DAIRYLAND POWER COOPERATIVE

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

BEAVER CREEK TRANSMISSION LINE PROJECT FILLMORE COUNTY, MN

MPUC DOCKET NO. ET3/TL-24-95

August 2024

DAIRYLAND POWER
COOPERATIVE
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Contents

List of Tables

List of Figures

List of Appendices

Glossary of Terms

Term	Definition
ALJ	Administrative Law Judge
APLIC	Avian Powerline Interaction Committee
Application	Route Permit Application
ATV	All-Terrain Vehicle
ATWS	Additional Temporary Workspace
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
Census	United States Census Bureau
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
CWA	Clean Water Act
Dairyland, or the Applicant	Dairyland Power Cooperative
dBA	A-Weighted Decibel
DOC	Department of Commerce
EA	Environmental Assessment
EERA	Department of Commerce, Energy Environmental Review and Analysis
EF	Electric Fields
EJ	Environment Justice
EMF	Electric and Magnetic Fields
EQB	Minnesota Environmental Quality Board
ESA	Endangered Species Act
FAA	Federal Aviation Administration
HDR	HDR Engineering, Inc.
HVTL	High Voltage Transmission Line
IMDs	Implantable medical devices
IPaC	USFWS Information, Planning, and Consultation
IUB	Iowa Utilities Board
kV	Kilovolt
kV/m	kV per Meter
L_{10}	Noise level exceeded 10 percent of the time.
L_{50}	Noise level exceeded 50 percent of the time.
LEP	Limited English Population
MBS	MnDNR Minnesota Biological Survey
MDA	Minnesota Department of Agriculture
MF	Magnetic Fields
mG	milliGauss

Term	Definition
MHz	Megahertz
MIAC	Minnesota Indian Affairs Council
MiEnergy	MiEnergy Cooperative
Minn. R.	Minnesota Rules
Minn. Stat. §	Minnesota Statutes Section
MISO	Midcontinent Independent System Operator, Inc.
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MP	Milepost
MPCA	Minnesota Pollution Control Agency
mph	Miles per Hour
MWs	Megawatts
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAC	Noise Area Classification
NESC	National Electric Safety Code
NIEHS	National Institute of Environmental Health Sciences
NLEB	Northern Long-Eared Bat
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NPC	Native Plant Community
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSRs	Noise-sensitive Receptors
NWI	National Wetlands Inventory
OSA	Office of the State Archeologist
PEM	Palustrine Emergent
PM10	Particulate matter equal to or less than 10 microns in diameter.
PM2.5	Fine particulate matter equal to or less than 2.5 microns in diameter.
ppb	Parts Per Billion
Project	Beaver Creek Transmission Line Project
Proposed Alignment	Proposed Alignment is used to refer to the centerline location of the transmission line and structures. See **Sections 1.4 and 3.1.1**.
Proposed Route or Project Route Width	The Proposed Route is a larger area that is inclusive of the Proposed Alignment. More information on the Proposed Route can be found in **Section 1.4 and 3.1.3**.
Rejected Route Alternative	A Rejected Route Alternative is a routing segment considered and rejected by the Applicant for the Project (see **Section 6.2**).
Route Width	The Route Width is a standard 500 feet for most of the Project, increasing in some areas up to 1,320 feet wide to allow for additional route study and the potential need to make minor modifications to the Proposed Alignment in these areas (see **Section 1.4**).
ROW	Right-of-way

Term	Definition
RUS	Rural Utilities Service
SDS	State Disposal System
SHPO	State Historic Preservation Office
SO_2	Sulfur Dioxide
SWCD	Soil and Water Conservation District
UDP	Unanticipated Discoveries Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VMP	Vegetation Management Plan
VOC	Volatile Organic Compounds
WMA	Wildlife Management Area

Authority	Required Information	Location in Application
Minn. Stat. § 216E.04, subd. 2(3); Minn. R. 7850.2800, subp. 1(C)	**Alternative Review of Applications.** Alternative review is available for **high-voltage transmission lines (HVTLs) between 100 and 200 kilovolts.**	2.2, 3.1
Minn. Stat. § 216E.04, subd. 4	**Notice of application.** Upon submission of an application under this section, the applicant shall provide the same notice as required by section 216E.03, subdivision 4.	To be provided
Minn. R. 7850.2800, subp. 2	**Notice to PUC.** An applicant for a permit for one of the qualifying projects in subpart 1, who intends to follow the procedures of parts 7850.2800 to 7850.3700, shall notify the PUC of such intent, in writing, at least ten days before submitting an application for the project.	Appendix D
Minn. R. 7850.3100	**Contents of Application (Alternative Review).** The applicant shall include in the application the same information required in part 7850.1900, except the applicant need not propose any alternative sites or routes to the preferred site or route. If the applicant has rejected alternative sites or routes, the applicant shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them.	4.2
Minn. R. 7850.1900, subp. 2	**Route permit for HVTL.** An application for a route permit for a high voltage transmission line shall contain the following information:	--
	A. a statement of proposed ownership of the facility at the time of filing the application and after commercial operation;	3.5
	B. the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated;	1.3
	C. at least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference;	N/A per Minn. R. 7850.3100

	D. a description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line;	3.1
	E. the environmental information required under subpart 3;	See below
	F. identification of land uses and environmental conditions along the proposed routes;	6
	G. the names of each owner whose property is within any of the proposed routes for the high voltage transmission line;	Appendix E
	H. United States Geological Survey topographical maps or other maps acceptable to the commission showing the entire length of the high voltage transmission line on all proposed routes;	Appendix A
	I. identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share the right-of- way with the proposed line;	1.4, 3.1.1, Appendix A
	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;	6.3.4
	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;	3.3
	L. a description of possible design options to accommodate expansion of the high voltage transmission line in the future;	3.2.8
	M. the procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line;	5.1
	N. a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line; and	2.3
	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. 7850.3100	Identification of rejected route alternatives and explanation for rejection.	4.2

Minn. R. 7850.1900, subp. 3	**Environmental information.** An applicant for a site permit or a route permit shall include in the application the following environmental information for each proposed site or route to aid in the preparation of an environmental impact statement:	--
	A. a description of the environmental setting for each site or route;	6.1
	B. a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services;	6.2
	C. a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;	6.4
	D. a description of the effects of the facility on archaeological and historic resources;	6.5
	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;	6.3.5, 6.6.4, 6.6.5
	F. a description of the effects of the facility on rare and unique natural resources;	6.6.7
	G. identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route; and	6.8
	H. a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures.	6, Appendices F, I
Minn. R. 7850.3300; Minn. R. 7850.2100, subp. 2; Minn. R. 7850.2100, subp. 4; Minn. R. 7850.2100, subp. 5.	**Notice of Project.** Notification to persons on PUC's general list, to local officials, and to property owners. Content of notice governed by Minn. R. 7850.2100, subp. 3. **Publication of notice.** Within 15 days after submission of an application, the applicant shall publish notice in a legal newspaper of general circulation in each county in which a site, route, or any alternative is proposed to be located that an application has been submitted and a description of the proposed project. The notice must also state where a copy of the application may be reviewed. **Confirmation of notice.** Within 30 days after providing the requisite notice, the applicant shall submit to the PUC documentation that all notices required under this part have been given. The	To be provided; to be published.

	applicant shall document the giving of the notice by providing the PUC with affidavits of publication or mailing and copies of the notice provided.	
Minn. R. 7850.4100	**Factors Considered.** In determining whether to issue a permit for a large electric power generating plant or a high voltage transmission line, the commission shall consider the following:	--
	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;	6.4
	D. effects on archaeological and historic resources;	6.5
	E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;	6.6
	F. effects on rare and unique natural resources;	6.6.7
	G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;	3.2
	H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;	3.1
	I. use of existing large electric power generating plant sites;	N/A
	J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;	3.1
	K. electrical system reliability;	1.1, 4.1.2
	L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;	3.3
	M. adverse human and natural environmental effects which cannot be avoided; and	6.8
	N. irreversible and irretrievable commitments of resources.	6.8
Minn. R. 7850.4300, subps. 1, 2	**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	4.1, 4.2

	alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line.	
Minn. Stat. § 216E.03, subd. 7 (applicable per § 216E.04, subd. 8)	**Considerations in designating sites and routes.** (a) The commission's site and route permit determinations must be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure. (b) To facilitate the study, research, evaluation, and designation of sites and routes, the commission shall be guided by, but not limited to, the following considerations:	4.1
	(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 baseline 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;	6, 6.2.3, 6.3.4
	(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;	3.2.8, 6.2.5
	(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;	N/A
	(4) evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;	N/A
	(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;	6.2.4, 6.4
	(6) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;	6.8

	(7) evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2;	4.2
	(8) evaluation of potential routes that would use or parallel existing railroad and highway rights-of- way;	4.2
	(9) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;	6.4.1
	(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;	3.4
	(11) evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved;	6.8
	(12) when appropriate, consideration of problems raised by other state and federal agencies and local entities;	2.3, Appendix C
	(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;	1.1, 3
	(14) evaluation of the proposed facility's impact on socioeconomic factors; and	6.2.4
	(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.	3.3, 5.4

Dairyland Power Cooperative (Dairyland, or the Applicant) submits this Route Permit Application (Application) to the Minnesota Public Utilities Commission (Commission) for a Route Permit to construct the proposed Beaver Creek Transmission Line Project (Project). The Project consists of a new 161 kilovolt (kV) high voltage transmission line and associated facilities.

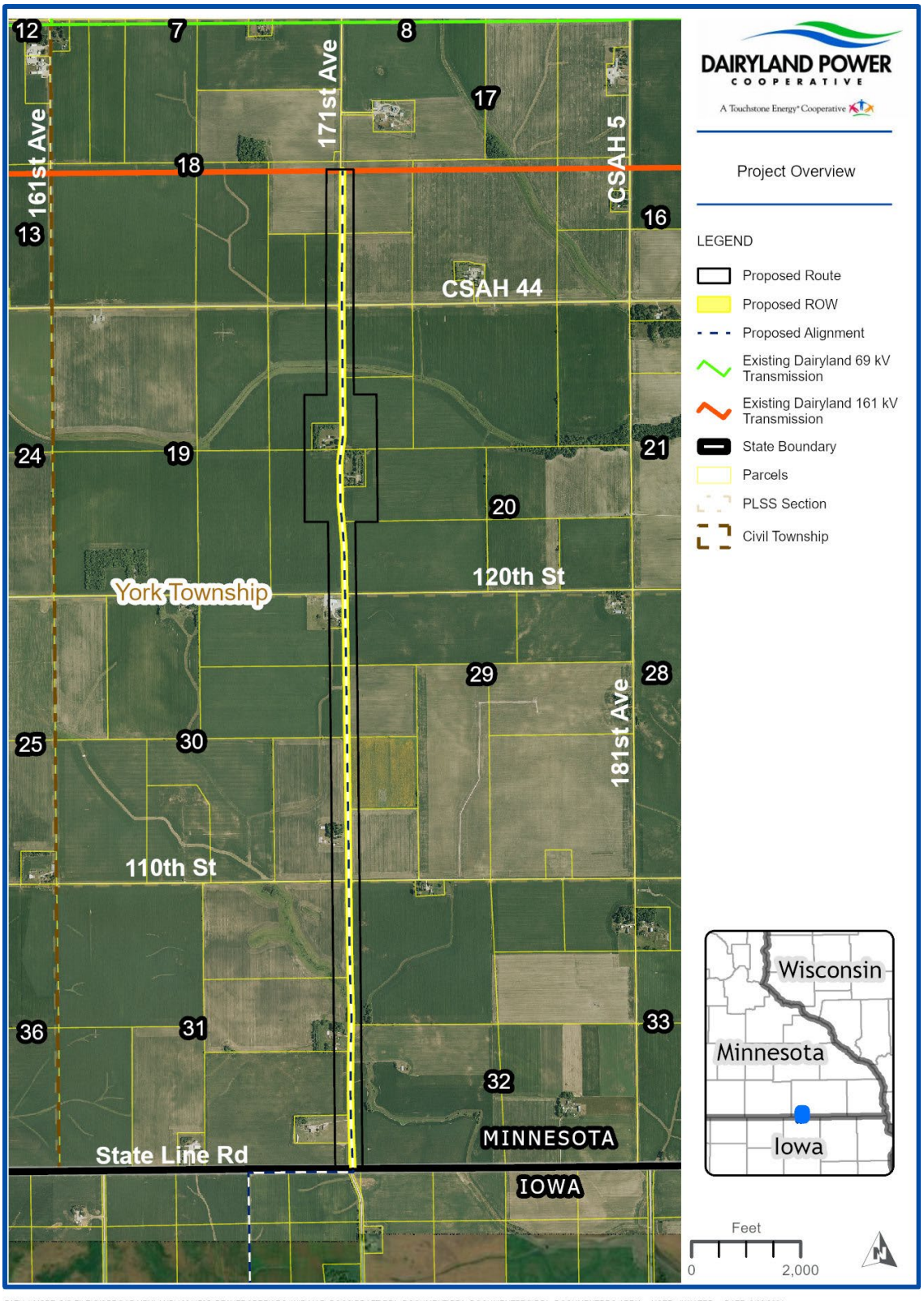
The Project will start at the intersection of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line and 171st Avenue in York Township in Fillmore County, Minnesota, travel south and cross the Minnesota-Iowa border at the southern border of York Township, continue westerly and southerly through Howard County, Iowa and terminate at a new proposed 161 kV switchyard to be constructed in Chester Township, Howard County, Iowa. The Minnesota portion of the proposed Project would be approximately 3.5 miles long and will be located entirely in York Township in Fillmore County, Minnesota. For ease of review of this Application, **Table ES.1** below identifies the terminology used to describe the Project throughout this Application:

Table ES.1 Project Terminology

Term	Definition
Project	Approximately 3.5-mile long proposed 161 kV transmission line and associated facilities located in York Township, Fillmore County, Minnesota.
Proposed Route	The Proposed Route for the Project is generally 500-feet-wide, although Dairyland is requesting a widened route width, up to 1,320 feet wide, in some areas.
Right-of-Way (ROW)	The proposed ROW for the Project refers to the physical land area along the Proposed Alignment (centerline) that is needed to construct and operate the facility; this is the area that will be under easement for the Project and maintained by Dairyland. Dairyland will require easements which allow for a ROW width of 100 feet (typically 50 feet of each side of the Proposed Alignment).
Proposed Alignment	The Proposed Alignment refers to the location of the high voltage transmission line and transmission line structures (i.e., the centerline) within the ROW.

Figure ES-1 shows the Project. The Project is also shown on **Appendix A, Map 1**.

Figure ES-1 Project Overview



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1.1 Introduction and Need Summary

Dairyland submits this Application to the Commission for a Route Permit to construct the proposed Project. The Project consists of a new 161 kV high voltage transmission line and associated facilities.

The Project will start at the intersection of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line and 171st Avenue in York Township in Fillmore County, Minnesota, travel south and cross the Minnesota-Iowa border at the southern border of York Township, continue westerly and southerly through Howard County, Iowa and terminate at a new proposed 161 kV switchyard to be constructed in Chester Township, Howard County, Iowa. The Minnesota portion of the proposed Project would be approximately 3.5 miles long and will be located entirely in York Township in Fillmore County, Minnesota. The Project is shown on **Appendix A, Map 1**.

The Project was identified as part of the 2017 August West Area Midcontinent Independent System Operator (MISO) Generation Interconnection Study (**Appendix B**)[1] as being needed to allow the proposed generators studied in the 2017 August West Area Study Cycle to interconnect to the transmission system, to mitigate negative impacts to the thermal and voltage performance of the regional transmission system, and to increase the capability of proposed generators in future MISO study cycles to be interconnected to the transmission system. Accordingly, Dairyland proposes the northern endpoint in York Township based on current MISO queue requests for renewable generation in that area, along with the renewable resources generally available in that region. As detailed in the report, the Project is needed for the generation project studied to interconnect (see **Appendix B**).

1.2 Dairyland Organization and System Background

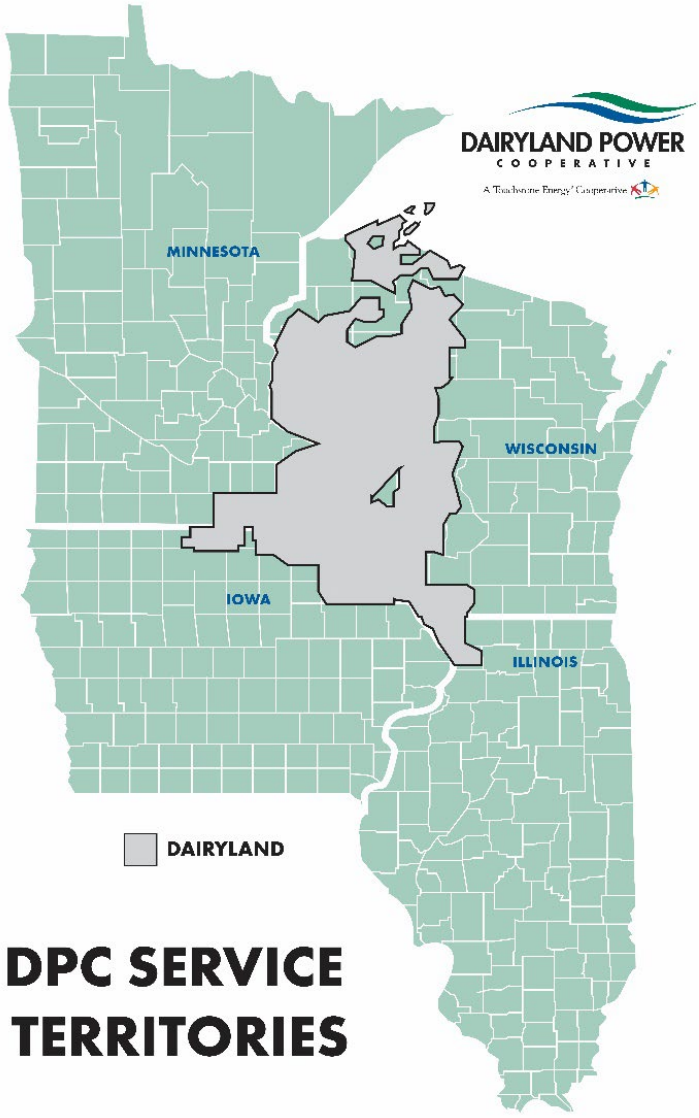
Dairyland is a not-for-profit generation and transmission electric cooperative formed in December 1941 and based in La Crosse, Wisconsin. Dairyland provides the wholesale electrical requirements to more than 700,000 people through its 24 distribution cooperatives and 27 municipal utilities in a four-state area including Wisconsin, Minnesota, Iowa, and Illinois. This includes MiEnergy Cooperative (MiEnergy), the distribution cooperative serving cooperative members in the area in which the Project will be located. Dairyland's transmission system is interconnected directly with neighboring transmission owners, and Dairyland is a member of the Midwest Reliability Organization and MISO. Dairyland and its member distribution cooperatives' mission is to power its communities and empower cooperative members to improve the quality of their lives. Dairyland's service area is shown on **Figure 1-1**.

Dairyland generates electricity by using both traditional and renewable energy resources to provide safe, reliable, and affordable electricity. Dairyland's power plants have the capability to generate more than 1,038 megawatts (MWs), of which approximately 18 percent is provided from renewable sources (i.e., wind, solar, hydroelectric power, and biomass generation). In addition,

[1] The MISO Definitive Planning Phase 2017 August West Area Study Phase 3 Final Report is included as **Appendix B**. The Project is identified in the report as "161kV Reconfigure into J898 POI Substation" (see sections 1.2 and 1.3).

Dairyland has power purchase agreements for 207 MWs of wind, 193 MWs of solar, and 78 MWs of hydroelectric energy in Iowa, Illinois, Minnesota, South Dakota, and Wisconsin. Dairyland owns over 3,300 miles of transmission line (34.5 kV and higher) and 232 substations in Minnesota, Wisconsin, Iowa, and Illinois.[2]

Figure 1-1 Dairyland Service Territory



[2] https://www.dairylandpower.com/sites/default/files/PDFs/Annual%20Reports/AnnualReport-DPC-2022-FINAL-PROOF.pdf.

1.3 Project Contact

Dairyland is the requested permittee for the Project. Dairyland's address is:

Dairyland Power Cooperative
3200 East Avenue South
P.O. Box 817
La Crosse, WI 54602-0817

The contact persons for the Project and this Application are:

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The Project e-mail address is beavercreek@dairylandpower.com.

1.4 Proposed Project and Location

Dairyland proposes to construct and operate a new 161 kV high voltage transmission line and associated facilities. The Project will start at the intersection of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line and 171st Avenue in York Township, travel south and cross the Minnesota-Iowa border at the southern border of York Township, continue westerly and southerly through Howard County, Iowa and terminate at a new proposed 161 kV switchyard[3] to

[3] A switchyard operates at a single voltage level and acts as a single junction point for multiple transmission lines. As opposed to a substation which has a transformer operating at multiple voltage levels, a switchyard does not have a transformer and operates at a single voltage level.

be constructed in Chester Township, Howard County, Iowa. The Minnesota portion of the proposed Project would be approximately 3.5 miles long and will be located entirely in York Township in Fillmore County, Minnesota. The Project is discussed in more detail in **Section 3**. The Project was identified as part of the 2017 August West Area MISO Generation Interconnection Study as being needed to allow the proposed generators studied in the 2017 August West Area Study Cycle to be interconnected to the transmission system, to mitigate negative impacts to the thermal and voltage performance of the regional transmission system, and to increase the capability of proposed generators in future MISO study cycles to be interconnected to the transmission system.

The term Proposed Alignment is used to refer to the location of the transmission line and transmission structures (otherwise known as the centerline) within the ROW. Dairyland proposes that the Proposed Alignment follow an approximately 3.5-mile route in Minnesota starting at the intersection of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line and 171st Avenue in York Township in Fillmore County to the Minnesota-Iowa border at the southern border of York Township, and terminating at a new proposed 161 kV switchyard to be constructed in Chester Township, Howard County, Iowa. Dairyland will use single-pole steel structures. All structures will be self-supporting; therefore, no guying will be required. Typical pole heights will range from 75 to 140 feet above ground and spans between poles will range from 300 to 1,000 feet. The transmission line will be located within a 100-foot-wide right-of-way (ROW) easement that Dairyland will obtain to operate the transmission line. The 100-foot-wide ROW easement is centered on the Proposed Alignment (or 50 feet on either side of the transmission line).

The Project Proposed Route is a larger area that is inclusive of the Proposed Alignment. Dairyland requests a Route Width of 500 feet. Dairyland is requesting a wider Route Width in some areas, up to 1,320 feet wide, to allow for additional route study and the potential need to make minor modifications to the Proposed Alignment within the route authorized by the Commission.

The Proposed Route, Proposed ROW, and Proposed Alignment are shown on **Appendix A, Map 1**. **Appendix A, Maps 2a and 2b** are a set of two detailed aerial maps depicting the Proposed Route and Proposed Alignment.

The Minnesota portion of the Proposed Route (including the Proposed Alignment) is located entirely in York Township in Fillmore County, Minnesota, and in the Township, Ranges, and Sections as shown in **Table 1.1**.

Table 1.1 Township, Range and Sections Crossed by Proposed Route

Township	Range	Sections
101	12	17,18,19,20,29,30,31,32

The Project is co-located[4] with other road or utility ROWs for 3.5 miles, or 100 percent of its length. MiEnergy has existing overhead distribution lines within the Project Route Width. Dairyland plans to approach MiEnergy in regard to burying these lines where they are overtaken

[4] Co-location is defined as any road or utility located within 200 feet either side of the Proposed Alignment.

by the Project, rather than attach them to the new 161 kV structures installed by Dairyland. This work will be undertaken by MiEnergy and will not be conducted or directed by Dairyland. Dairyland will be responsible for reimbursing MiEnergy for costs incurred to bury their distribution lines where deemed necessary. For reference, the location of existing distribution is depicted in **Appendix A, Maps 2a and 2b**.

The beginning of the Project and Proposed Alignment (milepost [MP] 0.0) will be at the intersection of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line and 171st Avenue in York Township, Fillmore County, Minnesota. Existing Dairyland structure LQ8A-111 will be removed and replaced with a new starting structure for the Project. New conductors are to run from this structure to the south along the Proposed Alignment. Existing LQ8A conductors approaching this structure from the east will be attached to the new starting structure. Approximately four miles of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line running westerly from the new structure at 171st Avenue to an existing switch pole located at 131st Avenue in Beaver Township, Fillmore County, Minnesota is to be retired following construction of the Project (**Appendix A, Map 3**). The existing switch pole at 131st Avenue is the current intersection of Dairyland's 161 kV LQ8A and 161 kV LQ30 transmission lines.

The Proposed Alignment will continue southerly along 171st Avenue, cross the Minnesota and Iowa border, continue into Iowa and terminate at a new 161 kV switchyard facility to be constructed in Howard County, Iowa. The switchyard will serve as a new interconnection point for the existing 161 kV LQ8A and 161 kV LQ30 transmission lines and as the interconnection point for wind energy, effectively relocating the intersection of the 161 kV LQ8A and 161 kV LQ30 transmission lines from present location in Minnesota to new location in Iowa.

1.5 Project Schedule and Cost

Dairyland estimates the Project will cost approximately $4 million dollars, as further discussed in **Section 3.3**. Dairyland anticipates commencing construction of the Project as early as Q4 2025, as further discussed in **Section 3.4**.

1.6 Potential Environmental Impacts

Dairyland analyzed the potential environmental impacts from the Project (see **Section 6)** and anticipates that no significant unavoidable impacts will result from construction of the Project. Dairyland has selected a route that meets the Commission's routing requirements and minimizes or avoids human and environmental impacts. Given the co-location with existing ROWs for 100 percent of the approximately 3.5-mile Project, the potential environmental impacts from the Project are anticipated to be limited to temporary construction impacts and permanent impacts where new ROW is needed. Dairyland will continue to coordinate with federal, state, and local agencies to obtain the permits and authorizations needed to construct the Project, as well as to address natural resource concerns.

The Department of Commerce (DOC), Energy Environmental Review and Analysis (EERA) is responsible for environmental review of the Project. The Route Permit rules for the Alternative

Process require preparation of an Environmental Assessment (EA) for the Project that analyzes potential environmental impacts from the Project.[5]

1.7 Public Input and Involvement

Dairyland employs various engagement methods to provide information about the Project to the public and federal, state, and local agencies, Tribal Nation representatives, and non-government organizations. These engagement methods include in-person stakeholder meetings, newspaper ads, direct mailings, a dedicated email, an online map, and Project webpages (https://dairylandpower.com/beaver-creek-minnesota and https://dairylandpower.com/beaver-creek-iowa). Additional information regarding the public outreach efforts conducted prior to the filing of this Application is provided in **Section 7**. Copies of Project correspondence is included in **Appendix C**. This includes pre-application letters sent to federal, state, and local units of government and Tribal nations to introduce the Project and serve as notice of the opportunity for a pre-application consultation meeting under Minnesota Statutes Section (Minn. Stat. §) 216E.03, subd. 3a.

[5] Minn. R. 7850.3700.

2.1 Certificate of Need Not Required

Minn. Stat. § 216B.243, subd. 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...." On May 19, 2024, the Minnesota Legislature approved the Agriculture and Energy Omnibus Bill (S.F. 4942). With respect to high-voltage transmission lines, the bill amends the definition of "large energy facility" to mean those with a capacity of 100 kV or greater and a length of more than 10 miles in Minnesota and a transmission of 300 kV or greater and a length of more than one mile in Minnesota.[6] Governor Walz signed the bill into law on May 24, 2024, and the amended definition of "large energy facility" became effective the day following final enactment.[7] Accordingly, because the Project is not a "large energy facility" as defined by statute, a Certificate of Need is not required for the Project.

2.2 Route Permit

Minn. Stat. § 216E.03, subd. 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 kV or more and is greater than 1,500 feet in length." Because the Project consists of a 161 kV transmission line that is greater than 1,500 feet in length, a Route Permit from the Commission is required.

This Application is submitted under the alternative permitting process set forth in Minn. Stat. § 216E.04 and Minnesota Rules (Minn. R.) 7850.2900 to 7850.3700 and 7850.4000 to 7850.4400. The Project qualifies for review under the alternative permitting process authorized by Minn. R. 7850.2800, subp. 1(C) because it is a high voltage transmission line of between 100 and 200 kilovolts.

Dairyland notified the Commission on July 30, 2024, that it intended to use the alternative permitting process for the Project. This letter complied with the requirements of Minn. R. 7850.2800, subp. 2, to notify the Commission of this election at least 10 days prior to applying for a Route Permit. A copy of this letter is attached as **Appendix D**.

The Commission has adopted rules for the consideration of Route Permit applications in Minn. R. Ch. 7850. Minn. R. 7850.1900, subparts 2 and 3, set forth the information that must be included in a Route Permit Application. A Route Permit completeness checklist is provided in earlier in the Application with cross references indicating where the information required by Minnesota statutes and rules can be found in this 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, EERA is required to prepare an EA (Minn. Stat. § 216E.04,

[6] 2024 Minn. Sess. Law Serv. Ch. 126 (S.F. 4942) (amending Minn. Stat. § 216B.2421, subd. 2(3)).

[7] *See* https://www.revisor.mn.gov/bills/bill.php?f=SF4942&y=2024&ssn=0&b=senate.

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 2.2.3**. 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. Ch. 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, Dairyland 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, and to the tribal government and local government units whose jurisdictions are reasonably likely to be affected by the Proposed Project. In addition, Dairyland will publish notice in a local newspaper in Fillmore County 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 *24-95* and on the EERA webpage. The Application will also be available on Dairyland's transmission projects webpage at: https://dairylandpower.com/beaver-creek-minnesota.

As required by Minn. R. Ch 7850.2100, subp. 2.C, Dairyland has prepared a project mailing list that contains the information for all persons who own property adjacent to or within the Proposed Route (see **Appendix E**).

2.2.2 Environmental Review Process

Upon acceptance of an Application for a Route Permit as complete, 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 EERA must follow in preparing the EA is set forth in Minn. R. 7850.3700. This process requires the Commission and 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. Dairyland, 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. EERA will prepare the EA based on the scoping decision. Upon completion of the EA, 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, https://www.eqb.state.mn.us/eqb-monitor. EERA will also send notice to persons

who have placed their names on the Project mailing list. A copy of the EA will be available electronically through eDockets and the EERA webpage. The EA will become part of the record for consideration by the Commission.

2.2.3 Process

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 at 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 entire Route Permit 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, subd. 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 is provided in **Table 2.1**. Any required permits will be obtained by Dairyland in a timely manner.

Table 2.1 Summary of Possible Permits, Licenses, Approvals and Consultations

Permit	Jurisdiction
Federal	
Section 404 Clean Water Act Permit	United States Army Corps of Engineers
Section 7 Endangered Species Act / Migratory Bird Treaty Act Consultation/ Bald and Golden Eagle Protection Act	United States Fish and Wildlife Service
Section 106 of the National Historic Preservation Act Consultation	United States Department of Agriculture Rural Utilities Service
Farmland Protection Policy Act/Farmland Conversion Impact rating	Department of Agriculture/ Natural Resource Conservation Service
Part 7460 Airport Obstruction Evaluation	Federal Aviation Administration
State	
Route Permit	Minnesota Public Utilities Commission
Minnesota Statutes Chapter 138 (Minnesota Field Archaeology Act and Minnesota Historic Sites Act)	State Historic Preservation Office Tribal Historic Preservation Offices
License to Cross Public Waters	Minnesota Department of Natural Resources – Lands and Minerals
Water Appropriation General Permit – Construction Dewatering	Minnesota Department of Natural Resources
State Endangered Species Consultation	Minnesota Department of Natural Resources – Ecological Services
National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit Coverage	Minnesota Pollution Control Agency
Section 401 Clean Water Act Water Quality Certification	Minnesota Pollution Control Agency
Wetland Conservation Act	Minnesota Board of Water and Soil Resources Fillmore County Soil and Water Conservation District
Oversize and/or Overweight Permits	Minnesota Department of Transportation
Local	
Road Crossing/Access/ROW/Utility Permits	York Township Fillmore County
Moving Permits	York Township Fillmore County
Other	
Crossing Permits/Agreements	Other utilities such as railroads

Dairyland proposes that the Project follow an approximately 3.5-mile route starting in the vicinity of Structure LQ8A-111 on Dairyland's existing 161 kV LQ8A transmission line in York Township, Minnesota, crossing the Minnesota-Iowa border, and ending in the new Beaver Creek Switchyard in Iowa. The proposed Project is located in York Township, in Fillmore County, Minnesota. An overview of the Proposed Route, Proposed ROW, and Proposed Alignment is shown on **Appendix A, Map 1**, and detailed maps of the Proposed Route and Proposed Alignment are included as **Appendix A, Maps 2a and 2b**. A map depicting the Minnesota and Iowa portions of the Project is included as **Appendix A, Map 3**.

3.1 Project Description

3.1.1 161 kV Line Proposed Alignment

The Proposed Alignment refers to the centerline of the transmission line. This Application includes a Proposed Alignment, representing Dairyland's initial thoughts on where the line will be built and where it will turn or cross from one side of a road to the other. The final alignment may be somewhat different due to input from landowners, agencies, and owners of other utilities in the area.

The beginning of the Project and Proposed Alignment (MP 0.0) will be at the intersection of Dairyland's existing 161 kV LQ8A transmission line and 171st Avenue in York Township, Fillmore County, Minnesota. Existing Dairyland structure LQ8A-111 will be removed and replaced with a new starting structure for the Project, the location proposed for the new structure being on the Easterly side of 171st Avenue. The Proposed Alignment continues southerly along the easterly side of 171st Avenue for approximately 1.0 mile. Over the next 0.25 mile, the Proposed Alignment will run southwesterly and then southeasterly, transitioning to the westerly side of 171st Avenue and then returning to the easterly side of 171st Avenue. The Proposed Alignment continues southerly along the easterly side of 171st Avenue for an additional 2.25 miles to the Minnesota and Iowa border.

The Project will continue into Iowa and terminate at a new 161 kV switchyard facility to be constructed in Howard County, Iowa. The switchyard will serve as a new interconnection point for Dairyland's existing 161 kV LQ8A, LQ8D, and LQ30 transmission lines and as the interconnection point for wind energy, effectively relocating the intersection of the 161 kV LQ8A and LQ30 transmission lines from present location in Minnesota to new location in Iowa (**Appendix A, Map 3**).

The Project will not be constructed within existing utility ROW; however, it will be co-located with existing utility and road ROW for approximately 3.5 miles, or 100 percent of the Proposed Alignment.[8] Specifically, the Project:

- Is co-located with existing road ROW for 3.5 miles. Some of this length is also alongside utility ROW (distribution lines). Where the Proposed Alignment is co-located with existing

[8] Total co-location factors in that in several locations, the Project is co-located with more than one type of existing ROW. Therefore, the sum of co-location presented below in the breakout will not equal this total.

distribution lines, Dairyland will coordinate with the owner(s) of the distribution lines, as needed.

3.1.2 Right-of-Way

The ROW is the physical land area along the Proposed Alignment (centerline) that is needed to construct and operate the energy facility; this is the area that will be under easement for the Project and maintained by Dairyland. Dairyland will require easements which allow for a ROW width of 100 feet (typically 50 feet of each side of the Proposed Alignment).

Additional temporary workspace (ATWS) beyond the 100-foot-wide ROW may be required at certain locations, such as road or railroad intersections, utility crossings, along steep slopes, and at stringing locations. In addition, there will be temporary staging of materials such as structures and hardware along the ROW prior to construction installation. Dairyland will avoid the placement of ATWS in wetlands and near waterbodies as practicable.

New easements will be needed for Project. Dairyland representatives will work directly with individual landowners to acquire the necessary easements for the Project. At a minimum, the Project will require a total ROW width of 100 feet (typically 50 feet off each side of the transmission centerline) for the Project. Where the transmission line parallels roads, the transmission line structures are typically installed one to ten feet outside of road ROW, resulting in approximately 55 feet of transmission line ROW needed outside of the road ROW.

3.1.3 Route Width (Proposed Route)

A "route" or "route width," referred to herein as the Proposed Route, is the location of a high voltage transmission line between two end points that is defined by the Commission in a route permit.[9] The Proposed Route is wider than the ROW in order to provide flexibility in the ROW and Proposed Alignment placement to address human and environmental concerns that arise after the Route Permit has been issued.

Within this Application, Dairyland is generally requesting a 500-foot-wide Proposed Route; however, Dairyland is requesting a widened route width, up to 1,320 feet wide, for specific portions of the route to consider existing infrastructure, mitigate potential engineering challenges, and/or to facilitate any necessary realignments/modifications to accommodate agency and/or landowner requests. Specifically, Dairyland requests a variable width where the line transitions to west side of 171st Avenue to allow flexibility in routing around existing homes, buildings and features along the township road. The route width areas are shown in **Appendix A, Maps 1, 2a and 2b.**

3.1.4 Beaver Creek Switchyard

The Iowa portion of the project will terminate at the Beaver Creek Switchyard in Iowa.

[9] "Route" means "the location of a high voltage transmission line between two end points. The route may have a variable width of up to 1.25 miles." Minn. Stat. § 216E.01, subd. 8.

3.1.5 Retirement of Portion of Existing 161 kV LQ8A Transmission Line

Approximately four miles of the existing 161 kV LQ8A transmission line will be retired from 131st Avenue to 171st Avenue. The portion of the existing 161 kV LQ8A transmission line that will be retired is depicted on **Appendix A, Map 3**.

3.2 Engineering and Operational Design Considerations

Design of transmission lines and associated facilities occur through multiple stages including identification of existing ROWs; transmission line design; ROW acquisition; and geotechnical investigations. Each stage is discussed in further detail in the sections that follow.

3.2.1 Transmissions Structure and Design Considerations

Potential structure designs and photographs are provided in **Figures 3-1** and **3-2**. Structure dimensions are provided in **Table 3.1**.

Table 3.1 Typical 161 kV Structure Dimensions

Structure Type	Material	Approximate Height Above Ground (feet)	Structure Base Diameter (inches)	Span Between Distances (feet)
Monopole with davit arms and suspension insulators	Steel	80 - 140	31 - 51	300 - 1,000
Monopole with strain insulator attachments directly to pole	Steel	75 - 110	35 - 55	300 - 1,000

The majority of the new 161 kV transmission line will consist of single circuit monopole steel structures spaced approximately 300 to 1,000 feet apart. Transmission structures will typically range in height from 75 to 140 feet above ground, depending upon the terrain and environmental constraints. The average diameter of the steel structures at ground level is 37 inches. Poles will be oriented in a delta configuration (one overhead ground wire at the top, two phases on one side and a single phase on the other) supported by suspension insulators at tangent structures and strain insulators at tension structures (i.e., dead-end structures). All tangent poles with a line angle of two degrees or less will be directly embedded in the soil and are referred to as “tangent poles;” the typical depth of direct embedment is ten percent of the pole height plus two feet. Any structure with a line angle of greater than two degrees will be supported on a drilled shaft concrete foundation. Foundation depths are dependent upon geotechnical data and final design.

Figure 3-1 Typical 161 kV Transmission Structure Design

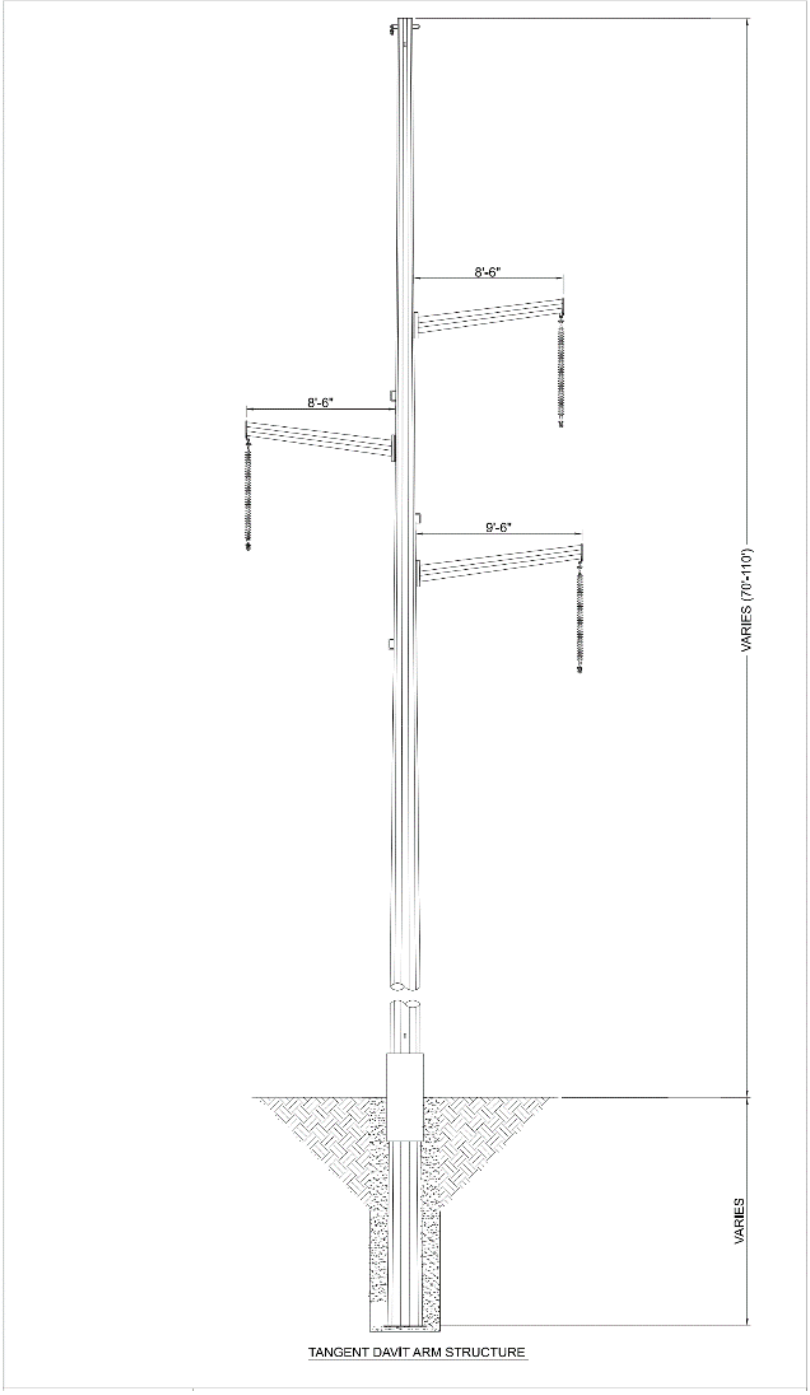


Figure 3-2 Photo of Typical 161 kV Transmission Structure

A dead-end structure is used to change direction and/or wire tension on a transmission line. Dead-end 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. Dead-end structures will be steel on concrete foundation structures.

3.2.2 Geotechnical Borings

Collection of geotechnical data will be necessary for final design of the transmission line and will be performed prior to construction activities. Soil borings are generally completed using rubber tired or tracked drill rigs, depending on site and access conditions. A pick-up truck or all-terrain vehicle (ATV) transports the crew and drilling supplies to the work area. Construction mats (composite fiberglass and/or wood) may be installed as needed based on site conditions and where access is required in wetland areas. Sites will be restored to pre-construction conditions upon completion of geotechnical investigations. Dairyland will obtain the applicable permits and approvals prior to conducting this work.

3.2.3 Transmission Line Clearance Requirements

National Electric Safety Code (NESC) sets minimum clearances of the conductors from structures adjacent to or within the ROW. NESC with U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) buffer clearance requirements are summarized in **Table 3.2**. For a 161 kV transmission line like the Project, the NESC minimum clearance under a 48 miles per hour (mph) wind is nine feet. When there is no wind, the conductors must have a clearance of 9.5 to 12 feet from various structures as listed in **Table 3.2**. Dairyland Standard of Practice is to maintain a minimum of 12 feet horizontal distance with and without wind for lighting and traffic signal support and 14 feet for buildings with and without wind, which both exceed NESC and RUS requirements.

Table 3.2 NESC Rule 234 Clearance Requirements for 161 kV with 2-foot RUS Buffer

Risk Case	Minimum Separation (feet)	
	No Wind	NESC 48 mph wind
From a lighting support, traffic signal support, or support structure for another line.	9.5	9
From any other buildings, walls, projections, signs, chimneys, flagpoles, etc.	12	9

In addition, Dairyland typically requires the blowout to remain within the ROW under the same 48 mph wind condition. Approximately five feet are required from the blowout 161 kV conductors to the edge of ROW, in particular vegetation located at the edge of ROW. This is in accordance with the North American Electric Reliability Corporation (NERC) Standard FAC-003. The amount of blowout allowed depends on several factors including the span length and conductor type. On a typical 161 kV transmission line with a 700-foot span, blowout is approximately ten feet with 48 mph winds. The final line design will evaluate blowout based on actual span distances and the type of conductor being used.

3.2.4 Conductors

The single circuit structures will have three single conductor phase wires and one shield wire. It is anticipated that the phase wires will be 795 thousand circular mil aluminum conductor steel supported (795 Drake ACSS) or a conductor with similar capacity. The shield wire will be 0.607-inch diameter optical ground wire.

3.2.5 Service Life

The service life of a transmission line is approximately 65 years, although based on experience, it is quite possible that the line and structures will last longer than 65 years.

3.2.6 Annual Availability

An average 161 kV transmission line is expected to be available approximately 99.9 percent of the year. Dairyland expects that this line should not be out of service for any extended period of time, 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.

3.2.7 Outages

All necessary outages are coordinated in accordance with Dairyland requirements and procedures that are established and followed by all utilities as Good Utility Practice to meet personnel safety and NESC transmission requirements. Coordination is accomplished through well-defined outage scheduling procedures that utilize web-based tools, allow for study affirmation and ultimately approval of the submitted outage. Once approved, detailed switching orders are developed and 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 reporting requirements, Dairyland will also coordinate outages with the local distribution utilities.

3.2.8 Future Expansion

Minnesota statutes and rules require the consideration of the potential for a project to accommodate future improvements to the transmission system. This line is not designed for future expansion.

3.3 Project Costs

Estimated costs for the proposed Project are approximately $4 million (2020 dollars). Costs and tasks are divided into six phases as summarized in **Table 3.3**. Costs include permitting, land acquisition and ROW, design/Engineering, procurement of materials, construction costs, and contingency. If the Commission selects a route other than the Proposed Route or imposes non-standard construction conditions, the Project cost estimates may change. These cost estimates assume that the Applicant will pay prevailing wages for applicable positions for the construction of the Project. All capital costs for the Project will be initially borne by Dairyland; however, these

costs will be reimbursed to Dairyland by the owner of the generator identified in MISO's Generation Interconnection Process.[10]

Table 3.3 Estimated Costs for the Proposed Project

Project	Planning/ State Permitting	Land Acquisition/ Permits	Design	Procurement	Construction	Contingency	Total
Transmission Line	$0.1M	$0.5M	$0.3M	$1.7M	$1.1.1M	$0.3M	**$4M**
Total							**$4M**
Note: Totals do not add in all instances due to rounding.							

3.3.1 Transmission Line Construction Costs

In rural areas, single pole construction and easement costs are approximately $1,142,000 per mile (2020 dollars). The Project's costs are anticipated to be higher than this per-mile average due to the Proposed Alignment largely following existing roads and the need to avoid existing homes and other existing structures. Specialty poles and foundations add additional cost as the Proposed Alignment does not always follow a perfectly linear path. Contingency has also been included due to the uncertainty around material costs and the lead times.

3.3.2 Operation and Maintenance Costs

Once constructed, operation and maintenance costs associated with the new transmission lines will be initially driven by controlling regrowth vegetation within the ROW. The estimated annual cost of ROW vegetation maintenance is estimated at $7,000 to $15,000 every five years. Transmission line maintenance for the Project is estimated at $30,000 to $35,000 annually. Storm restoration, annual inspections, and ordinary replacement costs are included in these annual operating and maintenance costs.

3.4 Project Schedule

Dairyland anticipates construction of the Project will commence as early as Q4 2025. The start of construction is dependent on the receipt of all required permits and approvals. Dairyland anticipates that the Project will be energized in February 2027. **Table 3.4** summarizes the permitting schedule that would enable the Project to be in service.

[10] MISO Tariff, Attachment X (Generator Interconnection Procedures), available at https://www.misoenergy.org/legal/rules-manuals-and-agreements/tariff/.

Table 3.4 Anticipated Permitting Schedule

Minnesota	
Route Permit Application Filed	August 2024
Scoping Meeting	October/November 2024
Public Hearing	April/May 2025
Commission Decision	July/August 2025
Iowa	
Franchise Application Filed	February 2025
Iowa Utilities Board Decision	February 2026

3.5 Proposed Ownership

Dairyland will own the Project.

4.1 Route Selection Process

4.1.1 Route Development Process Summary

Dairyland used a multi-stage, interactive routing process to identify the Proposed Route[11] that focused on the use of existing transmission/distribution line or other utility and transportation ROWs. This process was intended to identify a Proposed Route that met the objectives of the Project along with minimizing impacts to the environment in conformance with Minnesota's routing considerations. The iterative process started with development of an initial area for evaluation for the Project, which was an area from the existing 161 kV LQ8A transmission line south towards the Iowa border.

4.1.2 Routing Factors

The factors to be considered by the Commission in designating a route for an HVTL are set forth in Minn. Stat. § 216E.03, subd. 7[12] and Minn. R. 7850.4100. These factors directed Dairyland's route development process.

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

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

A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services; effects on public health and safety; effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

B. effects on archaeological and historic resources;

[11] "Proposed Route" is defined in **Section 1.4.**

[12] Although Dairyland has applied for a Route Permit under the alternative review provisions of Minn. Stat. § 216E.04, Minn. Stat. § 216E.04, subd. 8 provides that the considerations of Minn. Stat. § 216E.03, subd. 7 shall apply.

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

D. effects on rare and unique natural resources;

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

F. use or paralleling of existing ROWs, survey lines, natural division lines, and agricultural field boundaries;

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

H. use of existing transportation, pipeline, and electrical transmission systems or ROWs;

I. electrical system reliability;

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

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

L. irreversible and irretrievable commitments of resources.

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

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

Dairyland used these statutory and rule routing criteria, routing experience, and engineering considerations to develop the Proposed Route for the Project. Dairyland started with the identification of existing linear infrastructure in the Project vicinity, which offered existing ROWs along which a new transmission line might be co-located to minimize impacts to the natural and human environment. Dairyland then identified routing opportunities and constraints in these ROWs through further review and a series of landowner engagement activities discussed in detail in **Section 7**.

Routing opportunities include existing linear infrastructure or other features (e.g., roads, transmission lines) along which siting an HVTL would be most compatible. Routing opportunities also facilitate Project development by minimizing impacts to identified resources. Minn. R. 7850.4100 requires the Commission to consider the use or paralleling of existing ROWs (e.g., transportation corridors, pipelines, and electrical transmission lines). Examples of constraints include natural resources such as lakes; existing land uses such as residences, and schools; federal, state, and locally designated environmental protection areas; critical habitats or sensitive natural resource areas; cultural resources such as national landmarks and archaeological sites; and public infrastructure such as airports and aeronautical and commercial telecom structures. The routing process aims to avoid and/or minimize constraints where practicable.

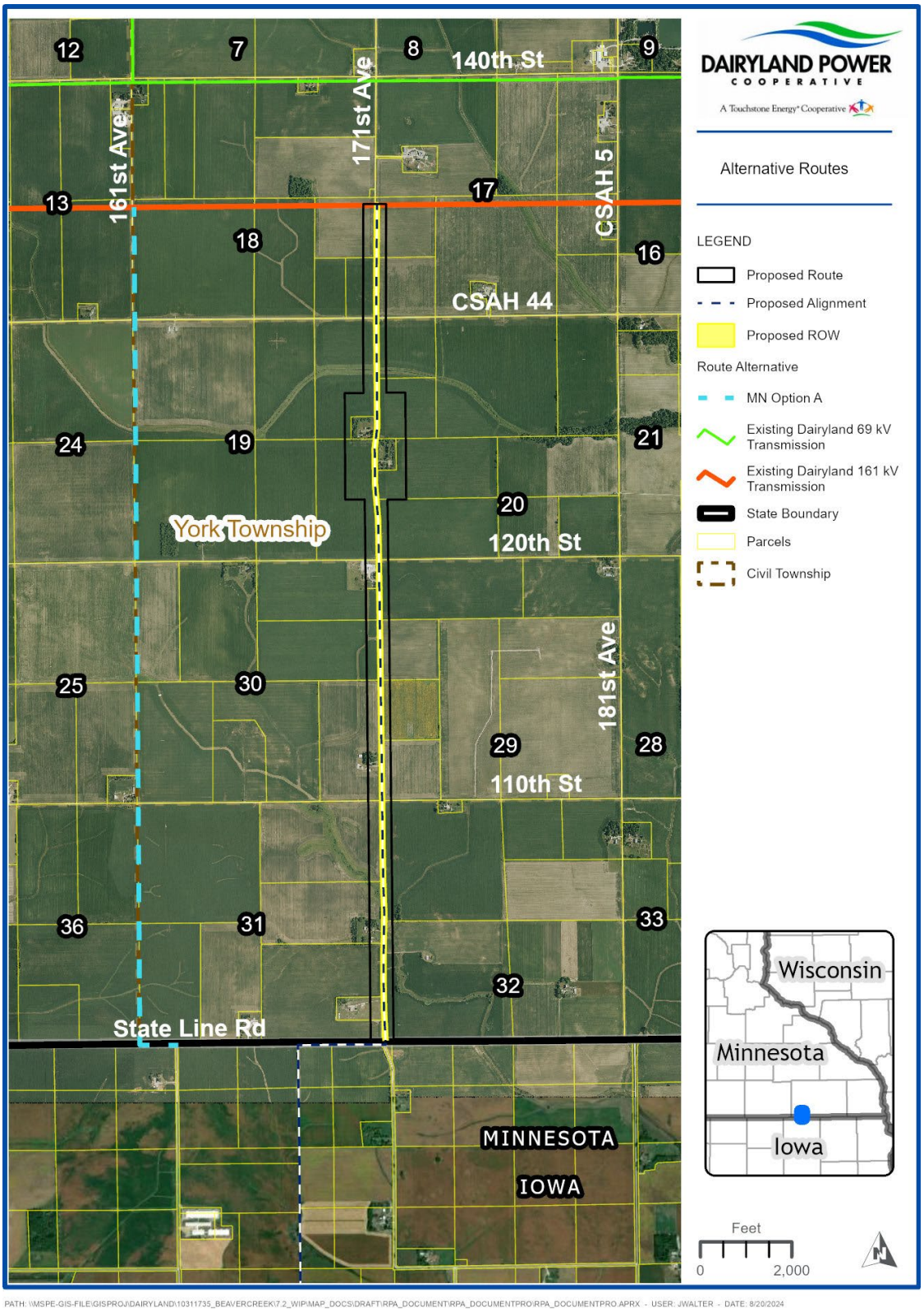
Technical and reliability considerations also affect the routing process. These include specific engineering requirements, standards, and objectives associated with the design and construction of the Project. For example, there are circumstances where technical and maintenance objectives make certain line co-locations unworkable. Other engineering objectives may include spacing for line entrances into a substation, minimizing the overall line length, ensuring adequate access for construction and inspections, minimizing the number of angles, minimizing the number of "special" structures, and considering the use of longer than average spans between structures. Landowner considerations including proximity to existing or planned structures, desired land use, residences, and center pivot irrigation systems were also important when developing the Project.

4.2 Alternative Considered but Rejected

Dairyland is submitting this Route Permit Application under the Alternative Review Process in accordance with Minn. Stat. § 216E.04 and Minn. R. 7850.2800 to 7850.3900. An applicant under the alternative process is not required to propose an alternative route as is required of applicants under the full process. However, Minn. Stat. § 216E.04, subd. 3, and Minn. R. 7850.3100 require an applicant to identify any alternative routes that were considered and rejected. The rejected route alternative is discussed below and shown in **Figure 4-1**.

Dairyland considered an alternate route starting at the intersection of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line and 161st Avenue, following 161st Avenue south for 0.5 miles then continuing south along field lines and the Beaver and York Township border for three miles before crossing into Iowa. This route would cause greater land disturbance impacts because it is not along an existing road. This route could lead to greater impacts to agricultural operations during both construction and maintenance and be more difficult and costly to construct. There is one farmstead along this route with buildings extending to within approximately 20 feet of the public land survey line and Township boundary. This route offers one mile less geographic isolation between lines carrying capacity of new wind generation that is to be interconnected and likewise reduces the length of associated line retirement in Minnesota by one mile. In addition, this alternative would likely increase the overall length of the project by ½ - 1 mile based on the current route in Iowa. For these reasons, Dairyland rejected this route.

Figure 4-1 Route Alternative Considered and Rejected



4.3 Routing Conclusions

Dairyland is requesting a Route Permit for the Proposed Route because, as compared to the route alternative considered and rejected, the Proposed Route best balances the Commission's routing criteria because of its co-location with existing infrastructure for 100 percent of its route while minimizing environmental impacts where possible. The Proposed Route will result in fewer agricultural impacts, would be shorter, and easier and less costly for construction and maintenance.

5. RIGHT-OF-WAY ACQUISITION, CONSTRUCTION, RESTORATION, AND OPERATION AND MAINTENANCE

5.1 Landowner Coordination and Right-of-Way Acquisition Procedures

Dairyland has initiated landowner outreach, providing information on the Project through letters, emails, telephone calls and/or personal visits to potentially impacted landowners, interested parties and federal, state, and local governmental officials. Dairyland representatives appeared at regularly scheduled Township Board meetings in York and Beaver Townships to introduce the project. A project summary and map were posted on Dairyland's power delivery projects webpages.

In connection with the Iowa portion, pursuant to the requirements of 478.2, Code of Iowa, Dairyland was required to hold a landowner informational meeting in Howard County, Iowa prior to any negotiations with landowners. Dairyland representatives began personally contacting landowners in Minnesota following the landowner informational meeting in Iowa to introduce the Project, solicit feedback and secure permissions to enter property for preliminary land survey activities. Dairyland will continue to engage with landowners throughout the permitting process to answer any questions they may have regarding the easement process or the Project.

The land within the majority of the Proposed Route is privately owned. New easements will be needed for the 161 kV transmission line route. Dairyland 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 161 kV transmission line system. Where the transmission line parallels roads, the transmission line structures are typically installed one to ten feet outside of road ROW, resulting in approximately 55 feet of ROW needed outside of the road ROW. In addition to acquiring needed easements in Minnesota and Iowa, Dairyland plans to acquire a 5-acre site in Howard County, Iowa upon which a transmission switching station will be installed.

During formal land rights acquisition, Dairyland will provide the landowners the transmission line easement, an offer of compensation, and information regarding the Project schedule, Dairyland's construction practices, vegetation removal, and construction damage settlement policy. 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. Dairyland will respond to any comments or questions landowners may have, including those related to the transmission line construction practices or operations of the transmission line.

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

As part of early transmission design work, Dairyland will need to complete preliminary survey work and may need to acquire some soil characteristics data (see **Section 3.2.2**). Dairyland 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.[13]

If a negotiated easement cannot be reached, Dairyland will use the eminent domain process to obtain the needed rights. *See* Minn. Stat. § 216E.12; Minn. Stat. Ch. 117. The eminent domain process allows impartial commissioners the ability to determine just compensation for the acquisition of right of way.

5.2 Construction Procedures

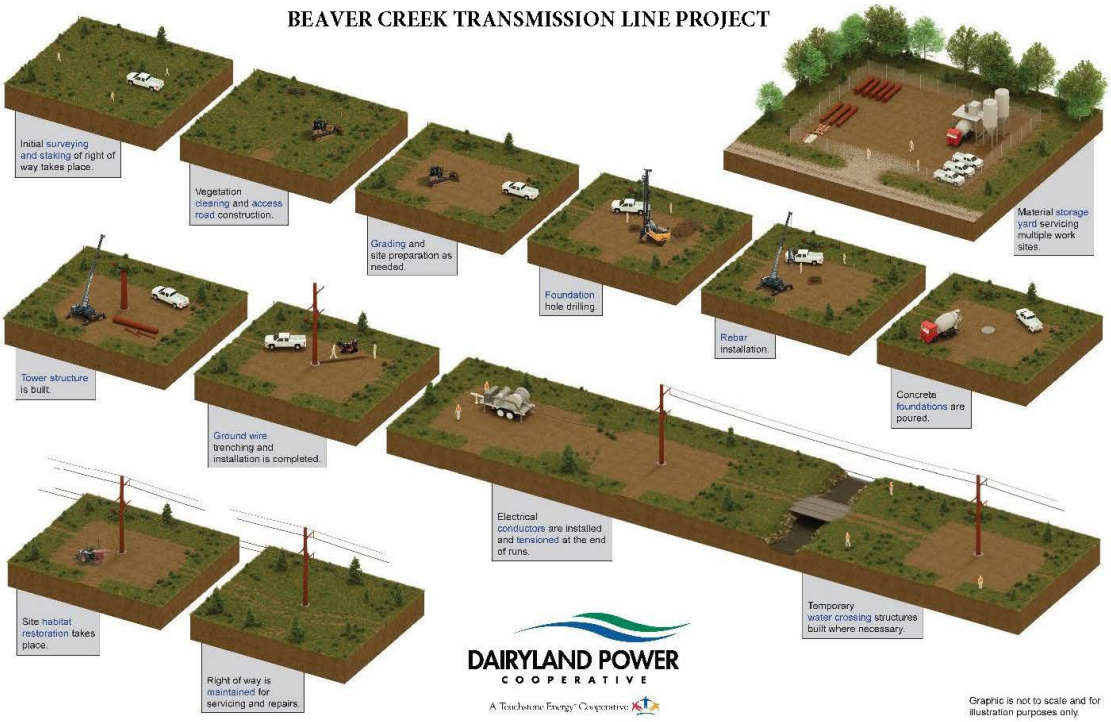
Construction of an overhead transmission line requires several different activities at any given location. The major construction activities and approximate sequence are described below. As illustrated in **Figure 5-1** and described further below, construction will follow Dairyland's standard construction and mitigation best practices. Construction of a transmission line typically occurs as follows:

- Collection of geotechnical data (soil borings) required for final design of the transmission line, discussed in **Section 3.2.2**;
- Surveying and staking will be conducted during multiple phases of the Project;
- Installation of erosion and sediment control best management practices (BMPs) prior to anticipated ground disturbance activities;
- Mobilization and preparation of staging / laydown yards;
- Road improvements or development to provide access to the ROW;
- Clearing activities of the ROW;
- Installation of construction mats in wetlands or other unstable soil areas, and installation of temporary bridges across waterways prior to construction along the ROW;
- Temporary material staging along the ROW prior to construction installation;
- Grading, excavation, and foundation installation;
- Structure setting;
- Wire stringing and clipping once there are enough structures set consecutively in a row to support a wire pull;
- Removal of existing transmission circuits;
- Cleanup and restoration of ROW; and
- Demobilization and laydown yard cleanup.

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.

[13] 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.

Figure 5-1 Beaver Creek Transmission Line Construction Sequence



5.2.1 Transmission Line Construction

During construction of an overhead transmission line, several different work functions happen concurrently at any given location. The following information generally describes the major construction activities, their approximate sequence, typical construction machinery used, and the anticipated impacts associated with each activity:

Surveying and Staking – Surveying and staking will be conducted during multiple phases of the Project and will include locating and marking the ROW and authorized off-ROW access roads, sensitive environmental resource boundaries, foundations or structure locations, property or section lines, underground and aboveground utilities, etc. Surveying and staking will be performed prior to and sometimes after construction activities such as during constructability reviews, soil borings (geotechnical investigations), staging / laydown yards, clearing, installation of foundations and hole excavations. These activities have limited impact on the environment or landowners and are generally completed by a two-person crew travelling by foot, ATV, or pick-up truck.

Erosion and Sediment Control – Installation of erosion and sediment control BMPs will be implemented prior to anticipated ground disturbance and in accordance with the Minnesota

Pollution Control Agency (MPCA) NPDES Construction Stormwater General Permit (see **Table 2.1**). Erosion and sediment control equipment includes ATVs and trucks for crew transportation, as well as skid loaders, tractors, backhoes, hydro-seeders, and other light-duty equipment. BMPs will be inspected, maintained, repaired, and replaced in accordance with the MPCA Construction Stormwater General Permit.

Mobilization and Preparation of Staging / Laydown Yards – Initially, labor and equipment will be mobilized to prepare laydown yards for temporary trailer(s) and security measures to receive materials, storage containers, portable toilets, dumpsters, construction mats, tools, and equipment, etc. Activities involved to prepare the staging / laydown yards may include installation of erosion and sediment control BMPs, any leveling of uneven surfaces, stripping and stockpiling of topsoil (if necessary), and installation of gravel, tracking pads near entry/exit, if needed, installation of culvert(s), power, and fencing. This work is generally completed using equipment such as a bulldozer and dump trucks. The disturbance from the laydown yard is dependent on soil type and topography. Depending on landowner preferences and applicable permitting conditions, laydown yards and portions thereof may be left in place or returned to prior conditions following construction activities.

Road Improvements and Development – In order to access the ROW, Dairyland may need to improve existing access roads, or develop new access roads. Road improvements may include tree trimming, tree clearing, road grading, widening and fill placement. Only construction mats will be used in wetland features; construction mats will be removed after completion of construction activities (see Construction Matting and Bridge Installation below). This work is generally completed using equipment such as a bulldozer, track-hoe, skid-loader, and dump trucks. The travel surface of the access road is generally 20 to 25 feet wide. The total amount of disturbance of the road (cut slope to base of the spoils slope) is dependent on soil type and topography. Depending on landowner preferences and permit requirements, access roads may be left in place or returned to prior conditions following construction.

Clearing of ROW – To facilitate construction equipment access and ensure safe clearances between vegetation and the transmission line, all vegetation will be cleared for the full width of the ROW. Vegetation will be cut at or slightly above the ground surface using mechanized mowers, sky trims, processors, harvesters, or by hand. Rootstocks will generally be left in place, except in areas where stump removal is necessary to facilitate the movement of construction vehicles, or when reasonably requested by the landowner. Side trimming the ROW would happen shortly after the clearing is completed. Following the side trimming, a final mowing of debris and stump cleanup will be completed. Where permission of the landowner has been obtained, stumps of tall-growing species will be treated with an herbicide to discourage re-growth. Trees that could present a danger to the safe operation of the Project will also be removed or pruned to ensure safety and maximize reliability, including trees outside of the Project ROW that could hit the transmission line should they fall.

Construction Matting and Bridge Installation – Matting will be used as a protective measure that minimizes ground impacts and will be installed to provide access through wetlands or other unstable soil areas prior to construction. Matting may be used to minimize compaction in agricultural areas prior to construction. Mats are also used to support and stabilize large equipment required for construction. Construction mat travel lanes will generally be 16 to 20 feet wide.

Construction matting may consist of composite, timber, or laminate mats and will be installed with rubber-tired grapple trucks, forwarders, forklifts, or skid loaders. The line will be constructed in segments with mats being moved and used in other segments as construction progresses.

Additional Temporary Workspace – ATWS beyond the 100-foot-wide ROW may be required at certain locations, such as road or railroad intersections, utility crossings and along steep slopes. In addition, there will be temporary staging of materials such as structures and hardware along the ROW prior to construction installation. This work involves such equipment as semi-trucks, loaders, and cranes to unload structures and other materials near each work location. Dairyland will avoid the placement of ATWS in wetlands and near waterbodies as practicable.

Grading, Excavation, and Foundation Installation – Prior to foundation installation, Dairyland will install a construction mat platform generally 40 feet by 40 feet around the structure location to ensure a level and safe working area. In some cases, Dairyland may grade an area approximately 40 feet by 40 feet around the structure location.

Excavation is required for all structures whether they are direct-embedded or use reinforced concrete foundations. In general, the excavated holes for each type of foundation will range from five to 10 feet in diameter and 20 to 50 feet in depth, or greater, depending on soil conditions. The method of installation, diameter and depth of the foundation will vary depending on the soil capability and structure loadings. For direct-embedded poles, a hole will be excavated to the appropriate depth. The base of the structure will be placed into the excavated hole or, if soils are unstable, into a culvert, the area around the pole will be backfilled with clean granular fill or concrete. For structures requiring a reinforced concrete foundation, the required hole will be excavated, and a rebar cage and anchor bolts will be placed into the excavation. The excavation will then be filled with concrete to a point where the rebar cage and anchor bolts are covered leaving a typical one to two-foot reveal of the foundation above grade with exposed threaded anchor bolts. The complete caisson will then be allowed to cure. Typical equipment for this phase of construction would include dump trucks, drill rigs, cranes, vacuum trucks, concrete mixers, and tanker trucks.

In areas with high water tables, or where water is needed to stabilize the hole during drilling, it may be necessary to dewater the excavation. Depending on site conditions, the water may be filtered through a geotextile filter bag or similar method and discharged to an upland area where it can re-infiltrate or be removed from the site via a tank truck. Appropriation and discharging activities will follow applicable regulations and permit requirements to ensure compliance with Minnesota water quality standards.

Structure Setting – For base plate structures (mounted on concrete foundation), the above-grade structure would be placed on the anchor bolt pattern, leveled, and tightened down. For direct-embedded structures, the base section would be installed, leveled, and backfilled with granular or flow-able fill. After that, the top section or sections will be installed. At each section, hydraulic jacking systems are typically used to slide the joints together to the engineered and fabricated tolerances. Equipment used for this phase of construction would include cranes and bucket trucks at each structure location.

Wire Stringing and Clipping – Once there are a sufficient number of structures set consecutively in a row to support a wire pull, the equipment for the wire pull is mobilized to the pull area and is set up. The conductor and static wires are then pulled and clipped into place. This stringing and clipping activity requires access to each structure with a bucket truck, crane, or helicopter. Other handling equipment used for this phase of construction includes reel trailers, wirepullers, and related stringing equipment.

Wire stringing areas or wire pulling areas are approximately 40 feet by 300 feet. At a minimum, at each wire pulling area, matting will be placed under wire equipment for construction grounding purposes. Incidental matting will also be required at most road crossings. Matting will be removed by similar equipment used for installation as each wire pull or construction segment is completed. During mat placement, use, and removal, standard procedures will be implemented to prevent or minimize the spread of invasive species.

Removal of Existing Facilities – Where replacing or overbuilding existing transmission circuits, the existing structures and wire will be removed. The removed materials will be evaluated to determine their appropriate disposal. Typical equipment used includes cranes, bucket trucks, reel trailers, wirepullers, and related stringing equipment. Where existing transmission structures are to be removed, it is common practice to remove the structure to a depth of at least four feet below grade; however, in some cases the structure may be cut off at grade. The determination will be site specific and will be based on the type of structure, land use at the site, and construction vehicle access constraints.

Cleanup and Restoration of ROW – Upon completion of construction, cleanup and site restoration occurs. This includes removing construction mats, temporary clean span bridges, and other material or debris from the ROW. Any necessary seedbed preparation and seeding is performed along with BMPs. Typical equipment used for these activities include mat trucks, bobcats, pickup trucks, and other light-duty vehicles.

Demobilization and Laydown Yard Cleanup – The last step in the construction process is final cleanup of the laydown yards by removing all items such as trailers, security fence, left over materials, storage containers, portable toilets, dumpsters, construction mats, tools, and equipment from the Project site. Once the final laydown restoration is complete per contractual agreement with the applicable landowner, the construction phase is complete.

5.3 Restoration Procedures

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 BMPs, reseeding areas disturbed by construction activities with vegetation similar to that which was removed with a seed mixture certified as free of noxious or invasive weeds, and restoring the areas to their original condition to the extent possible. In cases where soil compaction has occurred, the construction crew or a restoration contractor uses various methods

to alleviate the compaction, or as negotiated with landowners. Further details are provided in Dairyland's Vegetation Management Plan (VMP) provided in **Appendix F**.

Dairyland 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, Dairyland will compensate the landowner. In some cases, an outside contractor may be hired to restore the damaged property as near as possible to its original condition.

5.4 Construction Work Force Required

Although the workforce will ebb and flow over the course of the Project, Dairyland anticipates that approximately 20-30 construction workers (Dairyland employees and contract workers) will be employed during construction over the construction phase of the Project, and Dairyland will utilize Union labor. Dairyland will also have a construction supervisor onsite throughout the construction phase.

5.5 Operations and Maintenance

Dairyland's long-term goal of the vegetation management maintenance program is to establish a sustainable ROW consisting of vegetation that would be considered compatible. The NESC states that "vegetation that may damage ungrounded supply conductors should be pruned or removed." Trees along the ROW edge will need to be trimmed from time to time to manage the appropriate clearance distances between the conductors and the trees. To ensure continued safe operation of the line, tree removals may also occur outside the easement area when a tree tall enough to impact our facilities is dead, dying, diseased, leaning or compromised.

Integrated vegetation management practices are utilized in Dairyland's vegetation management program to establish the long-term goals of the program on a nominal 3- to 5-year cycle. Dairyland implements the use of many control methods within their vegetation management maintenance program that vary based on site conditions and can include manual (chainsaws), mechanical (mowers and other specialized vegetation management equipment including aerial saws where appropriate) and herbicides.

Herbicide application methods utilized will vary based on vegetation density, size and location, time of year, environmental conditions and property owner or easement restrictions. Some application methods include basal, cut stump, foliar or cut stubble. In general, our herbicide applications are selective in nature targeting woody species. Through the new easement acquisition process, landowners will be able to give or decline permission for the use of herbicides on their property.

Dairyland has developed a VMP to outline the practices that will apply to operational vegetation management activities across the Project (see **Appendix F**). The use of herbicides focuses on controlling woody vegetation within the ROW to reduce the impacts of the need to mow on a property and help establish a sustainable ROW that can be managed with selective herbicide treatments. A timeframe for the conversion of a ROW to establish compatible, non-woody vegetation will vary based on site conditions. A property owner could also encourage this

conversion of the ROW to compatible vegetation by allowing selective herbicide use and through planting vegetation that results in increasing compatible vegetation within a ROW.

6. ENVIRONMENTAL ANALYSIS OF ROUTE

This portion of the Application provides a description of the human and environmental resources crossed by the Project ROW, within the Proposed Route, or in the vicinity of the Project; potential impacts to these resources; and proposed mitigative measures.

6.1 Environmental Setting

The Proposed Route is located in York Township and within Filmore County, Minnesota. It is sited within the Oak Savanna Subsection of the Eastern Broadleaf Forest Province as defined by the Minnesota Department of Natural Resources (MnDNR) Ecological Classification System.[14]

The Eastern Broadleaf Forest Province serves as a transition zone between semi-arid portions of the state that were historically prairie and semi-humid mixed conifer-deciduous forests to the northeast. The Proposed Route is located within southeastern corner of the Oak Savanna Subsection, which primarily consists of Late Wisconsin end moraines, stagnation moraines, and outwash with gently rolling topography.

The environmental setting of the Project vicinity consists of open agricultural space with portions of deciduous forest and hydrologic features such as streams and wetlands. The physiographic features (topography, soils, geology, and vegetation) vary from flat to gently rolling hills with steeper ravines along streams. Typical land use in the Project vicinity consists of agricultural land and low density, rural residential property. Existing ROW associated with transmission lines, distribution lines, and roads are located within and adjacent to the Proposed Route (**Appendix A, Maps 2a and 2b**). The landscape and characteristics of the Project vicinity are described in this chapter. The characteristics of the Project vicinity are typical of the surrounding area and do not preclude development of this Project.

6.2 Human Settlement

6.2.1 Aesthetics

This section describes aesthetics in terms of the current visual landscape in and adjacent to the Proposed Route and the potential impacts and mitigation that may occur.

The proposed transmission line will be visible along the Proposed Route. The majority of the poles will be direct embed single-pole steel structures (see **Figures 3.1 and 3.2)**. All structures will be self-supporting; therefore, no guying will be required. Typical pole heights will range from 75 to 140 feet above ground and spans between poles will range from 300 to 1,000 feet.

The Project is located within a rural landscape. The topography of the landscape is generally flat to gently rolling, with deeper dissections along streams and roadside ditches. The landscape along the Proposed Route is primarily agricultural with portions of low density and rural residential land and open land (forest, grassland, streams, and wetland areas). The agricultural setting is

[14] Minnesota Department of Natural Resources. 2000. Ecological Classification System. Procured from: https://www.dnr.state.mn.us/ecs/index.html. Accessed December 20, 2023.

defined by fields, farms, and homesteads. Buildings (inhabited and uninhabited) are typically surrounded by manicured lawns, treed areas, or cropland. The Project area is bisected north to south by a gravel road (171st Avenue). Dairyland's existing 161 kV LQ8A Harmony to Beaver Creek transmission line runs east west in the middle of the section between CSAH 44 and 140th Street. A local electric coop 69 kV line runs east west 0.5 miles north along 140th Street. An electric distribution line runs along CSAH 44 then turns south along 171st Avenue, to the Iowa border within the Proposed Route. In addition, electric distribution lines run east west along 110th Street, and 120th Street, crossing the Proposed Route.

The Project is co-located with existing roadway ROW for the entire length; some of this length is also located alongside existing electric distribution lines.

6.2.1.1 Impacts and Mitigation

The visual effect experienced from the Project will depend largely on the perceptions of the observers across the area of the Proposed Route. The Project will create an additional, minor visual element in the vicinity, but the degree to which the transmission line will be visible will vary by location. Aesthetic impacts will be localized to the area of the Project and perceived most strongly by residents located directly along the Route Width and bordering the Project ROW. The viewer's degree of discernible detail decreases as the physical distance from an object increases. Generally, aesthetic impacts will diminish over time as surrounding residents become used to the visual landscape. Because the Proposed Route will follow existing roadway ROW, aesthetic impacts are anticipated to be minimal. An approximately 4-mile portion of the existing 161 kV LQ8A transmission line running west from the Project to the Beaver Creek Tap will be removed as result of this Project (see **Appendix A, Map 3**).

The visual impacts from ROW clearing and construction activities in close proximity to roads, while temporary in nature, is unavoidable. Tree clearing along the ROW will be necessary where the Route crosses vegetated fence lines; however, Dairyland will minimize permanent impacts to the aesthetics and visual character of the Project area by avoiding and/or minimizing tree clearing and avoiding residential areas to the maximum extent practicable. Tree clearing will be limited to fence rows and trees located along 171st Avenue. The amount of clearing will be minimal; therefore, no mitigation is proposed.

Additional potential mitigation measures may include:

- Structure types (designs) will be uniform to the extent practical.
- Location of structures, ROW, and other disturbed areas will be determined 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.

Other than the above, no other mitigation is proposed.

6.2.2 Displacement

No displacement of residential homes, structures, or businesses will occur as a result of this Project. The NESC and Dairyland standards require certain clearances between transmission line structures and buildings or structures within the ROW for safe operation of the proposed transmission line (**Table 3.2**). The width of the Proposed Route provides sufficient design flexibility and distances from existing homes and structures for a transmission line design that achieves the requisite clearances.

Residences and businesses are located along roads within the Proposed Route. Residences are typically low density and rural residential with a house and non-residential structure (e.g., barn). Avoidance of residences was a priority when identifying the Proposed Route and Project ROW.

Table 6.1 summarizes the residential and non-residential buildings at various distances to the Proposed Alignment for the Project. There are six residences within 500 feet of the Proposed Alignment; the closest two residences are located approximately 100 – 150 feet from the Proposed Alignment. Twenty-eight non-residential structures are located within 500 feet of the Proposed Alignment. No residences or non-residential structures are within the 100-foot ROW. The non-residential structures are outbuildings such as garages, barns, silos, or animal pens. (**Table 6.1** and **Appendix A - Maps 2a and 2b**).

Table 6.1 Building Distances from Proposed Alignment

Distance	Building Type		Total
	Residential	Non-residential	
0-50 feet	0	0	0
50-100 feet	0	0	0
100-150 feet	1	3	4
150-200 feet	1	2	3
200-250 feet	3	5	8
250-300 feet	0	5	5
300-350 feet	0	7	7
350-400 feet	0	3	3
400-450 feet	0	2	2
450-500 feet	1	1	2
Total:			
0-500 feet	6	28	34

6.2.2.1 Impacts and Mitigation

No residences or businesses will be displaced by the Project. Dairyland reviewed the locations of homes, buildings, and other structures during the development of the Proposed Route and has sited the Project purposely to avoid these features, moving the transmission line to the other side of the road, or further offset from the road, to avoid impacts to farmsteads, homes, or buildings

that were built closer to the road (**Appendix A, Maps 2a and 2b**). The Project will be designed in compliance with local, state, NESC, and Dairyland standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths.

The requested route widths afford Dairyland the flexibility to work with landowners around existing residences, other structures, and businesses, as appropriate. Dairyland will work with landowners to address alignment adjustments and structure placement to the extent practicable. Easement acquisition will be conducted in accordance with applicable Minnesota regulations. Negotiations for easement rights across residential parcels may include discussion about alignment adjustments and options for alternate landscaping and screening.

6.2.3 Noise

Noise is measured in units of decibels on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight." The "A-weighted decibel" scale (dBA) is used to reflect the range of frequencies that the average human ear perceives. An increase of three dBA is considered barely perceptible to the average listener in an ideal listening environment (i.e., an audiology booth), but an increase of ten dBA noise levels is perceived as a doubling of loudness, and an increase of twenty dBA is a quadrupling of loudness. Therefore, noise levels associated with quiet sources can be barely perceptible compared to ambient noise levels and may not increase existing background noise.

For reference, **Table 6.2** shows noise levels associated with common, everyday sources, providing context for the transmission line noise levels discussed later in this section.

Table 6.2 Common Noise Levels

Sound Pressure Levels (dBA)	Noise Source
110	Rock band at 5 meters
100	Jet flyover at 300 meters
90	Chainsaw at 1 meter
85	Typical construction activities
80	Food blender at 1 meter
70	Vacuum cleaner at 3 meters
60	Normal speech at 1 meter
50	Dishwasher in the next room
40	Library
30	Bedroom
20	Quiet rural nighttime
10	Broadcast recording studio
0	Threshold of hearing

Source: MPCA 2015[15]

[15] MPCA. 2015. A Guide to Noise Control in Minnesota. Procured from https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf.

The MPCA noise regulations[16] establish Noise Area Classifications (NAC) based on the land use activities at the location of the receiver and noise standards are applied to that land use activity. **Table 6.3** provides the MPCA-established daytime (7:00 a.m. – 10:00 p.m.) and nighttime (10:00 p.m. – 7:00 a.m.) noise standards organized by NAC. MPCA noise standards are expressed using the L_{10} and L_{50} statistical descriptors. The L_{10} noise level represents the level exceeded 10 percent of the time, or for six minutes in an hour, and the L_{50} noise level represents the level exceeded 50 percent of the time, or for 30 minutes in an hour. Residential-type land use activities including residences, religious centers, camping and picnicking areas, hospitals, schools, and hotels are included in NAC-1. Commercial-type land use activities such as transit terminals, retail and business services are included in NAC-2. Agricultural and industrial-type land use activities are included in NAC-3.

Table 6.3 MPCA Noise Limits by Noise Area Classification

Noise Area Classification	Description	Daytime (dBA)		Nighttime (dBA)	
		L_{10}	L_{50}	L_{10}	L_{50}
1	Residential-type Land Use Activities	65	60	55	50
2	Retail-type Land Use Activities	70	65	70	65
3	Manufacturing and Agricultural-type Land Use Activities	80	75	80	75

Source: MPCA 2015

Much of the Project area, notably agricultural zones, would be categorized as NAC-3 with maximum noise levels reached during the movement and operation of farm equipment. Other areas of the Project area would be categorized as NAC-1, since much of these areas are residential in nature. Noise-sensitive receptors (NSRs) along the Project Route include residences and agricultural businesses. There are six residences and 28 outbuildings within the Proposed Route. NSRs in the vicinity of the Project are shown on the maps in **Appendix A, Maps 2a and 2b**. The nearest residence to the transmission line is approximately 142 feet from the Proposed Alignment.

6.2.3.1 Noise Related to Construction

Construction is generally expected to occur during daytime hours as a result of heavy equipment operation and increased vehicle traffic due to construction personnel transporting materials to and from the site. 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 load[17] and will only occur when equipment is operating. Upon completion of construction activities, noise associated with construction equipment will cease.

[16] Minn. R. 7030.0040.

[17] https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook00.cfm.

6.2.3.2 Noise Related to the Transmission Line

Operational noise levels produced by a 161 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 from 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 electric fields (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 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 L_{50} 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 161 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 6.4 and Table 6.5**.

Table 6.4 Anticipated 161 kV Transmission Line Noise Levels with Heavy Rain

Load Condition	Audible Noise (dBA) (Rain)											
	Line Current (Amp)	Cross Section Distance to 161 kV Transmission Line (feet)										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Average Historic Load	541	15.45	17.38	20.53	23.25	25.08	26.64	26.11	24.11	21.06	17.66	15.64
Peak Historic Load	1115	15.46	17.39	20.55	23.29	25.16	26.77	26.22	24.17	21.09	17.68	15.65
Peak Rated Load	2000	15.51	17.45	20.64	23.44	25.43	27.24	26.61	24.36	21.18	17.74	15.71
Maximum Operating Temperature	2182	15.53	17.47	20.66	23.49	25.51	27.38	26.73	24.42	21.21	17.76	15.73

Table 6.5 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)	27.4
Sound Contribution of Corona Noise plus Ambient	40.12
Potential Increase above the Ambient Level	0.12

The Project is located in a rural residential and agricultural setting in Fillmore County, which had an average population density of 25 people per square mile in 2021.[18] Ambient noise level in a rural residential area is about 40 dBA, day/night average sound level.[19] As shown in **Table 6.5**, the noise contribution due to corona will result in a potential noise increase of only be 0.12 dBA above ambient conditions. As a three dBA increase is generally considered the limit of human perceptibility, noise from corona should not be noticeable under typical ambient conditions. However, during periods of high humidity or rain, this noise may be perceptible to observers near or within the Project ROW.

6.2.3.3 Impacts and Mitigation

Sound levels 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. on weekdays, to the extent practicable. Occasionally, there may be construction outside of those hours mentioned or on a weekend if Dairyland has to work around customer schedules, line outages, or if the schedule has been significantly impacted due to permitting delays or other factors. Dairyland 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 for the Project demonstrate compliance with the applicable state noise standards.

6.2.4 Socioeconomics & Environmental Justice

The Project is located in a rural residential and agricultural setting in Fillmore County, which had an average population density of 25 people per square mile in 2022.[20] The socioeconomic setting of the Project vicinity was evaluated on a regional level comparing data from the nearest Minnesota city to the Project (Ostrander, 7.4 miles from the Project), Fillmore County, and the state of Minnesota. Data gathered from the 2010 and 2022 U.S. Censuses are summarized in **Table 6.6**.

[18] United States Census Bureau (Census), 2021.

[19] USEPA. 1978. Protective Noise Levels.

[20] United States Census Bureau, 2022.

Table 6.6 Socioeconomic Characteristics Surrounding the Proposed Route

Location	2010 Population	2022 Population	Change (%)	2022 Unemployment Rate	2022 Median Household Income
State of Minnesota	5,310,584	5,717,184	7.7%	4.0% ± 0.1%	$82,338 ± $749
Fillmore County	20,978	21,251	1.3%	3.2% ± 0.6%	$73,234 ± $3,056
Ostrander City	274	332	21.2%	1.2% ± 2.3%	$69,583 ± $18,101

Sources: Census (2010) (2022)

Environmental justice refers to the fair treatment and meaningful involvement of all people in the development, implementation, and enforcement of environmental laws, regulations, and policies, regardless of race, color, national origin, or income.[21] In general, environmental justice is intended to ensure that all people benefit from equal levels of environmental protections and have the same opportunities to participate in decisions that may affect their environment or health.[22] Minority and/or low-income communities are often concentrated in small geographical areas within the larger geographically and/or economically defined population. Minority communities and low-income communities may constitute a very small percentage of the total population and/or geographical area.

Two methodologies were used to assess environmental justice areas within the Environmental Justice Study Area (within one-quarter mile of the edge of the Proposed Route). The first methodology uses guidance from the U.S. Environmental Protection Agency (USEPA) to assess minority, low-income, and Limited English Population (LEP) areas. According to USEPA guidance, a minority or low-income area is present if the percentage of minorities (Hispanic, Black or African American, Native American or Alaska Native, Asian, or Native Hawaiian or Pacific Islander) or if the percentage of people with an income below the poverty level is meaningfully greater than the general population in the larger surrounding area.[23] Based on recent EAs completed for transmission lines in Minnesota, meaningfully greater is defined as 10 percentage points higher than the total population of the area.[24] An LEP area is identified when five percent of the population speak English less than very well. The latest complete census data (2022) from the American Community Survey was used to identify minority, low-income, and LEP populations within the Environmental Justice Study Area by state, county, and Census tract (**Table 6.7**). Census block groups were not analyzed due to a lack of data. There is one census tract that intersects the Project Route.

[21] Minnesota Pollution Control Agency. 2022-b. Environmental Justice Framework. https://www.pca.state.mn.us/sites/default/files/p-gen5-05.pdf.

[22] Minnesota Pollution Control Agency. 2022-b. Environmental Justice Framework. https://www.pca.state.mn.us/sites/default/files/p-gen5-05.pdf.

[23] Environmental Protection Agency. 1997. Environmental Justice Guidance Under the National Environmental Policy Act. Council on Environmental Quality. Accessed April 16, 2024.

[24] Minnesota Department of Commerce. 2021. Environmental Assessment: Frazee to Erie Transmission Line Project. Procured from: https://mn.gov/eera/web/project-file/11849/. Accessed February 13, 2024.

Table 6.7 Minority and Low-Income Populations in the Environmental Justice Study Area – USEPA Methodology

Location	Percent Minority (2022)	Percent At or Below Federal Poverty Level (2022)	Limited English Proficiency (2022)	EJ Area
Minnesota	13.1% ± 1.2%	9.6% ± 0.4%	2.1% ± 3.3%	No
Filmore County, Minnesota	1.1% ± 2.0%	8.7% ± 1.2%	1.4% ± 34.2%	No
Census Tract 9605	1.2% ± 9.8%	11.5% ± 3.2 %	3.9% ± 33.3%	No

Source: United States Census Bureau (2021)

No minority, low-income, or LEP populations were identified in the Environmental Justice Study Area using the USEPA methodology.

The second methodology uses a definition from Minn. Stat. § 216B.1691, subd. 1(e), which was recently updated to include the following definition of "environmental justice area." Although this statute is not directly applicable to the Project, the definition provides a different methodology for assessing environmental justice areas along the Proposed Route. The statute defines an environmental justice area as follows:

> Environmental justice area means an area in Minnesota that, based on the most recent data published by the United States Census Bureau, meets one or more of the following criteria:
>
> 1. 40 percent or more of the area's total population is nonwhite;
> 2. 35 percent or more of households in the area have an income that is at or below 200 percent of the federal poverty level;
> 3. 40 percent or more of the area's residents over the age of five have limited English proficiency; or
> 4. the area is located within Indian country, as defined in United State Code, title 18, section 1151.

This area is based on one or more Census tracts. Census tracts that intersect with the Project were analyzed for environment justice areas, consistent with this statute. Census tracts are the best approximation of a geographic area where adverse impacts can occur from the Project. The Project Route intersects one census tract identified in **Table 6.8**. The percentage of nonwhite, low-income, and limited English proficiency populations in cities, counties, and census tracts, in the environmental justice study area is summarized in **Table 6.8**.

Table 6.8 Environmental Justice Populations in the Environmental Justice Study Area – Minnesota Methodology

Location	Percent Nonwhite Population (2022)	Percent At or Below 200% of Federal Poverty Level (2022)	Limited English Proficiency (2022)	EJ Area
Minnesota	29.5 ± 1.2%	22.1% ± 1.9%	2.1% ± 3.3%	No
Filmore County, Minnesota	6.5% ± 2.0%	25.8% ± 6.6%	1.4% ± 34.2%	No
Census Tract 9605	4.8% ± 9.8%	32.0% ± 17.9%	3.9% ± 33.3%	Yes*

Source: United States Census Bureau (2022)
*Area is an environmental justice area at the maximum margin of error

In summary, the census tract that includes the Proposed Route does not include a population with over 40 percent people of color or a population greater than 40 percent with limited English proficiency. In addition, the Proposed Route does not pass through "Indian country," as defined in United States Code, title 18, section 1151. However, the concentration of low-income residents within the census tract that intersects the Proposed Route (at the maximum margin of error), using the Minnesota definition of an environmental justice area, the Project is considered to be in an area of increased concern for environmental justice. Because of this, the MPCA recommends additional consideration and notes additional effort is warranted in these areas. Dairyland will continue to make a reasonable accommodation for public engagement regarding the Project. The Project is not anticipated to negatively impact minority groups or other groups/areas of concern.

In addition to analyzing 2022 United States Census Bureau data for the Proposed Route, Dairyland looked at poverty, non-white population, tribal areas, and LEP areas reported in Census Tract 9605 using the MPCA "Understanding Environmental Justice in Minnesota" tool. This tool provides a five-year (2017 – 2021) summary of United States Census Bureau American Community Survey data. According to this tool, the Proposed Route is not located in an area where 40 percent or more of the area's total population is nonwhite, or where 40 percent or more of the area's residents over the age of five have limited English proficiency, or in Indian country. However, 31.15 percent ± 8.14 percent of people reported income less than 200 percent of the federal poverty level, which is over 35 percent when accounting for the maximum margin of error level. As noted above, Dairyland will continue to make a reasonable accommodation for public engagement regarding the Project.

The presence of an LEP potentially requiring written translations of documents, in accordance with USEPA guidance, was not identified in the Environmental Justice Study Area. Within the Environmental Justice Study Area Census tract, there are approximately 19 people who speak Spanish and speak English less than very well (1.5 percent of the Census tract population), 124 people who speak other Indo-European languages and speak English less than very well (9.6 percent of the Census tract population), and four people who speak other languages and speak English less than very well (<one percent of the Census tract population).[25]

[25] United States Census Bureau. 2022. American Community Survey. Procured from: Census.gov. Accessed June 7, 2024.

6.2.4.1 Impacts and Mitigation

During construction, there may be short-term positive impacts to the nearby communities. Potential increases in local revenue may occur for local businesses, such as hotels, grocery stores, gas stations, restaurants, and the purchases of goods and services made by 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.

One environmental justice community, Census Tract 9605, was identified within the Environmental Justice Study Area. This census tract potentially has over 35 percent of the population at or below 200 percent of the federal poverty level when accounting for margins of error. The Project is not anticipated to negatively impact minority groups or other groups/areas of concern. Environmental impacts from all resources area assessed in this Application were evaluated. As described in **Sections 6.3.5 and 6.4.5** of this Application, the Project is not anticipated to result in adverse impacts to air quality, recreation, or climate, and the Project is anticipated to result in positive socioeconomic benefits. As a result, impacts to environmental justice communities are not anticipated. Because socioeconomic impacts will be generally short-term and beneficial, and no environmental justice areas will be impacted, no mitigation is proposed.

6.2.5 Zoning and Land Use Compatibility

The Project is located within York Township in Fillmore County, Minnesota. A Route Permit issued by the Commission supersedes and preempt all zoning, building, or land use rules, regulations, or ordinances put in place by regional, county, local and special purpose governments per Minn. Stat. § 216E.10, subd. 1. However, the Commission will consider potential impacts to local land use.

6.2.5.1 Fillmore County Zoning Ordinance

York Township does not have zoning regulations, thus Fillmore County has general zoning authority.

Fillmore County is located in southeastern Minnesota. It has approximately 21,179 residents and comprises 862 square miles organized into 24 Townships and 14 cities. The most predominant land use in the County is agricultural production. The Fillmore County Comprehensive Plan[26] was produced in 2006 to establish long term goals and strategies for the County, and the Fillmore County Zoning Ordinance[27] was adopted in 1989 to guide zoning for development and management activities within the County. The Fillmore County Zoning Ordinance is intended for regulation of the use of land in the County of Fillmore. The Fillmore County Zoning Ordinance applies to all areas of Fillmore County outside the incorporated limits of municipalities, except for those incorporated municipalities who adopt the Fillmore County Zoning Ordinance. The

[26] Fillmore County. 2006. Fillmore County Comprehensive Plan. Accessed April 16, 2024.

[27] Fillmore County. 2024. Fillmore County Zoning Ordinance. Accessed April 16, 2024.

Zoning Ordinance identifies five primary use districts and five overlay districts. The overlay districts cover uses in floodplains, shoreland, blufflands, scenic trails, and areas of decorah shale.

According to the Fillmore County Zoning Ordinance, the Project runs entirely through zoning districts classified as A (Agricultural). According to the zoning information that is publicly accessible via Fillmore County, the Project does not cross through zoning overlay districts defined by the County, including flood plain, scenic trail, shoreland, bluffland, or decorah shale districts. The Zoning Ordinance recognizes electric transmission lines as a permitted use within the Agricultural District.

Minn. Stat. § 103F.121 requires each county to develop floodplain zoning ordinances in order to preserve the capacity of floodplains to carry and discharge floods and minimize flood hazards. Similarly, Minn. Stat. §§ 103F.201 *et seq*. requires municipalities to develop shoreland ordinances to preserve the economic and environmental values of shorelands and protect and enhance surface waters. The County's floodplain and shoreland regulations are contained within the Fillmore County Zoning Ordinance. The County has elected to enact special restrictions on development in blufflands, scenic trails, and areas of decorah shale. Despite the presence of these zoning regulations, the Project will not need to obtain any special zoning permits to construct the Project, as such local permits are preempted under state law with issuance of a Route Permit (*see* Minn. Stat. § 216E.10.1).

6.2.5.2 Land Use

Current land use within the Project ROW consists of mainly agricultural (row crop and hay/pasture), rural residential, and open lands. Businesses in the general Project vicinity consist primarily of the production and processing of farm-based goods. The total acreage of each land cover type overlapped by the Project ROW is provided in **Table 6.9** and shown on **Appendix A, Map 5**.

Table 6.9 Land Cover within Project ROW

Land Cover Type	Project ROW (Acres)	Project ROW (Percent)
Cultivated Crops	18.56	44.1%
Developed, Medium Intensity	12.75	30.3%
Developed, Low Intensity	0.9	2.1%
Developed, Open Space	9.8	23.4%
Hay Pasture	**0.01**	**0.02%**
Total	**42.3**	**100%**

Source: NLCD, 2021

6.2.5.3 Impacts and Mitigation

As the Fillmore County Zoning Ordinance authorizes transmission lines as a permitted use within Agricultural and Resident Agricultural districts, no impacts to zoning in these districts would occur. Additionally, as the Project will not operate in any flood plain, scenic trail, shoreland,

blufflands, or decorah shale districts, no local permits will be needed to construct the Project in overlay districts.

Tangent poles will be direct embedded with approximately five sq ft of direct ground impact per pole. Corner or dead end poles will use a concrete foundation with approximately 50 sq ft of direct ground impact per pole. Total direct permanent ground impact in Minnesota will be approximately 435 sq ft.

Impacts to land use as a result of the Project are expected to be minimal, and construction of the line will not change land uses, particularly given that the Project will be co-located with existing road ROW for all of its length. Short-term agricultural impacts might occur during construction, which will be mitigated through restoration and compensatory payments. Minimal impacts to residential land uses are anticipated; therefore, no additional mitigation is proposed.

6.2.6 Cultural Values

Cultural values include those perceived community beliefs or attitudes in a given area, which provide a framework for community unity.

The publicly available 2006 Fillmore County Comprehensive Plan[28] states that the county contains a 'wealth of agricultural, natural, cultural, and human resources,' and states that the cities and townships of the county 'maintain strong identities as well as significant historic tradition.' The present county boundaries were established in 1853 and at the time of Minnesota's statehood, Fillmore County was the most populus county in Minnesota until 1870.[29] According to the 2024 Fillmore County Profile, the population has increased by 2.6% from 2010 to 2022.

Prior to European Settlement, the area was inhabited by the Dakota (Sioux Nation).[30] The Treaty of Traverse des Sioux in 1851 between the Sisseton and Wahpeton bands of Dakota and the US government transferred ownership of much of southeastern Minnesota Territory to the United States.[31]

Today, agriculture is the most predominant land use in Fillmore County. Agricultural activities include row and vegetable crops including corn, soybeans, and alfalfa. Predominant livestock produced in Fillmore County include dairy cattle, beef cattle, poultry, and hogs.[32]According to the Fillmore County Comprehensive Plan[33], the county has grown from a mainly agriculture-based county to include industry, tourism, retail, and other service businesses. Since the county's population peak in 1895 at 28,599 residents, the rural population in Fillmore County has become increasing non-farm, with only 0.2 percent[34] of total jobs in 2023 comprising of Farming, Fishing,

[28] https://cms9files.revize.com/fillmoremn/Services/Comp_plan.pdf.

[29] https://www.co.fillmore.mn.us/about/index.php.

[30] https://www.mnopedia.org/multimedia/native-american-land-cessions-and-reservations-1858-0.

[31]https://www.mnopedia.org/event/treaty-traverse-des-sioux-1851#:~:text=The%20Treaty%20of%20Traverse%20des%20Sioux%20(1851)%20between%20the%20Sisseton,Territory%20to%20the%20United%20States.

[32] https://www.co.fillmore.mn.us/about/index.php.

[33] https://cms9files.revize.com/fillmoremn/Services/Comp_plan.pdf.

[34] https://mn.gov/deed/assets/021224_fillmore_tcm1045-407636.pdf.

and Forestry occupational groups due to agricultural technologies and increasing farm size. Because of the desirable landscape in Fillmore County and its proximity to larger cities including Rochester and Winona, urban development is accelerating along the northern boundary of the County.[35]

Several economic development associations are active in Fillmore County, including: several city Chambers of Commerce, the Fillmore County Economic Development Association, and the Fillmore County Development Corporation,[36] a non-profit organization that seeks to foster economic development within the county and its local communities.

The major natural resource features in Fillmore County include the Root River and its tributaries, scenic bluffs, natural grasslands, forests, and wetlands, which are over 10 miles to the north. Few lakes are present due to the natural landforms within the county and the Oak Savanna Subsection ecoregion associated with the Project vicinity.[37]

Recreation is a significant land use in Fillmore County with tourism associated with the Root River and its associated tributaries and scenic bluffs increasing in recent years.[38] Recreational resources in Fillmore County include parks, trails, rest areas, and campgrounds.[39] Cultural areas listed in the Comprehensive Plan include churches, cemeteries, community halls, and rural schools.[40]

6.2.6.1 Impacts and Mitigation

Construction of the Project is not expected to conflict with the cultural values of the area. Although there may be localized disruptions during construction, any disruptions should be of short duration and localized. There are existing transmission lines and distribution lines present in Fillmore County. Additionally, the Project will contribute towards continued reliability for residents and others who utilize energy in the region. Accordingly, no mitigation is proposed.

6.2.7 Public Services and Transportation

The Project is located 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. Site improvements, such as septic systems and wells, will be identified during survey activities.

Several existing transmission lines are located in the vicinity of the Project. There are no crude oil or interstate natural gas pipelines in the vicinity of the Project. There are no existing electric transmission lines, utility gas or liquid pipelines crossed by the Project ROW. However, there is an existing electric distribution line running along 171st Avenue for most of the Proposed Route

[35] https://www.dnr.state.mn.us/ecs/222Me/index.html.

[36] https://fillmorecountydevelopment.org/about-fcdc/.

[37] https://www.dnr.state.mn.us/ecs/222Me/index.html.

[38] https://cms9files.revize.com/fillmoremn/Services/Comp_plan.pdf.

[39] https://www.co.fillmore.mn.us/departments/economic_development/recreation_map.php.

[40] https://cms9files.revize.com/fillmoremn/Services/Comp_plan.pdf.

in Minnesota. A portion of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line, from 171st to 131st Avenues, will be retired and removed from service upon completion of the Project. The Project ROW would travel approximately 3.5 miles along 171st Avenue in Fillmore County and cross County State Aid Highway 44, 120th Street, and 131st Avenue as shown in **Appendix A, Maps 2a and 2b**.

As aircraft maneuver near airports, transmission lines can pose hazards to aircraft if the structures encroach into airspace. Federal Aviation Regulation Part 77 and Minnesota Statutes 8800.1200 establish criteria defining heights for any structures that could endanger aircraft, which includes structures exceeding 200 ft above ground level within 20,000 ft (3.78 miles) of a public use or military airport that has at least one airstrip more than 3,200 ft. long. The closest airport, Fillmore County Airport, is located approximately 57,000 feet (10.8 miles) northeast of the Proposed Route at an elevation of 1,277 feet. This airport has one airstrip, which is 4001 x 75 feet in length.

Aerial crop dusting, which involves the application of pesticides, herbicides or fertilizers by use of specialized aircraft, is an important part of agricultural operations in Minnesota. Aerial crop dusting may occur along fields within and surrounding the Proposed Route.

6.2.7.1 Impacts and Mitigation

The Project is expected to have a minimal effect on existing public services and transportation infrastructure and will comply with all applicable federal, state, and local requirements.

Dairyland will work with the local electric cooperative to minimize impacts to the existing 12.47 kV distribution lines that are located along 171st Avenue. 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. Additionally, Dairyland does not anticipate construction of the Project will cause any distribution outages that will influence service in the Project area. Because the majority of the Proposed Alignment will follow existing road ROW, no impacts to public services are anticipated and, therefore, no mitigation is proposed. Similarly, because the Project is primarily proposed to be routed near existing road ROW, Dairyland does not anticipate impacts to site improvements such as wells or septic systems; however, this will be confirmed with landowners during the easement acquisition process.

Temporary access for construction of the transmission line would be along the transmission line ROW and in some instances may be located outside of Project ROW. Final access locations have not yet been determined.

Temporary and infrequent traffic impacts associated with equipment/material delivery and worker transportation will occur. Temporary localized traffic delays may occur when heavy equipment enters and exits roadway ROW along the transmission ROW and for stringing operations at roadway crossings. 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. When wire stringing occurs across a road, Dairyland will install appropriate traffic control and safety devices, such as H braces, signs, or flaggers. Dairyland will work with townships and

counties on the appropriate safety measures during stringing and haul routes. 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 activities will be conducted to offer the least possible obstruction and inconvenience to the traveling public. Dairyland will plan and execute delivery of heavy equipment in coordination with the appropriate road authorities and in a manner that would avoid traffic congestion and reduce the likelihood of dangerous situations along local roadways. To ensure that any short-term and infrequent traffic impacts are minimized, Dairyland 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.

The Project does not intend to locate any structures within existing Minnesota Department of Transportation (MnDOT) road ROW. Dairyland will also coordinate with Fillmore County and York Township on road access permits and procedures, as well as utility permits and other road-related approvals, as needed.

As part of the line retirement of the portion of the existing 161 kV LQ8A Harmony to Beaver Creek transmission line, Dairyland will coordinate with the MnDOT to confirm that construction of the Project will not interfere with routine roadway maintenance. Dairyland will work with MnDOT through its application process for a Utility Accommodation Permit in MnDOT ROW and comply with all permit conditions.

A review of the Minnesota County Well Index identified one active private well (00221188) mapped within the Proposed Route; however, the Minnesota County Well Index did not identify any active private wells within the Project ROW. Therefore, Dairyland does not anticipate impacts to private wells or septic systems. Impacts to existing wells and septic systems will be confirmed with landowners and mitigated to the maximum practicable during the easement acquisition process.

Dairyland does not anticipate any aviation impacts as a result of the Project due to the distance from the nearest airport and airstrip. As the Project ROW is located beyond the distance where structures may be considered general obstructions under Minnesota Statutes 8800.1200 and Federal Aviation Administration (FAA) Part 77, the Project is not expected to affect airspace operations. Once final structure placement is identified, Dairyland will submit structure locations to the FAA for review. No structures will reach over 200 feet above ground level.

6.3 Public Health and Safety

6.3.1 General Construction Safety

Safety concerns related to construction may include slow movement of construction equipment on public roads, construction equipment crossing public roads and trails, conductor stringing across public roads and near public areas, and land clearing operations. Public health and safety concerns related to operation may include outages, fires, and electrocution.

6.3.1.1 Impacts and Mitigation

Dairyland will ensure that safety requirements are met during construction and operation of the facilities. The Project will be designed in compliance with local, state, NESC, and Dairyland 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. Dairyland's established safety procedures and industry safety procedures will be followed during and after installation of the transmission line, including clear signage during all construction activities. Additionally, when crossing roads or railroads during stringing operations, guard structures will be utilized to eliminate traffic delays and provide safeguards for the public.

The proposed transmission line will be equipped with switching devices (circuit breakers and relays located in the substations where the transmission lines terminate). These devices are intended to make, carry, and break line currents under normal conditions and in specified abnormal conditions such as a short circuit or fault. The circuit breakers stop the specified current and can protect other equipment and the extended power system from damaging currents and more extensive outages; however, any electrical facility which becomes isolated by operation of circuit breakers should not be considered de-energized or safe. Downed power lines and other damaged electrical equipment should always be assumed to be energized and dangerous.

With implementation of these safeguards and protective measures, no additional mitigation is proposed.

6.3.2 Stray Voltage and Induced Voltage

"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 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. Structures and other facilities made of conductive material located in close proximity to electric transmission lines may experience an induced current and voltage due to electric and magnetic field coupling between the facilities.

6.3.2.1 Impacts and Mitigation

Stray voltage and induced voltage impacts are unlikely to occur, as the Proposed Route and Project ROW will be located in an area free of existing transmission line infrastructure. If a landowner has stray voltage concerns on their property, Dairyland suggests they contact their electric service provider to discuss the situation with technical staff, including the possibility of an on-site investigation. Additionally, Dairyland will coordinate with local distribution companies to perform pre- and post-construction testing of potentially impacted facilities to ensure no adverse impacts and address property owner concerns.

Induction and its potential impacts can be mitigated through implementation of appropriate design measures and techniques, such as:

- Cancellation – The arrangement of transmission line conductors and shield wires to lower electric and magnetic field levels;
- Separation – Increasing the distance between the transmission line and other conductors or conductive objects. Electric and magnetic field levels decrease rapidly with distance; and
- Grounding of non-energized conductors or conductive objects.

Dairyland will design and construct the proposed facilities to minimize the potential for induction issues.

6.3.3 Electronic Interference

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

Corona formation is a function of the conductor radius, surface condition, line geometry, weather condition, and most importantly, the line's operating voltage. This section summarizes the potential impacts of the Project on electronic communication and communication devices, including radios, televisions, and microwave communication.

Electromagnetic noise from transmission lines may interfere with electronic communications when it is generated at the same frequencies as communication and media signals. This noise could interfere with the reception of these signals depending on the frequency and strength of the signal and distance from the electromagnetic noise source. Corona interference from transmission lines causes the greatest disturbance in a relatively narrow frequency spectrum, in the range of about 0.1 to 50 megahertz (MHz). Because many communication and media signals are transmitted at higher frequencies, impacts to communication signals are limited.

AM radio frequencies are most commonly affected by corona-generated noise. AM radio frequency interference typically occurs immediately under a transmission line and dissipates rapidly to either side of the transmission line within the ROW.

Television broadcast frequencies are typically high enough that they are not affected by corona-generated noise. In particular, digital and satellite television transmissions are not affected by corona-generated noise because they are dependent on packets of binary information transmitted in the Ku band of radio frequencies (12,000-18,000 MHz). Digital and satellite transmissions are more likely to be affected by multi-path reflections (shadowing) generated by nearby towers. In addition, line-of-sight interference from transmission line structures can affect satellite television transmissions. The use of shielded coaxial cable for cable television transmittals generally makes them insusceptible to interference from electromagnetic noise.

Cellular phone signals use an ultra-high frequency, generally around 900 MHz, which is significantly higher than the range of electromagnetic noise generated by transmission line

conductors. GPS signals operate at a higher frequency as well, within the range of 1,225 to 1,575 MHz.

Electromagnetic noise from transmission lines is not an issue for microwave communications. However, microwave communications can be physically blocked by taller transmission structures. Microwave beams are transmitted along aerial pathways between microwave communication towers. Microwave beam pathways can extend as close as 150 feet to the ground. Transmission line structures for this Project would be 75 feet to 140 feet tall.

6.3.3.1 Impacts and Mitigation

No impacts to radio, cellular phones, or GPS units are expected from construction or operation of the Project. Because both cellular phone signals and GPS operate at frequencies outside the range of electromagnetic noise generated by transmission line conductors, the risk of interference is negligible.

Electromagnetic interference to digital and satellite television signals as a result of the Project is not anticipated. If electromagnetic interference to these signals were to occur from multi-path reflections or line-of-sight interference, such interference can be mitigated by use of an outdoor antenna to improve digital signals or by moving the affected satellite antenna to a slightly different location. Electromagnetic interference from a spark discharge source due to imperfections on the conductor or associated equipment can be found and corrected.

Because no impacts on radio, television, cellular phones, or GPS units are anticipated from construction or operation of the Project, no mitigation measures are proposed.

6.3.4 Electric and Magnetic Fields

Electricity produces two types of fields, electric and magnetic. Electric fields (EF) and magnetic fields (MF) are often combined and referred to as EMF. EF and MF can be found in association with transmission lines, local distribution lines, substation transformers, household electrical wiring, and common household appliances.

6.3.4.1 Electric Fields

EF are created wherever there is electricity and when any device or wire is connected to a source of electricity, even when current is not flowing, or if the device is not turned on. EF produced by high voltage electric transmission lines have little ability to penetrate buildings, or even skin, and are easily shielded by common objects such as trees, fences, and walls.[41]

Although there is no state or federal standard for transmission line EF exposures, the EQB developed a standard of a maximum EF limit of eight kV per meter (kV/m) at one meter (3.28 feet) above ground; the Commission has adopted this standard. Dairyland has calculated the approximate EF for the Project's transmission configuration and estimates the peak magnitude of EF density to be well below the EQB standard at approximately 1.2 kV/m underneath the conductors, one meter above ground. **Table 6.10** summarizes the EFs calculated for the proposed

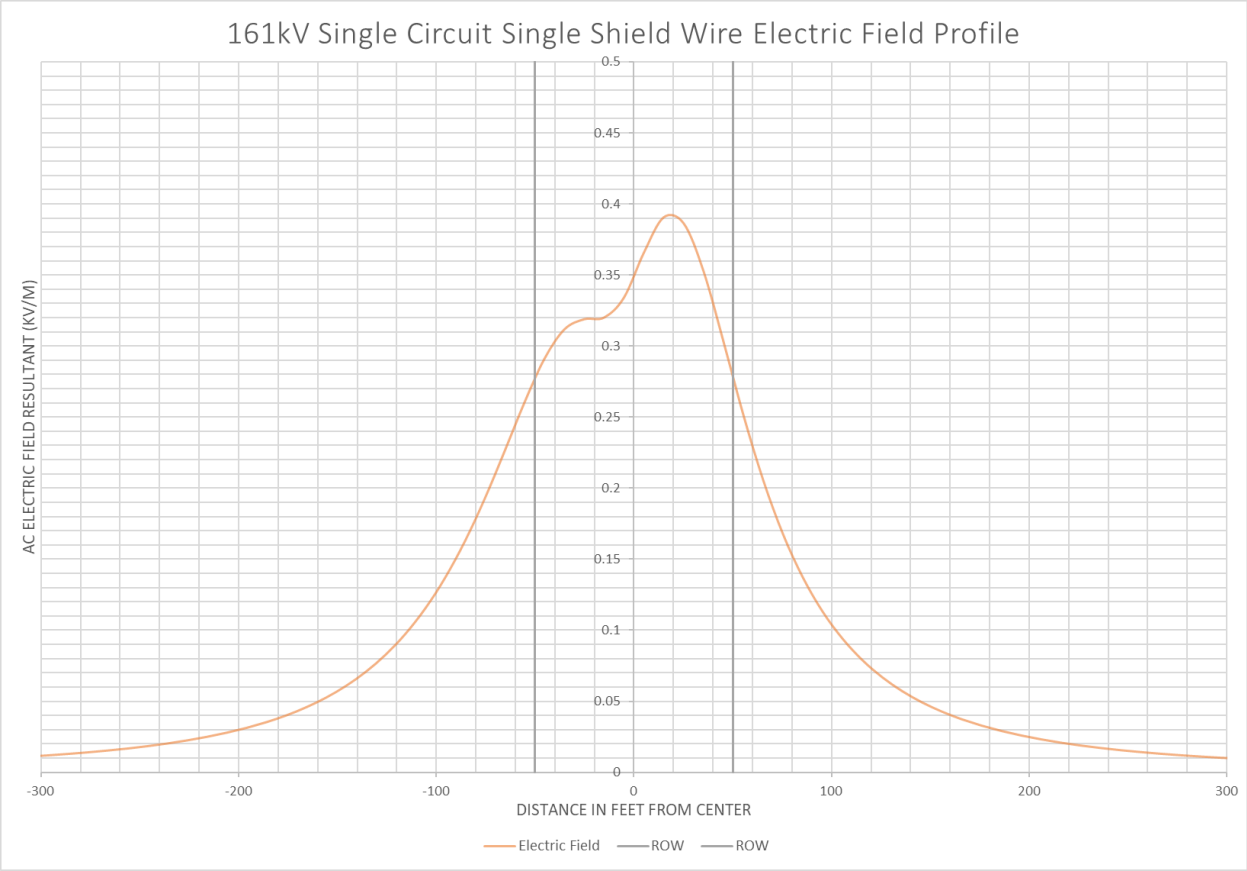
[41] https://psc.wi.gov/Documents/Brochures/EMF.pdf. Accessed on August 24, 2023.

single circuit transmission line. These EF calculations are also shown graphically in **Figure 6-1.**

Table 6.10 Calculated Electric Fields (kV/M) for Proposed Alignment (One meter (3.28 feet) above ground)

Operating Voltage (kV)	Max Operating Voltage (kV)	ELECTRIC FIELD STRENGTH (kV/m)										
		Lateral Distance to Proposed Alignment (feet)										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
161	169	0.01	0.03	0.13	0.28	0.32	0.35	0.39	0.28	0.10	0.02	0.01

Figure 6-1 161 kV Single Circuit Line Electric Field Profile



6.3.4.2 Magnetic Fields

MF are created only when there is an electric current, the motion of electric charges (electrons) in a conductor, such as a wire. The magnitude of a MF is proportional to the current flow through an electric line, not the voltage. As the current increases, so does the MF. MFs become weaker

rapidly with distance from the source; however, they do pass through most non-metallic materials and are therefore more difficult to shield. In the literature, MF data are presented in either units of Gauss or Tesla.

Any device that uses electric current creates a MF. Electric appliances such as computers and refrigerators and the wiring that runs through walls and ceilings in homes produce MFs when current is flowing. **Table 6.11** lists sample ranges of MFs for various appliances and tools. Typical background environmental or ambient MF levels are most often around one to three milliGauss (mG).[42]

Table 6.11 Magnetic Fields of Common Electric Appliances (mG) [43]

Appliance*	Distance from Source	
	6 inches	2 feet
Microwave Ovens	100-300	1-30
Dishwashers	10-100	2-7
Refrigerators	Ambient – 40	Ambient - 10
Fluorescent Lights	20-100	Ambient - 8
Copy Machines	4-200	1-13
Drills	100-200	3-6
Power Saws	50-1,000	1-40
* Different makes and models of appliances, tools, or fixtures will produce different levels of MFs. These are generally-accepted ranges.		

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 conclude that the evidence of health risk is weak.[44] The general standard is one of prudent avoidance.

Table 6.12 summarizes the MFs calculated for the proposed transmission line configuration with power flow at peak historic loading (current line), average loading (current line) and peak rated loading of proposed new line. The MF calculations are also shown graphically in **Figure 6-2**. The maximum MF under expected peak rated conditions is 49.16 mG at the edge of ROW, as shown in **Table 6.12**. This is well below the standards set by the state of both Florida and New York.

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

[42] https://psc.wi.gov/Documents/Brochures/EMF.pdf.

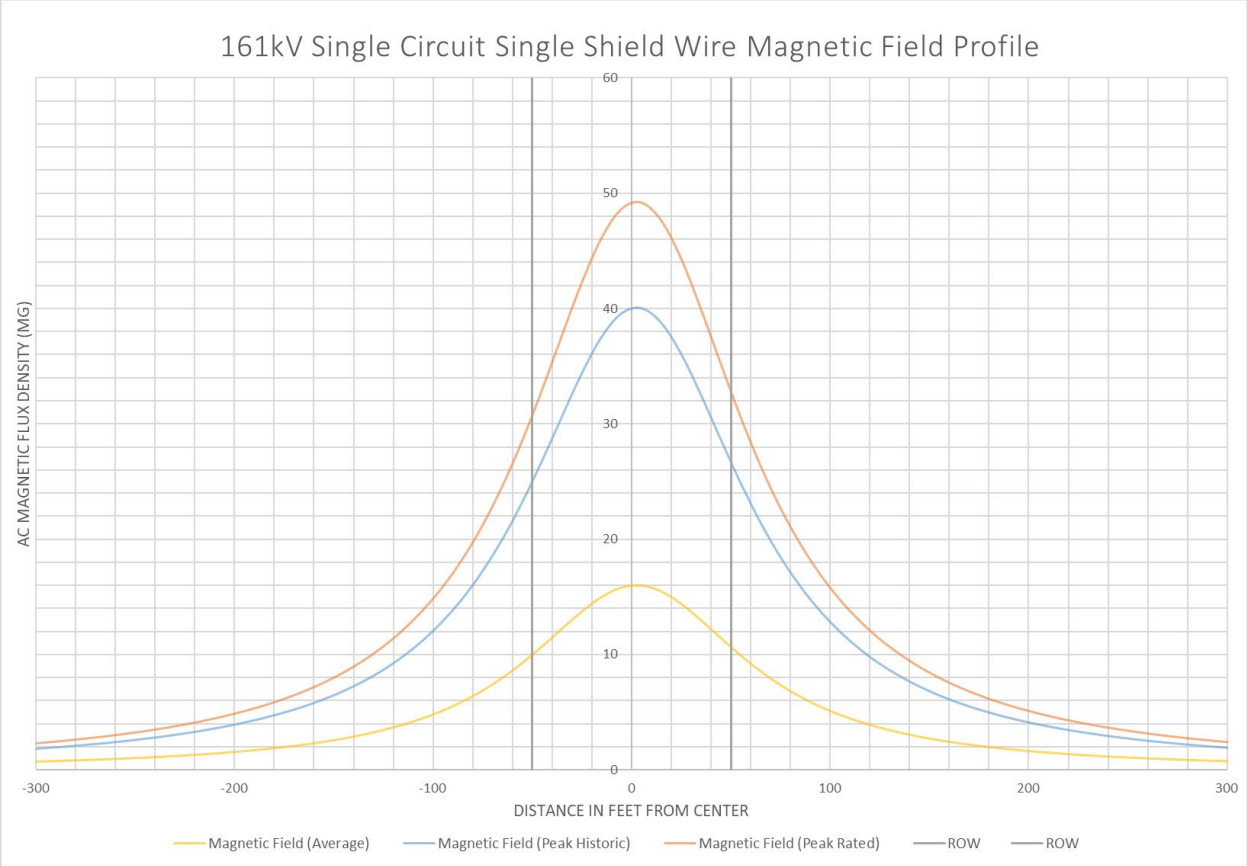
[43] https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf.

[44] www.niehs.nih.gov/health/topics/agents/emf/.

Table 6.12 Calculated Magnetic Fields (mG) for Proposed Alignment Design

Load Condition	Line Current (Amps)	MAGNETIC FIELD STRENGTH (mG)										
		Lateral Distance to Proposed Alignment (feet)										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Average Historic Load	512	0.74	1.57	4.81	9.97	13.73	15.99	14.43	10.69	5.14	1.65	0.78
Peak Historic Load	1281	1.85	3.93	12.03	24.95	34.36	40.01	36.10	26.75	12.86	4.14	1.94
Peak Rated Load	1574	2.27	4.83	14.78	30.66	42.22	49.16	44.36	32.87	15.80	5.08	2.38
Notes: Gray shading indicates edge of ROW.												

Figure 6-2 161 kV Single Circuit Line Magnetic Field Profile



6.3.4.3 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 six kV/m are unlikely to cause interactions affecting operation of most of their devices. **Table 6.10** and **Figure 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.[45]

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.

6.3.4.4 Health Studies and Potential Health Impacts

More than 25,000 scientific epidemiological, occupational safety, laboratory animal and cellular studies have been published regarding EMF from respected national and international organizations. Overall, most scientists are convinced that the evidence that power line fields cause or contribute to cancer is weak to nonexistent. The biological studies conducted to-date have not been able to establish a cause-and-effect relationship between exposure to MFs and human disease. Scientists have been unable to identify any plausible biological mechanism by which EMF exposure might cause human disease. There is a general consensus within the scientific community that exposure to EMF is not responsible for human disease.[46]

[45] 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.

[46] https://psc.wi.gov/Documents/Brochures/EMF.pdf. Accessed on August 24, 2023.

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.[47] Other studies have come to similar decisions.[48]

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."[49] This conclusion was further justified in the Route Permit proceedings for the Brookings Project. In the Brookings Project Route Permit proceedings, Great River Energy and 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. 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."[50] The Commission adopted this finding on July 15, 2010.[51]

6.3.4.5 Impacts and Mitigation

No impacts to public health and safety are anticipated as a result of the Project. The Project will be designed in compliance with local, state, NESC, and Dairyland standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths.

[47] http://www.niehs.nih.gov/health/topics/agents/emf/.

[48] 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.

[49] 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).

[50] 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).

[51] 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).

6.3.5 Air Quality and Greenhouse Gases

6.3.5.1 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 health and the environment: carbon monoxide (CO), ozone, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, particulate matter equal to or less than 10 microns in diameter (PM_{10}), 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. Fillmore County is designated as in attainment or unclassifiable for the NAAQS (40 Code of Federal Regulations [CFR] Part 81.324).

6.3.5.2 Emissions Related to Construction

During construction, 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 cranes, trucks, bulldozers, and assorted small vehicles. Dairyland anticipates commencing construction as early as Q4 2025, as further discussed in **Section 3**.

Table 6.13 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 and days of operation, and estimated vehicle miles traveled. Detailed emission calculations are provided as **Appendix G**.

Table 6.13 Construction Emissions of Criteria Pollutants (tons per year)

Description	NOx[e]	CO	VOC[f]	SO_2	PM_{10}	$PM_{2.5}$
On-Road Engine Emissions[a]	1.93	3.46	0.00	0.00	0.12	0.12
Off-Road Engine Emissions[b]	0.06	0.11	0.00	0.00	0.00	0.00
Commuters and Delivery Vehicles[c]	0.68	1.18	0.00	0.00	0.04	0.04
Fugitive Dust[d]	--	--	--	--	11.84	1.22
TOTAL						

[a] on-road equipment includes boom trucks, buckets, front end loaders, tensioners, cranes, concrete pumps, skid steer loaders, concrete mixer trucks, and hydrovac trucks.
[b] off-road equipment includes bulldozers.
[c] Commuter and delivery vehicles include ATVs, dump box trucks, semi-trucks, and pickup trucks.
[d] Fugitive dust is estimated assuming the full site acreage (42.3 acres) is impacted over the maximum number of construction days (144 days).
[e] Nitrogen oxides (NO_x)
[f] Volatile Organic Compounds (VOC)

6.3.5.3 Emissions Related to Operation

The only potential air emissions from a transmission line result from corona. Corona can 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.

Corona-induced ozone, and nitrogen oxides (NO_x) are typically not a concern for power lines like the Project with operating voltages at or below 161 kV because the EF intensity is too low to produce significant corona. Therefore, Dairyland expects ozone and NO_x concentrations associated with the Project to be negligible, and well below all federal standards (NO_2 – 100 parts per billion (ppb) as one-hour average, 53 ppb as annual average; ozone 70 ppb as 8-hour average).[52]

[52] "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.

6.3.5.3.1 Impacts and Mitigation

Temporary and localized air quality impacts caused by construction vehicle emissions and fugitive dust from ROW 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 access roads and water or other non-chloride-containing dust suppression applications;
- Water application to the ROW to suppress dust during dry weather, as needed;
- If the ROW is wet during construction activities, vehicle tracking of soil from the ROW will be minimized by using wooden or plastic matting at access points; and
- Street sweeping where soils are tracked onto paved roads in accordance with the MPCA Construction Stormwater General Permit.

At the completion of construction activities, all construction-related air impacts would cease. No impacts to air quality are anticipated due to the operation of the transmission line.

6.3.5.4 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 percent reduction in greenhouse gas emissions across all industry sectors.[53]

Construction of the transmission line will result in temporary minor greenhouse gas emissions from fuel combustion in construction equipment, commuter vehicles, and delivery trucks. **Table 6.14** 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 and days of operation, and estimated vehicle miles traveled. Detailed emission calculations are provided as **Appendix G**. At the completion of construction activities, all construction-related air impacts would cease.

[53] https://www.pca.state.mn.us/sites/default/files/lraq-2sy23.pdf.

Table 6.14 Preliminary Estimate: Greenhouse Gas Emissions

Description	CO_2 (Short Tons)	CH_4 (Short Tons)	N_2O (Short Tons)	CO_2e (Short Tons)
Off-Road Engine Emissions	1,207.92	0.01	0.10	1,238.75
Off-Road Engine Emissions	6.65	0.00	0.00	6.82
Commuters and Delivery Vehicles	217.20	0.01	0.02	222.86
TOTAL	1,431.77	0.01	0.12	1,468.43

Notes:
CO_2 – carbon dioxide
CH_4 – methane; 1 short ton CH_4 = 25 short tons CO_2e
N_2O – nitrous oxide; 1 short ton N_2O = 298 short tons CO_2e
CO_2e – carbon dioxide equivalent

The Project does not include expanded services or increased system capacity. As such, there will be no changes to upstream or downstream greenhouse gas emissions during operation of the transmission line.

6.3.5.4.1 Impacts and Mitigation

Dairyland will minimize vehicle emissions by limiting vehicle idling to only times when necessary. Dairyland also encourages workers to carpool to worksites to minimize the number of vehicles on the ROW, which also limits vehicle emissions.

USEPA's Greenhouse Gas Reporting Tool[54] shows emissions within Minnesota totaled 36,326, 041 metric tons of CO_2e in 2021. Accordingly, the preliminary estimate of Project greenhouse gas emissions identified here would be negligible.

Additionally, as the Project will enable new renewable energy generation to interconnect to the transmission grid, Dairyland anticipates the Project will support a net decrease in greenhouse gas emissions over time.

6.3.5.5 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.[55]

From 1895 to 2024, Fillmore County has experienced an average increase in temperature of 0.16 degrees Fahrenheit per decade and an increase in precipitation of 0.49 inch per decade.[56]

[54] https://www.epa.gov/ghgreporting/ghgrp-reported-data.

[55] https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html.

[56] https://arcgis.dnr.state.mn.us/ewr/climatetrends.

6.3.5.5.1 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.

6.4 Land-based Economies

6.4.1 Agriculture

Data gathered from the USDA 2022 Census of Agriculture for Fillmore County is summarized in **Table 6.15**.

Table 6.15 Summary of Agricultural Activities in Fillmore County (2022 Census)

	Fillmore County
Number of farm operations in the county	1,458
Total acreage of farm operations in the county	377,220
Average size of farm operations (acres)	323
Total crop and livestock sales (USD)	>$519 million

Source: USDA Census (2022)

Agricultural lands are the most common land type within the Proposed Route and Project ROW (**Appendix A, Map 5**). Agricultural lands crossed by the Project consist of properties used for pasture, hay, and cultivated crops. The Project is compatible for future and ongoing use as pasture, hay, or other crop cultivation. The Proposed Alignment will cross about 3.5 miles of primarily agricultural land, which is approximately 22.3 acres (within the 100-foot ROW).[57] As discussed in **Section 6.6.3.**, the Project ROW will cross prime farmland and prime farmland if drained for almost the entirety of the ROW. There are no organic farms within the Proposed Route.

6.4.1.1 Impacts and Mitigation

Some agricultural land may be temporarily removed from production during transmission line construction. 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. Permanent impacts will occur where transmission structures are placed. There will be some loss of agricultural production where poles are installed within areas used for agricultural use. Accordingly, there will be minor, but largely negligible impacts to pasture, hay, and cultivated lands.

[57] https://www.mrlc.gov/data/nlcd-2021-land-cover-conus.

Dairyland will work with landowners to minimize impacts to agricultural activities along the Proposed Alignment and will compensate landowners for any crop damage/loss and soil compaction that may occur during construction. Areas disturbed during construction will be repaired and restored to pre-construction contours as required so that all surfaces 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:

- 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 Dairyland 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 and permit compliance will allow. When repair is applicable, ruts will be leveled, filled, and graded or otherwise eliminated in an approved manner. In the pasture areas, 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 landowner-approved seeds or plants where necessary. Both the land and facilities will be restored as near 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 damage or other property damages that occurs during construction or maintenance as negotiated. If a negotiated easement cannot be reached, Dairyland will use the eminent domain process to obtain the needed rights.
- Fences, gates, and similar improvements that are removed or damaged will be promptly repaired, replaced, or compensated.

As discussed in **Section 5.2**, additional temporary workspace will be needed for the Project. For temporary staging / laydown yards, which will provide space to store material and equipment, and additional temporary workspace along the ROW, Dairyland 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 additional temporary workspace on property immediately adjacent to the ROW and on private property will not be needed, with the exception of limited equipment access and pulling areas.

6.4.2 Forestry

The Proposed Route does not cross any MnDNR state forests, state forests, or public forest land. All treed or forested areas along the Proposed Route are located along private property and are not presently managed for forestry activities. Forested areas within the Proposed Route are shown on **Appendix A, Maps 1 and 5**. Based on review of forested areas using current aerial photographs, Dairyland estimates that approximately 1.2 acres of trees will be needed to be removed within the 100-foot-wide ROW to construct and operate the Project. Small shrubs and woody plants within the ROW may need to be removed or cut back during construction for the safe and reliable operation of the transmission line. Woody vegetation that is removed or cut back within the 100-foot-wide ROW will not be allowed to re-grow to heights that present a concern for transmission line operation and maintenance.

6.4.2.1 Impacts and Mitigation

Because the Project will be co-located with existing road ROWs, there will be minimal incremental impacts to forested areas from construction and maintenance of the Project.

Mitigation measures for potential impacts to forest resources may include:

- Removal of vegetation will be discussed with landowners during easement negotiations and taken into consideration when drafting offers of compensation where applicable.
- Landowners will be given the option to keep any portions of the trees (e.g., timber) cut from within the easement area.

Dairyland has also developed a VMP for this Project (**Appendix F**).

6.4.3 Tourism

Tourist attractions in Fillmore County consist of museums, shopping opportunities, libraries, public parks, and golfing greens (golf courses), as well as natural areas which provide opportunities for watersports, fishing, and hunting. Additionally, tours of the local Amish Community and stores bring tourism into Fillmore County. These tours occur near the Harmony and Canton communities, about 15 miles away from York Township where the Project is located.

In Fillmore County, gross sales revenue from 2021 tourism activity was $26,876,394 and sales tax revenue were $1,874,521.[58] Tourism supplies approximately 628 jobs to the surrounding Fillmore County area.

No tourist attractions (including those described above) are crossed by the Proposed Route.

6.4.3.1 Impacts and Mitigation

The Proposed Route avoids known tourist attractions. The Project would not preclude tourism activities, appreciably diminish the use or experience at tourist destinations, or permanently

[58] Explore Minnesota Tourism. 2021. Minnesota Leisure & Hospitality Factsheet. Procured from: https://mn.gov/tourism-industry/tourism-matters/. Accessed January 1, 2024.

interfere with the use of any natural areas. The construction and operation of the Project will not impact the enjoyment of any surrounding tourist attractions. Further, Dairyland will minimize tree clearing to the extent practicable. As no impacts to tourism are anticipated, no mitigation is proposed.

6.4.4 Mining

MnDNR Aggregate Resource Mapping data and satellite imagery from the past 30 years were utilized in identifying and locating potential mining operation or gravel pits within the Proposed Route. The Proposed Route will not cross or border any mining operations.

6.4.4.1 Impacts and Mitigation

As the Project will not result in any impacts to active mining activities, no mitigation is proposed.

6.4.5 Recreation

Recreational activities within the Proposed Route may include fishing along waterways spanned by the Project. The Proposed Route crosses two streams (see **Section 6.6.4.3**). No state forests, state recreation areas, trails, Wildlife Management Areas (WMAs), Aquatic Management Areas, scenic byways, county parks, or private recreation facilities are located within one mile of the Proposed Route.

6.4.5.1 Impacts and Mitigation

The Project has been designed to avoid and/or minimize impacts to the recreational opportunities in the Project vicinity. Impacts to recreation will be minimal along the Proposed Route, as the Project will not cross any designated recreational facilities other than two natural waterways which may be used for fishing. Temporary disturbance to recreation could occur due to the influence of construction and associated movement of soil on nearby stream habitat. The Project has been designed to avoid and minimize waterway impacts through the implementation of BMPs during construction which will reduce sedimentation of surrounding streams, as discussed in **Section 6.6.4.7**. Overall, disturbance will not affect recreation beyond the duration of Project construction. Therefore, no mitigation measures are proposed.

6.5 Archaeological and Architectural Resources

A Phase Ia Cultural Resources Literature Search was completed for the Project to learn about known archaeological sites, historical cemeteries, and architectural properties within the Cultural Resources Study Area (**Appendix H**). This literature review and HDR Engineering, Inc. (HDR)'s evaluation of the possible effects of the proposed Project was provided to the Minnesota State Historic Preservation Office (SHPO) in June 2024. The Cultural Resources Study Area encompasses the Proposed Route and a one-mile buffer within Minnesota to identify resources that may potentially be impacted by the Project as well as inform the archaeological potential of the Proposed Route. The literature review research was completed using the Minnesota Statewide Historic Inventory Portal records maintained by the SHPO for architectural properties, and the Minnesota Office of the State Archaeologist (OSA) online portal for archaeological sites and

historical cemeteries. The National Park Service online National Register of Historic Places (NRHP) information was reviewed to confirm if NRHP Listed Historic Properties or National Historic Landmarks are present within the Cultural Resources Study Area.

A summary of cultural resource types (Archaeological Sites, Historical Cemeteries, Architectural Properties) in the Cultural Resources Study Area and Project ROW is presented in **Table 6.16** below.

Table 6.16 Summary of Archaeological and Architectural Resources

Cultural Resource Types	Total within Cultural Resources Study Area	Total Overlapping Project ROW	Total NRHP Eligible or Listed within Proposed Route
Archaeological Sites	0	0	0
Historical Cemeteries	0	0	0
Architectural Properties	8	3	0

Dairyland requested feedback on the Project from the 11 federally recognized Tribes with geography within Minnesota and the Minnesota Indian Affairs Council in letters sent in May/June 2024. These correspondences are included in **Appendix C**. To date, no Tribe has conveyed concerns regarding the Project.

6.5.1 Previously Recorded Archaeological Sites and Historical Cemeteries

Based on OSA and SHPO files, no previously identified archaeological sites or historical cemeteries were identified within the Proposed Route or Cultural Resources Study Area.

6.5.2 Architectural Resources

The Phase Ia Cultural Resources Literature Search identified eight previously recorded architectural properties (SHPO-inventoried properties) within the Cultural Resources Study Area (**Table 6.17**). Three of these properties are located within the Project ROW. The remaining five properties are located outside of the Proposed Route. None of the inventoried architectural properties have been evaluated for NRHP listing.

Table 6.17 Previously Recorded Architectural Properties within Cultural Resources Study Area

SHPO Inventory Number	Property Name	Property Type	NRHP Status	Within Project ROW
FL-YRK-00013	Bridge No. L4903	Bridge	Unevaluated	Yes
FL-YRK-00014	Bridge No. L4904	Bridge	Unevaluated	Yes
FL-YRK-00015	Bridge No. L4909	Bridge	Unevaluated	No
FL-YRK-00019	Culvert 97890	Culvert	Unevaluated	Yes
FL-YRK-00020	Culvert L9822	Culvert	Unevaluated	No
FL-YRK-00021	Culvert L9878	Culvert	Unevaluated	No
FL-YRK-00022	Culvert R0211	Culvert	Unevaluated	No
FL-YRK-00023	Culvert R0305	Culvert	Unevaluated	No

6.5.3 Impacts and Mitigation

No previously identified archaeological sites or historical cemeteries were identified within the Proposed Route or Cultural Resources Study Area; therefore, no impacts are anticipated. Although the Project will be constructed along and within areas of previous disturbance such as existing road ROWs, and therefore impacts are not anticipated, Dairyland is planning to conduct archaeological surveys ahead of construction as needed based on consultation with RUS and SHPO.

Table 6.17 lists architectural properties within the Cultural Resources Study Area and Project ROW. Previously inventoried architectural properties FL-YRK-00013, FL-YRK-00014, and FL-YRK-00019 are located within the Project ROW and are all positioned along 171st Avenue between 20 – 50 feet east of the Proposed Route. These properties include two bridges (FL-YRK-00013 and FL-YRK-00014) and one culvert (FL-YRK-00019). The bridges carry 171st Avenue over two unnamed creeks. The culvert leads to one of the unnamed creeks under FL-YRK-00014. Considering the Project is avoiding impacts to 171st Avenue, the Project is unlikely to result in direct impacts on architectural properties FL-YRK-00013, FL-YRK-00014, and FL-YRK-00019.

Transmission line structures are anticipated to be between 75 to 140 feet in height. Based on the height of these structures, it is anticipated they could be visible for up to 0.25 miles. The three architectural properties located within the Project ROW are also the only architectural properties located within this 0.25 mile visibility range. These properties have not been determined eligible for, nor have they been listed in, the NRHP. Therefore, they do not need to be assessed for adverse visual impacts per Minnesota state regulatory requirements.

The RUS, as the lead federal agency in connection with Project funding, will determine if its funding requires compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. If so, the lead federal agency will formally define the area of potential effect, initiate consultation with SHPO and interested parties under Section 106 regulations and determine if additional cultural resource studies may be needed to comply with Section 106.

Dairyland has developed an Unanticipated Discoveries Plan (UDP) that outlines the procedures to follow, in accordance with state and federal laws, should archaeological materials or human remains be discovered during construction of the Project (see **Appendix J**). If any such discovery occurs, construction work will be stopped and the UDP will be 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.

6.6 Natural Environment

6.6.1 Topography

Fillmore County is located within the Paleozoic plateau, also known as the Driftless Area.[59] This is a portion of the Upper Midwest that was free of the effects of glaciation during the last glacial period. The Driftless Area contains steep bluffs with limestone and sandstone cliffs. The rivers and streams created dendritic patterned valleys as they carved the land in this region. Elevation in this region ranges from 709 feet to 1,388 feet with an average of 1,191 feet. Along the Proposed Route, elevation ranges from 1268 feet to 1336 feet with an average of 1,308 feet (**Appendix A, Map 6**).

6.6.1.1 Impacts and Mitigation

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

6.6.2 Geology

Fillmore County has several geologic resources. There are carbonate rock quarries, sand, and gravel, throughout the county. York Township has glaciofluvial deposits (Pleistocene) present within and surrounding the Township.[60] These deposits are from outwash, ice-contact, and terrace. They are composed of sand, gravel, and minor beds of silt and clay and are filled with grains that are strongly oxidized and coated with brown clay. Additionally, the surficial geology within York Township includes till consisting of unstratified and unsorted drift deposited by glaciers. This till is often composed of subangular and rounded clasts of local and erratic rocks. The geology of Fillmore County was not impacted by the late Wisconsinan glaciers that delivered deposits of till to large areas of the rest of the state. The till in Fillmore County, particularly the western portion of the county and comprising York Township, was brought in by Pre-Wisconsinan glaciers several hundred thousand years ago.

The Oak Savanna subsection of the Ecological Classification indicates that the depth of glacial drift over bedrock is generally less than 100 feet thick within the subsection, with maximum thickness of about 200 feet. Bedrock can be exposed in dissected streams valleys, especially at the eastern edge of the subsection. These exposures are primarily Ordovician and Devonian

[59] Driftless Rivers National Park Foundation. 2020. Frequently Asked Questions. Procured from: https://driftlessrivers.org/frequently-asked-questions/. Accessed February 2, 2024.

[60] Minnesota Geological Survey. 1995. Geologic atlas of Fillmore County, MN. Procured from: https://conservancy.umn.edu/items/293cf4c0-f341-4d05-b086-bf924465431f. Accessed February 16, 2024.

dolomite, which typically consists of limestone, sandstone, and shale.[61] Sediment thickness varies by landscape position.

Karst landscapes can develop where limestone and dolostone are at or near the surface. Limestone is composed mostly of the mineral calcite (calcium carbonate); dolostone is composed mostly of the mineral dolomite (calcium magnesium carbonate). Over time, the carbonate minerals in these rocks are dissolved by rain and groundwater, creating karst. In Minnesota, limestone and dolostone underlie the southeastern corner of the state, and erosion has removed most of the glacial cover and exposed the carbonate bedrock.[62] The MnDNR has documented regions prone to surface karst feature development across the state; this information is presented for the Project on **Appendix A**, **Map 7**.[63],[64]

Karst is characterized by sinkholes, caves, springs, and underground drainage dominated by rapid conduit flow.[65] A field-verified karst feature, such as a sinkhole, is direct evidence that karst processes are active both on the surface and in a karst aquifer in the subsurface. However, the absence of karst features on the land surface does not imply the absence of karst processes on the land surface or karst hydrology in the subsurface.

Segments of the Proposed Route are classified as "low probability," "low to moderate probability" and "moderate to high probability" areas for sinkholes[55]. However, the entire Proposed Route lies within an area with less than 50 ft of glacial cover overlying carbonate bedrock; conditions which are conducive to sinkhole development.

Field verified sinkholes and springs have been mapped within and in close proximity to the Proposed Route as shown in **Appendix A, Map 7**. Two sinkholes were mapped along the route (D4982 and D4977). Additional features within 1-mile include a sinkhole and spring located south of 110th Street in the NE quadrant of Section 31 in York Township and a cluster of sinkholes over the state line in Iowa, which are within 500 feet of the Route.

6.6.2.1 Impacts and Mitigation

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

Sinkholes could pose potential safety hazards during construction and operation. Prior to beginning construction, Dairyland will perform geotechnical investigations and survey the route for sinkholes and/or areas where a sinkhole may be impending. If a sinkhole is discovered during geotechnical investigations, Dairyland will produce a Karst Survey Plan and perform additional coordination with the MnDNR. Following completion of the studies, Dairyland will work with the MnDNR to develop a Karst Contingency Plan prior to construction that includes remedial actions to mitigate any unexpected voids encountered during construction. Remedial actions may

[61] https://www.dnr.state.mn.us/ecs/222Me/index.html.

[62] https://cse.umn.edu/mgs/caves-and-karst.

[63] https://gisdata.mn.gov/dataset/geos-surface-karst-feature-devel.

[64] https://files.dnr.state.mn.us/waters/groundwater_section/mapping/gw/gw01_report.pdf.

[65] https://www.dnr.state.mn.us/waters/groundwater_section/mapping/springs.html.

include analyzing sinkholes and excavating/replacing, filling, or subsurface grouting sinkholes if feasible.

6.6.3 Soils

According to USDA Web Soil Survey data[66], the Project ROW will cross 13 different soil associations (**Appendix A, Map 8**). The textures of the soils crossed by the Project include silty clay loam, silt loam, clay loam, loam, and mixed alluvial land. The wind erodibility index of the soils crossed by the Project ROW is 46 tons per year. All the soils crossed by the Project ROW are in wind erodibility group 6 (1 being most susceptible and 8 being the least susceptible to erosion). 42.8 percent of the soils in the Project ROW are nonhydric (zero percent hydric), and 57.2 percent of the soils in the Project ROW are partially hydric (two percent to 99 percent hydric). A summary of soil associations in the Project ROW is presented in **Table 6.18** and shown in **Appendix A, Map 8**.

[66] United States Department of Agriculture. 2019. Web Soil Survey. Procured from: https://websoilsurvey.nrcs.usda.gov/app/. Accessed February 1, 2024.

Table 6.18 Soil Associations in the Project ROW

Map Unit Symbol	Map Unit Name	Hydric Rating	Acres in ROW	Percent of ROW	Acres in Project Route	Percent of Project Route
Cg	Clyde silty clay loam, 0 to 3 percent slopes	95	0.5	1.10%	2.2	0.90%
Ch	Clyde silty clay loam, overwash	85	0.1	0.10%	0.8	0.30%
De	Dakota loam, 0 to 1 percent slopes	0	1.8	4.30%	12.8	5.00%
Df	Dakota loam, 2 to 6 percent slopes	0	N/A	N/A	3.3	1.30%
Fn	Floyd and Clyde silty clay loams, overwash, 0 to 3 percent slopes	90	15.4	36.30%	71.1	27.80%
Ka	Kasson silt loam, 0 to 1 percent slopes	0	4.1	9.60%	40.4	15.80%
Kb	Kasson silt loam, 2 to 6 percent slopes	0	1.5	3.50%	13.1	5.10%
Kd	Kenyon silt loam, 0 to 1 percent slopes	0	8.2	19.40%	32.8	12.90%
Ke	Kenyon silt loam, 2 to 6 percent slopes	5	0.6	1.40%	7	2.70%
M515A	Tripoli clay loam, 0 to 2 percent slopes	90	2.1	5.00%	19.6	7.70%
Md	Mixed alluvial land, 0 to 6 percent slopes	95	0.1	0.10%	0.6	0.20%
Rb	Racine and Ostrander silt loams, 2 to 6 percent slopes	2	N/A	N/A	0.7	0.30%
Rd	Racine and Ostrander silt loams, 7 to 11 percent slopes, moderately eroded	0	N/A	N/A	0	0.00%
Re	Racine and Ostrander loams, 12 to 17 percent slopes, moderately eroded	0	N/A	N/A	0.1	0.10%
Sg	Skyberg silt loam, 0 to 3 percent slopes	5	5.6	13.20%	41.2	16.20%
Tl	Mantorville and Wykoff loams, 0 to 1 percent slopes	0	0.2	0.40%	1.8	0.70%
Tm	Mantorville and Wykoff loams, 2 to 6 percent slopes	0	2.3	5.40%	7.7	3.00%
Subtotals for Soil Survey Area			42.4	100.00%	255.2	100%

6.6.3.1 Impacts and Mitigation

Surface disturbance caused by construction of the transmission structures may result in the soil surface becoming more prone to erosion or compaction which can result from use of heavy equipment. Clearing, grading, trench excavation, and backfilling would occur during construction within the designated construction workspace, which may result in impacts on soil resources in these areas. Clearing includes the removal of cover, which exposes soil to the effects of wind and precipitation, which may increase the potential for soil erosion and movement of sediments. Heavy equipment and repeated traffic may compact soil. Surface soils will be disturbed by site clearing, grading, and excavation activities at structure locations, pulling and tensioning sites, setup areas, and during the transport of crews, machinery, materials, and equipment over access routes (primarily along rights-of-way).

As described in **Section 5.3**, the restoration contractor would take measures to alleviate soil compaction where needed. Erosion and sediment control methods and BMPs will be utilized to minimize runoff during line construction. Measures to reduce impacts to soils during construction may include the following:

- Construction mats may be installed in placed in areas along the ROW or at a pole location to minimize soil disturbances.
- Soils will be decompacted in agricultural properties.
- Disturbed areas will be revegetated using weed-free seed mixes and tackifier for erosion control.
- Low ground pressure construction equipment may be used in damp areas to minimize impacts to soils.
- Sediment barriers (i.e., silt fence, straw bales, bio-logs), mulch, filter socks, upslope diversions, and slope breakers may be installed in areas of high water flow.
- Once construction is complete, disturbed areas will be restored to at least 70 percent of their original condition.

Dairyland has also developed a VMP for this Project, which details potential mitigation measures (**Appendix F**).

There should be no long-term impacts to soil resulting from transmission line construction activities. Permanent impacts to soil would be limited to areas associated with permanent structures.

6.6.4 Water Resources

Hydrologic features located within the Proposed Route include groundwater and surface water, such as wetlands and streams (**Appendix A, Maps 2a and 2b and Map 9**). These features perform several important functions within a landscape including water supply, flood attenuation, groundwater recharge, water quality protection, and wildlife habitat production. There are no floodplains located with the Proposed Route or ROW.

The Proposed Route lies within the Lower Mississippi River Basin and the Root River and Upper Iowa River watersheds in southeastern Minnesota.[67]

6.6.4.1 Groundwater

MnDNR divides Minnesota into six groundwater provinces. The Project is located within Karst Province, which is characterized by thin (less than 50 feet) glacial sediment overlying thick carbonate and sandstone bedrock, and is prone to solution conduits, sinkholes, and caves.[68]

A review of the Minnesota County Well Index identified one active private well (00221188) mapped within the Proposed Route; however, the Minnesota County Well Index did not identify any active private wells within the Project ROW. No Minnesota Department of Health Wellhead Protection Areas, Drinking Water Supply Management Areas, or USEPA sole source aquifers occur within the Proposed Route.

6.6.4.2 Lakes or Ponds

The Proposed Route does not span or border any lakes or ponds, including Public Water waterbodies or wild rice lakes.[69] See **Section 6.6.4.4** for a discussion of Public Waters.

6.6.4.3 Rivers and Streams

The Project will cross two unnamed Public Water streams, designated with the Kittle Numbers I-023-000.7 and M-009-025-010-017 respectively, along the Proposed Alignment.[70] **See Section 6.6.4.4** for a discussion of Public Waters.

6.6.4.4 Public Waters

Public Waters are wetlands, water basins, and watercourses of significant recreational or natural resource value in Minnesota as defined by Minn. Stat. § 103G.005. The MnDNR has regulatory jurisdiction over these waters, which are identified on the MnDNR Public Water Inventory (PWI) maps. In addition to Public Waters, certain surface waters in Minnesota are designated by statute (Minn. R. 6264.0050) as trout streams or lakes and are considered Public Waters regulated by the MnDNR.

The Proposed Route crosses two unnamed Public Waters watercourses, designated with the Kittle Numbers I-023-000.7 and M-009-025-010-017 respectively, (MnDNR 2013, 2020). There are no

[67] https://www.dnr.state.mn.us/watersheds/map.html.

[68] https://www.dnr.state.mn.us/groundwater/provinces/index.html.

[69] Minnesota Department of Natural Resources. 2020. Public Waters (PW) Basin and Watercourse Delineations. Procured from Public Waters (PW) Basin and Watercourse Delineations - Resources - Minnesota Geospatial Commons (mn.gov). Accessed January 31, 2024.

[70] Minnesota Department of Natural Resources. 2013. Stream Routes with Kittle Numbers and Mile Measures. Procured from Stream Routes with Kittle Numbers and Mile Measures - Resources - Minnesota Geospatial Commons (mn.gov). Accessed January 31, 2024.
Minnesota Department of Natural Resources. 2020. Public Waters (PW) Basin and Watercourse Delineations. Procured from Public Waters (PW) Basin and Watercourse Delineations - Resources - Minnesota Geospatial Commons (mn.gov). Accessed January 31, 2024.

MnDNR Public Waters Wetlands, Public Water Basins, or trout streams or lakes crossed by the Proposed Route.

6.6.4.5 Impaired Waters

Section 303(d) of the Clean Water Act (CWA) requires that states publish a list of streams and lakes that are not meeting their designated uses because of excess pollutants (impaired waters) every two years. The list, known as the 303(d) list, is based on violations of water quality standards. In Minnesota, the MPCA has jurisdiction over determining 303(d) "impaired" waters. In Minnesota, the MPCA has jurisdiction over determining 303(d) waters.

The Proposed Route does not cross any impaired waters.[71]

6.6.4.6 Wetlands

Wetlands are important resources for flood abatement, wildlife habitat, and water quality. Wetlands that are hydrologically connected to the nation's navigable rivers are protected federally under Section 404 of the Clean Water Act. In Minnesota, wetlands are also protected under the Wetland Conservation Act.

The National Wetland Inventory (NWI) is a publicly available GIS database that provides information on the location and characteristics of wetlands in the United States, including Minnesota.[72] The inventory is a 2023 update of the U.S. Fish and Wildlife Service (USFWS) NWI that was completed for Minnesota in the 1980s. Wetlands identified by the NWI may be inconsistent with current wetland conditions; however, NWI data is the most accurate and readily available database of wetland resources within the Project vicinity and was used to identify wetlands occurring within the Proposed Route.

Calcareous fens are a rare, unique type of wetland that contain a substrate of non-acidic peat and are steadily fed with alkaline and oxygen-poor groundwater. Calcareous fens are fragile and highly susceptible to disturbance through construction activities and disruptions to water supply. Calcareous fens are found along limestone-dominated karst topography in southeast Minnesota. According to the MnDNR Minnesota Conservation Explorer (License #2022-034), the nearest mapped calcareous fen (Chester Fen, Fen ID No. 9623) is located approximately 1.5 miles west of the Proposed Route.

Wetland types within the NWI are classified using the Cowardin wetland habitat classification system.[73] The Cowardin Classification System is hierarchical and defines wetland habitats based on vegetative and sediment class along with water regimes. Wetland habitat types/type combinations are mapped as occurring within the Proposed Route including palustrine emergent (PEM) and riverine. PEM wetlands are habitats dominated by emergent herbaceous plant species, and riverine wetlands occur along the shorelines of stream and river bodies. About 1.86 acres of

[71] Minnesota Pollution Control Agency. 2024. Impaired Waters: Draft 2024. Procured from MPCA Impaired Waters Viewer - Resources - Minnesota Geospatial Commons (mn.gov). Accessed on June 12, 2024.

[72] United States Fish and Wildlife Service. 2024. National Wetlands Inventory. Procured from: https://www.fws.gov/program/national-wetlands-inventory. Accessed February 13, 2024.

[73] United States Fish and Wildlife Service. 2023. An Introduction to Wetland Classification. Procured from: https://www.fws.gov/story/2023-04/introduction-wetland-classification. Accessed February 13, 2024.

NWI wetlands (PEM) are present within the Proposed ROW. See **Table 6.19** and **Appendix A, Maps 2a and 2b and Map 9**.

Table 6.19 Wetland Types crossed by the Proposed Route and ROW

Route/ROW	Cowardin Attribute	Wetland Type	Area (Acres)	Crossing Distance (feet)
Proposed Route	PEM1A	Emergent	1.64	N/A
	PEM1Af	Emergent	0.56	N/A
	PEM1C	Emergent	0.18	N/A
	PEM1Cx	Emergent	1.38	N/A
	R4SBC	Riverine	0.72	N/A
	R4SBCx	Riverine	0.19	N/A
	Total		**4.66**	**N/A**
Project ROW	PEM1A	Emergent	0.87	637
	PEM1Cx	Emergent	0.68	799
	R4SBC	Riverine	0.22	42
	R4SBCx	Riverine	0.10	19
	Total		**1.86**	**1,497**

6.6.4.7 Impacts and Mitigation

Dairyland does not anticipate impacts to groundwater as a result of the Project. Dewatering activities may be required for this Project, and if the need arises, would likely be minor. The MnDNR can issue water appropriation authorizations if dewatering exceeds permit thresholds. Any effects on water tables would be localized and temporary and would not affect hydrologic resources. Structure foundations will generally range from 20 to 50 feet in depth. All foundation materials would be non-hazardous. Dairyland will continue to work with landowners to identify springs and wells near the Project.

As the Project will not span or border any lakes, impacts to lakes are not anticipated and no mitigation is proposed.

The Proposed Alignment will cross two unnamed Public Water streams; however, the Project will span these streams and therefore no permanent impacts to rivers and streams are anticipated. Potential indirect impacts to water quality of nearby surface waters could occur through erosion and sedimentation. Dairyland will utilize erosion and sediment control BMPs (e.g., silt fencing) to mitigate the potential for sediment to reach any streams or ponds adjacent construction activities. Mitigation measures for rivers and streams will be implemented as needed to prevent or minimize surface water impacts that could affect water quality. The MPCA, through the NPDES and under the CWA and the State Disposal System (SDS), regulates construction activities that may impact stormwater runoff. Dairyland will apply for authorization to discharge stormwater associated with construction activity under the MPCA NPDES/SDS Construction Stormwater General Permit (MNR100001). Dairyland will also develop a Stormwater Pollution Prevention Plan that will outline erosion and sediment control BMPs to be implemented during construction. No fueling or maintenance of vehicles would occur within 100 feet of streams or

ditches to protect against introduction of these materials into surface or groundwater systems. Materials such as fuels, lubricants, paints, and solvents required for construction would be stored away from surface water resources according to appropriate regulatory standards. Any spills or leaks would be cleaned up immediately and leaking equipment removed from the area for proper maintenance.

Dairyland will work with the MnDNR to obtain proper licenses and approvals for Public Water crossings by the Project. Through the license approval process, Dairyland will work with MnDNR to determine the appropriate stipulations for Public Water crossings. In locations where clearing activities may take place near a Public Water, a stream bank buffer may be established or hand clearing techniques may be used to minimize impacts to soils and existing vegetation. Rootstock of woody vegetation will remain in place to avoid impacts to soils and allow existing vegetation to regrow more quickly.

As the Project will not span any impaired waters, impacts are not anticipated, and no mitigation is proposed.

Temporary impacts to wetlands within the 100-foot-wide ROW might occur during construction of the transmission line. Temporary fill impacts to wetlands would occur in the form of the placement of temporary construction matting along access routes, transmission line structure work areas, and conductor pulling and tensioning sites. Dairyland will avoid placement of additional temporary workspace for material storage and staging or stringing setup areas within or adjacent to water resources to the extent practicable. Temporary fill would be removed and wetlands restored to pre-construction conditions following completion of construction activities.

All wetland areas crossed by the Proposed Alignment are less than 300 feet long. Span distances between pole structures will vary between 300 and 1,000 feet, which would allow Dairyland to place most poles outside of the wetland footprints and avoid permanent fill. If, however, the final transmission line design cannot enable the Project to span discrete wetland segments, permanent impacts to wetlands will occur where a structure is located in the wetland. Permanent impacts would include the placement of fill material within the wetland area, such as the placement of a transmission line structure or grading work associated with the expansion and construction of the substations, or the clearing of vegetation within the Project ROW. It is estimated that no structures will need to be placed within a wetland along the Proposed Route, and permanent fill impacts would be unlikely to occur. It is estimated that no forested, forested/emergent, or forested/shrub wetlands would need to be cleared to facilitate construction or operation of the Project.

The Project minimizes wetland clearing and change in wetland type by following existing roadway ROW for the majority of its length. Additional wetland impact avoidance and mitigation measures that may be implemented during design and construction of the Project include spacing the transmission structures at variable distances to span and avoid wetlands, scheduling construction during frozen ground conditions, utilizing the existing road system around wetland areas, or utilizing all-terrain construction vehicles where practicable.

Jurisdictional wetlands along the Project Route are regulated under Section 404 and 401 of the Federal CWA administered by the United Stated Army Corps of Engineers (USACE) and the

Minnesota Wetland Conservation Act of 1991, as amended, administered in this area by the Fillmore County Soil and Water Conservation District. Once design details are available, Dairyland will coordinate with USACE and the Fillmore County Soil and Water Conservation District (SWCD), as needed, prior to construction if impacts to wetlands are anticipated and will obtain the necessary permits/approvals.

6.6.5 Flora and Fauna

6.6.5.1 Flora

Flora can be generally characterized for the Project area using the Ecological Classification System.[74] The system was developed by the MnDNR and U.S. Forest Service for ecological mapping and landscape classification. The top three tiers of the system consist of Province, Section, and Subsection. The Project falls in the Eastern Broadleaf Forest Province, Minnesota and Northeast Iowa Morainal Section, and Oak Savanna subsection.

The Eastern Broadleaf Forest Province 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.[75]

The Minnesota and Northeast Iowa Morainal Section consists of rugged to hummocky moraines that were deposited along the eastern margin of the Des Moines ice lobe during the last glaciation. Small sand plains occur locally within the moraines. A quarter of the Section contains rolling till or basin till deposited as drumlins. Fine-textured drift deposited in hummocky moraines supported mesic forests dominated by sugar maple, basswood, American elm, and northern red oak. Sandy, flat areas and areas of undulating glacial till in the Section were historically dominated by prairie, savanna, and oak and aspen woodlands. In droughty areas, fire typically promoted the development of prairies and impeded development of forests.[76]

The Oak Savanna subsection further details the flora that is characteristic of the Project area. Pre-settlement vegetation was primarily comprised of bur oak savanna, but areas of tallgrass prairie and maple-basswood forest were also common. Tallgrass prairie was concentrated along areas of level to gently rolling topography, and bur oak savanna typically developed on rolling moraine ridges at the western edge of the subsection and in dissected ravines at the eastern edge. Maple-basswood forests dominated in areas of high fire protection. The current vegetation and land use in the Project vicinity is primarily made up of cropland (82 percent) followed by pasture (10 percent). Other vegetated areas (wetland/open and forest) make up around four percent of land use, with non-vegetated areas (water and developed) making up the remaining four percent of land use.[77]

[74] https://www.dnr.state.mn.us/ecs/index.html.

[75] https://www.dnr.state.mn.us/ecs/222/index.html.

[76] https://www.dnr.state.mn.us/ecs/222M/index.html.

[77] https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/oak_savanna.pdf.

The Minnesota Biological Survey (MBS), managed by the MnDNR, systematically collects, interprets, monitors and delivers data on plant and animal distribution as well as the ecology of Native Plant Communities (NPC) and functional landscapes. MBS sites established by the MnDNR are then ranked as follows:

- Outstanding: Sites contain the best occurrences of the rarest species, the most outstanding examples of the rarest native plant communities, and/or the largest, most ecologically intact or functional landscapes.
- High: Sites contain very good quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes.
- Moderate: Sites contain occurrences of rare species moderately disturbed native plant communities, and/or landscapes that have strong potential for recovery of native plant communities and characteristic ecological processes.
- Below: Sites lack occurrences of rare species and natural features or do not meet MBS standards for outstanding, high, or moderate rank.

There are no MBS sites or NPCs within the Proposed Route or crossed by the Project ROW.

There are no other designated areas within the Proposed Route or crossed by the Proposed Alignment which are associated with rare flora communities, such as MnDNR SNAs, Native Prairies, or Railroad ROW Prairies. Federal and state-listed vegetative species are discussed in **Section 6.6.7**.

6.6.5.2 Fauna

The Project is located in the MnDNR Nongame Wildlife – Central Region.[78] Wildlife species in this region may include amphibians and reptiles (frogs, turtles, snakes), migratory water birds (geese, ducks, swans), various perching birds (meadowlarks, sparrows, thrushes, woodpeckers, shrikes, warblers), galliformes (turkeys, pheasants, quails), and common mammalian species such as white-tailed deer, rabbits, squirrels, red and gray fox, mice, and raccoons.

The Proposed Route and Project ROW do not cross any USFWS administered properties, MnDNR WMAs, or Important Bird Areas. Federal and state-listed wildlife species are discussed in **Section 6.6.7**.

6.6.5.3 Impacts and Mitigation

Minimal impacts to native vegetation are anticipated. The Project ROW will primarily follow existing road ROW or would be located in agricultural fields, which will minimize impacts to previously undisturbed vegetation in that area. Dairyland will clear approximately 1.2 acres of trees within the 100-foot-wide ROW associated with the Proposed Alignment. Permanent vegetation impacts would include the clearing of trees and shrubs within the ROW where these resources would not be allowed to revegetate to their previous heights and density due to safety requirements but would be managed to a safe height and density. Temporary impacts to vegetation

[78] https://www.dnr.state.mn.us/eco/nongame/central.html.

would occur in the form of using construction matting along access routes, transmission line structure work areas, and conductor pulling and tensioning sites. The disturbance would be minimized by using the existing road system to the extent practicable, traveling within the ROW as appropriate, and not building new access roads unless necessary. Dairyland has developed a VMP for this Project (**Appendix F**).

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 temporarily within the immediate area of construction. The distance that animals will be displaced will depend on the species. Additionally, these animals will be typical of those found in rural 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 construction of the Project. Waterfowl are typically more susceptible to transmission line collision, especially if the transmission line is placed between wetlands and fields that serve as feeding areas. Where practicable, Dairyland will commit to Avian Powerline Interaction Committee (APLIC) guidelines in the design and construction of the Project (APLIC 2006). Any eagle or other migratory bird nests discovered in the land acquisition process will be reported to the USFWS and Dairyland will adhere to guidance provided.

6.6.6 Invasive Species Management

Invasive species, also called noxious species, are non-native species that cause economic or environmental harm or harm to human health. The Minnesota Department of Agriculture (MDA) regulates terrestrial plant invasive species in Minnesota[79], and the MnDNR regulates zoonotic invasives and invasive aquatic plants.[80] Invasive species on public lands and in Public Waters are managed by the MnDNR. The MnDNR maintains an inventory and dataset of invasive species observations recorded throughout Minnesota;[81] according to this dataset, wild parsnip (*Pastinaca sativa*) and Canada thistle (*Cirsium arvense*), both MDA regulated species, have been documented along 171st Avenue and bordering the Project ROW. The movement of construction equipment to, from, and between various work sites may introduce and/or spread invasive species.

6.6.6.1 Impacts and Mitigation

Dairyland will manage documented occurrences of terrestrial plant invasive and noxious species that are listed as "eradicate"[82] or "control"[83] under the "Prohibited Noxious Weed" category by the MDA. Further, Dairyland will adhere to the requirements set forth by the MnDNR Utility

[79] Minn. Stat. § 18.75-18.913.

[80] https://www.dnr.state.mn.us/invasives/index.html.

[81] https://gisdata.mn.gov/dataset/env-invasive-terrestrial-obs.

[82] Prohibited noxious weeds placed on the noxious weed eradicate list are plants that are not currently known to be present in Minnesota or are not widely established. These species must be eradicated (Minnesota Statute §18.771 (b)(1)). This list is available at: https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list.

[83] Prohibited noxious weeds placed on the noxious weed control list are plants that are already established throughout Minnesota or regions of the state. Species on this list must be controlled (Minnesota Statute §18.771 (b)(1)). This list is available at: https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list.

License to Cross Public Waters and Natural Heritage Review consultation process. Dairyland proposes to implement the following BMPs during Project construction to minimize the potential for the introduction or spread of terrestrial plant invasive and noxious species:

- Limiting grading and excavation to areas surrounding pole structure foundations, and only as needed along access roads and workspace areas for a level and safe working area.
- Installing construction mats for travel lanes in wetlands and other specific locations
- All disturbed areas will be revegetated using "Noxious Weeds; None Found" seed mixes.
- All disturbed areas will be revegetated using seed mixes labelled "Noxious Weeds; None Found" in accordance with regulations and will utilize yellow tag seed when available.
- Compliance with MPCA Construction Stormwater General Permit, including stabilization requirements, and inspection, maintenance and repair of erosion and sediment control BMPs. Certified weed-free straw or weed-free hay will be used for erosion and sediment control BMPs.
- All construction equipment must be clean prior to entering and before leaving the work site.
- Manual, mechanical, or chemical management of invasive and noxious weed infestations.
- The Construction Field Representative will oversee BMP installation and effectiveness.

Dairyland has also developed a VMP for this Project that will incorporate these BMPs (**Appendix F**). Dairyland will not conduct activities within waterbodies; therefore, no mitigation to manage aquatic invasive and noxious species are proposed.

6.6.7 Rare and Unique Natural Resources

Dairyland's consultant (HDR) reviewed available data on threatened and endangered species and requested consultation with the MnDNR and USFWS. An official MnDNR Natural Heritage Review was received May 24, 2024, which provides a summary of documented occurrences of state-listed species within the Project ROW and within the general vicinity of the Project. MnDNR's Natural Heritage Review response is included in **Appendix I**. Although this review does not represent a comprehensive survey, it provides information on the potential presence of state-protected species and habitat within the vicinity of the Proposed Route.

In addition, HDR reviewed the USFWS Information for Planning and Consultation (IPaC) system to identify federally threatened, endangered, proposed for listing, and candidate species, and proposed and designated critical habitat that may occur near and within the Proposed Route.

6.6.7.1 State-Listed Species

As noted above, HDR consulted with the MnDNR regarding state-listed species. MnDNR provided its official Natural Heritage Review response regarding rare state-listed special concern, threatened, or endangered species within the Project ROW and the general vicinity of the Project on May 24, 2024 (**Appendix I**). The Natural Heritage Review and an assessment of Natural Heritage Inventory System data through License Agreement 2022-034 identified one threatened

plant species, edible valerian *(Valeriana edulis var. ciliata*), within one mile of the Project centerline in calcareous fen habitat. Edible valerian is found in calcareous fens, wet meadows, moist prairies, and railroad ROW. In the Paleozoic Plateau of southeastern Minnesota (see **Section 6.6.1**), the species occurs in thin, rocky soil and on cliff ledges associated with dry bluff prairies. Suitable habitat for edible valerian is not present within the Proposed Route or Project ROW. The Natural Heritage Review identified no state-listed species within the Project ROW.

Additionally, the Natural Heritage Review indicated the federally listed northern long eared bat (NLEB) could reasonably be present in forested and treed areas surrounding the Proposed Route; accordingly. The NLEB may be found roosting in structures or deciduous tree species located in the vicinity of the Proposed Route. MnDNR recommended that tree removal be avoided from June 1 through August 15. See **Section 6.6.7.2** for a detailed discussion of federally listed species.

6.6.7.2 Federally Listed Species

A review of the USFWS IPaC tool identified six federally threatened, endangered, proposed endangered, candidate, and non-essential experimental population species potentially present within one mile of the proposed Project; this includes two mammals, one bird, one insect, and two plant species (**Table 6.20)**. Additionally, IPaC indicated one species protected under the Bald and Golden Eagle Protection Act (BGEPA), the bald eagle (*Haliaeetus leucocephalus*), had the potential to occur in the vicinity of the Proposed Route. An official species list from the USFWS is included in **Appendix I**.

Table 6.20 Federally-Listed Species within One Mile of the Proposed Route

Scientific Name	Common Name	Type	Status	Habitat
Myotis septentrionalis	Northern Long-eared Bat	Mammal	Endangered	Live and dead trees, cavities, crevices.
Perimyotis subflavus	Tricolored Bat	Mammal	Proposed Endangered	Caves, cellars, human structures and forests.
Grus americana	Whooping Crane	Bird	Experimental Population, Non-Essential	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.
Danaus plexippus	Monarch Butterfly	Insect	Candidate	Milkweed and flowering plants.
Lespedeza leptostachya	Prairie Bush Clover	Plant	Threatened	Tallgrass prairies with natural disturbance (e.g., prescribed burns).
Platanthera praeclara	Western Prairie Fringed Orchid	Plant	Threatened	Tallgrass prairies with natural disturbance (e.g., prescribed burns).

Northern Long-eared Bat

The NLEB is an insectivorous bat species with a body length of 3-3.7 inches. The range of the NLEB stretches across much of the eastern and midwestern United States. In winter, NLEB will

hibernate in mines and caves with constant temperatures, low air currents and high humidity. In spring through fall, NLEB will roost alone or communally in cavities and crevices, or in forests under the bark of live or dead trees. 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, and will preferentially select deciduous trees over other roost tree options. It has also been found, rarely, roosting in structures such as barns and sheds. This species is listed as endangered predominantly due to deaths from white nose syndrome, a fatal fungal disease which affects hibernating bats. Critical habitat for the NLEB has not been proposed. The MnDNR maintains a list of townships containing known NLEB maternity roost trees and hibernacula entrances.[84] A review of the MnDNR township list indicates that there are no known NLEB hibernacula within one mile of the Proposed Route, but this information is not exhaustive. Potentially suitable habitat for the NLEB may be present in forested and treed areas within the Proposed Route.

Tricolored Bat

The tricolored bat is an insectivorous bat species with a body length of 3.1 to 3.8 inches and is distinguished by its unique yellow-orange tricolored fur. On September 13, 2022, the USFWS published a proposed rule listing the tricolored bat as federally endangered under the Endangered Species Act (ESA). This species is primarily proposed for listing as endangered due to substantial population declines from white-nose syndrome. During the spring, summer, and fall, tricolored bats will roost primarily in forests within the leaf clusters of deciduous trees. Critical habitat for the tricolored bat has not been proposed. A list of maternity roost trees and hibernacula is not maintained by the MnDNR. The current range of the tricolored bat, identified by MnDNR, includes Fillmore County. Suitable habitat for the tricolored bat may be present within treed and forested areas within the Proposed Route and Project ROW.

Whooping Crane

The whooping crane is a large bird with snowy white plumage, a red crown, and a black half-moon shaped patch on the face. Habitat for the whooping crane includes salt and freshwater marshes and surrounding agricultural fields, where whooping cranes will forage for plant and animal material. Critical habitat for the whooping crane was published in the *Federal Register* Vol. 43, No. 94 on May 15, 1978. An experimental, non-essential population of cranes was introduced between 2001 and 2010, designated as the Eastern Migratory Population. This experimental population migrates from Minnesota and Wisconsin to Florida and includes whooping cranes which may be found in the area of the Project. Under the ESA, protections extended to an experimental, non-essential designation equates to the protection of species proposed for listing unless found in a National Park or a USFWS property, where it is treated as if designated as threatened. Suitable habitat for the whooping crane is not present within the Proposed Route or Project ROW.

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

[84] Minnesota Department of Natural Resources. 2017. Townships containing documented Northern Long Eared Bat (NLEB) maternity roost trees and/or hibernacula entrances in Minnesota. Accessed February 5, 2024.

for adult foraging and milkweed plants are present for laying eggs and as a food source for caterpillars. During the spring and summer months, monarch butterflies will lay eggs on their obligate host plant (milkweed species, *Asclepias spp.*). The monarch butterfly is a candidate species; however, candidate species are not protected under the ESA. Milkweed and flowering plants are needed for monarch habitat. Milkweed can occur in many areas, ranging from native grasslands to degraded sites such as road rights-of-way, and may occur in the vicinity of the Project. Potentially suitable habitat for the monarch butterfly may be present in disturbed grassland located within the Proposed Route where flowering plants or milkweed species are present.

Prairie Bush Clover

The prairie bush clover is a plant in the pea family with white to purplish flowers and is native to tallgrass prairies of the Upper Midwest with a range of soil conditions. The prairie bush clover is currently listed as threatened. As the Project Route is primarily agricultural lands and the landscape along the Project Route is dominated by agriculture and existing roadways, the likelihood of prairie bush clover occurrence within the Project Route is low. Suitable habitat for prairie bush clover is not present within the Proposed Route or Project ROW.

Western Prairie Fringed Orchid

The western prairie fringed orchid is a white orchid species native to moist tallgrass prairies and sedge meadows of the Upper Midwest. The western prairie fringed orchid is currently listed as threatened. Potential habitats generally include mesic upland prairies, wet prairies, sedge meadows, sub-irrigated prairies, and swales in sand dune complexes. Although the plant is typically associated with intact native prairie, the orchid has also been found on disturbed sites. Suitable habitat for western prairie fringed orchid is potentially present within the Proposed Route or Project ROW.

Bald Eagle

The bald eagle is a large raptor species with a brown body and white head plumage at maturity. Habitat for the bald eagle typically includes treed or forested areas near water sources such as lakes, rivers, streams, reservoirs, and marshes with an abundant food supply. Nest sites typically include at least one perch with a clear view of a water body for foraging but may occur away from large water bodies. Breeding pairs will often reuse and enlarge the same nest site each year.

Bald eagles (*Haliaeetus leucocephalus*) are not legally protected under the ESA or in the state of Minnesota. The bald eagle was removed from the federal endangered and threatened species list in 2007 but is still managed by the USFWS under the BGEPA and the Migratory Bird Treaty Act.[85] The BGEPA 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. In 2024, the USFWS implemented revised regulations for the incidental take of bald eagles, which introduces new and revised guidelines for the incidental take of bald eagles during construction of transmission lines (89 CFR 9920). As bald eagles prefer nesting in trees, and forested areas are sparse surrounding the Project, suitable

[85] USFWS. 2024. Bald Eagle Overview. Accessed April 17, 2024. Procured from https://www.fws.gov/species/bald-eagle-haliaeetus-leucocephalus.

nesting habitat for the bald eagle is unlikely to be present within the Proposed Route or Project ROW.

6.6.7.3 Impacts and Mitigation

Dairyland will continue to coordinate with the MnDNR 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 and unique natural resources during and after the completion of the proposed transmission line:

- BMPs will be used to prevent erosion of the soils in the areas of impact.
- Sound water and soil conservation practices will be implemented during construction and operation of the Project to protect topsoil and adjacent water resources and minimize soil erosion. Practices may include containing excavated material, protecting exposed soil, and stabilizing restored soil.
- Disturbed areas will be re-vegetated with native species and/or wildlife conservation species, where applicable in agreement with the landowner.

6.6.7.3.1 State-Listed Threatened and Endangered Species

Suitable habitat for the state-listed threatened edible valerian is not present within the Proposed Route. However, according to the MnDNR Natural Heritage Review, habitat for edible valerian (calcareous fens) may be impacted by runoff or changes to groundwater hydrology from several miles away. Given the Project details, the MnDNR does not anticipate impacts to nearby calcareous fens (see **Appendix I**). If potential impacts to hydrological conditions surrounding calcareous fens may occur, the MnDNR will be contacted and a botanical survey will be completed if required following MnDNR consultation.

Once a Route Permit is issued and detailed design of the line is available, Dairyland will coordinate with the MnDNR regarding potential impacts to state-listed rare and unique resources, as needed.

6.6.7.3.2 Federally Listed Species

The Project will border existing disturbed (mowed, artificially planted) agricultural land and roadway ROW for the entirety of its length, which limits the above federally and state listed species' likelihood to occur within the proposed route.

Suitable habitat for the federally listed whooping crane and prairie bush clover is not present within the Proposed Route; therefore, impacts are not anticipated, and mitigation is not needed for these species.

Suitable habitat for the federally listed NLEB and tricolored bat may be in the Project ROW or near the Proposed Route in forested and treed areas. Removal of forested and treed areas may negatively impact bats by destroying roosting habitat. Tree removal will be necessary along the

ROW where the Route crosses vegetated fence lines. To minimize impacts to NLEB, Dairyland will avoid tree removal from June 1 through August 15.

While potentially suitable habitat for the western prairie fringed orchid is unlikely to be present within the Project Route, this species has the potential to occur in disturbed grassland habitat along the Proposed Route. According to the USFWS Western Prairie Fringed Orchid Recovery Plan, recovery actions should aim to identify potential habitat, prevent agricultural conversion of native prairie habitat, and implement protective management regimes where this species occurs.[86] As the Project does not span native prairie habitat and the western prairie fringed orchid has not been directly observed within one mile of the Proposed Route, recovery actions are unlikely to apply to the Project area. If the western prairie fringed orchid is observed during Project construction, Dairyland will consult with the USFWS and MnDNR to determine further actions and mitigation.

Potentially suitable habitat for the monarch butterfly may be present within the Proposed Route where flowering plants or milkweed species are present. However, as the monarch butterfly is a candidate species and not protected under the ESA, no species-specific mitigation is proposed. Additionally, constructing within and/or adjacent to an existing utility and/or road ROW minimizes impacts to suitable habitat for the monarch butterfly. If the USFWS determines the monarch butterfly should be listed and protections for the species coincide with Project planning, permitting, and/or construction, Dairyland will review Project activities for potential impacts to the species and develop appropriate avoidance and mitigation measures, as needed.

Once a Route Permit is issued and detailed design of the line is available, Dairyland will coordinate with the USFWS regarding potential impacts to federally listed rare and unique resources, as needed.

6.7 Summary of Potential Environmental Effects

Dairyland 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 peak magnitude of EF associated with the new line (1.2 kV/m) will be significantly less than the maximum EF limit adopted 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 for the entirety of its length. The routing of the Project minimizes potential tree removal but will require the removal of approximately 1.2 acres of trees within its ROW. There are wetlands within the proposed transmission line ROW. Dairyland prefers to span wetlands and all wetlands crossed by the Project ROW could feasibly be spanned. Unavoidable impacts include a change in aesthetics and the presence of additional traffic during construction on the local roads. The Proposed Route also occurs in karst-prone areas that will require additional

[86] USFWS. 1996. Western Prairie Fringed Orchid Recover Plan (*Platanthera praeclara).* Procured from 960930a.pdf (fws.gov).

geotechnical investigation prior to construction activities. 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.

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

6.8 Unavoidable Impacts

Minnesota Rule 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 will include soil compaction and erosion, short-term traffic delays, vegetative clearing, 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 of tall growing vegetation, conversion of agricultural 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 pole construction, pole placement, and other construction activities.

7. AGENCY AND STAKEHOLDER OUTREACH

As described in **Section 1.7**, Dairyland employed various methods to engage and inform the public and federal, state, and local agencies and Tribal Nation representatives regarding the Project.

7.1 Public Outreach

In connection with the Iowa portion, pursuant to the requirements of 478.2, Code of Iowa, Dairyland was required to hold a landowner informational meeting in Howard County, Iowa prior to any negotiations with landowners in Iowa. This informational meeting was held on the evening of July 27, 2023, in Chester, Iowa. In the interest of allowing for any landowners or tenants that might hold interests in land parcels in both Iowa and Minnesota, Dairyland reserved contact with all landowners, until following notice by the Iowa Utilities Board that the Iowa landowner meeting requirement was satisfied and negotiations with landowners may commence. Notice of satisfaction of this requirement was announced by an Iowa Utilities Board representative on the same evening, July 27, 2023.

Following the opening of negotiations in Iowa, contracted ROW agents from HDR began making personal contact with landowners in Fillmore County, Minnesota on behalf of Dairyland. A personal approach to Minnesota landowner contact was selected per the relatively short length of line proposed in Minnesota, the size of typical agricultural parcels in Fillmore County, Minnesota, and constraints or limitations on routing possibilities per confinement between the existing Dairyland transmission line facility being intersected on the north and a state line crossing within the bounds of landowner informational meeting notice area in Iowa on the south.

Utilizing tax roll and GIS information, HDR developed a contact list including landowners along the primary proposed route, as well as landowners along a secondary route approximately one mile west of and parallel with the primary. A project introductory letter was mailed to landowners on the contact list referenced above. The letter introduced the Project and the ROW agent, requested additional contact details, encouraged landowners to reach out to the agent for additional project information, requested that the landowners engage with the right of way agent to communicate information specific to their property and initiated the process of acquiring right of entry for preliminary land survey activities. ROW agents responded individually to correspondence from landowners, while making additional attempts to contact or meet with landowners that did not reply to the letter.

HDR employs a land management software application that allows ROW agents to log summaries of verbal communications with landowners, attach thereto images of written correspondence or exhibits and track parcel status indicators, such as acquisition of right of entry. HDR allowed Dairyland team members access to this application and also provided the Dairyland team with weekly verbal update on status of landowner contacts and any routing concerns shared by landowners.

An HDR and/or Dairyland right of way agent also attended a regular meeting of the Township Board in each York and Beaver Township. The purpose of this attendance was to introduce the

Project and notify board members that at least one ROW agent would be in the area and would be attempting to make contact with landowners, which may include stopping at residences.

Contact with landowners is currently ongoing. Dairyland and HDR will continue to update landowners and present design details and potential pole locations to landowners as that information is developed.

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 2.2.3**. The first opportunity for public involvement in the regulatory process is a public information and scoping meeting conducted by Commission staff and EERA staff after the Commission's acceptance of this Application as complete.

The public and interested stakeholders will have the opportunity to review this Application and to submit comments to the Commission about the Project. A copy of the Application will be available on the DOC's energy project website (http://mn.gov/commerce/energyfacilities) and through the Project's website (https://dairylandpower.com/beaver-creek-minnesota). Additionally, this Application will be available for the public to review at:

Spring Valley Public Library
121 W. Jefferson St.
Spring Valley, MN 55975

Public information and scoping meetings will be held in the Project area by Commission and DOC EERA staff after the Commission's acceptance of this Application as complete to answer questions about the Project and to solicit public comments and suggestions for matters to examine during environmental review. After EERA prepares an EA for the Project, public hearings will be held in the Project area, and members of the public will be given an opportunity to ask questions and submit comments. Dairyland will also present further evidence to support the route for the Project.

Persons interested in receiving notices and other announcements about the Project's Route Permit Application can subscribe to the docket by visiting https://mn.gov/puc/, clicking on "eDockets", clicking on "Go to eDockets" in the middle of the page, clicking on "eFiling Home/Login" in the left menu, clicking on the "Subscribe to Dockets" button, entering their email address and select "Docket Number" from the "Type of Subscription" dropdown box, then select "[24]" from the first Docket Number drop down box and enter "[95]" in the second box before clicking on the "Add to List" button. You must then click the "Save" button at the bottom of the page to confirm your subscription to the Project's Route Permit docket.

Persons wanting to have their name added to the Project Route Permit proceeding mailing list (Docket No. ET3/TL-24-95) may register by contacting the public advisor in the consumer affairs office at the Commission at consumer.puc@state.mn.us, or (651) 296-0406 or 1-800-657-3782. Please be sure to note: 1) how you would like to receive notices (regular mail or email); and 2) your complete mailing or email address.

Contact information for the Minnesota state regulatory staff for this Project are listed below:

Minnesota Public Utilities Commission
Trevor Culbertson
121 7th Place East, Suite 350
St. Paul, MN 55101-2147
651-201-2200
800-657-3782
trevor.culbertson@state.mn.us
Website: www.mn.gov/puc

Minnesota Department of Commerce
DOC-EERA
Larry Hartman
85 7th Place East, Suite 280
St. Paul, Minnesota 55101
651-539-1839
1-800-657-3710
larry.hartman@state.mn.us
Website: www.mn.gov/commerce

7.2 Agency and Tribal Outreach

Dairyland sent initial notification letters to federal, state, and local agencies listed below in May 2024 and to Tribal Nations in June 2024. Copies of these letters, as well as all other correspondence to date, is included in **Appendix C**. Dairyland has incorporated information received during agency consultations into the relevant sections of this Application. Where additional coordination has occurred, Dairyland has summarized that outreach below with references to the section of this Application which provides additional detail.

Federal Agencies

- U.S. Army Corps of Engineers
    - The USACE, St. Paul District, responded to Dairyland's May 2024 notification letter indicating that if the Project will have impacts to aquatic resources, then a permit may be required. Communications are included in **Appendix C.** See discussion in **Section 6.6.4.7.**

- U.S. Fish and Wildlife Service
    - The USFWS responded to Dairyland's May 2024 project notification letter identifying a staff member that will be the point of contact for the USFWS. Communications are included in **Appendix C.** See discussion in **Section 6.6.7.2.**

- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)
    - Dairyland sent a letter to NRCS in May 2024. As of this filing, Dairyland has not received a response.

Tribal Nations

- Dairyland plans to seek RUS funding for this Project, thus the RUS will perform Tribal consultation in coordination with Dairyland. However, Dairyland sent introductory letters to the eleven Tribes in Minnesota in June 2024. As of this filing Dairyland has not received any responses.

Minnesota State Agencies

- Minnesota Department of Natural Resources
    - In March 2024, Dairyland submitted a request to the MnDNR for a Natural Heritage Review. The DNR responded on May 24, 2024. Results of the review include the following topics, which are addressed in the respective section of this Application: ecologically significant areas - calcareous fen with a state list threatened plant species (see **Section 6.6.4.6**); tree removal related to bat habitat (see **Section 6.4.2**); and federally listed species (IPaC) review (see **Section 6.6.7.2**). Communications are included in **Appendix C** and the MnDNR's Natural Heritage Review response is included in **Appendix I**.
    - On June 3, 2024, the MnDNR responded and requested a shapefile of the proposed route, which Dairyland provided on June 4, 2024.

- Minnesota Indian Affairs Council (MIAC)
    - Dairyland sent a letter to MIAC in May 2024. As of this filing, Dairyland has not received a response.

- Office of State Archaeologist
    - Dairyland sent a letter to OSA in May 2024. As of this filing, Dairyland has not received a response.

- State Historic Preservation Office
    - Dairyland sent a letter to SHPO in May 2024 and the Cultural Resources Literature Review was sent to SHPO in June 2024.
    - On June 17, 2024, SHPO responded asking if the Project will have RUS funding, and thus would be subject to review under Section 106 of the National Historic Preservation Act. Dairyland responded that the project will have RUS funding and the RUS initiate Section 106 consultation at the appropriate time.

Local Agencies

- Fillmore County Zoning Department
    - Dairyland met with the assistant director of the Fillmore County Land Use Department and shared introductory Project information on September 1, 2023. Communications are included in **Appendix C**.

- Fillmore County Highway Department
    - Dairyland provided introductory Project information to the Fillmore County Highway Department following a meeting with the assistant director of the Fillmore County Land Use Department on September 1, 2023.

- Dairyland corresponded and met with the Fillmore County Highway Department in January and February 2024 regarding the permit application process for construction of a new wire crossings over county highways and retirement of wire from over highways. The Fillmore County Highway Department also reviewed records for culverts along 170th Street and found them to be relatively new structures, not expected to need replacement soon. Communications are included in **Appendix C**. See discussion in **Section 6.2.7**.

- Fillmore County Soil and Water Conservation District
  - Dairyland sent an introductory email to the Fillmore County SWCD on February 21, 2024. To date there has been no response from SWCD.

- York Township
  - Dairyland attended a regular meeting of York Township Board on August 21, 2023 to introduce the Project to the township. Dairyland also attended an additional meeting of the York Township Board on March 18, 2024 to provide an update on the Project. Communications and meeting minutes from the March 18, 2024 meeting are included in **Appendix C**.

- Beaver Township
  - Dairyland attended a regular meeting of the Beaver Township Board on February 22, 2024, and shared introductory Project information. Communications and meeting minutes are included in **Appendix C**.

8. APPLICATION OF RULE CRITERIA

8.1 Route Permit Criteria

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 must follow the established standards and criteria for issuing Route Permits (Minn. Stat. § 216E.04, subd. 8; Minn. Stat. § 216E.03, subd. 7; and Minn. R. 7850.4000). Following these standards and criteria, 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 because 100 percent of the Project is proposed to be routed along existing road ROWs, thus avoiding and minimizing potential additional impacts to the extent practicable.
- The Project will minimize environmental impacts because:
    - 100 percent of the Project is proposed to be routed along existing road ROWs, which will avoid and minimize potential impacts on vegetation and wildlife.
    - Dairyland will conduct geotechnical investigations prior to construction to avoid impacts to karst topography.
    - Dairyland 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.
    - Dairyland will design the final alignment to avoid or span as many wetlands as practicable.
- Dairyland will implement construction, restoration, and 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:
    - 100 percent of the Project is proposed to be routed along existing road ROWs, which will avoid and minimize impacts to existing land uses.
    - Disturbed areas will be restored to their original condition to the maximum extent practicable and Dairyland will negotiate compensation with landowners for unavoidable impacts.
- The Project is consistent with state goals to ensure electric energy security because it will help ensure continued reliable and secure electrical service of the regional transmission system and will enable new generators to be interconnected to the transmission system.

8.2 Conclusion and Request for Commission Approval

For all the reasons set forth in this Application and as supported by the Appendices hereto, Dairyland respectfully request that the Commission issue a Route Permit authorizing construction of the Project.