cloud Airport is located 9 miles northeast of the Proposed Route in the city of Eden Prairie. The Flying Cloud Airport has over 100,000 takeoffs and landings per year and is home to many corporate jets and flight schools.³¹

Carver County, along with support from MnDOT, Chaska, Victoria, Waconia, and Laketown Townships, initiated a study in 2018 to identify transportation system issues and potential opportunities; develop and evaluate potential infrastructure improvement alternatives; establish infrastructure improvement recommendations; and develop a long-term implementation plan. The study concluded with Carver County Board and City Council resolutions of support in February and March 2021. Improvements are planned for CSAH 10 to the east of the Project’s crossing in

³⁰ Traffic Mapping Application (arcgis.com)

³¹ <https://metroairports.org/our-airports/flying-cloud-airport>

the “Highway 10 Western Area Subarea – West”³² (see **Section 4.3** for a discussion of a route alternative along CSAH 10 which was considered by Great River Energy but rejected due to these expansion plans, as well as a discussion in **Section 6.11** regarding cumulative impacts).

Impacts and Mitigation

Considering the distance to the nearest airport is over 9 miles away, the Applicants do not anticipate any impact to aviation services. Great River Energy utilized the FAA’s Notice Criteria Tool³³ to determine if it would be required to file notice to the FAA prior to construction. The Project does not exceed Notice Criteria based on location, elevation, and maximum pole height. Therefore, there will be no impacts to airports.

Great River Energy will coordinate Project construction schedules, including any outages, with MVEC and the Twin Cities & Western Railroad to avoid and/or minimize disruptions to service in the area. Existing utilities and site improvements, such as septic systems and wells, will be identified during survey activities. Based on the location of these features, the Transmission Line will be designed to meet or exceed required clearances and pole locations. No structure locations will be placed on or near existing utilities. No impacts to public services are anticipated and, therefore, no mitigation is proposed. Where the Project is proposed to be routed along existing distribution lines and road ROWs, Great River Energy would not anticipate impacts to site improvements such as wells or septic systems. Where the Transmission Line is not collocated, Great River Energy will work with landowners to ensure that construction and operation of the Project will avoid impacts.

Great River Energy will primarily travel down the ROW during construction of the Transmission Line. However, access to the ROW will be required from nearby roadways. Temporary and infrequent traffic impacts associated with equipment/material delivery and worker transportation will occur. Stringing the conductors and shield wire across roads can be accomplished with minimal traffic impacts. Typically, a pulling rope is simply carried across the road, which is then pulled overhead. Temporary structures may be installed inside or outside of road ROW to ensure pulling lines, shield wire, or conductors to have sufficient clearance over roads. Although the Project does not currently cross any roads under the authority of MnDOT, should the final alignment cross such a road, Great River Energy or its contractors would work with the MnDOT through its application process for a Utility Accommodation Permit in MnDOT ROW and comply with all permit conditions. Applicable licenses where the line impacts county and local roads will also be obtained and complied with.

When appropriate, pilot vehicles will accompany the movement of heavy equipment. Traffic control barriers and warning devices will be used when appropriate. All necessary provisions will be made to conform to safety requirements for maintaining the flow of public traffic. Construction operations will be conducted to offer the least possible obstruction and inconvenience to the traveling public. The Applicants or its contractors will plan and execute delivery of heavy

³² <https://www.carvercountymn.gov/departments/public-works/transportation-plans/highway-10-study-victoria-chaska-area>

³³ <https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp>

equipment in coordination with the appropriate road authorities and in a manner that would avoid traffic congestion and reduce likelihood of dangerous situations along local roadways.

There will be minimal impact to other utilities where the Project follows these corridors. To ensure that any short-term and infrequent traffic impacts are minimized, the Applicants will coordinate with all affected road authorities and, to the extent practicable, schedule large material/equipment deliveries to avoid periods when traffic volumes are high.

6.3 Public Health and Safety

The Project will be designed in compliance with local, state, NESC, and Great River Energy standards regarding clearance to the ground, clearance to crossing utilities, strength of materials, and ROW widths. Construction crews and/or contract crews will comply with local, state, and NESC standards regarding installation of facilities and standard construction practices. The Applicants' established safety procedures, as well as industry safety procedures, will be followed during and after installation of the Transmission Line, including clear signage during all construction activities. See **Chapter 5** for discussions on construction practices and safety.

6.3.1 Electric and Magnetic Fields

As it pertains to the Project, the term "EMF" refers to the extremely low frequency (ELF) decoupled electric and magnetic fields (MFs) that are present around any electrical device or conductor and can occur indoors or outdoors. EFs are the result of electric charge, or voltage, on a conductor. The intensity of an EF is related to the magnitude of the voltage on the conductor. MFs are the result of the flow of electricity, or current, traveling through a conductor. The intensity of a magnetic field is related to the magnitude of the current flow through the conductor. Electric and MF can be found in association with transmission lines, local distribution lines, substation transformers, household electrical wiring, and common household appliances.

Electric Fields

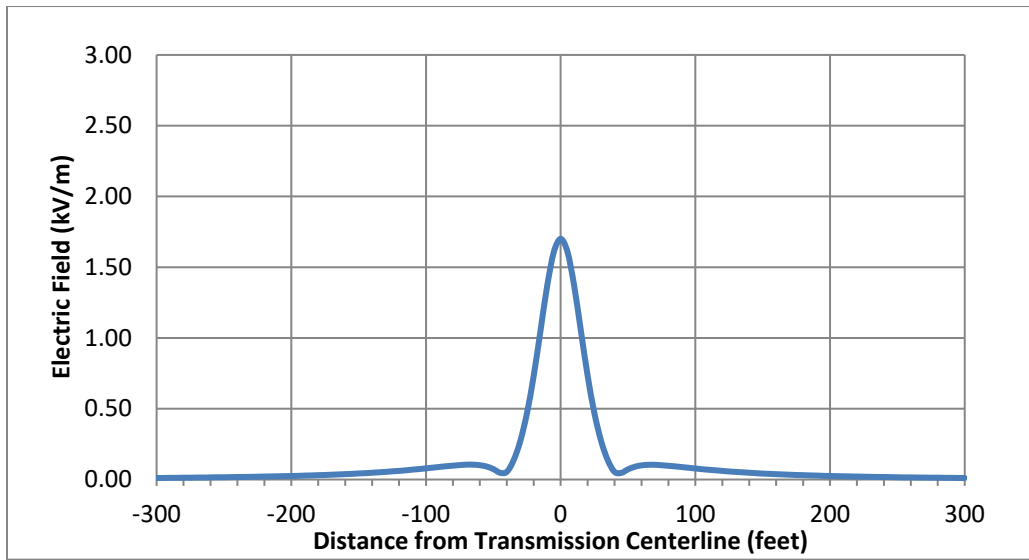
Voltage on a wire produces an EF in the area surrounding the wire. The voltage on the conductors of a transmission line generates an EF extending from the energized conductors. The intensity of transmission line EFs is measured in kV/m, and the magnitude of the EF rapidly decreases with distance from the transmission line conductors. The presence of trees, buildings, or other solid structures in the path of the field can also significantly reduce the magnitude of the EF. Because the magnitude of the voltage on a transmission line is near-constant (ideally within ± 5 percent of nominal), the magnitude of the EF will be near-constant regardless of the power flowing on the line.

Although there is no state or federal standard for transmission line EF exposures, the EQB developed a standard of a maximum EF limit of 8 kV/m at one meter (3.28 feet) above ground; the Commission has adopted this standard. Great River Energy has calculated the approximate EF for the Project's transmission configuration and estimates the peak magnitude of EF density to be approximately 1.7 kV/m underneath the conductors (one meter above ground), which is well below the EQB standard. **Table 6.3.1-1** summarizes the EFs calculated for the proposed double circuit Transmission Line. These EF calculations are also shown graphically in **Diagram 6-1**.

Table 6.3.1-1. Calculated Electric Fields (kV/M) for Double Circuit Line (One meter [3.28 feet] above ground)

Operating Voltage (kV)	Max Operating Voltage (kV)	Distance to Proposed Alignment – Electric Field (feet)										
		-300	-200	-100	-50	-25	Max	25	50	100	200	300
115-kV	121	0.01	0.03	0.08	0.07	0.47	1.70	0.47	0.07	0.08	0.03	0.01

Diagram 6-1. 115-kV Double Circuit Line Electric Field Profile



Induced Voltage

When an EF reaches a nearby conductive object, such as a vehicle or a metal fence, it can induce a voltage on the object. 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, similar to what can occur when a person walks across a carpet and touches an object or person.

The main concern with induced voltage is not the magnitude of the voltage induced, but the current that would flow through a person to the ground should the person touch the object. To ensure the safety of persons in the proximity of high voltage transmission lines, the NESC requires that any discharge be less than five milliAmperes root mean square (mA rms). Great River Energy would ensure that any fixed conductive 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.

Implantable Medical Devices

High intensity EMF can have adverse impacts on the operation of implantable medical devices (IMDs) such as pacemakers and defibrillators. While research has shown that the MFs associated

with HVTLs do not reach levels at which they could cause interference with such devices, it is possible that the EFs associated with some HVTLs could reach levels high enough to induce sufficient body currents to cause interference.

Modern “bipolar” cardiac devices are much less susceptible to interactions with EFs. Manufacturers of pacemakers and other IMDs have indicated that EFs below 6 kV/m are unlikely to cause interactions affecting the operation of most of their devices. **Table 6.3.1-1** and **Diagram 6-1** show that the EFs for the Project are well below levels at which modern bipolar devices are susceptible to interaction with the fields.

The older “unipolar” designs of cardiac devices are more susceptible to interference from EFs. Research from the early 1990s indicates that the earliest evidence of interference with these types of IMDs could occur in EFs ranging from 1.2 to 1.7 kV/m. For older style unipolar designs, the EFs do exceed levels that research from the 1990s has indicated may produce interference. However, research conducted in 2005 concluded that the risk of interference to unipolar cardiac devices from high voltage power lines in everyday life is small. In 2007, Minnesota Power and Xcel Energy conducted studies with Medtronic, Inc. under 115-kV, 230-kV, 345-kV, and 500-kV transmission lines to confirm these 2005 findings. The analysis was based on real life public exposure levels under actual transmission lines in Minnesota and found no adverse interaction with pacemakers or IMDs. The analysis concluded that although interference may be possible in unique situations, device interference as a result of typical public exposure would be rare.³⁴

In the unlikely event that a pacemaker is impacted, the effect is typically a temporary asynchronous pacing (commonly referred to as reversion mode or fixed rate pacing). The pacemaker will return to its normal operation when the person moves away from the source of the interference.

Magnetic Fields

Current passing through any conductor, including a wire, produces a magnetic field in the area around the wire. The current flowing through the conductors of a transmission line generates a magnetic field that, in similar fashion to the EF, extends outward from the energized conductors. The intensity of the magnetic field associated with a transmission line is proportional to the amount of current flowing through the line’s conductors, and the magnitude of the magnetic field rapidly decreases with the distance from the conductors. Unlike EFs, MFs are not significantly affected by the presence of trees, buildings, or other solid structures nearby. The value of the magnetic field density is expressed in the unit of gauss (G) or milligauss (mG).

There are no federal or Minnesota exposure standards for MFs. The EQB and the Commission have recognized Florida (a 150-mG limit) and New York (a 200-mG limit) state standards. Both state standards are to be considered at the edge of ROW. Studies of the health effects from MFs

³⁴ 2007 Minnesota Power Systems Conference Proceedings (University of Minnesota), *Electromagnetic Compatibility of Active Implantable Medical Devices (AIMD) and Their Interaction with High Voltage Power Lines*, at 23.

conclude that the evidence of health risk is weak.³⁵ The general standard is one of prudent avoidance.

MF levels associated with some common electric appliances are provided in **Table 6.3.1-2**.

Table 6.3.1-2. Magnetic Fields of Common Electric Appliances (mG)³⁶

Appliance	Distance from Source		
	6 inches	1 foot	2 feet
Hair Dryer	300	1	--
Electric Shaver	100	20	--
Can Opener	600	150	20
Electric Stove	30	8	2
Television	NA	7	2
Portable Heater	100	20	4
Vacuum Cleaner	300	60	10
Copy Machine	90	20	7
Computer	14	5	2

Table 6.3.1-3 summarizes the MFs calculated for the proposed Transmission Line configuration with power flow at peak loading and at average loading. The magnetic field calculations are also shown graphically in **Diagram 6-2**. The maximum magnetic field under expected peak load conditions is 54.17 mG, which is below most of the levels shown in **Table 6.3.1-3**.

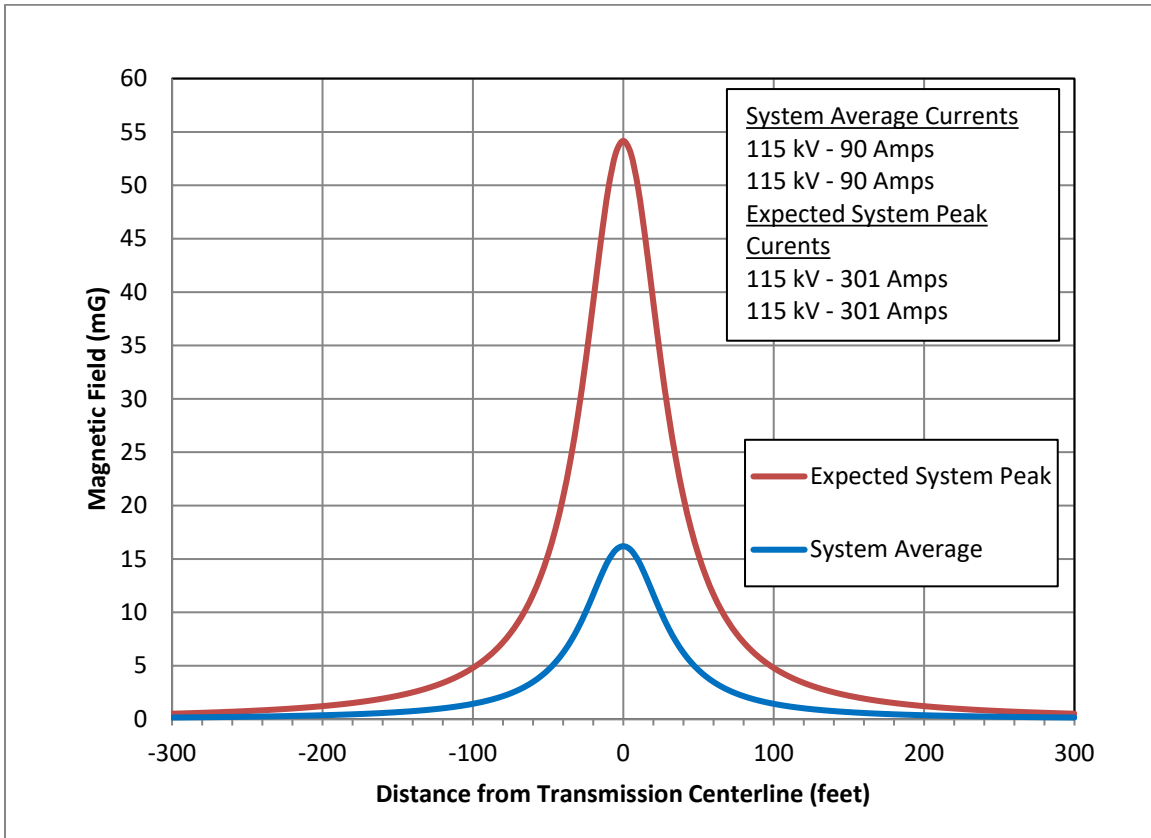
Table 6.3.1-3. Calculated Magnetic Fields (mG) for Proposed Design

Operating Voltage	Max Operating Voltage (kV)	Line Current (Amps)	Distance to Proposed Alignment – Magnetic Field (feet)										
			-300	-200	-100	-50	-25	Max	25	50	100	200	300
115-kV Peak Load	121	301	0.51	1.22	4.80	15.40	33.54	54.17	33.54	15.4	4.80	1.22	0.51
115-kV Average Load	121	90	0.15	0.36	1.44	4.60	10.03	16.20	10.03	4.60	1.44	0.36	0.15

³⁵ Minnesota Department of Health. *EMF White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*. 2002; National Research Council. *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields*. 1997; www.niehs.nih.gov/health/topics/agents/emf/.

³⁶ *EMF In Your Environment* (USEPA 1992)

Diagram 6-2. 115-kV Double Circuit Line Magnetic Field Profile



Because the actual power flow on a transmission line could potentially vary throughout the day depending on electric demand, the actual magnetic field level could also vary widely from hour to hour. In any case, the typical magnitude of the magnetic field associated with the proposed Transmission Line is expected to be well below the calculated intensity at the expected peak loading.

Impacts and Mitigation

Considerable research has been conducted since the 1970s to determine whether exposure to power-frequency, commonly referred to as “extremely low frequency” or “ELF” (60 hertz), EFs and MFs can cause biological responses and adverse health effects. The multitude of epidemiological and toxicological studies has shown, at most, a weak association (i.e., no statistically significant association) between ELF-MF exposure and health risks and no association between ELF-EF exposure and health risks.

In 1999, the National Institute of Environmental Health Sciences (NIEHS) issued its final report on “Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields” in response to the Energy Policy Act of 1992. In the report, the NIEHS concluded that the scientific evidence linking EMF exposures with health risks is weak and that this finding does not warrant aggressive regulatory concern. However, in light of the weak scientific evidence supporting some

association between EMF and health effects and the fact that exposure to electricity is common in the United States, the NIEHS stated that passive regulatory action, such as providing public education on reducing exposures, is warranted.³⁷ Other studies have come to similar decisions.³⁸

Based on findings like those of the Working Group and NIEHS, the Commission has consistently found that “there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects.”³⁹ This conclusion was further justified in the Route Permit proceedings for the Brookings Project. In the Brookings Project Route Permit proceedings, Great River Energy/Xcel Energy and one of the intervening parties both provided expert evidence on the potential impacts of ELF-EF and ELF-MF, including the World Health Organization findings (2007). The ALJ in that proceeding evaluated written submissions and a day-and-a-half of testimony from the two expert witnesses. The ALJ concluded: “there is no demonstrated impact on human health and safety that is not adequately addressed by the existing State standards for [EF and MF] exposure.”⁴⁰ The Commission adopted this finding on July 15, 2010.⁴¹

No impacts to public health and safety are anticipated because of the Project. The Project will be designed in compliance with local, state, NESC, and the Applicants’ standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths. The Laketown Substation will be equipped with protective breakers and relays. The protective equipment is designed to de-energize the Transmission Line when needed. The Laketown Substation will be protected by locked gates and barbed-wire-topped fencing. Signage attached to the fence will list the owner, provide a telephone contact number, and warn about electrical hazards within the Laketown Substation.

The Applicants will ensure that safety requirements are met during construction and operation of the facilities. Additionally, when crossing roads or railroads during stringing operations, guard structures will be utilized to eliminate traffic delays and provide safeguards for the public. With implementation of these safeguards and protective measures, no additional mitigation is proposed.

³⁷ Report is available at <http://www.niehs.nih.gov/health/topics/agents/emf/>

³⁸ Minnesota Department of Health. 2002. *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*; World Health Organization. 2007. *Environmental Health Criteria Volume No. 238 on Extremely Low Frequency Fields*

³⁹ See, for example, *In the Matter of the Application for a HVTL Route Permit for the Tower Transmission Line Project*, Docket No. ET-2, E015/TL-06-1624, Findings of Fact, Conclusions of Law and Order Issuing a Route Permit to Minnesota Power and Great River Energy for the Tower Transmission Line Project and Associated Facilities (August 1, 2007).

⁴⁰ *In the Matter of the Route Permit Application by Great River Energy and Xcel Energy for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota*, Docket No. ET-2/TL-08-1474, ALJ Findings of Fact, Conclusions and Recommendation at Finding 216 (April 22, 2010, and amended April 30, 2010)

⁴¹ *In the Matter of the Route Permit Application by Great River Energy and Xcel Energy for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota*, Docket No. ET-2/TL-08-1474, Order Granting Route Permit (September 14, 2010)

6.4 Land Use/Zoning

The Proposed Route south of Augusta Road is in Dahlgren Township; the remainder of the Proposed Route and Laketown Substation is within Laketown Township. Both townships are within Carver County, and the Project is outside of the city limits of nearby Victoria. The Project Area consists largely of agricultural and rural/transitional development land use patterns. Land cover along the Proposed ROW is a mix of agricultural/row and coarse grain crop (2.9 miles), developed and urban (1.2 miles), and natural shrub/forest land use (0.2 mile) (**Figure 6-3**). The area where the Laketown Substation is located is presently open land not in agricultural production.

In 2020, Carver County finalized its 2040 Comprehensive Plan. Major themes of the 2040 Comprehensive Plan include managing population growth, which is expected to increase 50% from the current population by 2040; planning for the expansion of cities within the County to accommodate that growth; and preserving the viability of the agricultural community for future generations and maintaining a rural character.⁴² The City of Victoria also has developed a 2040 Comprehensive Plan, entitled “Our Victoria Tomorrow,” which serves as a guide for the ultimate growth and development of the community and outlines the set of tools needed to move the community toward achieving consistency with its vision.⁴³

Zoning information for the Project Area is provided in **Figure 6-4**. The Project is zoned as follows⁴⁴:

- Dahlgren Township – Transition Area, Agricultural Policy Area, and Shoreland Overlay
- Laketown Township – Residential Cluster, Agricultural Policy Area, and Shoreland Overlay

The Proposed Route crosses 3.8 miles of land that is enrolled in the Metropolitan Agricultural Preserves Program (**Figure 6-4**). Minn. Stat. § 473H established the program in 1980 to encourage and preserve areas planned and zoned for long-term agricultural use within the seven-county metropolitan area. The purpose of the statute is to encourage the use and improvement of the metropolitan area’s agricultural lands for producing food and other agricultural commodities. It establishes a local planning process to designate agricultural areas as a long-term land use and provides benefits to maintain viable, productive farm operations.⁴⁵ Transmission lines are generally compatible with continued agricultural uses, and the Laketown Substation is not sited on property subject to this program.

In a letter dated May 8, 2024, Carver County indicated that the setback and site grading associated with the Laketown Substation will need to meet future needs per Carver County’s 2040 Comprehensive Plan for this corridor, which consists of a rural four-lane highway with a trail on

⁴² 2040 Comprehensive Plan | Carver County, MN (carvercountymn.gov)

⁴³ Our Victoria Tomorrow_10.27.21 Update_202111091659521894.pdf (revize.com)

⁴⁴ <https://www.carvercountymn.gov/home/showpublisheddocument/26112/638466293267730000>

⁴⁵ <https://metro council.org/Communities/Planning/Local-Planning-Assistance/Agricultural-Preserves.aspx>

the north side. This results in a total future ROW width of 200 to 220 feet according to the Comprehensive Plan (**Appendix E**).

Per the Carver County Zoning Ordinance, projects which are under the jurisdiction of a state or federal regulatory commission (e.g., the Commission) are a permitted use in all zoning districts.⁴⁶ A Commission route permit preempts local zoning approvals (Minn. Stat. § 216E.10, subd. 1).

The Applicants have coordinated closely with local jurisdictions to identify a Proposed Route and Laketown Substation location that minimizes impacts on local zoning and land uses, as discussed in **Section 4.3**, and the Project is needed to accommodate continued development in this area.

Impacts and Mitigation

Impacts to land use and zoning as a result of the Project are expected to be minimal as a result of transmission line construction, and construction of the Transmission Line will not change land uses, particularly where the Project will be located with existing utility and road ROWs. Short-term agricultural impacts might occur during construction, which will be mitigated through restoration and compensatory payments (**Section 6.5.1**). There will be permanent structures within agricultural fields, and Great River Energy will coordinate the placement of the structures with the landowner to the extent possible. The Laketown Substation will result in permanent land use change from open land to industrial/developed land. The Applicants will continue to coordinate with Carver County regarding the Project. No additional mitigation is proposed.

6.5 Land-based Economies

6.5.1 Agriculture

According to the 2022 U.S. Department of Agriculture (USDA) Census of Agriculture, Carver County has 606 individual farms with an average farm size of 259 acres and covers approximately 156,676 acres (65 percent) of the county. Approximately \$172 million was generated from crop and livestock sales in 2022.⁴⁷

The Proposed ROW will cross about 2.5 miles of cultivated cropland⁴⁸ (**Figure 6-3**). Agricultural areas are shown in the detailed route maps provided in **Appendix A**. The Transmission Line ROW is consistent for use as pasture, hay, or other crop cultivation. No organic farms will be impacted by the Project.^{49,50} There are three registered apiaries within three miles of the Proposed Route.⁵¹

⁴⁶ https://codelibrary.amlegal.com/codes/carvercounty/latest/carverco_mn/0-0-0-3471

⁴⁷

https://www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Volume_1,_Chapter_2_County_Level/Minnesota/st27_2_001_001.pdf

⁴⁸ <https://www.usgs.gov/programs/gap-analysis-project/science/land-cover-data-download>

⁴⁹ <https://www.mda.state.mn.us/organic-farm-directory-county>

⁵⁰ <https://organic.ams.usda.gov/integrity/>

⁵¹ <https://mn.beecheck.org/map>

Impacts and Mitigation

Some agricultural land may be temporarily removed from production during Transmission Line construction. Determination of temporary agricultural impacts that will result from construction is dependent upon final engineering design. The acreage anticipated to be included in temporary construction access points includes some cultivated lands. Construction of the proposed transmission structures will require repeated access to structure locations to install the structures and to string conductors. Equipment used in the construction process will include backhoes, cranes, boom trucks and assorted small vehicles. Operation of these vehicles on adjoining farm fields can cause rutting and soil compaction, particularly during springtime and otherwise wet conditions.

Great River Energy will work with landowners to minimize impacts to agricultural activities along the Proposed 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 conditions as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion.

Specific mitigation measures to be implemented include:

- Placing the Transmission Line on the edge of property to minimize agricultural interference, when possible.
- 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. Such ruts will be leveled, filled, and graded or otherwise eliminated in an approved manner. In the pasture area, 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.
- The Commission's route permits typically require notice to registered apiaries within three miles in advance of any herbicide treatment, and Great River Energy would comply with any similar permit conditions for this Project.

Some temporary construction workspace will be needed for the Project. For temporary storage or laydown yards, which will provide space to store material and equipment, and temporary workspace needed for wire stringing and pulling equipment, Great River Energy will work with local landowners to lease the space by agreement with the respective landowner(s), remove and properly dispose of all material and debris, and repair all damages and perform restoration, as necessary. It is anticipated that minimal temporary construction workspace on property immediately adjacent to the ROW and on private property will be needed, with the exception of limited equipment access and pulling areas.

6.5.2 Forestry

The Proposed ROW will cross about 0.2 mile of forested land, which consists of North-Central Interior Dry-Mesic Oak Forest and Woodland, North-Central Interior Maple-Basswood Forest, and Boreal Jack Pine-Black Spruce Forest.⁵² Forested areas are shown in the Detailed Route Maps provided in **Appendix A**. None of the forested areas crossed by the Project are currently in commercial forestry operation, and all are on private land.

Impacts and Mitigation

Generally, Great River Energy has designed the Project to minimize tree clearing impacts where possible. As the Project will not cross commercial forestry operations, no mitigation is proposed.

6.5.3 Mining

The Project Alignment crosses a potential source of sand and gravel identified by the MDNR between MPs 0.1 and 0.4 (**page 1 of Appendix A**), but there is no MDNR-identified gravel pit associated with this resource. The Proposed Route contains (but the Proposed ROW does not cross) another such area near MP 3.5 (**page 2 of Appendix A**); two MDNR-identified gravel pits are associated with this resource.^{53,54} Aerial signatures do not indicate that either of these areas are presently mined. There are no MDNR active mineral leases within the Proposed Route.⁵⁵

⁵² <https://www.usgs.gov/programs/gap-analysis-project/science/land-cover-data-download>

⁵³ https://www.dnr.state.mn.us/lands_minerals/metroaggregate.html

⁵⁴ <https://www.dot.state.mn.us/materials/aggsources.html>

⁵⁵ <https://gisdata.mn.gov/dataset/plan-state-minleases>

Impacts and Mitigation

The sand and gravel sources crossed by the Proposed ROW between MPs 0.1 and 0.4 are not associated with an active mine. Also, the Project crosses this area where it is adjacent to Hampshire Road ROW, where mining would be unlikely to occur. The resources near MP 3.5 are within the Proposed Route but would not be impacted by the Proposed ROW in its present location. As no impacts to mining are anticipated, no mitigation is proposed.

6.6 Archaeological and Historic Resources

A cultural resource literature review of a one-mile-wide buffer centered on the Proposed Alignment and Laketown Substation was conducted by Merjent, Inc. (Merjent). This literature review and Merjent's evaluation of the possible effects of the proposed Project on historic properties in the Project Area was provided to the Minnesota SHPO in a letter dated March 13, 2024 (**Appendix E**⁵⁶). SHPO responded on May 14, 2024 (also see **Appendix E**). The following summarizes the results of the literature review.

On November 27, 2023, Merjent retrieved cultural resources site information (archaeological sites and historic structures) and on January 16, 2024, retrieved previous survey files from the SHPO. Merjent Cultural Resource Specialists reviewed archaeological site files on the OSA online portal, as well as the General Land Office (GLO) maps and available historical aerial photography accessed online through the OSA Portal.⁵⁷

According to the OSA and SHPO files, no previous archaeological surveys were located within the review area. There are three sites within the review area that also intersect the Proposed Route. Two sites are alpha sites, meaning that they were identified by historic documentation and have not been verified in the field by a professional archaeologist. Due to the imprecise locational information of these sites, alpha site boundaries are likely larger than they would be if the site were physically located. One site is a small lithic scatter consisting of two grey chert flakes (precise location unknown); another is a historic railway station; and the other is described as a historic ghost town. All three of these sites are unevaluated for listing on the NRHP.

Fifteen historic buildings and structures are located within the review area, four of which overlap the Proposed Route. Three structures share the same location because it is an overlapping section of three railways, all constructed and operated by the Chicago Milwaukee and St. Paul Railway Company/Chicago Milwaukee St. Paul and Pacific Railroad Company. Two of these three railroad features are considered potentially eligible for listing on the NRHP, and the third was determined not eligible by SHPO on September 10, 2021. The remaining historic building is a farmhouse constructed in 1887 which has not been evaluated for listing on the NRHP. The remaining eleven historic buildings and structures (farmsteads, farmhouses, and a bridge) will not be impacted due

⁵⁶ The maps provided to the SHPO are not included in the correspondence provided in **Appendix E** because they include sensitive cultural resource data protected by the Archaeological Resources Protection Act of 1979 (16 United States Code 470hh, as amended), and National Park Service and Related Programs (54 United States Code 300101, formerly known as the National Historic Preservation Act, 16 United States Code 470-1).

⁵⁷ <https://osa.gisdata.mn.gov/OSAportal>

to distance from the Project. Because the Project is collocated with existing utility and road ROWs near these structures, it will not result in an appreciable change in viewshed.

Merjent reviewed nineteenth century GLO maps and notes on file with the Bureau of Land Management.⁵⁸ The GLO map of the Project Area illustrated conditions in 1870 as being prairie, with many lakes and wetlands and connecting streams and rivers. An unnamed trail is present south of Augusta and north of Hampshire Road. The trail does not intersect the Project route. Aerial photographs from 1937 show that roads and the railroad have been constructed and farms have been established, with agricultural fields dominating the landscape. There is no trace of the GLO trail on historic aerials; by 1937 it had been superseded by roads and agricultural fields. Subsequent historic and modern aerial photographs show that the landscape of the Project Area has remained largely the same since that time, with roads being the main addition to the area.

Great River Energy requested feedback on the Project from the 11 federally recognized Tribes with geography within Minnesota and MIAC in its Project notification letters sent in April 2024. To date, two Tribes have responded. The Shakopee Mdewakanton Sioux Community responded on April 19, 2024, stating that there are no concerns. On May 3, 2024, the Leech Lake Band of Ojibwe responded that they do not have any recorded historic properties within this area but noted that this does not mean there are not any cultural resources present, at this time. This correspondence is included in **Appendix E**.

Impacts and Mitigation

Three archaeological sites and fifteen historic buildings and structures were identified within the review area. There is potential for Historic-period sites within the Project Area because the area has been inhabited at least since the 1930s; however, given that the Project is an overhead transmission line proposed partially within already disturbed ROWs, there is a low potential for intact historic sites. Regardless, given the lack of previous survey, Great River Energy will conduct a Phase I Archaeological Reconnaissance of the final route and Laketown Substation location, which is consistent with SHPO's conclusion in its May 14, 2024, letter (see **Appendix E**).

If any archaeological sites are identified during placement of the poles along the permitted Route, construction work will be stopped and SHPO staff consulted as to how to proceed. If human remains are encountered during construction activities, all ground disturbing activity will cease, and local law enforcement will be notified per Minn. Stat. § 307.08.

6.7 Natural Environment

6.7.1 Air Quality

Criteria Pollutants

The Clean Air Act (42 United States Code 7401 et seq. as amended in 1977 and 1990) is the principal federal statute governing air pollution. Under the Clean Air Act, the USEPA set National Ambient Air Quality Standards (NAAQS) for six “criteria” pollutants considered harmful to public

⁵⁸ <https://glorerecords.blm.gov/>.

health and the environment: carbon monoxide (CO), ozone, NO₂, sulfur dioxide (SO₂), lead, particulate matter equal to or less than 10 microns in diameter (PM₁₀), and fine particulate matter equal to or less than 2.5 microns in diameter (PM_{2.5}). The NAAQS include primary standards that are designed to protect human health and secondary standards that are intended to protect public welfare, including visibility and damage to crops and vegetation.

The USEPA and state agencies operate a system of air quality monitoring stations. Data from these monitoring stations are compared to the NAAQS to categorize the air quality of a particular area. Regions of the country that do not meet the NAAQS are designated as “nonattainment” areas. Some areas of the country do not have extensive air quality monitoring networks and are considered “unclassifiable.” Unclassifiable regions are presumed to be in attainment with the NAAQS. Carver County was designated as in nonattainment for carbon monoxide and sulfur dioxide in 1971 but was redesignated to maintenance in 1999 and 1997 for these pollutants, respectively.

Emissions Related to Construction

During construction of the Transmission Line and Laketown Substation, temporary air emissions will occur from the operation of construction equipment, vehicular traffic, and soil disturbance. Construction activities will be performed with standard heavy equipment such as backhoes, cranes, boom trucks, and assorted small vehicles. The Applicants anticipate starting construction on the Laketown Substation in spring 2027 and on the Transmission Line in fall 2027 and energizing the Project in the summer of 2028.

Table 6.7.1-1 summarizes the estimated potential emissions of criteria pollutants from construction activities for the Project. Construction emissions are based on typical counts of diesel-fueled construction equipment, expected hours of operation, and estimated vehicle miles traveled. Detailed construction emission calculations for the Transmission Line and Laketown Substation are provided as **Appendix F**.

Table 6.7.1-1. Construction Emissions of Criteria Pollutants (tons)

Description	NO _x	CO	VOC ^a	SO ₂	PM ₁₀	PM _{2.5}
Transmission Line						
Off-Road Engine Emissions	3.05	0.66	0.21	0.00	0.11	0.11
Unpaved Roads					0.45	0.04
Earthmoving					7.99	0.84
SUBTOTAL					8.55	0.99
Laketown Substation						
Off-Road Engine Emissions	1.35	0.28	0.11	0.00	0.05	0.05
Unpaved Roads					0.17	0.02
Earthmoving					1.09	0.05
SUBTOTAL					1.31	0.12
TOTAL	4.40	0.94	0.32	0.00	9.86	1.11
^a Volatile organic compounds.						

Emissions Related to Operation

There would be no operational emissions from the Laketown Substation. The only potential air emissions from the Transmission Line would result from corona, which may produce ozone and oxides of nitrogen. Ozone is a reactive form of oxygen molecule that combines readily with other elements and compounds in the atmosphere, making it relatively short lived. Ozone forms naturally in the lower atmosphere from lightning discharges and from reactions between solar ultraviolet radiation and air pollutants such as hydrocarbons from auto emissions. The natural production rate of ozone is directly proportional to temperature and sunlight, and inversely proportional to humidity. Thus, the conditions that are most likely to cause corona formation on a transmission line – humid, rainy, or foggy conditions – inhibit the production of ozone.

Corona-induced ozone and nitrogen oxides (NO_x) are typically not a concern for power lines like the Project with operating voltages below 161-kV because the EF intensity is too low to produce significant corona. Therefore, Great River Energy expects ozone and NO_x concentrations associated with the Project to be negligible, and well below all federal standards (NO₂) – 100 parts per billion (ppb) as one-hour average, 53 ppb as annual average; ozone 70 ppb as 8-hour average).⁵⁹

Impacts and Mitigation

Temporary and localized air quality impacts caused by construction vehicle emissions and fugitive dust from clearing and construction are expected to occur. Exhaust emissions from diesel equipment will vary during construction but will be minimal and temporary. The magnitude of emissions is influenced heavily by weather conditions and the specific construction activity taking place. Appropriate dust control measures will be implemented, including but not limited to:

- Reduced speed limits on gravel/unpaved roads, and use of water or other non-chloride-containing dust suppression applications;
- Water application to the ROW or Laketown Substation site if erosion occurs during dry weather;
- Street sweeping where soils are tracked onto paved roads; and
- If the earth is wet during construction activities, vehicle tracking of soil from work areas will be minimized by using wooden or plastic matting at access points.

At the completion of construction activities, all construction-related air impacts would cease.

⁵⁹ “The Clean Air Act, which was last amended in 1990, requires USEPA to set National Ambient Air Quality Standards (40 CFR part 50) for six principal pollutants ("criteria" air pollutants) which can be harmful to public health and the environment. The Clean Air Act identifies two types of national ambient air quality standards. **Primary standards** provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. **Secondary standards** provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.” <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

No impacts to air quality are anticipated due to the operation of the Transmission Line or Laketown Substation.

Greenhouse Gas Emissions

The State of Minnesota is taking significant action to reduce the amount of greenhouse gas emissions produced in the state. As of 2020, Minnesota has experienced a 23% reduction in greenhouse gas emissions across all industry sectors.⁶⁰

Construction of the Transmission Line and Laketown Substation will result in temporary minor greenhouse gas emissions from fuel combustion in construction equipment, commuter vehicles, and delivery trucks. **Table 6.7.1-2** summarizes the estimated potential emissions of greenhouse gas from construction activities for the Project. Emissions are based on typical counts of diesel-fueled construction equipment, expected hours of operation, and estimated vehicle miles traveled. Detailed greenhouse gas emission calculations for the Transmission Line and Laketown Substation are provided as **Appendix G**. At the completion of construction activities, all construction-related air impacts would cease.

Table 6.7.1-2. Preliminary Estimate: Greenhouse Gas Emissions

Description	CO ₂ (Short Tons)	CH ₄ (Short Tons)	N ₂ O (Short Tons)	CO ₂ e (Short Tons)
Transmission Line				
Off-Road Engine Emissions	138.23	0.01	0.00	138.70
Commuters and Delivery Vehicles	68.79	0.00	0.00	68.79
SUBTOTAL	207.02	0.01	0.00	207.49
Laketown Substation				
Off-Road Engine Emissions	62.28	0.00	0.00	62.50
Commuters and Delivery Vehicles	16.22	0.00	0.00	16.22
SUBTOTAL	78.51	0.00	0.00	78.72
TOTAL	285.52	0.01	0.00	286.21
Notes: CO ₂ – carbon dioxide CH ₄ – methane; 1 short ton CH ₄ = 25 short tons CO ₂ e N ₂ O – nitrous oxide; 1 short ton N ₂ O = 298 short tons CO ₂ e CO ₂ e – carbon dioxide equivalent Source: 40 CFR 98 Table A-1: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98#Table-A-1-to-Subpart-A-of-Part-98				

Sulfur hexafluoride (SF₆), a greenhouse gas, is used as an insulating material in substation breakers. Under normal operations, the SF₆ remains contained in the breakers and is not released to the atmosphere.

⁶⁰ <https://www.pca.state.mn.us/sites/default/files/lraq-2sy23.pdf>.

Impacts and Mitigation

The USEPA's Greenhouse Gas Reporting Tool⁶¹ shows emissions within Minnesota totaled 34,929,605 metric tons of carbon dioxide equivalent (CO₂e) (38,502,906 tons) in 2020. Accordingly, the preliminary estimate of Project greenhouse gas emissions identified here would be negligible.

The Applicants will mitigate vehicle emissions by limiting vehicle idling to only times when necessary.

The Applicants monitor the SF₆ gas levels in the breakers as part of routine monitoring of substation equipment. When gas losses are detected, the SF₆ is extracted to a separate tank to allow the breaker to be repaired. Any gas collected from decommissioned breakers is shipped offsite for recycling.

Climate Resiliency

Climate change is the change in global or regional climate patterns over time. Changes in average precipitation or temperature over years or decades may indicate climate change. Generally, Minnesota's climate already is changing and will continue to do so. Noticeable effects into the future include warmer periods during winter and at night, increased precipitation, heavier downpours, increased summer heat, and the potential for longer dry spells.⁶²

From 1895 to 2023, Carver County has experienced an increase in temperature of 0.36 degrees Fahrenheit per decade and a decrease in precipitation of 0.02 inch per decade.⁶³

Impacts and Mitigation

Climate change could result in an increased risk of flooding in the Project Area, increased temperatures, extreme weather events such as high winds, and excessive rainfall. The Project as proposed will be designed to withstand these changes and will increase reliability in the Project Area. Great River Energy is actively assessing risks to the reliable operation of its transmission system from the potential impacts of climate change and is working on opportunities to mitigate those risks. Over the last three years, Great River Energy has invested over \$67 million dollars in transmission resiliency improvement projects.

6.7.2 Water Resources

Hydrologic features in the Project Area and along the Proposed Route are shown in **Figure 6-5**. Hydrologic features such as wetlands, lakes, rivers, and floodplains perform several important functions within a landscape, including flood attenuation, groundwater recharge, water quality

⁶¹ <https://ejscreen.epa.gov/mapper/>

⁶² https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html

⁶³ <https://arcgis.dnr.state.mn.us/ewr/climatetrends>

protection, and wildlife habitat production. The Project lies within the Lower Minnesota River watershed, in the northeast portion of the Minnesota River Basin.⁶⁴

Groundwater

The MDNR divides Minnesota into six groundwater provinces. The Project is in the East-Central Province, which is characterized by buried sand aquifers and relatively extensive surficial sand plains, part of a thick layer of sediment deposited by glaciers overlying the bedrock. It is underlain by sedimentary bedrock with good aquifer properties.⁶⁵

The Minnesota Department of Health (MDH) enforces the federal Safe Drinking Water Act including the National Primary Drinking Water Regulations created under the Act.⁶⁶ The Project is not located within the boundaries of any Drinking Water Supply Management Areas or Wellhead Protection Areas.⁶⁷

The County Well Index (CWI) is a database that contains subsurface information for over 533,000 water wells drilled in Minnesota. CWI is maintained by the Minnesota Geological Survey (MGS) in partnership with the MDH. The data are derived from well contractors' logs of geologic materials encountered during drilling and later interpreted by geologists at the MGS.⁶⁸ The CWI indicates that there are 14 wells located within the Proposed Route; no wells are within the Proposed ROW. The nearest well is 65 feet away from the Proposed ROW. The wells are identified in **Table 6.7.2-1**.

Table 6.7.2-1. CWI Wells within the Proposed Route

Unique ID	Within ROW	Surface Elevation	Static Water Elevation	Static Water Level (Depth to Water)	Status	Use
174335	N	942	802	140	Active	Domestic
559642	N	944	804	140	Active	Domestic
758231	N	952	817	135	Active	Domestic
543696	N	979	819	160	Active	Domestic
151471	N	1000	830	170	Active	Domestic
130752	N	978	833	145	Active	Domestic
130773	N	963	818	145	Active	Domestic
505901	N	958	818	140	Active	Domestic
208940	N	970	820	150	Active	Domestic
703310	N	973	823	150	Active	Domestic
601614	N	990	920	70	Active	Domestic
430500	N	1001	936	65	Active	Domestic
122834	N	1020	817	203	Active	Domestic
208929	N	1020	833	187	Active	Domestic

⁶⁴ <https://www.dnr.state.mn.us/watersheds/map.html>

⁶⁵ <https://www.dnr.state.mn.us/groundwater/provinces/index.html>

⁶⁶ <https://www.health.state.mn.us/communities/environment/water/rules/index.html>.

⁶⁷ <https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4>

⁶⁸ <https://cse.umn.edu/mgs/cwi>

Ponds, Lakes Rivers, and Streams

The Applicants reviewed aerial and topographic maps to determine if there are lakes or ponds in the Project Area, along with MDNR hydrography data⁶⁹. The Proposed ROW does not cross any lakes or ponds. Six ponds and no lakes are located wholly or partially within the Proposed Route. One unnamed pond is listed on the MDNR hydrography database and is also clearly visible on both aerial and topographic maps. It is located approximately 380 feet east of MP 4.1 and 690 feet southeast of the southeasterly boundary of the Laketown Substation (**page 3 of Appendix A**).

Five other pond features are located within the Proposed Route and are listed below.

- 310 feet north of MP 0.4 (**page 1 of Appendix A**). MDNR hydrography data notes there is small lake/pond feature. Aerial imagery shows that this area is a depressional cultivated area.
- 170 feet south of MP 0.7 and 790 feet southwest of MP 0.8. There are two ponds visible on aerial maps but not included in the MDNR hydrography data (**page 1 of Appendix A**). These appear to have been constructed by landowners.
- 450 feet north of MP 1.5 (**page 1 of Appendix A**). This small pond is not in the MDNR hydrography dataset but is part of a larger historical feature bisected by the Project Alignment noted in the MDNR hydrography data as a drained wetland.
- 0.4 mile south of MP 3.1 (**page 2 of Appendix A**). This small pond is not in the MDNR hydrography dataset but is part of a larger historical feature now noted in the MDNR hydrography data as a drained wetland.

Rivers and streams are within the Proposed Route at six locations.⁷⁰ The Project Alignment crosses four MDNR rivers and streams, for a total of five crossings.

- Connector (wetland) crossed at MP 1.5 (**page 1 of Appendix A**);
- Unnamed Creek (perennial stream) at MP 3.0 (also a public water, Kittle No. M-055-020-001-001 – see below) (**page 2 of Appendix A**);
- Unnamed perennial stream at MPs 3.4 and 3.8 (**pages 2 and 3 of Appendix A**); and
- Unnamed intermittent stream at MP 4.1 (**page 3 of Appendix A**).

One additional stream segment (Unnamed Creek; Kittle No. M-055-020-001; a perennial stream) is located within the Proposed Route but is not crossed by the Proposed ROW (**pages 1 and 2 of**

⁶⁹ <https://gisdata.mn.gov/dataset/water-dnr-hydrography>

⁷⁰ MDNR Division of Fish & Wildlife – Fisheries Unit. DNR Hydrography Dataset. 5/9/2024. <https://gisdata.mn.gov/dataset/water-dnr-hydrography>

Appendix A) All streams are unnamed tributaries to Chaska Creek which is approximately 1.2 miles to the northwest of MP 0.0 of the Proposed ROW (**Figure 6-5**).

Public Waters

Public Waters are wetlands, water basins and watercourses of significant recreational or natural resource value in Minnesota as defined in Minn. Stat. § 103G.005. The MDNR has regulatory authority over these waters, which are identified on the MDNR Public Waters Inventory maps.⁷¹

There are no public water wetlands or basins located within the Proposed Route or crossed by the Proposed ROW. There are two MDNR public water watercourses within the Proposed Route.⁷² Of these, the Proposed ROW crosses one public water, an Unnamed Creek, Kittle No. M-055-020-001-001, at MP 3.0 (**page 2 of Appendix A**). The other public water (also an Unnamed Creek, Kittle No. M-055-020-001) meanders into and out of the Proposed Route to the north of the Proposed ROW between MPs 0.0 and 2.3, the closest point being 190 feet away (**pages 1 and 2 of Appendix A**). These public waters are tributaries to Chaska Creek, which is also a public water.

Impaired Waters

Section 303(d) of the Federal Clean Water Act requires states to publish, every two years, a list of streams and lakes that are not meeting their designated uses because of various impairments. The list, known as the 303(d) list, is based on violations of water quality standards and listed waters are described as “impaired.” In Minnesota, the MPCA has authority over determining 303(d) waters. MPCA’s 2024 list was approved by the U.S. Environmental Protection Agency in April 2024. There are no impaired waters crossed by the Proposed Route or Proposed ROW. The closest impaired water is Chaska Creek approximately 1.2 miles northeast of MP 0.0 (**Figure 6-5**). Chaska Creek is listed as impaired for aquatic life.⁷³

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 USFWS produced maps of NWI wetlands based on aerial photographs and Natural Resources Conservation Service (NRCS) soil surveys starting in the 1970s. The NWI data were further updated for the state of Minnesota through a multi-agency effort lead by the MDNR and were published in 2019.⁷⁴ Wetlands identified by the Minnesota NWI may be inconsistent with current wetland conditions; however, Minnesota NWI data is the most accurate and readily available

⁷¹ https://www.dnr.state.mn.us/waters/watermgmt_section/pwi/maps.html

⁷² MDNR Division of Ecological and Water Resources. Public Waters (PW) Basin and Watercourse Delineations. 3/13/2024. <https://gisdata.mn.gov/dataset/water-mn-public-waters>

⁷³ Minnesota Pollution Control Agency. 2024 Impaired Waters List. <https://www.pca.state.mn.us/air-water-land-climate/minnesotas-impaired-waters-list>

⁷⁴ https://www.dnr.state.mn.us/eco/wetlands/nwi_proj.html

database of wetland resources within the Project Area and were therefore used to identify wetlands occurring within the Proposed Route.

The Project Route contains limited, discrete wetland communities.⁷⁵ Wetland Cowardin classifications within the Project Route include Palustrine Forested (PFO), Riverine, Unconsolidated Bottom (R2UB); and Palustrine Emergent (PEM). The Proposed ROW crosses 15.2 feet (0.003 mile) of R2UB wetland near MP 1.5 (**page 1 of Appendix A**). The Project's 100-foot-wide ROW is immediately adjacent to a PEM wetland near MP 2.2 but does not intersect the NWI boundary (**page 2 of Appendix A**).

Calcareous Fens

The MCE online review identified a designated calcareous fen⁷⁶ in the vicinity of the Project (**Appendix E**). Calcareous fens are a rare and unique type of peat-accumulating wetland with unique vegetation influenced by its calcium-rich (non-acidic) chemistry, low oxygen and relatively cold soil conditions, and upwelling groundwater hydrology.⁷⁷ Fens are protected under Minn. Stat. § 103G.223, which provides that calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by an activity, unless approved by the MDNR through a fen management plan. Based on the review of the MDNR's Calcareous Fen geospatial dataset,⁷⁸ three points associated with one designated fen are located within 5 miles of the easternmost portion of the Project – the Seminary Fen, located 4.4 to 4.8 miles northeast of MP 0.0. The Laketown Substation is 7.0 miles from the same fen.

Impacts and Mitigation

Groundwater

No impacts to groundwater are anticipated because of construction or operation of the Transmission Line or Laketown Substation. 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.

The MDH provided comments on the Project on April 19, 2024, proposing the following mitigation measures (**Appendix E**):

- Prepare a contact list of well owners with a well located within 200 feet of the Transmission Line for notification in the event of a spill or release of hazardous substance and provide to the MDH; and
- Locate Transmission Lines sufficient distance from existing wells to allow safe and legal access for service or sealing with a drill rig or provide accommodation to well owners.

⁷⁵ <https://gisdata.mn.gov/dataset/water-nat-wetlands-inv-2009-2014>

⁷⁶ Calcareous fens are protected under Minn. Stat. 103G.223 and Minn. Rules Part 8420.0935.

⁷⁷ https://files.dnr.state.mn.us/natural_resources/water/wetlands/calcareous_fen_fact_sheet.pdf

⁷⁸ <https://gisdata.mn.gov/dataset/biota-nhis-calcareous-fens>

Table 6.7.2-1 provides the list of currently known wells located within the Proposed Route based on the CWI. Great River Energy will request well information from landowners along the Transmission Line once a final route is selected, and will coordinate with landowners regarding well access, as needed.

Ponds, Lakes, Rivers, and Streams

There are no lakes or ponds crossed by the Proposed ROW. Waterbody features (creeks, streams) crossed by the Proposed ROW and within the Proposed Route are spaced such that construction activities will avoid impacts to those water resources. Access over or across waterbodies is not anticipated for construction. In addition, the Applicants will utilize erosion and sediment control BMPs (e.g., silt fencing) to mitigate the potential for sediment to reach any waterbodies not crossed by the Project but located within the Proposed Route. No impacts to ponds, lakes rivers or streams will occur at the Laketown Substation location as these features are not present.

Public Waters

The Applicants will not work within the Ordinary High-Water Level of the public water crossed by the Project. Access over or across public waters is not anticipated for construction. In addition, the Applicants will utilize sediment and erosion control BMPs (e.g., silt fencing) to mitigate the potential for sediment to reach any Public Waters from adjacent construction activities. Great River Energy will need to obtain a License to Cross Public Waters from the MDNR to construct and operate the Transmission Line. Great River Energy will apply for this license after the alignment is finalized through the Commission's route permit process. No impacts to Public Waters will occur at the Laketown Substation location as these features are not present.

Impaired Waters

There are no impaired waters within the Proposed Route or crossed by the Proposed ROW, or near the Laketown Substation; therefore, there will be no impacts to impaired waters. Also, the Project is not anticipated to cause a water to be newly listed in the Project Area. There is minimal potential to increase turbidity due to sedimentation from construction activities because of the significant distance to any receiving waters. The Applicants will install erosion and sediment BMPs (e.g., silt fencing) to mitigate the potential for sediments to reach any impaired waters.

Wetlands

Construction of the Project largely avoids wetlands, with the exception of the crossing at MP 1.5. There are no wetlands within the Laketown Substation site. Wetland impact avoidance measures that will be implemented during design and construction of the Transmission Line includes spacing and placing the pole structures at variable distances to span and avoid all wetlands. Based on the Proposed Alignment, Great River Energy does not anticipate pole placement within wetlands. If the final Transmission Line route design cannot enable the Project to span discrete wetland segments, permanent impacts to wetlands will occur where a structure is in the wetland (approximately five to seven feet in diameter of permanent impact per structure).

However, temporary impacts to this wetland will occur, as it will need to be crossed during construction of the Transmission Line. When possible, construction will be scheduled during frozen ground conditions. When construction during frozen ground conditions is not possible, construction mats (wooden or composite) will be used to protect wetland vegetation. Additionally, low ground pressure construction vehicles may be used, which are designed to minimize impact to soils in damp areas. Construction crews will attempt to access wetlands with the least amount of physical impact to the wetlands. Staging or stringing setup areas will not be placed within or adjacent to water resources to the extent practicable. Once construction of the Project is completed, Great River Energy will restore disturbed areas within wetlands to pre-construction conditions.

Great River Energy will implement its Vegetation Management Plan (**Appendix H**) during operations of the Transmission Line. Vegetation maintenance procedures under transmission lines prohibit trees from being established. Existing trees will be removed throughout the entire ROW. There are no trees located within the wetland crossing at MP 1.5 (see **page 1 of Appendix A**), but there will be some clearing adjacent to PEM wetlands near MP 2.2 (see **page 2 of Appendix A**). As described in **Section 2.3.1**, Great River Energy, in consultation with the USACE, St. Paul District, will seek coverage under the Utility Regional General Permit once design of the Transmission Line is complete. Great River Energy has been assigned a Regulatory File No. (MVP-2024-00483-MMG) and a USACE Project Manager (**Appendix E**) for this Project.

Calcareous Fens

The Seminary Fen is located northeast of Chaska and northwest of Shakopee and is associated with the Minnesota River valley; several large housing developments, highways, and industrial and public buildings are between the beginning of the routes and the fen. The MCE review noted that to minimize stormwater impacts, Great River Energy should refer to the MPCA's Minnesota Stormwater Manual to minimize the potential for stormwater impacts (**Appendix E**). The Applicants will obtain coverage under the MPCA Construction Stormwater General Permit for their respective portions of the Project and will follow applicable guidance in the Minnesota Stormwater Manual when designing SWPPPs. Once a final route has been selected, the Applicants will further coordinate with the MDNR to ensure that ground disturbance activities, such as pole placement, do not disrupt potential groundwater hydrology associated with the calcareous fen, as the easternmost portion of the Transmission Line is located within 5 miles of the Project (see **Table 4.3.1-1**). The Laketown Substation is 7.0 miles from the same fen; therefore, no impacts are anticipated.

6.7.3 Flora and Fauna

Flora

Flora can be generally characterized for the Project Area using the Ecological Classification System.⁷⁹ The system was developed by the MDNR and U.S. Forest Service for ecological mapping and landscape classification. The top three tiers of the system consist of Province,

⁷⁹ <https://www.dnr.state.mn.us/ecs/index.html>

Section, and Subsection. The Project falls in the Eastern Broadleaf Forest Province, Minnesota & Northeast Iowa Morainal Section, and Big Woods subsection.

The Eastern Broadleaf Forest Province⁸⁰ serves “as a transition, or ecotone, between semi-arid portions of the state that were historically prairie and semi-humid mixed conifer-deciduous forests to the northeast. The western boundary of the province in Minnesota is sharply defined along much of its length as an abrupt transition from forest and woodland to open grassland.”

The Minnesota & Northeast Iowa Morainal Section⁸¹ “is a long band of deciduous forest, woodland, and prairie that stretches nearly 350 miles (560 km) from Polk County in northwestern Minnesota to the Iowa border.”

The Big Woods subsection⁸² further details flora of the Project Area. Pre-settlement vegetation was comprised of oak woodland and maple-basswood forests with aspen dominated forest located along the western margin of the subsection. The current vegetation and land use is primarily made up of cropland (75%) and pasture (5-10%). The remaining areas of the subsection are comprised of upland forest or wetland. The Proposed ROW will cross about 0.2 mile of forested land, which consists of North-Central Interior Dry-Mesic Oak Forest and Woodland, North-Central Interior Maple-Basswood Forest, and Boreal Jack Pine-Black Spruce Forest.⁸³ Forested areas are shown in the Detailed Route Maps provided in **Appendix A**.

Based on review of available aerial photographs, Great River Energy will clear approximately 5 acres of trees within the 100-foot-wide ROW. Tree clearing will be largely limited to forest edge along Hampshire Road at MP 0.0 to avoid impacts to a residential property across the road (see **page 1 of Appendix A**), and then near MP 2.2 where the Proposed ROW heads north and crosses the Twin Cities and Western Railroad, to stay along a property edge and away from the MDNR public water and wetland to the northeast of the forested area (**page 2 of Appendix A**). Great River Energy designed the Project to avoid clearing the trees near MP 3.8 on the west side of Jersey Avenue, and some minor clearing will be needed within the Laketown Substation site (**page 3 of Appendix A**). All trees are located on private property.

There are no MDNR Scientific and Natural Areas in the Project Area.⁸⁴

Fauna

The Project is in the MDNR Nongame Wildlife – Central Region.⁸⁵ The Central Region provides habitat for non-game species such as tundra swans during migratory periods, red-headed woodpeckers, raptors, trumpeter swans, mice, turtles, frogs, and snakes. Additional species include sandhill cranes, pheasants, deer, turkey, waterfowl, and other small game species.

⁸⁰ <https://www.dnr.state.mn.us/ecs/222/index.html>

⁸¹ <https://www.dnr.state.mn.us/ecs/222M/index.html>

⁸² <https://www.dnr.state.mn.us/ecs/222Mb/index.html>

⁸³ <https://www.usgs.gov/programs/gap-analysis-project/science/land-cover-data-download>

⁸⁴ <https://www.dnr.state.mn.us/maps/compass/index.html>

⁸⁵ <https://www.dnr.state.mn.us/eco/nongame/central.html>

There are no MDNR Wildlife Management Areas (WMAs)⁸⁶ crossed by the Proposed Route. The closest MDNR WMA is the Raguet WMA, which is located approximately 4.75 miles to the east of the Proposed Route. The Minnesota Valley National Wildlife Refuge is located over 2 miles to the southeast along the Minnesota River.

Rare and natural flora and fauna are discussed in more detail in **Section 6.7.5**.

Impacts and Mitigation

The Proposed Route will primarily follow existing road and distribution line corridors or be in agricultural fields, which will minimize impacts to previously undisturbed vegetation in that area. As described in **Section 6.5.2**, Great River Energy will clear approximately 5 acres of trees within the 100-foot-wide Proposed ROW. The ROW will need to be maintained for the safe and reliable operation of the Transmission Line. Mitigation measures for potential impacts to forest resources would be as follows:

- Compensation for the removal of vegetation in the ROW will be offered to landowners during easement negotiations.
- Landowners will be given the option to keep any portions of the trees (e.g., timber, branches, chips, shreds) cut within the easement area.

Great River Energy will implement its Vegetation Management Plan (**Appendix H**) during construction and operation of the Transmission Line.

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

Raptors, waterfowl, and other bird species may be affected by the construction and placement of the transmission lines. Avian collisions are a possibility after the completion of the Transmission Lines. Waterfowl are typically more susceptible to transmission line collision, especially if the transmission line is placed between agricultural fields that serve as feeding areas, or between wetlands and open water, which serve as resting areas. Project design and construction will be done in accordance with Avian Power Line Interaction Committee (APLIC) guidelines. Any eagle or other migratory bird nests discovered during survey of the line or in the land acquisition process will be reported to the USFWS and Great River Energy will adhere to guidance provided.

6.7.4 Invasive Species Management

The movement of construction equipment to, from, and between various work sites has the potential to introduce and/or spread invasive species. Invasive and noxious species in Minnesota

⁸⁶ <https://www.dnr.state.mn.us/maps/compass/index.html>

are regulated by the MDNR⁸⁷ and Minnesota Department of Agriculture.⁸⁸ Known invasive and noxious species that are regulated and within the Project Area include wild parsnip; however, due to disturbed and developed nature of the area it is likely that others are present.⁸⁹

Impacts and Mitigation

To minimize the potential for the introduction or spread of invasive species, the Applicants propose to implement the following BMPs during Project construction:

- All disturbed areas will be revegetated using weed-free seed mixes. If practicable, native plant species will be used to revegetate disturbed areas. Weed-free straw or weed-free hay will be used for erosion control.
- Herbicidal or manual vegetation removal may be implemented to minimize the spread of invasive species where such removal is consistent with easement conditions or landowner restrictions.
- The ROW may be mowed before noxious weeds or invasive species go to seed.
- Construction vehicles will be cleaned and inspected to remove dirt, mud, plants, and debris from vehicles and equipment prior to arriving at, and leaving from, construction sites.
- The Construction Field Representative will oversee BMP installation and effectiveness.

These BMPs have been incorporated into Great River Energy's Vegetation Management Plan (**Appendix H**).

6.7.5 Rare and Unique Natural Resources

Threatened and Endangered Species

Great River Energy submitted a formal Natural Heritage Review Request (2023-00902) on November 27, 2023, through the MDNR's MCE system, which is included in **Appendix E**.

In addition, Great River Energy reviewed the USFWS Information for Planning and Consultation (IPaC) website⁹⁰ for a list of federally threatened and endangered species, candidate species, and designated critical habitat that may be present within the Project Area.

State-Listed Species

Great River Energy's consultant, Merjent, consulted the MDNR Natural Heritage Inventory System data through License Agreement LA 2023-052 on November 27, 2023, and did not identify any features within 1 mile of the Proposed Route. Great River Energy also submitted a review

⁸⁷ <https://www.dnr.state.mn.us/invasives/index.html>

⁸⁸ <https://www.mda.state.mn.us/plants-insects/noxious-invasive-weeds>

⁸⁹ <https://gisdata.mn.gov/dataset/env-invasive-terrestrial-obs>

⁹⁰ <https://ecos.fws.gov/ipac/>

request through the MDNR’s MCE online application review process.⁹¹ The MDNR provided an automated response on November 27, 2023 (see **Appendix E**). The results of the MCE Natural Heritage Review are valid for one year.

The review concluded that that no state-listed endangered or threatened species have been documented in the vicinity of the Project. One state-listed species of special concern, the least darter, a small vertebrate fish species, is noted to have occurred in the Project vicinity. Its habitat is the littoral zone of lakes, small rivers, and streams, and the MCE review recommended avoidance of suitable habitat.

The MCE review also noted the following in the Project area:

- Recommendations for tree removal outside of the June 1 – August 15 window to avoid impacts to Minnesota bat species, including the federally listed northern long-eared bat (NLEB) (see **Federally Listed Species** section, below). During the active season (approximately April-November) bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies, and the pups cannot yet fly.
- The presence of one or more calcareous fens within 5 miles of the Project. Calcareous fens are rare and distinctive peat-accumulating wetlands that are legally protected in Minnesota. Calcareous fens can be affected by nearby activities or even those several miles away. MDNR recommended complying with the MPCA’s Construction Stormwater General Permit and BMPs in MPCA’s General Principles for Erosion Prevention and Sediment Control.⁹² Calcareous fens are discussed in more detail in **Section 6.7.2**.
- Overlap with an area designated by the USFWS as a Rusty Patched Bumblebee High Potential Zone (see **Federally Listed Species** section, below). This federally listed species is likely to be present within suitable habitat in High Potential Zones. From April through October this species uses underground nests in upland grasslands, shrublands, and forest edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. MDNR recommended that Great River Energy conduct a federal regulatory review using the USFWS’ IPaC tool to determine impacts. MDNR also recommended reseeding disturbed soils with native species of grasses and forbs using BWSR or MnDOT seed mixes.

Federally Listed Species

Based on the official species list provided by the USFWS (**Appendix E**), two species federally listed under ESA, one species proposed for listing, one candidate species, and one experimental

⁹¹ Home | Minnesota Conservation Explorer (state.mn.us)

⁹²

https://stormwater.pca.state.mn.us/index.php?title=General_principles_for_erosion_prevention_and_sediment_control_at_construction_sites_in_Minnesota

population (non-essential) have been previously documented within the vicinity of the Project (Table 6.7.5-1). No federally designated critical habitat is present within the Project Area.

Table 6.7.5-1. Federally Protected Species within the Project Area

Common Name	Scientific Name	Federal Status
Northern long-eared bat	<i>Myotis septentrionalis</i>	Endangered
Tricolored bat	<i>Perimyotis subflavus</i>	Proposed Endangered
Whooping crane	<i>Grus americana</i>	Experimental Population Non-Essential
Monarch butterfly	<i>Danaus plexippus</i>	Candidate
Rusty patched bumblebee	<i>Bombus affinis</i>	Endangered

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are not legally protected under the ESA or in the state of Minnesota. The BGEPA, however, protects and conserves bald and golden eagles from take of an individual bird, chick, egg, or nest, including alternate and inactive nests. BGEPA prohibits disturbance that may lead to biologically significant impacts, such as interference with feeding, sheltering, roosting, and breeding or abandonment of a nest. The disturbance distance for active bald eagle nests is 660 feet (0.125 mile).⁹³

The Migratory Bird Treaty Act prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS. In Minnesota, the nesting season for migratory birds is generally from April 1 through September.

Northern Long-eared Bat

The range of the NLEB stretches across much of the eastern and midwestern United States. During summer, the bats roost singly or in colonies under bark, in cavities, or in crevices of both live and dead trees. Males and non-reproductive females may also roost in cooler places such as caves and mines. This species is thought to be opportunistic in selecting roosts, using tree species based on the tree’s ability to retain bark or provide cavities or crevices. It has also been found, rarely, roosting in structures such as barns and sheds. In winter, NLEBs use caves and mines as hibernacula.⁹⁴ Suitable habitat for the NLEB is present within the Proposed Route.

Tricolored Bat

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

During the active season (generally, April 1 to October 31), the species may be found roosting among leaf clusters (live and dead) on living or recently dead deciduous hardwood trees. Roost choice may also vary by region and this species has been observed roosting in eastern red cedar

⁹³ https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines_0.pdf.

⁹⁴ <https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>.

trees and pine needles, as well as within manufactured structures such as barns and bridges.⁹⁵ Suitable habitat for the tricolored bat is present within the vicinity of the Proposed Route.

On September 13, 2022, the USFWS published a proposed rule listing the tricolored bat as federally endangered under the ESA.⁹⁶ On April 1, 2024, The USFWS released draft guidance to describe steps federal and non-federal project proponents may take to address ESA compliance and promote conservation of NLEB and tricolored bat populations.⁹⁷

Whooping Crane

The whooping crane is North America's tallest bird, with males approaching 5 feet when standing erect. The whooping crane adult plumage is snowy white except for black primaries, black or grayish alula (specialized feathers attached to the upper leading end of the wing), sparse black bristly feathers on the carmine crown and malar region (side of the head from the bill to the angle of the jaw), and a dark gray-black wedge-shaped patch on the nape. The whooping crane breeds, migrates, winters, and forages in a variety of habitats, including coastal marshes and estuaries, inland marshes, lakes, open ponds, shallow bays, salt marsh and sand or tidal flats, upland swales, wet meadows and rivers, pastures, and agricultural fields.⁹⁸

The whooping crane is listed as an experimental, non-essential population in the Project Area. An experimental, non-essential population is a population that has been established within its historical range under section 10(j) of the ESA to aid recovery of the species. The USFWS has determined a non-essential population is not necessary for the continued existence of the species. For the purposes of consultation, non-essential experimental populations are treated as a proposed species on private land (no section 7(a)(2) requirements), but federal agencies must not jeopardize their existence (section 7(a)(4)).

Monarch Butterfly

The monarch butterfly is a large butterfly with an approximate 3- to 4-inch wingspan and characterized by bright orange coloring on the wings, with distinctive black borders and veining. The species can be found in a wide variety of habitats including prairies, grasslands, urban gardens, road ditches, and agricultural fields, provided a supply of nectaring plants are available for adult foraging and milkweed plants are present for laying eggs and as a food source for caterpillars.⁹⁹ Suitable habitat for the monarch butterfly may be present within the Proposed Route.

On December 17, 2020, the USFWS published the result of its 12-month review of the monarch butterfly and determined that listing the species under the ESA was “warranted but precluded,” meaning the species meets the criteria for listing as an endangered or threatened species, but the USFWS cannot currently implement the listing because there are other listing actions with a higher priority. The species is now a candidate for listing; candidate species are not protected under the

⁹⁵ <https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus>.

⁹⁶ <https://www.fws.gov/press-release/2022-09/proposal-list-tricolored-bat-endangered>.

⁹⁷ <https://www.fws.gov/sites/default/files/documents/2024-03/draft-consultation-guidance-for-nleb-and-tcb.pdf>

⁹⁸ <https://ecos.fws.gov/ecp/species/758>

⁹⁹ <https://www.fws.gov/species/monarch-butterfly-danaus-plexippus>

ESA.¹⁰⁰ The USFWS intends to reassess the species and determine if it is warranted for listing under the ESA by December 4, 2024. If listing is still warranted and an endangered or threatened status is proposed at that time, a final rule would be published within 12 months of the proposed rule and would be effective within 30 to 60 days around January 2026.

Rusty Patched Bumble Bee

The rusty patched bumble bee is a medium-sized bumble bee; workers and males are characterized by a rusty-colored patch located centrally on the second abdominal segment. Queens lack the species' eponymous rusty patch and can be further distinguished from workers and males by their large size.

Suitable habitat for the rusty patched bumble bee can be found in grasslands, prairies, marshes, agricultural areas, woodlands, and residential parks and gardens. The species is a generalist forager and utilizes both pollen and nectar from a wide variety of plants. Nests are commonly established underground in abandoned rodent burrows or other cavities; however, the species may also use clumps of grass aboveground. Rusty patched bumble bees may choose sites in sandy, moss-covered soils on northwest slopes, and may be found in interior forest areas; areas with these characteristics near forested edges and open fields may be especially important. They may also use other areas, such as compost piles or mole hills.^{101,102} Suitable habitat for the rusty patched bumble bee is present within the Proposed Route.

The USFWS has identified “high potential zones” around current records (i.e., 2007-present); these areas indicate a high probability of rusty patched bumble bee presence. Within these zones, both suitable and unsuitable habitat may be present.

A portion of the Proposed Route between MPs 0.0 to 0.4 and 3.1 to 4.2 (approximately 1.6 miles), along with the Laketown Substation, is within a high potential zone for rusty-patched bumble bees. Based on a desktop assessment and field visit in December 2023, most of this segment of the Proposed Route is currently in agricultural production, which does not provide suitable habitat for the rusty patched bumblebee. There is a small area of non-agricultural land at MP 0.0, near the intersection of Guernsey Avenue and Hampshire Road.

Impacts and Mitigation

The Applicants will continue to coordinate with the MDNR and USFWS to avoid and minimize Project impacts on sensitive species. The following general measures will be used to help avoid or minimize impacts to rare natural resources during and after the completion of the proposed Project:

¹⁰⁰ USFWS. Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Monarch Butterfly. 85 Federal Register 81813 (December 17, 2020).

¹⁰¹ <https://www.fws.gov/species/rusty-patched-bumble-bee-bombus-affinis>.

¹⁰²

<https://www.fws.gov/sites/default/files/documents/Section%207%20guidance%20for%20rusty%20patched%20bumble%20bee%20%28Bombus%20affinis%29.pdf>.

- Constructing within and/or adjacent to an existing ROW where possible, minimizing impacts to habitat.
- Using BMPs to prevent erosion of the soils in the areas of impact.
- Implementing sound water and soil conservation practices during construction and operation of the Project to protect topsoil and adjacent water resources and minimize soil erosion. Practices may include containing excavated material, protecting exposed soil, and stabilizing restored soil.
- Re-vegetating disturbed areas with native species and wildlife conservation species, where applicable if the landowner agrees.
- Implementing raptor protection measures, including following APLIC Avian Safe Design recommendations and placement of bird flight diverters on the line after consultation with the USFWS, if needed.
- Reporting any eagle or other migratory bird nests discovered during survey of the line or in the land acquisition process to the USFWS and adhering to guidance provided by the agency.

State-Listed Species

The MCE review concluded that that no state-listed endangered or threatened species have been documented in the vicinity of the Project. One state-listed species of special concern, the least darter, is noted to have occurred in the Project vicinity. Its habitat is the littoral zone of lakes, small rivers, and streams, and the MCE review recommended avoidance of suitable habitat. The Project will avoid suitable habitat; therefore, no impacts are expected, and no mitigation is proposed.

Northern Long-eared Bat

Based on the USFWS Determination Key (DKey) for the NLEB, in areas with a federal nexus, the Project “may affect, but is not likely to adversely affect” the NLEB. With that determination of effect, a “Consistency Letter” (**Appendix E**) was generated, and the lead federal agency will use the DKey to complete information consultation with USFWS. The Applicants will commit to the minimization and avoidance measures outlined in the DKey; therefore, no impacts are expected, and no mitigation is proposed.

Tricolored Bat

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

direct impacts to individual bats but could result in indirect impacts due to removal of suitable roosting habitat.¹⁰³

Whooping Crane

Whooping cranes are rare in Minnesota,¹⁰⁴ and as most of the Project is in cultivated agricultural lands or along road ROWs, the Project will avoid areas typically preferred as breeding, wintering, or foraging habitat. The Applicants will commit to the general minimization and avoidance measures noted above for all rare species, and therefore impacts to the experimental, non-essential population of the whooping crane are not anticipated and no mitigation is proposed.

Monarch Butterfly

If the USFWS determines the species should be listed and protections for the species coincide with Project planning, permitting, and/or construction, the Applicants will review Project activities for potential impacts to the species and develop appropriate avoidance and mitigation measures. Constructing within and/or adjacent to an existing utility ROW minimizes impacts to suitable habitat for the monarch butterfly.

Rusty Patched Bumble Bee

A portion of the Proposed Route between MPs 0.0 to 0.4 and 3.1 to 4.2, along with the Laketown Substation, is within a high potential zone for rusty-patched bumble bees. Based on a desktop assessment and field visit in December 2023, most of this segment of the Proposed Route is currently in agricultural production, which does not provide suitable habitat for the rusty patched bumblebee.

Temporary impacts will occur during construction including clearing activities and equipment travel down the ROW. There is a small area of non-agricultural land at MP 0.0, near the intersection of Guernsey Avenue and Hampshire Road. Great River Energy anticipates spanning this area to avoid impacts. Therefore, impacts to the rusty patched bumble bee are not anticipated and no additional mitigation is proposed.

6.8 Physiographic Features

6.8.1 Topography

The Proposed Route occurs over generally flat terrain with periodic rolling hills that rise in elevation approximately 30 to 50 feet (**Figure 6-6**).

¹⁰³ <https://ecos.fws.gov/ServCat/DownloadFile/221212>.

¹⁰⁴ Young Naturalists: Standing Tall | March–April 2021 | Minnesota Conservation Volunteer | Minnesota DNR (state.mn.us)

Impacts and Mitigation

Construction of the Project will not alter the topography along the Proposed ROW; therefore, no mitigation is proposed.

6.8.2 Geology

The Big Woods subsection¹⁰⁵ of the Ecological Classification indicates that for bedrock geology the depth of glacial sediment to bedrock varies from 100 to 400 feet. The Project Route is in the southern half of the subsection and, as such, underlying bedrock includes Ordovician and Cambrian sandstone, shale, and dolomite. Cretaceous shale, sandstone, and clay underly the bedrock further to the north.

Impacts and Mitigation

Few geological constraints on design, construction, or operation are anticipated in the Project Area. Based on typical soil types in Minnesota, it is anticipated that the above ground pole will be buried approximately 13 feet into the ground, which will not impact subsurface geologic features. Construction of the Project will not alter the geology along the routes; therefore, no mitigation is proposed.

6.8.3 Soils

The Big Woods subsection¹⁰⁶ of the Ecological Classification states that the soils are dominantly loamy, with textures ranging from loam to clay loam. The parent material is glacial till and are classified primarily as Alfisols. Alfisols are soils developed under forests.

USDA NRCS STATSGO2 data were reviewed to describe soil resources in the Project Area. The STATSGO2 Database¹⁰⁷ is also referred to as the Digital General Soil Map of the United States and is a broad-based inventory of soils for use in broad planning. Soils are organized by general association units which are derived from more detailed soil survey maps. The general association units were determined by transecting or sampling areas on the detailed maps and then statistically expanding the data to characterize the whole map unit. Each association unit represents a distinctive pattern of soils, relief, and drainage, and is a unique natural landscape. Typically, an association consists of one or more major soils and some minor soils. There is one soil association unit that intersects the Proposed Route (**Figure 6-6**) – Lester-Kilkenny-Houghton (s3573). These soils are very deep, well drained soils that formed in calcareous, loamy till.¹⁰⁸

Impacts and Mitigation

Potential impacts of construction are compaction of the soil associated with construction equipment traffic and exposing soil to wind and water erosion. Soil compaction within wetlands

¹⁰⁵ <https://www.dnr.state.mn.us/ecs/222Mb/index.html>

¹⁰⁶ <https://www.dnr.state.mn.us/ecs/222Mb/index.html>

¹⁰⁷ <https://www.nrcs.usda.gov/resources/data-and-reports/description-of-statsgo2-database>

¹⁰⁸ Official Soil Series Descriptions (OSD) | Natural Resources Conservation Service (usda.gov)

would be mitigated by construction during frozen conditions or installation of construction mats, and as described in **Section 6.5.1**, the restoration contractor would take measures to alleviate soil compaction where needed. As described in **Section 5.1.5**, ground disturbance and soil exposure would be primarily limited to the pole locations, which would typically consist of a hole 10 to 20 feet deep and 36 to 60 inches in diameter for each pole. Impacts to physiographic features should be minimal during and after installation of the Transmission Line structures, and these impacts will be short term. There should be no long-term impacts resulting from this Project.

As discussed in **Section 2.3.2**, Great River Energy will obtain a NPDES construction stormwater permit from the MPCA and will prepare a SWPPP for Transmission Line construction, and MVEC will obtain coverage under the NPDES construction stormwater permit from the MPCA and will prepare a SWPPP for construction of the Laketown Substation. Erosion and sediment control methods and BMPs will be utilized to minimize runoff during construction. Such BMPs may include but are not limited to the installation of sediment barriers (silt fence, straw bales, bio-logs), filter socks, mulch, upslope diversions, slope breakers. As described in **Sections 5.1.6 and 5.2.4**, exposed soil will also be revegetated as soon as possible to minimize erosion. Great River Energy will also develop a Vegetation Management Plan for this Project (**Appendix H**).

Long-term impacts to soils are not anticipated, and no impact from Project operations are expected.

6.9 Summary of Potential Environmental Effects

The Applicants have analyzed the potential environmental effects of the proposed Project. Generally, Project effects are anticipated to be temporary and/or minor. No homeowners will be displaced by the Project. All land impacted during construction will be restored to the extent possible, and landowners will be compensated for any crop losses due to construction operations or structure and conductor placement. The maximum EFs associated with the new line (1.7 kV/m) will be significantly less than the maximum levels permitted by state regulators (8 kV/m). No stray voltage issues are anticipated. Similarly, Project facilities will comply with applicable noise standards. The Project will parallel existing roads and electric distribution lines for much of its length. The routing of the Project minimizes tree clearing to the extent practicable and will require the permanent removal of approximately 5 acres of trees within its ROW. There are minimal wetlands within the proposed Transmission Line ROW; Great River Energy will span all wetlands. Unavoidable impacts include a change in aesthetics and the presence of additional traffic during construction on the local roads. These and other potential environmental effects, as well as applicable avoidance and minimization measures, are described in more detail in **Chapter 6** of this Application.

DOC-EERA is responsible for environmental review of the Project and will prepare an EA that analyzes the Project's potential environmental impacts.

6.10 Unavoidable Impacts

Minn. R. 7850.1900, subpart 3(G) requires that an application discuss "human and environmental effects that cannot be avoided if the facility is approved at a specific site or route." The Project will be designed, constructed, and operated using processes and procedures, as described in this Application, which will avoid, minimize, and mitigate potential impacts. There will nevertheless

be nominal impacts that cannot be avoided. The nominal impacts from construction activities may include temporary soil compaction and erosion, short-term traffic delays, vegetative clearing, temporary and permanent visual impacts, habitat loss, temporary disturbance and displacement of wildlife, and loss of land use for other purposes. The nominal impacts from operations will include the continued maintenance the ROW to allow for safe and reliable operation of Project facilities, conversion of agricultural and open space land, visual impacts, interference with AM radio signals, and individual wildlife impacts from habitat reduction and avian collisions.

The Project will require only minimal commitments of resources that are irreversible and irretrievable. Irreversible commitments of resources are those that result from the use or destruction of a specific resource that cannot be replaced within a reasonable timeframe. Irretrievable resource commitments are those that result from the loss in value of a resource that cannot be restored after the action. For the Project, those commitments that do exist are primarily related to construction. Construction resources will include aggregate resources, concrete, steel, and hydrocarbon fuel. During construction, vehicles necessary for these activities will be deployed on site and will need to travel to and from the construction area, consuming hydrocarbon fuels. Other resources will be used in Laketown Substation construction, pole construction, pole placement, and other construction activities.

APPLICATION OF RULE CRITERIA

7 APPLICATION OF RULE CRITERIA

7.1 Route Permit

According to Minn. Stat. § 216E.02, subd. 1, it is the policy of the state of Minnesota to locate HVTLs in an orderly manner that minimizes adverse human and environmental impacts and ensures continuing electric power system reliability and integrity. The Commission has promulgated standards and criteria for issuing Route Permits (Minn. R. 7850.4000). That rule provides that the Commission shall issue Route Permits for HVTLs that are consistent with state goals to conserve resources, minimize environmental impacts and impacts to human settlement, minimize land use conflicts, and ensure the state's electric energy security through efficient, cost-effective transmission infrastructure. The Project addresses these criteria:

- The Project is consistent with state goals to conserve resources, and will minimize human and environmental impacts, thus avoiding and minimizing potential additional impacts to the extent practicable.
 - Much of the Project is proposed to be routed along existing distribution or road ROWs, which will avoid and minimize potential impacts on vegetation and wildlife.
 - The Applicants will design the final alignment and Laketown Substation footprint to minimize placement of structures in wetlands and waterbodies.
 - Carver County and the City of Victoria support Great River Energy's Proposed Route as compared to other route alternatives considered because it accommodates the growing population in these areas while not impacting planned highway and commercial/industrial development. The Applicants will continue to coordinate with Carver County and the City of Victoria during development of the Project.
 - Great River Energy will coordinate with the USFWS and MDNR to avoid and minimize impacts to federal and state listed resources, respectively.
 - Great River Energy will develop its final alignment based on the permitted route to further avoid and minimize impacts to environmental resources, in compliance with federal, state, and local regulations and in coordination with applicable federal, state, and local agencies.
- The Applicants will implement construction, restoration, operation, and maintenance procedures, and BMPs to further avoid and minimize impacts to environmental resources. The Project will minimize impacts on human settlement and other land use conflicts because:

- Much of the Project is proposed to be routed along existing distribution or road ROWs, which will avoid creating new corridors on most parcels.
- Great River Energy will develop its final alignment based on landowner and stakeholder input to avoid and minimize impacts to residents and business owners along the final route.
- The Applicants will coordinate with County and City Highway/Road departments to minimize impacts to traffic and develop traffic plans during construction.
- Disturbed areas will be restored to their original condition to the maximum extent practicable and Great River Energy will negotiate compensation with landowners for unavoidable impacts.
- The Project is consistent with state goals to ensure electric energy security because it supports bringing reliable electric power to a new MVEC distribution substation, which will serve the growing local community.

7.2 Conclusion

The Applicants respectfully request that the Commission issue a Route Permit for the proposed Project in Carver County, Minnesota.