APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION FOR A ROUTE PERMIT FOR THE NORTHWEST MAPLE GROVE 115 KV TRANSMISSION PROJECT

MPUC Docket No. E002/TL-24-427

March 2026

Submitted by
Northern States Power Company

Prepared by
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414 Nicollet Mall
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Northwest Maple Grove 115 kV Transmission Project

March 2026

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§	Section
°F	degrees Fahrenheit
AIMP	Agricultural Impact Mitigation Plan
AM	amplitude modulation
APLIC	Avian Power Line Interaction Committee
AQI	Air Quality Index
BCC	Birds of Conservation Concern
BMP	best management practice
CCCL	Center for Corporate Climate Leadership
CFR	Code of Federal Regulations
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Commission	Minnesota Public Utilities Commission
CSAH	County State-Aid Highway
CWA	Clean Water Act
dBA	A-weighted decibel
MDNR	Minnesota Department of Natural Resources
ECS	Ecological Classification System
EERA	Energy Environmental Review and Analysis
EMF	electric and magnetic field
EPA	U.S. Environmental Protection Agency
EQB	Minnesota Environmental Quality Board
ESA	Endangered Species Act of 1973
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Administration
FM	frequency modulation
FPPA	Farmland Protection Policy Act
GBCA	Grassland Bird Conservation Areas
GHG	greenhouse gas
GIS	Geographic Information System
GPS	Global Positioning System
GWP	Global Warming Potential

HVTL	high voltage transmission line
IBA	Important Bird Areas
IPaC	Information for Planning and Consultation
ISD	Independent School District
kV	kilovolt
LGU	local government unit
LRTP	Long-Range Transmission Planning
MDH	Minnesota Department of Health
mG	milligauss
MHz	megahertz
MISO	Midcontinent Independent System Operator, Inc.
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MSAS	Municipal State Aid Street
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	Noise Area Classification
NESC	National Electric Safety Code
NHIS	Natural Heritage Inventory System
NLR	Northern Lines Railway
NLCD	National Landcover Database
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
PWI	Public Waters Inventory
SBS	Sites of Biodiversity Significance
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SOO	SOO Line Railroad
SPCC	Spill Prevention, Control, and Countermeasure
SSURGO	Soil Survey Geographic
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

VMP	Vegetation Management Plan
VOR	Very High Frequency Omnidirectional Radio Range
WMA	Wildlife Management Areas
WPA	Waterfowl Production Areas

1 Introduction

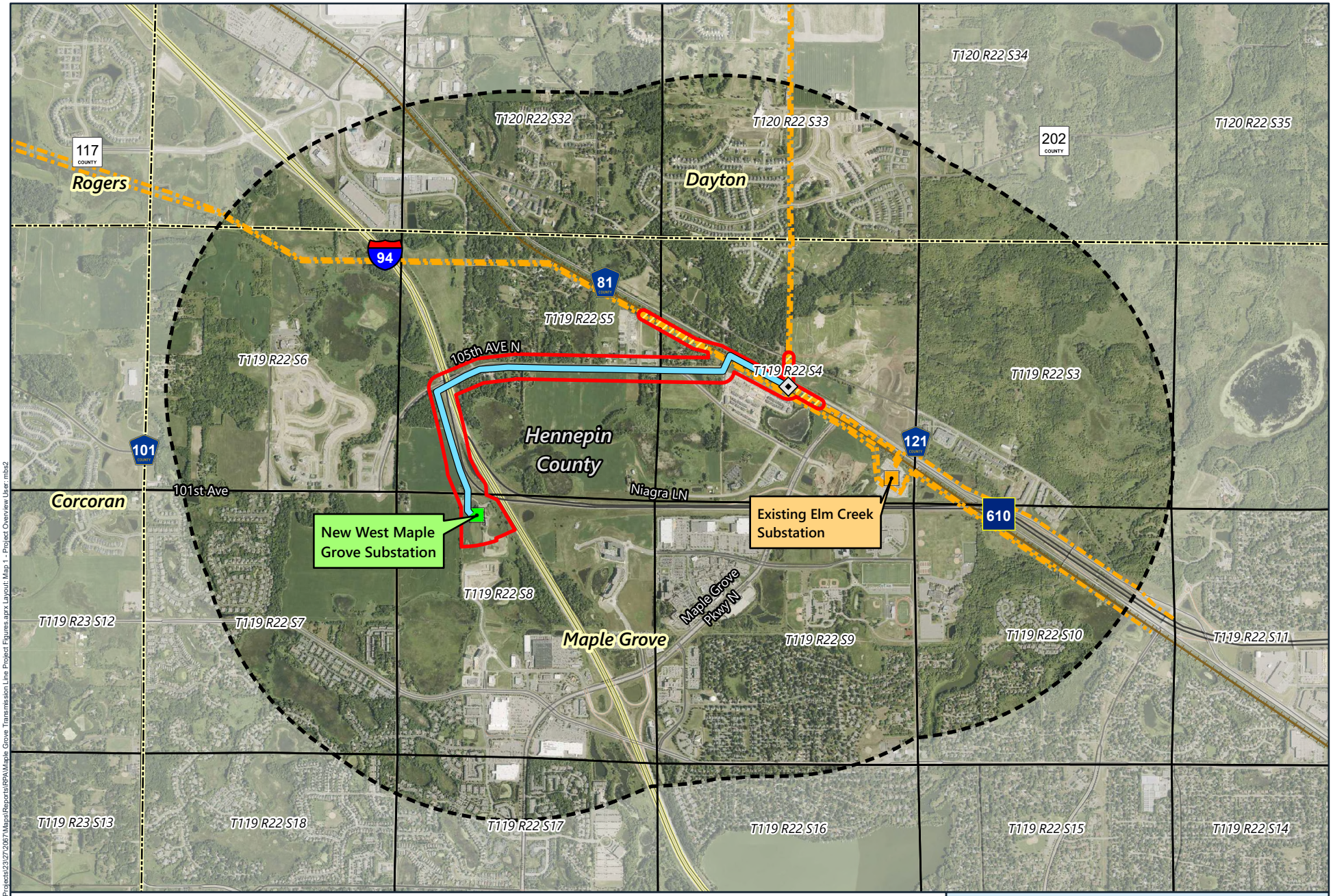
Northern States Power Company, doing business as Xcel Energy (the Applicant), is applying for a Route Permit from the Minnesota Public Utilities Commission (Commission) for approval to construct the Northwest Maple Grove 115 kilovolt (kV) Transmission Project (Project) in the city of Maple Grove, Hennepin County, Minnesota. The Project involves construction of an approximately two-mile-long, 115 kV double-circuit transmission line from a new West Maple Grove Substation located on the west side of Interstate 94 to an interconnect point (or "tap") on an existing 115 kV line on the south side of County Highway 81 west of the existing Elm Creek Substation (Map 1).

1.1 Project Need

The Project is needed to provide additional transmission capacity to mitigate current capacity issues due to a significant increase in electric demand from new homes, businesses, and neighborhoods in the Twin Cities northwest suburbs, and to improve electric system reliability throughout the region as more renewable energy resources are added to the electric system in and around the region. The loading on existing lines in the area immediately affected by the Project currently ranges from 55 to 80 percent (optimal loading is 50 percent), which in turn is causing contingency/N-1 risk on the feeders in this area; the Project will mitigate this risk. The Applicant plans to begin Project construction upon regulatory approval and anticipates that the Project will start addressing the needs of the Twin Cities northwest suburbs upon commercial operation in 2028. Additional information on the schedule is available in Section 3.5.1.

1.2 Project Ownership

The Project will be owned by Northern States Power Company – Minnesota (NSPM) both before and after commercial operation. NSPM is a wholly owned subsidiary of Xcel Energy Inc., a utility holding company with its headquarters in Minneapolis. NSPM will be responsible for the construction and maintenance of both the proposed 115 kV transmission line and the West Maple Grove Substation. Equipment will be owned solely by NSPM.



PROJECT OVERVIEW

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 1

Xcel Energy®

Barr Footer: ArcGISPro 3.4.3, 2025-08-20 15:34 File: I:\Projects\23\2720\87\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 1 - Project Overview User: mbs2

1.3 Permittee

Xcel Energy is the requested permittee for the Project. Xcel Energy does not currently anticipate transferring the permit. Contact information is provided below.

Casey Storey
Xcel Energy - Senior Siting and Land Rights Agent
414 Nicollet Mall
Minneapolis, MN 55401
612.216.8258
casey.storey@xcelenergy.com

2 Regulatory Process

2.1 Certificate of Need Not Required

Minnesota Statute (Minn. Stat.) Section (§) 216B.243 specifies that a Certificate of Need is required for a "large energy facility." A large energy facility as defined in Minn. Stat. § 216B.2421 includes "any high-voltage transmission line with a capacity of 300 [kV] or more and greater than one mile in length in Minnesota" and "any high-voltage transmission line with a capacity of 100 [kV] or more with more than ten miles of its length in Minnesota." Because the Project is under 300 kV and less than ten miles in length, a Certificate of Need is not required.

2.2 State Routing Process

This Route Permit Application (Application) is submitted under the standard review process set forth by Minnesota law, specifically, Minn. Stat. § 216I.07. As provided for in Minn. Stat. § 216I.07, subd. 2(3), a high-voltage transmission line between 100 and 300 kV is eligible for the standard review process. This Application contains the information required under Minn. Stat. § 216I.05. A Route Permit completeness checklist is provided in Appendix A with cross-references indicating where the information required by Minnesota Statutes can be found in this Application.

The Applicant initially notified the Commission and the Department of Commerce-Energy and Environmental Review and Analysis (EERA)[1] via email on September 6, 2024, that it intended to use the alternative permitting process[2] for the Project. The Applicant attended a virtual meeting with EIP staff on September 25, 2024. During the meeting, the Applicant was informed that they would need to file their permit application prior to July 1, 2025, if they were to file under the alternative permitting process and not the new standard review under Minn. Stat. § 216I. The Applicant subsequently changed the anticipated application filing date to the fall of 2025, requiring the new standard review process. The Commission was notified of the change on July 8, 2025.

[1] EERA has since been transferred from the Department of Commerce to the Public Utilities Commission and renamed Energy Infrastructure Permitting. *See* 2024 Minn. Laws ch. 126, art. 9, sec. 18.
[2] The alternative permitting process was replaced with the standard process as part of the Minnesota Energy Infrastructure Permitting Act. *See* 2024 Minn. Laws ch. 126, art. 7 secs. 7, 15.

The Applicant sent a notification letter on June 30, 2025, to local units of government, Minnesota Tribal governments, and state technical resource agencies. This letter complied with the requirements of Minn. Stat. § 216I.05, subd. 5, which indicates that at least 30 days before filing an application with the commission, an applicant must provide notice to: (1) each local unit of government within which a site or route may be proposed; (2) Minnesota Tribal governments; and (3) the state technical resource agencies. The notice must describe the proposed project and provide the entities receiving the notice with an opportunity for preapplication coordination or feedback. A copy of the Applicant's notification letter is attached to this Application as Appendix B. The Applicant will continue to coordinate with Minnesota Tribal governments through development of the Project.

Minn. Stat. § 216I.05, subd. 6, requires that an applicant must provide a draft application to EIP staff for review. The Applicant provided a draft of this Application to the Commission on October 13, 2025. The Commission's review focuses on the application's completeness and provided clarifications that might help the Commission's review of the application. The Commission's November 25, 2025, Draft Application Review Comments letter, and the Applicants' response, are provided in Appendix C.

2.2.1 Stakeholder, Agency, and Tribal Outreach Summary

Throughout the Route Permit Application (RPA) development process, the Applicant provided opportunities for stakeholders, including potentially affected landowners, to learn about and provide feedback on the Project. This engagement provided the Applicant with valuable insight into landowner and public agency preferences regarding development of the Project. Outreach efforts are briefly described below; Appendix B provides a full summary of all outreach efforts.

2.2.1.1 Open House

The Applicant conducted a public open house in Maple Grove, Minnesota at the Maple Grove Community Center on April 22, 2025 from 5:00 to 7:00 p.m. Notices for the open house were provided via newspaper and direct mail to residents, landowners, public officials, and other potential stakeholders (Appendix B). The open house invitation provided information such as a general Project description, a map of the Project Notice Area, Preliminary Routes and anticipated alignments, the Project's

website address, and Applicant's contact information to submit questions and comments.

Public feedback from the open house included comments regarding the proximity to residences and requests to minimize impacts on future developments. Two comments were submitted about the Project in response to the open house meeting and were centered around avoiding areas of proposed future development in the Project area (Appendix B). The proposed development areas referenced in these comments will not be impacted by the Proposed Route.

2.2.1.2 Agency Correspondence

On May 9, 2025, as part of pre-application outreach, the Applicant mailed a 90-day pre-application notice letter to 38 targeted LGUs and tribal representatives (Appendix B). Due to changes to the Applicant's planned filing date and state law changes that went into effect on July 1, 2025, the Applicant also mailed a 30-day pre-application coordination letter to 51 targeted LGUs, tribal representatives, and state technical resource agencies on June 30, 2025 (Appendix B). These notice letters introduced the Project and offered an opportunity to request a Project consultation meeting with the Applicant. Only MnDOT, the City of Maple Grove, and Hennepin County Public Works submitted responses; our follow-up discussions are described below. No other LGUs, tribal representatives, or state agencies responded.

2.2.1.2.1 MnDOT

The Applicant met with MnDOT in July 2025 to discuss early coordination regarding crossing I-94 and pole placement with respect to the MnDOT right-of-way. The Applicant completed the agency's Early Notification Memo (ENM) process in August 2025. On August 19, 2025, the ENM and applicant checklist were provided to Karissa Hogan, MnDOT Documents & Utility Permits Coordinator, and Stacy Kotch Egstad, Utility Routing and Siting Coordinator. The ENM submittal to MnDOT included, in addition to the required memorandum, geospatial data, maps, and structure descriptions listed in the supplemental information checklist provided by MnDOT.

2.2.1.2.2 Local Government Units

The Applicant corresponded with the city of Maple Grove and the relevant LGU for this Project and held a meeting with the city of Maple Grove on May 28, 2025. The

city of Maple Grove sent a letter on July 7, 2025, in support of the Project and in favor of the north interconnect option (Appendix B).

The Applicant received a response to the 90-day preapplication notice letter from Doug Heidemann, Hennepin County Public Works Permits Supervisor, on June 17, 2025, stating the county does not see any issues with the proposed location of the transmission line (Appendix B). The Applicant did not receive an additional response from Hennepin County to the 30-day preapplication coordination letter.

2.2.1.2.3 Tribal Outreach

The Applicant mailed a 90-day pre-application notice letter on May 9, 2025, and the 30-day pre-application coordination letter on June 30, 2025, to the tribal contacts included in Appendix B. On January 27, 2026, a follow-up communication was sent to tribal contacts via email. One response was received. On January 27, 2026, the Flandreau Santee Sioux Tribal Historic Preservation Office responded via email indicating that they have no issues with the project as sited; however, if any cultural material and or human remains are disturbed as a result of the project, they requested that work stop and their office be notified immediately (Appendix B). No other written responses were received. On February 11, 2026, a phone call regarding the project was placed to each tribal contact who had not yet responded, to confirm receipt of project information and request comments or feedback. A copy of the phone log is included in Appendix B.

2.3 Environmental Review

Under the standard review process, the applicant must prepare and submit an environmental assessment (EA) with the application. A draft of the EA must also be provided to EIP staff as part of the preapplication review under section 216I.05, subdivision 6. The EA must (1) contain information regarding the proposed project's human and environmental impacts, and (2) address mitigating measures for identified impacts. The EA is the only state environmental review document that must be prepared for the proposed project.

The EA is included as part of this application. The EA and environmental information, including a summary of existing conditions, potential impacts, and mitigation measures, are included in Section 7.

2.4 Permits, Approvals, Consultations, and Reviews

2.4.1 Anticipated Permits, Approvals, Consultations, and Reviews

The Project will require several permits, approvals, consultations, and reviews; an inventory of these is summarized in Table 2-1. Necessary permits, approvals, consultations, and reviews required for the applicable actions of the Project will be obtained prior to construction initiation. Table 2-1 and the following information is based on a review of both the applicable jurisdictions and the resources potentially present in the Project area.

Table 2-1 Anticipated Permits, Approvals, Consultations, and Reviews

Permit/Compliance	Administering Agency
Federal	
Endangered Species Act Review	USFWS
Clean Water Act Section 404 Permit	USACE
Spill Prevention, Control, and Countermeasure (SPCC) Plan	EPA
State	
Natural Heritage Review	MDNR
License to Cross Public Waters	MDNR
Water Appropriation Permit	MDNR
Utility Permit	MnDOT
Access (Entry/Driveway) Permits	MnDOT
Oversize/Overweight Permits	MnDOT
Wetland Conservation Act Exemption Concurrence	Board of Water and Soil Resources
Clean Water Act Section 401 Water Quality Certification	MPCA
National Pollutant Discharge Elimination System (NPDES) Permit (Construction Stormwater)	MPCA
Cultural Resources Consultation	Minnesota State Historic Preservation Office/State Archaeologist
Agricultural Impact Mitigation Plan	Minnesota Department of Agriculture
Vegetation Management Plan	Minnesota interagency group
Local	
Road Crossing/Right-of-Way Permits	Hennepin County, City of Maple Grove
Public Lands Permits - Local	City of Maple Grove
Utility / Right-of-Way / Obstruction Permits	Hennepin County, City of Maple Grove
Oversize/Overweight Permits	Hennepin County, City of Maple Grove
Temporary Construction Driveway Permits	Hennepin County, City of Maple Grove

2.4.2 Federal

2.4.2.1 U.S. Fish and Wildlife Service, Federal Threatened and Endangered Species Review

The Endangered Species Act (ESA) directs the USFWS to identify and protect endangered and threatened species and their critical habitat. Section 9 of the ESA prohibits "take" of federally listed species without a permit. Take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Incidental take of listed fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by a federal agency or applicant, see 50 CFR §402.02. The term "harm" is defined in regulations (50 CFR §17.3) as acts that actually kill or injure covered wildlife, and may include significant habitat alteration that kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

The Applicant will coordinate further with the USFWS if needed; however, the Applicant does anticipate adverse impacts on federally listed species; therefore, an Incidental Take Permit will not likely be necessary.

2.4.2.2 U.S. Army Corps of Engineers, Section 404 Clean Water Act Permit

Section 404 of the Clean Water Act (CWA), requires a permit for projects that discharge dredged or fill material into jurisdictional waters of the United States, including jurisdictional wetlands.

It is anticipated that project-related impacts to jurisdictional waters could be authorized under the USACE's St. Paul District Utility Regional General Permit. This general permit authorizes projects that include the construction of utility lines, utility survey activities, substation facilities, and access roads. Projects resulting in less than 0.5 acres of permanent wetland loss do not require wetland mitigation. The Applicant will apply for this permit if required once a Route Permit is issued for the Project.

2.4.2.3 U.S. Environmental Protection Agency, Spill Prevention, Control, and Countermeasure Plan

A Spill Prevention, Control, and Countermeasure (SPCC) plan is required to document all relevant spill prevention, control, and countermeasures necessary to

contain and prevent discharge of oil or other petroleum products into waters of the U.S.

The Applicant will prepare an SPCC plan for the construction phase of the project if contractors bring in stationary or mobile fueling tanks that exceed the 40 CFR, Part 112 threshold requirements (1,320 gallons of oil capacity). The SPCC plan will cover all laydown, staging, parking, and refueling activities along the right-of-way.

2.4.3 State

2.4.3.1 Minnesota Department of Natural Resources, License to Cross Public Waters or State Lands

An MDNR Utility License is required for the passage of any utility over, under, or across any public waters or state land. The MDNR Division of Lands and Minerals is responsible for granting approval in the form of a crossing license. In addition to a long-term license fee, there is a one-time crossing fee for each waterbody crossed. The agency review time of the application varies depending on the crossing technique and involves review and approval from several state departments and associated divisions.

The Applicant will consult with the MDNR and will obtain a license to cross Rush Creek.

2.4.3.2 Minnesota Department of Natural Resources, Water Appropriation Permit

The MDNR regulates water appropriation activities that exceed 10,000 gallons per day or a total of one million gallons per year under Minn. R. part 6115.0620.

The Applicant will obtain authorization for the Project under MDNR's General Permit 1997-0005 for Temporary Projects, as necessary, for activities such as construction site dewatering that exceed these thresholds.

2.4.3.3 Minnesota Department of Transportation, Utility Permit

The Applicant will apply for a "Utility Accommodation on Trunk Highway Right-of-Ways" (Form 2525) from MnDOT, as necessary. This permit is required for the construction of utility facilities crossing or paralleling existing trunk highway rights-of-way.

2.4.3.4 Minnesota Department of Transportation Entry/Driveway Access Permit

The Applicant will apply to MnDOT for an Access (Entry/Driveway) Permit (Form 1721) for using driveways and access points to trunk highways crossed or paralleled by the Project during construction.

2.4.3.5 Minnesota Department of Transportation, Oversize/Overweight Permits

The Applicant will apply for oversize and/or overweight permits for all vehicles from MnDOT using state trunk highways during construction and operation of the Project. These permits are required for vehicle loads of excess height, length, and/or weight, although overlength utility poles may be exempt. Certain over-width and/or overlength loads require escorts, which the Applicant will arrange as necessary.

2.4.3.6 Minnesota Board of Water and Soil Resources, Wetland Conservation Act Exemption Concurrence

The Minnesota BWSR administers the state Wetland Conservation Act. The Project will cause minimal permanent and temporary impacts to wetlands and is anticipated to be eligible for the Exemption for Utilities in accordance with Minn. Stat. § 103G.2241, subd. 6, and Minn. R. part 8420.0420, subp. 5, which allows the utility exemption for installation, maintenance, repair, or replacement of lines if (a) the impacts have been avoided and minimized to the extent possible; and (b) the proposed project significantly modifies or alters less than one-half acre of wetlands.

This exemption would apply to the construction of the project transmission line and temporary access roads. Wetland impacts associated with the construction of the proposed substation will require authorization under WCA. The Applicant will submit a Joint Permit Application and wetland replacement plan, if required, to the WCA LGU for approval.

2.4.3.7 Minnesota Pollution Control Agency, Section 401 Water Quality Certification

The MPCA requires Section 401 water quality certification to obtain a federal permit for any activity potentially resulting in discharge to waters of the U.S. This certification indicates the Project will comply with state water quality standards according to the CWA.

The Applicant will obtain Section 401 water quality certification as necessary for the Project.

2.4.3.8 Minnesota Pollution Control Agency, National Pollutant Discharge Elimination System Permit

The MPCA requires an NPDES Permit for stormwater discharges associated with construction activities disturbing one acre of land or greater. Prior to construction, the Applicant will obtain a construction stormwater permit and develop and implement a SWPPP that identifies BMPs and construction measures to contain soils and to minimize sediment discharge during stormwater events.

2.4.3.9 State Historic Preservation Office Consultation

The State Historic Preservation Office is statutorily obligated to participate in the Commission's siting and routing proceedings. Commission route permits generally include recommendations to conduct a Phase Ia literature review, Phase I archaeological survey, or an archaeological assessment and are included as a permit condition. A Phase Ia cultural resources literature review report was completed for the Project and submitted to the Minnesota SHPO on January 19, 2026 (Appendix D). Coordination with the Minnesota SHPO will be ongoing to determine whether additional cultural resources evaluation is required.

2.4.4 Local

2.4.4.1 Road Crossings/ Permits

These permits may be required to occupy and/or cross county, township, and city rights-of-way and roads.

2.4.4.2 Public Lands Permits

Public lands permits may be required to occupy county, township, and city lands such as park lands, watershed districts, or other properties owned by these entities.

2.4.4.3 Hennepin County Utility / Right-of-Way / Obstruction Permit

A permit may be required for utility work that will be performed by any company within a Hennepin County right-of-way. Also used for any traffic control or obstruction to Hennepin County right-of-way or roadways.

2.4.4.4 Hennepin County Over-size/Overweight Permits

These permits may be required to move over-width or heavy loads on county, township, or city roads and will be obtained once a Route Permit has been issued by the Commission. A transportation permit is required for the movement of any vehicle or load over a Hennepin County roadway when the legal dimensions and/or legal axle or gross load weights are exceeded as set forth in Minn. Stat. §§ 169.80 through 169.825. In the city of Maple Grove, certain roads have posted weight restrictions that are outside the seasonal weight restrictions enforced during the spring freeze/thaw cycle.

2.4.4.5 Temporary Construction Driveway Permits

These permits, used for any temporary driveway needed for construction of any sort, which the drive will be removed after the work is completed, may be required to construct access roads or driveways that access county, township, or city roadways and will be obtained once a Route Permit has been issued by the Commission.

2.5 Project Evaluation and Participation

In this Route Permit proceeding, the EIP staff and an administrative law judge (ALJ) from the Court of Administrative Hearings will oversee evaluation and review of the Project through the gathering of input from agencies, local government units (LGUs), tribes, and the public (Table 2-2).

Interested parties may find additional information on how to get involved here: https://mn.gov/puc/get-involved/. To subscribe to the Project docket to receive email notifications when information is filed in the docket, visit: https://www.edockets.state.mn.us/, and select Sign In/Register. Once you have registered and signed in, click on "Subscriptions" then "Create a Subscription." Under "Docket #," enter "24-427" then click "Create."

If you would like to have your name added to the Project mailing list, send an email to consumer.puc@state.mn.us or call 651.296.0406 (800.657.3782). If you send an email or leave a phone message, please include: (1) how you would like to receive mail (regular mail or email) and (2) the docket number (TL-24-427), your name, and your complete mailing address or email address.

After the application is submitted, the Commission will review the application for completeness and make a completeness determination within 10 working days of application submission. Next, a Commission meeting is held to determine the conditions of the draft permit and if there is a need for an EA Addendum. If it is determined that an EA Addendum is required, the Commission will also determine the scope of the EA Addendum.

The public can review this Application and submit comments on the Project to the Commission. A copy of the Application is available at the Commission's website: https://mn.gov/puc/. On the Commission's homepage, click on the eDockets link in the menu at the top of the page, click on "Go to eDockets" and then enter the "24-427" under "Docket #s." This Application will also be available at the following location for the public to review:

- Maple Grove Public Library, 8001 Main Street North. Maple Grove, MN

Following the Commission meeting, the Commission will issue a draft route permit and a scoping decision if one is needed. The scope will consider other routes or potential impacts for the Project. If needed, EIP staff will gather information to prepare the EA Addendum for the Project. EIP staff will then file the EA Addendum for the Project.

An ALJ from the Office of Administrative Hearings will conduct a public hearing that will be held for the Project. After the hearing and public comment period, the ALJ will prepare and submit a report to the Commission. The applicant and parties will then have an opportunity to file exceptions to the ALJ Report. The Commission will issue a final decision on an application after receiving the report from the ALJ.

Table 2-2 summaries the standard review process. If you have questions about the state regulatory process, you may contact the Minnesota state regulatory staff listed below:

Minnesota Public Utilities Commission
Craig Janezich
121 7th Place East, Suite 350
St. Paul, Minnesota 55101
651.296.0406
800.657.3782
Email: craig.janezich@state.mn.us

Minnesota Public Utilities Commission
Logan Hicks
121 7th Place East, Suite 350
St. Paul, Minnesota 55101
651.539.1067
800.657.3782
Email: logan.m.hicks@state.mn.us

Table 2-2 Minnesota Public Utilities Commission Standard Review Process

Milestone	Responsible Party & Activities	Dates/Timing
Pre-Application	Applicant consults with tribes, federal agencies, state agencies, local governments	Prior to draft application
Applicability Determination	If desired, Applicant files request for determination	Prior to draft application
Draft Application Review	Applicant provides draft application and supporting materials. EIP staff reviews draft application	2-3 -months prior to filing application Within 4 weeks of receiving draft application
Application Filed	Applicant files application	None
Completeness Determination and Public Notice of Info/Scoping Meeting	EIP staff provides Public Notice to the official, state agency reps, Tribal Governments, Tribal THPOs, state agency reps and project contact lists & publishes in local newspapers	Within 10 working days of application submission
Public Meeting & Comment Period	EIP staff conducts public meetings and seeks public comment	20-30 days after Public Notice of application completeness
PUC Meeting	PUC determines draft permit conditions and need & scope for EA Addendum	60 days after Public Notice of application completeness
Draft Permit Issued	Commission issues draft permit	70 days after Public Notice of application completeness
Scoping Decision	Commission issues scoping decision for EA Addendum (If needed)	70 days after Public Notice of application completeness
EA Addendum	EIP staff files EA Addendum (If needed)	120 days (4 months) after Public Notice of application completeness

Milestone	Responsible Party & Activities	Dates/Timing
Notice of Public Hearings	EIP staff issues Notice of Public Hearing	75 days after Public Notice of application completeness if EA Addendum IS NOT needed Or 125 days after Public Notice of application completeness if EA Addendum IS needed
Public Hearing and Comment Period	ALJ conducts public hearings, followed by written comment period	90-100 days after Public Notice of application completeness if EA Addendum IS NOT needed Or 140-150 days after Public Notice of application completeness if EA Addendum IS needed
Public Hearing and Comment Period	Applicant responds to public comments & proposes findings	107 days after Public Notice of application completeness if EA Addendum IS NOT needed Or 157 days after Public Notice of application completeness if EA Addendum IS needed
Public Hearing and Comment Period	EIP staff responds to public comments & Applicant's proposed findings	121 days after Public Notice of application completeness if EA Addendum IS NOT needed Or 171 days after Public Notice of application completeness if EA Addendum IS needed
ALJ Report	ALJ issues report	151 days after Public Notice of application completeness if EA Addendum IS NOT needed Or 201 days after Public Notice of application completeness if EA Addendum IS needed
Exceptions	Applicant and parties file exceptions to ALJ Report	166 days after Public Notice of application completeness if EA Addendum IS NOT needed Or 216 days after Public Notice of application completeness if EA Addendum IS needed
PUC Agenda Meeting	Commission meeting to decide on permit and any conditions	180 days after Public Notice of application completeness if EA Addendum IS NOT needed Or 245 days after Public Notice of application completeness if EA Addendum IS needed

3 Project Information

3.1 Project Location

The Project is in the city of Maple Grove, Hennepin County, Minnesota (Map 1) near Interstate 94. Table 3-1 shows the public land survey system.

Table 3-1 Public Land Survey System Location

Range	Township	Section
22 West	119 North	4, 5, 8

3.2 Project Description

The Project involves constructing an approximately two-mile-long, new 115 kV double-circuit, alternating current transmission line connecting a new 115/34.5 kV substation, the West Maple Grove Substation, on the west side of Interstate 94, to a proposed tap point on an existing 115 kV transmission line.

From the substation, the new transmission line will extend north-south and parallel the right-of-way along the west side of Interstate 94 for approximately 0.5 miles before turning east. It will then generally follow the right-of-way along 105th Avenue North for approximately 1.5 miles, where it will connect to the existing 115 kV line (line 0827) along County Highway 81, west of the existing Elm Creek Substation (Map 2).

Both circuits will be constructed concurrently, as this Project consists of an "In-and-Out" configuration in which the existing 115 kV line is routed into the new substation and then returned to the same line. Construction of the Project is anticipated to last around 14 months, starting in Q4 2026, with the Project anticipated to be in service in the last quarter of 2028.

3.3 Project Design

3.3.1 Transmission Structure and Conductor Design

A new 115 kV double-circuit in-and-out transmission line will be connected into the existing line 0827 west of the Elm Creek Substation (Map 2). The new 115 kV double-circuit transmission line will connect to the West Maple Grove Substation, built to meet growing demand. These lines are comprised of individual structures that support the lengths of conductors made of steel and aluminum braided cable, typically

around one inch in diameter, along with two optical ground wires (OPGW). The OPGWs function as both a shield wire to be used for lightning protection as well as a fiber optic communication line. This type of shield wire requires special splicing and extra splice boxes to be placed on transmission poles intermittently. Transmission lines are built in teams of three wire groupings; each individual grouping is called a phase. A group of three phases is called a circuit. Each phase can be a single wire or multiple wires called a bundle. This new double-circuit line will contain a two-wire bundle for each phase. Each conductor bundle is supported at every structure by an insulator. This general method is detailed in Figure 1.

The new conductors will be strung on monopole (i.e., single pole), brown/weathering steel or silver/galvanized steel, double-circuit structures (Figure 2).

The Project includes the installation of approximately 30 to 35 new 115 kV tower structures using a combination of structure types, as shown in Figure 3. A variety of structures are being used to accommodate for various locations and purposes. For example, the typical structures will be a tangent monopole, galvanized or weathering steel, double-circuit structure. Tangent and angle structures will be used to brace line post insulators. Dead-end structures can support higher tensions that are generated where the route is angled or there is a corner. Dead-end and cut-in structures will have davit arms. Distribution underbuild structures are where lower-voltage conductors installed below the 115 kV conductors on the same structures, and are anticipated for a partial section of this Project.

Figure 1 Typical Double-Circuit Structure

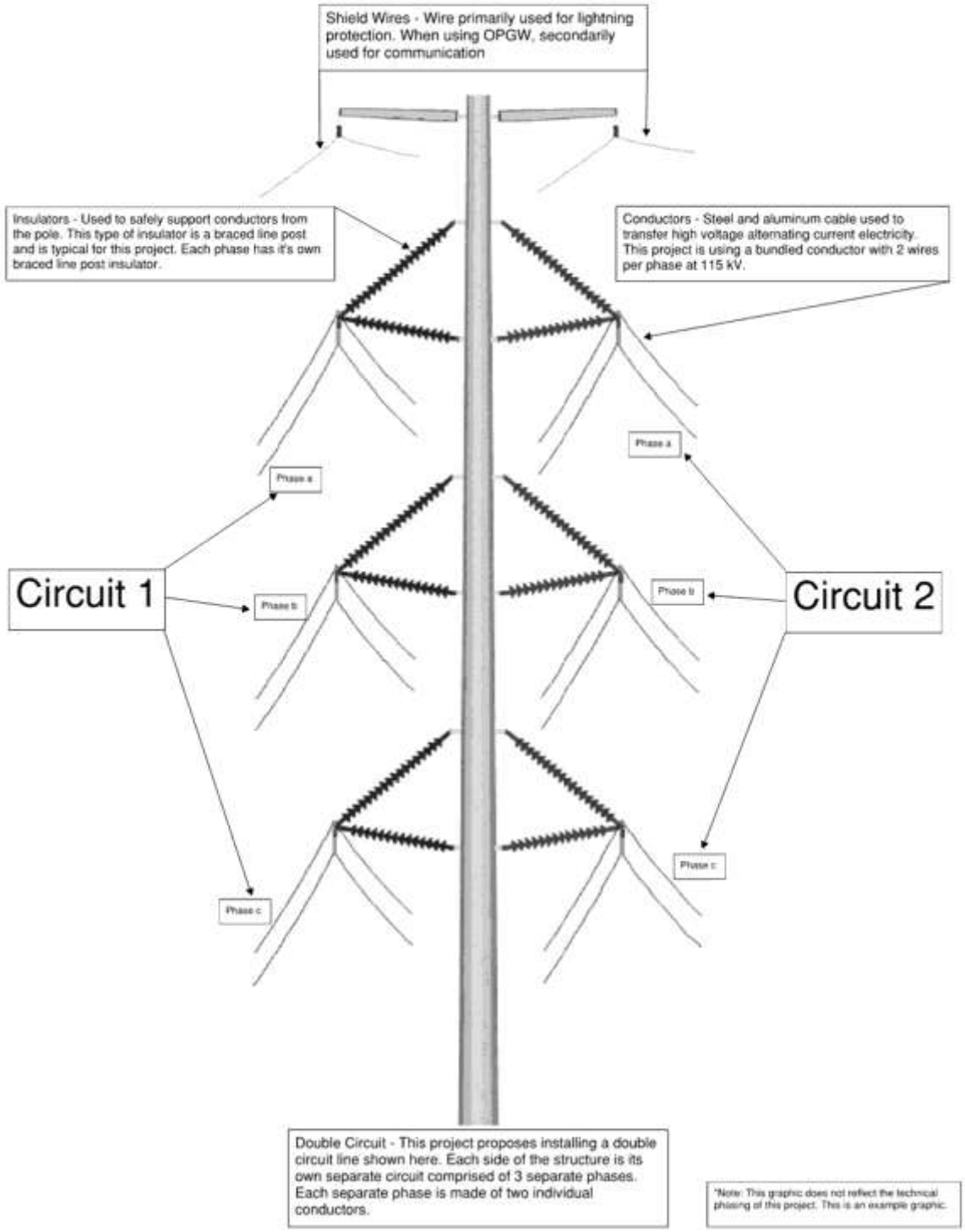


Figure 2 Typical 115 kV Silver/Galvanized Steel or Brown/Weather Steel

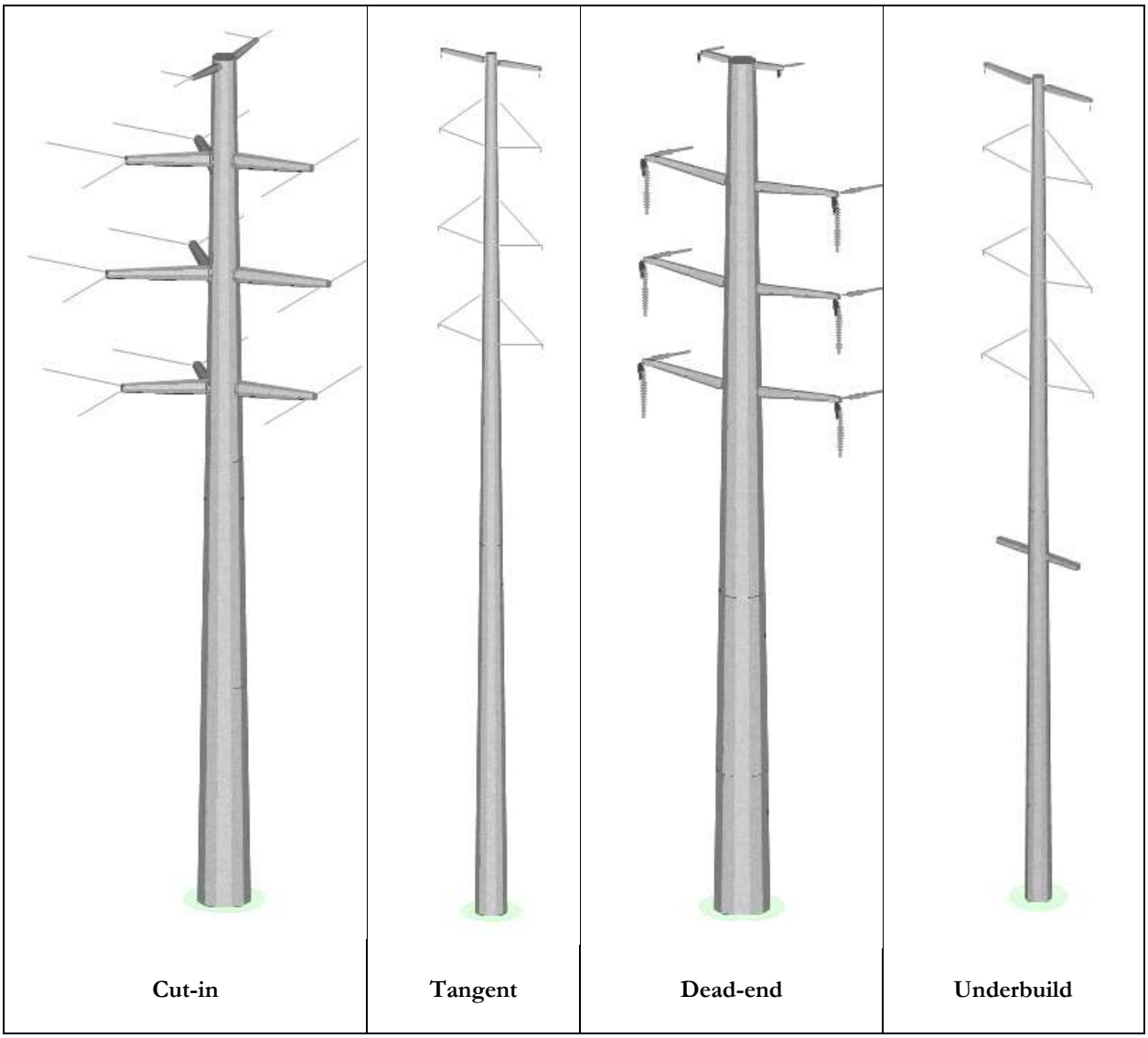


115 kV Steel Double-Circuit Monopole Structure Silver/Galvanized Steel



115 kV Steel Double-Circuit Monopole Structure Brown/Weathering Steel

Figure 3 Typical 115 kV Structures (Cut-in, Tangent, Dead-end, Tangent with Distribution Underbuild)



There will be at least one structure replaced on the existing line 0827 (west of the proposed tap point) to create a cut-in/tap structure (i.e., a connection) with potential modifications to up to two adjacent existing structures. There also will be a replacement or modification of at least two structures on 345 kV Line 0978/0985 (north and east of the tap point) to accommodate a safe crossing with the potential to add a single additional structure to that line.

The proposed new structures will range in height from 80 feet to 150 feet. The typical span between structures will be between 400 and 500 feet. Depending on the location,

the single-pole structures will either be installed on a concrete foundation or embedded directly into the soil. Table 3-2 summarizes the typical structure design for the Project.

Table 3-2 Typical Structure Design Summary

Line Type	Structure Type	Structure material	Typical Right-of-Way Width (feet)	Structure Height (feet)	Structure Depth (feet)	Foundation Diameter (feet)	Pole Diameter (feet)	Average Span Between Structure (feet)
115 kV Double-Circuit	Monopole w/ Davit Arms	Galvanized or Self-Weathering Steel	100	80-150	25 (direct embed) 40-50 (drilled pier foundations)	7-10	2.5-9	400-500
345 kV Double-Circuit[3]	Monopole w/ Davit Arms	Galvanized or Self-Weathering Steel	125	140-170	4 (drilled pier foundations)	8-10	5-8	1100-1300

The proposed transmission line will be designed to meet or surpass relevant local and state codes, including the National Electric Safety Code (NESC) and the Applicant's standards. Applicable standards will be met for construction and installation, and applicable safety procedures will be followed during design, construction, and after installation.

3.3.2 Associated Facilities

The associated facilities for the Project include constructing the West Maple Grove Substation as described in Section 2.3.1.

3.3.2.1 West Maple Grove Substation

The West Maple Grove Substation will be a 115/34.5 kV substation located 1.5 miles west of the existing Elm Creek Substation. This substation is planned to be located on a 13.5-acre parcel of land purchased from the city of Maple Grove by the Applicant;

[3] Limited to two existing structures requiring replacement or modification to accommodate the proposed transmission line; no new 345 kV line construction is proposed.

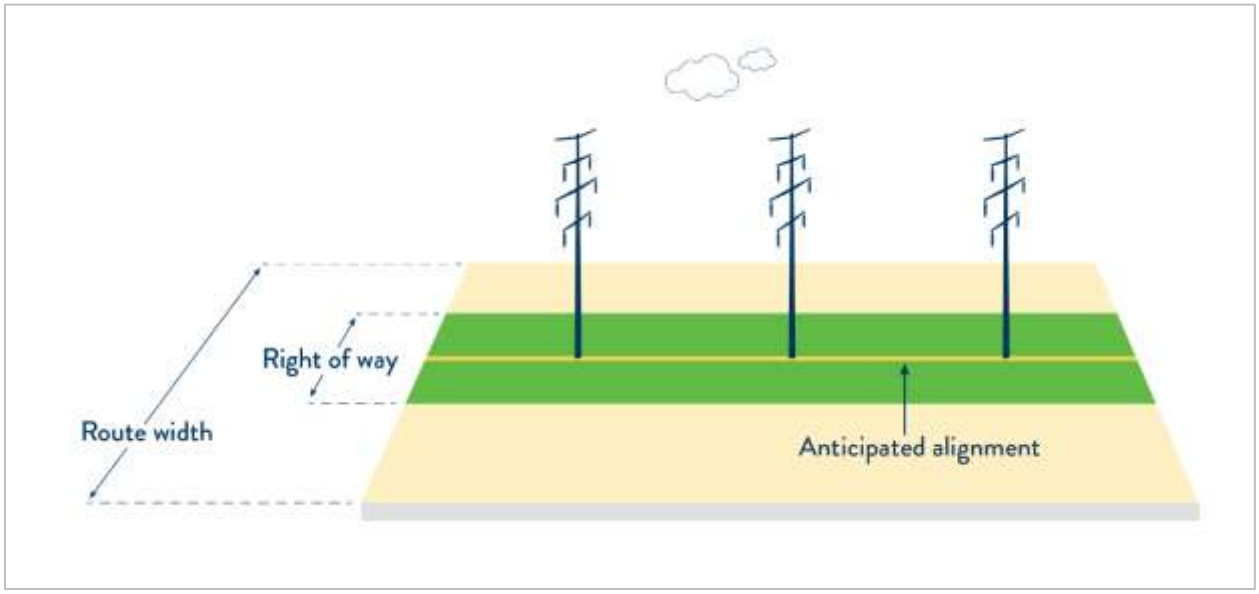
this area is being referred to as the "West Maple Grove Substation Area." Included in the 13.5-acre West Maple Grove Substation Area is a driveway access from an existing road, a maintenance road around the fenced-in area, a stormwater pond and landscaping/vegetative screening (Map 3).

The West Maple Grove Substation is designed with sufficient space to accommodate both the initial infrastructure and future expansions. Initially, the substation will feature six transmission circuit breakers to support the connection of two transmission lines and two distribution transformers. In its final configuration, the substation will be capable of housing up to thirteen transmission circuit breakers, enabling the connection of four transmission lines and three distribution transformers. The facility will be situated on a graded and fenced site within the West Maple Grove Substation Area. The fenced portion of the site will be around 3.5 acres. Within this fenced-in portion of the site there will be one building approximately 10 to 12 feet tall with structural columns to support equipment ranging from 60 to 84 feet tall. Lighting will be mounted on poles or structures at 12 to 30 feet high. Lighting is only activated during scheduled maintenance or emergency work; otherwise, the substation remains dark to reduce light pollution. Fixtures include full cutoff LED fixtures to prevent upward light spill and shielded luminaires to direct light only where needed. Typical maintained illuminance ranges from 0.5–1 foot-candles for general access areas and 5–10 foot-candles for detailed work areas.

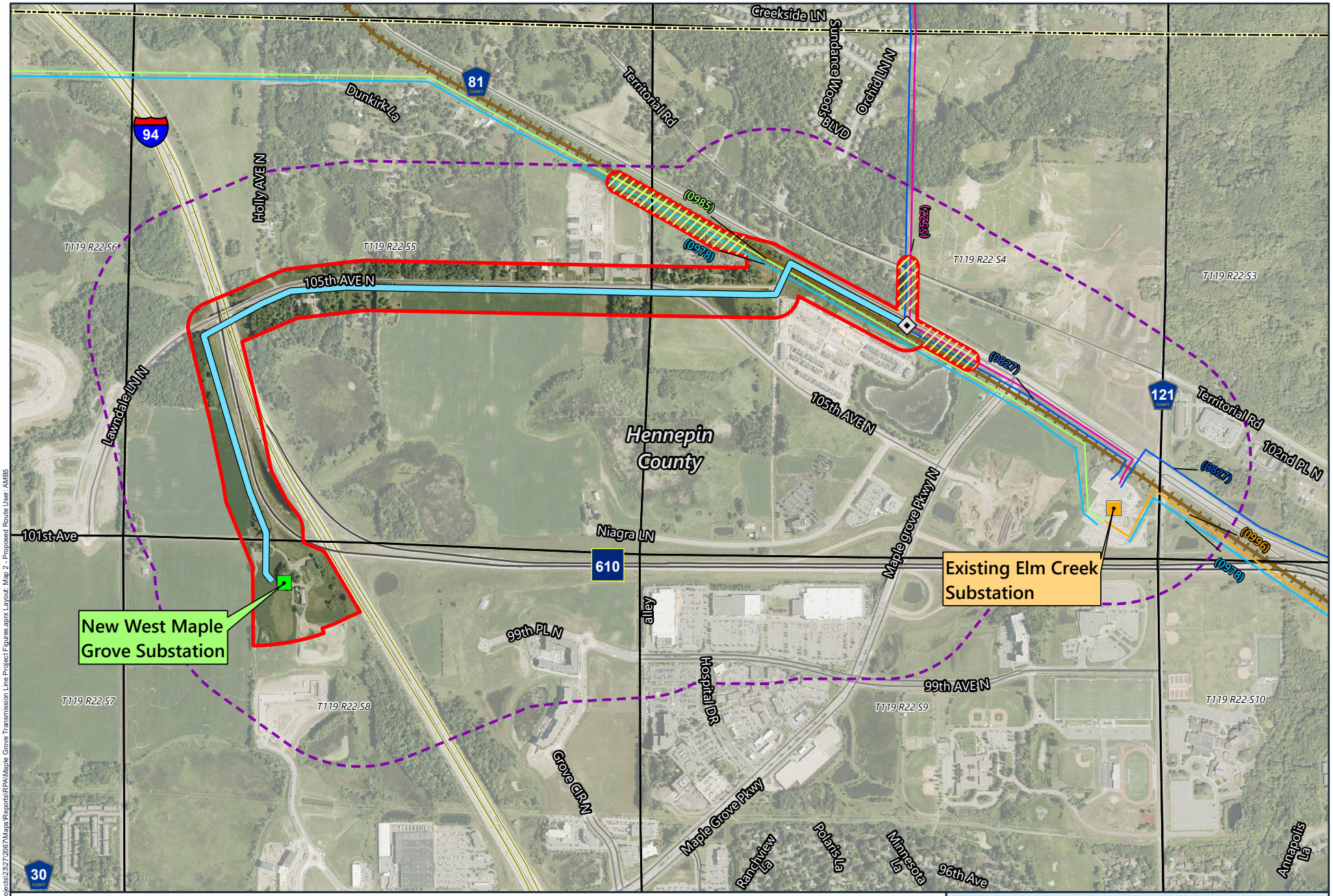
3.4 Route Width

The route width is the area in which the Commission authorizes a permittee to place the proposed transmission line facilities. The route may have "a variable width of up to 1.25 miles," within which the right-of-way for the facilities can be located (Minn. Stat. § 216I.02, subd. 15). The right-of-way is the specific area that is required for the easement for the transmission line. By requesting a route width that is wider than the right-of-way, the Applicant has some flexibility to make alignment adjustments during final design to work with landowners, avoid sensitive natural resources, and manage construction constraints as practical. An illustration summarizing the concepts of route width, ROW, and anticipated alignment is provided in Figure 4.

Figure 4 Route Width, ROW, and Anticipated Alignment Illustration



For this Project, the Applicant proposes a variable route width ranging from: 200 feet in areas where modifications (as described in Section 5) of existing lines may be required, 500 feet along the proposed new alignment, and up to 1,000 feet around the proposed West Maple Grove Substation (Map 3).



Anticipated Alignment
Proposed Route
Potential Alteration to Existing Lines
Proposed Tap Point
Proposed Substation
Existing Substation

Existing High-Voltage Transmission Line
0827
0978
0985
0996
5522

Railroad
Section
Notice Area

N

0 0.25 0.5
Miles

PROPOSED ROUTE

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 2

Xcel Energy®

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Substation Fence (3.5 acres)

Laydown Area

Overhead HVTL Lines

Underground Distribution Lines

Driveway and Maint. Access (built off pvt. road)

Stormwater Pond

Landscaping

Parcel Boundary (8/9/2024)

West Maple Grove Substation Area (13.5 acres)*

** Parcel owned by Xcel Energy*

N

0 150 300

Feet

SUBSTATION LAYOUT

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 3

Xcel Energy®

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3.5 Transmission Line Right-of-Way

The new 115 kV double-circuit transmission line will require acquiring a 100-foot right-of-way easement for the Project.

The Commission considers the use and paralleling of existing right-of-way when determining the most appropriate route for a project. Sharing right-of-way with existing infrastructure or paralleling existing right-of-way minimizes fragmentation of the landscape and can minimize human and environmental impacts (for example, aesthetic and agricultural impacts).

The Project parallels existing infrastructure along 100 percent of its length, including 1.6 miles (84 percent) along existing roads and 0.3 miles (16 percent) where the anticipated alignment parallels road, rail, and existing transmission line infrastructure. When paralleling existing road rights-of-way, the Applicant proposes to place transmission line structures on adjacent private property with a 20-foot offset from the existing road right-of-way. This offset is subject to landowner easements and road authority design requirements, which may affect the final offset distance.

Placing transmission line structures adjacent to, but outside of, public road right-of-way can reduce the amount of new right-of-way required on adjacent land parcels and minimize the potential need to relocate the transmission line in the future due to road projects. Any right-of-way sharing is subject to approval by the applicable road authority. The extent of right-of-way overlap is typically determined by the space needed to safely operate and maintain both the roadway and the transmission line.

3.5.1 ROW Acquisition

For transmission lines, utilities typically acquire easement rights across the applicable parcels to accommodate the transmission line. The evaluation and acquisition process includes title examination, initial owner contacts, survey work, document preparation, and easement rights acquisition.

The Applicant's right-of-way agent will identify all persons and entities that may have a legal interest in the identified real estate. The agent will contact each property owner to describe the need for the transmission facilities and how the Project may affect each parcel. The agent will also seek information from the property owner about any specific concerns regarding the Project.

To aid in the design and routing of the Project, the Applicant may request permission to enter the property to conduct a preliminary survey and geotechnical work. During this process, the location of the proposed transmission line or substation facility may be staked with the property owner's permission.

The agent will discuss the construction schedule and construction requirements with the property owner. Special consideration may be needed for fences or crops. Fences may need to be moved, and crops may need to be harvested early. In each case, the right-of-way agent and construction personnel will coordinate these processes with the property owner.

Land value data will be collected to assist in determining the fair market value of the easement needed for the lands to be crossed by the Project, as well as the impact the easement may have on the market value of those parcels. A fair market value offer will be developed that recognizes the impact of the easement on each parcel. Sometimes, a negotiated easement agreement cannot be reached. In those cases, the Applicant may exercise eminent domain pursuant to Minnesota law. The process of exercising the right of eminent domain is called condemnation.

Before commencing a condemnation proceeding, typically, the Applicant must obtain at least one appraisal and provide a copy to the property owner. The property owner may also obtain another property appraisal, and the Applicant must reimburse the property owner for the cost of the appraisal according to the requirements and limits set forth in Minn. Stat. § 117.036. To start the formal condemnation process, the Applicant files a petition in the district court where the property is and serves that petition on all owners with an interest in each of the properties identified in the petition.

If the district court grants the petition, the court then appoints a three-person condemnation commission that will determine a just compensation amount for the easement. The three people appointed to the condemnation commission must be knowledgeable of applicable real estate matters. The commissioners schedule a viewing of the property and then schedule a valuation hearing where the utilities and property owners offer their evidence, such as testimony by appraisers, as to the fair market value of the property interests required for the Project. The condemnation commission then makes an award as to the value of the property acquired for the easement, and that award is filed with the court. Each party has the right to appeal the

award to the district court for a jury trial. A jury trial typically occurs in the event of an appeal, in which the jury considers the parties' evidence and renders a verdict. At any point in this process, the case can be dismissed if the parties reach a settlement.

3.6 Project Schedule

The Project is anticipated to begin construction in Q4 2026 and be in service in Q4 2028. Table 3-3 provides a permitting and construction schedule summary, with anticipated end dates identified.

Table 3-3 Anticipated Project Schedule

Activity	Estimated Dates
Site or Route Permit (Studies, Public Outreach, and Permit Application)	Q2/Q3/Q4 of 2025
Land Acquisition (Permission, Temporary Easements, and Permanent Rights)	Q2 of 2025 to Q4 of 2027
Engineering/Design and Downstream Permits	Q2 of 2025 to Q3 of 2027
Construction	Q4 of 2026 to Q2 of 2028
Project In-Service (Expected Dates of Commercial Operation)	Q4 of 2028

This schedule is based on information known at the date of this filing and on planning assumptions that balance the timing of implementation with the availability of crews, materials, and other practical and seasonal considerations. It may be subject to adjustment and revision as further information is developed.

3.7 Project Costs

Table 3-4 lists the Project's estimated cost between $49.1 million and $55.6 million (in 2025 dollars), depending on the alignment as determined by final design.

Table 3-4 Current Construction Cost Estimates

Project Component	Capital Expenditures ($millions) (in 2025 dollars)	
	Low	High
Development/Construction		
115 kV Double-Circuit Transmission Line		
Total	$9.0	$11.0
West Maple Grove Substation		
Total	$40.1	$44.6
Total Project Costs	**$49.1**	**$55.6**
O&M (annually)		
Transmission Line	$2,500	$5,000
Substation	$3,000	$5,000

The Applicant notes that the cost estimates in Table 3-4 are in 2025 dollars and will increase over time for any number of reasons, such as, but not limited to, escalation, inflation, and commodity pricing.

4 Route Selection Process

The Applicant conducted a route selection process beginning in early 2024 and extending through mid-2025. This process included consideration of legal requirements, Commission guidance, information gathering, public outreach and input, and a comparison of route alignment options around the Project substation. The main consideration during the route selection process was maximizing the opportunity to parallel existing infrastructure right-of-way, avoiding residences, and avoiding future developments.

The Applicant sent notice letters to LGUs, tribes, and state/federal technical resource agencies for input. The Applicant also coordinated with the city of Maple Grove and hosted a public open house to gather input on the route including the location of residences, future projects, and developments. This process resulted in the identification of a single route.

4.1 Summary of Route Selection Process and Guiding Factors

Minn. Stat. § 216I.05, subd. 11(a) provides that the Commission's route permit determinations "must (1) be guided by the state's goals to conserve resources; (2) minimize environmental impacts, and minimize human settlement and other land use conflicts; (3) consider impacts to ... environmental justice areas; and (4) ensure the state's electric energy security through efficient, cost-effective energy supply and infrastructure." Subdivision 11(e) of the same section requires the Commission to "[w]hen applicable, ... make a specific finding that [it] considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and using parallel existing highway right-of-way ... [and,] [t]o the extent an existing high-voltage transmission route or parallel existing right-of-way is not used for the route, the [C]ommission must state the reasons."

In addition to the statutory criteria noted above, Minn. Stat. § 216I.05, subd. 4(a) provides that the environmental information included with the application must discuss:

1. Each site or route's environmental setting;

2. Effects on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, environmental justice impacts, cultural values, recreation, and public services;

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

4. Effects on archaeological and historic resources;

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

6. The greenhouse gas emissions associated with constructing and operating the facility;

7. The facility's climate change resilience;

8. Effects on rare and unique natural resources;

9. The human and natural environmental effects that are unavoidable if the facility is approved; and

10. A description of (i) measures that might be implemented to mitigate the potential human and environmental impacts, and (ii) the estimated costs of the potential mitigative measures.

Under Minn. Stat. § 216I.05, subd. 4(b) and the standard review process, the Applicant may present such environmental information in its EA. Environmental information is included in this application, particularly Section 7.

4.1.1 Project Study Area

The Project Study Area was designed to establish boundaries and limits for the information-gathering process (e.g., identifying environmental and land use resources, routing constraints, and routing opportunities) and the subsequent development of a Proposed Route for the Project (Map 1).

The Applicant developed the Project Study Area boundary by buffering two initial alignment alternatives identified between the West Maple Grove Substation Area and several potential end points along the existing line 0827 by one mile. The Project

Study Area is approximately 8.5 square miles, 3.8 miles east to west and 2.7 miles north to south (Map 1) and includes three Preliminary Routes as described below.

4.1.2 Identify Routing Opportunities and Constraints

The process of identifying Preliminary Routes started by first identifying the start and end points for the new transmission line. The start point was identified as the West Maple Grove Substation Area; potential end points included several locations along the existing line 0871 (Map 4).

To minimize impacts on the environment and affected landowners, the Applicant looked for routing opportunities that would parallel rights-of-way with existing transmission lines and roads. The Applicant also examined the Project Study Area to identify routing constraints that should be avoided if practicable (e.g., airports, Wildlife Management Areas (WMAs), Waterfowl Production Areas (WPAs), residential subdivisions, and lakes).

4.1.3 Alternative Routes Considered but Rejected

Under the standard review process, the applicant is not required to propose a second route for the project but should include in their application any other routes that were rejected by the applicant. The Commission may identify additional routes to consider during its review of the application and from comments received throughout the permitting process. A "route" is defined in Minn. Stat. 216I.02, subd. 15 as "the location of a high-voltage transmission line between two end points…[with] a variable width of up to 1.25 miles." Map 4 shows the Preliminary Routes that were initially considered but rejected.

Potential routes roughly followed 105th Ave N and Highway 610, and a route that connected the North and South options. Based on an examination of routing opportunities and constraints, the Applicant developed a total of three Preliminary Routes; these include the North Option, South Option, and a deviation of the North Option shown on Map 4 as the South Interconnect Option. The South Options include two interconnect locations: Option A on the west side of Maple Grove Pkwy and Option B on the east side of Maple Grove Pkwy. All three Preliminary Routes are within Township 19 West, Range 22 North (Table 4-1).

The North Option goes north from the West Maple Grove Substation Area along the west side of Interstate 94, then turns east across Interstate 94 and roughly follows 105th

Ave North to its endpoint at the existing line 0827. The South Option goes east from the West Maple Grove Substation Area, crosses Interstate 94 to Highway 610, and roughly follows Highway 610 and Maple Grove Parkway to its endpoint at the existing line 0827. The South Interconnect Option follows the North Option but then turns southeast, following along 105th Ave North and connecting to the South Option.

Table 4-1 Preliminary Routes – Public Land Survey Sections

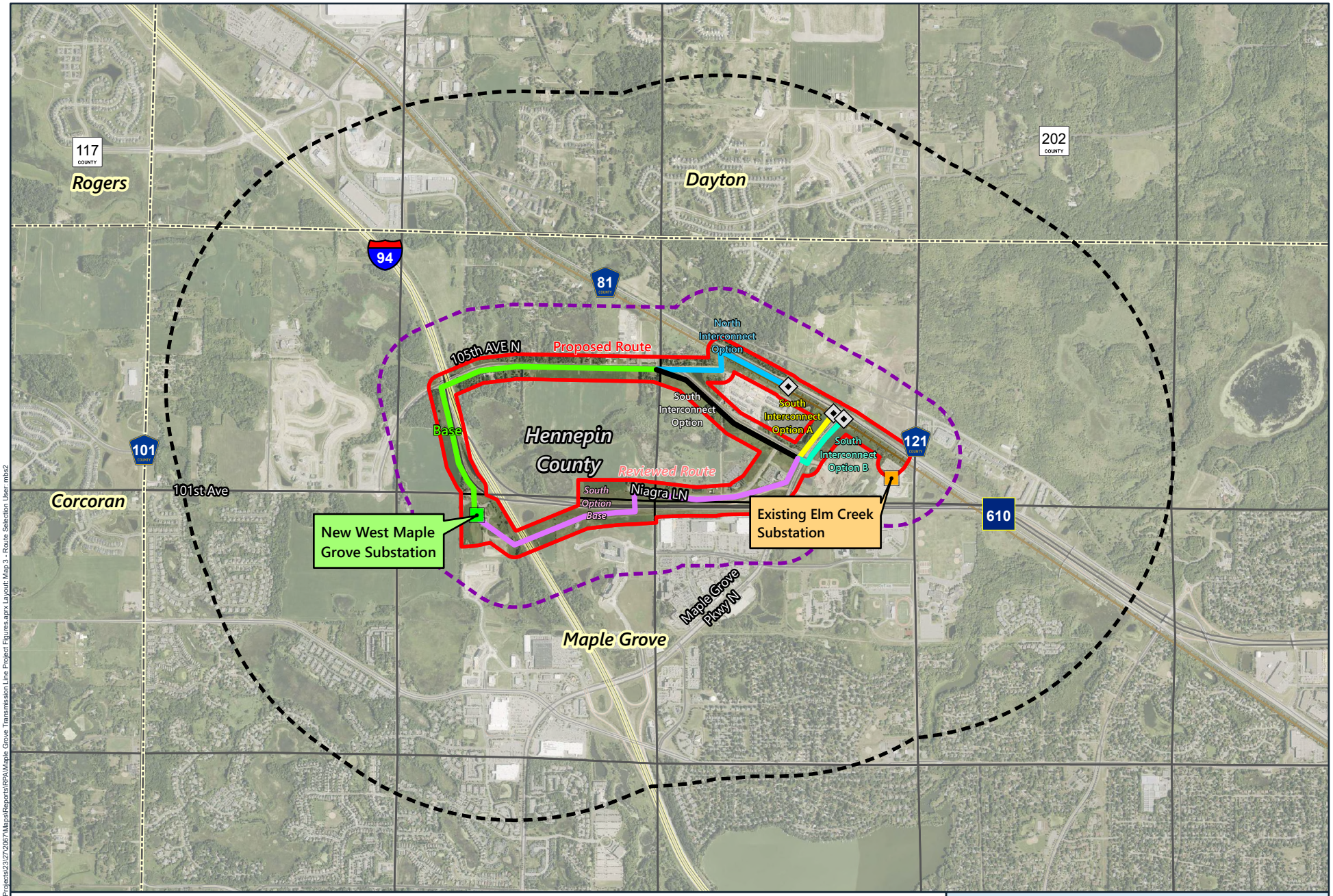
Preliminary Route Name	Township	Range	Section(s)
North Option	119 West	22 North	4, 5, 8
South Option (A & B)	119 West	22 North	4, 5, 8, 9
South Interconnect Option (A & B)	119 West	22 North	4, 5, 8

4.1.4 Public Open House Meetings

Following the development of the Project Study Area and Preliminary Routes, the Applicant conducted a public open house in Maple Grove, Minnesota at the Maple Grove Community Center on April 22, 2025, from 5:00 to 7:00 p.m. Notices for the open house were provided via newspaper and direct mail to residents, landowners, public officials, and other potential stakeholders (Appendix B). The open house invitation provided information such as a general Project description, a map of the Project Notice Area, Preliminary Routes and anticipated alignments, the Project's website address, and the Applicant's contact information to submit questions and comments.

The in-person, open-house format included several stations to display and communicate information about the Project to the attendees. Large-scale, poster-sized maps were on display depicting the Project Notice Area, Preliminary Routes, and anticipated alignments. GIS stations were also available for meeting attendees to review specific locations in more detail and to print maps of areas of interest. Six people signed in at the open house, with a total of approximately 10 people attending. Meeting attendees were encouraged to submit written comments either at the meeting or by email; two emails were received in response to the public open house.

Public feedback from the open house included comments and concerns regarding the proximity to residences and minimizing impacts to future developments. Public input was used to develop the Proposed Route included in this application. More information on the feedback received is available in Section 2.2.1.2.



Preliminary Alignments

- North Option A
- North Option Base
- North South Connector
- South Option A
- South Option B
- South Option Base
- Proposed Tap Point
- Preliminary Routes
- Notice Area
- Project Study Area (Project Area)

0 0.5 Miles

ROUTE SELECTION

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 4

Xcel Energy®

Barr Footer: ArcGISPro 3.4.3, 2025-08-20 15:34 File: I:\Projects\23\2720\87\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 3 - Route Selection User: mbs2

4.1.5 Initial Local Government and Agency Outreach

Following the development of the Project Study Area and Preliminary Routes, several meetings were held with state and local agencies. The purpose of these meetings was to gather feedback on the Preliminary Routes and alignment options and identify potential concerns. Local and agency input was used to develop the Proposed Route included in this application. More details of the discussions with state and local staff may be found in Section 2.2.1 of this Application.

5 Description of Proposed Route

The Proposed Route is shown on Map 2. It begins west of Interstate 94 and includes a 1,000-foot-wide route width encompassing the entire West Maple Grove Substation Area, extending from the western boundary of the substation area to Interstate 94. Upon exiting the West Maple Grove Substation Area, the Proposed Route narrows to 500 feet in width and proceeds north along Interstate 94.

After approximately 0.5 mile, the Proposed Route turns east and follows along 105th Avenue North for 1.5 miles. The Proposed Route then turns southeast for 0.25 mile before terminating at the proposed tap point on the existing 115 kV transmission line (Line 0827) along County Highway 81.

In several locations, the Proposed Route width narrows to 200 feet. These reduced-width segments are needed to accommodate modifications to existing transmission lines and do not require the acquisition of any new right-of-way. The Proposed Route narrows to 200 feet in the following three locations:

1. For approximately 1,800 feet northwest of the point where the new transmission line passes beneath existing lines 0985 and 0978.
2. For approximately 600 feet north of the proposed tap point.
3. For approximately 600 feet southeast of the proposed tap point.

6 Construction, Restoration, and Maintenance Procedures

The Applicant developed right-of-way acquisition, construction, restoration, and maintenance procedures for the Project. Although certain procedures will be site-specific based upon the final route design, general procedures are discussed in some detail in this Application.

6.1 Construction Procedures

Construction of the transmission line and substation will last approximately 10 to 14 months from start to finish and will employ approximately 15 to 30 construction workers.

Construction will begin after necessary federal, state, and local approvals are obtained and property rights are acquired. The precise timing of construction will consider various requirements of permit conditions, environmental restrictions, availability of outages for existing transmission lines (if required), available workforce, and materials.

Construction will follow the Applicant's best practices for construction and mitigation to minimize temporary and permanent impacts to land and the environment. Construction typically progresses as follows:

1. survey marking of the transmission line and substation rights-of-way;
2. right-of-way clearing and access preparation;
3. grading or filling if necessary;
4. installing culverts or concrete foundations;
5. substation construction;
6. installing poles, insulators, and hardware;
7. conductor stringing;
8. installing any aerial markers required by state or federal permits; and
9. restoration/clean-up.

Construction will require the use of different types of construction equipment, including tree removal equipment, mowers, cranes, backhoes, digger-derrick line

trucks, drill rigs, dump trucks, front-end loaders, bucket trucks, bulldozers, flatbed tractor-trailers, flatbed trucks, pickup trucks, concrete trucks, and various trailers or other hauling equipment. Excavation equipment is often on wheeled or track-driven vehicles. Construction crews will attempt to use equipment, when opportunities are available, that minimizes impacts to land, including the use of ground mats if required.

Construction staging areas/laydown yards are usually established for transmission and substation projects. Staging involves delivering and temporarily storing the equipment and materials necessary to construct the new transmission line facilities. Structures, conductors, matting, and other materials are delivered to staging areas and stored until they are needed for the Project.

The Applicant will evaluate construction access opportunities by identifying existing transmission line easements, roads, or trails that are near the approved route and substation location. When feasible, the Applicant will limit construction activities to the easement area. In certain circumstances, additional off-easement access may be required on a temporary basis. This level of detail will not be known until the route permit is issued and design is complete, so permission will be obtained from property owners at that time and prior to using off-easement access.

Improvements to existing access or construction of new access may be required to accommodate construction equipment. Field approaches and roads may also be constructed or improved. Where applicable, the Applicant will obtain permits for new access from local road authorities and work with appropriate road authorities to ensure proper maintenance of roadways traversed by construction equipment.

Some soil conditions and environmentally sensitive areas will require special construction techniques. The most effective way to minimize impacts to these areas will be to avoid placing poles in the sensitive areas by spanning over wetlands, streams, and rivers. When it is not feasible to avoid traversing sensitive areas, one or more of the following options will be used to minimize impacts, in consultation with the appropriate agencies:

1. When possible, construction will be scheduled during frozen ground conditions;

2. When construction during frozen ground conditions is not possible and conditions require it, construction mats will be used to cross wetlands and other sensitive areas;

3. Equipment fueling and other maintenance will occur away from environmentally sensitive and wet areas. These construction practices help keep fuel and lubricants from entering waterways or impacting environmentally sensitive areas; and

4. Various best management practices (BMPs) will be identified in the Project's Stormwater Pollution Prevention Plan (SWPPP), including but not limited to the use of silt fences, bio logs, erosion control blankets with embedded seeds, and other sound water and soil conservation practices to protect topsoil and adjacent water resources and to minimize soil erosion.

These techniques are also used to reduce impacts to private property, including driveways, yards, and drain tile.

6.1.1 Transmission Line

The Applicant will generally design the transmission line structures for installations at the existing grades. Where a site slope is required (typically on slopes exceeding 10 percent), working areas may be graded or leveled with fill. If acceptable to the property owner, the Applicant proposes to leave the graded/leveled areas after construction to allow access for future maintenance activities. If not acceptable to the property owner, the Applicant will, to the best of its ability, return the grade of the site to its original condition.

After right-of-way clearing and access preparation have been completed, installation of substation equipment and transmission pole and foundation installation will begin. The Project structures will be directly embedded or set on drilled pier concrete foundations.

Direct-embedded poles will typically be set 25 feet deep. and drilled pier foundations will typically be 7 to 8 feet in diameter and 40 to 50 feet deep, depending on soil conditions and structure placement.

The actual diameter and depth of the hole (and foundation) depend on the structure design and soil conditions that are determined during the initial survey and soil testing

phases. Concrete is brought to the site by concrete trucks from a local concrete batch plant and filled around a steel rebar support cage and anchor bolts. Once the foundation is cured, the structure is bolted to the foundation.

Structures will be moved from staging areas and delivered to the site of each foundation where they are assembled. Using a crane, the structure is lifted and placed into position. Insulators and other hardware are attached to the structure prior to placing it on the foundation.

Conductor stringing is the last major step of transmission line construction. Stringing setup areas are located within the right-of-way, when possible, or within temporary construction easements. The process of stringing includes pulling conductors through pulleys attached to the insulators on each structure. The insulators are attached to the conductors, which are pulled into place and sagged to meet design requirements that are compliant with good utility practice and minimum code clearances. This process requires brief access to each structure to secure the conductor wire to the insulator hardware and to fasten the shield wire on each structure. After conductor installation is complete, conductor marking devices will be installed if required. These marking devices may include bird flight diverters or air navigational markers. The Applicant will work with the appropriate agencies to identify locations where marking devices need to be installed.

Where the transmission line crosses streets, roads, highways, or other energized conductors or obstructions, temporary guard or clearance poles may be installed before conductor stringing. The temporary guard or clearance poles ensure that conductors will not obstruct traffic or contact existing energized conductors or other cables during stringing operations. These temporary poles also protect the conductors from damage if they were to fall during stringing.

6.1.2 West Maple Grove Substation

For the substations, installation of concrete foundations and embedments for equipment would require the use of concrete trucks and pumpers, vibrators, forklifts, boom trucks, and large cranes. The limit of disturbance would be contained within the West Maple Grove Substation Area for both the foundation equipment and the concrete delivery trucks. Topsoil from the substation footprints would be moved to a pre-established location suitable for storage. Subsoil would be removed, if necessary, to an acceptable pre-established and approved area for storage.

6.2 Restoration and Clean-up Procedures

Crews will attempt to minimize ground disturbance as feasible, but areas will be disturbed during the normal course of work. Once construction is complete in an area, disturbed areas will be restored to their original conditions to the maximum extent feasible. Temporary restoration before the completion of construction in some areas along the right-of-way may be needed per National Pollutant Discharge Elimination System (NPDES) and Minnesota Pollution Control Agency (MPCA) construction permit requirements.

After construction activities have been completed, a utility representative will contact the property owner to discuss damage that has occurred as a result of the Project. This contact may not occur until after the Applicant has started restoration activities. If crops, fences, drain tile, or other property have been damaged, the Applicant will repair the damage or reimburse the landowner to repair it.

Farmers will be compensated for crop losses caused by Project construction. The compensation will be based upon the area(s) affected, the typical yield for the crops lost, and the market rates for those crops. Following an approved Agricultural Impact Mitigation Plan (AIMP) (Appendix E), a utility representative will measure the area(s) in which planted crops were damaged or destroyed or not planted at the Applicant's request. The lost yields will be determined in coordination with the property owner. The market rate will also be determined in coordination with the property owner and local elevator and/or other evidence to determine the appropriate rate of payment. The Applicant will also make a payment for future year crop loss due to soil compaction. In addition, property owners will be compensated for their expense to deep rip compacted areas. If an individual does not have access to deep ripping equipment, the Applicant will provide this service or access to such equipment.

The Applicant will follow a Vegetation Management Plan (VMP) (Appendix F) during construction and restoration. Ground-level vegetation disturbed or removed from the right-of-way during construction of the Project will naturally reestablish to pre-construction conditions. Additionally, vegetation that is consistent with operations outside the fenced area will be allowed to reestablish naturally at substation sites. Areas where significant soil compaction, erosion or other disturbance from construction activities occur will require additional assistance in reestablishing the

vegetation stratum and controlling soil erosion. In these areas, the Applicant will use seed that is noxious weed-free to reestablish vegetation.

Another aspect of restoration relates to the roads used to access staging areas or construction sites. After construction activities are complete, the Applicant will ensure that township, city, and county roads used for purposes of access during construction will be restored to their prior condition. The Applicant will meet with township road supervisors, city road personnel, or county highway departments to address any issues that arise during construction with roadways to ensure the roads are adequately restored, if necessary, after construction is complete.

6.3 Operations and Maintenance Procedures

Transmission lines and substations are designed to operate for decades and require only moderate maintenance, particularly in the first few years of operation. The Applicant will be responsible for the operation and maintenance of this Project. There are no dedicated operations staff for this transmission line or substation; operation of the transmission line and substation is handled by various departments (e.g., transmission, engineering, and siting and land rights) within Xcel Energy in coordination with the Transmission Provider, Midcontinent Independent System Operator, Inc.

The Applicant performs aerial annual inspections of the existing infrastructure and inspects the line from the ground every four years. Typically, one to two workers are required to perform aerial inspections, and three workers are required to perform the ground inspections. Any defects identified during these inspections will be assessed and corrected. The Applicant will also perform necessary vegetation management for the line. Vegetation maintenance generally occurs every four years. These inspection protocols and frequencies will be applied to the Project (Table 6-1).

As shown in Table 6-1, line inspections are the principal operating and maintenance cost for transmission facilities. The aerial inspections cost approximately $100/mile, and the ground inspections cost approximately $400/mile. Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used, and the age of the line. Maintenance equipment is stored off site.

Table 6-1 Transmission Line Maintenance Activities and Intervals

Activity	Cost/Mile	Frequency
Aerial Helicopter Patrol	$100	Annual
Ground Patrol	$400	Every 4 years
Unplanned: Maintenance & Inspection	$150	Annual
Planned Vegetation Management	$1,000	Annual
Unplanned Vegetation Management	$200	Annual
Administrative Support	$50	Annual

The estimated service life of the proposed transmission line for accounting purposes varies among utilities. The Applicant uses an approximately 60-year service life for its transmission assets.

The Applicant will be responsible for the operation and maintenance of the West Maple Grove Substation. Substations require a certain amount of maintenance to keep them functioning in accordance with accepted operating parameters and the NESC requirements, as shown in Table 6-2. Transformers, circuit breakers, batteries, protective relays, and other equipment need to be serviced periodically in accordance with the manufacturer's recommendations. The substation site must be kept free of vegetation within the fenced area, and adequate drainage must be maintained.

Table 6-2 Substation Maintenance Activities and Intervals

Activity	Cost	Frequency
Inspections (infrared thermography, oil samples, Battery CA's)	$3,000	Annual
Snow Plowing	Case by case	As Needed
Gates and fence repair (vandalism)	Case by case	As Needed
Vegetation management/replacement	Case by case	As Needed

6.4 Storm and Emergency Response and Restoration

Transmission infrastructure has very few mechanical elements and is built to withstand weather extremes that are normally encountered. With the exception of outages due to severe weather such as tornadoes and heavy ice storms, transmission lines rarely fail. Transmission lines are automatically taken out of service by the operation of protective relaying equipment when a fault is sensed on the line. Such interruptions are usually only momentary. Scheduled maintenance outages are also

infrequent. As a result, the average annual availability of transmission infrastructure is very high, in excess of 99 percent.[4]

However, unplanned outages of transmission facilities, including substations, can happen for a variety of reasons. Unplanned outages can occur due to mechanical failures or severe weather events like heavy ice, wind, and lightning. In the event an unplanned outage of any facility along the Project occurs, the Applicant has the necessary infrastructure and crews in place to respond quickly and safely to return these facilities to service.

[4] "2025 Biennial Transmission Projects Report," Minnesota Electric Transmission Planning, October 1, 2025, https://www.minnelectrans.com/report-2025.html.

7 Environmental Assessment

This section of the application serves as an EA for the Project. The Commission will use the information to inform their decision about issuing a route permit for the Project. This EA contains an overview of affected resources and discusses potential human and environmental impacts and mitigation measures. The Applicant prepared this document as part of the environmental review process and provides a description of the environmental and human setting of the Proposed Route.

Topics discussed in the following subsections include environmental setting, existing land cover and land use, soils, human settlement, land-based economies, archaeological and historical resources, hydrologic features, vegetation and wildlife, and natural resources that are known to occur or may potentially occur along the Proposed Route.

In addition to identifying existing resources, the potential impacts on those resources are discussed, and measures that can be used to avoid, minimize, or mitigate effects are included where possible.

7.1 Describing Potential Impacts and Mitigation

A potential impact is the anticipated change to an existing condition caused either directly or indirectly by the construction and operation of a proposed project. Potential impacts can be positive or negative and short- or long-term. Impacts vary in duration and size, by resource, and across locations. In certain circumstances, potential impacts can accumulate incrementally, meaning that impacts from the Project would be in addition to on-the-ground impacts already occurring.

Direct impacts are caused by the proposed action and occur at the same time and place. An indirect impact is caused by the proposed action but is further removed in distance or occurs later in time. This EA considers direct and indirect impacts that are reasonably foreseeable, which means a reasonable person would anticipate or predict the impact. Cumulative potential effects are the total effect to air, water, and land resulting from reasonably foreseeable projects, including Project impacts.

The associated facilities (i.e., the West Map Grove Substation) are accounted for within the Proposed Route requested in this Application. Where impacts are specific to the transmission line or substation, it is noted.

For purposes of evaluating potential impacts of the Proposed Route, the Applicant has developed the alignment that minimizes the overall potential impacts based on the routing factors identified in Minn. Stat. § 216I.05, subd. 11. This alignment is referred to as the "anticipated alignment." The anticipated alignment may require modifications after a Route Permit is issued due to limitations inherent in identifying an alignment absent detailed survey and engineering work, site review, and design.

7.1.1 Terms and Concepts

Understanding the impacts of the Proposed Route involves contextualizing its duration, size, intensity, and location. This form of contextual information serves as the basis for assessing the overall Project impacts on resources. To provide appropriate context, the following terms and concepts are used to describe and analyze potential impacts:

- **Duration** Impacts vary in length. Short-term impacts are temporary and generally associated with construction. Long-term impacts are associated with operation and usually end with decommissioning of the transmission line/substation and reclamation. Permanent impacts extend beyond the decommissioning stage.

- **Size** Impacts vary in size. To the extent possible, potential impacts are described quantitatively, for example, the number of impacted acres or the percentage of affected individuals in a population.

- **Uniqueness** Resources are different, varying in type, extent, quality, and quantity. Common resources occur frequently, while uncommon resources are not ordinarily encountered.

- **Location** Impacts are location-dependent. For example, common resources in one location might be uncommon in another.

This EA analyzes the potential impacts of the Project on all resources that may be affected by the project. The context of an impact – in combination with its anticipated on-the-ground effect – is used to determine an impact intensity level, which can range from negligible to significant, and can be positive or negative.

Impact intensity levels are described using qualitative descriptors, which are explained below. These qualitative terms do not convey value judgments; rather, they serve as a

mechanism to establish a shared understanding among readers and facilitate the understanding of potential impacts.

- **Negligible** impacts do not alter an existing resource condition or function and are generally not noticeable to an average observer. These short-term impacts affect common resources.

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

- **Moderate** impacts alter an existing resource condition or function and are generally noticeable to the average observer. Impacts might be spread out over a large area making them difficult to observe but can be estimated by modeling or related simulation. Moderate impacts might be long-term or permanent to common resources, but generally short- to long-term to uncommon resources.

- **Significant** impacts alter an existing resource condition or function to the extent that the resource is impaired or cannot function. Significant impacts are likely noticeable or predictable to the average observer. Impacts might be spread out over a large area making them difficult to observe but can be estimated by modeling. Significant impacts can be of any duration and affect common or uncommon resources.

Also discussed in this section are opportunities to mitigate by avoiding, minimizing, or compensating for potential impacts. Collectively, these actions are referred to as mitigation measures.

- **Avoiding** an impact means eliminating it altogether, for example, by not undertaking parts or all of the Project or by relocating the Project.

- **Minimizing** an impact means limiting its magnitude, for example, by reducing Project size or moving a portion of the Project.

- **Mitigating** an impact means fixing it by repairing, rehabilitating, or restoring the affected resource, or compensating for it by replacing it or providing a

substitute resource elsewhere. Rectifying an impact can be used when an impact cannot be avoided or further minimized.

Some impacts can be avoided or minimized; some might be unavoidable but can be minimized; others might be unavoidable and unable to be minimized but can be rectified. The level at which an impact can be mitigated might change the impact intensity level.

When referring to construction practices or mitigation measures, this EA uses the convention of describing these as actions by the Applicant, even if the action would be carried out by the Applicant's contractor.

Mitigation measures are detailed as both standard Commission's Sample Route Permit conditions, as shown in Appendix G, and as other proposed mitigation from the Applicant.

7.1.2 Regions of Influence

Potential impacts on human and environmental resources are analyzed within specific geographic areas called regions of influence (ROI). The ROI is the geographic area where the Project might exert some influence. The ROI varies by resource and is used as the basis for assessing potential impacts. As necessary, the EA discusses potential impacts and mitigation measures beyond the identified ROI to provide appropriate context. Direct impacts within the ROI might cause indirect impacts outside the ROI.

This EA uses the following ROIs:

- **Right-of-Way** – the right-of-way is 100 feet wide (50 feet on each side of the anticipated alignment, plus the footprint of the substation).
- **Route width** – The route width is generally 250 feet on each side of the proposed alignment, 500 feet wide in total. There is an area on the eastern portion of the proposed line in which it is 200 feet total and an area on the western portion of the line in which it is 1000 feet wide around the West Maple Grove Area. The route width is described in more detail in Section 5.
- **Local vicinity** – within 1,600 feet of the anticipated alignment (a 3,200-foot-wide buffer area distributed equally on either side of the anticipated alignment).

- **Project area** – within one mile of the anticipated alignment (a two-mile-wide buffer distributed equally on either side of the anticipated alignment).
- **County area** – term used to describe the county in which the Project would be constructed (Hennepin County).

The route width, local vicinity, and project area are all inclusive of the West Maple Grove Substation Area. Where the right-of-way is used as the ROI, the discussion addresses both the right-of-way and the West Maple Grove Substation Area.

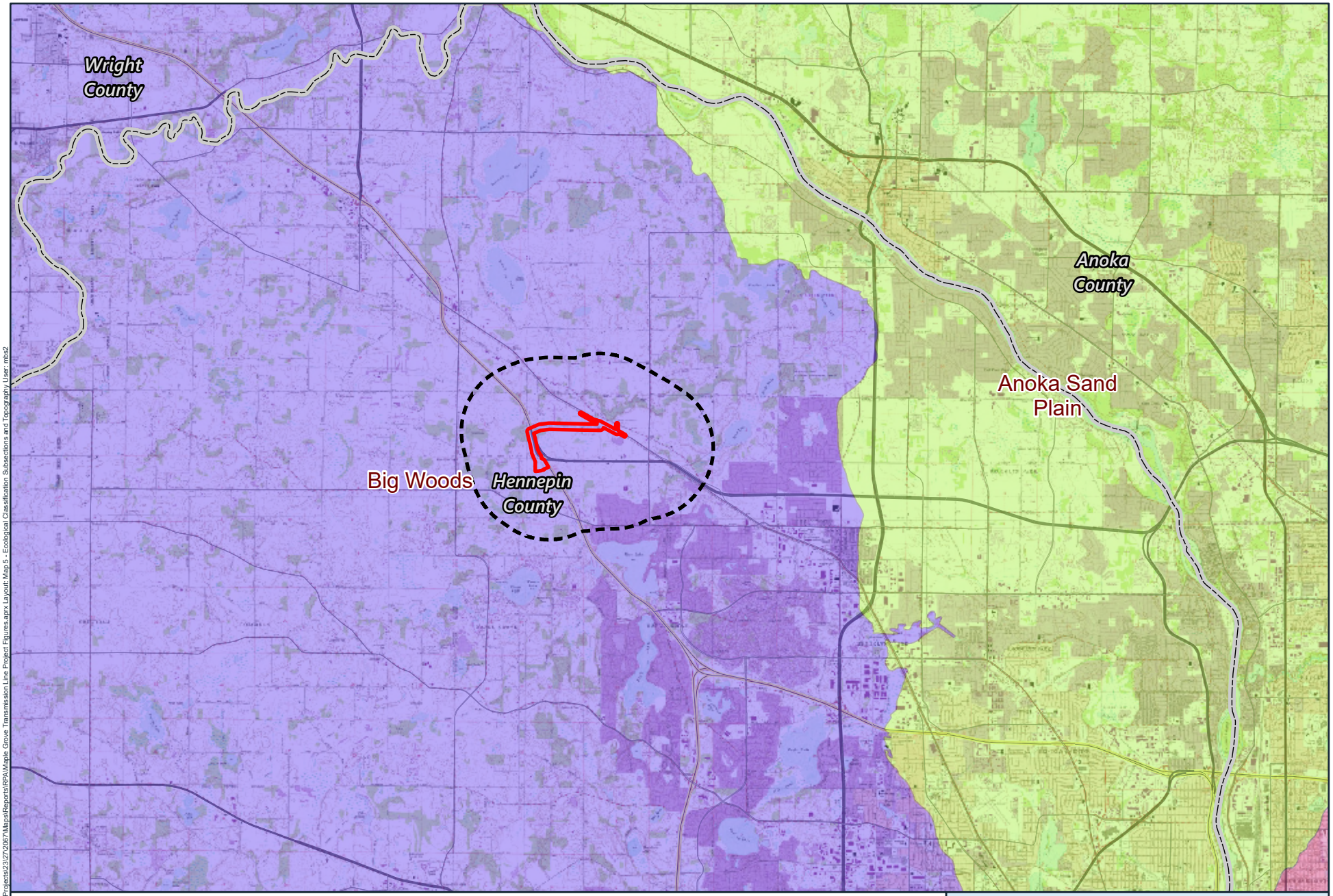
7.2 Environmental Setting

The Minnesota Department of Natural Resources (MDNR) and the U.S. Fish and Wildlife Service (USFWS) have developed an Ecological Classification System (ECS) for ecological mapping and landscape classification in Minnesota that is used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features.[5] Through the ECS, the state of Minnesota is split into Ecological Provinces, Sections, and Subsections.

Under this classification system, the Project is located in the Big Woods Subsection of the Minnesota and NE Iowa Morainal Section of the Eastern Broadleaf Forest Province (Map 5).

The Big Woods Subsection is characterized by a large block of deciduous forest present at the time of Euro-American settlement.[6] Topography is gently to moderately rolling, and the primary landform is a loamy, mantled moraine formed by the Des Moines lobe of the late Wisconsin glaciation. Circular, level-topped hills with smooth side slopes dominate the landscape, with broad level areas between the hills that contain closed depressions with lakes and peat bogs. The "Big Woods" consisted of Northern red oak, sugar maple, basswood, and American elm.[7] Wet prairies were also interspersed with forest throughout the landscape. Soils are predominantly loamy and range from loam to clay loam formed by the calcareous glacial till of the Des Moines lobe, with depth to bedrock ranging between 100 and 400 feet.

[5] Minnesota Department of Natural Resources, "Ecological Classification System: Ecological Land Classification Hierarchy," accessed April 18, 2025, https://www.dnr.state.mn.us/ecs/index.html.
[6] Minnesota Department of Natural Resources, "Big Woods Subsection," Ecological Classification System, accessed November 5, 2024, https://www.dnr.state.mn.us/ecs/222Mb/index.html.
[7] Minnesota Department of Natural Resources, "Big Woods Subsection."



Proposed Route

Project Study Area (Project Area)

County Boundary

Ecological Classification System Subsection

Anoka Sand Plain

Big Woods

St. Paul-Baldwin Plains

2 0 2

Miles

ECOLOGICAL CLASSIFICATION SUBSECTIONS AND TOPOGRAPHY

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 5

Xcel Energy®

Barr Footer: ArcGISPro 3.4.3, 2025-08-20 15:34 File: I:\Projects\23\27\2087\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 5 - Ecological Classification Subsections and Topography User: mbs2

7.3 Human Settlement

Transmission lines have the potential to impact human settlements during their construction and operation. Resources related to human settlement and their potential impacts are discussed in more detail below.

7.3.1 Land Use and Zoning

The ROI for land use and zoning is the route width. If a route permit is issued, it would supersede zoning restrictions and building or land use rules, per Minn. Stat. § 216I.19, subd. 1. To assess human settlement impacts, potential land use and zoning impacts are addressed by evaluating the Project against local land use and zoning ordinances. Impacts to planning and zoning are anticipated to be negligible throughout the ROI.

The route primarily parallels developed road right-of-way. It crosses cultivated cropland with private residences (Table 7-1) along the road right-of-way. The route does not cross public lands. Consistent with Minn. R. 7850.4300, the Project avoids prohibited routes, including state or national wilderness areas; state or national parks; and state scientific and natural areas.

Publicly available zoning and comprehensive plan information was reviewed for Maple Grove and Hennepin County, as shown in Table 7-1.

Table 7-1 Comprehensive Plans Within and Adjacent to the Project

County, Municipality, or Local Government Unit	Ordinance or Plan and Adoption Date
Metropolitan Council	Imagine 2050 Plan, adopted February 2025
Hennepin County	Hennepin County 2040 Comprehensive Plan, adopted August 2019
City of Maple Grove	City of Maple Grove 2040 Comprehensive Plan Update, adopted March 2020 Maple Grove Code of Ordinances, most recently updated June 2025

The 2050 Land Use Policy chapter of the Imagine 2050 Plan from the Metropolitan Council was approved in February 2025.[8] According to this plan, Maple Grove is designated as a Suburban Edge municipality. Suburban Edge municipalities are on the

[8] Metropolitan Council, "2050 Land Use Policy: A Chapter of the Regional Development Guide, Imagine 2050," n.d., accessed April 29, 2025, https://metrocouncil.org/Planning/Imagine-2050/Policy-Plan-Index/Imagine-2050-Accessible-PDFs/2050-Land-Use-Policy.aspx.

edge of the Metropolitan Urban Service Area and were primarily developed after the 1990s. These municipalities can often have a denser downtown or core area, but the predominate development pattern is low or medium density residential subdivisions characterized by cul-de-sacs and limited access to major thoroughfares for traffic movement. They can also have extensive undeveloped land planned for low to medium residential density land use.

The Hennepin County 2040 Comprehensive Plan was adopted in August 2019.[9] The mission of Hennepin County as stated in this plan is to "enhance the health, safety, and quality of life of our residents and communities in a respectful, efficient, and fiscally responsible way." The plan includes a mobility 2040 plan, as well as information on regional parks and trails system, water resources, and the Mississippi River Critical Corridor Area within the county. The plan designates the ROI as Multi-Optional Development, single family residential, and multi-family residential.

The City of Maple Grove 2040 Comprehensive Plan Update was adopted in March 2020.[10] The vision for Maple Grove, as stated in the plan, is to "provide effective public services; maintain and create sound cost-efficient and effective public infrastructure; provide exceptional public facilities; guide residential and non-residential private improvements to be dynamic and of high quality to maintain and perpetuate a strong sense of community and pride."

The existing land use map within the Maple Grove plan shows an inventory of land uses in Maple Grove at the time of the plan and summarizes where and in what quantity and density the residential, commercial, industrial, institutional, and mixed uses are, in addition to where parks, open space, roadways, and water features are located. The existing land use map shows the Project going through low-density and medium-density residential, mixed-use, and wetland or floodplain areas. The Maple Grove 2040 Land Use Plan map in the comprehensive plan provides guidance for potential land use and development. This map shows that the Project would go through an area designated as a master planning area. This is the 105th Avenue Area, showing that the Project is in areas projected for more mixed-use and medium-density land use. Potential residential areas and a neighborhood park are focused on the north

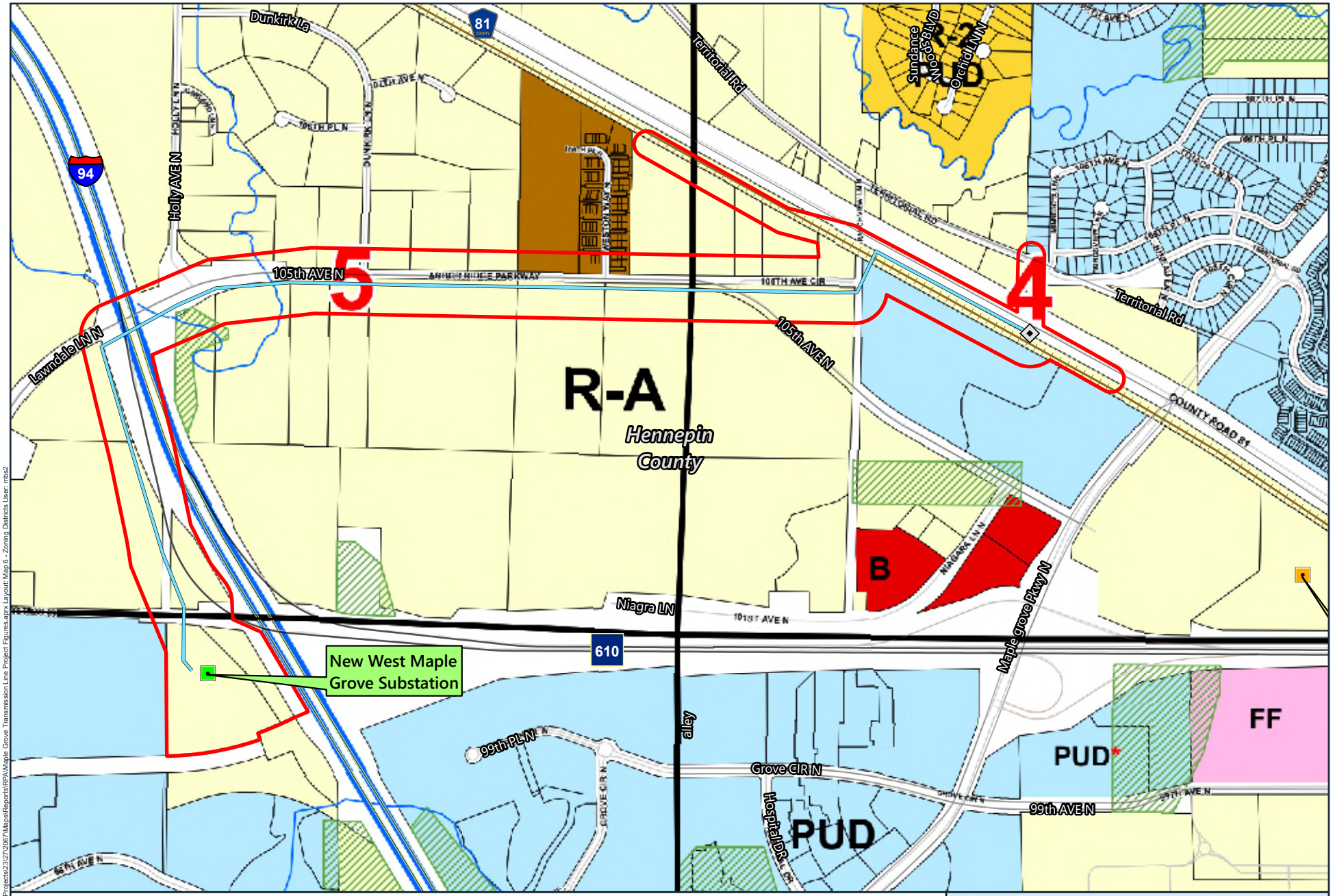
[9] Hennepin County, Minnesota, "Hennepin County 2040 Comprehensive Plan," August 27, 2019.
[10] City of Maple Grove, Minnesota, "City of Maple Grove 2040 Comprehensive Plan Update," March 18, 2020.

side of 105th Avenue North, on the opposite side of the road from where the Project is proposed. The map indicates that a potential conservancy could be located on Interstate 94 just south of the 105th Avenue North intersection.

The Maple Grove plan makes clear that these are general locations. The City Council approved the master plan documents for the 105th Ave North area in June 2019.[11] In these plans, the neighborhood park remains, and the area marked as conservancy keeps the water crossings and a portion of wetland areas south of 105th Avenue North and east of Interstate 94 clear of development.

The Maple Grove Code of Ordinances chapter 36 on zoning, most recently updated in June 2025, describes the purpose and standards for the various zoning districts within the city.[12] Map 6 shows the city of Maple Grove zoning district data that was gathered for the Project. Transmission lines are defined in the zoning ordinance as an essential service and are a conditional use within the zoning districts that the Project crosses. The Project goes through mostly single-family agricultural, planned unit development – medium density residential, and planned unit development zoning districts. The planned unit development district's purpose is to provide for the integration and coordination of land parcels as well as the combination of varying types of residential, commercial, and industrial uses.

[11] City of Maple Grove, Minnesota, "105th Avenue North Growth Area Master Plan," June 3, 2019.
[12] City of Maple Grove, Minnesota, "Maple Grove, MN Code of Ordinances," n.d.



Barr Footer: ArcGISPro 3.4.3, 2025-08-20 15:34 File: I:\Projects\23\27\2087\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 6 - Zoning Districts User: mbs2

7.3.1.1 Impacts

The Project is not anticipated to significantly alter the existing land use or land cover within the Proposed Route, and accordingly impacts would be minimal. The Proposed Route land cover consists largely of developed or cultivated cropland. Where the Project would go through future proposed conservancy areas, it follows the road right-of-way and would not impact plans for conserving the wetland and floodway area. Construction of the Project would result in short-term impacts to land cover (Map 7). Where structures are going to be installed, existing landcover would be removed. Construction would also result in long-term impacts to land cover that would be permanently removed for the safe operation of the transmission line. This would include high-growing and forested vegetation. Deciduous forest makes up around two percent of the Proposed Route and would be converted to low-stature vegetation. Moderate impacts are expected to occur to vegetation. The proposed West Maple Grove Substation would be located within land owned entirely by the Applicant on what is now used as cultivated cropland. Construction of the West Maple Grove Substation would result in the conversion of 10 acres of cultivated cropland owned by the Applicant into industrial land use.

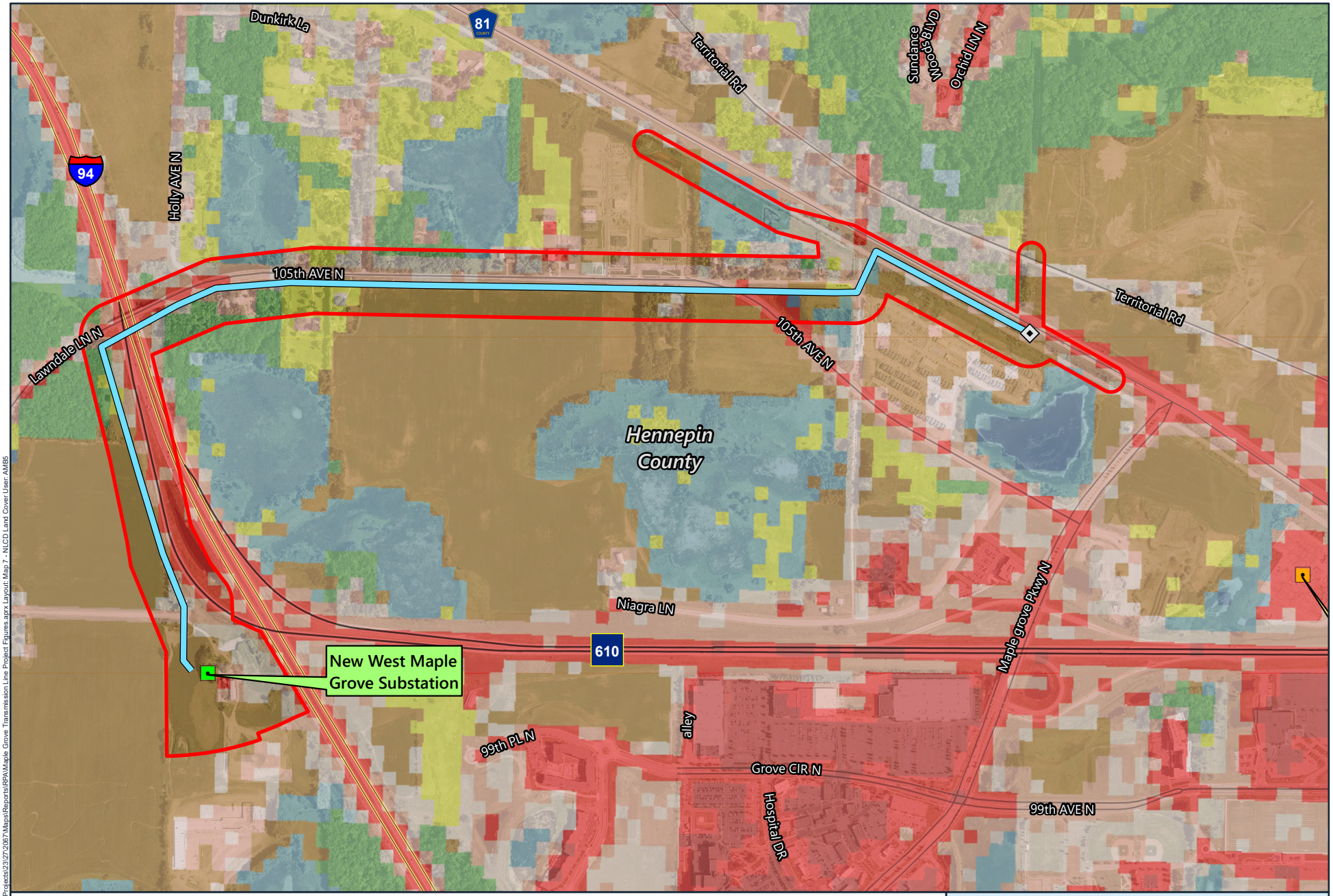
7.3.1.2 Mitigation Measures

7.3.1.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include mitigation measures specific to land use and zoning.

7.3.1.2.2 Other Proposed Mitigation

Project impacts to zoning and to current and future land uses can be mitigated by selecting routing alternatives that are compatible, to the extent possible, with community zoning and land-use plans. Land-use impacts can be mitigated by minimizing aesthetic impacts of the project, to the extent that zoning and land-use plans address aesthetics (for example, landscaping). Land-use impacts can also be mitigated by using existing right-of-way to the maximum extent possible. Impacts to other parcels can be mitigated through negotiated easement agreements, which are outside of the scope of this EIS. The proposed transmission line is compatible with local planning and zoning ordinances and is expected to be consistent with authorized uses.



Anticipated Alignment
Proposed Route
Proposed Tap Point
Proposed Substation
Existing Substation

Land Cover (NLCD, 2023)
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Deciduous Forest
Mixed Forest
Hay/Pasture
Cultivated Crops
Woody Wetlands
Emergent Herbaceuous Wetlands

0 500 1,000
Feet

NLCD LAND COVER

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 7

Xcel Energy®

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7.3.2 Displacement

The ROI for displacement is the right-of-way and the West Maple Grove Substation Area. Potential displacement impacts are assessed by identifying buildings within the ROI. If non-residential structures are within the ROI, they could be subject to displacement depending upon site-specific considerations and coordination with the Applicant.

Displacement is the removal of a residence or building to facilitate the operation of a transmission line. NESC and Applicant's standards require certain clearances between transmission line facilities and buildings for safe operation of a transmission line. In areas where the Project will require new right-of-way, the Applicant will acquire additional right-of-way that is sufficient to maintain these clearances. Displacement can occur when an existing structure is within the right-of-way for a new transmission facility.

The review did not identify any residential structures within the ROI. There are three non-residential structures within the ROI. The first structure is part of MnDOT's regional Traffic Management Systems infrastructure on a parcel owned by MnDOT. It is within 50 feet of the anticipated alignment located west of Interstate 94 and Highway 610, north of the substation property. In early coordination this has been identified and the Applicant will continue to work with MnDOT. The other two are abandoned buildings within the West Maple Grove Substation Area (owned by the Applicant) that will be torn down in order to build the proposed substation.

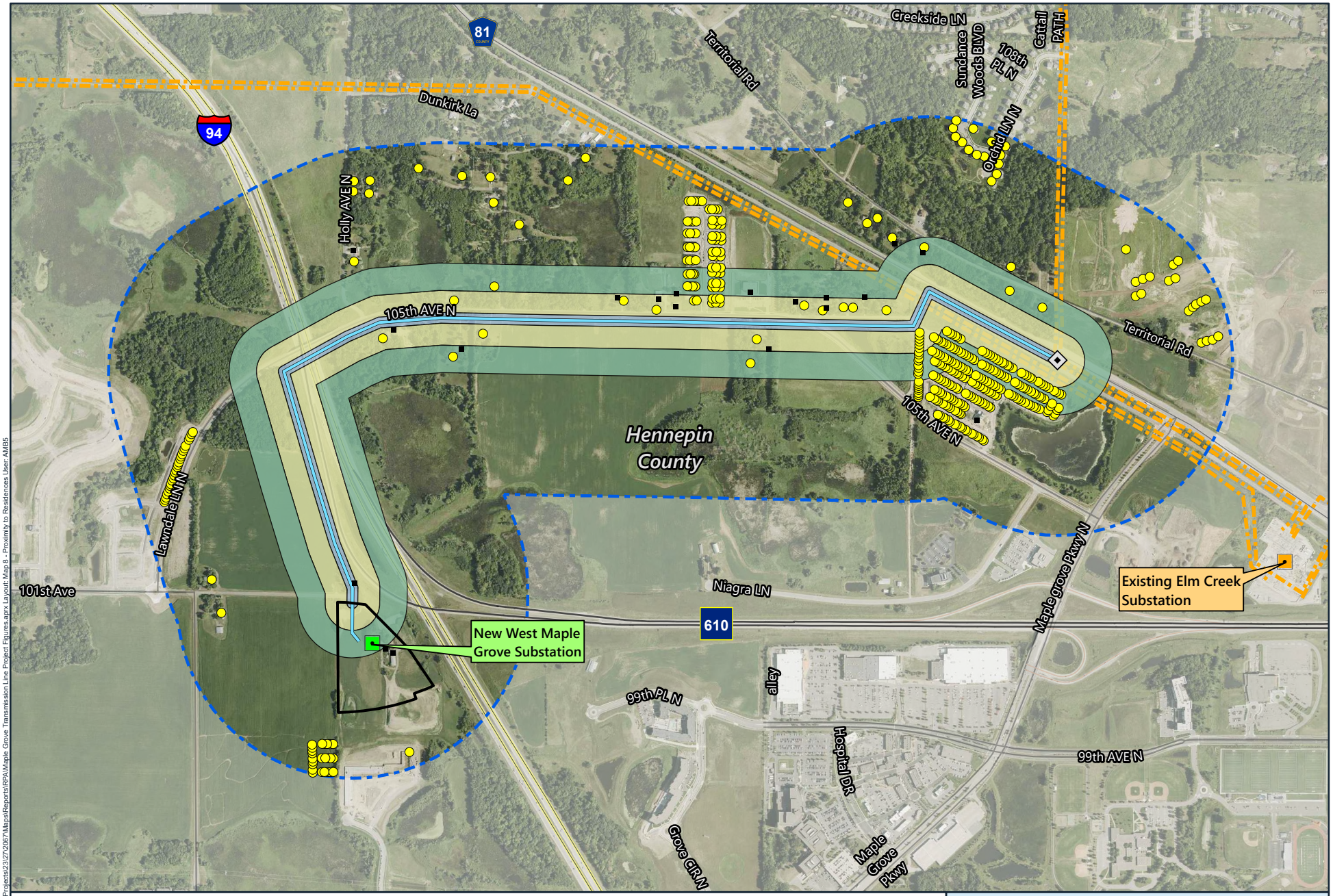
The Proposed Route width is wider than the right-of-way, and the final alignment could be placed anywhere within the route width, moving the right-of-way and potentially displacing residents, businesses, and other occupants outside the current ROI. If non-residential structures are located within the right-of-way, they could be subject to displacement depending upon site-specific considerations and coordination with the Applicant. The Applicant completed a desktop review to identify any residential and non-residential structures within 1,600 feet of the anticipated alignment. Table 7-2 summarizes the locations of known residential and non-residential structures within the local vicinity; Map 8 shows the locations.

Table 7-2 Proximity of Residences to the Anticipated Alignment

Proximity to Anticipated Alignment (ft)	Number of Residential Structures		Number of Non-Residential Structures	
	Proposed Transmission line	Proposed Maple Grove Substation	Proposed Transmission line	Proposed Maple Grove Substation
<50	0	0	1	2
50-250	39	0	8	1
250-500	137	16	7	0
500-1,600 feet (local vicinity)	238	13	3	1
Total within 1,600 feet	414	29	19	4

7.3.2.1 Impacts

The Project is within a developed residential area with existing transmission infrastructure features. However, the Project is not anticipated to displace any residential structures, as the route and Maple Grove Substation have been designed to avoid residences. The Project is therefore anticipated to have negligible impacts on this factor. The Applicant is continuing to coordinate with MnDOT regarding the shed-like structure located west of Interstate 94 and Highway 610, north of the substation property). Non-residential structures can potentially stay if the activities taking place in these buildings are compatible with the safe operation of the line. The Applicant will confirm if displacement is necessary with the landowner.



Anticipated Alignment
Proposed Tap Point
Proposed Substation
Existing Substation

Existing High-Voltage Transmission Line

Distance from Alignment
50 ft
250 ft
500 ft

Residence Location
Non-Residence Location
West Maple Grove Substation Area
Local Vicinity Area

N

0 1,200
Feet

PROXIMITY TO RESIDENCES

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 8

Xcel Energy®

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7.3.2.2 Mitigation Measures

7.3.2.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not have specific conditions on displacement; however, there are related conditions. In condition 5.3.7, it states, "The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads."

In condition 5.5.1, it states, "The Permittee shall design the transmission line and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements."

7.3.2.2.2 Other Proposed Mitigation

Displacement of residential and non-residential structures can be avoided by adjusting the placement of transmission line structures, using specialty structures, increasing structure height, or by modifying the right-of-way location or width. The Applicant would work with landowners on a case-by-case basis to address potential displacement. The Applicant might need to conduct a site-specific analysis to determine if the building would need to be displaced. Building owners would be compensated by the Applicant for any buildings that are displaced.

7.3.3 Noise

The ROI for noise is the local vicinity, which is the area within 1,600 feet of the anticipated alignment. Noises from the Project are associated with construction and operation. Although the Applicant would be required to comply with state noise standards, impacts could be more moderate for residences within the ROI when heavy equipment is operating consistently during construction. Operation of the project would meet with state noise standards, with impacts being negligible outside of intermittent perceptible noise that would occur during periods of foggy, damp, or light rain conditions.

Noise is defined as undesired sound. Noise may include a variety of sounds of different intensities across the entire frequency spectrum. Noise is measured in units

of decibels (dB) 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 (dBA) scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in dBA. A noise level change of three dBA is barely perceptible to average human hearing. A five dBA change in noise level, however, is clearly noticeable. A 10 dBA change in noise levels is perceived as a doubling or halving of noise loudness, while a 20 dBA change is considered a dramatic change in loudness.[13]

For cumulative increases resulting from sources of different magnitudes, the rule of thumb is that if there is a difference of greater than 10 dBA between noise sources, there will be no additive effect (i.e., only the louder source will be heard, and the quieter source will not contribute to noise levels).[14] Table 7-3 provides noise levels associated with common, everyday sources and places the magnitude of noise levels discussed here in context.

[13] Minnesota Pollution Control Agency, "A Guide to Noise Control in Minnesota: Acoustical Properties, Measurement, Analysis, and Regulation," November 2015.
[14] Minnesota Pollution Control Agency, "A Guide to Noise Control in Minnesota: Acoustical Properties, Measurement, Analysis, and Regulation."

Table 7-3 Noise Levels Associated with Common Sources

Sound Pressure Level (dBA)	Noise Source
140	Jet engine (at 25 meters)
130	Jet aircraft (at 100 meters)
120	Concert
110	Pneumatic chipper (powered by compressed air or hydraulics)
100	Jointer/planer
90	Chainsaw
80	Heavy truck traffic
70	Business office
60	Conversational speech
50	Library
40	Bedroom
30	Secluded woods
20	Whisper

Source: [15]

The MPCA has established standards for regulating noise levels. The land use activities associated with residential, commercial, and industrial land have been grouped together into Noise Area Classifications (NACs). See Minn. R. part 7030.0050. Each NAC is then assigned both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) limits for land use activities within the NAC. See Minn. R. part 7030.0040. Table 7-4 shows the MPCA daytime and nighttime limits in dBA for each NAC. The limits are expressed as a range of permissible dBA within a one-hour period; L50 is the dBA that may not be exceeded by 50 percent (30 minutes) of the time within an hour, while L10 is the dBA that may not be exceeded by 10 percent (six minutes) of the time within an hour. Residences are assigned the strictest noise standards, which are classified as NAC-1.

[15] Minnesota Pollution Control Agency, "A Guide to Noise Control in Minnesota: Acoustical Properties, Measurement, Analysis, and Regulation."

Table 7-4 Minnesota Pollution Control Agency Noise Limits by Noise Area Classification (dBA)

Noise Area Classification (NAC)	Land Use Activities	Daytime		Nighttime	
		L_{50}	L_{10}	L_{50}	L_{10}
1	residential housing, religious activities, camping and picnicking areas, health services, hotels, educational services	60	65	50	55
2	retail, business and government services, recreational activities, transit passenger terminals.	65	70	65	70
3	highways, utilities, manufacturing, fairgrounds and amusement parks, agricultural and forestry activities.	75	80	75	80

7.3.3.1 Impacts

7.3.3.1.1 Construction Impacts

During both the Anticipated Alignment and West Maple Grove Substation construction, short-term and intermittent noise from heavy equipment and increased vehicle traffic will occur during daytime hours. As such, the Project will have temporary and localized moderate noise impacts during construction. Residents living in close proximity (Table 7-5), would be temporarily affected by noise generated from construction activities. Construction activities are estimated to last approximately 10 to 14 months; however, noise would dissipate at a single location as construction crews progress along the Anticipated Alignment.

Table 7-5 Economic Characteristics 2023 5-Year Estimates

Location	Per Capita Income	Median Household Income	Top Employment by Industry[1]
Minnesota	$46,957	$87,556	E, M, R
Hennepin County	$57,633	$96,339	E, P, M
City of Maple Grove	$62,825	$129,481	E, M, P

Notes: Source: [16]
Classification System and abbreviated as follows: Ag = Agriculture, Forestry, Fishing, and Hunting, and Mining; C = Construction; E = Educational, Health and Social Services; M = Manufacturing; P= Professional, Scientific, and Management, and Administrative and Waste Management Services; and R = Retail Trade.
[1] Industries are defined under the 2012 North American Industry

[16] U.S. Census Bureau, "DP03: Selected Economic Characteristics [Hennepin County, Minnesota; Maple Grove City, Minnesota]," 2023, https://data.census.gov/table/ACSDP5Y2023.DP03?q=DP03&g=040XX00US27_050XX00US27053_1400000US27053026708,27053026717_160XX00US2740166.

Construction equipment could include some of the following: pickup trucks, a drill rig, a backhoe, and a ski steer loader. Noise associated with heavy equipment can range between 80 and 90 dBA when operating at full power 50 feet from the source.[17] Heavy equipment generally runs at full power up to 50 percent of the time. Point source sounds decrease six dBA at each doubling of distance; therefore, a 90 dBA sound at 50 feet is perceived as a 72 dBA sound at 400 feet and a 60 dBA sound at 1,600 feet.[18]

Construction noise could temporarily affect residences, schools, businesses, libraries, parks, recreational areas, and related public spaces that are close to the right-of-way. There are 39 residences that are located between 50 and 250 feet of the centerline of the Anticipated Alignment and no residences located in this range of the West Maple Grove Substation. There are 375 additional residences between 250 and 1,600 feet of the Anticipated Alignment and 16 residences in this distance range from the West Maple Grove Substation. Noise impacts during construction are anticipated to vary between minimal to significant, depending on the activity, duration, and equipment being used. Construction noise would be limited to daytime hours, temporary, and intermittent.

7.3.3.1.2 Operational Transmission Line Noise

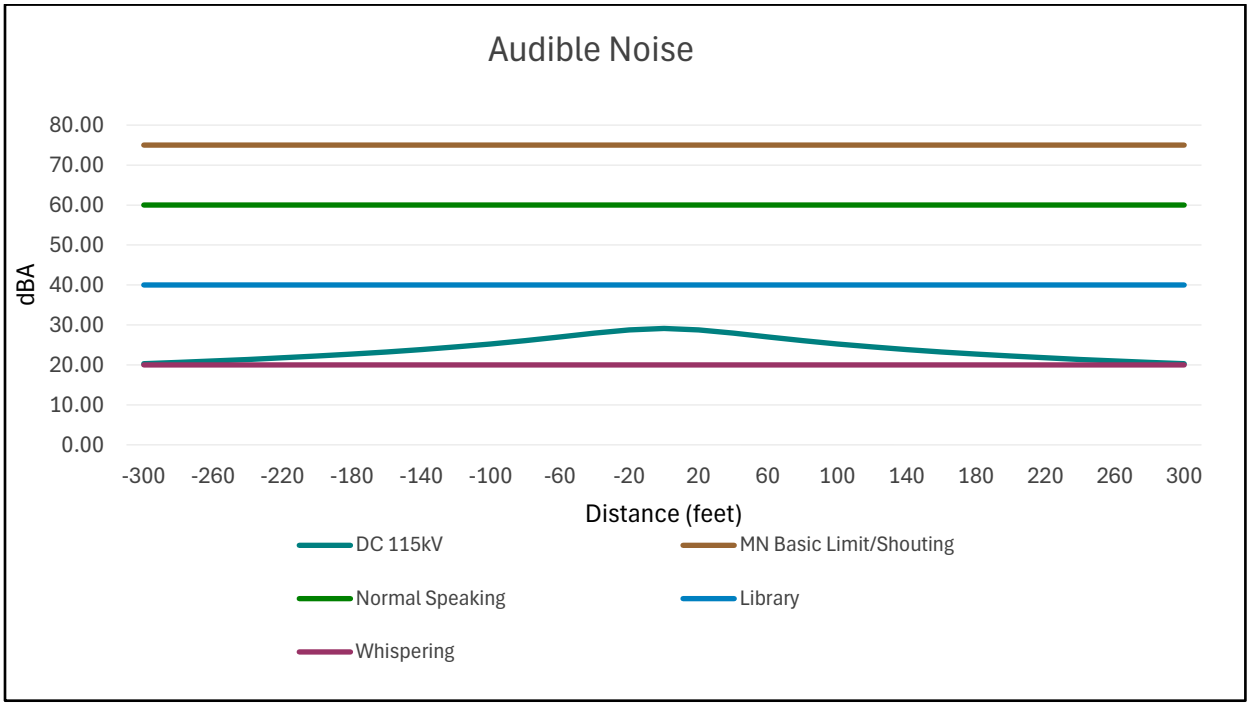
Generally, activity-related noise levels during the operation and maintenance of transmission lines are minimal. Transmission conductors can produce noise under certain varying conductor conditions, like voltage level and weather conditions. Noise emission from a transmission line can occur during foggy, damp, or rainy weather. The noise from power lines in these weather conditions 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. During light rain, dense fog, snow, and other times when there is moisture in the air, transmission lines will produce audible noise

[17] U.S. Department of Transportation, Federal Highway Administration, "9.0 Construction Equipment Noise Levels and Ranges," Construction Noise Handbook, August 24, 2017, https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook//handbook09.cfm.
[18] Minnesota Pollution Control Agency, "A Guide to Noise Control in Minnesota: Acoustical Properties, Measurement, Analysis, and Regulation."

equal to approximately household background levels. During dry weather, audible noise from transmission lines is barely perceptible by humans.

The Applicant anticipates that NAC-1 is likely to apply to a majority of the ROI. NAC-1 has a daytime L50 limit of 60 dBA and a nighttime L50 limit of 50 dBA. NAC-1 has a daytime L10 limit of 65 dBA and a nighttime L10 limit of 55 dBA. The noise modeling for the anticipated alignment indicates that the noise generated by the Project will not exceed the most stringent MPCA noise standards of NAC-1 at the edge of the right-of-way. As shown in Figure 5 the proposed 115 kV lines would not exceed 30 dBA from the center of the transmission line. Therefore, it is not anticipated that the Anticipated Alignment would exceed the MPCA noise standards as previously defined. Predicted noise levels associated with the transmission line are typically much lower than the ambient noise and will not increase the existing background noise levels.

Figure 5 Calculated Audible Noise at Nominal System Voltage



7.3.3.1.3 Operational Substation Noise

Substations may also contribute to noise and are dependent on the layout of buildings and equipment within the fence. Transformer or shunt reactor "hum" is the dominant noise source at substations if such equipment exists. Variations in transformer noise

may occur due to the operation of cooling pumps and fans at higher loading levels. Noise emissions from this equipment have a tonal character that often sound like a hum or a buzz that corresponds to the frequency of the alternating current (AC). This sound does not vary with transformer load. At substations without transformers or shunt reactors, only infrequent noise sources would exist such as the opening and closing of circuit breakers, the operation of an emergency generator, or unexpected maintenance issues. Other sources include switchgears which produce infrequent, short-term noises during activation of circuit breakers or an emergency generator.

Typical substation design is such that noise produced by these sources does not reach beyond the substation property. The Applicant has found from previous noise models of substations of similar design that the noise levels generated may range from 40 to 50 dBA at a 400-foot distance from the Main Power Transformers. The closest residences to the substation are over 800 feet away from the Main Power Transformers at the West Maple Grove Substation. Due to the distance of the West Maple Grove Substation from residences and the nearby ambient noise from Interstate 94, it is anticipated that operational noise will be negligible. Therefore, it is not anticipated that the West Maple Grove Substation would exceed the MPCA noise standards as previously defined.

7.3.3.2 Mitigation Measures

7.3.3.2.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.3.6, contains the following mitigation related to noise: "The Permittee shall comply with noise standards established under Minnesota R. 7030.0010 to 7030.0080. The Permittee shall limit construction and maintenance activities to daytime working hours to the extent practicable."

7.3.3.2.2 Other Proposed Mitigation

Commission permits require permittees to comply with MPCA noise standards and to limit construction and maintenance activities to daytime working hours to the extent practicable. The project will also comply with the city of Maple Grove's noise ordinances for construction and operation. During construction there are several common ways to mitigate noise impacts:

- Sound control devices on vehicles and equipment (ex. mufflers).

- Conducting construction activities during daylight hours and during normal business hours.
- Running vehicles and equipment only when necessary.

Impacts to state noise standards can be mitigated by timing restrictions if needed. During operation, permittees are required to adhere to noise standards. No additional mitigation is proposed.

Proper design and construction of the transmission line and substation in accordance with industry standards will ensure that noise impacts are minimized. In the uncommon case that space is limited and substation design alone cannot abate noise, placing sound walls around transformers or planting shelter belts around substations can reduce the distance the sound can travel. Regularly performing proper maintenance practices on converter transformer components such as the cooling fans and pumps generally abate common noise issues.

7.3.4 Aesthetics

The ROI for aesthetics is the local vicinity. Because aesthetic impacts are subjective, the potential impacts can vary widely and be unique to each person. Impacts are largely assessed by reviewing the number of nearby residences; opportunities for right-of-way paralleling; and the dimensions and design of the structures. Potential impacts might dissipate over time depending on the individual. Impacts will be short- and long-term as well as localized. Potential impacts are unavoidable but can be minimized.

The aesthetic and visual resources of a landscape are defined as the existing natural and built features visible to the public, which affect the visual quality and character of an area. This section discusses the existing aesthetic and visual resources visible from areas where the Project is likely to be within view, referred to as the "viewshed." A project's viewshed will vary based on location. Projects located in open and agricultural areas would have a more expansive viewshed, as they are free of visual obstructions. Conversely, projects in urban and residential areas may have a smaller viewshed, due to the presence of visual obstructions from buildings, trees, and existing infrastructure.

To gauge how the aesthetics of the landscape could be affected by the Project, it is valuable to first assess the character of the existing landscape. A landscape's character is largely influenced by topography, vegetation, and water resources.

The visual character of a landscape is influenced by the presence of the built environment, such as residential, commercial, and municipal buildings, transportation infrastructure, existing electric transmission lines, and industrial features. The built environment of the local vicinity is primarily a roadway corridor through single-family agriculture and residential areas. The majority of the Proposed Route consists of existing infrastructure, which visually altered the landscape upon its construction. As mentioned in Section 3.3.1, the structures would range in height from 80 to 150 feet, have foundation diameters between 7 and 10 feet, and have 400 to 500-foot spans between them.

The topography of the local vicinity is generally flat. As discussed in Section 7.3.1, the current landscape across the Proposed Route is dominated by developed and agricultural land. The Project has minimal vegetative cover and travels primarily along developed road right-of-way. It crosses cultivated cropland with private residences, while still following the road right-of-way.

There are numerous recreational opportunities within the local vicinity of the Project where recreationalists could also be subject to aesthetic impacts. There are existing paved bikeways and snowmobile trails that either intersect or parallel the Project. The recreation resources and the impacts and mitigation measures of the Project are further discussed in Section 7.3.8.5.1.

7.3.4.1 Impacts

The Proposed Route would be constructed mainly on previously developed land, as it follows existing right-of-way infrastructure for most of its length. Residences within the local vicinity would be subject to aesthetic impacts, and those residences are summarized in Table 7-2. The Proposed Route crosses several residences along the road right-of-way, which will have visual impacts on those residences. Residences could be affected by forested vegetation being cleared that would otherwise be a visual buffer for the Project. Vegetative clearing is further discussed in Section 7.7.7, with approximately 5 acres of high-growing and forested vegetation within the right-of-way being permanently removed. There are two crossings over Rush Creek, but the crossings will be parallel to existing road right-of-way. Tree and vegetation removal

along the right-of-way could change the visual aesthetics of a small portion of the Project local vicinity, but ground-level vegetation will reestablish after construction.

The landscape surrounding the West Maple Grove Substation Area parcel is generally agricultural, with commercial land use to the south. Any visual disruption caused by constructing a new substation in a predominantly rural landscape is minimized by proposed vegetative screening on the western and southern perimeters and the presence of commercial land use to the south and Interstate 94 to the east. Despite this, there will be short-term impacts to the surrounding area as the vegetative screening grows.

Because the majority of the Proposed Route consists of building the new transmission line along existing right-of-way infrastructure, aesthetic impacts are anticipated to be minimal to moderate. Potential impacts to aesthetics along the Proposed Route will occur in areas where new structures are proposed near residences, where the Proposed Route will deviate from the existing infrastructure, and in the area where a new substation will be constructed. Mitigation would include routing to avoid tree and vegetation removal and routing to follow existing infrastructure corridors to the extent possible. To the extent possible, the West Maple Grove Substation will be sited such that existing vegetation, topography, and commercial and roadway land uses provide natural screening to minimize intrusions to the viewshed.

7.3.4.2 Mitigation Measures

7.3.4.2.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.3.7, contains the following mitigation related to aesthetics:

- "The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance."
- "The Permittee shall use care to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the Transmission Facility during construction and maintenance."

- "The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads."

- "The Permittee shall place structures at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings."

7.3.4.2.2 Other Proposed Mitigation

The primary strategy for minimizing aesthetic impacts is prudent routing—that is, choosing routes where a transmission line is most harmonious with the landscape. Other minimization and mitigation measures include:

- Maximizing right-of-way sharing and/or paralleling with existing linear rights-of-way (for example, transmission lines, roadways, and railroads) to minimize incremental aesthetic impacts.

- Avoiding routing through areas with high-quality, distinctive viewsheds.

- Crossing rivers and streams using the shortest distance possible (that is, perpendicular to the waterbody).

- Reducing structure heights to minimize impacts within scenic areas.

- Using structures and structure designs that minimize impacts.

- Using construction methods that minimize damage to vegetation near the transmission line.

- Including specific conditions in individual easement agreements with landowners along the route (for example, requiring vegetative buffers or other landscaping).

7.3.5 Socioeconomics

The ROI for the socioeconomic analysis is the county area. Impacts are qualitatively assessed based on current economic data and the number of workers during construction activities. Economic factors related to construction and operation of the project are anticipated to be minimal, but

short-term and positive. Positive impacts may come from increased expenditures at local businesses during construction, the potential for some new materials to be purchased locally, and the use of local labor.

The Project is in the city of Maple Grove, within Hennepin County, Minnesota. Socioeconomic factors analyzed include population, income, poverty, and employment. U.S. Census data was obtained from the 2023 five-year American Community Survey at the state, county, and municipal levels to characterize the area along the Proposed Route. These datasets were compared to county and state data, as demonstrated in Table 7-5.

Hennepin County is the most populous county in the state of Minnesota. The population of Hennepin County is concentrated in the Minneapolis area, which is 14 miles from Maple Grove. Development in Maple Grove has been continuously expanding due to the growing population. The population is estimated to have grown around 3.5 percent from 2020 to 2024, according to the U.S. Census Bureau.[19]

Table 7-5 shows the 2023 per capita income, median household income, and top employment industries for Minnesota, Hennepin County, and the city of Maple Grove. Hennepin County and the city of Maple Grove have higher per capita and median household income than the state of Minnesota. The largest employment industry in the Proposed Route is the educational, health, and social services industry. The second largest employment industry is manufacturing. Professional, scientific, and management and administrative and waste management services are the third-largest sector of employment. The retail trade category is the second-largest industry in the state of Minnesota; however, it is not one of the top three employment sectors in the ROI.

There is potential for workers to need temporary housing in the area. The Proposed Route is in the Twin Cities metro area, which provides a relatively large supply of vacant temporary housing or short-term options for housing such as hotels or motels.

[19] U.S. Census Bureau, "QuickFacts: Maple Grove, Minnesota," accessed July 14, 2025, https://www.census.gov/quickfacts/fact/table/maplegrovecityminnesota#.

7.3.5.1 Impacts

The construction and operation of the Project is expected to have a positive influence on the local (county and municipal) economies. In terms of payroll earnings and construction expenditures, the economic benefit from the Project will be relatively modest relative to the regional economy of Maple Grove, which is the major center of economic activity for the Project Area.

Construction duration for this Project will be approximately 10 to 14 months and will employ approximately 15 to 30 construction workers. Multiple construction crews are anticipated. During construction, there will be a positive impact on the local economy due to the expenditures of the construction crews. If temporary housing is needed from construction crew workers, there is ample availability within the city of Maple Grove. Long-term beneficial impacts from the Project include increases in revenues from utility property taxes and increase the area's electrical service capacity.

Impacts to property values are anticipated to be minimal and dissipate rapidly with distance. However, it is acknowledged that every landowner has a unique relationship and sense of value associated with their property.

7.3.5.2 Mitigation Measures

7.3.5.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include mitigation measures specific to socioeconomics.

7.3.5.2.2 Other Proposed Mitigation

Property owners that would have easements would be compensated. The Applicant would be responsible for any construction-related damage and for returning affected property to its original condition, which would help maintain property value. As discussed in Section 3.5, for properties crossed by the right-of-way, the Applicant would develop a fair market value offer and once right-of-way is acquired, would contact the landowner to discuss any special considerations that might be needed (for example, for fences, crops, or livestock).

No adverse socioeconomic impacts are anticipated, and therefore, no mitigative measures are proposed.

7.3.6 Property Values

The ROI for property values is the local vicinity. Property values are impacted by many interconnected factors. Impacts to property values could occur, but changes to a specific property's value are difficult to predict. If effects do occur due to transmission lines, research has shown these effects to be almost always less than 10 percent, and usually in the range of 3 to 6 percent. Because of this, impacts are anticipated to be minimal and dissipate rapidly with distance. However, it is acknowledged that every landowner has a unique relationship and sense of value associated with their property. Potential impacts would be minimized by selecting the route with the least properties nearby.

A variety of methodologies have been used to research the relationship between transmission lines and property values. Some general conclusions can be drawn from this body of literature. This discussion highlights relevant outcomes of property value research with additional detail provided in Appendix H.

As detailed in Appendix H, research does not support a clear cause-and-effect relationship between property values and proximity to transmission lines, but has revealed trends that are generally applicable to properties near transmission lines:

- When negative impacts on property values occur, the potential reduction in value is in the range of one to 10 percent.
- Property value impacts decrease with distance from the line; research varies with distances of no effect observed at 200 feet to 1.0 mile.
- Impacts are usually greater on smaller properties than on larger ones.
- Negative impacts diminish over time, typically five years or more after construction.
- Other amenities, such as proximity to schools or jobs, lot size, square footage of the home, and neighborhood characteristics, tend to have a greater effect on sale price than the presence of a transmission line.
- The value of agricultural property decreases when transmission line structures interfere with farming operations; recent research demonstrates this effect is decreasing, perhaps due to technological adaptations.

- Vacant properties adjacent to power lines experience more property value impacts, and non-adjacent properties with visibility within 1,000 feet to a lesser extent.

7.3.6.1 Impacts

Every landowner has a unique relationship and sense of value associated with their property. Thus, a landowner's assessment of potential impacts to their property's value is often a deeply personal comparison of the property "before" and "after" a proposed project is constructed. These judgements, however, do not necessarily influence the market value of a property. Rather, appraisers assess a property's value by looking at the property "after" a project is constructed. Moreover, potential market participants likely see the property independent of the changes brought about by a project; therefore, they do not take the "before" and "after" into account the same way a current landowner might.

The nearest resident to the anticipated alignment is around 75 feet from the transmission line. While there is potential for impacts to be greater for this property, there isn't significant evidence in the research detailed in Appendix H to determine the extent of the impact from the transmission line. Despite this, where impacts have been observed, they tend to be greater for properties that are in closer proximity to the transmission line. All residences are located outside of the right-of-way (50 feet). If residences were in sight of structures, are encumbered by a right-of-way easement, and are within 100 feet of the right-of-way, the likelihood of property value impacts would increase.[20]

7.3.6.2 Mitigation

7.3.6.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include specific mitigation related to property values.

7.3.6.2.2 Other Proposed Mitigation

Impacts to property values can be mitigated by reducing aesthetic impacts such as with landscape screening. Routing the transmission line away from residences, when

[20] Minnesota Department of Commerce, "Fact Sheet: Rights-of-Way and Easements for Energy Facility Construction and Operation," June 24, 2022.

possible, would reduce aesthetic impacts. Co-locating the transmission line with existing infrastructure would reduce aesthetic impacts and potential land use conflicts.

The Applicant would be responsible for any construction-related damages and for returning affected property to its original condition, which would help maintain property value. As discussed in Section 3.5.1, for properties crossed by the right-of-way, the Applicant would develop a fair market value offer. Once right-of-way is acquired, the Applicant would contact the landowner to discuss any special considerations that might be needed (for example, fences, crops, or livestock).

Impacts could also be mitigated by using the protections offered through Minnesota Statute § 216E.12 (commonly known as the "Buy the Farm" statute), where available, to move away from potential property value impacts.

7.3.7 Environmental Justice

The ROI for environmental justice (EJ) includes the census tracts that intersect the route width. Potential EJ impacts are assessed by first identifying if any census tracts meet a definition of an EJ area based on its socioeconomic information. Census tracts meeting an EJ definition are reviewed to consider if those residents would be disproportionally affected by the Project. The Project would not increase burden indicators or result in disproportionate adverse impacts in the EJ areas of concern within the ROI. For all EJ communities, impacts are expected to abate after construction, thus they will be localized and temporary. Therefore, disproportionate and adverse impacts to these populations are possible but expected to be minimal.

The MPCA defines "environmental justice" to mean, "the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, concerning the development, implementation, and enforcement of environmental laws, regulations, and policies."[21] The MPCA has developed an environmental justice mapping tool to identify environmental justice communities

[21] Minnesota Pollution Control Agency, "Environmental Justice," accessed September 25, 2025, https://www.pca.state.mn.us/about-mpca/environmental-justice.

within the state of Minnesota.[22] This analysis identifies environmental justice communities located near the Project to determine if the Project would disproportionately affect environmental justice communities.

The Applicant used the MPCA mapping tool to identify environmental justice communities located near the Project. The MPCA's EJ Proximity Analysis tool is an online mapping tool that uses census data to identify EJ areas for meaningful community engagement and additional evaluation for disproportionate effects from pollution. The tool identifies EJ areas of concern using the following four criteria, which align with the definition of an environmental justice area in Minn. Stat. § 216B.1691, subdivision (subd.) 1(e):

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.

According to the MPCA environmental justice mapping tool, the Proposed Route does not intersect with any identified EJ area, and there are no EJ areas within one mile of the Project. The Project also is not located within Indian Country.

A demographic assessment of Minnesota, Hennepin County, city of Maple Grove, Census Tract 267.17 and Census Tract 267.08 in the ROI was also conducted using U.S. Census Bureau data. The following guidelines were used in the comparison:

[22] Minnesota Pollution Control Agency, "Understanding Environmental Justice in Minnesota," accessed February 25, 2025, https://experience.arcgis.com/experience/bff19459422443d0816b632be0c25228/page/Page/?views=EJ-areas.

- A census tract is determined to have a significant low-income and/or minority population when that population exceeded 50 percent of the county population or was "meaningfully greater" than the general population of the county.
    - "Meaningfully greater" is defined as when the percentage of persons in poverty or minority population is at least 10 percentage points or higher than the respective county.
- Minority population percentages were calculated by excluding those who self-reported as white (and no other race) and not Hispanic or Latino. Which means, the minority population includes those who self-reported as Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, some other race, being two or more races, or being Hispanic or Latino.

As shown in Table 7-6, there are no meaningfully greater low-income or minority populations within the ROI. According to the U.S. Census Bureau, the majority of the population in the Proposed Route identifies as white (Table 7-6). The Proposed Route in the city of Maple Grove has a higher percentage of individual racial and ethnic populations than the state average, except for those who identify as some other race alone or Hispanic or Latino.

Table 7-6 Minority, Low-income, and Limited English-Speaking Households

Location	Total Population	Minority Population (%)	Individuals Below Poverty Level (%)	Limited English-Speaking Households (%)
Minnesota	5,713,716	15.8	9.2	2.2
Hennepin County	1,268,903	25.4	10.0	6.3
City of Maple Grove	71,275	21.7	3.9	3.5
Census Tract 267.17	6,251	27.9	2.4	0.3
Census Tract 267.08	5,718	15.9	1.0	1.7

Sources: [23]; [24]; [25]

7.3.7.1 Impacts

The Project would not increase burden indicators or result in disproportionate adverse impacts in the EJ areas of concern within the ROI, indicating negligible impacts. For all EJ communities, impacts are expected to abate after construction, thus they will be localized and temporary. Therefore, disproportionate and adverse impacts to these populations are possible but expected to be minimal. Based on the data provided by the MPCA and the US Census Bureau analysis, the ROI does not intersect an EJ area and is not within a mile of an EJ area. The Project would not adversely or highly disproportionately impact EJ areas of concern.

The Applicant will engage with affected communities to provide equitable access to the planning processes, solicit community input, and work to understand community values. This engagement is likely to occur through Project public outreach, including press releases, Project website, and other efforts. The goals of this engagement include developing an initial understanding of potential Project impacts, both beneficial and adverse; gathering preliminary feedback; and establishing an ongoing two-way engagement process. Project outreach information provided by the

[23] U.S. Census Bureau, "S1602: Limited English Speaking Households [Hennepin County, Minnesota,; Maple Grove City, Minnesota]," https://data.census.gov/table/ACSST5Y2023.S1602?q=S1602&g=040XX00US27_050XX00US27053_1400000US27053026708,27053026717_160XX00US2740166.

[24] U.S. Census Bureau, "DP05: ACS Demographic and Housing Estimates [Hennepin County, Minnesota; Maple Grove City, Minnesota]," American Community Survey, 2023, https://data.census.gov/table/ACSDP5Y2023.DP05?q=DP05&g=040XX00US27_050XX00US27053_1400000US27053026708,27053026717_160XX00US2740166.

[25] U.S. Census Bureau, "DP03: Selected Economic Characteristics [Hennepin County, Minnesota; Maple Grove City, Minnesota]."

Applicant is in English, but can be made available in languages other than English upon request.

Tribal governments and Tribal Historic Preservation Offices, identified through the U.S. Department of Housing and Urban Development's Tribal Directory Assessment Tool or the Minnesota Indian Affairs Council as having historic ties to land in proximity to planned project areas, have been notified early in the planning process, so that Tribes have the opportunity to advise of any sensitive historical or cultural sites to be avoided. This is discussed further in Section 2.2.1.

7.3.7.2 Mitigation Measures

7.3.7.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include mitigation measures specific to environmental justice.

7.3.7.2.2 Other Proposed Mitigation

EJ impacts are not anticipated; therefore, no mitigation measures are proposed.

7.3.8 Cultural Values

Cultural values consist of shared community beliefs or attitudes that define what is collectively important to the group. These values provide a framework for both individual and communal thought and action. Cultural values can be informed by history and heritage, local resources, economy, local and community events, and common experiences. Cultural values are also informed by the work and recreational pursuits of residents and by geographical features. The ROI for cultural values is the Project area.

The conspicuous, industrial look of utility projects can impact residents' sense of place, especially in less-developed areas. Infrastructure projects believed inconsistent with cultural values can deteriorate community character. Those found consistent with these values can strengthen it. Projects can invoke varying reactions and can, at times, weaken community unity.

7.3.8.1 Tribal and Indigenous Peoples – Historical

The Project is located within the boundaries of the 1851 Dakota Land Cession Treaties, also referred to as the 1851 Treaties with the Dakota at Traverse des Sioux

and Mendota.[26] These two treaties represented the near-complete loss of Dakota land in Minnesota to the United States. Over 35 million acres were lost through these treaties, with the Dakota maintaining only a strip of land 20 miles wide on the north and south sides of the Minnesota River.[27]

7.3.8.2 Tribal and Indigenous Peoples – Present Day

Minnesota is home to 11 federally recognized tribes, including seven Ojibwe reservations and four Dakota reservations.[28] These sovereign nations govern themselves, preserve cultural traditions, and manage natural resources through restoration projects and traditional ecological practices that emphasize spiritual connections to the land and sacred plants.[29] Beyond these tribes, several others have ancestral ties to Minnesota, including the Apache, Cheyenne and Arapaho, Flandreau Santee Sioux, and Sisseton-Wahpeton Oyate, among others.

According to the United States Department of Housing and Urban Development Tribal Directory Assessment Tool, Tribes with historic cultural interest and/or ancestral ties in the Project area include the Apache Tribe of Oklahoma; Cheyenne and Arapaho Tribes, Oklahoma; Flandreau Santee Sioux Tribe of South Dakota; Fort Belknap Indian Community of the Fort Belknap Reservation of Montana; Iowa Tribe of Kansas and Nebraska; Lower Sioux Indian Community in the state of Minnesota; Menominee Indian Tribe of Wisconsin; Prairie Island Indian Community in the state of Minnesota; Santee Sioux Nation, Nebraska; Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota; Spirit Lake Tribe, North Dakota; and Upper Sioux Community, Minnesota.[30]

The Shakopee Mdewakanton Sioux Community and Prairie Island Indian Community, located closest to the Project area, actively sustain Dakota culture

[26] Eric W. Weber, "Treaty of Traverse Des Sioux, 1851," MNopedia, Minnesota Historical Society, October 7, 2025, https://www.mnopedia.org/event/treaty-traverse-des-sioux-1851.
[27] Minnesota Indian Affairs Council and Minnesota Humanities Center, "1851 Dakota Land Cession Treaties," Relationships: Dakota and Ojibwe Treaties, accessed September 9, 2025, https://treatiesmatter.org/treaties/land/1851-dakota.
[28] Minnesota Indian Affairs Council, "Tribal Nations in Minnesota," January 17, 2024, https://mn.gov/indian-affairs/tribal-nations-in-minnesota/.
[29] Shakopee Mdewakanton Sioux Community, "Minnesota Native American Essential Understandings for Educators," 2024.
[30] Office of Environment and Energy, "Tribal Directory Assessment Tool (TDAT)," U.S. Department of Housing and Urban Development, accessed January 14, 2025, https://egis.hud.gov/tdat/.

through annual Wacipi gatherings, language initiatives, and stewardship of sacred sites and artifacts.

7.3.8.3 Local Community

The Project is located in Maple Grove, within the Twin Cities metropolitan area. While the Project area is generally developed in nature, it crosses through several undeveloped and/or agricultural parcels. Maple Grove, Minnesota is a community characterized by strong civic engagement, intergenerational inclusivity, local pride, support for the arts, and sustainable living. Cultural values are expressed through volunteer-driven events, a robust farmers market, and public arts programming. The city hosts diverse events including the Maple Grove Farmers Market,[31] a summer concert series at Town Green,[32] Chalkfest at Arbor Lakes,[33] Maple Grove Days,[34] and seasonal activities such as the Polar Plunge and Home Show. Cultural and recreational attractions include the Maple Grove Arts Center, the Maple Grove History Museum and Arboretum, and community gathering spaces such as Central Park, Elm Creek Park Reserve, and Fish Lake Regional Park. Additional landmarks include the Hindu Temple of Minnesota, the Shoppes at Arbor Lakes, and indoor facilities like the Community Center and Grove Cove Aquatic Center, which support year-round recreation.

Maple Grove also contains a diverse system of parks, open spaces, and water resources that provide recreational opportunities, habitat value, and aesthetic benefits. The 4,900-acre Elm Creek Park Reserve, the largest park in the Three Rivers Park District, offers extensive prairie, woodland, and wetland habitats alongside trails for hiking, cycling, skiing, and snowshoeing, as well as areas for swimming, tubing, disc golf, and wildlife observation.[35] Central Park of Maple Grove, a 44-acre urban park, features formal gardens, a labyrinth, interactive fountains, and a winter ice loop, serving as both a recreational and community gathering space.[36] Fish Lake Regional

[31] "Maple Grove Farmers Market," accessed August 11, 2025, https://www.maplegrovefarmersmarket.com/.
[32] City of Maple Grove, Minnesota, "Sounds of Summer," n.d.
[33] Maple Grove Business Association, "10th Anniversary Chalkfest Maple Grove," accessed August 11, 2025, https://www.maplegrovebiz.com/chalkfest-maple-grove-event.
[34] Maple Grove Community Organization, "Maple Grove Days," 2025.
[35] Three Rivers Park District, "Elm Creek Park Reserve," accessed August 11, 2025, https://www.threeriversparks.org/location/elm-creek-park-reserve?utm_source=chatgpt.com.
[36] City of Maple Grove, Minnesota, "Central Park," accessed August 11, 2025, https://www.maplegrovemn.gov/505/Central-Park.

Park provides water-based recreation, including boating, swimming, fishing, and shoreline habitat for aquatic species.[37] Additional neighborhood parks, natural areas, and greenways contribute to stormwater management, urban tree canopy, and wildlife connectivity.

Maple Grove has developed into a regional employment hub that supports the manufacturing, retail, healthcare, construction, and emerging technology sectors. While historically recognized for retail destinations, the city is increasingly focused on office and industrial growth to achieve economic balance.[38]

7.3.8.4 Impacts

Transmission line and substation projects have the potential to impact community and regional events during construction, primarily due to the presence of equipment and supplies on local roadways and potential temporary road closures or detours. These impacts would be minor and temporary if they occur. Impacts associated with the Project area's character and sense of place are expected to be minimal but would ultimately be dependent on the judgement of any given individual. These impacts would be localized and may be both short- and long-term, but might diminish over time. For nearby residents who place a high value on a sense of place, visual impacts such as new infrastructure could be moderate; however, the generally developed nature of the Project area may lessen the sense of change. Impacts to visuals and aesthetics are discussed in section 6.3.4. Impacts to community unity are not anticipated to occur. Construction and operation of the project is not anticipated to impact or alter the work and leisure pursuits of residents in the project area in such a way as to impact the underlying culture of the area.

Minor impacts to the Project area's character and sense of place are anticipated, primarily due to the construction of a new substation and transmission line on agricultural land. However, no aspects of the culture of the area are anticipated to be significantly impacted or changed because of the construction and operation of the Project.

[37] Three Rivers Park District, "Fish Lake Regional Park," accessed August 11, 2025, https://www.threeriversparks.org/location/fish-lake-regional-park?utm_source=chatgpt.com.
[38] City of Maple Grove, Minnesota, "City of Maple Grove 2040 Comprehensive Plan Update."

7.3.8.5 Mitigation Measures

7.3.8.5.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include standard conditions that directly mitigate impacts to cultural values, sense of place, or community unity.

7.3.8.5.2 Other Proposed Mitigation

The Applicant does not propose additional mitigative measures specific to cultural values.

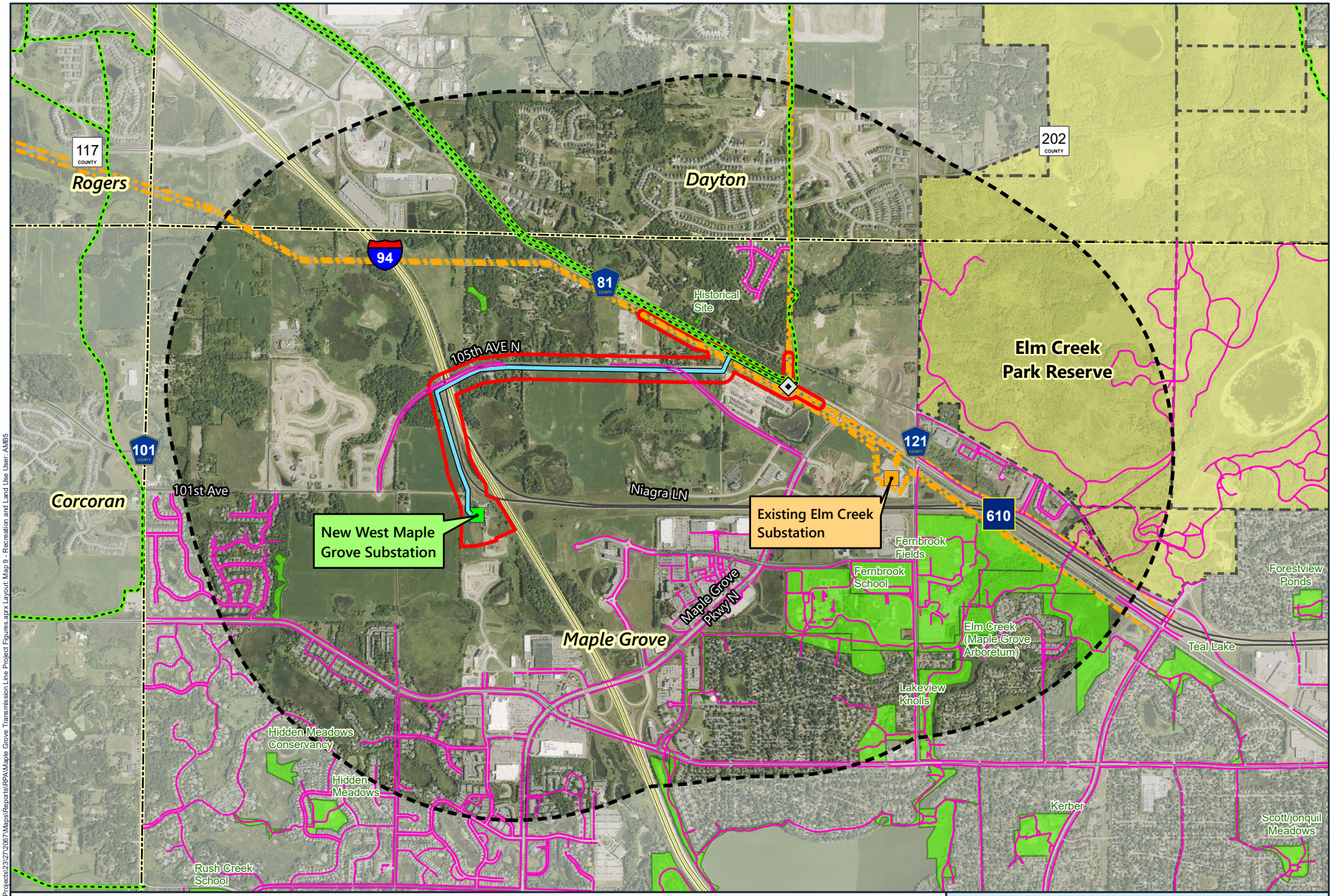
7.3.9 Recreation

The ROI for recreation is the Project area. GIS review indicated no MDNR Scientific and Natural Areas, Wildlife Management Areas, Water Trails, Aquatic Management Areas, state parks, or golf courses in, adjacent to, or crossed by the Project area.

Recreational opportunities in the Project area include planned sections of regional trails, bikeways, snowmobile trails, and municipal parks (Map 9).

- Trails: 2.4 (planned) miles of the Rush Creek Regional Trail, to the northwest of the right-of-way for the anticipated alignment.
- Paved bikeways: Approximately 10.5 miles of off-street bikeways in the Hennepin County system intersect the ROI.
- Snowmobile trails: Approximately 5 miles of the Northwest Trails Association Snowmobile system intersect the ROI. A small portion runs through the northern edge of the Proposed Route, near where the new 115kV transmission line would run. Existing transmission lines parallel this portion of the snowmobile trail.
- Municipal parks: the westernmost side of Elm Creek Park Reserve overlaps the ROI.

Each of these resources offers recreational opportunities that attract residents and tourists.



Anticipated Alignment
Proposed Route
Proposed Tap Point
Proposed Substation
Existing Substation
Project Study Area (Project Area)

Existing High-Voltage Transmission Line
Trail/Sidewalk
Snowmobile Trail
Hennepin County Bikeway System
Park/Playfield
Elm Creek Regional Park Reserve

N

0 0.5 1
Miles

RECREATION AND LAND USE

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 9

Xcel Energy®

Barr Footer: ArcGISPro 3.6.1, 2026-02-14 08:54 File: I:\Projects\23\27\2087\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 9 - Recreation and Land Use User: AMB5

7.3.9.1 Impacts

Construction of the Project components, including new lines, upgraded lines, and new substation construction, is not anticipated to affect public access to nearby recreational opportunities. Impacts to recreation areas would mostly be related to Project construction and will be minimal, temporary, and isolated to specific areas. Temporary disruptions of the snowmobile trails could occur if the transmission line construction or modification occurs during the winter months. However, any disruptions would be minimal due to the short length of the trail's overlap with the route width and the short timeline for construction activities. All potential disruptions would be resolved when construction is complete. Moreover, impacts at a single location will diminish as construction continues along the Proposed Route.

Short-term increases in noise and dust would occur during the Project's construction and could detract from public enjoyment of nearby recreational activities.. No long-term noise impacts are anticipated during the Project's operation and maintenance. Visual impacts would occur with increased development, but these would be minimal given the existing infrastructure and development occurring in the Project area.

7.3.9.2 Commission Sample Route Permit

7.3.9.3 Mitigation Measures

7.3.9.3.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include mitigation measures specific to recreation.

7.3.9.3.2 Other Proposed Mitigation

The contractor will use BMPs to reduce impacts as described in Section 5. The use of BMPs to limit noise and fugitive dust during construction would effectively mitigate their impacts to recreational resources.

7.3.10 Public Services

This section provides information about public services within the Project area, including water and wastewater services; school districts; utilities; and other public services such as public utility infrastructure. It also discusses whether the Project has the potential to affect these public services. The ROI for Public Services is the local vicinity.

Public services, in the context of this document, include water and wastewater services, school districts, utilities, and other public services as shown on Map 10.

7.3.10.1 Water and Wastewater Services

Municipal water and sewer services in the Project area are provided by Maple Grove Public Works. There will not be any water or wastewater needs to support Project construction, operations, or maintenance.

7.3.10.1.1 Impacts

No impacts to water and wastewater services are anticipated.

7.3.10.1.2 Mitigation

7.3.10.1.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not contain mitigation measures specific to water and wastewater services and states, "The Permittee shall comply with all applicable state rules and statutes."

7.3.10.1.2.2 Other Proposed Mitigation

Because no impacts to water and wastewater services are anticipated, no mitigation measures are proposed.

7.3.10.2 School Districts

The school district in the Project area is Osseo Area Schools (ISD 279).

7.3.10.2.1 Impacts

No impacts to school districts are anticipated.

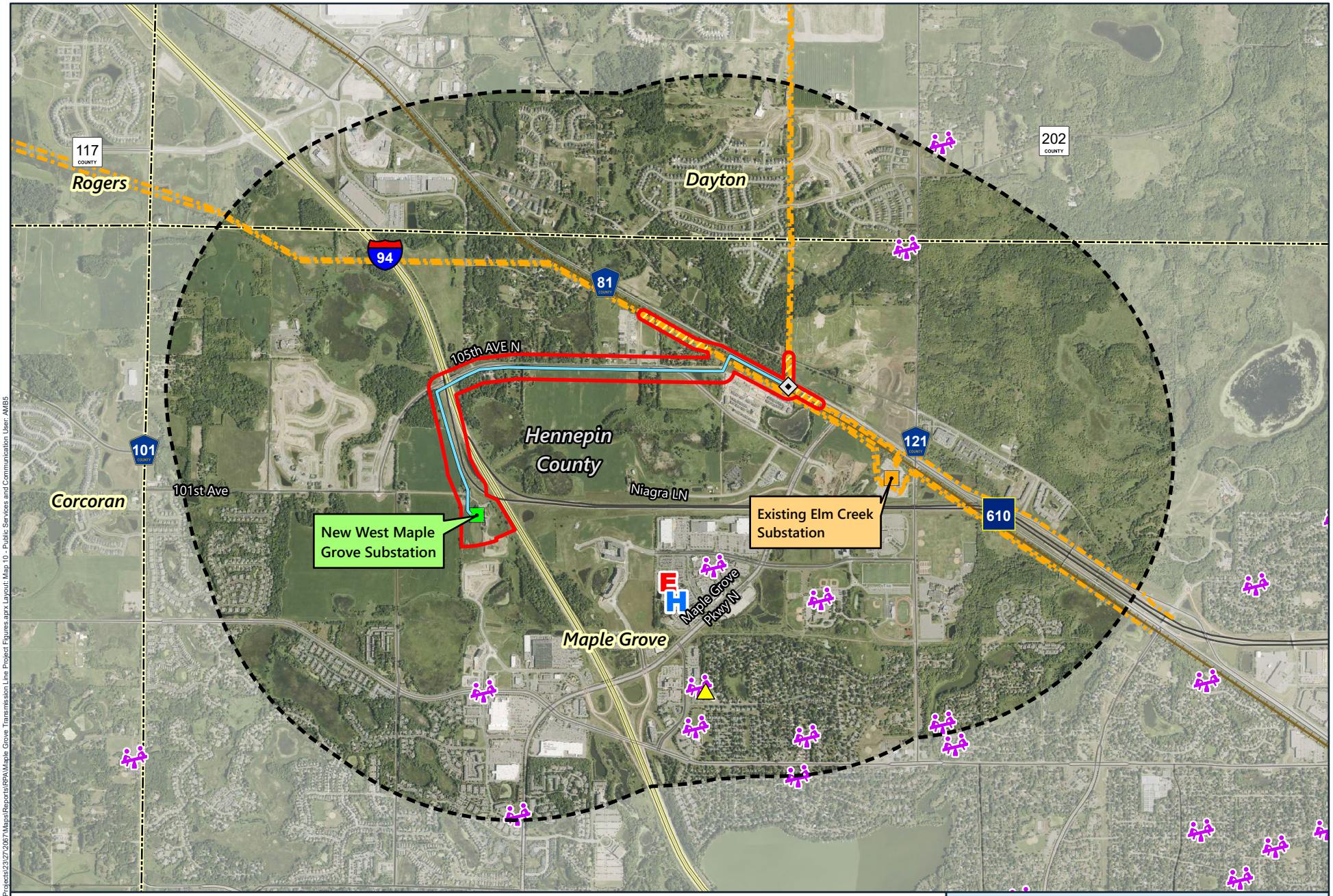
7.3.10.2.2 Mitigation

7.3.10.2.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not contain mitigation measures specific to school districts and states, "The Permittee shall comply with all applicable state rules and statutes."

7.3.10.2.2.2 Other Proposed Mitigation

Because no impacts to school districts are anticipated, no mitigation measures are proposed.



Anticipated Alignment
Proposed Route
Proposed Tap Point
Proposed Substation
Existing Substation
Potential Alteration to Existing Lines

Antenna
Child-Care Center
Hospital
Emergency Room

Railroad
Existing High-Voltage Transmission Line
Project Study Area (Project Area)

N

0 0.5
Miles

PUBLIC SERVICES AND COMMUNICATION

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 10

Xcel Energy®

Barr Footer: ArcGISPro 3.6.1, 2026-02-14 08:54 File: I:\Projects\23\2787\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 10 - Public Services and Communication User: AMB5

7.3.10.3 Utilities

Within the Project area, electric utilities are provided by the Applicant and Wright-Hennepin Electric. There are no crude oil/petrol product pipelines or natural gas pipelines located within the Project area.

7.3.10.3.1 Impacts

Potential impacts to public utilities would be most likely to occur during ground disturbance activities for Project construction and maintenance. The Applicant will use available resources and databases such as the Minnesota Department of Health (MDH) Minnesota Well Index and county ordinances regarding setbacks for septic systems along the Proposed Route, to understand where wells and private septic systems have the potential to be impacted by the Project, so that they can be avoided.

Although unlikely, damage to existing buried utilities could occur during grading activities. The Applicant will use the Gopher State One-Call system to locate and mark all existing underground utilities prior to construction to avoid impacts to buried utilities. If crossing a buried utility is required, the Applicant will use BMPs to protect existing infrastructure while using heavy equipment during construction (e.g., construction matting or other appropriate measures).

The Applicant will also work with the appropriate authorities including emergency services and utility providers to determine where facilities exist and how to best ensure the proper safety precautions are being met. The Applicant may meet with residents and utility providers to prevent direct or indirect impacts to their services. Utilities are not anticipated to be impacted by the construction and operation of the Project.

Electric transmission line outages will be required during construction. Existing lines 0827/5522 (115 kV) will require scheduled outages for 1-2 weeks. Existing lines 0978/0982 (345 kV) will require scheduled outages for 3-4 weeks. These outages should not impact customers as they are transmission outages, not distribution outages.

7.3.10.3.2 Mitigation

7.3.10.3.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to utilities are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.5.1: The Permittee shall design the transmission line and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

- Condition 5.3.4: During Transmission Facility construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local entities to determine the most appropriate mitigation measures if not already considered as part of this route permit. The Permittee shall coordinate with county and city road authorities to develop appropriate signage and traffic management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.3.10.3.2.2 Other Proposed Mitigation

Because no impacts to utilities are anticipated, no additional mitigation measures are proposed.

7.3.10.4 Other Public Services

Many other public services are provided in the Project area. Public works and utility departments design, construct, and maintain sanitary sewers, streets and sidewalks, parks, public landscaping, and water mains. Existing public facilities include swimming pools, ice rinks, parks, and libraries.

7.3.10.4.1 Impacts

No impacts to other public services are anticipated.

7.3.10.4.2 Mitigation

7.3.10.4.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to other public services are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.3.4: During Transmission Facility construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local entities to determine the most appropriate mitigation measures if not already considered as part of this route permit. The Permittee shall coordinate with county and city road authorities to develop appropriate signage and traffic management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.3.10.4.2.2 Other Proposed Mitigation

Because no impacts to other public services are anticipated, no additional mitigation measures are proposed.

7.3.11 Electronic Interference

The ROI for electronic interference is the right-of-way. If electronic interference does occur, in most cases it can be mitigated by either increasing the distance or adjusting the placement of the device to the transmission line or other transmission line structure. If ongoing interference due to a transmission line does occur, the Applicant would be required by the sample route to take feasible actions to restore electronic reception to pre-project quality.

Electronic interference refers to the disturbance of electrical circuits or equipment caused by electromagnetic radiation emitted from external sources, in this case, high-voltage transmission lines. Transmission lines generate electric and magnetic fields (EMFs) depending on the distance from sources and the type of line configuration. Transmission lines operate at a power frequency of 60 hertz (cycles/second). The impacts of the Project concerning EMFs are discussed in Section 7.4.2.1.

7.3.11.1 Impacts

No impacts due to electronic interference are anticipated, with the facility adhering to relevant local and state codes, the NESC, and North American Electric Reliability Corporation (NERC) requirements.

7.3.11.2 Mitigation

7.3.11.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to electronic interference are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.4.3: If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Transmission Facility, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Transmission Facility. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.3.11.2.2 Other Proposed Mitigation

Because no impacts due to electronic interference are anticipated, no additional mitigation measures are proposed.

7.3.11.3 Radio

There are 64 frequency modulation (FM) and amplitude modulation (AM) radio broadcasting stations that operate within the Project area. These channels are received from the Twin Cities Metro area and other nearby cities.

7.3.11.3.1 Impacts

AM radio frequencies are most affected by corona-generated noise; however, interference from a spark discharge source can be found and corrected. AM radio

frequency interference typically occurs immediately under a transmission line and dissipates rapidly within the right-of-way to either side.[39; 40]

7.3.11.3.2 Mitigation

7.3.11.3.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to radio are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.4.3: If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Transmission Facility, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Transmission Facility. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.3.11.3.2.2 Other Proposed Mitigation

If radio interference from transmission line corona does occur, satisfactory reception from AM radio stations previously providing good reception can be restored by the appropriate modification of (or addition to) the receiving antenna system. The Applicant will also work with residents and service providers to mitigate these types of issues.

7.3.11.4 Television

There are more than 45 television channels that broadcast in the Project area. These channels are received from the Twin Cities Metro area and other nearby cities.

7.3.11.4.1 Impacts

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 or transmitted in the Ku band of radio frequencies (12,000 to

[39] Edvard Csanyi, "High-Voltage Transmission Lines and Electromagnetic Interference (EMI)," *Electrical Engineering Portal*, July 2, 2018, https://electrical-engineering-portal.com/high-voltage-transmission-lines-and-electromagnetic-interference-emi.
[40] California Public Utilities Commission, "Chapter 17—Corona and Induced Current Effects," 1999.

18,000 MHz), respectively. Digital and satellite transmissions are more likely to be affected by multi-path reflections (shadowing) generated by nearby transmission towers. In addition, line-of-sight interference from transmission line structures can affect satellite television transmissions.[41; 42] The use of shielded coaxial cable for cable television transmissions generally makes them insusceptible to interference from electromagnetic noise. Interference to digital and satellite signals as a result of the Project is not anticipated.

7.3.11.4.2 Mitigation

7.3.11.4.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to television are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.4.3: If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Transmission Facility, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Transmission Facility. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.3.11.4.2.2 Other Proposed Mitigation

If interference to these signals were to occur from multi-path reflections or line-of-sight interference, such interference can be mitigated by using an outdoor antenna to improve digital signals or by moving the affected satellite antenna to a slightly different location.

7.3.11.5 Cellular Phone

There are two cellular phone towers located within the Project area (Map 10). Several cellular phone service providers operate in the vicinity of the Proposed Route, including Boost Mobile and Cricket Wireless. Larger carriers such as Verizon

[41] Csanyi, "High-Voltage Transmission Lines and Electromagnetic Interference (EMI)."
[42] California Public Utilities Commission, "Chapter 17—Corona and Induced Current Effects."

Wireless, T-Mobile, and AT&T offer service in the area and have service locations/stores located in Maple Grove.

7.3.11.5.1 Impacts

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.[43] Because cellular phone signals operate at frequencies outside the range of electromagnetic noise generated by transmission line conductors, no impacts to cellular phones are anticipated.

7.3.11.5.2 Mitigation

7.3.11.5.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to cellular phones are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.4.3: If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Transmission Facility, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Transmission Facility. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.3.11.5.2.2 Other Proposed Mitigation

Because no impacts to cellular phones are anticipated, no additional mitigation measures are proposed.

7.3.11.6 Global Positioning System

GPS applications are important components of daily life, used in aviation, vehicle navigation, and surveying activities. GPS equipment relies on satellites and, typically, mobile receiver equipment to provide locational information for navigation between

[43] Powerful Signal, "Cell Phone Frequency Bands: Frequencies Used by Cellular Phones and Cell Signal Boosters," accessed December 17, 2025, https://powerfulsignal.com/cellular-frequency-bands/.

endpoints, as well as geographic orientation for equipment. GPS equipment would likely be used throughout the Project area.

7.3.11.6.1 Impacts

GPS signals operate at a high frequency, within the range of 1,225 to 1,575 MHz, which is significantly higher than the range of electromagnetic noise generated by transmission line conductors.[44] Because GPS operates at frequencies outside the range of electromagnetic noise generated by transmission line conductors, no impacts to GPS units are anticipated.

7.3.11.6.2 Mitigation

7.3.11.6.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to GPS units are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.4.3: If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Transmission Facility, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Transmission Facility. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.3.11.6.2.2 Other Proposed Mitigation

Because no impacts due to GPS units are anticipated, no additional mitigation measures are proposed.

7.3.12 Transportation

The ROI for transportation is the route width. Transmission line projects have the potential to affect local transportation networks such as roadways, railroads, airports, and airstrips. Use of heavy equipment during construction may damage existing road surfaces, and local roadways could experience temporary road and/or lane closures during construction. Co-location of

[44] Maria Mendez, "Understanding the Power of the GPS Signal," *Inertial Labs*, September 30, 2024, https://inertiallabs.com/understanding-the-power-of-the-gps-signal/.

transmission lines with existing public roads could impact future roadway expansion or realignments and could affect routine maintenance of roadways. In addition, if a transmission line is located too close to an operating railroad, it could interfere with the safe operation of the railroad.

7.3.12.1 Roadways and Trails

There are several roads within the route width, including three that are crossed by the anticipated alignment (Map 10). No trails are present within the route width. Roads in the route width include interstate, state, or county highways. The Proposed Route parallels and crosses both I-94/MN 610 and Arbor Ridge Pkwy North (Municipal State Aid Street (MSAS) 140).

With the exception of I-94 and MN 610, traffic volumes are relatively low on roads the Proposed Route crosses or runs parallel to, where traffic data is available (Table 7-7). Annual Average Daily Traffic rates are the highest on I-94, as available through the Minnesota Department of Transportation (MnDOT),[45] They are the lowest on the County State-Aid Highways (CSAH) and MSAS in and around the Project.

Table 7-7 Annual Average Daily Traffic on Roads Crossed by or Co-located with the Proposed Route

Road	City	County	Annual Average Daily Traffic (AADT)	Traffic Count Year	Co-located Distance (mile)
MN 610	Maple Grove	Hennepin	23,363	2024	0.40
I-94	Maple Grove	Hennepin	103,132	2024	0.40
MSAS 140 (Arbor Ridge Pkwy North)	Maple Grove	Hennepin	1,700	2019	1.10
CSAH 81	Maple Grove	Hennepin	15,497	2022	0.25

No new driveways or other road improvements, such as culverts, will be required by the Project.

[45] Minnesota Department of Transportation, "Traffic Forecasting & Analysis," accessed November 6, 2023, http://www.dot.state.mn.us/traffic/data/tma.html.

7.3.12.1.1 Impacts

Traffic impacts are expected to be minimal, short term, and temporary. Construction could create a minor increase in traffic from construction vehicles and material/equipment delivery along roadways; however, this increase would be temporary, and traffic volumes would return to normal conditions after construction activities are completed. Line construction and maintenance at crossing locations could also cause temporary delays if maintenance vehicles are present. To minimize overall impacts, the Applicant will limit vehicle traffic to the Project right-of-way and existing access points to the extent feasible.

Temporary road or lane closures may occur during the construction process to ensure the safety of the construction crews and the traveling public. While the line is being constructed, the electrical conductors will be strung on support structures using a pulley system or a tensioner mounted on the back of a digger/derrick truck. At road crossings, roads or lands may be temporarily closed for safety purposes when stringing electrical conductors between support structures. These closures could range in duration from minutes to hours based on the width of the road and the complexity of the crossing. Once an aerial crossing is completed, the road(s) will be reopened to allow normal traffic flow.

The Proposed Route parallels I-94. Any occupation of state highway right-of-way requires a Utility Permit from MnDOT, per Minn. R. part 8810.3100 to .3600. MnDOT's Accommodation Policy provides requirements and guidelines for the installation of utility facilities in and along MnDOT rights-of-way, which the Project was developed to meet. The Applicant has begun coordinating with MnDOT and will continue to work with MnDOT throughout the Route Permit process to ensure that the alignment meets MnDOT guidelines.

After the completion of construction, the Applicant will confirm that city and county roads used for purposes of access during construction are returned to either the condition they were in or better before right-of-way clearing began. The Applicant will meet with MnDOT, city road personnel, and/or county highway departments as necessary to address any issues that arise during construction with roadways, to ensure the roads are adequately restored after construction is complete.

7.3.12.1.2 Mitigation

7.3.12.1.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to roadways and trails are standard sample route permit (Appendix G) conditions and include the following:

- Condition 4: This route permit authorizes the Permittee to obtain a new permanent right-of-way for the transmission line up to [number] feet in width. The permanent right-of-way is typically [number] feet on both sides of the transmission line measured from its centerline or alignment. The anticipated alignment is intended to minimize potential impacts relative to the criteria identified in Minn. Stat. § 216I.05, subd. 11. The final alignment must generally conform to the anticipated alignment identified on the route maps unless changes are requested by individual landowners and agreed to by the Permittee or for unforeseen conditions that are encountered or as otherwise provided for by this route permit. Any right-of-way or alignment modifications within the Designated Route shall be located so as to have comparable overall impacts relative to the factors in Minn. Stat. § 216I.05, subd. 11, as does the right-of-way and alignment identified in this route permit and shall be specifically identified and documented in and approved as part of the plan and profile submitted pursuant to Section 9.2 of this route permit. Where the transmission line parallels existing highway and other road rights-of-way, the transmission line right-of-way shall occupy and utilize the existing right-of-way to the maximum extent possible; consistent with the criteria in Minn. Stat. § 216I.05, subd. 11, and the other requirements of this route permit; and for highways under the jurisdiction of the Minnesota Department of Transportation (MnDOT), the procedures for accommodating utilities in trunk highway rights-of-way.

- Condition 5.3.4: During Transmission Facility construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local entities to determine the most appropriate mitigation measures if not already considered as part of this route permit. The Permittee shall coordinate with county and city road authorities to develop appropriate signage and traffic

management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

- Condition 5.3.7: The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. The Permittee shall use care to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the Transmission Facility during construction and maintenance. The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads. The Permittee shall place structures at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings.

- Condition 5.3.14: The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city, or township roads that will be used during the construction phase of the Transmission Facility. Where practical, existing roadways shall be used for all activities associated with construction of the Transmission Facility. Oversize or overweight loads associated with the Transmission Facility shall not be hauled across public roads without required permits and approvals. The Permittee shall construct the fewest number of site access roads required. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits. The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner.

- Condition 5.3.21: The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

- Condition 5.5.1: The Permittee shall design the transmission line and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

7.3.12.1.2.2 Other Proposed Mitigation

No additional mitigation measures are proposed.

7.3.12.2 Railroads

One railroad is crossed by the Proposed Route (Map 10). This railroad is operated by BNSF Railway Company.

7.3.12.2.1 Impacts

Railroad traffic backups may occur where the railroad intersects the project construction area, but impacts would be minimal and temporary. Potential impacts to the railway would be limited to short-term construction impacts and would be coordinated directly with the railroad operator. Negligible impacts during operation would be anticipated to railroads. The Applicant would need to obtain all necessary railroad crossing permits from BNSF Railway Company for crossing their rail line.

7.3.12.2.1.1 Mitigation

The sample route permit (Appendix G) does not contain mitigation measures specific to railroads and states, "The Permittee shall comply with all applicable state rules and statutes."

7.3.12.2.1.2 Other Proposed Mitigation

No mitigation measures are proposed.

7.3.12.3 Airports and Airstrips

There are no public-use airports or heliports operating in the Project area, though there is one private heliport within the Project area (Map 10). Maple Grove Hospital has a helipad for their use in medical emergencies; this helipad is located approximately 0.6 miles south of the West Maple Grove Substation Area. The nearest public airport is Crystal Airport, located over 8 miles southeast of the Proposed

Route. No other airports are present within 10 miles of the Project area. There are no known private landing strips in the Project area.

7.3.12.3.1 Impacts

HVTLs can present safety concerns to airports and aircraft. An airport, whether public or private, is defined by the state and the Federal Aviation Administration (FAA) as an area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any (14 C.F.R. Part 1, §1.1 and Minn. R. part 8800.0100, subpart 3). The placement of transmission line structures or the stringing of conductors between structures could impact the safe operation of an airport or hinder the maneuverability of aircraft. If close enough, the presence of a steel transmission line structure or wiring could interfere with the operation of air navigation or weather systems. Conductors can also present a risk to pilots.

The physical dimensions of airport runways determine the class size of aircraft capable of landing at an airport. Furthermore, the aircraft design and propulsion system are determinants in an aircraft's ability to land at a given facility. For example, jet aircraft are heavier, typically require a greater runway length for take-off and landing, and require more glide slope clearance distance compared to propeller-driven aircraft. Both factors are important in relation to structures such as transmission lines because they determine the take-off and landing glide slopes necessary for safe flight operation, which in turn determine the setback distance of structures such as transmission line structures.

There are no VOR air navigational stations within 10 miles of the Project, therefore no impacts to airports or airstrips are anticipated. The Applicant will coordinate with the FAA and MnDOT to address any Project-related concerns for aviation activities as the Project progresses, if necessary.

7.3.12.3.2 Mitigation

7.3.12.3.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not contain mitigation measures specific to airports and airstrips and states, "The Permittee shall comply with all applicable state rules and statutes."

7.3.12.3.2.2 Other Proposed Mitigation

The FAA and MnDOT have established development guidelines on the proximity of structures, including HVTLs, to public-use airports and heliports. Federal Aviation Regulation (FAR) Part 77 establishes standards and notice requirements for reporting airspace obstructions for objects currently impacting or that could impact navigable airspace around aviation facilities. FAR Part 77 defines a series of imaginary surface zones surrounding airports that specify height restrictions for structures based on slope ratios. These imaginary surfaces include the primary surface, horizontal surface, conical surface, approach surface, precision instrument approach surface, and the transitional surface. According to FAR Part 77, "an object will be considered an obstruction to a public airport (excluding seaplane bases and heliports) if it is of greater height" than any of the aforementioned imaginary surfaces. Each of these imaginary surfaces has corresponding slopes, based in part on the airports' use designation, flight volumes, and plane size capabilities. All surfaces are measured at the mean sea-level elevation of the airport. If necessary or appropriate, Applicant will file the required notice with FAA pursuant to the requirements set forth by FAR Part 77, Subsection 13.

In addition to FAA regulations, the state of Minnesota establishes air navigation obstruction criteria under Minn. Stat. § 360.018 and Minn. R. chapter 8800. These regulations are intended to control the type of development around airports to prevent incompatible land uses. The state regulations are similar to the FAA regulations as published in FAR Part 77. Runway Safety Zones A through C, which follow the runway approach zones and restrict specific types of development, are included as this part of these regulations. The most restrictive safety zones are A and B; Safety Zone A does not allow any buildings or temporary structures, places of public assembly, or transmission lines; Safety Zone B does not allow places of public or semipublic assembly (i.e., churches, hospitals, or schools). Permitted land uses in both zones include agricultural uses, cemeteries, and parking lots. A complete description and copy of the Airport Zoning Standards can be found at http://www.dot.state.mn.us/aero/avoffice/planning/zoning.html.

Furthermore, certain objects, such as steel pole transmission line structures, have the potential to conflict with the operation of airport navigational aids and weather observation station facilities. Specifically, these facilities include Very High Frequency Omnidirectional Radio Range (VOR) air navigation systems and Automated Weather

Observation Stations. FAA Order 6820.10 "VOR, VOR/DME, and VORTAC Siting Criteria," specifies the distance setback requirements for trees, buildings, and metallic structures. Within this order, Chapter 4, Section 17(c)(3) identifies obstruction criteria for a VOR facility. Subsections D and E detail setback distances for transmission line structures. These regulations specify that overhead transmission line structures with conductors should be located beyond 1,200 feet of the VOR antenna to avoid communication interference.

Additionally, metallic structures are required to subtend vertical angles of 1.2 degrees or less, measured from the ground elevation of the VOR facility. Therefore, the new transmission line structures proposed for the Project that are 130 feet tall must be 6,206 feet away from a VOR air navigational station to avoid interference with the facility's operation. Transmission structures 140 feet in height must be 6,683 feet away, and transmission structures 175 feet in height must be 8,354 feet away from a VOR.

7.4 Public Health and Safety

7.4.1 Emergency Services

Emergency services in the Project area are provided by local law enforcement and emergency response agencies. The local police department for the city of Maple Grove provides law enforcement in the area. Fire services within the area are provided by the paid city fire department, Maple Grove Fire-Rescue. The North Memorial Ambulance Service provides emergency medical response services to the Project area (Map 10). An estimated 15 to 30 construction and operation personnel are needed for the Project.

7.4.1.1 Impacts

Potential impacts to public health and safety would be most likely to occur during ground disturbance activities for Project construction and maintenance. Use of heavy equipment during construction presents the potential for injuries such as falls, equipment-use related injuries, or electrocution. The operation of a transmission line presents a potential risk to public safety if the transmission line or structures are damaged by inclement weather or not operated in compliance with safety standards. Injuries resulting from the construction or operation of a transmission line project would require using local emergency services such as police, fire, ambulance, or hospitals; however, impacts to the availability of emergency services as a result of the

Project are not anticipated. The nearest hospital to the Project is the Maple Grove Hospital, located 0.6 miles away. The hospital has capacity to accommodate any unexpected incident on the Project. An emergency preparedness plan will be created, including a list of emergency services in the area (Table 7-8).

Table 7-8 Emergency Services

Service	Name	City	County
Fire Station	Maple Grove Hospital	Maple Grove	Hennepin
Fire Station	Maple Grove Fire Station 2	Maple Grove	Hennepin
Fire Station	Maple Grove Fire Station 3	Maple Grove	Hennepin
Hospital	Maple Grove Fire Station 4	Maple Grove	Hennepin
Law Enforcement	Maple Grove Police	Maple Grove	Hennepin

7.4.1.2 Mitigation Measures

7.4.1.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include mitigation measures specific to emergency services.

7.4.1.2.2 Other Proposed Mitigation

Emergency service impacts are not anticipated; therefore, no mitigation measures are proposed.

7.4.2 Public and Worker Safety

The most recent data from the Bureau of Labor Statistics for injuries and illnesses was used to find the recent number of injuries and illnesses for Power and Communication Line and Related Structures Construction (North American Industry Classification System Code No. 23713). From 2022 to 2023, there were a total of around 3,900 nonfatal occupational injuries and illnesses.[46] From 2022 to 2023 there were 33 fatal injuries, including 12 fatal transportation incidents (roadway accident or being struck by a vehicle), and 12 fatal incidents from coming into contact with

[46] U.S. Department of Labor and Bureau of Labor Statistics, "TABLE 2. Number of Nonfatal Occupational Injuries and Illnesses by Industry and Case Types, 2023," Injuries, Illnesses, and Fatalities, accessed September 11, 2025, https://www.bls.gov/iif/nonfatal-injuries-and-illnesses-tables/table-2-injury-and-illness-counts-by-industry-2023-national.htm.

harmful substances and/or environments (exposure to electricity, radiation and noise, temperature extremes, other harmful substances, etc.) associated with Power and Communication Line and Related Structures Construction.[47]

7.4.2.1 Impacts

As with any construction project, there are risks related to it, however, no impacts are anticipated. These could include potential injury from falls, equipment and vehicle use, and electrical accidents. Construction could also disturb existing environmental hazards.

Electrocution is a risk that could occur with direct contact with lines. Between 2011 and 2015, power-line installers in the U.S. had 32 deaths related to electrocution, a rate of 29.7 deaths per 100,000 full-time workers.[48] Electrocution could also happen when working near power lines while using heavy equipment. Electrocution could occur when there is electrical contact between an object on the ground and an energized conductor, but this situation is most likely with distribution lines.[49] There is also an electrocution risk from unauthorized entry into the substation.

The Applicant has designed the transmission line and associated facilities to meet or exceed all relevant local and state codes, NESC, and NERC requirements. This includes standards relating to ground clearances, clearances to crossing utilities, clearances to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

Any accidents that might occur during construction of the project would be handled through local emergency services. Existing emergency services should have sufficient capacity to respond to any emergencies.

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[47] U.S. Department of Labor and Bureau of Labor Statistics, "TABLE A-1. Fatal Occupational Injuries by Industry and Event or Exposure, All United States, 2023," Injuries, Illnesses, and Fatalities, accessed September 11, 2025, https://www.bls.gov/iif/fatal-injuries-tables/fatal-occupational-injuries-table-a-1-2023.htm.

[48] Earnest PhD, PE, CSP et al., "Preventing Electrocution of Construction Contract Workers," *Centers for Disease Control and Prevention: NIOSH Science Blog*, February 8, 2019, https://blogs.cdc.gov/niosh-science-blog/2019/02/08/electrocution-in-construction/.

[49] Public Service Commission of Wisconsin, "Environmental Impacts of Transmission Lines," Wisconsin, July 2013, https://psc.wi.gov/Documents/Brochures/Enviromental%20Impacts%20TL.pdf.

7.4.2.2 Mitigation Measures

7.4.2.2.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.5.1, contains the following mitigation related to safety: "The Permittee shall design the transmission line and associated facilities to meet or exceed all relevant local and state codes, the NESC, and NERC requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements."

7.4.2.2.2 Other Proposed Mitigation

Proper safeguards would be implemented for the construction and operation of the transmission line and substation. The project must comply with the NESC.89 and Occupational Safety and Health Administration standards.[50] Construction crews and contract crews would also comply with local, state, and NESC standards for installation and construction practices. The Applicant would use their established safety procedures, as well as industry safety procedures, during and after installation of the transmission line, including appropriate signage during construction.

The substations would be fenced and locked. Appropriate signage would be posted that identifies the hazards associated with the substation.

7.4.3 Electric and Magnetic Fields

The ROI for electric and magnetic fields (EMF) is the right-of-way. Members of the public would be subject to EMF if they were living or working (for example, operating their farming equipment) near the transmission line. Impacts to human health from possible exposure to EMFs are not anticipated. The transmission line would be constructed to maintain proper safety clearances and the substations would not be accessible to the public. EMF associated with the project are below Commission permit requirements, and state and international guidelines. Potential impacts would be long-term and localized. These unavoidable impacts would be minimal and can be mitigated.

[50] U.S. Department of Labor, "Safety and Health Regulations for Construction. 29 C.F.R. Part 1926," National Archives, 2020, https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.1410.

Impacts would be minimized by prudent routing and adhering to electric field standards for transmission lines.

Electric and magnetic fields (EMF) are invisible areas of energy associated with the use of electrical power. For the lower frequencies associated with power lines (referred to as ELF), EMF should be considered separately – electric fields and magnetic fields, measured in kV/m and milligauss (mG), respectively. Electric fields are dependent on the voltage of a transmission line, and magnetic fields are dependent on the current carried by a transmission line. The strength of the electric field is proportional to the voltage of the line, and the intensity of the magnetic field is proportional to the current flow through the conductors. Transmission lines operate at a power frequency of 60 hertz (cycles/second).

Electric and magnetic fields are found anywhere there are energized, current-carrying conductors, such as near transmission lines, local distribution lines, substation transformers, household electrical wiring, and common household appliances. The frequency from transmission lines is considered "non-ionizing, low-level radiation which is generally perceived as harmless to humans."[51] Table 7-9 provides the typical ranges of electric and magnetic fields of frequently and commonly used appliances that would be in a home.[52]

[51] National Institute of Environmental Health Sciences, "Electric & Magnetic Fields," accessed December 2, 2024, https://www.niehs.nih.gov/health/topics/agents/emf.
[52] National Institute of Environmental Health Sciences, "Electric & Magnetic Fields."

Table 7-9 Electric and Magnetic Field Ranges for Common Household Appliances

Electric Field [1]		Magnetic Field [2]			
Appliance	kV/m	Appliance	mG		
	1 foot		1 inch	1 foot	3 feet
Stereo	0.18	Circular saw	2,100 to 10,000	9 to 210	0.2 to 10
Iron	0.12	Drill	4,000 to 8,000	22 to 31	0.8 to 2
Refrigerator	0.12	Microwave	750 to 2,000	40 to 80	3 to 8
Mixer	0.10	Blender	200 to 1,200	5.2 to 17	0.3 to 1.1
Toaster	0.08	Toaster	70 to 150	0.6 to 7	< 0.1 to 0.11
Hair Dryer	0.08	Hair dryer	60 to 200	< 0.1 to 1.5	< 0.1
Television	0.06	Television	25 to 500	0.4 to 20	< 0.1 to 1.5
Vacuum	0.05	Coffee maker	15 to 250	0.9 to 1.2	< 0.1

[1] German Federal Office for Radiation Safety
[2] Long Island Power Institute

There is no federal standard for transmission line electric fields. The Commission, however, has imposed a maximum electric field limit of 8 kV/m measured at one meter above the ground.[53] The standard was designed to prevent serious hazards from shocks when touching large objects parked under alternating current transmission lines of 500 kV or greater.

There are presently no Minnesota regulations pertaining to magnetic field exposure. The Applicant provided information to the public, interested customers, and employees so they can make informed decisions about magnetic fields. Such information includes the availability for measurements to be conducted for customers and employees upon request.

Research has been conducted since the 1970s to determine whether exposure to power-frequency (60 hertz) magnetic fields causes biological responses and health effects. The U.S. National Institute of Environmental Health Sciences and the World Health Organization's research does not support a relationship or association between exposure to electric power EMF and adverse health effects. The U.S. National Institute of Environmental Health Sciences evaluated numerous epidemiological

[53] Order Granting Route Permit In the Matter of the Route Permit Application for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota, Docket No. ET-2/TL-08-1474 (September 14, 2010), https://apps.commerce.state.mn.us/eera/web/project-file/2389.

studies and comprehensive reviews of scientific literature regarding the association between cancers and living near power lines, exposure to magnetic fields in the home, and parental exposure to high levels of magnetic fields in the workplace. They concluded that "no consistent evidence for an association between any source of non-ionizing EMF and cancer has been found."[54]

Wisconsin, Minnesota, and California have all conducted literature reviews or research to examine this issue. In 2002, Minnesota formed an Interagency Working Group (Working Group) to evaluate the body of research and develop policy recommendations to protect the public health from any potential problems associated with high voltage transmission lines. The Working Group, comprising staff from various state agencies, published its findings in a White Paper titled Electric and Magnetic Field (EMF) Policy and Mitigation Options in September 2002.[55]

The Commission, based on the Working Group and WHO findings, has repeatedly found that "there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects."[56]

7.4.3.1 Impacts

Table 7-10 provides the electric fields at maximum conductor voltage for the proposed 115 kV transmission line. Maximum conductor voltage is defined as the nominal voltage plus five percent. The maximum electric field, measured at one meter (3.28 feet) above ground, associated with the Project is calculated to be 0.379 kV/m. As shown in Figure 6, the strength of electric fields diminishes rapidly as the distance from the conductor increases. The electric field values of the 115 kV/115 kV double-circuit monopole design option at the edge of the transmission line right-of-way and sample points beyond are also shown in Table 7-10.

[54] National Cancer Institute, "Electromagnetic Fields and Cancer," nciglobal,ncienterprise, accessed December 2, 2024, https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet.
[55] The Minnesota State Interagency Working Group on EMF Issues, "A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options," September 2022.
[56] Minnesota Public Utilities Commission, "Findings of Fact, Conclusions of Law and Order Issuing a Route Permit to Xcel Energy for Lake Yankton to Marshall Transmission Project," August 29, 2008.

Figure 6 Calculated Electric Fields (kV/m) for Proposed 115 Kilovolt Transmission Line Design

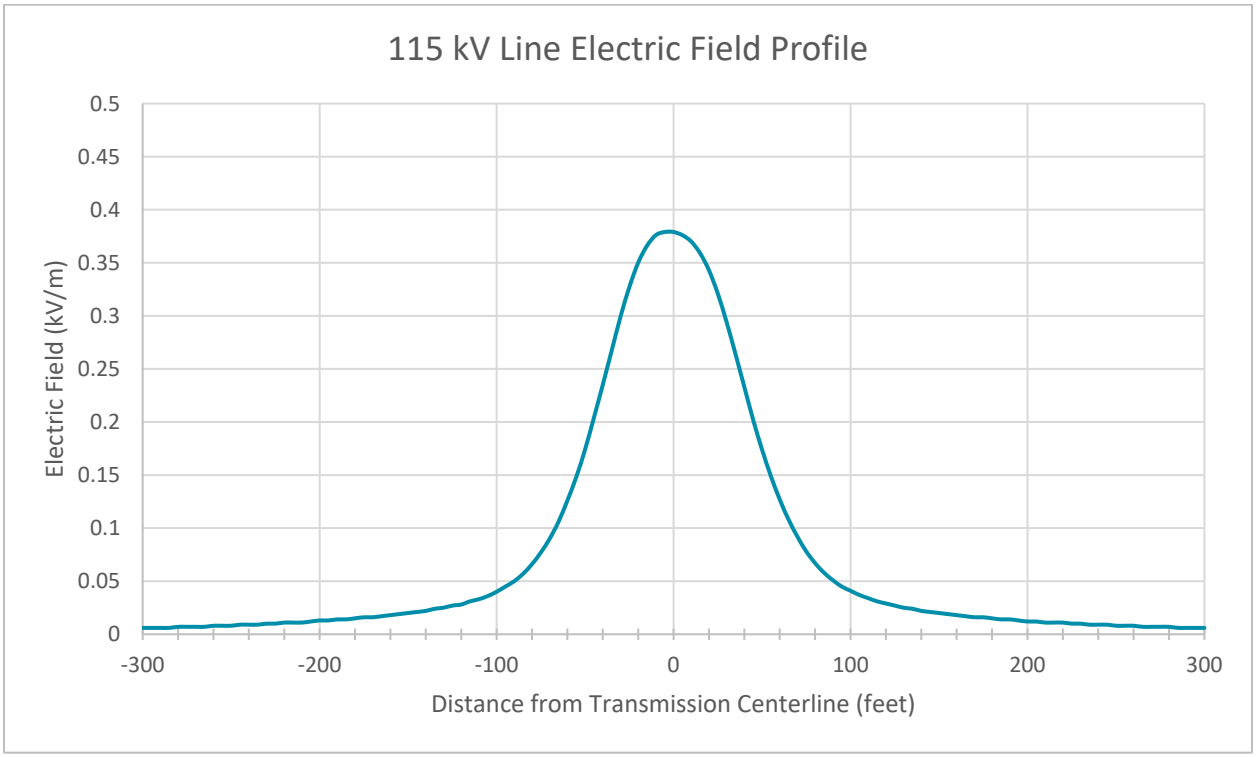


Table 7-10 Electric Field Calculations Summary (kV/m)

Operating Voltage (kV)	Max Operating Voltage (kV)	Electric Field (kV/m) at Distance (ft) from Proposed Alignment[1]										
		-300	-200	-100	-50	-25	Max	25	50	100	200	300
115kV / 115kV	126.5kV / 126.5kV	0.006	0.013	0.04	0.174	0.327	0.379	0.321	0.174	0.041	0.012	0.006

[1] These calculations are being compared to the Commission's maximum electric field limit of 8 kV/m measured at one meter above the ground.

The projected magnetic fields for different structures and conductor configurations for the Project are provided in Table 7-11 and Figure 7. Because magnetic fields are dependent on the current flowing on the line, magnetic fields were calculated for two different estimated typical system conditions during the Project's first year in service (2029). These two scenarios are: (1) Expected System Peak Current (Peak Load) and (2) System Average Current (Average). The Peak Load (1,908 amps) represents the current flow on the line during the peak hour of system-wide energy demand. The Average (3,180 amps) current flow represents the current flow on the line during a non-peak time of the year.

The magnetic field values for the two scenarios were calculated at a point where the conductor is closest to the ground. The magnetic field data show that magnetic field levels decrease rapidly as the distance from the centerline increases (proportional to the inverse square of the distance from the source) (Table 7-11). In addition, because the magnetic field produced by the transmission lines is dependent on the current flow, the actual magnetic fields when the Project is placed in service will vary as the current flow on the line changes throughout the day. Magnetic field calculations for the Project substation are not provided here because the specific physical design of a substation is required to calculate representative magnetic fields, and that level of design is not yet available for the Project substations. Magnetic fields associated with the Project's substations are anticipated to be similar to those of other existing 115 kV substations in Minnesota, and therefore minimal.[57]

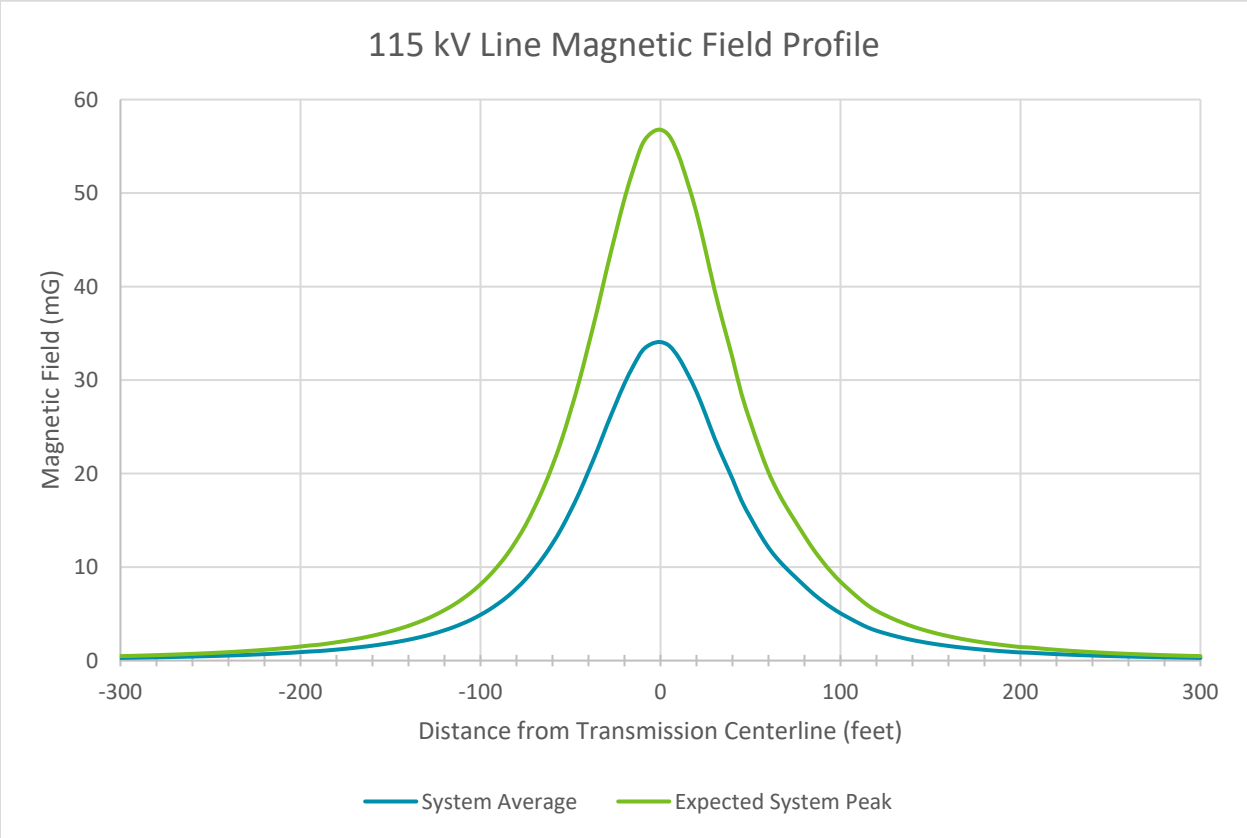
[57] National Institute of Environmental Health Sciences - National Institute of Health, "Electric and Magnetic Fields Associated with the Use of Electric Power: Questions & Answers," June 2002, https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf.

Table 7-11 Magnetic Field Calculation Summary (mG)

Operating Voltage (kV)	Max Operating Voltage (kV)	Line Current (Amps)	Magnetic Field (mG) at Distance (ft) from Proposed Alignment[1]										
			-300	-200	-100	-50	-25	Max	25	50	100	200	300
115kV / 115kV Peak Load	126.5	3,180	0.477	1.504	8.154	26.648	45.623	56.771	43.923	25.506	8.44	1.449	0.477
115kV / 115kV Average Load	126.5	1,908	0.286	0.903	4.892	15.989	27.374	34.063	26.354	15.304	5.064	0.87	0.286

[1] This calculation is being compared to the 9,040 mG benchmark based on IEEE Std C95.1-2019.

Figure 7 Calculated Magnetic Flux density (mG) for Proposed 115/115 Kilovolt Transmission Line Design



7.4.3.2 Mitigation Measures

7.4.3.2.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.4.2, states, "The Permittee shall design, construct, and operate the transmission line in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms."

7.4.3.2.2 Other Proposed Mitigation

No health impacts from EMF are anticipated. EMF diminishes with distance from a conductor; therefore, mitigation of both electric and magnetic field strength would be achieved by increasing distance from the transmission line to the receptor, such as a residence or other location where citizens congregate, to the extent practicable.

7.4.4 Implantable Medical Devices

The ROI for implantable medical devices is the ROW. Potential impacts associated with the project are anticipated to be negligible. If impacts occur, they can be mitigated. Impacts would be minimized by appropriate grounding and adherence to electric field standards for transmission lines.

Implantable medical devices, such as an implantable cardioverter defibrillator or a pacemaker, are battery-powered devices that help keep a person's heartbeat in a regular rhythm. These devices are implanted into the heart tissue and can deliver electrical shocks to correct the heart's rhythm to prevent sudden cardiac issues and help people at risk for recurrent, sustained ventricular tachycardia or ventricular fibrillation.[58]

7.4.4.1 Impacts

Electromechanical implantable medical devices, such as cardiac pacemakers, implantable cardioverter defibrillators (ICDs), neurostimulators, and insulin pumps, could be subject to interference from EMF, which could mistakenly trigger a device or inhibit it from responding appropriately.[59] EMF exposure produced by transmission lines generally does not affect implantable devices. But instances of interference attributed to EMF are recognized, commonly referred to as electromagnetic interference (EMI). While EMI can result in either inappropriate triggering or inhibition of a device from responding properly, only a small percentage of these occurrences are caused by external EMI. Electrical interference at levels above 5.0 kV/m have the potential to interfere with modern, bipolar pacemaker behavior, but some models have been unaffected at as high as 30 kV/m.[60] There is

[58] American Heart Association, "Implantable Medical Devices," accessed December 2, 2024, https://www.heart.org/en/health-topics/heart-attack/treatment-of-a-heart-attack/implantable-medical-devices.
[59] Public Service Commission of Wisconsin, "Environmental Impacts of Transmission Lines."
[60] Electric Power Research Institute, Inc., "Electromagnetic Interference With Implanted Medical Devices: 1997-2003," Energy Delivery and Customer Solutions, August 29, 2018, https://www.epri.com/research/products/1005570.

the potential for interference at lower levels, as differing manufacturers vary in susceptibility to EMI.[61]

Workers who have cardiac pacemakers have separate guidelines for EMF exposure. The American Conference of Governmental Industrial Hygienists recommended magnetic and electric field exposure limits for workers who have ICDs are 1 G and 1 kV/m, respectively.[62] While ICDs vary, and questions and concerns should be directed to the specific manufacturer, the ICD manufacturer's recommended threshold for modulated magnetic fields is 1 G.[63] One gauss is five to 10 times greater than the magnetic field likely to be produced by a high-voltage transmission line.[64] During the peak hour of system-wide energy demand, the calculated magnetic field levels for the project were 0.237 G. The maximum electric field was measured to be 4.14 kV/m at around 25 feet from the centerline. Considering the above, effects are considered minimal.

7.4.4.2 Mitigation Measures

7.4.4.2.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.4.1, contains the following mitigation related to grounding, electric field and electronic interference: "The Permittee shall design, construct, and operate the transmission line in a manner so that the maximum induced steady-state short-circuit current shall be limited to five milliamperes root mean square (rms) alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one milliampere rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the

[61] Sergio L. Pinski and Richard G. Trohman, "Interference in Implanted Cardiac Devices, Part I," *Journal of Pacing and Clinical Electrophysiology* 25, no. 9 (2002): 1367–81, https://doi.org/10.1046/j.1460-9592.2002.01367.x.
[62] IEEE Standards Coordinating Committee 28, "IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0–3 kHz," The Institute of Electrical and Electronics Engineers, Inc., October 23, 2002.
[63] Public Service Commission of Wisconsin, "Environmental Impacts of Transmission Lines."
[64] Public Service Commission of Wisconsin, "Environmental Impacts of Transmission Lines."

NESC. The Permittee shall address and rectify any induced current problems that arise during transmission line operation."

Additionally, condition 5.4.2 limits the electric field by stating, "The Permittee shall design, construct, and operate the transmission line in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms."

7.4.4.2.2 Other Proposed Mitigation

Electric and magnetic field strength is mitigated by increasing the distance from the transmission line and structures. Medical devices will return to normal operation when the person moves away from the source of the EMF.[65] The project would be designed in accordance with applicable NESC standards and to keep electric fields below the 8 kV/m standard set by the Commission. Individuals are expected to follow the recommendations of their medical provider.

7.4.5 Stray Voltage and Induced Voltage

The ROI for stray voltage and induced voltage is the ROW. Potential impacts to residences and farming operations from stray voltage are not anticipated. Transmission lines do not produce stray voltage during normal operation, as they are not directly connected to businesses, residences, or farms. It is possible for electric fields from a transmission line to extend to a conductive object near the transmission line. This could induce a voltage on the object. Smaller conductive objects near the line could cause a nuisance shock to a person, but they are not a potential safety hazard. Metal buildings within the ROW might require grounding. The project would be constructed to NESC standards, and therefore, impacts are anticipated to be minimal. Impacts would be minimized by adhering to relevant local and state codes, NESC, and NERC requirements.

"Stray voltage" is a condition that can potentially occur on a property or on the electric service entrances to structures from distribution lines connected to these structures—not transmission lines as proposed here. The term generally describes a voltage between two objects where no voltage difference is expected to exist. More

[65] Public Service Commission of Wisconsin, "Environmental Impacts of Transmission Lines."

precisely, stray voltage is a voltage that exists between the neutral wire of either the service entrance or of premise wiring and grounded objects in buildings such as barns and milking parlors. The source of stray voltage is a voltage that is developed on the grounded neutral wiring network of a building and/or the electric power distribution system.

The power lines will be designed to meet or exceed minimum clearance requirements for electric fencing as specified by the NESC. Nonetheless, insulated electric fences used in livestock operations can be instantly charged with an induced voltage from transmission lines. The induced charge may continuously drain to ground when the charger unit is connected to the fence. When the charger is disconnected either for maintenance or when the fence is being built, shocks may result.

Vehicles or any conductive body under HVTLs will be immediately charged with an electric charge. Without a continuous grounding path, this charge can provide a nuisance shock. Such nuisance shocks are a rare event because, generally, vehicles are effectively grounded through tires. Modern tires provide an electrical path to ground because carbon black, a good conductor of electricity, is added when they are produced. Metal parts of farming equipment are frequently in contact with the ground when plowing or engaging in various other activities. Therefore, the induced charge on vehicles will normally be continually flowing to ground unless they have unusually old tires or are parked on dry rock, plastic, or other surfaces that insulate them from the ground.

7.4.5.1 Impacts

Transmission lines do not, by themselves, create stray voltage because they do not connect directly to businesses or residences. Transmission lines, however, can induce voltage on a distribution circuit that is parallel and immediately under the transmission line. If the proposed transmission lines parallel or cross distribution lines, appropriate mitigation measures can be taken to address any induced voltages. For additional information regarding stray voltage, please see the Minnesota Stray Voltage Guide that is available online at www.minnesotastrayvoltageguide.com or contact your electric utility provider.

Farm equipment, passenger vehicles, and trucks may be safely used under and near power lines. The power lines will be designed to meet or exceed minimum clearance requirements with respect to roads, driveways, cultivated fields, and grazing lands as

specified by the NESC. Recommended clearances within the NESC are designed to accommodate a relative vehicle height of 14 feet.

Buildings are permitted near transmission lines but are generally discouraged within the right-of-way itself because a structure under a line may interfere with the safe operation of the transmission facilities. For example, a fire in a building within the right-of-way could damage a transmission line. The NESC establishes minimum electrical clearance zones from power lines for the safety of the general public, and utilities often acquire easement rights that require clear areas in excess of these established zones. Utilities may permit encroachment into that easement for buildings and other activities when they can be deemed safe and still meet the NESC minimum requirements. Metal buildings may have unique issues due to induction concerns. For example, conductive buildings near power lines of 200 kV or greater must be properly grounded. Any person with questions about a new or existing metal structure can contact the Applicant for further information about proper grounding requirements. The application of NESC requirements and other mitigations (see below) should result in minimal impacts from stray voltage.

7.4.5.2 Mitigation Measures

7.4.5.2.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.4.1, contains the following mitigation related to grounding, electric field and electronic interference: "The Permittee shall design, construct, and operate the transmission line in a manner so that the maximum induced steady-state short-circuit current shall be limited to five milliamperes rms alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one milliampere rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the NESC. The Permittee shall address and rectify any induced current problems that arise during transmission line operation."

In the sample route permit, condition 5.4.2, contains the following mitigation related to electric fields, "The Permittee shall design, construct, and operate the transmission

line in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms."

In the sample route permit, condition 5.3.4, contains the following mitigation related to grounding, electric field and electronic interference: "The Permittee shall design, construct, and operate the transmission line in a manner so that the maximum induced steady-state short-circuit current shall be limited to five milliamperes rms alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one milliampere rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the NESC. The Permittee shall address and rectify any induced current problems that arise during transmission line operation."

7.4.5.2.2 Other Proposed Mitigation

The project purposefully avoids structures within the ROW, with the exception of the MnDOT structure (discussed in 7.3.2). Appropriate measures would be taken to prevent induced voltage problems when the project parallels or crosses objects. Metal buildings might have unique issues due to induction concerns. For example, conductive buildings near power lines of 200 kV or greater must be properly grounded. When fixed objects such as metal sheds or vehicles are subject to electric field induction, grounding through a ground rod is frequently sufficient. The Applicant can provide additional vehicle-specific methods for reducing the risk of nuisance shocks in vehicles. The local electrical utility can provide site-specific information about how to prevent possible shocks related to livestock fences in farming operations.

7.5 Land-Based Economies

This section summarizes the potential impacts the Project would have on land-based economies within the Project area. The Project's construction and operation have the potential to affect land-based economies in Hennepin County through a physical, long-term presence, which could prevent or otherwise limit use of the land for other purposes. The following subsections present an overview of agricultural, forestry,

tourism, and mining operations in the applicable ROIs and discuss how the Proposed Route may affect these industries and what measures the Applicant will implement to mitigate Project effects.

7.5.1 Agriculture

The ROI for agriculture is the route width. Forty percent of the soils in the route width are defined as prime farmland, and 60 percent of the soils in the West Maple Grove Substation Area are defined as prime farmland (Section 7.7.6). Prime farmland, prime farmland if drained, and farmland of statewide importance are described in Section 7.7.6.

In 2022, the average farm size in Hennepin County was 63 acres, which is smaller than the 388-acre average for all Minnesota farms (Table 7-12). Crop sales account for a larger percentage of the total market value of agricultural products compared to livestock sales.[66; 67]

Table 7-12 Agricultural Statistics of Minnesota and Hennepin County

Location	Number of Farms	Average Farm Size (acres)	Land in Farms (acres)	Crop Sales	Livestock Sales
Minnesota	65,531	388	25.4 million (50.0% of state)	$17 billion (60.2%)	$11 billion (39.8%)
Hennepin	511	63	32.4 thousand (9.1% of county)	$51 million (90.7%)	$5 million (9.3%)

Source: [68; 69])

The Conservation Reserve Enhancement Program (CREP) is a voluntary program that pays farmers an annual fee in exchange for taking environmentally sensitive land out of agricultural production to improve environmental health and quality.[70] No

[66] U.S. Department of Agriculture, "2022 Census of Agriculture State Profile: Minnesota," accessed December 26, 2024, https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Minnesota/cp99027.pdf.
[67] U.S. Department of Agriculture, "2022 Census of Agriculture County Profile: Hennepin County, Minnesota," 2022.
[68] U.S. Department of Agriculture, "2022 Census of Agriculture State Profile: Minnesota."
[69] U.S. Department of Agriculture, "2022 Census of Agriculture County Profile: Hennepin County, Minnesota."
[70] U.S. Department of Agriculture, "About the Conservation Reserve Program (CRP)," Conservation Reserve Program, https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/.

agricultural areas within the ROI are part of the CREP. There are also no Reinvest in Minnesota (RIM) lands, other conservation programs administered by USDA, or conservation easements owned by non-government organizations, within the Project area.

7.5.1.1 Impacts

Temporary, minimal construction impacts on agricultural land are consistent across the route width and could include soil compaction and rutting, accelerated soil erosion, crop disturbance, disruption to normal farming activities, and introduction of noxious weeds to soil surface. 6.1.2

While anticipated alignments were developed with attention to minimizing farmland impacts, permanent, moderate impacts to farmland would occur where structures are placed in cultivated fields. Structures in fields act as barriers and can hinder the efficient operation of large machinery. Crop activities would be able to continue around the Project facilities after construction, but at an increased level of difficulty for the farmer. Structures would be placed approximately 400 to 500 feet apart to minimize the number of structures on farmland. If drain tiles are present, the Applicant would work with farmers to avoid and minimize impacts on the drain tiles.

Structure configuration can influence the degree of permanent impacts. Where a transmission line follows a road, structures are placed approximately 10 feet into the field from the road right-of-way and are therefore counted as impacting farmland. Where routes follow property lines, a monopole would be constructed on the property line and, therefore, is not considered an impact.

7.5.1.2 Mitigation

7.5.1.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to agriculture are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.3.7: The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. The Permittee shall use care to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural

surroundings in the vicinity of the Transmission Facility during construction and maintenance. The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads. The Permittee shall place structures at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings.

- Condition 5.3.21: The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.5.1.2.2 Other Proposed Mitigation

Other proposed mitigation includes that the Applicant would implement measures to reduce compaction, soil erosion, and sedimentation. As stated in Section 6.1.2, farmers would be compensated for crops damaged during the construction process and future year crop loss due to soil compaction. Construction, restoration, and maintenance activities would follow a Minnesota Department of Agriculture (MDA) approved AIMP. An MDA approved AIMP and a draft VMP are included in Appendix E and Appendix F, respectively. The draft AIMP was provided to the MDA on December 17, 2025.

7.5.2 Forestry

The ROI for forestry is the route width. The ROI is dominated by low and medium-density development, with wooded lands (deciduous forest, evergreen forest, mixed forest, and woody wetland) making up just 1.0 acre or approximately 2 percent of the Proposed Route. There are no commercial forest operations identified within the Proposed Route. Specific land cover types are further detailed in Map 7. According to the MDNR forest inventory, there are no forest inventory areas within the Proposed Route.[71] Impacts on forest resources will occur at locations where trees need to be cleared within the right-of-way. For potential impacts to vegetation, see Section 7.7.7.

[71] Minnesota Department of Natural Resources - Division of Forestry, "MNDNR Forest Inventory," January 6, 2023, https://gisdata.mn.gov/dataset/biota-dnr-forest-inventory.

7.5.2.1 Impacts

Because there are no known commercial forestry operations in the ROI, there are no anticipated impacts to commercial forestry operations with the construction and operation of the Project.

7.5.2.2 Mitigation

7.5.2.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to forestry are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.3.7: The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. The Permittee shall use care to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the Transmission Facility during construction and maintenance. The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads. The Permittee shall place structures at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings.

Impacts on wooded lands have been reduced by minimizing the tree clearing to the extent feasible. No additional mitigative measures are proposed.

7.5.3 Tourism

The ROI for tourism is the local vicinity. Tourism in the vicinity of the ROI centers around outdoor recreational activities described in Section 7.3.8.5.1 and shopping. Residents and tourists enjoy recreational areas such as parks, paved bikeways, and snowmobile trails. The local economy benefits from tourists who travel from outside the region to enjoy these recreational amenities and shopping. Elm Creek Park Reserve, approximately 0.5 miles from the Project, is a popular regional destination

for events such as festivals and races. Tourism leads to direct and indirect spending of over $9 billion in Hennepin County.[72]

7.5.3.1 Impacts

Construction of the Project is not anticipated to affect available tourism opportunities. Impacts to tourism would be similar to those related to recreation noted in Section 7.3.8.5.1 and would mostly be related to Project construction, which will be temporary and isolated to specific areas.

7.5.3.2 Mitigation

7.5.3.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not contain mitigation measures specific to tourism and states, "The Permittee shall comply with all applicable state rules and statutes."

7.5.3.2.2 Other Proposed Mitigation

Because no impacts to tourism are anticipated, no mitigation measures are proposed.

7.5.4 Mining

The ROI for mining is the route width. Mining operations or opportunities were not identified in the Project area.

7.5.4.1 Impacts

Because no active mines are within the Proposed Route, construction and operation of the Project Components would have no impacts.

7.5.4.2 Mitigation

7.5.4.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not contain mitigation measures specific to mining and states, "The Permittee shall comply with all applicable state rules and statutes."

[72] Tourism Economics, "Minnesota County Tables," Explore Minnesota, n.d., accessed September 5, 2025, https://mn.gov/tourism-industry/assets/Minnesota%20County%20Tables%20-%202023_tcm1135-660871.pdf.

7.5.4.2.2 Other Proposed Mitigation

Because no impacts to mining are anticipated, no mitigation measures are proposed.

7.6 Archaeological and Historic Resources

The ROI for archaeological resources and historic cemeteries is the route width. The ROI for historic resources is the local vicinity, to include resources that may be outside of the route width but within visual range of the Project. The Applicant will consult with the Minnesota State Historic Preservation Office (SHPO) and Tribal Historic Preservation Offices (THPOs) prior to construction to assess the potential for impacts to undocumented cultural resources and to determine whether further cultural resource investigations are warranted.

Archaeological and historic resources provide important information about the history of human occupation and alteration of the landscape over time. Archaeological resources include any location that contains material remains of past human life or activities, or other places and/or items that possess cultural importance to individuals or a group. Historic resources include standing structures, such as buildings and bridges, as well as historic districts and landscapes. Historic cemeteries are recognized burial grounds that hold historical significance due to their age, association with community heritage, and documented cultural context. They are considered cultural resources because they reflect patterns of settlement, religious practices, and social history.

Background research was completed in September 2024 through a review of the Minnesota Office of the State Archaeologist (OSA) online Portal as well as a review of Minnesota's Statewide Historic Inventory Portal (MnSHIP). Data regarding known archaeological and historic resources, identified through previous professional cultural resources surveys as well as public and non-public documentation, were reviewed. This information was gathered for the Project area and then refined to determine known archaeological and historic architectural resources within the ROIs for archaeological and historic resources.

The route width is located within the Central Lakes Deciduous Archaeological Region (Region 4), which covers most of central Minnesota.[73]

Archaeological sites in the Central Lakes Deciduous Region tend to be associated with lakes and major rivers throughout time. Precontact sites, including small campsites, specialized activity sites, and larger village sites, are found along major rivers and larger lakes.[74] At contact with Euro-Americans, Santee Dakota groups occupied the eastern part of the Central Lakes Deciduous Region, and other Dakota groups, such as the Yankton and Yanktonai, controlled the western part. The Ojibwe began to move into the northern part of the region in the mid-1700s and controlled this area by the early 1800s.[75] Historic Native American villages were generally located near major sources of water and/or wild rice beds. By the late 1600s, French traders had entered the region and established posts on some major lakes and rivers, a pattern generally followed by later Euro-American settlers.[76]

Within the route width, no archaeological resources have been documented. One historic cemetery, documented in the OSA Portal, overlaps a portion of the route width and is classified as a separate resource type, distinct from archaeological sites. The Maple Grove/Rush Creek Cemetery is mapped at the Public Land Survey System (PLSS) "40" level in the OSA Portal. While this provides an accurate location of the cemetery at the PLSS quarter-quarter section level, it is not an accurate representation of the cemetery property boundaries. The Maple Grove/Rush Creek Cemetery has well-defined parcel boundaries that are well outside of the route width, on the north side of County Highway 81. One additional cemetery, South Maple Grove Cemetery, has an unknown location and is therefore mapped in the OSA Portal at the 36-square-mile PLSS Township level. It is therefore possible, though unlikely, that South Maple Grove Cemetery is located within the route width.

[73] Minnesota Archaeological Predictive Model, "Anfinson's Archaeological Resource Regions," n.d., https://www.dot.state.mn.us/mnmodel/P3ReportFigures/Fig310.pdf.
[74] Guy E. Gibbon et al., "Chapter 3: Minnesota's Environment and Native American Culture History," Mn/Model Final Report Phases 1-3 (Minnesota Department of Transportation), 2002, https://www.dot.state.mn.us/mnmodel/P3FinalReport/chapter3.html#ch34.
[75] Gibbon et al., "Chapter 3: Minnesota's Environment and Native American Culture History."
[76] Gibbon et al., "Chapter 3: Minnesota's Environment and Native American Culture History."

There are 15 historic architectural resources within the local vicinity. These include houses, farmsteads, bridges, a school, a railroad, and a trunk highway (Table 7-13).

One resource has been evaluated and determined eligible for the National Register of Historic Places (NRHP). Resource XX-RRD-GNR014, the Osseo Branch Line of the Minneapolis and Northwestern Railroad Company/St. Paul Minneapolis and Manitoba Railway Company/Great Northern Railway Company represents the railroad right-of-way between a junction with the St P&P Main Line at Van White Boulevard in Minneapolis and a junction with the St. Vincent Extension in St. Cloud in Hennepin, Wright, and Stearns Counties. It was determined eligible for the NRHP in 2018.[77] This resource is located along the eastern end of the route width, where it parallels a series of existing transmission lines, some of which may be altered as part of the current Project.

Table 7-13 Documented Historic Resources within the Local Vicinity

Inventory Number	Resource Name	Function	NRHP Eligibility
HE-MGC-00005	Glendon Unke Farmstead	Agriculture/Subsistence, Farmstead	Unevaluated
HE-MGC-00007	house	Domestic, Single Dwelling	Unevaluated
HE-MGC-00008	farmstead	Agriculture/Subsistence, Farmstead	Unevaluated
HE-MGC-00009	house	Domestic, Single Dwelling	Unevaluated
HE-MGC-00025	Balvin Farmstead	Agriculture/Subsistence, Farmstead	Unevaluated
HE-MGC-00026	Maple Grove School	Education, School	Unevaluated
HE-MGC-00044	H.C. Larson House	Domestic, Single Dwelling	Unevaluated
HE-MGC-00059	Dale Berthiaume House	Domestic, Single Dwelling	Unevaluated
HE-MGC-00060	Roeder Farmstead	Agriculture/Subsistence, Farmstead	Unevaluated
HE-MGC-00062	Paul Radintz Farmstead	Agriculture/Subsistence, Farmstead	Unevaluated
HE-MGC-00082	Bridge 27959	Transportation, Road-Related (Vehicular)	Unevaluated
HE-MGC-00089	Township Bridge	Transportation, Road-Related (Vehicular)	Unevaluated
HE-MGC-00111	Bridge L8083	Transportation, Road-Related (Vehicular)	Unevaluated
XX-ROD-00185	US Trunk Highway 52	Transportation, Road-Related (Vehicular)	Unevaluated

[77] Andrew Schmidt, "Minnesota Multiple Property Inventory Form: Minneapolis and Northwestern Railroad Company/St. Paul Minneapolis and Manitoba Railway Company/Great Northern Railway Company," Minnesota State Historic Preservation Office, November 23, 2024.

Inventory Number	Resource Name	Function	NRHP Eligibility
XX-RRD-00010	Superseded by XX-RRD-GNR014 (formerly Osseo Branch Line/ St. Paul Minneapolis & Manitoba /Great Northern RR)	n/a	Unevaluated
XX-RRD-GNR014	Osseo Branch Line/ Minneapolis and Northwestern Railroad Company/St. Paul Minneapolis and Manitoba Railway Company/Great Northern Railway Company	Transportation, Rail-Related	Eligible for the NRHP

7.6.1.1 Impacts

Minimal impacts to cultural resources within the route width may occur where ground disturbance is necessary for Project construction and maintenance.

Each new structure foundation will result in approximately 80 square feet of ground disturbance. The new substation will consist of up to 13.5 acres of ground disturbance. Impacts to archaeological and historic resources have the potential to occur in the areas where ground disturbance will occur. Additional impacts can result from transmission line location and operation, such as placement within view of a resource (typically a historic building or structure) that results in a negative effect on the setting, feeling, and/or association of said resource in the viewshed. This issue is especially pertinent when considering historic resources for which the surrounding environment plays a crucial role in defining their character and significance. Archaeological resources are most likely to be located on or near elevated landforms near permanent water sources. Historic resources have, for the most part, been identified within the local vicinity.

7.6.1.2 Mitigation Measures

To address potential adverse effects to archaeological and historic resources identified in the ROI, the Project may need to implement various mitigation measures.

7.6.1.2.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.3.15 contains the following mitigation related to archaeological and historic resources:

The Permittee shall make every effort to avoid impacts to archaeological and historic resources when constructing the Transmission Facility. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize Transmission Facility impacts on the resource consistent with SHPO and OSA requirements.

The Permittee shall develop an Unanticipated Discoveries Plan (UDP) to identify guidelines to be used in the event previously unrecorded archeological or historic properties, or human remains, are encountered during construction, or if unanticipated effects to previously identified archaeological or historic properties occur during construction. The UDP is in addition to and not in lieu of any other obligations that may exist under law or regulation relating to these matters. The Permittee shall file the UDP with the Commission at least 14 days prior to the preconstruction meeting.

The Permittee shall train workers about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall, in accordance with Minn. Stat. Ch. 307 (Private Cemeteries Act), immediately halt construction and promptly notify local law enforcement and the OSA. The Permittee shall not resume construction at such location until authorized by local law enforcement or the OSA. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.6.1.2.2 Other Proposed Mitigation

As stated above, the preferred means of mitigating impacts on archaeological and historic resources is prudent routing or structure placement to avoid known known resources. If significant archaeological resources are identified within the route width, impacts could be mitigated using measures developed in consultation with the OSA, SHPO, and/or THPOs prior to construction.

In addition, if human remains or suspected burial sites are discovered during construction, the OSA, Minnesota Indian Affairs Council (MIAC), and THPOs would

be contacted, and construction would cease at the location until the Applicant and the state archaeologist have completed all requirements pursuant to Minn. Stat. § 307.08.

If cultural resources or mortuary sites/cemeteries are identified prior to construction, avoidance would be the primary mitigation measure. Avoidance of resources could include adjustments to the Project design and designation of sensitive areas to be left undisturbed or spanned by the Project.

In addition, Resource XX-RRD-GNR014, the Osseo Branch Line of the Minneapolis and Northwestern Railroad Company/St. Paul Minneapolis and Manitoba Railway Company/Great Northern Railway Company, is in the local vicinity. This resource is eligible for the NRHP; however, as existing transmission line infrastructure is already present in the vicinity of this resource, the Project is not anticipated to adversely affect it.

A Phase Ia cultural resources literature review report was completed for the Project and submitted to the Minnesota SHPO on January 19, 2026. Coordination with the Minnesota SHPO will be ongoing to determine whether additional cultural resources work is required.

7.7 Natural Environment

Transmission lines have the potential to impact natural resources through temporary, construction-related impacts and long-term impacts to air quality, geology and groundwater, soils, water resources, flora, and fauna.

7.7.1 Air Quality

The ROI for air quality is the Project area. Impacts can occur during the construction and operation of a transmission line. Potential impacts to air quality during construction would be intermittent, localized, short-term, and minimal. Impacts associated with fugitive dust and exhaust and can be mitigated. Long-term impacts to air quality would also be minimal and are associated with the creation of ozone and nitrous oxide emissions along the transmission line. These localized emissions would be below state and federal standards. Impacts are unavoidable and do not affect a unique resource.

7.7.1.1 Existing Conditions

The Clean Air Act is a federal law that regulates air emissions from stationary and mobile sources. The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants, referred to as "criteria pollutants." The six criteria pollutants are ground-level ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and lead (Pb).[78] NAAQS are set to address the public health and welfare risks posed by certain widespread air pollutants.[79; 80]

The Clean Air Act identifies two classes of NAAQS: primary standards, which are limits set to protect the public health of the most sensitive populations, such as asthmatics, children, and the elderly; and secondary standards, which are limits set to protect public welfare, such as protection against visibility impairment or damage to vegetation, wildlife, and structures. Compliance with the national and state air quality standards in the state of Minnesota is assessed at the county level. Minnesota's state air quality standards align with NAAQS. The EPA designates Hennepin County to be in attainment for all NAAQS.

In Minnesota, air quality is monitored using stations located throughout the state. The MPCA uses data from these monitoring stations to calculate the Air Quality Index (AQI) on an hourly basis for O_3, $PM_{2.5}$, SO_2, NO_2, and CO. Each day is categorized based on the pollutant with the highest AQI value for a particular hour.[81]

The Minneapolis/St. Paul air quality monitoring station is in Hennepin County, approximately 15 miles from the Proposed Route. The station monitors for O_3 and $PM_{2.5}$.

[78] U.S. Environmental Protection Agency, "NAAQS Table," Criteria Air Pollutants, February 7, 2024, https://www.epa.gov/criteria-air-pollutants/naaqs-table.
[79] U.S. Environmental Protection Agency, "Summary of the Clean Air Act," Laws & Regulations, accessed March 5, 2024, https://www.epa.gov/laws-regulations/summary-clean-air-act.
[80] U.S. Environmental Protection Agency, "Clean Air Act Requirements and History," Overviews and Factsheets, May 27, 2015, https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history.
[81] Minnesota Department of Health, "Air Quality Index," Air Quality in Minnesota, accessed March 5, 2025, https://data.web.health.state.mn.us/air_aqi.

Table 7-14 summarizes the days in each AQI category at the MPLS/St. Paul monitoring station for the most recent five-year period available, 2019 to 2023.

Table 7-14 Air Quality Index Category by Day (MPLS/St. Paul Station)

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy
2023	163	182	16	4	0
2022	235	130	0	0	0
2021	211	151	0	3	0
2020	210	154	1	1	0
2019	214	151	0	0	0

Source: [82]

Air quality at the MPLS/St. Paul monitoring station has been considered "good" for the majority of the past five reported years, except 2023. During the reporting period, 2023 had the largest number of days classified as moderate or worse, with 182 days classified as moderate, 16 days classified as unhealthy for sensitive groups, and four days classified as unhealthy.

Sensitive receptors to the project have been identified in Map 8 and Map 10.

7.7.1.2 Impacts

The Project will not require an air quality permit, and impacts are expected to be intermittent, localized, short-term, and minimal. Impacts are unavoidable and do not affect a unique resource. Air emissions during construction would primarily consist of emissions from construction equipment and vehicles and would include pollutants such as CO_2, nitrogen oxides (NO_x), and particulate matter (PM). Dust generated from earth-disturbing activities also gives rise to PM_{10}/$PM_{2.5}$. Emissions from construction vehicles could be minimized by using modern equipment with lower emissions ratings. Adverse effects on the surrounding environment are expected to be minimal due to the temporary disturbance during construction and the intermittent nature of the emission- and dust-producing construction phases. If construction activities generate problematic dust levels, the Applicant would employ construction-related practices to control fugitive dust, such as watering.

[82] Minnesota Department of Health, "Air Quality Index."

Federal and state potential to emit (PTE) thresholds trigger the need for an air quality operating permit. These thresholds are presented in Table 7-15.

Table 7-15 Federal and State PTE Thresholds for Air Quality Operating Permits

Pollutant	Federal PTE Threshold (tons/year)	State PTE Threshold (tons/year)
Nitrogen oxides	100	Not Applicable
Sulfur dioxide	100	50
Volatile organic compounds	100	100
Particulate matter less than 10 microns in diameter	100	25
Particulate matter less than 2.5 microns in diameter	100	NA
Carbon monoxide	100	NA
Lead	10	0.5
Greenhouse gases (carbon dioxide equivalent)	100,000	NA
One hazardous air pollutant	10	NA
More than one hazardous air pollutant	25	NA
All other new source review pollutants	100	Not Applicable

Source: [83]

During operations, air emissions are anticipated to be below federal and state thresholds, so an air quality operating permit would not be required, and impacts are considered minimal. Small amounts of emissions would be associated with the intermittent Project operation and maintenance activities via mobile combustion and particulate roadway dust generation. If dust levels become problematic during operation and maintenance activities, the Applicant would employ fugitive dust control practices such as wetting unpaved roads. Cleared rights-of-way, storage areas, and temporary access roads would be restored and revegetated once construction is complete, limiting the potential for further dust production associated with the Project.

During the operation of the transmission line and substation, small amounts of NO_X and O_3 would be created due to corona from the operation of transmission lines. The production rate of O_3 due to corona discharges decreases with lower humidity and

[83] Minnesota Pollution Control Agency, "Air Permits," 2025, https://www.pca.state.mn.us/business-with-us/air-permits.

less significantly with temperature. Rain causes an increase in O_3 production. In addition to weather conditions, the design of the transmission line also influences the O_3 production rate. The O_3 production rate decreases significantly as the conductor diameter increases and is greatly reduced for bundled conductors over single conductors. Conversely, the production rate of O_3 increases with applied voltage.[84] The emission of O_3 from the operation of a transmission line of the voltages proposed for the Project would be minimal.

Emissions would be generated from fuel combustion during routine inspection and maintenance activities. Emissions from routine inspection and maintenance activities would likewise be minimal.

7.7.1.3 Mitigation

7.7.1.3.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to air quality are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.3.23: The Permittee shall utilize non-chloride products for onsite dust control during construction.

Several sections of the sample route permit indirectly mitigate impacts to air quality, including sections related to soil erosion and sediment control, vegetation management, restoration, and pollution and hazardous wastes. Direct impacts to soils can cause indirect impacts to air quality through erosion. Condition 5.3.8 requires permittees to "implement reasonable measures to minimize erosion." This includes protecting exposed soils by promptly planting and seeding, using erosion control blankets, protecting soil stockpiles, and controlling vehicle tracking.

7.7.1.3.2 Other Proposed Mitigation

If construction activities generate problematic dust levels, the Applicant would employ construction-related practices to control fugitive dust as needed. This could include application of water or other commercially available non-chloride dust control agents on unpaved areas subject to frequent vehicle traffic, reducing the speed of

[84] "Corona Effect In Power System," Study Electrical, accessed November 7, 2024, https://studyelectrical.com/2015/12/corona-effect-in-power-system-transmission-lines.html.

vehicular traffic on unpaved roads, and covering open-bodied haul trucks. Fugitive dust emissions are dependent on seasonal conditions; it is anticipated that there will be less of these emissions in the winter due to frozen conditions.

Corona effects would be minimized during operation by using good engineering practices, such as the use of bundled conductors. A corona signifies a loss of electricity, so the Applicant would engineer the transmission lines to limit corona.

7.7.2 Greenhouse Gases

An ROI has not been assigned for greenhouse gas (GHG) emissions, as the influence from GHG emissions cannot be confined by geographic boundaries. Construction activities within the Proposed Route would result in short-term increases in GHG emissions because of the combustion of fossil fuels in construction equipment and vehicles. These emissions would be short-term and minimal. Maintenance activities within the right-of-way would also cause GHG emissions, but to a much lesser extent. Operational impacts from the formation of nitrous oxide and the release of sulfur hexafluoride (SF_6) would be minimal. Impacts are unavoidable but can be minimized.

7.7.2.1 Existing Conditions

Some of the most abundant gases in the atmosphere are known as GHGs. The most common GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. The concentration of GHGs in the atmosphere has a direct relationship to global warming or climate change. GHGs are known to trap heat in Earth's atmosphere by absorbing light energy and emitting a portion of the released energy back towards Earth.[85] Trapped heat in the atmosphere creates a warming effect known as the GHG effect, in which the temperatures of Earth's atmosphere rise as more GHGs are added to the atmosphere. This drives further changes to the climate, affecting precipitation, flooding, and storms.[86]

The amount of energy absorbed by 1 ton of a GHG over a given period is known as the Global Warming Potential (GWP). The order of common GHGs by GWP from

[85] U.S. Environmental Protection Agency, "Understanding Global Warming Potentials," accessed June 21, 2024, https://www.epa.gov/ghgemissions/understanding-global-warming-potentials.
[86] U.S. Environmental Protection Agency, "Climate Change Indicators: Weather and Climate," accessed October 24, 2025, https://www.epa.gov/climate-indicators/weather-climate.

lowest to highest is CO_2, CH_4, N_2O, and fluorinated gases.[87] For ease of comparison, GWPs are calculated relative to the energy absorption of 1 ton of CO_2. Emission of a given GHG is normalized using the GWP; the resultant value is referred to as carbon dioxide equivalent (CO_2e).

7.7.2.2 Impacts

During the construction and operation of the Project, relatively small amounts of GHGs will be generated, indicating minimal impacts. GHG emissions from this Project will be largely from the combustion of fossil fuels such as gasoline and diesel for vehicles, and construction and maintenance equipment. GHGs associated with fuel combustion are CO_2, CH_4, and N_2O. The largest source of GHG emissions from the Project will be from the temporary combustion of fossil fuels in construction equipment and heavy machinery. The construction duration for the transmission line is anticipated to be 8 months, and for the substation is anticipated to be 14 months. Both construction efforts will involve the use of various mobile combustion sources. Construction emissions will be localized to the construction area and are not anticipated to result in long-term impacts. Additionally, GHG emissions will be generated from temporary changes in land carbon sinks and calculated using the emission factors from the Minnesota Environmental Quality Board (EQB) Climate Calculator.[88] GHG emissions resulting from the Project are estimated to be 20,607 tons of CO_2e. Table 7-16 provides a preliminary estimate of the CO_2, CH_4, and N_2O construction emissions. CO_2 and CH_4 emissions were calculated using factors for diesel and gasoline combustion from 40 CFR Part 98 Table C-1 and C-2. Detailed calculations are in Appendix I.

[87] U.S. Environmental Protection Agency, "Understanding Global Warming Potentials."
[88] Minnesota Environmental Quality Board, "Minnesota Climate Calculator," May 2025.

Table 7-16 Greenhouse Gas Emissions from Project Construction

Emission Source	CO_2 (metric tons)	CH_4 (metric tons)	N_2O (metric tons)	CO_2e[1] (metric tons)
Civil Construction	1,007.12	0.04	0.01	1,010.43
Transmission Line Construction	10,882.45	0.44	0.09	10,918.21
Substation Construction	8,603.28	0.35	0.07	8,631.55
Land Use Change	47.12	-	-	47.12
Total	20,539.97	0.83	0.17	20,607.30

[1] CO_2e calculated by equation A-1 of 40 CFR, Part 98.2, which states the total CO2e is equal to the GWP for each pollutant multiplied by the potential pollutant emissions. The GWP for CO2 is 1, CH4 is 25, and N2O is 298.

Most of the GHGs generated from this Project will cease after construction is complete. Emissions resulting from routine operation and maintenance of the transmission line and substation will largely be from the combustion of gasoline or diesel in maintenance equipment and vehicle use. Routine maintenance is expected to occur on an annual basis, and a ground inspection is expected to occur every six years. These activities involve the use of diesel-fueled, mobile combustion sources. Additionally, GHG emissions will be generated from permanent changes in land carbon sinks and calculated using the emission factors from the Minnesota EQB Climate Calculator.[89] Total annual GHG emissions expected from the routine operation and maintenance of this Project are estimated to be 16.23 tons of CO_2e per year. Table 7-17 provides a preliminary estimate of CO_2, CH_4, and N_2O operational emissions. Emissions were calculated using factors from Table C-1 and C-2 of the 40 CFR Part 98. Detailed calculations are in Appendix I.

Table 7-17 Greenhouse Gas Emissions from Operation and Maintenance

Emission Source	CO_2 (metric tons/year)	CH_4 (metric tons/year)	N_2O (metric tons/year)	CO_2e[1] (metric tons/year)
Operation and Maintenance Activities	13.67	5.55E-04	1.11E-04	13.72
Land Use Change[2]	2.51	not applicable	not applicable	2.51
Total	16.18	5.55E-04	1.11E-04	16.23

[1] CO_2e calculated by equation A-1 of 40 CFR, Part 98.2, which states the total CO_2e is equal to the GWP for each pollutant multiplied by the potential pollutant emissions. The GWP for CO_2 is 1, CH4 is 25, and N_2O is 298.
[2] Land use change assumes a 30-year realization.

[89] Minnesota Environmental Quality Board, "Minnesota Climate Calculator."

Potential emissions of fluorinated gas, SF_6, are also associated with this Project. SF_6 is a powerful GHG used in high-voltage circuit breakers in transmission systems. The use of such a substance is extremely common due to its stability and effectiveness at insulating electrical equipment. However, SF_6 emissions from high-voltage circuit breakers are minimal and not expected to occur routinely because they are largely attributed to faulty equipment and leakage.

7.7.2.3 Mitigation

7.7.2.3.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not contain mitigation measures specific to GHG emissions and states, "The Permittee shall comply with all applicable state rules and statutes."

7.7.2.3.2 Other Proposed Mitigation

Efforts to reduce GHG emissions during project construction would include limiting vehicle idling to only times when necessary. Efforts to reduce the project's operational GHG emissions from SF_6 would include following safe handling practices during refilling, avoiding exposure to high temperatures, and monitoring for leaks. Performing routine inspections and preventative maintenance, as well as following manufacturer specifications for replacing SF_6-containing equipment, can mitigate the risk of unexpected emissions from aging equipment.

7.7.3 Climate Change

The ROI for climate change is Hennepin County. The impact analysis for climate change considers existing patterns in the ROI and how the Project could be impacted by climate change, as well as how the Project could affect climate change.

The climate change risks most susceptible to the Project include increases in annual temperatures, increases in storm frequencies and intensities, and more frequent wildfires. The Project would minimally contribute to climate change impacts as a result of GHG emissions. The Project would generally be routed and engineered to be resilient against changing climatic factors such as increased average temperatures. The Project would assist with Minnesota's Next Generation Energy Act goals by increasing regional transmission

reliability, allowing additional carbon-free energy sources to be integrated into the power supply.

7.7.3.1 Existing Conditions

Climate change is observed as changes in temperature and precipitation patterns, increases in ocean temperatures and sea level, changes in extreme weather events, and ecosystem changes. These changes are largely attributed to the greenhouse effect. As the amount of GHGs in Earth's atmosphere increases, the greenhouse effect causes Earth to become warmer.[90]

There are also naturally occurring climate variations. These are cyclical patterns caused by variations in ocean circulation and atmospheric pressure patterns that occur on timescales of weeks to decades. Increased global surface temperatures could change these natural climate patterns and the resulting impact on regional precipitation and temperature anomalies.[91]

Warmer and wetter conditions have been observed in Minnesota since observations first began in 1895, especially in the past several decades. An increase in precipitation volume and intensity has also been observed, including large-area extreme rainstorms. A rise in temperatures, particularly during the winter season in Minnesota, has been occurring as well. These trends are expected to continue.[92]

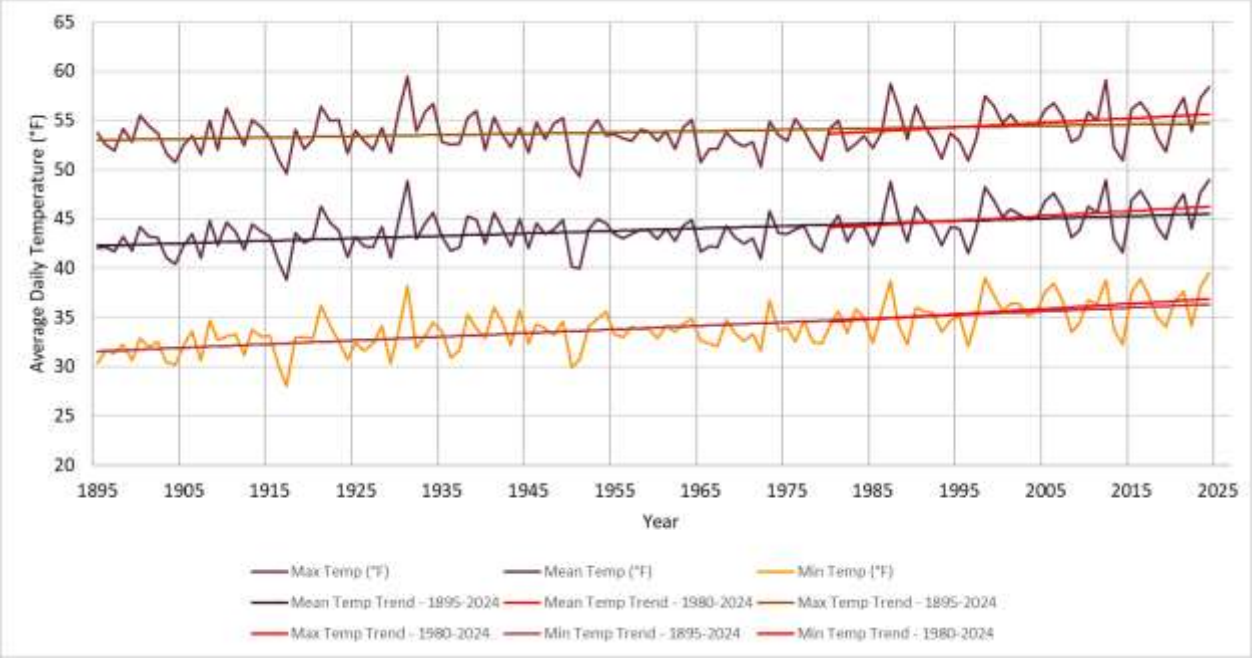
To understand how climate change is anticipated to affect the Project area, historical and projected climate data are considered, as well as climate hazard projections. The DNR's Minnesota Climate Explorer tool provides a summary of historical climate data for various regions across Minnesota.[93] Data was analyzed for Hennepin County.

Figure 8 summarizes the mean, maximum, and minimum average daily temperature from 1895 to 2024 for Hennepin County. It also shows the temperature trends per

[90] U.S. Environmental Protection Agency, "Basics of Climate Change," April 15, 2021, https://www.epa.gov/climatechange-science/basics-climate-change.
[91] Lisa A. Wroble, "Atmospheric and Oceanic Oscillations," EBSCO, 2024, https://www.ebsco.com/research-starters/earth-and-atmospheric-sciences/atmospheric-and-oceanic-oscillations.
[92] Minnesota Department of Natural Resources, "Climate Trends," Climate Change Information, accessed March 5, 2025, https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html.
[93] Minnesota Department of Natural Resources, "Minnesota Climate Explorer," accessed October 17, 2025, https://climate-explorer.dnr.state.mn.us/main/historical.

decade from 1895 to 2024 and from 1980 to 2024 to represent the full record of data and more recent data since 1980, respectively.[94] In each temperature statistic, Hennepin County exhibits an increase in daily temperature from 1895 to 2024. The annual average minimum temperature has increased at the largest rate of the three temperature statistics for the full record of data and for data from 1980 to 2024. Table 7-18 summarizes the trends for mean, maximum, and minimum average daily temperatures.

Figure 8 Historical Annual Mean, Maximum, and Minimum Daily Air Temperature (°F) for Hennepin County from 1895 to 2024



[94] Minnesota Department of Natural Resources, "Minnesota Climate Explorer."

Table 7-18 Historical Annual Mean, Maximum, and Minimum Daily Air Temperature Trends for Hennepin County

Temperature Statistic	Years	Trend (°F/decade)
Minimum Average Daily	1895-2024	+0.37
Minimum Average Daily	1980-2024	+0.52
Mean Average Daily	1895-2024	+0.25
Mean Average Daily	1980-2024	+0.48
Maximum Average Daily	1895-2024	+0.13
Maximum Average Daily	1980-2024	+0.45

Figure 9 shows the total annual precipitation for Hennepin County from 1895 to 2024. Total annual precipitation has increased from 1895 to 2024 by a rate of +0.24 inches/decade and decreased from 1980 to 2024 by a rate of -0.05 inches/decade.

Figure 9 Historical Total Annual Precipitation (inches) for Hennepin County from 1895 to 2024

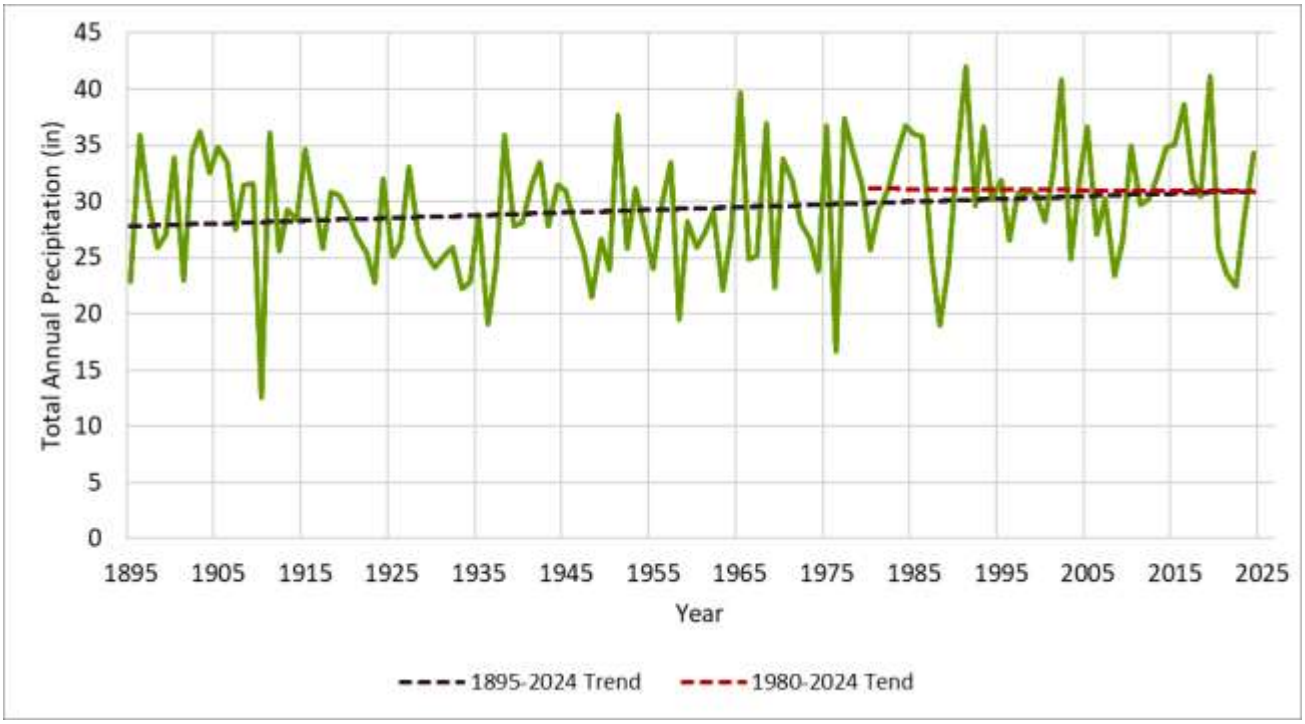
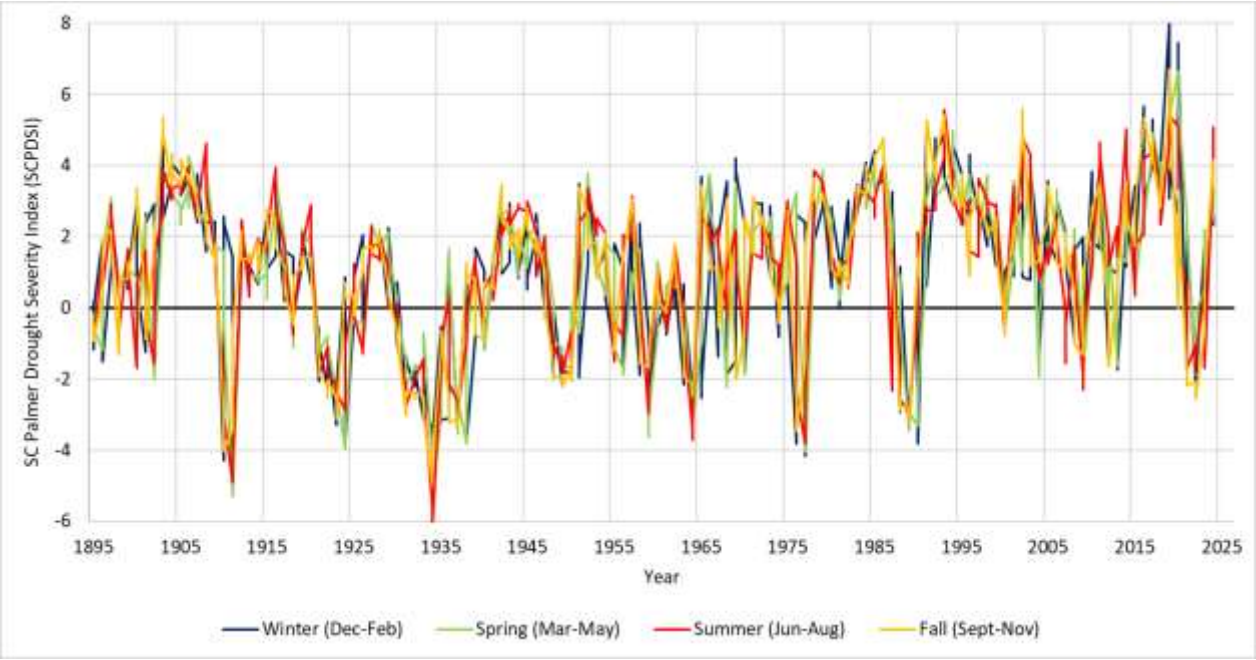


Figure 10 shows the seasonal drought severity for Hennepin County from 1895 to 2024 using the Self-Calibrated Palmer Drought Severity Index (scPDSI). The scPDSI is a meteorological drought index that measures the departure of moisture. Negative scPDSI values indicate drought conditions, positive values indicate wet conditions, and values near zero indicate normal conditions.[95] Hennepin County experienced frequent drought episodes from 1910 to 1940 and 1950 to 1975. From 1990 to 2024, seasonal wet conditions have generally been more frequent than drought conditions.

Figure 10 Historical Drought Severity for Hennepin County from 1895 to 2024



Future projections are based on the Minnesota dynamically downscaled climate model data that was developed by the University of Minnesota and are summarized in three scenarios: Shared Socioeconomic Pathway (SSP) 245, SSP370, and SSP585. SSP is a measure adopted by the Intergovernmental Panel on Climate Change (IPCC) to represent various greenhouse gas concentration pathways as well as social and economic decisions.[96]

[95] Brian Fuchs, "Palmer Drought Severity Index (PSDI and scPDSI)," May 2012.
[96] University of Minnesota Climate Adaptation Partnership, "Modeling Minnesota's Future Climate: The Agricultural Weather Study," accessed October 15, 2025, https://climate.umn.edu/climate-projections.

SSP245 represents a "Middle of the Road" scenario in which economic, social, and technological trends follow historical patterns, population growth is moderate, and inequality persists. Additionally, SSP245 includes an intermediate emissions scenario, where a net radiative forcing of 4.5 watts per meter squared (W/m^2) is received by Earth due to the greenhouse gas (GHG) effect, and emissions begin to decrease around 2040.[97]

SSP370 represents a "Regional Rivalry" scenario where nations focus on regional issues instead of cross-collaboration and development. SSP370 also includes a high emissions scenario, where a net radiative forcing of 7.0 W/m^2 is received by Earth.[98]

SSP585 represents a "Fossil-fueled Development" scenario where there is increased development in competitive markets driven by an increased global consumption of fossil fuels. SSP585 also includes a very high emissions scenario, where a net radiative forcing of 8.5 W/m^2 is received by Earth and no emissions are reduced through 2100.[99]

Table 7-19 shows the historical and projected temperature values for the Project. Under all scenarios for each statistic, temperature values are projected to increase through the end of the 21st century. The largest increases occur in the minimum daily temperature under most scenarios.

[97] University of Minnesota Climate Adaptation Partnership, "Modeling Minnesota's Future Climate: The Agricultural Weather Study."
[98] University of Minnesota Climate Adaptation Partnership, "Modeling Minnesota's Future Climate: The Agricultural Weather Study."
[99] University of Minnesota Climate Adaptation Partnership, "Modeling Minnesota's Future Climate: The Agricultural Weather Study."

Table 7-19 Historical and Projected Temperature Trends for the Project

Scenario	Period	Average Daily Temperature (°F) – Ensemble Mean	Minimum Daily Temperature (°F) – Ensemble Mean	Maximum Daily Temperature (°F) – Ensemble Mean
Historical	1995-2014	45.3	36.3	57.2
ssp245	2040-2059	49.1 (+3.8)	40.2 (+3.9)	60.7 (+3.5)
ssp245	2060-2079	50.5 (+5.1)	41.7 (+5.4)	62.0 (+4.8)
ssp245	2080-2099	52.1 (+6.8)	43.3 (+7.0)	63.7 (+6.5)
ssp370	2040-2059	50.3 (+5.0)	41.1 (+4.8)	62.4 (+5.2)
ssp370	2060-2079	52.5 (+7.1)	43.4 (+7.1)	64.4 (+7.2)
ssp370	2080-2099	54.4 (+9.0)	45.5 (+9.2)	66.0 (+8.8)
ssp585	2040-2059	49.7 (+4.4)	40.8 (+4.5)	61.4 (+4.2)
ssp585	2060-2079	52.5 (+7.2)	43.8 (+7.5)	63.9 (+6.7)
ssp585	2080-2099	56.9 (+11.6)	48.5 (+12.2)	68.0 (+10.8)

Note: Values in parentheses represent the difference from the modeled historical value.

Table 7-20 shows the historical and projected precipitation values for the Project. Under the SSP245 scenario, a slight increase in precipitation is projected. Under SSP370, a decrease in precipitation from modeled historical values is projected to occur under all time periods (largest occurring before 2060). For SSP585, an increase in precipitation from modeled historical values is projected.

Table 7-20 Historical and Projected Precipitation Trends for the Project

Scenario	Period	Total Annual Precipitation (in) - Ensemble Mean
Historical	1995-2014	33.3
ssp245	2040-2059	34.5 (+1.1)
ssp245	2060-2079	34.2 (+0.9)
ssp245	2080-2099	33.2 (-0.1)
ssp370	2040-2059	28.7 (-4.6)
ssp370	2060-2079	29.5 (-3.8)
ssp370	2080-2099	33.6 (+0.3)
ssp585	2040-2059	33.4 (+0.1)
ssp585	2060-2079	37.0 (+3.6)
ssp585	2080-2099	38.1 (+4.8)

Note: Values in parentheses represent the difference from the modeled historical value.

The EPA Climate Resilience Evaluation and Awareness Tool (CREAT) provides 100-year storm intensity projections to help with planning for water, wastewater, and

stormwater utilities.[100; 101] A 100-year storm is an event that has a one percent chance of occurring in a given year. The CREAT tool considers two time periods, 2035 and 2060. For each time period, two scenarios are considered: a 'Not as Stormy' future and a 'Stormy' future. In Maple Grove, the 2035 time period shows a 2.5 percent increase in the 100-year storm intensity for the 'Not as Stormy' scenario, and a 13.7 percent increase for the 'Stormy' scenario. The 2060 time period shows a 4.9 percent increase in the 100-year storm intensity for the 'Not as Stormy' scenario, and a 26.6 percent increase for the 'Stormy' scenario.

The First Street Risk Factor risk assessment and map tool was used to determine a risk assessment for Hennepin County to help identify current and future climate change risks.[102] In Hennepin County, flood risk is major, wildfire risk is moderate, wind risk is minor, air quality risk is minor, and heat risk is minor.[103; 104; 105; 106; 107]

7.7.3.2 Impacts

The Project would result in GHG emissions that could minimally contribute to climate change impacts such as changes in temperature, precipitation, and extreme weather events. These emissions are discussed in Section 7.7.2.2. Energy projects are generally considered critical facilities and require extra attention when considering climate change risks. The climate change risks most susceptible to the Project include

[100] U.S. Environmental Protection Agency, "CREAT Climate Change Scenarios Projection Map," accessed March 5, 2025, https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=3805293158d54846a29f750d63c6890e.
[101] U.S. Environmental Protection Agency, "Climate Resilience Evaluation and Awareness Tool Version 3.1 Methodology Guide," March 2021, https://www.epa.gov/sites/default/files/2021-03/documents/creat_3.1_methodology_guide_march_2021.pdf.
[102] First Street Technology, Inc., "Hennepin County, MN Flood Map and Climate Risk Report," First Street Technology, Inc., n.d., https://firststreet.org/county/hennepin-county-mn/27053_fsid/flood.
[103] First Street Technology, Inc., "How Is My Flood Factor Calculated?," First Street, accessed April 16, 2025, https://help.firststreet.org/hc/en-us/articles/360047585694-How-is-my-Flood-Factor-calculated.
[104] First Street Technology, Inc., "How Is My Fire Factor Calculated?," First Street, accessed April 16, 2025, https://help.firststreet.org/hc/en-us/articles/5720695888151-How-is-my-Fire-Factor-calculated.
[105] First Street Technology, Inc., "How Is My Wind Factor Calculated?," First Street, accessed April 16, 2025, https://help.firststreet.org/hc/en-us/articles/12417022327831-How-is-my-Wind-Factor-calculated.
[106] First Street Technology, Inc., "How Is My Air Factor Calculated?," First Street, accessed April 16, 2025, https://help.firststreet.org/hc/en-us/articles/21257634620951-How-is-my-Air-Factor-calculated.
[107] First Street Technology, Inc., "How Is My Heat Factor Calculated?," First Street, accessed April 16, 2025, https://help.firststreet.org/hc/en-us/articles/7948167738263-How-is-my-Heat-Factor-calculated.

increases in annual temperatures, increases in storm frequencies and intensities, and more frequent wildfires.

High temperatures can affect the sagging of a transmission line conductor and its thermal tolerance. Changes in storm timing and intensity may increase landslide potential in areas of steeper terrain and increase the risk of local flooding. Due to increases in annual temperatures, there may be periods of dry weather and concerns of wildfires caused by increases in drought severity.

7.7.3.3 Mitigation

7.7.3.3.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not contain mitigation measures specific to climate change and states, "The Permittee shall comply with all applicable state rules and statutes."

7.7.3.3.2 Other Proposed Mitigation

Below is a list of the key resiliency efforts for the Project:

- The Project would be routed and engineered to be resilient under changing climatic factors, including increased average temperatures. The transmission lines would be built to meet or exceed local, state, and NESC standards consistent with the Applicant's criteria for ambient weather conditions.
- The transmission line facilities would be maintained to meet or exceed NERC reliability standards and NESC requirements that address vegetation management, including the increase of noxious weeds that could occur from changed climate conditions that allow them to spread.
- Tree clearing along shorelines will be minimal, and associated changes to water temperatures are not anticipated.
- During construction, a SWPPP would be implemented to manage stormwater and reduce the potential for runoff and erosion. Where areas are subject to higher rates of erosion, vegetation establishment would be achieved within the timelines required in the SWPPP, thereby minimizing potential impacts for erosion. During the Project's operations, vegetative cover would minimize potential for erosion impacts to waterways. Storm events would also be

considered during the SWPPP development to design permanent stormwater features.

- The Applicant will follow a Vegetation Management Plan (VMP) (Appendix F) during construction and restoration.
- During operation, wildfire-prone debris could be removed as a maintenance activity.

The following sections describe water resources located within the route width. These include groundwater, creeks, floodplains, wetlands, and constructed (man-made) drainage features. Hydrologic features in the route width are limited due to the small scale of the Project.

7.7.4 Groundwater and Geology

The ROI for groundwater and geology is the route width. Groundwater in Minnesota is divided into six aquifer provinces based on glacial geology and bedrock.[108] The ROI is within the East-Central Groundwater Province (Map 11). The East-Central Groundwater Province is characterized by buried sand aquifers under relatively extensive surficial sand plains, part of a thick layer of sediment deposited by glaciers overlaying the bedrock.[109] Depth to the water table along the route width varies, but averages in the 10-to-20-foot and 20-to-30-foot classes. Wells in the route width range from 65 to 330 feet deep, with the median depth around 93 feet.

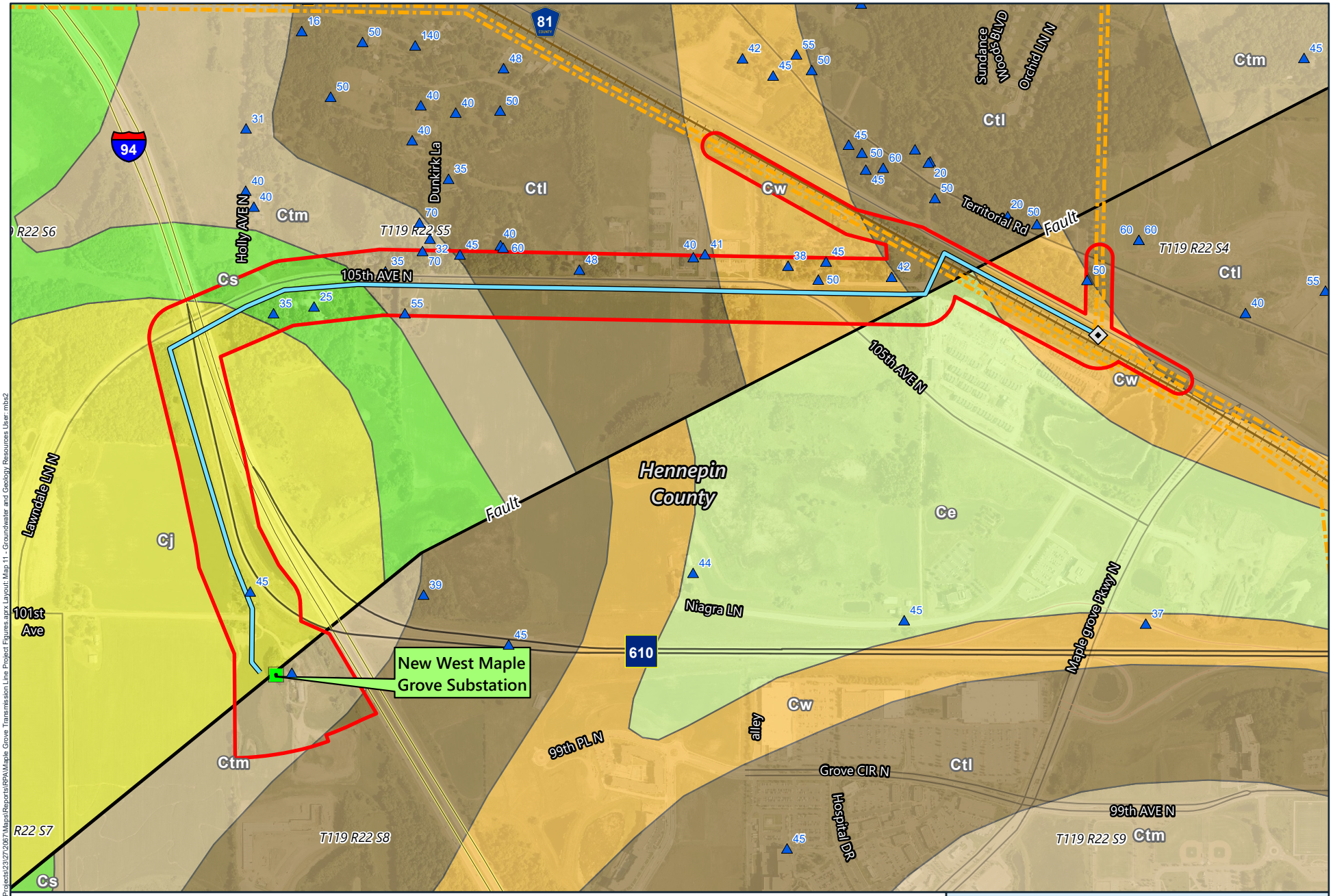
Geospatial review of the Minnesota County Well Index identified 15 private wells occurring within the route width. No municipal water supply wells, Minnesota Department of Health wellhead protection areas, or EPA sole source aquifers occur within the route width. The route width does not overlap a Drinking Water Supply Management Area, the nearest of which (Minneapolis, St. Paul, and St. Cloud Priority A Drinking Water Supply Management Area) begins about a quarter mile to the east of the route width.

[108] Minnesota Department of Natural Resources, *Minnesota Groundwater Provinces 2021*, n.d., 1:3,500,000, https://files.dnr.state.mn.us/waters/groundwater_section/mapping/provinces/2021-provinces.pdf.
[109] Minnesota Department of Natural Resources, *Minnesota Groundwater Provinces 2021*.

The surficial geology within the ROI includes sediments deposited by the Des Moines Lobe (including the Grantsburg Sublobe) during the last glacial maximum (Wisconsinan Episode) spanning approximately 10,000 to 75,000 years ago. Deposits consist of loam-textured, unsorted sediment; pebbly, with scattered cobbles and rare boulders, and till deposits form a low, undulating topography.

Bedrock underlying the ROI is composed of formations from the Cambrian Age, consisting predominantly of sandstone and siltstones. It includes the Jordan Sandstone and St. Lawrence Formation in the western portion of the ROI, and the Mazomanie and Lone Rock Formations of the Tunnel City Group in the eastern portion of the ROI along CSAH 81. A karst feature is characterized as a location underlain by limestone that has been eroded by dissolution, producing caves, fissures, or sinkholes. According to the MDNR Karst Feature Inventory, there are no karst features located within the route width. The nearest isolated karst features are approximately 9 miles northeast of the route width near Ramsey, Minnesota, and 12 miles south near Minnetonka, Minnesota.

No geologic hazards such as sinkholes, springs, karst features, or active faults were identified along the ROI.


Anticipated Alignment
Proposed Route
Proposed Tap Point
Proposed Substation
Existing High-Voltage Transmission Line
County Well Index*
Geologic Unit
Cj,Jordan Sandstone
Cs,St. Lawrence Fm
Ctm,Tunnel City Gp, Mazomanie Fm
Ctl,Tunnel City Gp, Lone Rock Fm
Cw,Wonewoc Sandstone
Ce,Eau Claire Fm
* Labeled with depth to static water level
0
500
1,000
Feet
N
GROUNDWATER AND GEOLOGY RESOURCES
NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT
MAP 11
Xcel Energy®
Barr Footer: ArcGISPro 3.5.3, 2025-10-06 13:35 File: I:\Projects\23\2720\87\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 11 - Groundwater and Geology Resources User: mbs2
94
81
610
Holly AVE N
Dunkirk La
105th AVE N
Territorial Rd
Fault
Sundance Woods BLVD
Orchid LN N
Lawndale LN N
101st Ave
Niagra LN
Maple grove Pkwy N
99th PL N
alley
Grove CIR N
Hospital DR
99th AVE N
Hennepin County
New West Maple Grove Substation
T119 R22 S4
T119 R22 S5
T119 R22 S8
T119 R22 S9
R22 S6
R22 S7
Ctm
Ctl
Cw
Cs
Cj
Ce

7.7.4.1 Impacts

Construction of the Project will not alter the geology of the region; therefore, with no impacts, no mitigation is proposed for geology.

The construction and operation of the Project is not anticipated to adversely impact groundwater resources. The Applicant will conduct geotechnical analyses where appropriate and, although not anticipated, evaluate whether karst areas are present at structure locations, and structure foundation design will account for the presence of karst and the potential for dewatering, if needed. Neither a dewatering permit nor a water appropriations permit is anticipated to be required during construction. If geotechnical analyses determine that temporary dewatering or water appropriations would be required, the Applicant will coordinate with the MDNR to obtain the necessary permits.

Documented active wells are present within the route width. Minimal impacts are anticipated. Potential impacts to groundwater could also occur during construction (specifically installation of foundations) if artesian groundwater conditions are present and the confining layer is breached by structure foundations. Artesian groundwater conditions can be found throughout the state of Minnesota and are not limited to certain areas of geography.

7.7.4.2 Mitigation Measures

7.7.4.2.1 Commission Sample Route Permit

The sample route permit (Appendix G) does not include mitigation measures specific to groundwater or geology.

7.7.4.2.2 Other Proposed Mitigation

To minimize potential impacts to groundwater, the Applicant would store materials, including fuel and gasoline, in sealed containers to prevent spills, leaks, or other discharges to soil and groundwater in accordance with the SWPPP during construction.

Impacts would be minimized and/or mitigated by identifying the pressurized conditions associated with artesian groundwaters and extents (if encountered) and developing and implementing a plan to manage pressurized groundwater conditions should they be encountered.

7.7.5 Surface Waters

Under the heading of Surface Waters, the following resources are described for the Project within the route width or other specified ROI: watersheds, Minnesota Public Waters, specially-designated watercourses including trout streams, impaired waters, and infested waters, NWI wetlands, calcareous fens, and floodplains.

7.7.5.1 Watersheds

The ROI for surface water is the route width. Hydrological units, identified by numerical Hydrologic Unit Codes (HUC), are a system of identified areas within the United States used for cataloging water drainage areas. Desktop GIS review showed the ROI within the Mississippi Headwaters 4-digit HUC-0701; Twin Cities 8-digit HUC-07010206; and Elm Creek 10-digit HUC-070102601.

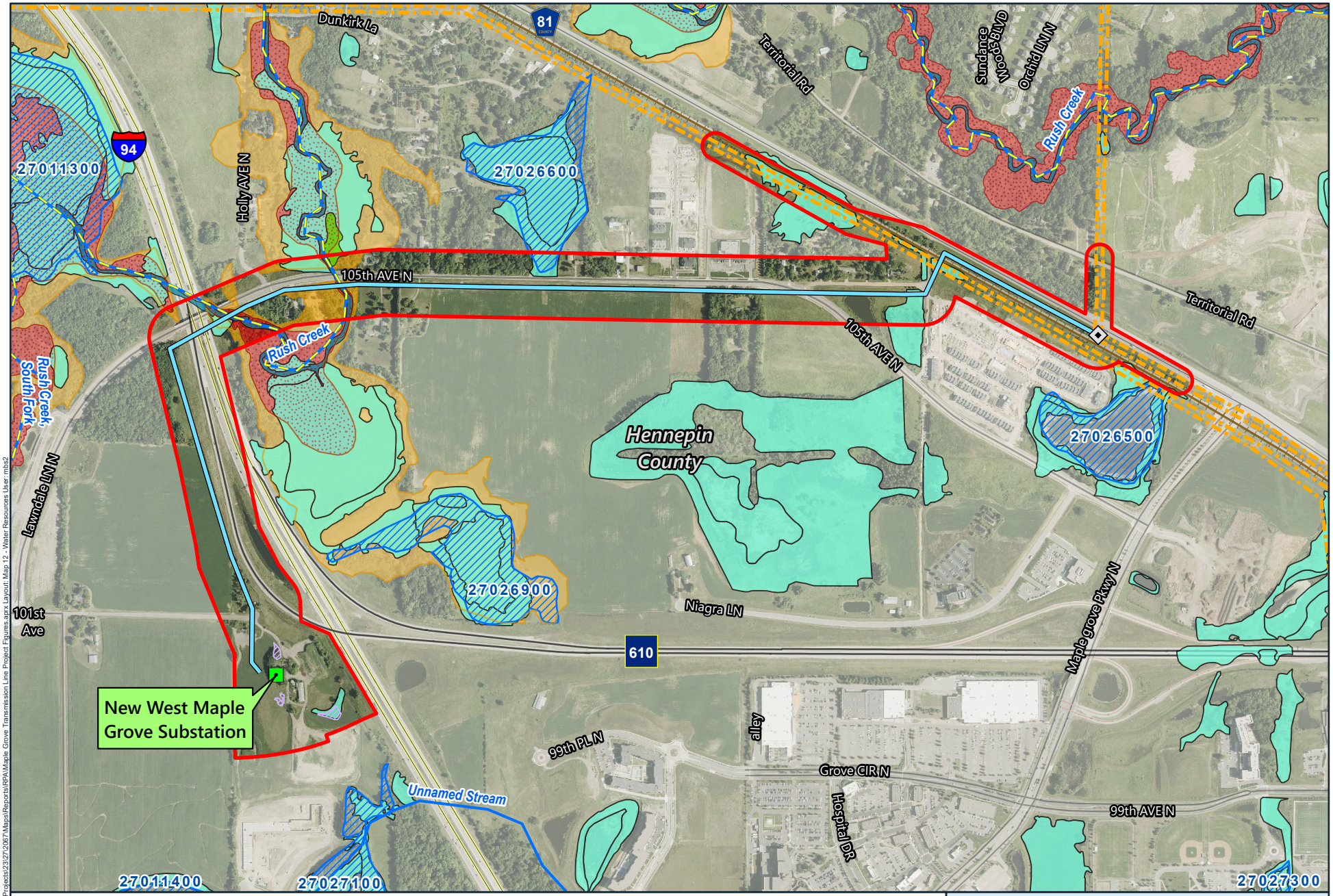
7.7.5.2 Minnesota Public Waters

The MDNR designates public waterbodies and watercourses that constitute public waters as defined by Minn. Stat. § 103G.005, subd. 15, which requires a utility crossing permit from the DNR (Section 2.4 for more details). The MDNR Public Waters Inventory (PWI) dataset in a desktop GIS review showed one PWI watercourse (crossing Rush Creek in two locations) and two intersections with PWI public water wetlands within the ROI (Table 7-21). The PWI public water wetlands are within the ROI, but the anticipated alignment does not cross them. These PWI waterbodies, wetlands, and watercourses are regulated by the MDNR; Minnesota's Buffer Law requires perennial vegetation buffers of up to 50 feet along rivers, streams, and ditches.[110] Locations of the PWI inventory are displayed in Map 12.

[110] Minnesota Department of Natural Resources, "Public Waters Inventory Update Fact Sheet (FAQ)," August 2025, https://files.dnr.state.mn.us/waters/watermgmt_section/pwi/2025-08-06-pwi-update-fact-sheet.pdf.

Table 7-21 Inventoried Public Waters Located within the Route Width

PWI Number	PWI Name (PWI ID)	PWI Type	Length or Area in Route Width
1	Rush Creek	Public Water Inventory Stream	533 feet
2	Rush Creek	Public Water Inventory Stream	704 feet
3	Unnamed - 27026600	Public Water Basin	.51 acre
4	Unnamed – 27026500	Public Water Basin	.88 acre



Proposed Alignment
Proposed Route
Proposed Tap Point
Proposed Substation
Existing High-Voltage Transmission Line
PWI Wetland (DNR)

National Wetland Inventory
Freshwater Emergent
Freshwater Shrub/ Emergent
Riverine
Ground Delineated Wetland
Freshwater Emergent

PWI Watercourse
Impaired Stream (MPCA, 2024)
National Flood Hazard Area
Flood Zone A/AE
Flood Zone AE Floodway

N

0 1,000
Feet

WATER RESOURCES

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 12

Xcel Energy®

Barr Footer: ArcGISPro 3.5.3, 2025-10-06 13:35 File: I:\Projects\23\2720\87\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 12 - Water Resources User: mbs2

7.7.5.3 Trout Streams

The MDNR designates trout streams within the state of Minnesota to protect and foster the propagation of trout. There are no designated trout streams within the route width.

7.7.5.4 Impaired Waters

The Clean Water Act (CWA), Section 303(d) requires each state to identify and prioritize waters that are impaired or in danger of becoming impaired. For these waters, states calculate and allocate pollution reduction levels necessary to meet approved water quality standards.[111] The MPCA updates this list of impaired waters every two years. Current publicly available GIS data indicates one impaired watercourse within the route width (Table 7-22).

Table 7-22 Impaired Waters

Type	AUID	Name	Impairment	Length in Route Width
Watercourse	0701206-528	Rush Creek	Chloride, E. coli, fish, and macroinvertebrates	1,237 feet

Source: [112]

7.7.5.5 Infested Waters

The MDNR adds a lake, river, pond, or wetland to the Infested Waters list if it: 1) contains an aquatic invasive species that could spread to other waters; or, 2) connects to a body of water where an aquatic invasive species is present. The MDNR designates a water as Infested Waters if it contains the following species:

1. Eurasian watermilfoil
2. Faucet snail
3. New Zealand mudsnail
4. Zebra mussel

[111] Minnesota Department of Natural Resources, *Minnesota Groundwater Provinces 2021*.
[112] Minnesota Pollution Control Agency, "2024 Minnesota's Impaired Waters," Spreadsheet, April 1, 2024, https://www.pca.state.mn.us/water/minnesotas-impaired-waters-list.

5. Ruffe
6. Round goby
7. Spiny water flea
8. Viral hemorrhagic septicemia fish disease
9. White perch.

Activities within Infested Waters are regulated under Minn. R. chapter 6216 to prevent the spread of aquatic invasive species. The current Infested Waters list was updated on June 30, 2025, by the MDNR. There are no designated infested waters within the route width.[113] GIS review showed the nearest infested water as Rice Lake in Hennepin County, approximately a mile and a half south of the route width, which is listed for Eurasian watermilfoil.

7.7.5.6 NWI Wetlands

The ROI for wetlands is the route width. The route width for this Project falls within the Midwest region of the U.S. Army Corps of Engineers' (USACE's) regional wetland designations. This region is characterized by its generally flat to rolling topography, fertile soils, and moderate to abundant rainfall.[114] Most of the wetlands in the Midwest Region that are not modified by agricultural use can be classified generally as prairie wetlands, riverine wetlands, and eastern forested wetlands.

According to the GIS review in the USFWS National Wetlands Inventory (NWI) database, the route width contains approximately 9 acres of wetlands (Map 12). The majority of the wetlands are classified as seasonally flooded wetlands (Table 7-23). One narrow portion of a PWI wetland intersects the route width on its northern margin. The route width overlaps with about 0.8 of an acre of this wetland.

Table 7-24 summarizes the wetlands within the West Maple Grove Substation Area. There is a single NWI wetland identified in the Substation Area. Two additional small

[113] Minnesota Pollution Control Agency, "2024 Minnesota's Impaired Waters."
[114] U.S. Army Corps of Engineers, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*, ERDC/EL TR-10-16, ed. Dr. James S. Wakeley et al. (U.S. Army Engineering Research and Development Center, 2010).

segments of freshwater emergent wetland have been ground delineated within the proposed West Maple Grove Substation Area.

Table 7-23 National Wetlands Inventory wetlands located within the Route Width

Wetland Type	Cowardin Class.[1]	Circular 39 Class.[2]	Acres
Seasonally Flooded Wetlands	Freshwater Emergent - PEM1A	1	8.8 acres
Riverine	Riverine - R2UBH	90	.22 acres
			Approx. 9 acres total

[1] Source: [115]
[2] Source: [116]

Table 7-24 National Wetlands Inventory wetlands within the West Maple Grove Substation Area

Wetland Type	Cowardin Class[1]	Circular 39 Class[2]	Acres
Seasonally Flooded Wetlands	Freshwater Emergent - PEM1A	1	0.45 acres

[1] Source: [117]
[2] Source: [118]

7.7.5.7 Calcareous Fens

Calcareous fens are rare, distinctive peat-accumulating wetlands that depend on a constant supply of calcium and other mineral-rich groundwater. This unique microenvironment can support highly diverse and unique plant communities. According to the MDNR's Identification List of Known Calcareous Fens, there are no known calcareous fens located within the route width.[119] The nearest calcareous fen is approximately 23 miles south of the route width in Carver County.[120]

[115] L. M. Cowardin et al., *Classification of Wetlands and Deepwater Habitats of the United States*, FWS/OBS079/31 (U.S. Fish and Wildlife Service, 1979), http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm.
[116] S. P. Shaw and C. G. Fredine, *Wetlands of the United States - Their Extent and Their Value to Waterfowl and Other Wildlife*, Circular 39 (U.S. Department of the Interior, Fish and Wildlife Service, Office of River Basin Studies, 1956), 67.
[117] Cowardin et al., *Classification of Wetlands and Deepwater Habitats of the United States*.
[118] Shaw and Fredine, *Wetlands of the United States - Their Extent and Their Value to Waterfowl and Other Wildlife*.
[119] Minnesota Department of Natural Resources, "Identification List of Known Calcareous Fens," October 2021, https://files.dnr.state.mn.us/eco/wetlands/calcareous_fen_list.pdf.
[120] Minnesota Department of Natural Resources, "Identification List of Known Calcareous Fens."

7.7.5.8 Floodplains

A floodplain is flat, or nearly flat, land adjacent to a river or stream that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which includes areas covered by the flood but which do not experience strong current. Floodplains function to prevent damage by detaining debris, sediment, water, and ice. The Federal Emergency Management Agency (FEMA) delineates floodplains and determines flood risks in areas susceptible to flooding. FEMA designates floodplain areas based on the percent chance of a flood occurring in that area every year. These areas include the 100-year floodplain, which has a one percent chance of flooding each year, and the 500-year floodplain, which has a 0.2 percent chance of flooding each year.

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

The route width crosses FEMA-designated 100-year floodplain areas. The 100-Year floodplain areas are associated with Rush Creek, which intersects a portion of the Project area. Table 7-25 provides the total acres of the Proposed Route located within FEMA-designated floodplains. Map 12 displays this data in a spatial form.

Table 7-25 Acres of Floodplain within the Route Width

FEMA Floodplain Layer	Acres within the Route Width
Floodway	1.9
100 Year floodplain (Zone A and AE)	5.3

7.7.5.9 Impacts for Surface Waters

Direct impacts would be avoided by spanning across the watercourses and wetlands / floodplains. No in-water work would be required. Minimal impacts in the route width could include sedimentation to Rush Creek caused during construction due to ground disturbance by excavation, grading, construction traffic, and dewatering of holes

drilled for transmission structures. This could temporarily degrade water quality by causing turbidity and increased total suspended solids. These impacts will be avoided or minimized using appropriate sediment control practices and construction practices. These practices will be detailed in the NPDES permit and SWPPP that will be completed prior to the start of construction. Because this segment of the river is a recreational river segment, the NDPES permit will comply with items of the Minnesota Construction Stormwater Permit section 23, Discharges to Special and Impaired Waters.

Once the Project is completed, there will be negligible impact on surface water quality during the course of operation because construction impacts will be minimized and mitigated, disturbed soil will be restored to previous conditions or better, and the amount of land area converted to an impervious surface will be limited to the construction of the West Maple Grove Substation, which would convert less than 5 acres of land to impervious surface.

The Applicant will maintain sound water and soil conservation practices during construction and operation of the Project to protect topsoil and adjacent water resources and minimize soil erosion. Construction will be completed according to NPDES permit requirements and an approved AIMP (Appendix E) and VMP (Appendix F).

Construction equipment will not cross watercourses unless necessary; if crossing is necessary, the crossing will be appropriately permitted, and the Applicant will consult with the appropriate local, state, and/or federal agencies. Where watercourses must be crossed to string new conductors and shield wires, workers may walk across, use boats, or drive equipment across ice in the winter, or use construction matting. Equipment fueling and other maintenance will be performed more than 100 feet from wetlands and surface waters. These construction practices will help to prevent soil erosion and reduce the risk of a spill reaching surface water.

Temporary, minimal impacts to wetlands may occur if they need to be crossed during the transmission line construction. No staging or stringing setup areas will be placed within or adjacent to water resources to the extent feasible. If a terminal dead-end structure is in or adjacent to water resources, and there is no other location in that stringing section of line to pull from/to, stringing areas may need to be placed within or adjacent to water resources; this is rare and in most cases the Applicant would be

able to pull through such a dead-end and avoid a setup in or adjacent to water resources. If stringing areas need to be located within a water resource, the Applicant will consult with the MDNR, USACE, and the City of Maple Grove to obtain the required approvals prior to the disturbance.

There are three small areas of delineated wetland within the West Maple Grove Substation Area, which total approximately 0.36 acres in area. It is anticipated that these will be filled. The Applicant will coordinate with the relevant agency and will apply for a permit once design details are available. Mitigation may be required, typically in the form of wetland replacement credits, for permanent fill of wetland areas. A mitigation determination from the appropriate Local Government Units (LGUs) may be required in compliance with the Minnesota Wetland Conservation Act (WCA). The Applicant will coordinate with the LGU and apply for a permit if required once design details are available.

The Project is not anticipated to require transmission line structures to be placed within FEMA-designated 100-year floodplains and floodways (Map 12). The floodplain could be temporarily disturbed by construction site access and the placement of construction access if such structures are determined necessary. The contractor will use BMPs to reduce impacts to the floodplain as discussed in Section 6, including avoiding placement in sensitive areas, use of construction mats or operating during frozen conditions during construction, and reestablishment of site vegetation following construction. The placement of transmission line structures in floodplains is not anticipated to alter the flood storage capacity of the floodplain based on the minimal size of individual transmission line structures, however, multiple structures within the same floodplain can contribute to impacts to pole or bank stability. This impact is accentuated where tree removal is required within the floodplain, which can destabilize the riverbank or surrounding area. If destabilization occurs, increased erosion may result and contribute sedimentation into nearby water resources.

7.7.5.10 Mitigation Measures

7.7.5.10.1 Commission Sample Route Permit

In the sample route permit (Appendix G), condition 5.3.9 contains the following provisions for mitigation of surface water and wetland impacts:

"The permittee shall develop wetland impact avoidance measures and implement them during construction of the Transmission Facility. Measures shall include spacing and placing transmission structures at variable distances to span and avoid wetlands, watercourses, and floodplains. Unavoidable wetland impacts as a result of the placement of structures shall be limited to the immediate area around the structures. To minimize impacts, the Permittee shall construct in wetland areas during frozen ground conditions where practicable and according to permit requirements by the applicable permitting authority. When construction during winter is not possible, the Permittee shall use wooden or composite mats to protect wetland vegetation. The Permittee shall contain soil excavated from the wetlands and riparian areas and not place it back into the wetland or riparian area. The Permittee shall access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts. The Permittee shall not place staging or stringing set up areas within or adjacent to wetlands or water resources, as practicable. The Permittee shall assemble structures on upland areas before they are brought to the site for installation. The Permittee shall restore wetland and water resource areas disturbed by construction activities to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. The Permittee shall meet the U.S. Army Corps of Engineers (USACE), Minnesota Department of Natural Resources (DNR), Minnesota Board of Water and Soil Resources, and local units of government wetland and water resource requirements."

7.7.5.10.2 Other Proposed Mitigation

Crews will avoid major disturbance of individual wetlands and drainage systems during construction. This will be accomplished by strategically locating new access roads and spanning wetlands and drainage systems where possible. When it is not feasible to span the wetland, construction crews will rely on several options during construction to minimize impacts:

1. When possible, construction will be scheduled during frozen ground conditions;

2. Crews will attempt to access the wetland with the least amount of physical impact to the wetland (i.e., shortest route);

3. The structures will be assembled on upland areas before they are brought to the site for installation; and

4. When construction during winter is not possible, construction mats will be used where wetlands will be impacted.

7.7.6 Soil Resources

The ROI for soils is the right-of-way. Existing soil types and associated qualities are reviewed to better understand the most likely impacts to occur as a result of construction and maintenance activities. Common soil impacts include rutting, compaction, and erosion. Potential impacts would be short-term during construction, localized, and can be minimized. If long-term re-vegetation impacts extend beyond construction, they would be mitigated through additional restoration efforts requiring additional time.

Soil information was obtained from the USDA-Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database.[121] Soils within the right-of-way are dominated by loams (70 percent of right-of-way) and clay loams (23 percent of right-of-way). Silt loams (7 percent of right-of-way) make up the remainder of the right-of-way. Soils within the West Maple Grove Substation Area are dominated by loams (82 percent); the remaining portion is made up of clay loams (12 percent) and muck (6 percent). Topography in the right-of-way and substation area is relatively flat and ranges from 904 to 954 feet above mean sea level (AMSL) in the right-of-way and 934 to 952 feet AMSL in the West Maple Grove Substation Area.

Just over one-half of the soils in the right-of-way are classified as well drained (40 percent) or moderately well drained (11 percent); the remaining soils are classified as poorly drained (20 percent), somewhat poorly drained (15 percent), or very poorly drained (14 percent). Over one-half of the soils in the West Maple Grove Substation

[121] Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, "Web Soil Survey," Soil Survey Geographic Database (SSURGO), accessed March 12, 2025, https://websoilsurvey.nrcs.usda.gov/.

Area are classified as well drained (57 percent) and moderately well drained (3 percent); the remaining soils are classified as somewhat poorly drained (22 percent) and very poorly drained (18 percent).

Approximately 33 percent of soils in the right-of-way and 39 percent of soils in the West Maple Grove Substation Area are predominantly hydric or hydric. A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Hydric soils are typically associated with lowlands and wetlands and are rated by their proportion of hydric soil in the map unit (100 percent for a hydric soil and 66 to 99 percent for a predominantly hydric soil).

The rutting hazard rating was also identified. A rating of "slight" indicates that the soil is subject to little or no rutting, a rating of "moderate" indicates that rutting is likely, and a rating of "severe" indicates that ruts form readily. Rutting hazard ratings are based on depth to the water table, rock fragments on or below the surface, and the classification of the soil material. Approximately 75 percent of the soils in the right-of-way have a slight rutting hazard rating, with the remaining 25 percent having a moderate rutting hazard rating. Soils in the West Maple Grove Substation Area have a severe rutting hazard.

The USDA-NRCS SSURGO Database identifies farmland soils based on three categories, which are subject to protection under the Farmland Protection Policy Act (FPPA). These categories include prime farmland, prime farmland when drained, and farmland of statewide importance. Prime farmland is defined by the NRCS as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses. Prime farmland, when drained, includes soils that have the potential to be prime farmland but require drainage or hydrologic alteration to achieve high productivity. Farmland of statewide importance includes soils that are nearly prime but are not as productive due to permeability, slope, erosion potential, or some other soil property. Approximately 40 percent (8.9 acres) of the right-of-way is mapped as prime farmland, 39 percent (8.7 acres) is mapped as prime farmland if drained, and 16 percent (3.6 acres) is mapped as farmland of statewide importance. Approximately 60 percent (8.1 acres) of the new West Maple Grove Substation Area is mapped as prime farmland, and 35

percent (4.7 acres) is mapped as prime farmland if drained; less than 0.1 percent is mapped as farmland of statewide importance.

7.7.6.1 Impacts

Surface soils will be disturbed by site clearing, grading, excavation, and equipment operation, leading to moderate but temporary impacts. With the exception of the new West Maple Grove Substation and transmission line structure foundations, most impacts would be temporary. Impacts on soils are dependent, to some extent, on the conditions of the soil surface at the time of construction. Construction activities that occur on wet soils tend to have longer-lasting impacts, such as rutting.

During construction, site grading will occur to prepare the substation area for surfacing and eventual equipment installation. In addition, temporary access and work areas may be graded to facilitate equipment movement during construction. Soil erosion may occur if surface vegetation is removed, especially on fine-textured soils, such as loams.

Excavation for pole foundations will require the removal of approximately 5 to 14 cubic yards of soil, depending on the pole type being installed, the soil type present, and site-specific conditions encountered during construction. Soils removed during excavation and grading will be stockpiled. If stockpiled soils are not needed for post-construction restoration, the soil will be transported to appropriate disposal or clean-fill reuse sites in the region.

Permanent impacts to prime farmland, prime farmland if drained, and/or farmland of statewide importance would occur at the transmission line structure locations. Approximately 8 acres of prime farmland and 5 acres of prime farmland, if drained, would be permanently impacted by the construction of the West Maple Grove Substation. Removal of the small amount of prime farmland, prime farmland if drained, and farmland of statewide importance is not expected to negatively affect the general farm community within the area.

7.7.6.2 Mitigation

7.7.6.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to soil resources are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.3.8: The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Program. If construction of the Transmission Facility disturbs more than one acre of land or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit from the MPCA that provides for development of a Stormwater Pollution Prevention Plan that describes methods to control erosion and runoff.

  The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the Transmission Facility shall be returned to pre-construction conditions.

7.7.6.2.2 Other Proposed Mitigation

During construction, the Applicant would implement measures to reduce soil compaction. Impacts to soils along the transmission line would be mitigated through the proper use and installation of BMPs, such as minimizing the number of vehicle trips and segregation of topsoil and subsoil. BMPs such as matting and the use of low ground pressure equipment will be used to minimize impacts where soil disturbance is necessary in wet soil conditions.

Construction would be completed according to NPDES permit requirements and the Applicant's AIMP (Appendix E) and VMP (Appendix F). The Applicant will also develop a SWPPP that complies with MPCA rules and guidelines. The SWPPP will identify BMPs that would be implemented during construction to minimize erosion.

7.7.7 Vegetation

The ROI for vegetation is the right-of-way. Potential short-term impacts, such as clearing, compacting, or otherwise disturbing vegetation, could occur during construction and maintenance activities. Potential long-term impacts on vegetation would occur where structures or the West Maple Grove Substation are located or where conversion of forested vegetation to low-growing vegetation would be required. Impacts would be localized, and unavoidable. Impacts to vegetation are primarily evaluated by examining vegetative landcover types within the ROW. Several measures could be implemented to avoid, minimize, or mitigate impacts to vegetation.

As noted in Section 7.2, the Project is located in the Big Woods Subsection of the Minnesota and Northeast Iowa Morainal section and the Eastern Broadleaf Forest Province (Map 5).

Pre-settlement vegetation in the Big Woods Subsection was dominated by oak woodlands and maple-basswood forests. Aspen forests were common along the western edge of the subsection, along with bur oak forests.[122] At present, more than 75 percent of the Big Woods Subsection is cropland.

According to the National Land Cover Database (NLCD), the land cover within the right-of-way is dominated by various intensities of developed land (58 percent of the right-of-way), with areas of cultivated cropland and hay/pasture, and a few areas of open grassland, freshwater emergent wetlands, and deciduous forest (Table 7-26; Map 7). According to the NLCD, land cover in the West Maple Grove Substation Area is dominated by cultivated cropland and hay/pasture (86 percent of the area), with the remaining land cover consisting of developed land (Map 7). Based on aerial photographs, more forested areas are present in the ROW than depicted in the NLCD data. In addition, a few trees and shrubs are also present in the West Maple Grove Substation Area; the NLCD is too coarsely mapped to identify these.

[122] Minnesota Department of Natural Resources, "Big Woods Subsection."

Table 7-26 Land Cover in the Right-of-Way

Land Cover Type	Acres in Proposed Right-of-Way	Percent of Proposed Right-of-Way[1]
Developed, Low Intensity	6.1	27%
Developed, Medium Intensity	4.0	18%
Cultivated Crops	3.9	18%
Pasture/Hay	3.5	15%
Developed, Open Space	1.7	8%
Developed, High Intensity	1.2	5%
Emergent Herbaceous Wetlands	1.1	5%
Grassland/Herbaceous	0.6	3%
Deciduous Forest[2]	0.4	2%

[1] Values have been rounded and may not equal 100 percent
[2] Acreage of forested areas is underrepresented in NLCD

According to the DNR 2025 invasive species database, no invasive terrestrial plant species, no invasive plant species have been documented within the ROI.

7.7.7.1 Impacts

Potential short-term and long-term impacts to vegetation would be moderate and would occur where clearing of trees and other vegetation is necessary for Project construction, maintenance, and safe operation of the transmission line and the new West Maple Grove Substation. Construction of the Project would result in short-term impacts on existing vegetation, including localized physical disturbance and soil compaction. Construction activities involving the establishment and use of access roads, staging, and stringing areas would also have short-term impacts on vegetation by concentrating surface disturbance and equipment use. Project construction would result in long-term impacts to vegetation by permanently removing approximately 5 acres of high-growing and forested vegetation within the right-of-way where present. Permanent removal of the agricultural and developed land cover would occur within the 13.5-acre West Maple Grove Substation Area. Permanent loss of up to 80 square feet of land cover would occur for each transmission line structure. Table 7-27 summarizes the estimated permanent impacts to NLCD land cover types based on preliminary structure locations.

Table 7-27 Permanent Impacts to Land Cover Types from Transmission Line Structures

Land Cover Type	Square Feet of Impact
Cultivated Crops	880
Developed, Low or Medium Intensity	728
Hay/Pasture	240
Developed, Open Space	151
Deciduous Forest	80

Construction and maintenance activities also have the potential to result in the introduction or spread of noxious weeds. Noxious weeds, which are regulated under Minn. Stat. chapter 18, can be introduced to new areas through propagating material like roots or seeds transported by contaminated construction equipment. Disturbed soil surfaces have the potential to allow noxious weeds to establish and out-compete existing vegetation, whether native or cropland.

7.7.7.2 Mitigation

7.7.7.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to vegetation resources are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.3.10: The Permittee shall minimize the number of trees to be removed in selecting the right-of-way specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences, and vegetation in areas such as trail and stream crossings where vegetative screening may minimize aesthetic impacts, to the extent that such actions do not violate sound engineering principles or system reliability criteria.

  The Permittee shall remove tall growing species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission line. The Permittee shall leave undisturbed, to the extent possible, existing low growing species in the right-of-way or replant such species in the right-of-way to blend the difference between the right-of-way and adjacent areas, to the extent that the low growing vegetation will not pose a threat to the transmission line or impede construction.

The Permittees shall develop a vegetation management plan (VMP), in coordination with the Vegetation Management Plan Working Group (VMPWG), using best management practices established by the DNR and BWSR. The Permittee shall file the VMP and documentation of the coordination efforts between the Permittee and the DNR with the Commission as part of the plan and profile required in Section 9.2 of the Permit.

- Condition 5.3.11: The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture (MDA), DNR, and the U.S. Environmental Protection Agency (EPA). Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner at least 14 days prior to pesticide application on their property. The Permittee may not apply any pesticide if the landowner requests that there be no application of pesticides within the landowner's property. The Permittee shall provide notice of pesticide application to landowners and beekeepers operating known apiaries within three miles of the pesticide application area at least 14 days prior to such application. The Permittee shall use the MDA's Apiary Registry (https://mn.beecheck.org/map) to identify known apiaries for purposes of compliance with this condition. The Permittee shall keep pesticide communication and application records and provide them upon the request of EIP staff.

- Condition 5.3.12: The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by Transmission Facility construction activities. The Permittee shall develop an Invasive Species Prevention Plan and file it with the Commission at least 14 days prior to the pre-construction meeting. The Permittee shall comply with the most recently filed Invasive Species Prevention Plan.

- Condition 5.3.13: The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil

the Permittee shall select site appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall keep records of compliance with this section and provide them upon the request of EIP staff.

7.7.7.2.2 Other Proposed Mitigation

The Applicant would work with appropriate agencies to identify locations where noxious weeds may be present and would develop appropriate BMPs to minimize impacts.

Areas disturbed due to construction activities would be restored to pre-construction contours and would be reseeded with an approved seed mix that is certified to be free of noxious weeds. Construction, restoration, and maintenance activities would be completed according to an approved AIMP (Appendix E) and VMP (Appendix F).

7.7.8 Rare and Unique Natural Resources

Rare and unique natural resources include federally and state-protected species and sensitive ecological resources. The ROI for protected species is the project area (one mile), and the ROI for sensitive ecological resources is the route width. Impacts to protected species are evaluated by reviewing documented occurrences of these species within the ROI. Potential impacts to sensitive ecological resources, which could provide suitable habitat for protected species, are evaluated by assessing the presence of these resources within the ROI. Several measures could be implemented to avoid, minimize, or mitigate impacts to protected species and sensitive ecological resources.

Federally endangered or threatened species are protected under Section 7 of the Endangered Species Act (ESA) of 1973 and are typically evaluated and protected by the USFWS. Data on federally protected species were reviewed using the USFWS Information for Planning and Consultation (IPaC) online tool.

At the state level, the evaluation and protection of Minnesota's rare and unique natural resources are overseen by the MDNR Division of Ecological and Water Resources through the identification and evaluation of threatened and endangered species and sensitive ecological resources. State endangered or threatened species are protected under the Minnesota Endangered Species Statute (Minn. Stat. § 84.0895).

The MDNR Natural Heritage Inventory System (NHIS) database (License Agreement #2025-012) was used to assess the presence of state protected species within the Project area. Although the NHIS database does not represent a comprehensive survey, it provides information on the potential presence of protected species. The NHIS is continually updated as new information becomes available and is the most complete source of data on Minnesota's protected species. Although reports or queries might not show records for state-protected species within the vicinity of a Project, it does not necessarily mean that they are not present. It could simply mean that the area has not been surveyed or that records have not been reported to the DNR.

Publicly available GIS datasets and the DNR's Minnesota Conservation Explorer online tool were used to assess the presence of sensitive ecological resources in the area. Sensitive ecological resources could provide habitat suitable for federal and/or state-protected species.

7.7.8.1 Federally Protected Species

The USFWS IPaC online tool was queried on July 18, 2025, for an official list of federally threatened and endangered species, proposed species, candidate species, and designated critical habitat that may be present within the Project area (Appendix J). The IPaC query identified six federal species that could potentially be in the vicinity of the Project area, including two endangered species, three proposed endangered or threatened species, and an experimental population, nonessential species. No designated critical habitat was identified near the Project area. The species identified in the IPaC query and their typical habitats are summarized in Table 7-28. The IPaC query also identifies bald eagles and several migratory birds as potentially being present in the Project area; these are discussed in Section 7.7.9.

Table 7-28 Federal Species Potentially Present in the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat
Myotis septentrionalis	Northern long-eared bat	Endangered	Special concern	Forested habitat in active season; caves and mines during inactive season.[1]
Bombus affinis	Rusty Patched bumblebee	Endangered	Watchlist	Areas with consistent flowering vegetation throughout the growing season. Overwinter in upland forests and woodlands.[1]
Simpsonaias ambigua	Salamander mussel	Proposed endangered	Endangered	Swift-flowing rivers and streams under flat rocks or under ledges of rock walls.[1]
Argynnis idalia occidentalis	Western regal fritillary	Proposed threatened	Not listed	Tall grass prairie, wet fields, meadows, marshes.[2]
Danaus plexippus	Monarch butterfly	Proposed threatened	Not listed	Areas with a high number of flowering plants. Presence of milkweed (Asclepias spp.) to complete the caterpillar life stage.[3]
Grus americana	Whooping crane	Experimental population, non-essential	Not listed	Wetlands, lakes, ponds, rivers, and agricultural fields.[4]

[1] Source: [123]
[2] Source: [124]
[3] Source: [125]
[4] Source: [126]

Federally proposed threatened or endangered species are species that the USFWS has determined are in danger of extinction throughout all or a significant portion of their range and has proposed a draft rule to list them as threatened or endangered. Proposed species are not protected by the take prohibitions of the federal ESA. A non-essential experimental population is a designation that refers to a population that has been established within its historical range under Section 10(j) of the ESA to aid in recovery of the species. Species designated as non-essential experimental populations are only protected by the federal ESA within a national wildlife refuge or

[123] Minnesota Department of Natural Resources, "Rare Species Guide," Endangered, Threatened and Special Concern Species, accessed November 12, 2024, https://www.dnr.state.mn.us/rsg/a-z_search.html.
[124] Minnesota Seasons, "Conservation Status: Regal Fritillary (Argynnis Idalia)," accessed November 12, 2024, http://www.minnesotaseasons.com/Insects/regal_fritillary.html.
[125] U.S. Fish and Wildlife Service, "Monarch Butterfly (Danaus Plexippus)," Environmental Conservation Online System, accessed June 4, 2025, https://ecos.fws.gov/ecp/species/9743.
[126] U.S. Fish and Wildlife Service, "Whooping Crane (Grus Americana)," ECOS Environmental Conservation Online System, accessed November 12, 2024, https://ecos.fws.gov/ecp/species/758.

a national park; the route width does not intersect a national wildlife refuge or a national park.

7.7.8.2 State Protected Species

The DNR's NHIS database was queried in July 2025 (Barr License Agreement LA 2022 008) to determine if any state endangered, threatened, or special concern species have been documented within the Project area; the DNR uses a one mile buffer as a standard distance to capture the range of species that have already been documented and could be present in a particular area, given presence of suitable habitat. The NHIS database did not identify any records of state endangered or threatened species within the Project area. According to the NHIS database, three state special concern species have been documented within approximately one mile of the Project, including the Acadian flycatcher (*Empidonax virescens*), big brown bat (*Eptesicus fuscus*), and little brown bat (*Myotis lucifugus*); all three species inhabit mesic hardwood forest. While state special concern species are tracked by the DNR, they are not legally protected under the Minnesota Endangered Species Statute.

A Natural Heritage Review request was submitted through the MDNR Minnesota Conservation Explorer on October 24, 2024 (MCE #2024-00870). A response was received on October 24, 2024. Information from the Natural Heritage Review response is incorporated below, and a copy is provided in Appendix J.

7.7.8.3 Sensitive Ecological Resources

The DNR has established several classifications for sensitive ecological resources across the state, such as Scientific and Natural Areas, Sites of Biodiversity Significance, native plant communities, native prairie bank easements, and Lakes of Biological Significance. None of these or other sensitive ecological resources intersect the route width.

7.7.8.3.1 Impacts

Project construction and operation have the potential to impact protected species, should they be present during construction or maintenance activities. Construction-related potential short-term impacts on federally or state-protected wildlife species would be similar to those described for non-listed species in Section 7.7.9.1 and could include displacement during construction activities that generate noise, dust, or disturbance of habitat. Impacts are anticipated to be minimal.

7.7.8.3.1.1 Federally Protected Species

The species identified in the IPaC query are potentially present within the Project area, where suitable habitat is present.

The NHIS database does not document the presence of northern long-eared bats, maternity roost trees, or hibernacula within the Project area. However, suitable forested habitat is present in the route width. Impacts to northern long-eared bats could occur if tree clearing or construction takes place during the bat's active season, when the species are breeding, foraging, or raising pups in forested habitat. Bats could be injured or killed if occupied trees are cleared during the active season, and the species could be disturbed during clearing or construction activities due to noise or human presence.

The NHIS database does not document the presence of rusty patched bumble bees within the Project area. However, suitable habitat may be present in areas where flowering vegetation is present. Although the route width is mostly disturbed, with agricultural areas and some forested areas, suitable foraging habitat for rusty patched bumble bees is present in open areas with flowering plants, and suitable overwintering habitat may be present in the forested areas within the route width. In addition, the northeastern edge of the route width intersects the rusty patched bumble bee high potential zone, an area identified by the USFWS where rusty patched bumble bees are likely to be present (Map 13). Potential impacts to rusty patched bumble bees could occur as a result of ground-disturbing activities and/or the removal of vegetation that serves as habitat.

The NHIS database does not identify any records of salamander mussels within the Project area, and suitable riverine habitat is not present in the route width; as such, impacts to the salamander mussels are not anticipated.

The NHIS database does not track documented records of the western regal fritillary. While western regal fritillary is mostly associated with remnant tall grass prairie habitats, some areas of marginal suitable habitat for western regal fritillary are present in the wetlands that intersect the route width. Potential impacts to western regal fritillary could occur as a result of ground disturbing activities and/or removal of vegetation that serves as habitat.

The NHIS database does not track documented records of monarch butterflies. Suitable habitat for monarch butterflies is present in the non-agricultural parts of the route width where flowering plants are abundant. Potential impacts to monarch butterflies could occur as a result of ground-disturbing activities and/or the removal of suitable reproductive (milkweed plants) or foraging (flowering plants) habitat.

Whooping cranes are rare in the state of Minnesota, and the NHIS database does not track documented records of them. Given their rarity, impacts to whooping cranes are not anticipated. However, potential impacts to whooping cranes would be similar to those described for other waterfowl/avian species in Section 7.7.9.1.

7.7.8.3.1.2 State-Protected Species

The NHIS database does not document the presence of any state endangered or threatened species within the Project area, and given the disturbed nature of the route width, suitable habitat for state endangered or threatened species is minimal in the route width. None of the state special concern species that have been documented within the Project area (Acadian flycatcher, big brown bat, and little brown bat) have been documented within the route width. The Acadian flycatcher prefers large tracts of mature forest, typically near streams. Because this type of habitat is not present in the route width, impacts to this species are not anticipated.

Suitable forested habitat for big brown bats and little brown bats is present in the route width. Similar to northern long-eared bats, impacts to these bat species could occur if tree clearing or construction take place during their active season, when they are breeding, foraging, or raising pups in forested habitat. Bats could be injured or killed if occupied trees are cleared during the active season, and the species could be disturbed during clearing or construction activities due to noise or human presence.

7.7.8.3.1.3 Sensitive Ecological Resources

No sensitive ecological resources have been identified in the route width; as such, impacts to these resources are not anticipated from the Project.

7.7.8.3.2 Mitigation

7.7.8.3.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to rare and unique natural resources are not standard sample route permit (Appendix G) conditions. However,

the standard route permit conditions to minimize potential impacts to vegetation and wildlife would be applicable to minimizing impacts to federal and state protected species and sensitive ecological resources; these are summarized in Section 7.7.7.2.1 and Section 7.7.9.2.1, respectively

7.7.8.3.2.2 Other Proposed Mitigation

In their Natural Heritage Response (Appendix J), the MDNR recommends the following impact minimization or mitigation measures:

- Tree removal be avoided from June 1 through August 15 to minimize potential impacts to northern long-eared bats; the Applicant has committed to this.
- If applicable, reseed disturbed soils with native species of grasses and forbs using Board of Soil and Water Resources or Minnesota Department of Transportation seed mixes. The Applicant would reseed with native seed mixes where feasible.
- Modifying the location of Project activities to avoid suitable habitat or modifying the timing of Project activities to avoid the presence of state special concern species. The impact minimization measures discussed above for northern long-eared bats would also minimize potential impacts to big brown bats and little brown bats.

7.7.9 Wildlife

The ROI for wildlife is the route width. Impacts to wildlife and wildlife habitat are assessed both by considering wildlife inhabiting the ROI as well as assessing the presence of potential habitat for wildlife within the ROI, including areas that are preserved or managed for wildlife. Potential short term, localized impacts to wildlife could occur from displacement during construction or maintenance activities. Potential long-term impacts could occur as a result to habitat loss or conversion. Several measures could be implemented to avoid, minimize, or mitigate impacts to wildlife and associated habitat.

The route width's highly developed and agricultural landscape, combined with the natural habitats associated with deciduous forest and wetlands, provides habitat for a diversity of resident and migratory wildlife species that are accustomed to disturbance

and human activity. These species include large and small mammals, songbirds, and insects. These species use the area for forage, shelter, breeding, or as a stopover during migration.

The state of Minnesota is in the Mississippi Flyway of North America. The Mississippi Flyway is a bird migration route that encompasses the Great Plains of the U.S. and Canada. Migratory birds use portions of the Mississippi Flyway as resting grounds during spring and fall migration, as well as breeding and nesting grounds throughout the summer. Suitable habitat for migratory birds is present within the forested and agricultural habitats within the route width. The IPaC query identified 12 USFWS Birds of Conservation Concern (BCC), including the bald eagle (*Haliaeetus leucocephalaus*), as potentially being present in the route width (Appendix J). The USFWS identifies BCCs as species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA. The Fish and Wildlife Conservation Act of 1980 (16 USC 2901-2911) affords protection to BCC.

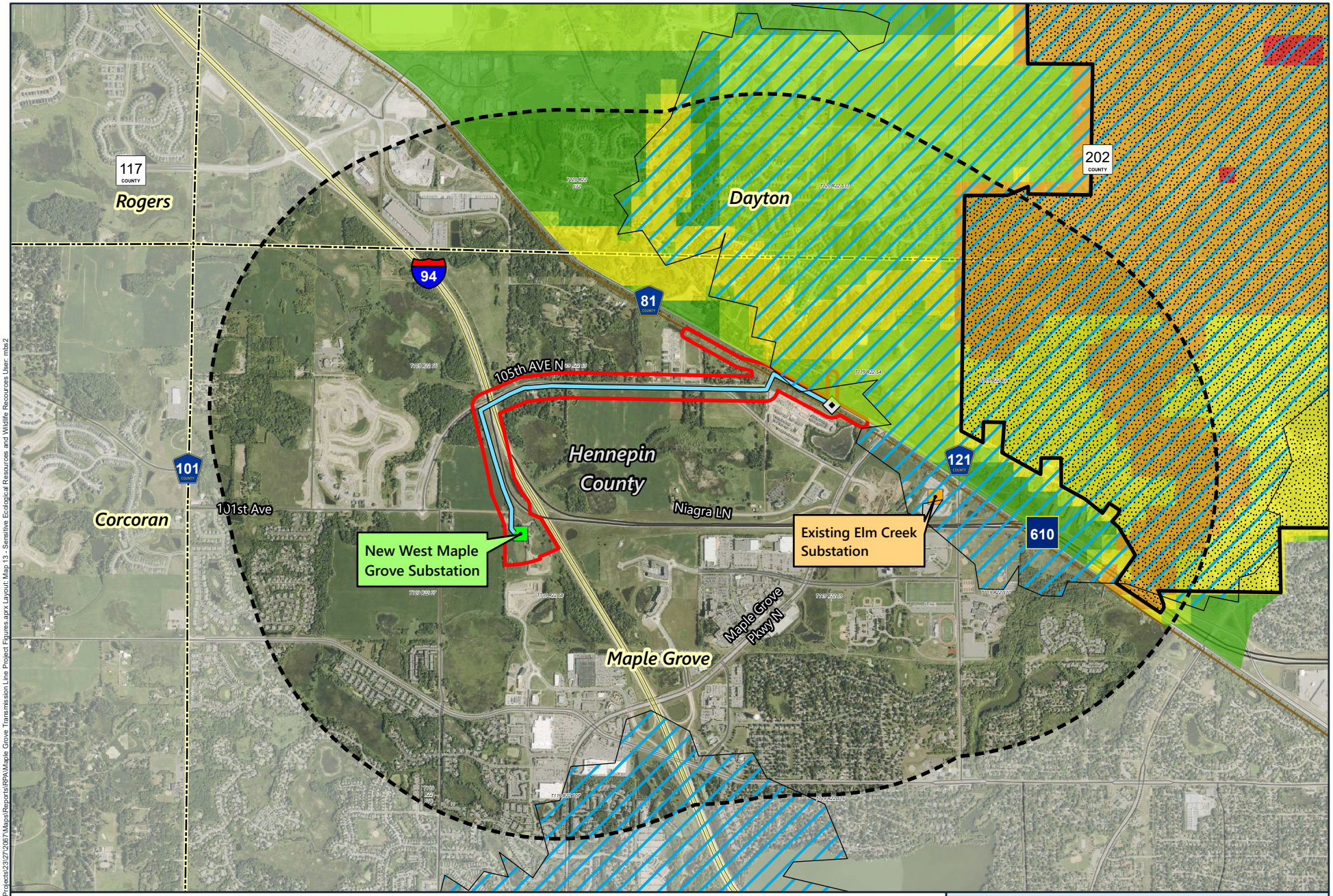
Migratory birds are protected under the Migratory Bird Treaty Act of 1918 (16 USC 703 712), which prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Bald eagles are protected under the MBTA and the federal Bald and Golden Eagle Protection Act (BGEPA; 16 USC 668 668d), which specifically prohibits the taking or possession of and commerce in, either alive or dead, or any part, nest, or egg of these eagles. In Minnesota, bald eagles inhabit forested areas near large lakes, reservoirs, and rivers. The route width contains forested areas, but no large lakes, reservoirs, or rivers are nearby.

Minnesota is home to over 2,000 known native wildlife species, and over 300 of these species have been identified as Species in Greatest Conservation Need (SGCN) because they are rare, their populations are declining, or they face serious threats that can cause them to decline, and thus have populations below levels desirable to promote their long-term health and stability. Minnesota's Wildlife Action Plan 2015-2025 includes a habitat approach, which focuses on sustaining and enhancing

terrestrial and aquatic habitats for SGCN in the context of the larger landscapes.[127] The Wildlife Action Plan lays out the basis for the long-term vision of a Wildlife Action Network composed of terrestrial and aquatic habitat cores and corridors to support biological diversity and ecosystem resilience with a focus on SGCN. As shown on Map 13, several Wildlife Action Network corridors border the northeastern part of the route width. The Wildlife Action Network is a metric that can be used to assess buffers and connectors of habitats representing the diversity of habitat quality, supporting SGCN. As detailed by the DNR, "Consideration should be given to projects or activities that could result in the loss, degradation, or fragmentation of habitat within the Wildlife Action Network, as habitat loss was identified as a substantial contributor to SGCN population declines."[128]

No lands that are preserved or managed for wildlife and associated habitat, such as state Scientific and Natural Areas, state Wildlife Management Areas, federal Waterfowl Production Areas, federal or wildlife refuges, federal or state parks or forests, state Waterfowl Feeding and Resting Areas, or conservation easement lands, are present within or adjacent to the route width. However, the North Metro Mississippi River National Audubon Society Important Bird Area is located approximately 0.2 miles east of the route width (Map 13). The National Audubon Society works to identify, monitor, and protect habitat for bird species throughout the U.S., in part by designating sites as Important Bird Areas.

[127] Minnesota Department of Natural Resources, "Minnesota's Wildlife Action Plan 2015-2025," Division of Ecological and Water Resources, Minnesota Department of Natural Resources, 2016, https://www.dnr.state.mn.us/mnwap/index.html.
[128] Minnesota Department of Natural Resources, "Minnesota's Wildlife Action Plan 2015-2025."



Anticipated Alignment
Proposed Route
Proposed Tap Point
Proposed Substation
Existing Substation

Wildlife Action Network Rank
Low
Low-Medium
Medium
Medium-High
High

Rusty Patch Bumble Bee
High Potential Zone

Audubon Important Bird Areas
North Metro Mississippi IBA

Project Study Area (Project Area)

N

0 0.5
Miles

SENSITIVE ECOLOGICAL RESOURCES AND WILDLIFE RESOURCES

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

MAP 13

Xcel Energy®

Barr Footer: ArcGISPro 3.4.3, 2025-08-20 15:34 File: I:\Projects\23\27\2087\Maps\Reports\RPA\Maple Grove Transmission Line Project Figures.aprx Layout: Map 13 - Sensitive Ecological Resources and Wildlife Recources User: mbs2

7.7.9.1 Impacts

Potential temporary impacts to wildlife within the route width may occur during Project construction as a result of increased noise, dust, and human activity, which could cause some species to temporarily abandon their habitat; impacts are anticipated to be minimal. The majority of common wildlife species are mobile and can avoid impacts from noise by leaving the affected area for similar habitat adjacent to the route width. Less mobile wildlife species, such as small mammals, amphibians, reptiles, and nesting birds, may be susceptible to mortality from vehicles and other equipment moving within the right-of-way.

Construction of new transmission line corridors can result in permanent habitat loss, conversion, and/or fragmentation as a result of clearing vegetation for construction and maintenance. Within the right-of-way, forested habitat would be permanently removed and converted to a more open habitat consisting of low-growing vegetation, which could alter the wildlife species using these habitats. Permanent removal of habitat would occur within the West Maple Grove Substation Area and in areas where transmission line structures are proposed.

Potential indirect impacts to migratory birds, including BCC, could occur as a result of loss of habitat or displacement during construction activities. Vegetation clearing and other ground disturbing activities could directly impact migratory birds should they be nesting within or adjacent to construction areas. Impacts to the North Metro Mississippi River National Audubon Society Important Bird Area are not anticipated because this resources is located approximately 0.2 miles east of the route width. However, this area may actually serve as a refugia for some avian species during Project construction.

As discussed in Section 3.3.2.1, a fence will be constructed around the West Maple Grove Substation and a maintenance road will be constructed around the fenced area. The fence will limit access to larger wildlife species; however, given the highly disturbed nature of the substation location, most wildlife species would already avoid this area. Substation lighting is not anticipated to impact wildlife, as lighting would only be activated during scheduled maintenance or emergency work; otherwise, the substation would remain dark. Fixtures include full cutoff LED fixtures to prevent upward light spill and shielded luminaires to direct light only where needed.

Once the Project is operational, potential impacts to avian species could occur due to electrocution and collision with transmission line conductors. Electrocution occurs when an arc is created by contact between a bird and energized lines or an energized line and grounded structure equipment. Electrocution occurs more frequently with larger bird species, such as hawks, because they have wider wingspans that are more likely to create contact with the conductors. Waterfowl are more susceptible to transmission line collisions, especially if the transmission line is placed between agricultural fields that serve as feeding areas, and wetlands or open water which serve as resting areas. In these areas, it is likely that waterfowl and other birds would travel between different habitats, potentially increasing the likelihood of avian conflicts with the transmission line.

7.7.9.2 Mitigation

7.7.9.2.1 Commission Sample Route Permit

Mitigation and minimization measures for potential impacts to wildlife resources are standard sample route permit (Appendix G) conditions and include the following:

- Condition 5.3.16: The Permittee in cooperation with the DNR shall identify areas of the transmission line where bird flight diverters will be incorporated into the transmission line design to prevent large avian collisions attributed to visibility issues. Standard transmission design shall incorporate adequate spacing of conductors and grounding devices in accordance with Avian Power Line Interaction Committee (APLIC) standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices. The Permittee shall submit documentation of its avian protection coordination with the plan and profile pursuant to Section 9.2 of the sample route permit.

- Condition 5.3.22: The Permittee shall use shielded and downward-facing lighting and LED lighting that minimizes blue hue.

- Condition 5.3.23: The Permittee shall utilize non-chloride products for onsite dust control during construction.

- Condition 5.3.24: The Permittee shall use only "bio-netting" or "natural netting" types of erosion control materials and mulch products without synthetic (plastic) fiber additives or malachite green dye.

7.7.9.2.2 Other Proposed Mitigation

Impacts to wildlife and associated habitat would be minimized by constructing the Project in a somewhat developed area where existing transmission line and road corridors are already present.

Where possible, the Applicant would conduct ground disturbing activities outside of the migratory bird nesting season or conduct pre-construction nest surveys in areas of suitable habitat.

As noted in draft permit condition 5.3.16, to minimize potential impacts on birds, the Project would be constructed in accordance with APLIC recommended safety standards to reduce the potential for avian collisions.[129] These APLIC safety standards may include the use of bird flight diverters (Figure 11) in locations where the risk of collision is high.

Figure 11 Bird Flight Diverter Example



7.8 Unavoidable Impacts

Minn. Stat. § 216I.05, subd. 4 requires that an application provide "a list that identifies human and natural environmental effects that are unavoidable if the facility is approved at a specific site or route." The Project has been sited and designed to avoid, minimize, or mitigate potential impacts to the degree possible and practicable, as outlined throughout the Application and Environmental Information sections throughout Section 7 in particular. However, as is the case with most construction projects, some impacts are unavoidable. Environmental impacts that are not entirely

[129] Avian Power Line Interaction Committee (APLIC), "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006," Edison Electric Institute, APLIC, and the California Energy Commission, 2006.

avoidable are described below for the construction and operation phases of the Project.

Unavoidable impacts that will occur during construction of the Project include the following. These activities would be temporary and would last for the one to two-year construction duration:

- Conversion of land use and land cover (i.e., agricultural land and forest)
- Construction-related noise
- Traffic delays and fugitive dust
- Visual impacts from construction activities
- Construction-related traffic
- Criteria pollutant and GHG emissions from construction equipment
- Fugitive dust
- Wetland impacts (to be confirmed after wetland delineation)
- Soil compaction and erosion
- Vegetation clearing
- Wildlife displacement and habitat loss
- Potential impacts to wetlands, to be confirmed after delineations are completed

Unavoidable impacts that are anticipated to last the life of the Project (operation) include the following:

- Depending on the final alignment, potential displacement of residences or other buildings that cannot be avoided
- Visual impacts
- Interference with AM radio signals

- Criteria pollutant and GHG emissions from operation and maintenance activities
- Loss of land previously used for agricultural or other purposes
- Potential impacts to wetlands, to be confirmed after delineations are completed
- Conversion of forested areas in maintained ROW; Maintenance of tall growing vegetation, including trees
- Potential for avian collisions
- Increased EMF on the landscape

7.9 Irretrievable and Irreversible Impacts

An irretrievable impact occurs when a commitment of resources is not recoverable for later use by future generations, and an irreversible impact occurs when a commitment of resources is impossible or very difficult to redirect to a different future use.

Irreversible impacts include the land required to construct the transmission line. While it is possible that the structures, conductors, and the substation could be removed and the ROW/land restored to previous conditions, this is unlikely to happen in the reasonably foreseeable future (approximately 50 years). The loss of wetlands is considered irreversible, because, although mitigation may be required by other agencies, wetlands will not be replaced in their current location for the foreseeable future. Certain land uses within the ROW will no longer be able to occur, especially at the substation.

Other commitments include construction resources used and the use of fuel during construction to power equipment. Construction resources include labor, aggregate resources, concrete, steel, and hydrocarbon fuel. During construction, vehicles necessary for these activities would be deployed on site and would need to travel to and from the construction area, consuming hydrocarbon fuels. Other resources would be used in pole construction, pole placement, and other construction activities. The commitment of labor and fiscal resources is also considered irretrievable.

8 Cumulative Potential Effects

Minn. R. part 4410.0200 defines cumulative potential effects as impacts on the environment that result from:

> *[T]he incremental effects of a project in addition to other projects in the environmentally relevant area that might reasonably be expected to affect the same environmental resources, including future projects actually planned or for which a basis of expectation has been laid, regardless of what person undertakes the other projects or what jurisdictions have authority over the projects* (Minn. R. 4410.0200, subp. 11a).

Considering cumulative potential effects serves to assist decision-makers in avoiding decisions about a specific project in isolation. Effects that might seem minimal when viewed in the context of a single project can accumulate and become significant when the broader landscape of all relevant, inter-related projects is taken into account.

The "environmentally relevant area" for which cumulative potential effects were analyzed includes locations where the potential effects of the project might coincide with the potential effects of other projects to impact the elements studied in this RPA and EA, as included under Section 7. Generally, an environmentally relevant area includes the ROI identified in the assessment of each resource.

Cumulative effects are discussed here for projects that are currently happening or are planned with construction schedules that would overlap the Project's or are otherwise foreseeable within the environmentally relevant area. The websites of agencies and local governments were reviewed to identify current and reasonably foreseeable future projects that are located within areas traversed by the project; these agencies included: the Midcontinent Independent System Operator, Minnesota Environmental Quality Board, Public Utilities Commission, MnDOT, BWSR, MPCA, DNR, the city of Maple Grove, and Hennepin County.

It is assumed that the construction-related impacts of the foreseeable projects in Table 8-1 are short-term; for example, construction impacts may cause local disturbances, such as increased noise levels and traffic delays/reroutes. Thus, the cumulative potential effects discussion for these projects is focused on their potential long-term impacts.

Table 8-1 Ongoing and Future Projects

Project Name	Description	Relevant Location	Source
610 Extension Project	The project consists of a 4-lane roadway connection between County Road 30 and I-94, a connection across I-94 to Highway 610 and ramps to I-94 Eastbound and from I-94 westbound to the 610 extension.	Southern alignment of route width, away from proposed alignment. Immediately south of proposed substation.	https://www.610extensionproject.com/
Territorial Road Area Master Plan	The Territorial Road master plan was approved by City Council on June 20, 2022. The approved development scenario provides for the road realigned to be adjacent to CSAH 81; a four-way intersection at Territorial Road and Maple Grove Parkway; and high density residential at Maple Grove Parkway and CSAH 81.	Across CSAH 81 from tie-in locations with existing transmission line.	https://www.maplegrovemn.gov/687/Territorial-Road-area-master-plan
27-05 Dunkirk Lane	Street and utility improvements in the neighborhood north of Arbor Ridge Pkwy (105th Ave N).	The neighborhood north of Arbor Ridge Pkwy (105th Ave N) – within route width.	https://www.maplegrovemn.gov/920/27-05-Dunkirk-Lane
Mixed Use Development in NW Maple Grove Alternative Urban Areawide Review (AUAR)	The development scenario included in the AUAR (Maximum Build) aligns with the City of Maple Grove 2040 Comprehensive Plan and studies a mix of uses including office, medical office, hospital/medical, multi-family residential and senior living.	Immediately south of Project Area – in Northwest Maple Grove, bounded by I-94 to the west and Highway 610 to the north.	https://webapp.pca.state.mn.us/eqb-search/project-detail/231412?siId=231412-PROJ0000000002
105th Avenue Master Plan	The Master Plan outlines a series of goals over the next ten plus years for creating a set of uses to grow the city of Maple Grove's tax base, diversify its housing options, add employment areas, and preserve and enhance the natural resources.	North of 610, east of I-94, south of CSAH 81	https://www.maplegrovemn.gov/226/105th-Avenue-master-plan

8.1 Human Settlement

The Project, combined with the foreseeable projects in Table 8-1, could interact to result in minimal cumulative effects on aesthetics, noise, and land use, while it is unlikely to result in any cumulative effect to environmental justice, recreation, zoning,

cultural values, or public services. The Project area is in a developing portion of Maple Grove that has been transitioning away from predominantly agricultural use to more intensive development.[130] This Project would contribute to and be consistent with these other long-term changes, reflecting increased development. The change in land use would be reflected in the changes to the visual setting, which would further transition from one that is agricultural and pastoral to one that is more developed and industrial in nature.

8.2 Human Health and Safety

The Project, in combination with the current and reasonably future projects summarized in Table 8-1, could interact to result in minimal cumulative effects on public health and safety. Because the Commission imposes a maximum electric field limit of 8 kV/m for new transmission projects, this Project would have to meet this permit condition. Accordingly, potential public health impacts related to induced voltages are anticipated to be minimal. In general, it is anticipated that the foreseeable future projects in the area would have minimal impacts on human health and safety when operational.

8.3 Land-based Economies

This Project, combined with the foreseeable projects in Table 8-1, could interact to result in minimal to moderate cumulative effects on land-based economies. Agricultural use of the area has declined in recent decades, and, as noted in Table 8-1, the area has moved towards increased development, largely mixed-use residential and commercial. This Project contributes to the ongoing development of the area, converting traditionally agricultural lands to developed uses.

8.4 Archaeological and Historic Resources

The Project, combined with the foreseeable projects in Table 8-1, could interact to result in minimal cumulative effects on archaeological and historic resources. Any time new ground disturbance occurs as the result of a project, there is the potential to impact significant archaeological and historic resources. However, survey and identification of these resources during planning stages can help determine the presence of these resources. Once identified, prudent routing and/or efforts to avoid

[130] City of Maple Grove, Minnesota, "105th Avenue North Growth Area Master Plan."

or minimize impacts to these resources would reduce the potential for cumulative effects.

8.5 Natural Environment

The Project, combined with the foreseeable projects in Table 8-1, could interact to result in minimal to moderate cumulative effects on the natural environment. The location where this Project intersects foreseeable projects is largely developed, along roadways, or otherwise disturbed. Potential impacts would be minimized through project design, impact minimization measures, and permit conditions that would be incorporated into this Project and the other projects in Table 8-1.

This Project and the other foreseeable projects would generally avoid or span surface waters to the extent practicable; as such, the potential for cumulative effects on surface waters is not anticipated to be notable. Transmission line infrastructure is already present in the project area, and the potential for collisions already exists. Furthermore, BMPs, such as bird flight diverters, would be used where necessary to reduce the potential for impacts.

This Project, in combination with the foreseeable projects, could interact to result in minimal cumulative potential effects to rare and unique natural resources, including federally and/or state-protected species and sensitive ecological resources. In addition, the setting where this Project intersects foreseeable projects is primarily existing and ongoing development of agricultural land towards mixed-use medium-density development, with minimal native habitat.

Appendices

Appendix A

Route Permit Completeness Checklist

Topic	EIP Act MS Section 216I	Text from Statue or Rule	Location in Document
Project ownership	216I.05, subd. 3(b)(1)	a statement of proposed ownership of the facility at the time of filing the application and after commercial operation	Section 1.2
Permittee name	216I.05, subd. 3(b)(2)	the name of any person or organization 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	Section 1.3
Project description	216I.05, subd. 3(b)(3)	a description of the proposed large energy infrastructure facility and all associated facilities, including size, type, and timing of the facility	Section 2.1 - Section 2.7
Environmental Information, generally	216I.05, subd. 3(b)(4)	the environmental information required under subdivision 4;	Section 6
Identification of Property Owners	216I.05, subd. 3(b)(5)	the names of each owner described under subdivision 8;	Appendix K
Maps	216I.05, subd. 3(b)(6)	United States Geological Survey topographical maps, or other maps acceptable to the commission, that show the entire proposed large energy infrastructure facility	Map 3 – proposed route
Existing ROWs	216I.05, subd. 3(b)(7)	a document that identifies existing utility and public rights-of-way along or near the large energy infrastructure facility	Section 2.6 Map 3 – proposed route
Project design, including required ancillary facilities	216I.05, subd. 3(b)(8)	the engineering and operational design at each of the proposed sites for the proposed large energy infrastructure facility, and identify transportation, pipeline, and electrical transmission systems that are required to construct, maintain, and operate the facility	Section 2.3.1; Section 2.4; Section 2.5
Project cost	216I.05, subd. 3(b)(9)	a cost analysis of the proposed large energy infrastructure facility, including the costs to construct, operate, and maintain the facility	Section 2.8
Design for expansion	216I.05, subd. 3(b)(10)	a description of possible design options to accommodate the large energy infrastructure facility's future expansion	Section 2.3.1
Site or ROW acquisition, construction, maintenance, & restoration	216I.05, subd. 3(b)(11)	the procedures and practices proposed to acquire, construct, maintain, and restore the large energy infrastructure facility's right-of-way or site	Section 5
Other Permits	216I.05, subd. 3(b)(12)	a list and brief description of federal, state, and local permits that may be required for the proposed large energy infrastructure facility	Section 9
CN Requirement	216I.05, subd. 3(b)(13)	a discussion regarding whether a certificate of need application is required and, if a certificate of need application is required, whether the certificate of need application has been submitted	Section 1.4
Other sites or routes considered	216I.05, subd. 3(b)(14)	a discussion regarding any other sites or routes that were considered and rejected by the applicant	Section 1.5 and Section 3
Additional information required by rule	216I.05, subd. 3(b)(15)	any information the commission requires pursuant to an administrative rule	
Tribal coordination	216I.05, subd. 3(b)(16)	a discussion regarding coordination with Minnesota Tribal governments, as defined under section 10.65, subdivision 2, by the applicant, including but not limited to the notice required under subdivision 5 of this section	Section 8.3
Environmental information, generally	216I.05, subd. 4(a)	An applicant for a site or route permit must include in the application environmental information for each proposed site or route. The environmental information submitted must include:	See below
Environmental setting	216I.05, subd. 4(a)(1)	a description of each site or route's environmental setting	Section 6.2

Topic	EIP Act MS Section 216I	Text from Statue or Rule	Location in Document
Human settlement, generally	216I.05, subd. 4(2)	description of the effects the facility's construction and operation has on human settlement, including but not limited to public health and safety, displacement, noise, aesthetics, socioeconomic impacts, environmental justice impacts, cultural values, recreation, and public services	Section 6.3.1 – overview/existing condition Section 6.3.1.1- impacts and mitigations
Public health & safety, including EMF	216I.05, subd. 11(b)(1) (Decision Criteria)		Section 6.4 public health and safety
Displacement	216I.05, subd. 4(2)		Section 6.3.2 for overview/existing conditions Section 6.3.2.1 for impacts and mitigations
Noise	216I.05, subd. 4(2)		Section 6.3.3 for overview/existing conditions Section 6.3.3.1 for impacts and mitigations
Aesthetics	216I.05, subd. 4(2) 216I.19 (turbine lighting)		Section 6.3.4.1 for overview/existing conditions Section 6.3.4.2 for impacts and mitigations
Socioeconomic Impacts	216I.05, subd. 4(2); 216I.05, subd. 11(b)(14)		Section 6.3.5 for overview/existing conditions Section 6.3.5.1 for impacts and mitigations
Environmental Justice Impacts	216I.05, subd. 4(2); 216I.05, subd. 11(a)(3)		Section 6.3.6 for overview 6.3.6.1 for impacts and mitigations
Cultural Values	216I.05, bud. 4 (2)		Section 6.3.7 for overview/existing conditions Section 6.3.7.1 for impacts and mitigations
Recreation	216I..05, subd. 4(2)		Section 6.3.8 for overview/existing conditions Section 6.3.8.1 for impacts and mitigations
Public Services	216I..05, subd. 4(2)		Section 6.3.9 for overview/ existing conditions Section 6.3.9.5 for impacts and mitigations
Land Use	216I.05, subd. 11(a) (2) (Decision Criteria)	The commission's site and route permit determinations must (1) be guided by the state's goals to conserve resources; (2) minimize environmental impacts, and minimize human settlement and other land use conflicts;	Section 6.3.1
Land-based economics, generally	216I.05, subd. 4(3)	a description of the facility's effects on land-based economies, including but not limited to agriculture, forestry, tourism, and mining	Section 6.5
Agriculture	216I.05, subd. 4(3); see also Minn. R. 7850.4400, subp. 4.	Minn. R. 7850.4400, subp. 4. Prime farmland exclusion. No large electric power generating plant site may be permitted where the developed portion of the plant site, excluding water storage reservoirs and cooling ponds, includes more than 0.5 acres of prime farmland per megawatt of net generating capacity, or where makeup water storage reservoir or cooling pond facilities include more than 0.5 acres of prime farmland per megawatt of net generating capacity, unless there is no feasible and prudent alternative. Economic considerations alone do not justify the use of more prime farmland. "Prime farmland" means those soils that meet the specifications of Code of Federal Regulations 1980, title 7, section 657.5, paragraph (a). These provisions do not apply to areas located within home rule charter or statutory cities; areas located within two miles of home rule charter or statutory cities of the first, second, and third class; or areas designated for orderly annexation under Minnesota Statutes, section 414.0325.	Section 6.5.1 for overview/existing conditions Section 6.5.1.1 for impacts and mitigations
Forestry	216I.05, subd. 4(3)	a description of the facility's effects on land-based economies, including but not limited to agriculture, forestry, tourism, and mining	Section 6.5.2 for overview/existing conditions Section 6.5.2.1 for impacts and mitigations
Tourism	216I.05, subd. 4(3)		Section 6.5.3 for overview/existing conditions Section 6.5.3.1 for impacts and mitigations
Mining	216I.05, subd. 4(3)		Section 6.5.4 for overview/existing conditions Section 6.5.4.1 for impacts and mitigations
Archaeological & historic resources	216I.05, subd. 4(4)	a description of the facility's effects on archaeological and historic resources	Section 6.6 for overview/existing conditions Section 6.6.1.1 for impacts and mitigations

Topic	EIP Act MS Section 216I	Text from Statue or Rule	Location in Document
Natural environment impacts - generally	216I.05, subd. 4(5)	a description of the facility's effects on the natural environment, including effects on air and water quality resources, flora, and fauna	Section 6.7
Air quality	216I.05, subd. 4(5)		Section 6.7.1 for overview/existing conditions Section 6.7.1.1 for impacts and mitigations
Geology and Groundwater	216I.05, subd. 4(5) 216I.05, subd. 11(b)(1)	Minn. R. 7850.4400, Subp. 5. Sufficient water supply required. No site may be designated that does not have reasonable access to a proven water supply sufficient for plant operation. No use of groundwater may be permitted where removal of groundwater results in material adverse effects on groundwater, groundwater dependent natural resources, or higher priority users in and adjacent to the area, as determined in each case. The use of groundwater for high consumption purposes, such as cooling, must be avoided if a feasible and prudent alternative exists.	Section 6.7.3.1 for groundwater existing conditions Section 6.7.3.1.1 for karst existing conditions Section 6.7.3.1.2 for impacts and mitigations
Soils	216I.05, subd. 11(b)(1) and subd. 11(b)(5)	a description of the facility's effects on the natural environment, including effects on air and water quality resources, flora, and fauna	Section 6.7.4 for soils for existing conditions Section 6.7.4.1 for impacts and mitigation
Surface waters (including stormwater, floodplains, and wetlands)	216I.05, subd. 4(5); 216I.05, subd. 11(b)(1)		Section 6.7.3.2 for surface waters, incl. waterbodies and watercourses Section 6.7.3.2.2 for PWI Section 6.7.3.2.3 for wetlands Section 6.7.3.2.5 for calcareous fens Section 6.7.3.2.3 for special watercourses Section 6.7.3.2.3 for infested waters Section 6.7.3.2.6 for impacts and mitigations to the above Section 6.7.3.3 for existing conditions for floodplains Section 6.7.3.3.1 for impacts and mitigations to floodplains
Vegetation	216I.05, subd. 4(5)		Section 6.7.5 for existing conditions Section 6.7.5.1 for impacts and mitigations
Wildlife	216I.05, subd. 4(5)		Section 6.7.7 for overview/existing conditions Section 6.7.7.1 for impacts and mitigations
Rare & unique resources	subd. 4(8)	a description of the facility's effects on rare and unique natural resources	Section 6.7.6 for overview/existing conditions 6.7.6.3.1 for impacts and mitigations to federal listings Section 6.7.7.3.2 for impacts and mitigations to state listings
Greenhouse gases	216I.05, subd. 4(6)	a description of the greenhouse gases associated with constructing and operating the facility	Section 6.7.2.1 for overview/existing conditions Section 6.7.2.3 for impacts and mitigations
Climate change resilience	216I.05, subd. 4(7)	a description of the facility's climate change resilience	Section 6.7.2.2 for overview/existing conditions Section 6.7.2.3 for impacts and mitigations
Unavoidable Impacts	216I.05, subd. 4(9)	a list that identifies human and natural environmental effects that are unavoidable if the facility is approved at a specific site or route	Section 6.8
Mitigation Measures	216I.05, subd. 4(10)	a description of (i) measures that might be implemented to mitigate the potential human and environmental impacts identified in clauses (1) to (7), and (ii) the estimated costs of the potential mitigative measures	See listing in each subsection cited above.

Appendix B

Stakeholder, Agency, and Tribal Outreach

This appendix summarizes outreach efforts. Table B1 summarizes outreach efforts, and the attachments include information referenced throughout Table B1. Attachment B.4 includes responses received from tribes and government units.

Attachments

Attachment B.1 Open house materials

- Letter
- Factsheet
- Posters

Attachment B.2 90-day preapplication coordination letter and recipient list

Attachment B.3 30-day preapplication coordination letter and recipient list

- LGU/tribe letter
- LGU/tribe certificate of mailing
- Technical Resource Agencies letter
- Technical Resource Agencies certificate of mailing

Attachment B.4 Responses received from tribes and government units

- City of Maple Grove – letter
- Hennepin County – email
- MnDOT – email
- MnDOT – letter
- SHPO – email
- SHPO – letter
- Flandreau Santee Sioux – email
- Leech Lake Band of Ojibway – letter
- Shakopee Mdewakanton Sioux Community – email

Attachment B.5 Public Comments

Table B1 Outreach Efforts Summary

Date	Description
April 22, 2025	Open House The Applicant conducted a public open house in Maple Grove, Minnesota at the Maple Grove Community Center. Two responses were received after the public open house requesting avoidance of future developments. Neither development will be impacted by the Proposed Route. The presentation shared at the open house is provided in Attachment B.1.
May 09, 2025	Mailing As part of pre-application outreach, the Applicant mailed 90-day pre-application notice letter to 38 relevant LGUs and tribal representatives A copy of the letter and recipient list is provided in Attachment B.2.
May 28, 2025	Meeting with city of Maple Grove Introduced Project
June 17, 2025	Received letter from Hennepin County Public Works Letter stated the county does not see any issues with the proposed location of the transmission line. A copy of their letter is provided in Attachment B.3.
June 30, 2025	Mailing Due to changes to the Applicant's planned filing date and state law changes that went into effect on July 1, 2025, the Applicant mailed a 30-day preapplication coordination letter to 51 relevant LGUs, tribal representatives and state technical resource agencies. These letters introduced the Project and offered an opportunity to request a consultation meeting with the Applicant regarding the Project. A copy of the letter that was mailed is provided as Attachment B.1. The mailing list for this letter is provided as Attachment B.2.
July 2025	Meeting with MnDOT The Applicant met with MnDOT in July 2025 to discuss early coordination regarding crossing I-94 and pole placement with respect to the MnDOT right-of-way. The Applicant completed the agency's Early Notification Memo (ENM) process in August 2025. On August 19, 2025, the ENM and applicant checklist were provided to Karissa Hogan, MnDOT Documents & Utility Permits Coordinator, and Stacy Kotch Egstad, Utility Routing and Siting Coordinator. The ENM submittal to MnDOT included, in addition to the required memorandum, the geospatial data, maps, and structure descriptions listed in the supplemental information checklist provided by MnDOT.
July 07, 2025	Received letter from city of Maple Grove The City of Maple Grove sent a letter on July 7, 2025, in support of the Project and in favor of the north interconnect option. A copy of their letter is provided in Attachment B.3.

Date	Description
November 26, 2025	Received response letter from MnDOT. ENM response letter regarding the early notification memo submitted by Barr in August 2025. A copy of the letter is included in Attachment B.4.
January 22, 2026	Mailing Project review request submitted electronically to the Minnesota State Historic Preservation Office (SHPO). A copy of the submittal email is included in Attachment B.4.
January 27, 2026	Mailing 30-day preapplication coordination letter resent electronically to all 11 federally recognized tribes in Minnesota and those tribes who have expressed interest in Hennepin County, as documented in the Department of Housing and Urban Development's Tribal Directory Assistance Tool (TDAT). A total of 20 tribes were recontacted regarding the project; a copy of the outreach log is provided in Attachment B.4.
January 27, 2026	Received response email from the Flandreau Santee Sioux stating no issues with the proposed project as sited. However, if any cultural material and or human remains are disturbed, work should stop and the tribe be contacted ASAP. A copy of the email is included in Attachment B.4.
February 06, 2026	Received response letter from the Leech Lake Band of Ojibway stating they do not have any recorded historic properties within this area. However, if any cultural material and or human remains are disturbed, please stop and contact the tribe ASAP. A copy of the letter is included in Attachment B.4.
February 09, 2026	Meeting with MnDOT Barr, Xcel, Ulteig, and MnDOT personnel met on Microsoft Teams on 2/9/26 to discuss coordination on the items highlighted in the ENM response letter as well as ongoing discussions about structure placement (poles) relative to the existing MnDOT right of way in the project area. Notable highlights include the need for permitting on the aerial encroachment of the lines relative to the MnDOT right of way, where with current placements, both the crossings and parallel sections would require permits due to the proximity (MnDOT utility guidance states installations that will have aerial encroachments that are temporary in nature, such as the blowout zone (conductor movement envelope) of wires being within MnDOT right of way, but do not permanently encroach on the MnDOT right of way may be allowed and require a MnDOT permit.) In all cases permitting will be required before construction for the crossing locations where the conductors span the highway right of way.
February 20, 2026	Received response from Minnesota SHPO. SHPO agrees that no designated or listed properties will be affected by the proposed project. They recommend an archaeological survey to determine whether there are any significant archaeological sites that will be affected by the proposed project in areas that have not been previously disturbed. A copy of the letter is included in Attachment B.4.

Date	Description
February 20, 2026	Received response from the Shakopee Mdewakanton Sioux Community stating they have no current concerns with the route as currently proposed; however, if the route changes they request to be notified. They also recommend an inadvertent discovery plan be put in place for all ground disturbing activities. A copy of the email is included in Attachment B.4.
February 20, 2026	Follow up phone calls placed to those tribes who did not respond by letter or email to the January 27, 2026 re-coordination letter. THPO Dianne Desrosiers with the Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota and THPO Samantha Odegard with the Upper Sioux Community, Minnesota both indicated they would review the project and provide comments as appropriate. A copy of the outreach log is provided in Attachment B.4.

Attachment B.1

Open House Materials

Dear Landowner,

Xcel Energy is committed to delivering reliable, affordable and carbon-free electricity to customers. To meet growing energy demands, we are continually investing in our transmission infrastructure.

The area around Twin Cities' northwest suburb Maple Grove is experiencing significant increase in electric use due to the development of new homes, businesses and neighborhoods, and we expect this growth to continue in the coming years. To continue delivering reliable electricity and accommodate the community's growth, Xcel Energy is proposing the construction of a 115/34.5kV substation on the west side of Interstate 94 and a two-mile 115kV transmission line connecting a new substation to an existing transmission line about a ½ mile west of the Elm Creek substation (see enclosed project map).

You can learn more about the project at **xcelenergytransmission.com/northwest-maple-grove**

This project will help ensure reliable electricity for years to come and support the community's residential, commercial, and industrial expansion in the area.

We invite landowners and community members to attend an open house to learn more about the project and the proposed route. Large-format maps and project staff will be available for questions and discussion.

Open House Date:	**April 22, 2025**
Time:	**5:00 p.m. - 7:00 p.m.**
Location:	**Maple Grove Community Center** **12951 Weaver Lake Rd** **Maple Grove, MN 55369**

We welcome your comments and questions! You can share feedback in person at the open house or through the following channels:

- **Website:** xcelenergytransmission.com
- **Email:** NWmaplegrove@xcelenergy.com
- **Phone:** 612-359-4848

MAPLE GROVE CORRIDOR TRANSMISSION PROJECT TO SUPPORT GROWTH AND MAINTAIN RELIABILITY

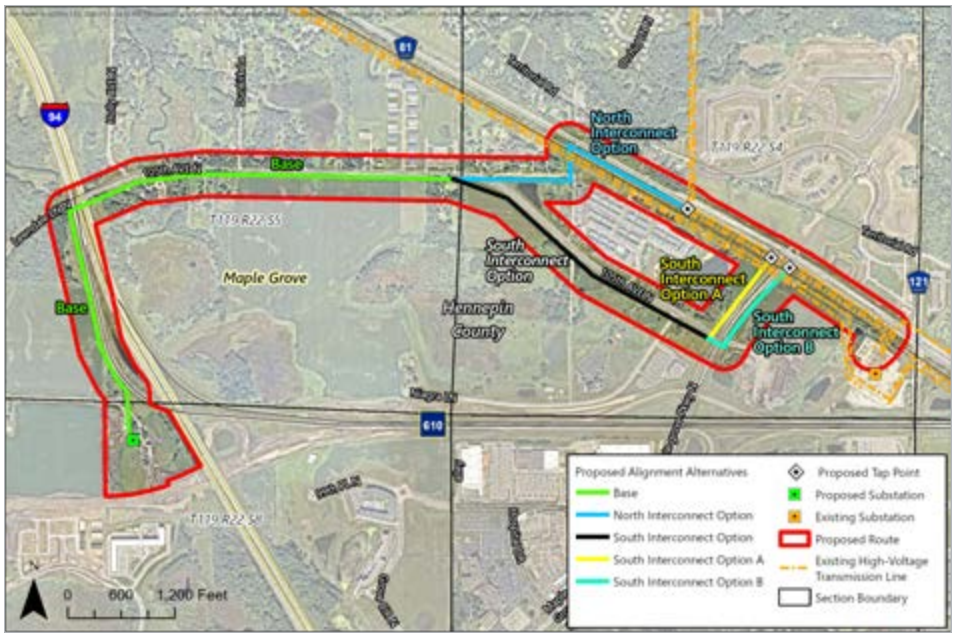
INFORMATION SHEET

INFRASTRUCTURE WILL SUPPORT FORECASTED RESIDENTIAL, COMMERCIAL AND INDUSTRIAL GROWTH IN AREA

Xcel Energy®

Project Overview

The area around Twin Cities' northwest suburb Maple Grove is experiencing significant increase in electric use due to the growth of new homes, businesses and neighborhoods, and we expect this growth to continue in the coming years. To continue delivering reliable electricity and accommodate the community's growth, Xcel Energy is proposing the construction of a 115/34.5 kV substation on the west side of Interstate 94 and a two-mile 115 kV transmission line connecting the new substation to an existing transmission line west of the Elm Creek substation. This important electric transmission project will provide significant benefits to customers throughout the area and support residential, commercial and industrial development in the community.



Project benefits:

Xcel Energy is anticipating and responding to increased demand for electricity. This important transmission and distribution project will provide significant benefits to electric customers throughout the area and support residential, commercial and industrial development west of Interstate 94. Currently, distribution feeders in the area are at 55-80% loaded and without the construction of the new transmission line, distribution feeders and substation, Xcel Energy anticipates reliability issues and turning down new commercial and industrial customers.



Proposed Route:

The route option from the new West Maple Grove substation to the existing 115 kV line west of the Elm Creek substation runs on the west side of Interstate 94 to avoid some sensitive areas and mainly follow existing roadways. The route is approximately 2.0 miles and roughly follows 105th Ave North. The northern interconnect option would primarily impact residential properties whereas the southern interconnect option would run through a mix of residential, commercial and undeveloped land.

Regulatory process and review

Xcel Energy is committed to providing the public with opportunities to give feedback and recommendations on the proposed routes. Xcel Energy will begin the public outreach and regulatory processes ahead of filing the Route Permit application with the Minnesota Public Utilities Commission in mid-2025. Final route proposals will be determined after working with local landowners, local governments, and other key stakeholders. The project's need and eventual route will be reviewed and approved by the Minnesota Public Utilities Commission.

Contact us:
xcelenergytransmission.com/northwest-maple-grove
NWMapleGrove@xcelenergy.com • 612-342-8902

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NORTHWEST MAPLE GROVE PROJECT OVERVIEW AND NEED

The area around Twin Cities' northwest suburb Maple Grove is experiencing significant increase in electric use due to the growth of new homes, businesses and neighborhoods, and we expect this growth to continue in the coming years.

- Increased demand for electricity requires new infrastructure
- New transmission line will deliver reliability and help meet future electric growth from new businesses and residences
- Without new transmission infrastructure, commercial and residential growth will be limited, including the growth areas west of I-94

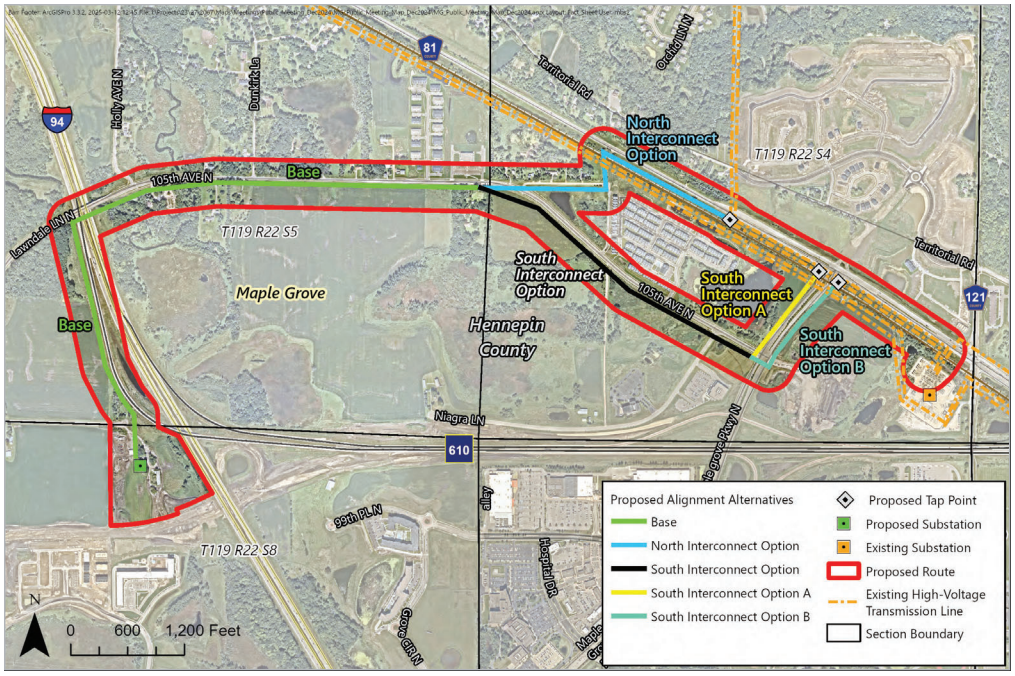
PROPOSAL

Build a new 115/34.5 kV substation on west side of I-94 and a two-mile 115 kV transmission line connecting the new substation to an existing transmission line west of the Elm Creek substation.

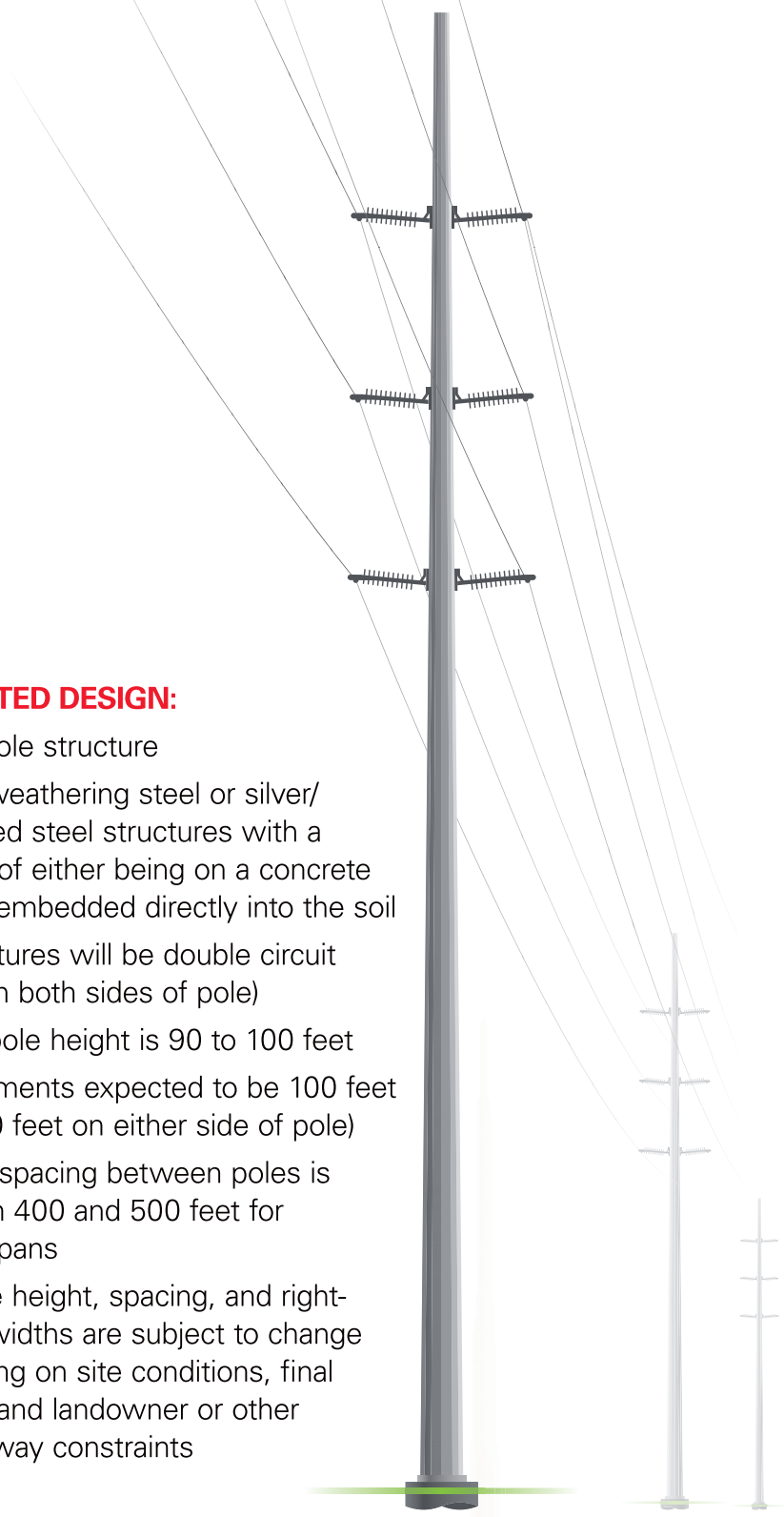
PROPOSED ROUTE

The route option from the new West Maple Grove substation to the existing 115 kV line west of the Elm Creek substation runs on the west side of Interstate 94 to avoid some sensitive areas and mainly follow existing roadways. The route is approximately 2.0 miles and roughly follows 105th Ave North. The northern interconnection option would primarily impact residential properties whereas the southern interconnection option would run through a mix of residential, commercial and undeveloped land.





TRANSMISSION LINE INFRASTRUCTURE



ANTICIPATED DESIGN:

- Single-pole structure
- Brown/weathering steel or silver/ galvanized steel structures with a mixture of either being on a concrete base or embedded directly into the soil
- All structures will be double circuit (wires on both sides of pole)
- Typical pole height is 90 to 100 feet
- All easements expected to be 100 feet wide (50 feet on either side of pole)
- General spacing between poles is between 400 and 500 feet for typical spans
- The pole height, spacing, and right-of-way widths are subject to change depending on site conditions, final routing, and landowner or other right-of-way constraints

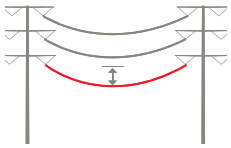
TRANSMISSION LINE STRUCTURES VARY IN HEIGHT DEPENDING ON:



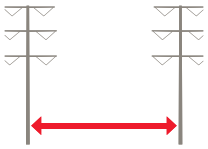
Voltage



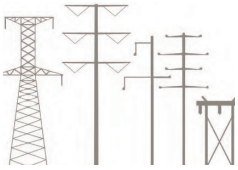
Terrain



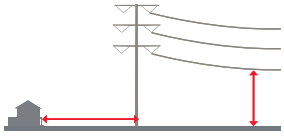
Sag of the conductor



Length of span between transmission structures



Structure type



Minimum clearance prescribed by National Electric Safety Code and company standards

REGULATORY PROCESS

XCEL ENERGY IS COMMITTED to providing the public with opportunities to give feedback and recommendations on the proposed routes. Xcel Energy is working with local officials, businesses and residents. We will file an application for a Route Permit with the Minnesota Public Utilities Commission in mid-2025. The application will be reviewed by the Minnesota Public Utilities Commission.



PROJECT AND PUBLIC OUTREACH SCHEDULE

2024-2025:

- Initial route review and project planning
- Local government and stakeholder outreach
- State and federal agency outreach

2025:

- Route permit application filed
- Route permit reviewed

2025-2026:

- Easement negotiations with landowners
- Detailed design and engineering

2027-2028:

- Begin construction (2027)
- Complete construction (2028)

ELECTRIC AND MAGNETIC FIELDS

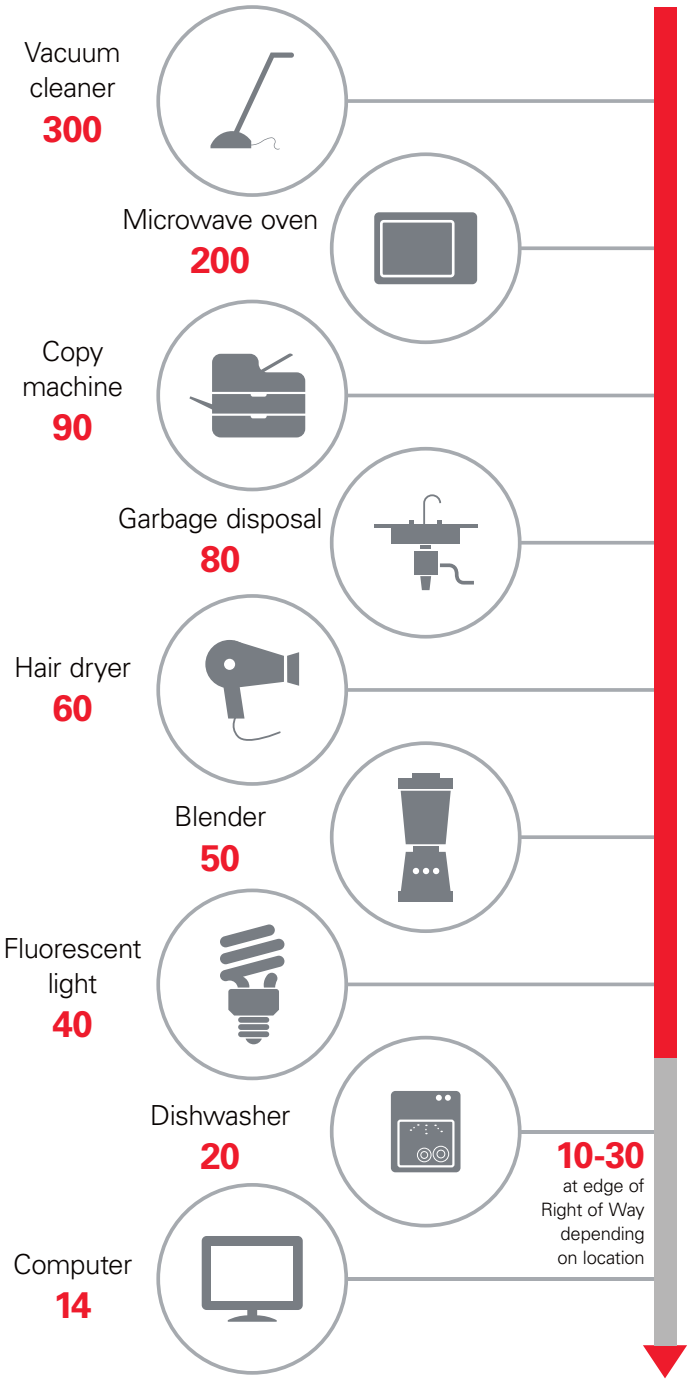
ELECTRIC AND MAGNETIC FIELDS, commonly referred to as EMF, exists wherever electricity is produced and used, including cell phones, appliances, lamps, computers and power lines. The fields dissipate rapidly the further away from a device.

Magnetic fields, measured in milliGauss (mg), are produced by electric current and only exist when a device is turned on—the higher the current, the greater the magnetic field. The power line serving your neighborhood produces EMF just like household appliances and business equipment, such as computers and printers.

The World Health Organization and American Cancer Society have both studied EMF and concluded power lines do not increase risks to cancer.



Typical magnetic fields six inches from common home appliances measured in milliGauss (mG) are depicted in the chart.

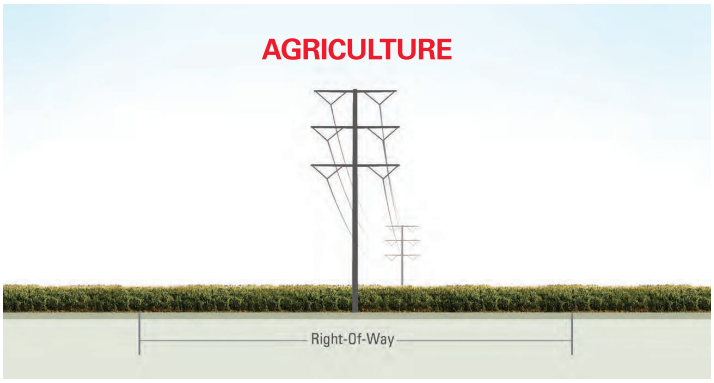


EASEMENTS AND RIGHT-OF-WAY

EASEMENTS are a permanent right authorizing a utility to use the Right-of-Way (ROW) to build and maintain a transmission line.

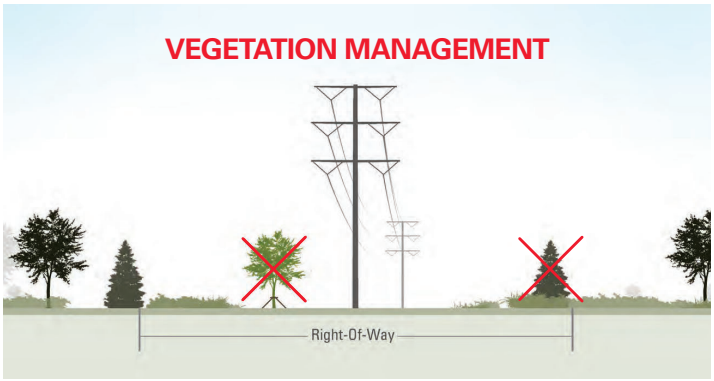
Landowners are paid a fair market value for the easement and can continue to use the land so long as their use does not interfere with the operation and maintenance of the transmission line.

RIGHTS-OF-WAY are the actual land areas acquired for a specific purpose such as a transmission line, roadway or other infrastructure.



ALLOWED USES WITHIN EASEMENTS

After initial construction of the utility infrastructure, agricultural activities can continue outside of the small area occupied by the transmission structures.



Trees growing near power lines can be a safety hazard and are a major contributor to electric service interruptions nationwide. There may be some areas where tree removal and pruning will be needed.

Tree pruning is the selective removal of branches that are not an adequate distance away from power lines, or that will grow too close to the power line before the next maintenance cycle. This may also include some trees outside the Right-Of-Way that could grow near the transmission line. Our goal is to provide safe, reliable electric service while also taking the best possible care of one of your community's valuable natural resources.



Generally, buildings or other structures are not allowed in the Right-of-Way/easement for transmission lines due to clearance and safety concerns. Landowners can only build structures under a power line after receiving written approval from the electric utility.

TRANSMISSION LINE CONSTRUCTION

XCEL ENERGY HAS A RECORD OF DEVELOPING AND BUILDING thousands of miles of high-voltage transmission lines in our eight-state service area over our 100-plus years of serving customers. We have refined the construction process to minimize impact on landowners and the environment as much as possible.

THE CONSTRUCTION PROCESS GENERALLY CONSISTS OF:

- Soil surveys and property staking
- Construction access and site preparation (brush removal and tree clearing)
- Mobilizing equipment and delivering material
- Foundation construction
- Installing the structure
- Stringing conductor
- Land restoration



Attachment B.2

90-day Preapplication Coordination Letter and Recipient List

414 Nicollet Mall
Minneapolis, MN 55401

May 9, 2025 **Via U.S. Mail**

RE: NOTICE OF AVAILABILITY FOR MEETING; MINN. STAT. § 216E.03, SUBD. 3A

IN THE MATTER OF THE APPLICATION FOR A ROUTE PERMIT FOR THE WEST MAPLE GROVE 115 KV TRANSMISSION PROJECT

Dear Local Government Official,

I am writing to offer you the opportunity to request a consultation meeting regarding a proposed transmission line project in Maple Grove. Maple Grove is experiencing a significant increase in electric use due to the growth of new housing, businesses and neighborhoods. To continue delivering reliable electricity and to accommodate the community's growth, Northern States Power Company, doing business as Xcel Energy, (the Applicant) is proposing the construction of a 115/34.5 kV substation on the west side of Interstate 94 and a two-mile 115 kV transmission line connecting the new substation with an existing 115 kV transmission line west of the existing Elm Creek substation. A map of the proposed Project is attached to this letter as Figure 1.

A Route Permit must be obtained from the Minnesota Public Utilities Commission (Commission) before high voltage transmission lines like the proposed Project can be built. The project's route will be reviewed and approved by the Commission with opportunities for public and stakeholder input during this process.

The Applicant plans to submit a Route Permit application in mid-2025.

Minnesota Statute § 216E.03, subd. 3b provides local units of government the opportunity to request a consultation meeting regarding the proposed Project prior to the submission of a Route Permit application to the Commission. This letter is being provided because the Applicant is anticipating filing a Route Permit application for the Project within the next ninety days. If you would like to request a meeting, please call 1-612-342-8902 or send an email to NWMapleGrove@xcelenergy.com

I am happy to discuss any questions that you may have about the Project. Additional information about the Project can also be found on the Project's

website: https://xcelenergytransmission.com/projects/northwest-maple-grove/.

Sincerely,

/s/ Casey Storey

CASEY STORY
SR. SITING AND LAND RIGHTS AGENT
NORTHERN STATES POWER COMPANY

CERTIFICATE OF MAILING

Lisa Ungar says that on the 9th day of May 2025, they caused to be delivered a letter of Notice of Availability for Meeting, MInn. Stat. § 216E.03, Subd. 3A in the Matter of the Application for a Route Permit for the West Maple Grove 115 kV Transmission Project to the attached mailing list.

Lisa A Ungar

Name

County Administrator
David Hough
Government Center A2303
300 South 6th Street
Minneapolis, MN 55487

Commissioner
Kevin Anderson
District 7
300 South 6th Street
Minneapolis, MN 55487

District Director
Clara Severson
District 7
300 South 6th Street
Minneapolis, MN 55487

Mayor
Mark Steffenson
Maple Grove
12800 Arbor Lakes Parkway N
Maple Grove, MN 55369

City Administrator
Heidi Nelson
Maple Grove
12800 Arbor Lakes Parkway N
Maple Grove, MN 55369

City Clerk
Amy Dietl
Maple Grove
12800 Arbor Lakes Parkway N
Maple Grove, MN 55369

Senator
Warren Limmer
District 37
2221 Minnesota Senate Bldg.
St. Paul, MN 55155

Representative
Kristin Robbins
District 37A
2nd Floor, Centennial Office Building
658 Cedar Street
St. Paul, MN 55155

Representative
Kristin Bahner
District 37B
5th Floor, Centennial Office Building
658 Cedar Street
St. Paul, MN 55155

Deputy Tribal Historic Preservation Officer **Lawrence Plucinski**
Bad River Band of the Lake Superior Tribe of Chippewa Indians of the Bad River Reservation, Wisconsin
PO Box 39
Odanah, WI 54861

Tribal Historic Preservation Officer
Max Bear
Cheyenne and Arapaho Tribes, Oklahoma
700 Black Kettle Blvd
Concho, OK 73022

Tribal Historic Preservation Officer
Garrie Kills A Hundred
Flandreau Santee Sioux Tribe of South Dakota
PO Box 283
Flandreau, SD 57028

Tribal Historic Preservation Officer
Evan Schroeder
Fond du Lac Band of the Minnesota Chippewa Tribe
1720 Big Lake Rd
Cloquet, MN 55720

Tribal Historic Preservation Officer
Michael Blackwolf
Fort Belknap Indian Community of the Fort Belknap Reservation of Montana
656 Agency Main Street
Harlem, MT 59526

Tribal Historic Preservation Officer
Rob Hull
Grand Portage Band of the Minnesota Chippewa Tribe
PO Box 428
Grand Portage, MN 55605

Tribal Historic Preservation Officer
Lance Foster
Iowa Tribe of Kansas and Nebraska
3345 B Thrasher Rd.
White Cloud, KS 66094

Tribal Historic Preservation Officer
Alden Connor
Keweenaw Bay Indian Community, Michigan
16429 Beartown Rd.
Baraga, MI 49908

Tribal Historic Preservation Officer
Alina Shively
Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan
E23709 US HWY 2 West
Watersmeet, MI 49969

Tribal Historic Preservation Officer
Cheyanne St. John
Lower Sioux Indian Community in the State of Minnesota
PO Box 308
Morton, MN 56270

Tribal Historic Preservation Officer
Terry Kemper
Mille Lacs Band of Ojibwe (The Mille Lacs Band of the Minnesota Chippewa Tribe Mille Lacs Band of Ojibwe)
43408 Oodena Drive
Onamia, MN 56359

Tribal Historic Preservation Officer
Rob Hull
Minnesota Chippewa Tribe
P.O. Box 428
Grand Portage, MN 55605

Tribal Historic Preservation Officer
Noah White
Prairie Island Indian Community in the State of Minnesota
5636 Sturgeon Lake Road
Welch, MN 55089

Tribal Historic Preservation Officer
Marvin DeFoe
Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin
88455 Pike Road
Bayfield, WI 54814

Tribal Historic Preservation Officer
Misty Frazier
Santee Sioux Nation, Nebraska
425 Frazier Ave. N. Suite 2
Niobrara, NE 68760

Tribal Historic Preservation Officer
Dianne Desrosiers
Sisseton-Wahpeton Oyate of the Lake Traverse Reservation,
South Dakota12554 BIA HWY 711
PO Box 907
Agency Villiage, SD 57262

Tribal Historic Preservation Officer
Kenneth Graywater
Spirit Lake Tribe, North Dakota
P.O. Box 359
Fort Totten, ND 58335

Tribal Historic Preservation Officer
Samantha Odegard
Upper Sioux Community, Minnesota
PO Box 147
Granite Falls, MN 56241

Tribal Historic Preservation Officer
Jaime Arsenault
White Earth Band of the Minnesota Chippewa Tribe
PO Box 418
White Earth, MN 56591

Chairman
Durrell Cooper
Apache Tribe of Oklahoma
PO Box 1330
Anadarko, OK 73005

Tribal Historic Preservation Officer
Sarah Thompson
Lac du Flambeau Band of Lake Superior Chippewa Indians of the Lac du Flambeau Reservation of Wisconsin
PO Box 67
Lac du Flambeau, WI 54538

Tribal Historic Preservation Officer
Amy Burnette
Leech Lake Band of the Minnesota Chippewa Tribe
190 Sailstar Drive NE
Cass Lake, MN 56633

Tribal Historic Preservation Officer
David Grignon
Menominee Indian Tribe of Wisconsin
PO Box 910
Keshena, WI 54135

Tribal Historic Preservation Officer
Michael Laronge
Sokaogon Chippewa Community, Wisconsin
3051 Sand Lake Road
Crandon, WI 54520

Tribal Historic Preservation Officer
Jaylen Strong
Bois Forte Band of Chippewa
1500 Bois Forte Road
Tower, MN 55790

Tribal Historic Preservation Officer
Kade Ferris
Red Lake Band of Chippewa Indians
PO Box 274
Red Lake, MN 56671

Tribal Historic Preservation Officer
Leonard Wabasha
Shakopee Mdewakanton Sioux Community
2330 Sioux Trail NW
Prior Lake, MN 55372

Executive Director
Shannon Geshick
Minnesota Indian Affairs Council
161 St. Anthony Ave, Ste 919
St. Paul, MN 55103

Air Quality Specialist
Charlie Lippert
Mille Lacs Band of Ojibwe (The Mille Lacs Band of the Minnesota Chippewa Tribe Mille Lacs Band of Ojibwe)
43408 Oodena Drive
Onamia, MN 56359

Attachment B.3

30-day Preapplication Coordination Letter and Recipient List

414 Nicollet Mall
Minneapolis, MN 55401

June 30, 2025 **Via U.S. Mail**

RE: PREAPPLICATION COORDINATION; MINN. STAT. § 216I.05, SUBD. 5
IN THE MATTER OF THE APPLICATION FOR A ROUTE PERMIT FOR THE
WEST MAPLE GROVE 115 KV TRANSMISSION PROJECT

Dear Interested Party,

I am writing to offer you the opportunity for preapplication coordination regarding a proposed transmission line project in Maple Grove. Maple Grove is experiencing a significant increase in electric use due to the growth of new housing, businesses and neighborhoods. To continue delivering reliable electricity and to accommodate the community's growth, Northern States Power Company, doing business as Xcel Energy, (the Applicant) is proposing the construction of a 115/34.5 kV substation on the west side of Interstate 94 and a two-mile 115 kV transmission line connecting the new substation with an existing 115 kV transmission line west of the existing Elm Creek substation. A map of the proposed Project is attached to this letter as Figure 1.

A Route Permit must be obtained from the Minnesota Public Utilities Commission (Commission) before high voltage transmission lines like the proposed Project can be built. The proposed Project's route will be reviewed and approved by the Commission with opportunities for public and stakeholder input during this process.

The Applicant plans to submit a Route Permit application in mid-2025.

Minnesota Statute § 216I.05, subd. 5 provides local units of government, Minnesota Tribal governments, and state technical resource agencies the opportunity for preapplication coordination or input prior to the submission of a Route Permit application to the Commission. This letter is being provided because the Applicant is anticipating filing a Route Permit application for the Project in August 2025. If you would like to request a meeting, please call 1-612-342-8902 or send an email to NWMapleGrove@xcelenergy.com.

You previously received a copy of this letter dated May 9, 2025. At the time of that mailing, Minnesota rules were such that local government units (LGUs) were required to be contacted within 90 days of a Route Permit application filing.

However, the project schedule has been updated to an adjusted anticipated application filing in August 2025. Current rules under Minn. Stat. § 216I.05, subd. 5 require such mailing within 30 days of filing. As such, you are receiving this second notification letter under the updated State of Minnesota requirements.

I am happy to discuss any questions that you may have about the Project. Additional information about the Project can also be found on the Project's website: https://xcelenergytransmission.com/projects/northwest-maple-grove/.

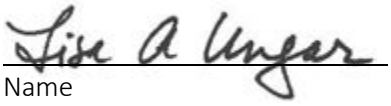
Sincerely,

/s/ Casey Storey

CASEY STORY
SR. SITING AND LAND RIGHTS AGENT
NORTHERN STATES POWER COMPANY

CERTIFICATE OF MAILING

Lisa Ungar says that on the 30th day of June 2025, they caused to be delivered a 30-day Preapplication Coordination letter, MInn. Stat. § 216I.05, Subd. 5 in the Matter of the Application for a Route Permit for the West Maple Grove 115 kV Transmission Project to the attached mailing list.



Name

Kevin Anderson
District 7
300 South 6th Street
Minneapolis, MN 55487

Jaime Arsenault
White Earth Band of the Minnesota Chippewa Tribe
PO Box 418
White Earth, MN 56591

Kristin Bahner
District 37B
5th Floor, Centennial Office Building
658 Cedar Street
St. Paul, MN 55155

Max Bear
Cheyenne and Arapaho Tribes, Oklahoma
700 Black Kettle Blvd
Concho, OK 73022

Michael Blackwolf
Fort Belknap Indian Community of the Fort Belknap Reservation of Montana
656 Agency Main Street
Harlem, MT 59526-9455

George Branchaud
Red Lake Band of Chippewa Indians
PO Box 274
Red Lake, MN 56671

Alden Connor
Keweenaw Bay Indian Community, Michigan
16429 Beartown Rd.
Baraga, MI 49908

Durrell Cooper
Apache Tribe of Oklahoma
PO Box 1330
Anadarko, OK 73005

Marvin DeFoe
Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin
88455 Pike Road
Bayfield, WI 54814

Dianne Desrosiers
Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota
12554 BIA HWY 711, PO Box 907
Agency Village, SD 57262

Amy Dietl
Maple Grove
12800 Arbor Lakes Parkway N
Maple Grove, MN 55369

Lance Foster
Iowa Tribe of Kansas and Nebraska
3345 B Thrasher Rd.
White Cloud, KS 66094

Misty Frazier
Santee Sioux Nation, Nebraska
425 Frazier Ave. N. Suite 2
Niobrara, NE 68760

Shannon Geshick
Minnesota Indian Affairs Council
161 St. Anthony Ave, Ste 919
St. Paul, MN 55103

Kenneth Graywater
Spirit Lake Tribe, North Dakota
P.O. Box 359
Fort Totten, ND 58335-0359

David Grignon
Menominee Indian Tribe of Wisconsin
PO Box 910
Keshena, WI 54135-0910

David Hough
Government Center A2303
300 South 6th Street
Minneapolis, MN 55487

Rob Hull
Minnesota Chippewa Tribe
P.O. Box 428
Grand Portage, MN 55605

Rob Hull
Grand Portage Band of the Minnesota Chippewa Tribe
PO Box 428
Grand Portage, MN 55605

Garrie Kills A Hundred
Flandreau Santee Sioux Tribe of South Dakota
PO Box 283
Flandreau, SD 57028

Michael Laronge
Sokaogon Chippewa Community, Wisconsin
3051 Sand Lake Road
Crandon, WI 54520

Gina Lemon
Leech Lake Band of the Minnesota Chippewa Tribe
190 Sailstar Drive NE
Cass Lake, MN 56633

Warren Limmer
District 37
2221 Minnesota Senate Bldg.
St. Paul, MN 55155

Charlie Lippert
Mille Lacs Band of Ojibwe
43408 Oodena Drive
Onamia, MN 56359

Heidi Nelson
Maple Grove
12800 Arbor Lakes Parkway N
Maple Grove, MN 55369

Samantha Odegard
Upper Sioux Community, Minnesota
PO Box 147
Granite Falls, MN 56241-0147

Lawrence Plucinski
Bad River Band of the Lake Superior Tribe of Chippewa Indians of the Bad River Reservation, Wisconsin
PO Box 39
Odanah, WI 54861

Kristin Robbins
District 37A
2nd Floor, Centennial Office Building
658 Cedar Street
St. Paul, MN 55155

Evan Schroeder
Fond du Lac Band of the Minnesota Chippewa Tribe
1720 Big Lake Rd
Cloquet, MN 55720

Clara Severson
District 7
300 South 6th Street
Minneapolis, MN 55487

Alina Shively
Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan
E23709 US HWY 2 West
Watersmeet, MI 49969

Cheyanne St. John
Lower Sioux Indian Community in the State of Minnesota
PO Box 308
Morton, MN 56270

Mark Steffenson
Maple Grove
12800 Arbor Lakes Parkway N
Maple Grove, MN 55369

Jaylen Strong
Bois Forte Band of Chippewa
1500 Bois Forte Road
Tower, MN 55790

Sarah Thompson
Lac du Flambeau Band of Lake Superior Chippewa Indians of the Lac du Flambeau Reservation of Wisconsin
PO Box 67
Lac du Flambeau, WI 54538

Leonard Wabasha
Shakopee Mdewakanton Sioux Community
2330 Sioux Trail NW
Prior Lake, MN 55372

Noah White
Prairie Island Indian Community in the State of Minnesota
5636 Sturgeon Lake Road
Welch, MN 55089

Mike Wilson
Mille Lacs Band of Ojibwe (The Mille Lacs Band of the Minnesota Chippewa Tribe Mille Lacs Band of Ojibwe)
43408 Oodena Drive
Onamia, MN 56359

414 Nicollet Mall
Minneapolis, MN 55401

June 30, 2025 **Via U.S. Mail**

RE: PREAPPLICATION COORDINATION; MINN. STAT. § 216I.05, SUBD. 5
IN THE MATTER OF THE APPLICATION FOR A ROUTE PERMIT FOR THE
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A Route Permit must be obtained from the Minnesota Public Utilities Commission (Commission) before high voltage transmission lines like the proposed Project can be built. The proposed Project's route will be reviewed and approved by the Commission with opportunities for public and stakeholder input during this process.

The Applicant plans to submit a Route Permit application in mid-2025.

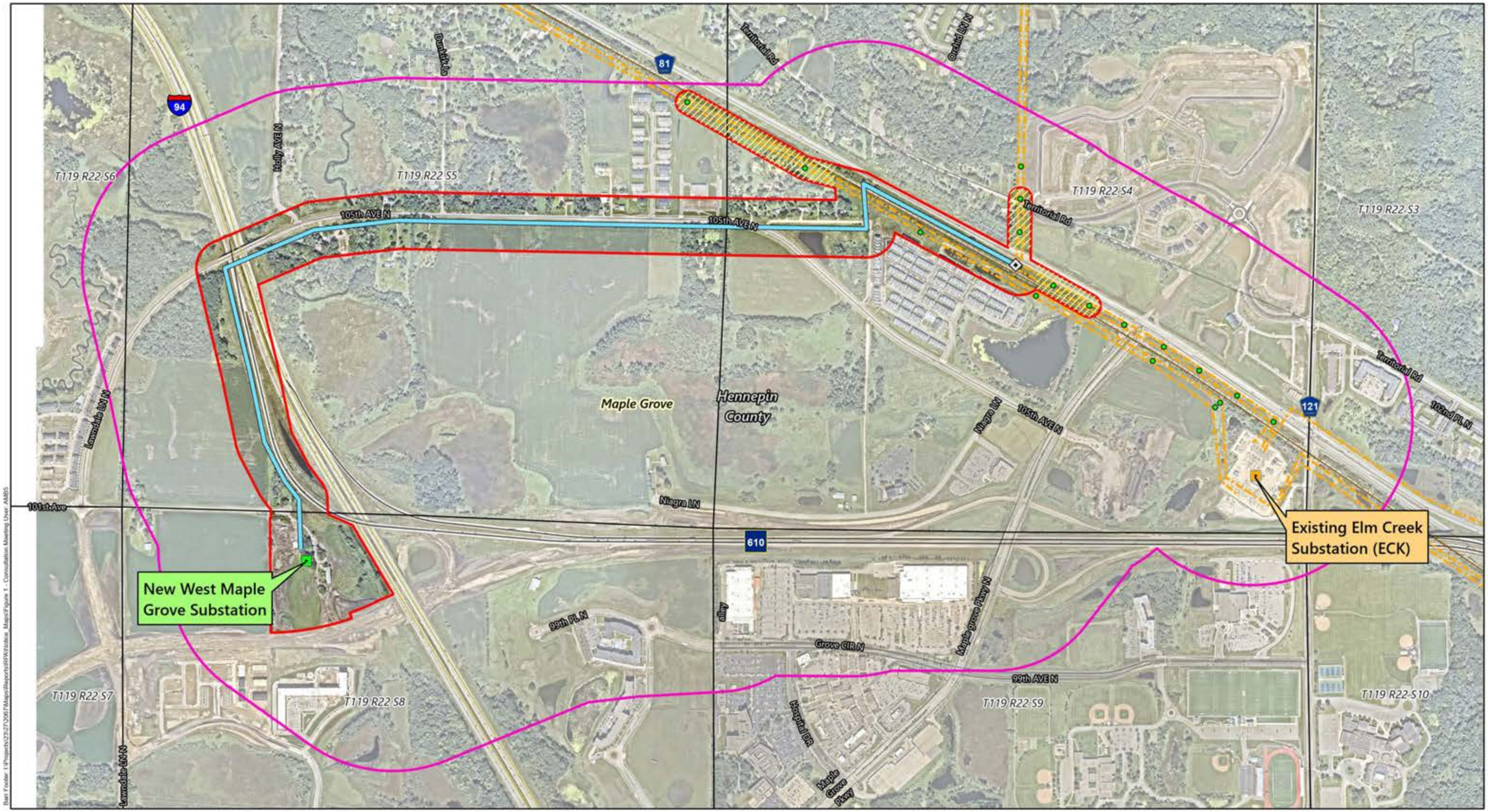
Minnesota Statute § 216I.05, subd. 5 provides local units of government, Minnesota Tribal governments, and state technical resource agencies the opportunity for preapplication coordination or input prior to the submission of a Route Permit application to the Commission. This letter is being provided because the Applicant is anticipating filing a Route Permit application for the Project in August 2025. If you would like to request a meeting, please call 1-612-342-8902 or send an email to NWMapleGrove@xcelenergy.com.

I am happy to discuss any questions that you may have about the Project. Additional information about the Project can also be found on the Project's website: https://xcelenergytransmission.com/projects/northwest-maple-grove/.

Sincerely,

/s/ Casey Storey

CASEY STORY
SR. SITING AND LAND RIGHTS AGENT
NORTHERN STATES POWER COMPANY



Proposed Alignment
Alignment
Existing Pole Locations

Proposed Tap Point
Proposed Substation
Existing Substation

Proposed Route
Potential Alteration to Existing Lines
Notice Area
Existing High-Voltage Transmission Line
Section Boundary

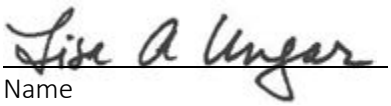
Feet
800 0 800

FIGURE 1

MAPLE GROVE AREA 115 KV TRANSMISSION LINE PROJECT

CERTIFICATE OF MAILING

Lisa Ungar says that on the 30th day of June 2025, they caused to be delivered a 30-day Preapplication Coordination letter, MInn. Stat. § 216I.05, Subd. 5 in the Matter of the Application for a Route Permit for the West Maple Grove 115 kV Transmission Project to the attached mailing list.



Name

Kelly Gragg-Johnson
Minnesota State Historic Preservation Office
Administration Building #203
50 Sherburne Ave.
Saint Paul, MN, 55155

James Drake
Minnesota Department of Natural Resources
500 Lafayette Road
Saint Paul, MN, 55155

Keylor Andrews
Minnesota Department of Natural Resources
500 Lafayette Road
Saint Paul, MN, 55155

Kate Fairman
Minnesota Department of Natural Resources
500 Lafayette Road
Saint Paul, MN, 55155

Joe Rokala
Minnesota Department of Natural Resources
1200 Warner Road
Saint Paul, MN, 55106

Stacy Kotch-Egstad
Minnesota Department of Transportation
395 John Ireland Blvd.
Saint Paul, MN, 55155

Karli Swenson
Minnesota Board of Water and Soil Resources
520 Lafayette Road North
Saint Paul, MN, 55155

Jed Chesnut
Minnesota Board of Water and Soil Resources
520 Lafayette Road North
Saint Paul, MN, 55155

David Bell
Minnesota Department of Health
625 Robert Street North
Saint Paul, MN, 55155

Stephen Roos
Minnesota Department of Agriculture
625 Robert Street North
Saint Paul, MN, 55155

Chris Green
Minnesota Pollution Control Agency
504 Fairgrounds Rd
Suite 200
Marshall, MN, 56258

Chad Konickson
U.S. Army Corps of Engineers
180 Fifth Street East
Suite 700
Saint Paul, MN, 55101

Ashley Kraetsch
U.S. Fish & Wildlife Service
5600 American Blvd West
Suite 990
Bloomington, MN, 55437

Outlook

Xcel Northwest Maple Grove 115 kV Transmission Project

From Veronica A. Parsell <VParsell@barr.com>
Date Tue 1/27/2026
To XXX
1 attachment (2 MB)
30-Day Pre-Application Notice Letter_MapleGrove.pdf;

Dear XXXX

I am writing to follow up regarding the Northwest Maple Grove 115 kV Transmission Project proposed by Xcel Energy.

In June 2025, your office was sent a hard copy pre application coordination letter describing the project and offering the opportunity for input prior to filing with the Minnesota Public Utilities Commission. Because our original correspondence was sent more than six months ago and only by mail, we wanted to reconnect directly to make sure you have the opportunity to review the project information before the application is submitted.

Xcel Energy anticipates filing the route permit application with the Minnesota Public Utilities Commission in approximately 30 days. As part of this process, we are reaching out to ask whether the Tribe has any comments, questions, or interest in further coordination related to the project.
For convenience, I have attached a copy of the afore-mentioned June 2025 pre application letter, which includes background information, a project description, and a map of the proposed facilities.

If the Tribe has no comments at this time, we would appreciate confirmation. If there are questions, concerns, or a desire to discuss the project further, we would welcome the opportunity to connect.

Thank you for your time and consideration.

Sincerely,
Veronica

Veronica A. Parsell
She/her/hers

Senior Cultural Resources Specialist
VParsell@barr.com | 952.832.2623
Minneapolis, MN | barr.com

BARR

Tribal Communication Tracker

Purpose: This document logs tribal communication activities and contacts for reporting and engagement tracking.

Project Name: Northwest Maple Grove 115 kV Transmission Project
Coordinator: Barr Engineering Co.

Outreach Activities

Date	Time (CT)	Method of Contact	Tribe	Contact Person	Contact Title	Phone Number	Email Address	Notes	Follow Up Indicated? (Y/N)
1/27/2026	8:56am	Email	Apache Tribe of Oklahoma	Durrell Cooper	Chairman	(405) 480-2910	durellcooper05@gmail.com		
1/27/2026	8:59am	Email	Bois Forte Band of Chippewa	Jaylen Strong	Tribal Historic Preservation Officer	(218) 753-6017	jaylen.strong@boisforte-nsn.gov		
1/27/2026	8:34am	Email	Cheyenne and Arapaho Tribes, Oklahoma	Max Bear	Tribal Historic Preservation Officer	(405) 422-7416	mbear@c-a-tribes.org		
1/27/2026	8:36am	Email	Flandreau Santee Sioux Tribe of South Dakota	Garrie Kills A Hundred	Tribal Historic Preservation Officer	(605) 864-1236	garrie.killsahundred@FSST.org	The Flandreau Santee Sioux Tribe has no issues with the proposed project as sited. If any cultural material and or human remains are disturbed, please stop and contact the tribe ASAP.	N
1/27/2026	8:37am	Email	Fond du Lac Band of the Minnesota Chippewa Tribe	Evan Schroeder	Tribal Historic Preservation Officer	(218) 878-7129	EvanSchroeder@fdlrez.com		
1/27/2026	8:39am	Email	Fort Belknap Indian Community of the Fort Belknap Reservation of Montana	Michael Blackwolf	Tribal Historic Preservation Officer	(406) 353-8471	mblackwolf@ftbelknap.org		
1/27/2026	8:41am	Email	Grand Portage Band of the Minnesota Chippewa Tribe	Rob Hull	Tribal Historic Preservation Officer	(218) 475-0111	thpo@grandportage.com		
1/27/2026	8:42am	Email	Iowa Tribe of Kansas and Nebraska	Alan Kelley	Tribal Historic Preservation Officer	(785) 595-3258	akelley@iowas.org		
1/27/2026	8:57am	Email	Leech Lake Band of the Minnesota Chippewa Tribe	Gina Lemon	Tribal Historic Preservation Officer	(218) 335-2940	gina.lemon@llojibwe.net	The Leech Lake Band of Ojibwe does not have any recorded historic properties within this area. If any cultural material and or human remains are disturbed, please stop and contact the tribe ASAP.	N
1/27/2026	8:44am	Email	Lower Sioux Indian Community in the State of Minnesota	Cheyanne St. John	Tribal Historic Preservation Officer	(507) 697-6321	cheyanne.stjohn@lowersioux.com		
1/27/2026	8:58am	Email	Menominee Indian Tribe of Wisconsin	David Grignon	Tribal Historic Preservation Officer	(715) 799-5258	dgrignon@mitw.org		
1/27/2026	9:05am	Email	Mille Lacs Band of Ojibwe	Mike Wilson	Tribal Historic Preservation Officer	(320) 362-1393	Mike.wilson@millelacsband.com		
1/27/2026	8:46am	Email	Prairie Island Indian Community in the State of Minnesota	Noah White	Tribal Historic Preservation Officer	(651) 385-4175	noah.white@piic.org		
1/27/2026	9:01am	Email	Red Lake Band of Chippewa Indians	George Branchaud	Tribal Historic Preservation Officer	(218) 679-1961	george.branchaud@redlakenation.org		
1/27/2026	8:48am	Email	Santee Sioux Nation, Nebraska	Larry Thomas	Tribal Historic Preservation Officer	(402) 857-3568	ssn.thpo@gmail.com		
1/27/2026	9:02am	Email	Shakopee Mdewakanton Sioux Community	Leonard Wabasha	Tribal Historic Preservation Officer	(952) 496-6120	leonard.wabasha@shakepeedakota.org		
1/27/2026	8:49am	Email	Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota	Dianne Desrosiers	Tribal Historic Preservation Officer	(605) 698-3584	dianned@swo-nsn.gov		
1/27/2026	8:51am	Email	Spirit Lake Tribe, North Dakota	Kenneth Graywater	Tribal Historic Preservation Officer	(701) 766-4031	kjgraywater@spiritlakenation.com		
1/27/2026	8:52am	Email	Upper Sioux Community, Minnesota	Samantha Odegard	Tribal Historic Preservation Officer	(320) 564-6334	samanthao@uppersiouxcommunity-nsn.gov		
1/27/2026	8:54am	Email	White Earth Band of the Minnesota Chippewa Tribe	Jaime Arsenault	Tribal Historic Preservation Officer	(218) 983-3285, ext. 5807	Jaime.Arsenault@whiteearth-nsn.gov		
2/20/2026	3:43pm	Phone call	Apache Tribe of Oklahoma	Durrell Cooper	Chairman	(405) 247-9493	durellcooper05@gmail.com	left a voicemail for the Chairman regarding the project.	
2/20/2026	3:47pm	Phone call	Bois Forte Band of Chippewa	Jaylen Strong	Tribal Historic Preservation Officer	(218) 753-6017	jaylen.strong@boisforte-nsn.gov	left a voicemail for the THPO regarding the project.	
2/20/2026	3:49pm	Phone call	Cheyenne and Arapaho Tribes, Oklahoma	Max Bear	Tribal Historic Preservation Officer	(405) 422-7416	mbear@c-a-tribes.org	left a voicemail for the THPO regarding the project.	
2/20/2026	3:53pm	Phone call	Fond du Lac Band of the Minnesota Chippewa Tribe	Evan Schroeder	Tribal Historic Preservation Officer	(218) 878-7129	EvanSchroeder@fdlrez.com	left a voicemail for the THPO regarding the project.	
2/20/2026	3:55pm	Phone call	Fort Belknap Indian Community of the Fort Belknap Reservation of Montana	Michael Blackwolf	Tribal Historic Preservation Officer	(406) 353-8471	mblackwolf@ftbelknap.org	left a voicemail for the THPO regarding the project.	
2/20/2026	3:57pm	Phone call	Grand Portage Band of the Minnesota Chippewa Tribe	Rob Hull	Tribal Historic Preservation Officer	(218) 475-0111	thpo@grandportage.com	left a voicemail for the THPO regarding the project.	
2/20/2026	4:00pm	Phone call	Iowa Tribe of Kansas and Nebraska	Randy	Tribal Historic Preservation Officer	785-351-0080		Alan Kelley is no longer the THPO, was told the new THPO is Randy (receptionist did not know his last name). Contact number updated. Left a voicemail for the new THPO regarding the project.	

Date	Time (CT)	Method of Contact	Tribe	Contact Person	Contact Title	Phone Number	Email Address	Notes	Follow Up Indicated? (Y/N)
2/20/2026	4:05pm	Phone call	Lower Sioux Indian Community in the State of Minnesota	Cheyanne St. John	Tribal Historic Preservation Officer	507-697-8672	cheyanne.stjohn@lowersioux.com	left a voicemail for the THPO regarding the project.	
2/20/2026	4:07pm	Phone call	Menominee Indian Tribe of Wisconsin	David Grignon	Tribal Historic Preservation Officer	(715) 799-5258	dgrignon@mitw.org	Spoke with Ms. Emcox; who requested that I forward the project email to jemcox@mitw.org. She indicated that she would print out the email and discuss it with THPO Grignon on Monday 2/23. Forwarded the email at 4:10pm on 2/20.	Y
2/20/2026	4:14pm	Phone call	Mille Lacs Band of Ojibwe	Mike Wilson	Tribal Historic Preservation Officer	(320) 362-1393	Mike.wilson@millelacsband.com	voicemail box is not set up; could not leave a message	
2/20/2026	4:15pm	Phone call	Prairie Island Indian Community in the State of Minnesota	Noah White	Tribal Historic Preservation Officer	(651) 385-4175	noah.white@piic.org	left a voicemail for the THPO regarding the project.	
2/20/2026	4:17pm	Phone call	Red Lake Band of Chippewa Indians	George Branchaud	Tribal Historic Preservation Officer	(218) 679-1961	george.branchaud@redlakenation.org	left a voicemail for the THPO regarding the project.	
2/20/2026	4:19pm	Phone call	Santee Sioux Nation, Nebraska	Larry Thomas	Tribal Historic Preservation Officer	(402) 857-3568	ssn.thpo@gmail.com	phone number no longer in service	
2/20/2026	4:20pm	Phone call	Shakopee Mdewakanton Sioux Community	Leonard Wabasha	Tribal Historic Preservation Officer	(952) 496-6120	leonard.wabasha@shakepeedakota.org	left a voicemail for the THPO regarding the project. Mr. Wabasha called back at approximately 4:40pm on 2/20 indicating he did not receive the 1/27 email. Resent email on 2/20. Email response from Mr. Wabasha on 2/20 stating there are no concerns with the route mentioned in the correspondence, but if it changes to let him know. And he recommends having an inadvertent discovery plan in place for all ground disturbing activities.	N
2/20/2026	4:22pm	Phone call	Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota	Dianne Desrosiers	Tribal Historic Preservation Officer	(605) 698-3584	dianned@swo-nsn.gov	spoke with THPO Desrosiers; she will review the project and respond by phone or email if there are any concerns regarding the project.	Y
2/20/2026	4:29pm	Phone call	Spirit Lake Tribe, North Dakota	Kenneth Graywater	Tribal Historic Preservation Officer	(701) 766-4031	kjgraywater@spiritlakenation.com	left a voicemail for the THPO regarding the project.	
2/20/2026	4:33pm	Phone call	Cheyenne and Arapaho Tribes, Oklahoma	Samantha Odegard	Tribal Historic Preservation Officer	(320) 564-6334	samanthao@uppersiouxcommunity-nsn.gov	spoke with THPO Odegard; she has the project flagged for review and will respond by phone or email if there are any questions or concerns regarding the project.	Y
2/20/2026	4:34pm	Phone call	White Earth Band of the Minnesota Chippewa Tribe	Jaime Arsenault	Tribal Historic Preservation Officer	(218) 983-3285, ext. 5807	Jaime.Arsenault@whiteearth-nsn.gov	No answer; no option to leave a voicemail.	

Attachment B.4

Responses Received from Tribes and Government Units

City of Maple Grove | 12800 Arbor Lakes Parkway Maple Grove, MN 55369-7064 763-494-6000 maplegrovemn.gov

Monday, July 7, 2025

Scott Johnson
Manager, Community Relations and Economic Development
Xcel Energy
8701 Monticello Ln. No.
Maple Grove, MN 55369

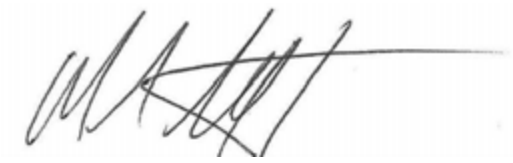
RE: West Maple Grove 115kV Transmission Line Project

Mr. Johnson:

The City of Maple Grove supports the development of the West Maple Grove 115kV transmission line utilizing the "north interconnect" option, as preferred by Xcel Energy. We look forward to having continued discussion with Xcel Energy on the design and development of this project and its connected substation west of Interstate 94.

Please contact Community and Economic Development Director Joe Hogeboom at 763-494-6045 or jhogeboom@maplegrovemn.gov if you have any questions or if you need anything further at this time.

Sincerely,



Mark V. Steffenson
Mayor
City of Maple Grove, MN

Outlook

FW: Xcel Letter - Route Permit for Maple Grove Transmission Project

From NWMapleGrove <NWMapleGrove@xcelenergy.com>
Date Tue 6/17/2025 11:23 AM
To Aaron M. Mielke <amielke@barr.com>; Storey, Casey <Casey.Storey@xcelenergy.com>; Dunham, Michael P <Michael.P.Dunham@xcelenergy.com>

2 attachments (2 MB)
DOC061125-06112025153721.pdf; DOC061125-06112025153745.pdf;

CAUTION: This email originated from outside of your organization.

FYI

From: Douglas Heidemann <Douglas.Heidemann@hennepin.us>
Sent: Tuesday, June 17, 2025 9:48 AM
To: NWMapleGrove <NWMapleGrove@xcelenergy.com>
Cc: Carla Stueve <Carla.Stueve@hennepin.us>
Subject: FW: Xcel Letter - Route Permit for Maple Grove Transmission Project

EXTERNAL - STOP & THINK before opening links and attachments.

Hello Xcel,

Thank you for sending us this plan so early in the process. The county does not see any issues with the proposed location of the transmission lines. Please submit a more detailed plan when available for further comments.

Have a nice day,

Doug Heidemann
Permits Supervisor
Permits Office Transportation Operations
Office: 612-596-0336 | Mobile: 612-221-7162
Hennepin County Public Works
1600 Prairie Drive
Medina, Mn 55340

From: Carla Stueve <Carla.Stueve@hennepin.us>
Sent: Thursday, June 12, 2025 8:08 AM
To: Douglas Heidemann <Douglas.Heidemann@hennepin.us>
Cc: Nariman Vanaki <Nariman.Vanaki@hennepin.us>; Lisa Cerney <Lisa.Cerney@hennepin.us>
Subject: Xcel Letter - Route Permit for Maple Grove Transmission Project

Doug,

Attached is a letter and map from Xcel Energy for a notice of meeting availability for the application of a route permit for the West Maple Grove Transmission Project. Is this something that your office would coordinate?

Thanks,
Carla

Disclaimer: If you are not the intended recipient of this message, please immediately notify the sender of the transmission error and then promptly permanently delete this message from your computer system.

Outlook

RE: Proposed 115kV Transmission Project in Maple Grove - MNDOT/XCEL connect

From Hogan, Karissa (She/Her/Hers) (DOT) <Karissa.Hogan@state.mn.us>
Date Tue 8/26/2025 6:19 AM
To Aaron M. Mielke <AMielke@barr.com>; Orry Hatcher <OHatcher@barr.com>

CAUTION: This email originated from outside of your organization.

Hi Aaron,

Yes, maps were received on Thursday.

Thanks,
Karissa

From: Aaron M. Mielke <AMielke@barr.com>
Sent: Sunday, August 24, 2025 7:43 AM
To: Orry Hatcher <OHatcher@barr.com>; Hogan, Karissa (She/Her/Hers) (DOT) <Karissa.Hogan@state.mn.us>
Subject: Re: Proposed 115kV Transmission Project in Maple Grove - MNDOT/XCEL connect

Karissa,
Confirming you received the maps that Orry sent on Thursday.

Thanks,

Aaron M. Mielke

Senior GIS/Environmental Consultant
AMielke@barr.com | 952.832.2965 | Cell: 952.412.2845

From: Orry Hatcher <OHatcher@barr.com>
Sent: Thursday, August 21, 2025 2:46 PM
To: Karissa.Hogan@state.mn.us <Karissa.Hogan@state.mn.us>
Cc: Aaron M. Mielke <AMielke@barr.com>; Storey, Casey <Casey.Storey@xcelenergy.com>; Sullivan, Brian E <Brian.E.Sullivan@xcelenergy.com>; Mike B. Strong <MStrong@barr.com>; Aaron M. Birr <Aaron.Birr@barr.com>; Orry Hatcher <OHatcher@barr.com>; : Kotch Egstad, Stacy (DOT) <stacy.kotch@state.mn.us>
Subject: RE: Proposed 115kV Transmission Project in Maple Grove - MNDOT/XCEL connect

Hi Karissa – I'm providing the maps for the ENM process as supporting documents. Please let me know when you've received and we can start the timeline for the internal review. Note the soils map from the checklist is not included as there were no highly erodible soils or steep slopes in the project area.

Please let me know if you need anything else.

Thank you,

Orry Hatcher

Environmental Consultant
OHatcher@barr.com | 218.788.6395
Duluth, MN | barr.com

BARR.

Sign up for industry insights | Opt out or manage your email preferences
LinkedIn | Facebook | Instagram | YouTube

From: Hogan, Karissa (She/Her/Hers) (DOT) <Karissa.Hogan@state.mn.us>
Sent: Tuesday, August 19, 2025 11:58 AM
To: Aaron M. Mielke <AMielke@barr.com>; Storey, Casey <Casey.Storey@xcelenergy.com>; Sullivan, Brian E <Brian.E.Sullivan@xcelenergy.com>; Mike B. Strong <MStrong@barr.com>; Aaron M. Birr <Aaron.Birr@barr.com>; Orry Hatcher <OHatcher@barr.com>
Cc: Kotch Egstad, Stacy (DOT) <stacy.kotch@state.mn.us>
Subject: RE: Proposed 115kV Transmission Project in Maple Grove - MNDOT/XCEL connect

CAUTION: This email originated from outside of your organization.

Hi Aaron,

Thank you for sending over the completed ENM and the supporting documents. Everything appears to look good based on my initial review. Once you send the maps, I will forward the materials to our team for internal review. Our internal reviewers are given 30 days to complete their review.

Thank you for your continued coordination with MnDOT on this project.

Best,
Karissa Hogan
Documents & Utility Permits Coordinator
Office of Land Management
Minnesota Department of Transportation
karissa.hogan@state.mn.us | www.mndot.gov

DEPARTMENT OF TRANSPORTATION

From: Aaron M. Mielke <AMielke@barr.com>
Sent: Tuesday, August 19, 2025 7:46 AM
To: Hogan, Karissa (She/Her/Hers) (DOT) <Karissa.Hogan@state.mn.us>; Storey, Casey <Casey.Storey@xcelenergy.com>; Sullivan, Brian E <Brian.E.Sullivan@xcelenergy.com>; Mike B. Strong <MStrong@barr.com>; Aaron M. Birr <Aaron.Birr@barr.com>; Orry Hatcher <OHatcher@barr.com>
Cc: Kotch Egstad, Stacy (DOT) <stacy.kotch@state.mn.us>
Subject: Re: Proposed 115kV Transmission Project in Maple Grove - MNDOT/XCEL connect

Karissa,
Attached are the completed ENM and applicant checklist. I also included the GIS shapefiles, .kmz and a supplemental structure description. I will send maps in a follow up email.

Thanks,

Aaron M. Mielke

Senior GIS/Environmental Consultant
AMielke@barr.com | 952.832.2965 | Cell: 952.412.2845

From: Hogan, Karissa (She/Her/Hers) (DOT) <Karissa.Hogan@state.mn.us>
Sent: Friday, July 25, 2025 9:52 AM
To: Aaron M. Mielke <AMielke@barr.com>; Storey, Casey <Casey.Storey@xcelenergy.com>; Dunham, Michael P <Michael.P.Dunham@xcelenergy.com>; Sullivan, Brian E <Brian.E.Sullivan@xcelenergy.com>; Gallay, Benjamin J <benjamin.j.gallay@xcelenergy.com>; Johnson, Scott D <scott.d.johnson@xcelenergy.com>; Mike B. Strong <MStrong@barr.com>; Aaron M. Birr <Aaron.Birr@barr.com>; Orry Hatcher <OHatcher@barr.com>
Cc: Kotch Egstad, Stacy (DOT) <stacy.kotch@state.mn.us>
Subject: RE: Proposed 115kV Transmission Project in Maple Grove - MNDOT/XCEL connect

CAUTION: This email originated from outside of your organization.

Good morning, Aaron,

Thank you for your continued coordination on this project.

Attached is the EMN and ENM applicant checklist for your team to complete and return. Once we receive the completed checklist, we will begin our internal review process. Please allow 30 days from the date of receipt for us to complete our review.

Let me know if you have any questions or need clarification.

Thanks,

Karissa Hogan
Documents & Utility Permits Coordinator
Office of Land Management
Minnesota Department of Transportation
karissa.hogan@state.mn.us | www.mndot.gov

DEPARTMENT OF TRANSPORTATION

From: Aaron M. Mielke <AMielke@barr.com>
Sent: Tuesday, July 22, 2025 5:53 PM
To: Storey, Casey <Casey.Storey@xcelenergy.com>; Sherman, Tod (DOT) <tod.sherman@state.mn.us>; Craig, E (DOT) <buck.craig@state.mn.us>; Dierberger, Jeffrey (DOT) <jeffrey.dierberger@state.mn.us>; Kotch Egstad, Stacy (DOT) <stacy.kotch@state.mn.us>; Hartzheim, Paul (DOT) <Paul.Hartzheim@state.mn.us>; Hogan, Karissa (She/Her/Hers) (DOT) <Karissa.Hogan@state.mn.us>; Dunham, Michael P <Michael.P.Dunham@xcelenergy.com>; Sullivan, Brian E <Brian.E.Sullivan@xcelenergy.com>; Gallay, Benjamin J <benjamin.j.gallay@xcelenergy.com>; Johnson, Scott D <scott.d.johnson@xcelenergy.com>; Mike B. Strong <MStrong@barr.com>; Aaron M. Birr <Aaron.Birr@barr.com>; Orry Hatcher <OHatcher@barr.com>
Subject: Re: Proposed 115kV Transmission Project in Maple Grove - MNDOT/XCEL connect

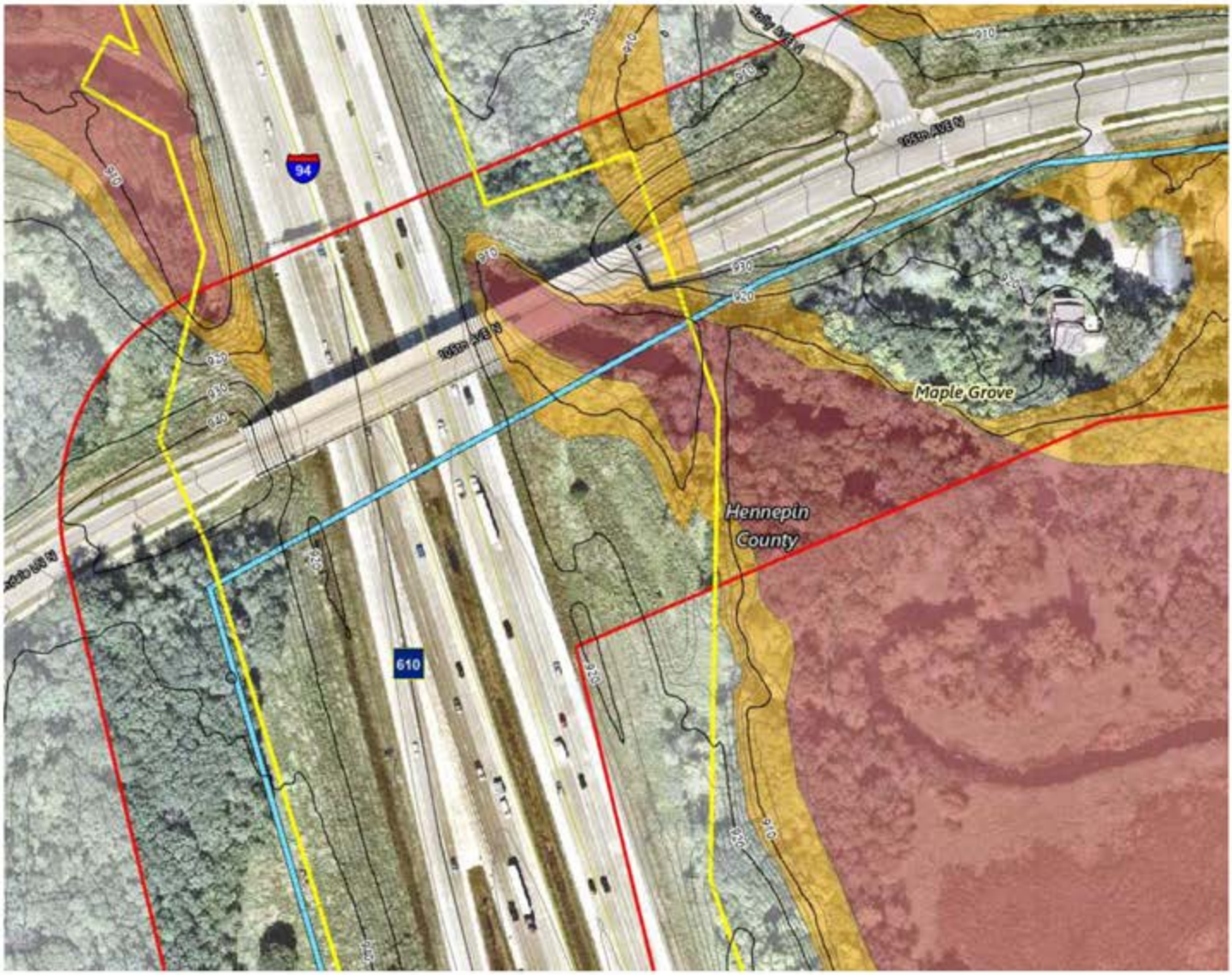
You don't often get email from amielke@barr.com. Learn why this is important

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Do not select links or open attachments unless verified. Report all suspicious emails to Minnesota IT Services Security Operations Center.

Karissa/Stacy,
Thanks for meeting last week to discuss the Northwest Maple Grove 115 kV transmission line project. Barr and Xcel visited the area around the I-94 crossing today and believe that there is a viable option to cross without placing a pole in MNDOT right-of-way. The blue alignment in the screen shot below is an approximate alignment based on what we saw in the field.

The guidance document mentions that "*a tailored version of the Utility ENM Form will be provided to project proposers upon early coordination engagement with MnDOT. Contact MnDOT's Utility Routing & Siting Coordinator for assistance.*" Is that something you would be able to provide? Do you need anything else from Xcel prior to submitting the ENM?

We plan to prepare the ENM in the next week or two.



Thanks,

Aaron M. Mielke

Senior GIS/Environmental Consultant
AMielke@barr.com | 952.832.2965 | Cell: 952.412.2845

DEPARTMENT OF TRANSPORTATION

Office of Land Management
395 John Ireland Boulevard
Saint Paul, MN 55155
MS 678

November 26, 2025

Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401

RE: MnDOT Early Coordination for the Xcel Maple Grove 115 kV Transmission Line Project
PUC Docket Number: E002/TL-24-427

To Whom It May Concern,

The Minnesota Department of Transportation (MnDOT) has performed a cursory review of the information available for the Maple Grove Transmission Project (Project). The review included information exchanged during the July 15th and November 20th, 2025, meetings, and the submitted Utility Early Notification Memo (ENM) for the Project. MnDOT offers the following comments and recommendations for consideration. Additional information is provided in *Attachment 1* of this letter.

Additional Context for Proposed Alignment

- Within this stretch of I-94 is a known "Monarch CCAA Adopted Acres" area with native seeding required, and no broadcast herbicide or chemical application allowed without additional MnDOT OES Protected Species Program coordination
- The proposed alignment is near a MnDOT "vegetation of concern" area and any work in the area requires coordination with MnDOT's Roadside Vegetation Management Unit (RVM)
- MnDOT's Regional Traffic Management Systems (RTMC)/ITS has a significant infrastructure/presence near the proposed alignment on the west side of I-94 before the line heads directly south of the interstate that may require additional consultation with that office

General Transmission Line Routing Considerations

- If applicable, avoid sight distance impairment by placing poles outside site corners of at-grade road crossings
- If applicable, poles are to be placed at a 50-foot minimum from any bridge structure
- If applicable, poles must be place outside of clear zones[1] and should be expected to exist within the outer 5 feet of the road right-of-way

[1] Clear Zones | FHWA (dot.gov) A Clear Zone is an unobstructed, traversable roadside area that allows a driver to stop safely, or regain control of a vehicle that has left the roadway.

- MnDOT's basic height clearances for all electric and communication lines modify those published in the National Electric Safety Code and must be adhered to
- Xcel should make every effort to collocate with or otherwise ensure that MnDOT trunk highways are not "boxed in" by existing above ground utility infrastructure for the length of any line that may parallel within road right-of-way[2]
- Regularly checking MnDOT's Metro District State Project website is highly recommended to help ensure the timing and type of MnDOT Metro District projects do not interfere with the proposed Project's constructability

Additional MnDOT district and functional group comments and recommendations can be found in *Attachment 1* of this letter. For any new construction associated with this project, including new pole placement, staging, access, and stringing in areas over/within the state trunk highway system, additional consultation would be required. MnDOT requires adherence to the following statute, rule, policy, and other permitting requirements:

- MnDOT Utility Accommodation Policy
- MnDOT Utility Accommodation and Coordination Manual
- MnDOT Transmission Line Guidelines
- MnDOT Environmental Requirements

MnDOT appreciates Xcel's early outreach and recommends continued, close coordination regarding areas of this Project that may affect the state trunk highway system.

Sincerely,

/s/Stacy Kotch Egstad

Utility Routing and Siting Coordinator
Minnesota Department of Transportation
Office of Land Management
stacy.kotch@state.mn.us

ec: MnDOT ENM Staff

Equal Opportunity Employer

[2] MN Rules 8810.3500 There shall be only a single pole line on the trunk highway right-of-way on either side of the center line thereof, unless otherwise authorized in the special provisions of the permit for construction.

DEPARTMENT OF TRANSPORTATION

2025

ATTACHMENT 1

XCEL ENERGY: MAPLE GROVE 115kV TRANSMISSION LINE PROJECT

MNDOT OES & FUNCTIONAL GROUP COMMENTS

Resource	Comments and Recommendations
Federal and State-listed Protected Species	The Applicant should consult with the U.S. Fish and Wildlife Service (USFWS) with respect to listed species which may occur within the project area, and limit ground disturbances to the extent practical in areas of semi-natural or natural vegetation. State-listed threatened and endangered species may be located along portions of the route along MnDOT right-of-way (ROW). We recommend the Applicant consult with the Minnesota Department of Natural Resources (MDNR) to identify recorded locations and conduct species-specific surveys prior to construction to confirm locations prior to identifying pole placement and temporary workspaces. MnDOT requests copies of all biological field survey data/reports within its ROW be submitted to MnDOT.
Federal and State-listed Protected Species	Herbicide use must be minimized during construction and future maintenance occurring on MnDOT ROW. If used, herbicide must be applied via hand-held spot treatments applied to individual plants. Avoid broadcast applications of herbicides without further consultation to MnDOT Office of Environmental Stewardship (OES). Restrict all activities to avoid the application of insecticides and fungicides on MnDOT ROW.
Federal and State-listed Protected Species	The Applicant must establish native vegetation in areas that are not proposed to be mowed more than once per year and must include mowing and spot treatment control to establish seeded vegetation, as described in the MnDOT Seeding Manual (see http://www.dot.state.mn.us/environment/erosion/vegetation.html).
Avian Protection	The Applicant should minimize tree clearing/trimming within MnDOT ROW to extent possible. Tree clearing may be restricted to winter months (November 1 - March 31). On MnDOT ROW, additional tree clearing restrictions will typically be included in MnDOT's utility permit. If construction activities occur within the nesting season for migratory birds, conduct pre-construction nest surveys. If active nests are discovered, implement a Migratory Bird Plan to avoid and minimize impacts.
Contaminated Materials Management	It is the responsibility of the Applicant to identify the potential to encounter contaminated materials (soil/groundwater/vapor) on or within 500-feet of MnDOT ROW. The Applicant should provide to MnDOT all environmental due diligence documents (e.g., desktop review, Phase I Environmental Site Assessments, Phase II), as applicable/available. If access or sampling is proposed in MnDOT's ROW, a permit will be required (see https://www.dot.state.mn.us/utility/forms.html). Contaminated materials encountered during any work within MnDOT ROW is required to be managed in accordance with applicable federal/state and location regulations and/or guidance documents.
Regulated Waste and Storage Tanks	It is the responsibility of the Applicant to report the presence of aboveground storage tanks (ASTs) within project limits. If ASTs are identified, contact MnDOT's Regulated Materials staff. Asbestos, solid waste, regulated and/or hazardous waste encountered during construction activities are required to be managed in accordance with applicable federal/state and local regulations and/or guidance documents.

Roadside Vegetation Management	Pesticides: Require Applicant to develop a Vegetation Management/Pesticide/Revegetation Plan and submit for MnDOT review/approval. Any proposed pesticides and application rates should be submitted to MnDOT for approval (NOTE: Use of herbicides or similar chemistries must be limited to spot treatments via hand tools only [i.e., no equipment mounted broadcast applications]). Other general conditions include the following: • Herbicide used on MnDOT ROW must be labeled for use on rights-of-way. • Pesticide applicators must be MN state- licensed as a Commercial Pesticide Applicator in Categories A and J (see: https://www.mda.state.mn.us/pesticide-fertilizer/pesticide-applicator-license-types) • Herbicide records for work on MnDOT's ROW must be provided to the local MnDOT District Office • Refer to Resource: Federally and State Listed Protected Species for further pesticide information. The more restrictive statements must be followed. Noxious/Invasive Weeds: Prior to construction, the Applicant should conduct a field survey for noxious weeds in all project workspaces. Non-native phragmites has previously been reported within the proposed project boundaries. If any state prohibited or county designated noxious weeds (https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list) are identified within installation limits on MnDOT's ROW, the Applicant must submit its Invasive Species Prevention Plan to the OES-Roadside Vegetation Management Unit for review and approval. All efforts must be made to prevent transportation of propagative parts to new areas. Movement of propagative parts of these plants is prohibited by Minnesota Statutes, Section 18.82. If transportation of soil or plant parts from the site is necessary, a transportation permit will be required. Questions regarding noxious weed law or noxious weed transportation permits should be directed to the Minnesota Department of Agriculture at noxiousweeds.mda@state.mn.us. Native vegetation: Parking, staging, and operating equipment in this area should be kept to a minimum level to accomplish the installation. Parking of vehicles or equipment not directly required for the utility installation in this area should be restricted to the road surfaces. Failure to adhere to these recommendations may lead to unnecessary damage and compaction of native plants and soils. Restoration: If areas are disturbed on MnDOT's ROW, the area must be re-established MnDOT Seed Mix: Patch Mix at a rate of 30 lbs per acre. Patch Mix components and rates can be found in the Guide to the New 2024 MnDOT Seed Mixes (https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=38590641). Any erosion control blanket must be free of plastic netting and on the MnDOT Approved Products List for Rolled Erosion Prevention products. In addition, any hydraulic mulch used up-slope of Public Waters must be free of plastic fiber additives. MnDOT reserves the right to conduct its own inspection on MnDOT ROW (during and post-construction) to verify restoration status prior to the Applicant filing their Notification of Restoration Completion with the Commission.
Wetlands Coordination	Any ground disturbance (e.g., fill, excavation, direct or indirect drainage) of regulated aquatic resources must comply with all applicable federal Clean Water Act Section 404, Minnesota Wetland Conservation Act (WCA), and MDNR Public Waters Work requirements. If ground-disturbing activities are proposed within MnDOT ROW, MnDOT may require an aquatic resource delineation to be performed throughout the areas of proposed disturbance. The delineation would require approval by MnDOT OES, as the Local Government Unit (LGU) responsible for administering the WCA within state TH ROW. The project must restore any temporary impacts within state TH ROW and avoid, minimize, and mitigate any permanent impacts to delineated aquatic resources to the extent required by state and federal law. This includes implementing Best Management Practices (BMPs) during construction to minimize aquatic resource disturbance, including compaction, erosion, and sedimentation. MnDOT reserves the right to conduct field inspections within its ROW.
Water Permits - Federal Agencies, Floodplains	*If floodplains are crossed by the project: The Applicant should make efforts to avoid placement of structures or fill in floodplain areas to minimize adverse impacts and increased risk of flooding. The Applicant should engage with local floodplain permitting authorities to determine permitting and other requirements. The project may also involve work affecting waters of the US in which case a Section 404 authorization from the U.S. Army Corps of Engineers would be needed.

Cultural Resources	As documented in the Early Notification Memo (ENM) for Utility Projects dated to our unit on August 22, 2025, the Section titled “Cultural Resources (Historic Properties and Tribal Consultation) Review” the applicant notes the following: “Xcel Energy has contacted the Minnesota SHPO to determine if features eligible for listing in the National Record of Historic Places are present within the area encompassed by the Project. Xcel Energy will continue to coordinate with the Minnesota SHPO.” The proposed Project alignment intersects MnDOT controlled Trunk Highway (TH) ROW in the following locations: at the intersection of TH 94 and TH 610 and where 105th Ave N/Merrimac Lane N crosses over TH 94. One previously inventoried architecture-history property is intersected by the project area in MnDOT controlled lands: US Trunk Highway 52 (now I-94) was previously inventoried as XX-ROD-00185 and was determined not eligible for listing in the National Register of Historic Places (NRHP) (MnSHPO No. 2022-1155). Based upon information from prior cultural resource investigations within MnDOT controlled lands that overlap the current Project, there are no known or suspected archaeological sites or historic properties within MnDOT ROW in the project area. The Applicant should provide summary of cultural field surveys and coordination with SHPO and other agencies and parties, as applicable, to date when submitting permit requests. If surveys have not been completed, provide an anticipated schedule for completion. If the Applicant is aware of or becomes aware of significant cultural resources findings in or adjacent to MnDOT ROW, please contact our office at CulturalResources.dot@state.mn.us. In addition, the Applicant shall prepare a Post Review Discovery Plan (PRDP1) and submit to MnDOT for review; contact information for CRU staff must be included in the PRDP. This plan should outline the steps to be followed in the event of an unanticipated discovery of archaeological materials, human remains, or burials, and include language specific to the coordination with MnDOT when a discovery is on MnDOT ROW. MnDOT Cultural Resources Unit (CRU) staff should be notified (CulturalResources.dot@state.mn.us) within 24 hours in the event of an unanticipated find on or adjacent to MnDOT property during construction. Should the Project change from that currently proposed, additional archaeological investigations (e.g., literature reviews, reconnaissance surveys [if warranted]) may be required where the Project will intersect MnDOT ROW. Investigations should include in-field inspections to document areas of soil disturbance and to identify potentially unknown archaeological sites within areas of moderate to high archaeological potential. A PRDP should be developed for the project in advance of construction and be provided to MnDOT CRU if Project activities will occur in MnDOT ROW.
FHWA National Scenic Byway Program	Under Title 23, USC, Section 162, National Scenic Byways Program; Scenic byways are designated as State, National or All-American because they possess one or more of six intrinsic qualities: scenic, cultural, recreational, natural, historic and archaeological qualities. An analysis of the physical and visual impact on each of these six intrinsic qualities should be conducted at each proposed crossing locations and/or collocated segments and where the proposed utility is within 7 miles of a byway to determine the route with the least adverse impact on the byway routes and corridors. At a minimum, this analysis should include: • Streetview Imagery or on-the-ground photographs • Photo / Visual Simulations (existing conditions and post-construction). During early planning phases of project, this may consist of typical drawings/photos of similar projects that have already been constructed. Later in Project design, this should include site-specific assessments depicting photo and visual simulations for users of the byway. Each scenic byway has a leaders' group and/or stakeholder group; these groups should be contacted as part of the environmental review process. Scenic easements and areas should be investigated to identify any prohibitions or limitations that apply to land uses in the vicinity of the scenic byway. Relevant state and federal regulations governing scenic byways can be found in the MnDOT Utility Accommodation on Highway Right of Way Policy and Coordination Manual (both of which can be accessed here: https://www.dot.state.mn.us/policy/operations/oe002.html) , 23 U.S.C. s. 162, and 23 CFR s. 645.209 (h). *If the project is within 7 miles of Great River Road, add this paragraph* The Minnesota Mississippi River Parkway Commission (MRPC), established by Minnesota Statutes, section 161.1419, is the governing body for the Great River Road (GRR) in Minnesota. Minnesota Statutes, section 161.142 requires the commissioner of Transportation to construct and improve the GRR and assist the MRPC in carrying out its functions and duties. Due to the location of the Project with respect to the GRR, we recommend the Project proponent consult directly with the MPRC if they have not already done so. Please contact MPRC at info@mnmississippiriver.com and keep MnDOT scenic byways staff apprised of these discussions. Mitigation measures should be recommended for unavoidable impacts on intrinsic qualities within the scenic byway corridors.

Environmental Assessment Unit / Environmental Review	If the Project will involve any construction activities within MnDOT ROW, the Applicant (and/or their Contractor) must comply with the following, relating to the conduct of work on the Project or to individuals engaged in work for the Project or employed on the Project: (1) All applicable State and Federal laws and regulations (2) Orders and decrees of bodies and tribunals with lawful jurisdiction over the work (3) Such local ordinances as are applicable to the work MnDOT's Environmental Assessment Unit reserves the right to request copies of the Applicant's environmental permits for work within its ROW as well as any inspection reports completed by the Applicant and/or its contractor.
Soil Erosion and Sediment Control / Stormwater	Given the size of the Project, we assume the Applicant will be required to obtain coverage under the Minnesota Pollution Control Agency's (MPCA) Construction Stormwater General Permit (MNR100001). If a portion of the final alignment is located within MnDOT ROW, we request that the Applicant submit a copy of its Construction Stormwater Pollution Prevention Plan (SWPPP)/erosion and sediment control details to MnDOT OES for review prior to filing its Notice of Intent for coverage under MPCA's MNR100001. In addition, MnDOT reserves the right to conduct inspections of the project for portions that are within MnDOT ROW during and/or after construction. The Applicant will be the Owner, and its contractor will be the Operator on the Construction Stormwater Permit for any work on MnDOT ROW. MnDOT will not be a co-permittee. Soil compaction caused by equipment traffic and haul roads on MnDOT ROW must be mitigated using techniques described in the MnDOT Facility Design Guide Chapter 13 (https://www.dot.state.mn.us/design/design-standards/facility-design-guide.html). Temporary and permanent erosion and sediment control measures on MnDOT ROW must follow standards in the MnDOT Facility Design Guide Chapter 13 (https://www.dot.state.mn.us/design/design-standards/facility-design-guide.html). Seeding on MnDOT ROW must follow standards in MnDOT Seeding Manual (https://www.dot.state.mn.us/environment/erosion/vegetation.html). Any erosion control blanket must be free of plastic netting and on the MnDOT Approved Products List for Rolled Erosion Prevention products. Hydraulic mulch used on MnDOT ROW must be on the MnDOT Approved Product List and if used up-slope of Public Waters must be free of plastic fiber additives. Straw mulch used on MnDOT ROW must be certified weed free by the MN Crop Improvement Association.
Env Modelling and Testing (Noise)	The Applicant needs to take all precautions to avoid impacts to existing noise mitigation devices (e.g., noise walls) and/or applications within MnDOT's ROW. If the Project has the potential to impact noise mitigation infrastructure, please notify MnDOT's Environmental Modelling and Testing Unit group for further guidance.
District Permitting Staff	Direct coordination with applicable District Permitting Staff will be required for all downstream MnDOT utility permits. MnDOT Permitting Policy and Guidance can be found at: http://www.dot.state.mn.us/utility/guidance.html.

District Planning Staff	State Highway current construction projects: Please note that MnDOT projects on state highways may affect travel routes to the project site, and/or may alter access points. To learn which projects might be in the area please review the current MnDOT construction projects website at https://www.dot.state.mn.us/construction/index.html and click on the district where your project is located. State Highway planned and future projects: MnDOT plans projects along state highways up to 10 years in advance. Please check the district in which your project is located (Metro) at https://www.dot.state.mn.us/planning/10yearplan/district-chip.html to see which projects might coincide with your project. Note that project timing can change, particularly for projects that are identified as being planned for 5 to 10 years in the future. You may also reach out to the district Planning contact or district Project Manager for more information. Access: Because there is a direct connection between crash rates and access density on state trunk highways, project proposers should plan to utilize access points on local roads whenever possible. Access from MnDOT right-of-way whether at an existing driveway or new driveway is not guaranteed, and new highway access permits will be required in either case. Please contact District Permitting staff for more information about permit applications, processes, and requirements.
Design Support / Safety and Operations Management	Powerlines: Lateral placement of utility poles or non-crashworthy appurtenances must be placed outside the roadway's clear zone and should avoid the need for traffic barrier shielding. Any side slope grading within the roadway clear zone must not result in a hazardous geometry for run-off vehicles. Place poles as far out of the clear zone as possible. Additional distance from the roadway is encouraged, for roadway and driver safety. Added poles must not be placed closer to the trunk highway than existing poles. Utility poles/devices must not obstruct intersection sight lines. Appurtenances protruding more than four inches above the ground line shall be located outside the clear zone and as close to the edge of the ROW as practical and must not obstruct intersection sight lines. Appurtenances within the roadway clear zone must be crashworthy. See MnDOT's Facility Design Guide - Chapter 10 (https://www.dot.state.mn.us/design/design-standards/facility-design-guide.html) for a definition of "crashworthy" and other pertinent information. Pipelines: Lateral placement of non-crashworthy appurtenances must be placed outside the roadway's clear zone and should avoid the need for traffic barrier shielding. Any side slope grading within the roadway's clear zone must not result in a hazardous geometry for run-off vehicles. Appurtenances protruding more than four inches above the ground line shall be located outside the clear zone and as close to the edge of the ROW as practical and must not obstruct intersection sight lines. Appurtenances within the roadway clear zone must be crashworthy. See MnDOT's Facility Design Guide - Chapter 10 (https://www.dot.state.mn.us/design/design-standards/facility-design-guide.html) for a definition of "crashworthy" and other pertinent information. Access Roads: Additional access points off the trunk highway are discouraged and should be avoided. For proposed access roads, the transverse slope design for permanent access roads connected to the trunk highway must be 1V:6H or flatter on the roadside and 1V:10 or flatter if in the median. See Transverse Slopes in the MnDOT's Facility Design Guide - Chapter 10. For other technical components and requirements for utility owners regarding the location, design, and methods for installing, adjusting, accommodating, and maintaining utility facilities on such rights of way, please refer to MnDOT Utility Accommodation and Coordination Manual, found here: https://www.dot.state.mn.us/utility/projectdelivery.html. To understand why these rules and comments exist, intersection related, and roadway departure crashes are two of the leading types of fatal and serious injury crashes on Minnesota Roadways. These comments reflect measures needed to continue to prevent these types of crashes. To find out more about Minnesota safety efforts, please see our Strategic Highway Safety Plan. https://www.dot.state.mn.us/trafficeng/safety/shsp/
Blowing Snow Control / Snow Fences	Snow fences have been established in strategic locations across that state as a collaborative effort with landowners to trap snow from blowing across and accumulating on state highways. Based on our review, we have not identified living and/or structural snow fences in the vicinity of your project. **If present, add the following** If the utility project adversely impacts a snow fence causing the loss of blowing snow control functionality, the utility will must work with MnDOT to find a blowing snow control solution. Please refer to http://www.dot.state.mn.us/environment/livingsnowfence/ and Chapter 15D - Design for Blowing Snow Control found in MnDOT Facility Design Guide (https://www.dot.state.mn.us/design/design-standards/facility-design-guide.html) for more information.

Railroad	Railroads are private entities that conduct their own permitting process for utility impacts. MnDOT does not have jurisdiction in these areas. It is recommended that project coordination occurs directly with the affected railroad. MnDOT Rail Viewer
Traffic Management Systems (RTMC)	Traffic management systems are technologies used to monitor, control, and optimize the flow of vehicles on roadways. The technologies deployed on state highways includes devices like traffic cameras, road sensors, variable message signs, and fiber communications. Based on our review, we have identified traffic management systems in the vicinity of your project. **If present, add the following** If the utility project adversely impacts traffic management system devices or fiber, the utility will must work with MnDOT to analyze the severity of the impact, communicate the timeline and duration anticipated for the impact, look at alternatives to lesson or mitigate those impacts. These impacts are not limited to just underground physical space conflicts but could include restricted access, induced power and adversely affected sightline from Traffic Management cameras or microwave detection systems. Design manual, Sample plan, Special Provisions and Details can be found at: https://dot.state.mn.us/freeway-operations/its.html.

From: MN_ADM_ENV Review SHPO
To: Veronica A. Parsell
Subject: Automatic Reply: Project submittal review request - Xcel Maple Grove
Date: Thursday, January 22, 2026 12:05:12 PM

CAUTION: This email originated from outside of your organization.

Thank you for contacting the Minnesota State Historic Preservation Office via the Environmental Review Program mailbox. **If you've submitted a project review request, this message serves as confirmation that we have received your email. Your submittal will be initially reviewed and assigned a project reviewer. A team member may reach out with questions or if your submittal is incomplete.**

Please continue to send projects for review to **ENReviewSHPO@state.mn.us.** General environmental review inquiries can also be sent to **ENReviewSHPO@state.mn.us** where your request will be redirected to the appropriate SHPO team member.

Sincerely,

Environmental Review Program Team
State Historic Preservation Office
Minnesota Department of Administration

For information on submitting projects for review, please visit the **Environmental Review Program Website.**

From: Veronica A. Parsell
To: "Harrington, Lucy (She/Her/Hers) (ADM)"
Cc: Aaron M. Mielke
Subject: RE: Project submittal review request - Xcel Maple Grove
Date: Wednesday, January 28, 2026 11:40:00 AM
Attachments: image001.png

Hi Lucy,

My apologies, I thought only survey reports were to be uploaded via the OSA Portal. I will make a note of this for our submittals moving forward.

I have submitted the Maple Grove Report through the portal; let me know if you have any trouble accessing it.

Thanks,
Veronica

Veronica A. Parsell
She/her/hers

Senior Cultural Resources Specialist
VParsell@barr.com | 952.832.2623

From: Harrington, Lucy (She/Her/Hers) (ADM) <Lucy.Harrington@state.mn.us>
Sent: Tuesday, January 27, 2026 5:08 PM
To: Veronica A. Parsell <VParsell@barr.com>
Cc: Aaron M. Mielke <AMielke@barr.com>
Subject: RE: Project submittal review request - Xcel Maple Grove

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Hi Veronica,

Could you please submit the Phase Ia report in the OSA Portal? SHPO's guidance on report submittal can be found here: https://mn.gov/admin/shpo/environmental-review/submit/ and here: https://mn.gov/admin/shpo/surveyandinventory/manual/. We are working on developing new guidance on literature review report submittal as well, so stay tuned. At this time, we're asking that literature review reports, like the one you submitted, be submitted in the OSA Portal.

Could you let me know when the report is submitted because we are not notified when that happens?

We will continue our review of the project as submitted.

Thank you,

Lucy

Lucy Harrington (she/her) **| Environmental Review Archaeologist**
State Historic Preservation Office
Minnesota Department of Administration
50 Sherburne Avenue, Suite 203
Saint Paul, Minnesota 55155
(651) 201-3283 | lucy.harrington@state.mn.us

From: Veronica A. Parsell <VParsell@barr.com>
Sent: Thursday, January 22, 2026 11:59 AM
To: MN_ADM_ENV Review SHPO <ENReviewSHPO@state.mn.us>
Cc: Aaron M. Mielke <AMielke@barr.com>
Subject: Project submittal review request - Xcel Maple Grove

This message may be from an external email source.
Do not select links or open attachments unless verified. Report all suspicious emails to Minnesota IT Services Security Operations Center.

Dear Ms. Harrington,

Attached, please find information regarding the proposed Xcel Energy Northwest Maple Grove 115 kV Transmission Project in Hennepin County, Minnesota. We look forward to receiving your comments.

Sincerely,
Veronica

Veronica A. Parsell
She/her/hers

Senior Cultural Resources Specialist
VParsell@barr.com | 952.832.2623
Minneapolis, MN | barr.com



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DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

February 20, 2026

Veronica Parsell
Senior Cultural Resources Specialist
Barr Engineering
VParsell@barr.com

RE: Xcel Energy Northwest Maple Grove 115kV Transmission Project
T119 R22 S4, 5, 8
Maple Grove, Hennepin County
SHPO Number: 2026-0366

Dear Veronica Parsell:

Thank you for reaching out to the State Historic Preservation Office regarding a project that will require a permit from the Minnesota Public Utilities Commission (PUC). Based on the legislative changes and guidance at the PUC, we understand that you have reached out to our office during the permit pre-application outreach. The PUC permit application is required to address "archaeological and historic resources," which have been defined in PUC guidance.

We have reviewed the *Phase Ia Cultural Resources Literature Review Xcel Energy Northwest Maple Grove 15 kV Transmission Project* prepared by Barr Engineering in January 2026. We understand that the review found that no previously documented archaeological resources intersect the proposed route. However, it is not clear that they entire route has been surveyed to identify archaeological resources. The report also documented the presence of one previously documented historic resource, XX-RRD-GNR014 / the Minneapolis and Northwestern Railroad Corridor, has been determined eligible and intersects the proposed project.

Pursuant to our responsibilities under the Minnesota Historic Sites Act (M.S. 138.665), we agree that there are no designated or listed properties that will be affected by the proposed project.

An archaeological survey is recommended to determine whether there are any significant archaeological sites that will be affected by the proposed project in areas that have not been previously disturbed. The survey must meet the requirements of the Secretary of the Interior's Standards for Identification and Evaluation, and should include an evaluation of National Register eligibility for any properties that are identified. For a list of consultants who have expressed an interest in undertaking this type of research and archaeological surveys, please visit the website **https://www.mnhs.org/preservation/directory**, and select "Archaeologists" in the "Specialties" box.

Please keep in mind that under state statute, 216I.18, the PUC is responsible for satisfying the requirements under Minnesota Statute 138.665 because the PUC makes the decision on whether to issue a permit and what conditions should be included in the permit.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency in order to define an appropriate area of potential effects for the federal undertaking as well as the necessary historic property identification and evaluation efforts required for a federal review. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

Please contact Environmental Review Archaeologist Lucy Harrington at lucy.harrington@state.mn.us if you have any questions on our comment letter.

Sincerely,



Amy Spong
Deputy State Historic Preservation Officer

CC: Aaron Mielke, Barr Engineering
NWMapleGrove@xcelenergy.com

From: Sara Childers
To: Veronica A. Parsell
Subject: RE: [EXT] Xcel Northwest Maple Grove 115 kV Transmission Project
Date: Tuesday, January 27, 2026 9:44:39 AM
Attachments: image001.png
fsst-eagle-ol_0d2f6c1f-abc5-47cc-b13e-4bf994d7bc9c.png

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Hello,

The Flandreau Santee Sioux Tribe has no issues with the proposed project as sited.

If any cultural material and or human remains are disturbed, please stop and contact us ASAP.

Thank you,

Sara Childers

Sara Childers
Tribal Historic Preservation Assistant
p. 605.997.3891 x1226
Flandreau Santee Sioux Tribe

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From: Veronica A. Parsell <VParsell@barr.com>
Sent: Tuesday, January 27, 2026 8:37 AM
To: Garrie Kills-A-Hundred <garrie.killsahundred@fsst-nsn.gov>; Sara Childers <sara.childers@fsst-nsn.gov>
Cc: Aaron M. Mielke <AMielke@barr.com>; Storey, Casey <casey.storey@xcelenergy.com>; Sullivan, Brian E <brian.e.sullivan@xcelenergy.com>; Johnson, Scott D <scott.d.johnson@xcelenergy.com>; Fordice, Randy L <randy.l.fordice@xcelenergy.com>
Subject: [EXT] Xcel Northwest Maple Grove 115 kV Transmission Project

CAUTION: This message originated from an external source. If you believe this message is malicious in nature, please report it by using the Phish Alert button.

Dear Mr. Kills A Hundred and Ms. Childers,

I am writing to follow up regarding the Northwest Maple Grove 115 kV Transmission Project proposed

by Xcel Energy.

In June 2025, your office was sent a hard copy pre application coordination letter describing the project and offering the opportunity for input prior to filing with the Minnesota Public Utilities Commission. Because our original correspondence was sent more than six months ago and only by mail, we wanted to reconnect directly to make sure you have the opportunity to review the project information before the application is submitted.

Xcel Energy anticipates filing the route permit application with the Minnesota Public Utilities Commission in approximately 30 days. As part of this process, we are reaching out to ask whether the Tribe has any comments, questions, or interest in further coordination related to the project. For convenience, I have attached a copy of the afore-mentioned June 2025 pre application letter, which includes background information, a project description, and a map of the proposed facilities.

If the Tribe has no comments at this time, we would appreciate confirmation. If there are questions, concerns, or a desire to discuss the project further, we would welcome the opportunity to connect.

Thank you for your time and consideration.

Sincerely,
Veronica

Veronica A. Parsell
She/her/hers

Senior Cultural Resources Specialist
VParsell@barr.com | 952.832.2623
Minneapolis, MN | barr.com

BARR.

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LEECH LAKE BAND OF OJIBWE

Tribal Historic Preservation Office

Gina M Lemon, Tribal Historic Preservation Officer
Anita M Cloud, Tribal Historic Preservation Assistant

February 6, 2026 Via Internet

Barr
Attn: Veronica A. Parsell, Senior Cultural Resources Specialist
4300 Market Pointe Drive – Suite 200
Minneapolis, MN 55435

RE: Xcel Northwest Maple Grove 115 kV Transmission Project.
This notification is for a pre-application regarding a proposed transmission line project in Maple Grove. Northern States Power Company d/b/a Xcel Energy, (the Applicant) is proposing the construction of a 115/34.5 kV substation on the west side of Interstate 94 and a two-mile 115kV transmission line connecting the new substation with an existing 115 kV transmission line west of the existing Elm Creek substation.

LL THPO No. 26-047-NCRI

Dear Veronica A. Parsell,

Thank you for the opportunity to comment on the above referenced project. This has been reviewed pursuant to the responsibilities given to the Tribal Historic Preservation Officer (THPO) by the National Historic Preservation Act of 1966, as amended in 1992, and the Procedures of the Advisory Council on Historic Preservation (38CFR800).

I have reviewed the documentation. After careful consideration of our records, I have determined that the Leech Lake Band of Ojibwe does not have any recorded historic properties, within this area. ** This does not mean there are not any cultural resources present, at this time. **

Should any human remains or suspected human remains be encountered, all work shall cease and the following personnel should be notified immediately: County Sheriff's Office, Office of the State Archaeologist, and the Leech Lake Band of Ojibwe along with other interested parties.

Please note the above determination does not "exempt" future projects from Section 106 review. In the event of any other tribe notifying you of an issue or us (LLBO) of concerns for this specific project, we may reenter into the consultation process.

You may contact me at **(218) 335-2940** if you have questions regarding our review of this project. Please refer to the **LL-THPO Number** as stated above in all correspondence with this project.

Respectfully submitted,

Gina M Lemon
Tribal Historic Preservation Officer

From: Leonard Wabasha (TO)
To: Veronica A. Parsell
Subject: RE: Xcel Northwest Maple Grove 115 kV Transmission Project
Date: Friday, February 20, 2026 4:54:18 PM
Attachments: image003.png
image004.png
image005.png

CAUTION: This email originated from outside of your organization.

I have no current concerns with the route mentioned in the correspondence, if the route changes please let us know… its always a good idea to have an inadvertent discovery plan in place for all ground disturbing activities… Thanks and Have a Great Day!!

LEONARD WABASHA
Tribal Historic Preservation Officer • Hocokata Ti
Shakopee Mdewakanton Sioux Community
d: 952.496.6120
shakopeedakota.org
Leonard.Wabasha@shakopeedakota.org

The Shakopee Mdewakanton Sioux Community is a federally recognized, sovereign Indian tribe located southwest of Minneapolis/St. Paul. With a focus on being a good neighbor, good steward of the earth, and good employer, the SMSC is committed to charitable donations, community partnerships, a healthy environment, and a strong economy.

From: Veronica A. Parsell <vparsell@barr.com>
Sent: Friday, February 20, 2026 4:43 PM
To: Leonard Wabasha (TO) <leonard.wabasha@shakopeedakota.org>
Subject: Xcel Northwest Maple Grove 115 kV Transmission Project

This message came from **outside the organization**. Do Not click on links, open attachments or respond unless you know the content is safe.

Hello THPO Wabasha,

Attached and immediately below is information regarding the Northwest Maple Grove 115 kV Transmission Project proposed by Xcel Energy. I am so sorry this did not make it to you the first time. I sent correspondence regarding another project at the end of January as well, and I will try to send that one through to you again, too.

Information regarding the Xcel Northwest Maple Grove 115 kV Transmission Project:

In June 2025, your office was sent a hard copy pre application coordination letter describing the project and offering the opportunity for input prior to filing with the Minnesota Public Utilities Commission. Because our original correspondence was sent more than six months ago and only by mail, we wanted to reconnect directly to make sure you have the opportunity to review the project information before the application is submitted.

Xcel Energy anticipates filing the route permit application with the Minnesota Public Utilities

Commission in approximately 30 days. As part of this process, we are reaching out to ask whether the Tribe has any comments, questions, or interest in further coordination related to the project.
For convenience, I have attached a copy of the afore-mentioned June 2025 pre application letter, which includes background information, a project description, and a map of the proposed facilities.

If the Tribe has no comments at this time, we would appreciate confirmation. If there are questions, concerns, or a desire to discuss the project further, we would welcome the opportunity to connect.

Thank you for your time and consideration.

Sincerely,
Veronica

Veronica A. Parsell
She/her/hers

Senior Cultural Resources Specialist
VParsell@barr.com | 952.832.2623

From: Leonard Wabasha (TO) <leonard.wabasha@shakopeedakota.org>
Sent: Friday, December 19, 2025 3:21 PM
To: Langan, Matthew A <Matthew.A.Langan@xcelenergy.com>; Cole Miller (TO) <Cole.Miller@shakopeedakota.org>
Cc: Rogers, Timothy G <Timothy.G.Rogers@xcelenergy.com>; Bissonnette, Michelle <Michelle.Bissonnette@xcelenergy.com>; Sethre, Kendal L. <ksethre@otpco.com>; Vinson, George H. <gvinson@otpco.com>; Aaron M. Mielke <amielke@barr.com>; Veronica A. Parsell <vparsell@barr.com>; Bill Rudnicki (TO) <bill.rudnicki@shakopeedakota.org>
Subject: RE: Introduction to the Big Stone South to Brookings to South Dakota/Minnesota Border Transmission Line

CAUTION: This email originated from outside of your organization.

Dear Matthew A Langan
Thank you for the opportunity to consult with you on these important projects. Most of them are out of our direct area and so we respectfully ask that you work closely with those Tribal Nations located closer to the proposed transmission line project areas. Also please avoid the recorded significant cultural archaeological sites which you can discover at the Office of the State Archaeologist or the State Historic Preservation Office and Please keep us informed as projects come into fruition. Thank you again and Have a Great Day!

If you have questions feel free to contact me at this email address or at my office located at 2300 Tiwahe Circle, Shakopee Minnesota 55379.

LEONARD WABASHA
Tribal Historic Preservation Officer • Hocokata Ti
Shakopee Mdewakanton Sioux Community
d: 952.496.6120
shakopeedakota.org
Leonard.Wabasha@shakopeedakota.org

The Shakopee Mdewakanton Sioux Community is a federally recognized, sovereign Indian tribe located southwest of Minneapolis/St. Paul. With a focus on being a good neighbor, good steward of the earth, and good employer, the SMSC is committed to charitable donations, community partnerships, a healthy environment, and a strong economy.

From: Langan, Matthew A <Matthew.A.Langan@xcelenergy.com>
Sent: Friday, December 19, 2025 2:57 PM
To: Cole Miller (TO) <Cole.Miller@shakopeedakota.org>; Leonard Wabasha (TO) <leonard.wabasha@shakopeedakota.org>
Cc: Rogers, Timothy G <Timothy.G.Rogers@xcelenergy.com>; Bissonnette, Michelle <Michelle.Bissonnette@xcelenergy.com>; ksethre@otpco.com; gvinson@otpco.com; Aaron M. Mielke <amielke@barr.com>; Veronica A. Parsell <vparsell@barr.com>
Subject: Introduction to the Big Stone South to Brookings to South Dakota/Minnesota Border Transmission Line

This message came from **outside the organization**. Do Not click on links, open attachments or respond unless you know the content is safe.

Dear Chairman Cole Miller & Tribal Historic Preservation Officer Leonard Wabasha – We are writing to introduce the proposed Big Stone South to Brookings to South Dakota/Minnesota Border transmission project, a segment of the broader PowerOn Midwest Project. This portion of the project is in South Dakota and is being developed by Xcel Energy and Otter Tail Power Company. We value the perspectives and knowledge of Tribal Nations and are committed to meaningful, respectful, and ongoing engagement throughout the life of this project and would like to invite you to engage with us as we begin the planning and regulatory process in South Dakota. Please see the attached letter for additional information and details.

Thank you,
Matt

Matt Langan
Xcel Energy
Manager, Regulatory Policy
P: 612.330.6954
E: matthew.a.langan@xcelenergy.com



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Attachment B.5

Public Comments

Aaron M. Mielke

From: Steve Miller <smiller@mspcommercial.com>
Sent: Thursday, April 17, 2025 3:28 PM
To: Sullivan, Brian E
Cc: Alex Young
Subject: Maple Grove Transmission
Attachments: A1 - SCHEMATIC SITE PLAN_21-11-16.pdf

EXTERNAL - STOP & THINK before opening links and attachments.

Brian - Thanks for the call back

Any transmission line installed on our property would be disastrous, the impact could potentially make our site unusable for the currently approved use on the site. Our site is entitled for a 42,000 sf medical building, please see the attached site plan.

We are opposed to any electrical line that would infringe on any portion of our property.

Please let us know what the next steps are on the proposed project.

Steve Miller
Development & Acquisitions
MSP COMMERCIAL

P 651.287.8787 **C** 651.270.6397
E smiller@mspcommercial.com
6436 Penn Ave S.
Richfield, MN 55423
Facebook | Twitter | LinkedIn
mspcommercial.com

OPTION 1

PARKING REQUIREMENTS
REQUIRED: 233 STALLS
ACC: 7 STALLS
PROVIDED: 243 STALLS
ACC: 8 STALLS



POPE ARCHITECTS

MSP MAPLE GROVE

MAPLE GROVE, MN

11/16/21 | COMM#M21-254

SCHEMATIC SITE PLAN

1" = 30'-0"

MSP COMMERCIAL

OPTION 1

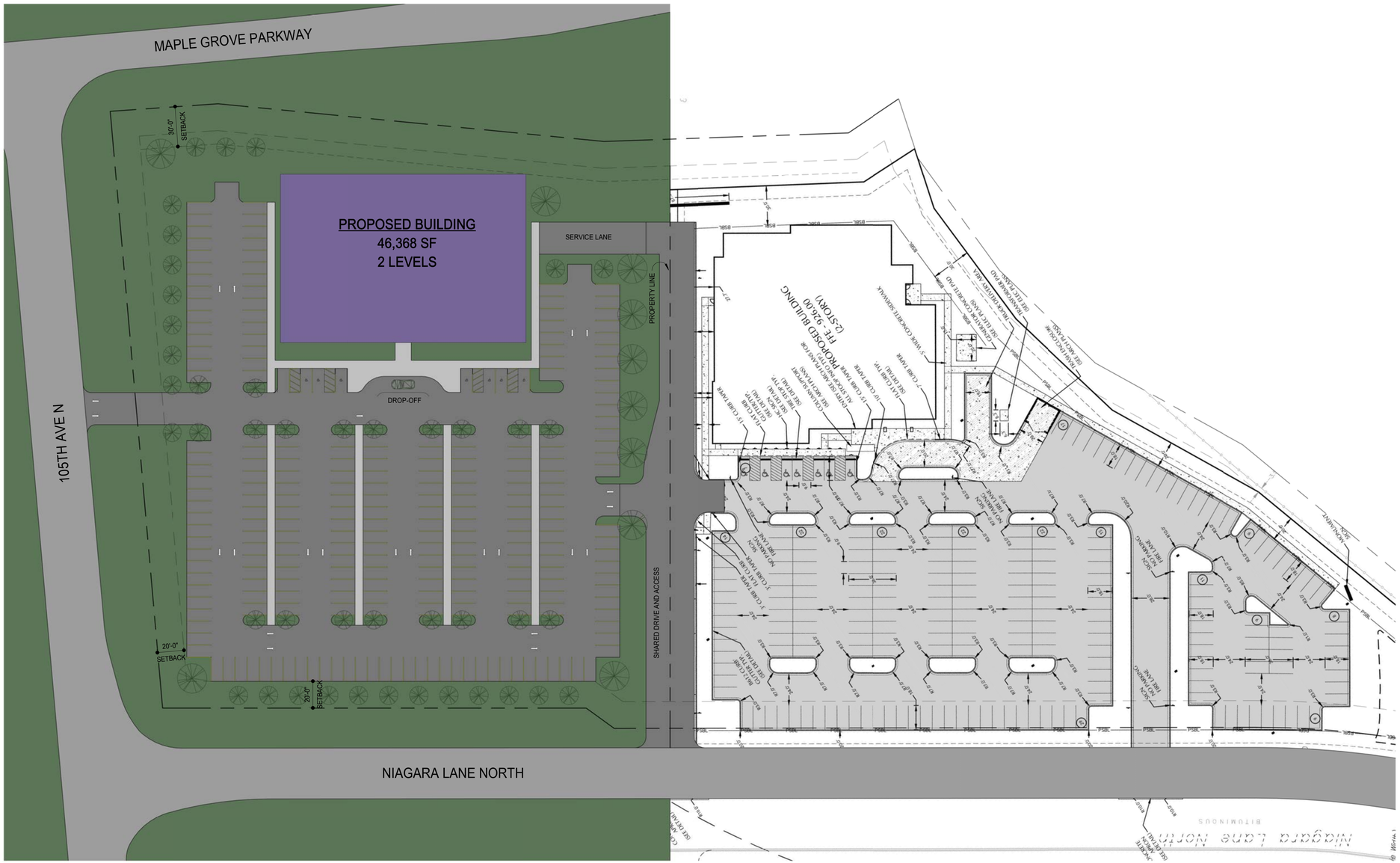
PARKING REQUIREMENTS

REQUIRED: 233 STALLS

ACC: 7 STALLS

PROVIDED: 243 STALLS

ACC: 8 STALLS



POPE ARCHITECTS

MSP MAPLE GROVE

MAPLE GROVE, MN

11/17/21 | COMM#M21-254

MSP COMMERCIAL

LYNDE & McLEOD, INC.
Maple Grove Yardwaste Site
9293 Pineview Lane N., Maple Grove, MN 55369
763-420-4400, Fax 763-420-9529

Ladies and Gentlemen:

Lynde & McLeod, Inc. is the owner of the parcels identified as Parcel A, Parcel B1, Parcel B2 and Parcel D on the attached Area Summary. This letter is in response to the notice we received April 16, 2025, regarding the proposed transmission line connecting the new substation on the West Side of I-94 to the existing transmission line west of the Elm Creek substation in Maple Grove. Lynde & McLeod, Inc strongly supports the North Interconnect Option for the following reasons:

1. Parcel A is not currently guided by the City of Maple Grove in its Comprehensive Land Use Plan due to limited access. Nevertheless, we have had several inquiries regarding low traffic uses which like the visibility of the site and feel they could manage any access issues. We believe that the proposed "South Interconnect Option A" would effectively make the site undevelopable.
2. Parcels B1 and B2 (which are currently one parcel) are guided for Mixed Use in the Maple Grove Comprehensive Land Use Plan which allows for a variety of office and residential development. Attached are proposed site plans we recently received from a large national housing developer for both parcels, and a proposed site plan we received from a large regional medical office building developer for Parcel B2. As you can see, the proposed "South Interconnect Option" would have a devastating impact on either of these projects, or any similar development proposals.
3. Parcel D is currently guided "Commercial" in the comprehensive land use plan which would allow uses such as a shopping center, office complex, or even a hotel. Clearly, the "South Interconnect Option B" would have a substantial negative impact on the entire parcel, no matter how it is developed.

The negative impacts of the South Interconnect Option on our property would be both aesthetic and economic, since the route would require substantial easements which would have a direct impact on future development. The lines would run directly through or adjacent to what is expected to be intensive residential and commercial development in the near future. It also appears from the materials you provided that the South Interconnect Option would be considerably longer and presumably more expensive. Last, it appears that the North option would run the lines between TH 81 and the railroad tracks which would seem like an ideal location both from a safety and an aesthetic standpoint.

We fully support the project and have no concerns regarding the lines west of our property. Thank you for your consideration.

Sincerely,



Derek Lynde
President of Lynde & McLeod, Inc.



1 SITE PLAN
1" = 30'-0"

SYNERGY
ARCHITECTURE • STUDIO

33 SOUTH 6TH STREET
SUITE 4660
MINNEAPOLIS, MN 55402

612 . 383 . 2701 | SYNERGYARCHSTUDIO.COM

MAPLE GROVE
MEDICAL II

105TH AVE N AND NIAGARA LANE N
MAPLE GROVE, MN

Project No	00000
Drawn By	EM
Checked By	PJG

No.	Description	Date

REFERENCE SITE PLAN

A100

©2021 SYNERGY ARCHITECTURE STUDIO, LLC
6/27/2021 4:48:28 PM



1 SITE PLAN - REFERENCE
1" = 225'-0"

SYNERGY
ARCHITECTURE + STUDIO

33 SOUTH 6TH STREET
SUITE 4660
MINNEAPOLIS, MN 55402

612 . 383 . 2701 | SYNERGYARCHSTUDIO.COM

MAPLE GROVE
MEDICAL II

105TH AVE N AND NIAGARA LANE N
MAPLE GROVE, MN

Project No	00000
Drawn By	EM
Checked By	PJG

No.	Description	Date

REFERENCE SITE PLAN

AIOI

©2021 SYNERGY ARCHITECTURE STUDIOS, LLC
4/2/2021 1:30:23 AM



TOTAL= 131 UNITS

15 - 2 BD
B2 UNIT TOTAL
NET: 1,300 SQ. FT.
4 PARKING SPACES
(2 GARAGE) + 2 TANDEM

60 - 3 BD
C2 UNIT TOTAL
NET: 1,600 SQ. FT.
4 PARKING SPACES
(2 GARAGE) + 2 TANDEM

20- (2)3 BD
C2 UNIT TOTAL
NET: 1,719 SQ. FT.
4 PARKING SPACES
(2 GARAGE) + 2 TANDEM EACH

36 - 4 BD
D4 MASTER-DOWN UNIT TOTAL
NET: 2,100 SQ. FT.
GROSS: 2,686 SQ. FT.
4 PARKING SPACES
(2 GARAGE) + 2 TANDEM

CLUBHOUSE
NET: 2,000 SQ. FT.
VISITOR PARKING = 45 SPACES

1 SITE PLAN
1" = 60'-0"

N

02.19.2025

SITE PLAN - Maple Grove BFR

Maple Grove, MN - GREYSTAR

MEEKS PARTNERS
16000 Memorial Drive
Suite 100
Houston, Texas 77079
281.558.8787

A-01

JOB NO. 25005

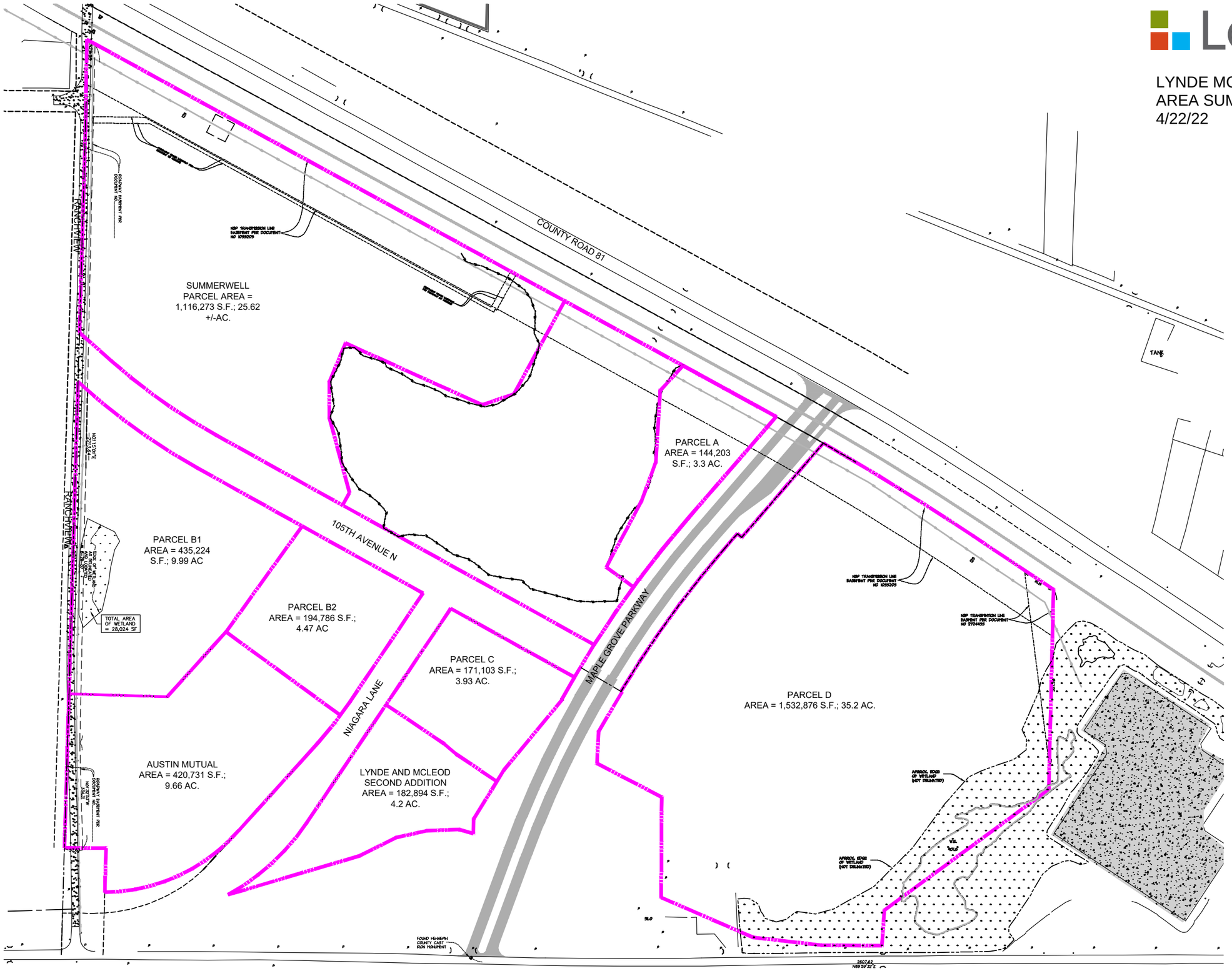
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LOUCKS

LYNDE MCLEOD PARCEL
AREA SUMMARY
4/22/22



Appendix C

Minnesota Public Utilities Commission Draft Application Review Comments and Applicant's Response

MINNESOTA
PUBLIC UTILITIES COMMISSION

November 25, 2025

Casey Storey
Senior Siting and Land Rights Agent
Xcel Energy
414 Nicollet Mall – 6th Floor
Minneapolis, MN 55401
casey.storey@xcelenergy.com

RE: Draft Application Review
Maple Grove 115 kV Transmission Line Project
Docket No. E002/TL-24-427

Dear Casey Storey,

As required by Minn. Stat. 216I.05, subd. 6 applicants requesting a site or route permit from the Minnesota Public Utilities Commission (Commission) must provide a draft of the application, including the required Environmental Assessment information, to Commission staff prior to filing the application. On October 13, 2025, Northern States Power Company (d/b/a Xcel Energy) provided Commission Energy Infrastructure Permitting (EIP) staff with a draft of the route permit application for the 2 mile Maple Grove 115 kV Transmission Line Project and a new substation in Hennepin County.

Attached are the EIP staff comments on the draft application. As required by Minn. Stat. 21I.05, subd. 6(b), EIP staff's comments are focused on the completeness of the application and clarifications that may assist the Commission's review of the application. EIP staff's review of the draft application is informed by the *Commission's Draft Application Guidance for Large Energy Infrastructure Facilities in Minnesota*.

Please let me know if you have questions or would like to discuss these comments further.

Sincerely,

Logan Hicks, Environmental Review Manager

Draft Application Review

Project: Maple Grove 115 kV Transmission Line Project
Docket: E002/TL-24-427
Date: November 25, 2025

Northern States Power Company (d/b/a Xcel Energy) provided a draft application for the Maple Grove 115 kilovolt (kV) Transmission Line Project (Project) on October 13, 2025. The Project consists of an approximately 2 mile 115 kV transmission line and a new substation in Hennepin County, Minnesota.

The Minnesota Public Utilities Commission (Commission) Environmental Infrastructure Permitting (EIP) staff appreciates the opportunity to review the draft application. EIP staff's review of the application is guided by the Commission's Draft Application Guidance.

Although the draft provided included much of the information required by Minnesota Statute §216I, and Minnesota Rules, Chapter 7850, EIP staff recommend the final application filed in eDockets incorporate several revisions to clarify the project proposed, the potential impacts, and potential mitigation measures to avoid, minimize, and otherwise mitigate impacts. These clarifications are intended to assist the Commission's review of the application, including the environmental assessment (EA). More detail on recommendations is included in a redline that accompanies this letter and summarized in the following table. General recommendations that apply to the document as a whole include:

- Clarify whether the name of the project is Northwest Maple Grove or Maple Grove and use consistently throughout the document and maps.
- Labeling tables and figures chronologically throughout the document regardless of section.
- Add citations where they are requested in the redline document.
- Using footnotes as reference for citation.
- Separate "Impacts and Mitigations" into separate discussions of "Impacts" and "Mitigations". Keep all impacts and mitigation types in their appropriate resource sections.
- For all resources, clarify the impact intensity using only the definitions in Section 6.1.1 of the application.
- For all resources, clarify mitigation measures required by the Commission permit and other required permits and then discuss additional mitigation measures that the applicants will commit to employing beyond the required mitigation measures.

Draft Application Review

Project: Maple Grove 115 kV Transmission Line Project
Docket: E002/TL-24-427
Date: November 25, 2025

Topic	EIP Act MS §216I	Location in Document
Project ownership	**216I.05, subd. 3(b)(1)**	**Section 1.2**
Meets staff expectations. The Project will be owned by Northern States Power Company, d/b/a Xcel Energy.		
Permittee name	**216I.05, subd. 3(b)(2)**	**Section 1.3**
Meets staff expectations. Northern States Power Company (d/b/a Xcel Energy) will be the sole permittee.		
Project description	**216I.05, subd. 3(b)(3)**	**Section 2**
Staff recommends the following modifications to the application: • Include other associated facilities that will be included in the project, especially within the substation. • Remove design discussions from this section and create a separate section with design considerations for the project and associated facilities.		
Environmental Information, generally	**216I.05, subd. 3(b)(4)**	**Section 6**
See discussion in specific resource areas.		
Identification of Property Owners	**216I.05, subd. 3(b)(5), as described in 216I.05, subd. 8 (3)**	**Appendix H**
Meets staff expectations.		
Maps	**216I.05, subd. 3(b)(6)**	**Throughout**
Staff recommends the following modifications to the maps: • Include a map, or update Map 3, clearly referencing existing infrastructure and planned design (Hassan Substation, line 0827). • Add delineated wetlands to Map 12. • Add a map of floodplains to include in the discussion.		
Existing ROWs	**216I.05, subd. 3(b)(7)**	**Section 2.6**
Meets staff expectations.		
Project design, including required ancillary facilities	**216I.05, subd. 3(b)(8)**	**Section 2**
The draft is generally consistent with staff expectations, but staff recommends the following additions and modifications: • Create a separate design section. • Provide more details on the design considerations of the associated facilities.		
Project cost	**216I.05, subd. 3(b)(9)**	**Not Provided**
This generally meets staff expectations. Add the O&M costs into the final application.		

Draft Application Review

Project: Maple Grove 115 kV Transmission Line Project
Docket: E002/TL-24-427
Date: November 25, 2025

Topic	EIP Act MS §216I	Location in Document
Design for expansion	**216I.05, subd. 3(b)(10)**	**Section 2.3.1**
Meets staff expectations.		
Site or ROW acquisition, construction, maintenance, & restoration	**216I.05, subd. 3(b)(11)**	**Section 5**
EIP staff recommends the following: • Move the ROW section to Section 2.6 to be more consistent with describing the ROW of the project. • Include separate construction procedures for each individual proposed activity or associated facility. • Provide a table or list of maintenance activities and maintenance intervals for each activity.		
Other Permits	**216I.05, subd. 3(b)(12)**	**Section 9**
EIP staff recommends moving this from Section 9 to a "Regulatory Compliance" or similar section.		
CN Requirement	**216I.05, subd. 3(b)(13)**	**Section 1.4**
Meets staff expectations, a Certificate of Need is not required.		
Other sites or routes considered	**216I.05, subd. 3(b)(14)**	**Section 3**
Meets staff expectations.		
Additional information required by rule	**216I.05, subd. 3(b)(15)**	**n/a**
Staff recommends the applicants clarify the project avoids the prohibited routes identified in Minn. R. 7850.4300.		
Tribal coordination	**216I.05, subd. 3(b)(16)**	**Appendix B**
11 Federally Recognized Tribes were notified on May 9, 2025, and June 30, 2025, via US Mail as denoted in Appendix B. The Commission's July 2025 Guidance for Successful Tribal Engagement (Tribal guidance) is available on the Commission's website. Staff recommends the applicant provide notification to those listed in the eDockets service lists "Tribal Government Contacts" and "Tribal Historic Preservation Offices," as recommended in the Commission's Tribal guidance. This standard will promote consistency for applicants and is the best way to ensure contacts that are used are up to date. At the time the draft application was provided, the applicant has initiated coordination with all 11 tribes and has had received no responses. As discussed in the commission's Tribal guidance, a single email or postal letter about a project does not suffice as coordination. A reasonable effort must be documented that the applicants attempted to coordinate with each tribe with multiple methods and attempts when a response isn't received. EIP requests the applicants reach out again to the Minnesota tribes who did not respond with a follow up email and, if that is not successful, a phone call. Document these attempts for inclusion in the RPA when filed.		
Preapplication Coordination (LGUs)	**216I.05, subd. 5 (1)**	**Appendix B**
LGUs were properly notified on May 9, 2025, and June 30, 2025, via US Mail as denoted in Appendix B.		

Draft Application Review

Project: Maple Grove 115 kV Transmission Line Project
Docket: E002/TL-24-427
Date: November 25, 2025

Topic	EIP Act MS §216I	Location in Document
Preapplication Coordination (State Technical Resource Agencies)	**216I.05, subd. 5 (3)**	**Appendix B**
Staff recommends the applicants ensure that notice is provided to the "Agency Reps" service list in eDockets. All technical resource agencies contacted should be included in Appendix B.		
Environmental information, generally	**216I.05, subd. 4(a)**	**Section 6**
See individual resource discussions. Each EA resource section should include a discussion of existing conditions, impacts, and mitigation measures; see staff comments in document.		
Environmental setting	**216I.05, subd. 4(a)(1)**	**Section 6.2**
Meets staff expectations.		
Human settlement, generally	**216I.05, subd. 4(2)**	**Section 6.3**
See comments on specific resource sections.		
Public health & safety including EMF	**216I.05, subd. 11(b)(1) (Decision Criteria)**	**Section 6.4**
Staff provided technical edits to improve clarity of this section. Provide a table for common EMF sources.		
Displacement	**216I.05, subd. 4(a)(2)**	**Section 6.3.2**
Staff provided technical edits to improve clarity of this section. Staff recommends the applicant include landowner correspondence in the final application.		
Noise	**216I.05, subd. 4(a)(2)**	**Section 6.3.3**
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends the final application include more discussion of impacts from construction and associated facilities.		
Aesthetics	**216I.05, subd. 4(a)(2); 216I.19 (turbine lighting)**	**Section 6.3.4**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		
Socioeconomic Impacts	**216I.05, subd. 4(a)(2); 216I.05, subd. 11(b)(14)**	**Section 6.3.5**
Staff provided technical edits and comments to improve the clarity of this section Staff recommends the applicants make a separate section to discuss property values.		
Environmental Justice Impacts	**216I.05, subd. 4(a)(2); 216I.05, subd. 11(a)(3)**	**Section 6.3.6**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations. None of the census tracts within the project area are considered environmental justice communities under the definition provided in Minn. Stat. § 216B.1691, subd. 1(e).		

Draft Application Review

Project: Maple Grove 115 kV Transmission Line Project
Docket: E002/TL-24-427
Date: November 25, 2025

Topic	EIP Act MS §216I	Location in Document
Cultural Values	**216I.05, bud. 4(a) (2)**	**Section 6.3.7**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		
Recreation	**216I.05, subd. 4(a)(2)**	**Section 6.3.8**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		
Public Services	**216I.05, subd. 4(a)(2)**	**Section 6.3.9**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		
Land Use	**216I.05, subd. 11(a) (2)**	**Section 6.3.1**
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends Map 10 be moved and referenced in this section.		
Land-based economics, generally	**216I.05, subd. 4(a)(3)**	**Section 6.5**
See comments on specific resource sections.		
Agriculture	**216I.05, subd. 4(3); 216I.05, subd. 11(b)(5) and (9)**	**Section 6.5.1**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		
Forestry	**216I.05, subd. 4(3)**	**Section 6.5.2**
Meets staff expectations.		
Mining	**216I.05, subd. 4(a)(3)**	**Section 6.5.4**
Meets staff expectations.		
Tourism	**216I.05, subd. 4(a)(3)**	**Section 6.5.3**
Meets staff expectations.		
Archaeological & historic resources	**216I.05, subd. 4(4)**	**Section 6.6**
Staff provided technical edits and comments to improve the clarity of this section. Provide any SHPO review or any Phase 1/Phase 1a Archaeological Surveys with final application.		
Natural environment impacts - generally	**216I.05, subd. 4(5)**	**Section 6.7**
See resource-specific discussions.		
Air quality	**216I.05, subd. 4(a)(5)**	**Section 6.7.1**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		

Draft Application Review

Project: Maple Grove 115 kV Transmission Line Project
Docket: E002/TL-24-427
Date: November 25, 2025

Topic	EIP Act MS §216I	Location in Document
Geology and Groundwater	**216I.05, subd. 4(a)(5); 216I.05, subd. 11(b)(1)**	**Section 6.7.3**
The draft provided had Groundwater and Geology, Waterbodies and Watercourses, Wetlands, and Floodplains included in one section, Water Resources. Staff suggest separating and reorganizing these into their own sections. Staff provided technical edits and comments to improve the clarity of this section.		
Soils	**216I.05, subd. 11(b)(1); 216I.05, subd. 11(b)(5)**	**Section 6.7.4**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		
Surface waters (including stormwater, floodplains, and wetlands)	**216I.05, subd. 4(5); 216I.05, subd. 11(b)(1)**	**Section 6.7.3**
The draft provided had Groundwater and Geology, Waterbodies and Watercourses, Wetlands, and Floodplains included in one section, Water Resources. Staff suggests the following: • Separating and reorganizing these into their own sections. • Renaming Waterbodies and Watercourses to "Surface Waters". • Adding delineated wetlands to Map 12. Staff provided technical edits and comments to improve the clarity of this section.		
Vegetation	**216I.05, subd. 4(5)**	**Section 6.7.5**
Does not meet expectations. Vegetative impacts from ROW clearing based on the anticipated alignment were not quantified and assigned an impact intensity. Staff provided technical edits and comments to improve the clarity of this section. Staff recommends discussing more information on invasive and noxious species and mitigations using DNR guidance for seed mixes. If this information is present in the VMP that will be provided, reference it.		
Wildlife and Habitat	**216I.05, subd. 4(5)**	**Section 6.7.7**
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends adding additional detail on wildlife impacts connected to associated facilities such as fencing, lighting, roads, etc.		
Rare & unique resources	**216I.05, subd. 4(8)**	**Section 6.7.6**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		

Draft Application Review

Project: Maple Grove 115 kV Transmission Line Project
Docket: E002/TL-24-427
Date: November 25, 2025

Topic	EIP Act MS §216I	Location in Document
Greenhouse gases	**216I.05, subd. 4(6)**	**Section 6.7.2**
The draft provided had Climate Change and Greenhouse Gases included in one section. Staff suggest separating these into their own sections. Otherwise, meets staff expectations.		
Climate change resilience	**216I.05, subd. 4(7)**	**Section 6.7.2**
The draft provided had Climate Change and Greenhouse Gases included in one section. Staff suggest separating these into their own sections. Otherwise, meets staff expectations.		
Unavoidable Impacts	**216I.05, subd. 4(9)**	**Section 6.8**
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.		
Irretrievable and Irreversible Impacts	**216I.05, subd. 11(b)(11)**	**Section 6.9**
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends adding wetlands and land use to this section.		
Cumulative Potential Effects	**216I.05, subd. 11(a)(1) and (b)10)**	**Section 7**
Meets staff expectations.		
Mitigation Measures	**216I.05, subd. 4(10)**	**Throughout**
Staff provided suggested measures and comments on mitigation in each resource section. In general, staff recommends that the final application discuss mitigation measures typically required by Commission permits as well as mitigation measures permittees will implement above and beyond permit requirements.		
Additional Material		
Appendix C – Draft Agriculture Impact Mitigation Plan	Provide copy of MDA approval of AIMP as applicable.	
Appendix D – Draft Vegetation Management Plan		

Topic	EIP Act MS §216I	Location in Document	Applicant Response
Project ownership	**216I.05, subd. 3(b)(1)**	**Section 1.2**	
Meets staff expectations. The Project will be owned by Northern States Power Company,			N/A
Permittee name	**216I.05, subd. 3(b)(2)**	**Section 1.3**	
Meets staff expectations. Northern States Power Company (d/b/a Xcel Energy) will be the			N/A
Project description	**216I.05, subd. 3(b)(3)**	**Section 2**	
Staff recommends the following modifications to the application: - Include other associated facilities that will be included in the project, especially within the substation. - Remove design discussions from this section and create a separate section with design considerations for the project and associated facilities.			The Applicant added a separate project design section (Section 3.3) and moved the associated facilities discussion to that section. Because the access roads, maintenance roads, and stormwater ponds are part of the substation infrastructure footprint and are located within the substation area, these components are discussed in one section. The impacts associated with these access roads are included in the 13.5 acres that are graded/disturbed within the substation area.
Environmental Information, generally	**216I.05, subd. 3(b)(4)**	**Section 6**	
See discussion in specific resource areas.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Identification of Property Owners	**216I.05, subd. 3(b)(5), as described in 216I.05, subd. 8 (3)**	**Appendix H**	
Meets staff expectations.			Note, the list of property owners has been moved to Appendix K.
Maps	**216I.05, subd. 3(b)(6)**	**Throughout**	
Staff recommends the following modifications to the maps: - Include a map, or update Map 3, clearly referencing existing infrastructure and planned design (Hassan Substation, line 0827).			The Applicant has updated Map 2 (previously Map 3) to include existing infrastructure. Delineated wetlands and floodplains were added to Map 12.
Existing ROWs	**216I.05, subd. 3(b)(7)**	**Section 2.6**	
Meets staff expectations.			N/A
Project design, including required ancillary facilities	**216I.05, subd. 3(b)(8)**	**Section 2**	
The draft is generally consistent with staff expectations, but staff recommends the following additions and modifications: - Create a separate design section. - Provide more details on the design considerations of the associated facilities.			The Applicant added a separate project design section (Section 3.3) and moved the associated facilities discussion to that section. Because the access roads, maintenance roads, and stormwater ponds are part of the substation infrastructure footprint and are located within the substation area, these components are discussed in one section. The impacts associated with these access roads are included in the 13.5 acres that are graded/disturbed within the substation area.

Topic	EIP Act MS §216I	Location in Document	Applicant Response
Project cost	**216I.05, subd. 3(b)(9)**	**Not Provided**	
This generally meets staff expectations. Add the O&M costs into the final application.			The Applicant has updated this information.
Design for expansion	**216I.05, subd. 3(b)(10)**	**Section 2.3.1**	
Meets staff expectations.			N/A
Site or ROW acquisition, construction, maintenance, & restoration	**216I.05, subd. 3(b)(11)**	**Section 5**	
EIP staff recommends the following: - Move the ROW section to Section 2.6 to be more consistent with describing the ROW			The Applicant has move the ROW description to Section 2.6 and separate construction procedures for each activity are included under Section 6.1.
Other Permits	**216I.05, subd. 3(b)(12)**	**Section 9**	
EIP staff recommends moving this from Section 9 to a "Regulatory Compliance" or similar section.			The Applicant created a Regulator Compliance section (Section 2.0); Permits, Approvals, Consultations, and Reviews have been moved to that section.
CN Requirement	**216I.05, subd. 3(b)(13)**	**Section 1.4**	
Meets staff expectations, a Certificate of Need is not required.			N/A
Other sites or routes considered	**216I.05, subd. 3(b)(14)**	**Section 3**	
Meets staff expectations.			N/A
Additional information required by rule	**216I.05, subd. 3(b)(15)**	**n/a**	
Staff recommends the applicants clarify the project avoids the prohibited routes identified in Minn. R. 7850.4300.			The Applicant added text to Section 7.3.1 that clarifies that the project avoids the prohibited routes identified in Minn. R. 7850.4300.
Tribal coordination	**216I.05, subd. 3(b)(16)**	**Appendix B**	
11 Federally Recognized Tribes were notified on May 9, 2025, and June 30, 2025, via US Mail as denoted in Appendix B. The Commission's July 2025			The Applicant followed up with Tribes via email and phone; Appendix B has been updated to include these additional outreach efforts.
Preapplication Coordination (LGUs)	**216I.05, subd. 5 (1)**	**Appendix B**	
LGUs were properly notified on May 9, 2025, and June 30, 2025, via US Mail as denoted in			N/A

Topic	EIP Act MS §216I	Location in Document	Applicant Response
Preapplication Coordination (State Technical Resource Agencies)	**216I.05, subd. 5 (3)**	**Appendix B**	
Staff recommends the applicants ensure that notice is provided to the "Agency Reps" service list in eDockets. All technical resource agencies contacted should be included in Appendix B.			The Applicant relied on the Draft Guidance for sending notices; the guidance listed SHPO, DNR, MnDOT, BWSR, MDH, MDA, and MPCA. These state agency contacts (and federal agency contacts) are summarized in Appendix B.
Environmental information, generally	**216I.05, subd. 4(a)**	**Section 6**	
See individual resource discussions. Each EA resource section should include a discussion of existing conditions, impacts, and mitigation measures; see staff comments in document.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. All sections have a discussion of existing conditions, impacts, and mitigation measures.
Environmental setting	**216I.05, subd. 4(a)(1)**	**Section 6.2**	
Meets staff expectations.			N/A
Human settlement, generally	**216I.05, subd. 4(2)**	**Section 6.3**	
See comments on specific resource sections.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Public health & safety including EMF	**216I.05, subd. 11(b)(1) (Decision Criteria)**	**Section 6.4**	
Staff provided technical edits to improve clarity of this section. Provide a table for common EMF sources.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. A table of common EMF sources has been added to Section 7.4.3.
Displacement	**216I.05, subd. 4(a)(2)**	**Section 6.3.2**	
Staff provided technical edits to improve clarity of this section. Staff recommends the applicant include landowner correspondence in the final application.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. The Applicant updated Appendix B to include the notice area mailing list. The notice area includes properties located within 1,000 feet of any of the preliminary routes. Section 7.3.2.1 was updated to clarify that no residences would be displaced by the Project.
Noise	**216I.05, subd. 4(a)(2)**	**Section 6.3.3**	
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends the final application include more discussion of impacts from construction and associated facilities.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Additional discussion of noise related impacts from construction and associated facilities has been added to Section 7.3.3.

Topic	EIP Act MS §216I	Location in Document	Applicant Response
Aesthetics	**216I.05, subd. 4(a)(2); 216I.19 (turbine lighting)**	**Section 6.3.4**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Socioeconomic Impacts	**216I.05, subd. 4(a)(2); 216I.05, subd. 11(b)(14)**	**Section 6.3.5**	
Staff provided technical edits and comments to improve the clarity of this section Staff recommends the applicants make a separate section to discuss property values.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Discussion of property values has been moved to a separate section (Section 7.3.6).
Environmental Justice Impacts	**216I.05, subd. 4(a)(2); 216I.05, subd. 11(a)(3)**	**Section 6.3.6**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Cultural Values	**216I.05, bud. 4(a) (2)**	**Section 6.3.7**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Recreation	**216I.05, subd. 4(a)(2)**	**Section 6.3.8**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Public Services	**216I.05, subd. 4(a)(2)**	**Section 6.3.9**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Land Use	**216I.05, subd. 11(a) (2)**	**Section 6.3.1**	
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends Map 10 be moved and referenced in this section.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. The NLCD map (now Map 7) has been moved to and is referenced in this section (Section 7.3.1)

Topic	EIP Act MS §216I	Location in Document	Applicant Response
Land-based economics, generally	**216I.05, subd. 4(a)(3)**	**Section 6.5**	
See comments on specific resource sections.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Agriculture	**216I.05, subd. 4(3); 216I.05, subd. 11(b)(5) and (9)**	**Section 6.5.1**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Forestry	**216I.05, subd. 4(3)**	**Section 6.5.2**	
Meets staff expectations.			N/A
Mining	**216I.05, subd. 4(a)(3)**	**Section 6.5.4**	
Meets staff expectations.			N/A
Tourism	**216I.05, subd. 4(a)(3)**	**Section 6.5.3**	
Meets staff expectations.			N/A
Archaeological & historic resources	**216I.05, subd. 4(4)**	**Section 6.6**	
Staff provided technical edits and comments to improve the clarity of this section. Provide any SHPO review or any Phase 1/Phase 1a Archaeological Surveys with final application.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Information on the Phase 1a literature review has been added to Section 7.6.1.2.
Natural environment impacts - generally	**216I.05, subd. 4(5)**	**Section 6.7**	
See resource-specific discussions.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Air quality	**216I.05, subd. 4(a)(5)**	**Section 6.7.1**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Geology and Groundwater	**216I.05, subd. 4(a)(5); 216I.05, subd. 11(b)(1)**	**Section 6.7.3**	
The draft provided had Groundwater and Geology, Waterbodies and Watercourses, Wetlands, and Floodplains included in one section, Water Resources. Staff suggest separating and reorganizing these into their own sections. Staff provided technical edits			The Applicant separated out Groundwater and Geology into a separate section. A Surface Waters section is used to discuss the additional water resources; each water resource has a sub-heading under Surface Waters.

Topic	EIP Act MS §216I	Location in Document	Applicant Response
Soils	**216I.05, subd. 11(b)(1); 216I.05, subd. 11(b)(5)**	**Section 6.7.4**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Surface waters (including stormwater, floodplains, and wetlands)	**216I.05, subd. 4(5); 216I.05, subd. 11(b)(1)**	**Section 6.7.3**	
The draft provided had Groundwater and Geology, Waterbodies and Watercourses, Wetlands, and Floodplains included in one section, Water Resources. Staff suggests the following: - Separating and reorganizing these into their own sections. - Renaming Waterbodies and Watercourses to “Surface Waters”. - Adding delineated wetlands to Map 12.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Groundwater and Geology is now it's own section. A Surface Waters section is used to discuss the additional water resources; each water resource has a sub-heading under Surface Waters. Map 12 now includes delineated wetlands.
Vegetation	**216I.05, subd. 4(5)**	**Section 6.7.5**	
Does not meet expectations. Vegetative impacts from ROW clearing based on the anticipated alignment were not quantified and assigned an impact intensity. Staff provided technical edits and comments to improve the clarity of this section. Staff recommends discussing more information on invasive and noxious species and mitigations using DNR guidance for seed mixes. If this information is present in the VMP that will be provided, reference it.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Impact intensity for vegetation impacts and quantification of permanent impacts to vegetation in the ROW is provided in Section 7.7.7. Additional information on invasive and noxious species is included, as is reference to the appendix that includes the Vegetation Management Plan.
Wildlife and Habitat	**216I.05, subd. 4(5)**	**Section 6.7.7**	
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends adding additional detail on wildlife impacts connected to associated facilities such as fencing, lighting, roads, etc.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Additional detail on wildlife impacts from associated facilities was added to the section.
Rare & unique resources	**216I.05, subd. 4(8)**	**Section 6.7.6**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.

Topic	EIP Act MS §216I	Location in Document	Applicant Response
Greenhouse gases	**216I.05, subd. 4(6)**	**Section 6.7.2**	
The draft provided had Climate Change and Greenhouse Gases included in one section. Staff suggest separating these into their own sections. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Climate Change and Greenhouse Gases have been separated into two sections.
Climate change resilience	**216I.05, subd. 4(7)**	**Section 6.7.2**	
The draft provided had Climate Change and Greenhouse Gases included in one section. Staff suggest separating these into their own sections. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Climate Change and Greenhouse Gases have been separated into two sections.
Unavoidable Impacts	**216I.05, subd. 4(9)**	**Section 6.8**	
Staff provided technical edits and comments to improve the clarity of this section. Otherwise, meets staff expectations.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate.
Irretrievable and Irreversible Impacts	**216I.05, subd. 11(b)(11)**	**Section 6.9**	
Staff provided technical edits and comments to improve the clarity of this section. Staff recommends adding wetlands and land use to this section.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. This section now includes wetlands and land use.
Cumulative Potential Effects	**216I.05, subd. 11(a)(1) and (b)10)**	**Section 7**	
Meets staff expectations.			N/A
Mitigation Measures	**216I.05, subd. 4(10)**	**Throughout**	
Staff provided suggested measures and comments on mitigation in each resource section. In general, staff recommends that the final application discuss mitigation measures typically required by Commission permits as well as mitigation measures permittees will implement above and beyond permit requirements.			The Applicant has reviewed all redline comments and have incorporated redlines as appropriate. Sections have been added to include mitigation measures typically required by Commission permits, as well as additional measures.
Additional Material			
Appendix C – Draft Agriculture Impact Mitigation Plan	Provide copy of MDA approval of AIMP as applicable.		The AIMP along with an approval letter from MDA is included in Appendix E.
Appendix D – Draft Vegetation Management Plan			The Draft VMP is included in Appendix F.

Appendix D

Phase Ia Cultural Resources Literature Review

PUBLIC

In accordance with Minnesota Rules, part 7829.0500, and Minnesota Statutes Chapter 13, the Applicants have designated portions of Appendix D as NONPUBLIC DATA–NOT FOR PUBLIC DISCLOSURE because it contains sensitive cultural resource and natural heritage information. The Minnesota State Historic Preservation Office Manual for Archaeological Projects in Minnesota provides for restricted access to sensitive cultural resource information. Given the need to include nonpublic information, the Applicants have prepared and are electronically filing both NONPUBLIC and public versions of Appendix D.

BARR

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January 22, 2026

Lucy Harrington
State Historic Preservation Office
Minnesota Department of Administration
50 Sherburne Avenue, Suite 203
St. Paul, Minnesota 55155

Re: Request for Review: Phase Ia Literature Review Report for the Xcel Energy Northwest Maple Grove 115 kV Transmission Project in Hennepin County, Minnesota

Dear Ms. Harrington:

On behalf of Xcel Energy (Xcel), Barr Engineering Co. (Barr) completed a Phase Ia cultural resources literature review and report (Phase Ia) of the proposed route for the Northwest Maple Grove 115 kV Transmission Project in Maple Grove, Minnesota (the Project). Maple Grove is experiencing a significant increase in electric use due to the growth of new housing, businesses and neighborhoods. To continue delivering reliable electricity and to accommodate the community's growth, Northern States Power Company, doing business as Xcel Energy, (the Applicant) is proposing to construct a 115/34.5 kV substation on the west side of Interstate 94 and a two-mile 115 kV transmission line connecting the new substation with an existing 115 kV transmission line west of the existing Elm Creek substation.

A Route Permit must be obtained from the Minnesota Public Utilities Commission (Commission) before high voltage transmission lines like the proposed Project can be built. The Applicant plans to submit a Route Permit application in early 2026.

The Phase Ia was completed in advance of filing the RPA in an effort to understand how the Project may impact cultural resources, and to provide baseline information that Xcel can utilize as Project design is advanced. At this time, we are requesting comments from your office regarding the results of the literature review and any next steps you recommend.

Please let me know if you have any questions and/or require any additional information to complete your review, and we look forward to your response. If you would like to request a meeting, please call 1-612-342-8902 or send an email to NWMapleGrove@xcelenergy.com.

Sincerely

Veronica Parsell
Senior Cultural Resources Specialist
Barr Engineering

Enc: Phase Ia Literature Review Report

PUBLIC DOCUMENT - NONPUBLIC DATA HAS BEEN EXCISED

Phase Ia Cultural Resources Literature Review

Xcel Energy Northwest Maple Grove 115 kV Transmission Project

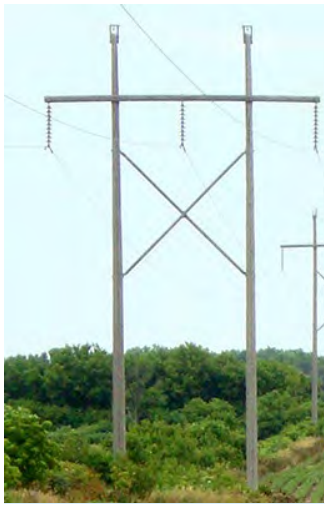
Prepared for
Xcel Energy

Prepared by
Barr Engineering Co.

January 2026

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Minneapolis, MN 55435
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Certification

Author and Principal Investigator



Veronica Parsell, M.A.
RPA #: 3532690

January 19, 2026
Date

Phase Ia Cultural Resources Literature Review

January 2026

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Appendix A	Project Specifications and Example Photographs
Appendix B	Documented Historic Architecture within 1-Mile of the Route Width
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Executive Summary

In response to a request from Xcel Energy (Xcel), Barr Engineering Co. (Barr) completed a Phase Ia cultural resources literature review (Phase Ia) for the proposed Northwest Maple Grove 115 kilovolt (kV) Transmission Project in Maple Grove, Hennepin County, Minnesota (the Project). The Project involves construction of an approximately two-mile-long, 115 kV double-circuit transmission line from a new West Maple Grove Substation located on the west side of Interstate 94 to an interconnect point (or "tap") on an existing 115 kV line on the south side of County Highway 81 west of the existing Elm Creek Substation. The Project is located in Sections 4, 5, and 8, Township 119N, Range 22W on the Anoka, Minnesota 7.5' USGS topographic quadrangle (1993). Xcel is submitting a route permit application (RPA) for the Project to the Minnesota Public Utilities Commission (PUC) late this year. This Phase Ia was completed concurrent with the RPA in an effort to understand how the Project may impact cultural resources, and to provide baseline cultural resources information that Xcel can utilize as Project design is advanced.

The Project involves constructing an approximately two-mile-long, new 115 kV double-circuit, alternating current transmission line from a new 115/34.5 kV substation, the West Maple Grove Substation, on the west side of Interstate 94, to a proposed tap point. The new transmission line will parallel the right-of-way (ROW) along the west side of Interstate 94 for 0.5 miles before turning east. It will then roughly follow the ROW along 105th Ave North for 1.5 miles, where it will then tie into an existing 115 kV line (line 0827) along County Highway 81, west of the existing Elm Creek Substation.

A literature review was completed for the Project in September 2024 and supplemented in August 2025 through a review of the Minnesota Office of the State Archaeologist (OSA) online Portal as well as a review of Minnesota's Statewide Historic Inventory Portal (MnSHIP). Barr focused on identifying documented cultural resources within the route width for the Project, which is the area in which the PUC authorizes a permittee to place their proposed transmission line facilities. For this Project, the Xcel proposes a variable route width ranging from 200 feet in areas where modifications to existing lines may be required, 500 feet along the proposed new alignment, and up to 1,000 feet around the proposed West Maple Grove Substation.

The literature review found no documented archaeological resources within the route width. One historic cemetery (the Maple Grove/Rush Creek Cemetery), mapped in the OSA Portal at the Public Land Survey System (PLSS) "40" level, is shown overlapping a portion of the route width. However, a review of available maps and aerials indicates that this cemetery is actually located well outside of the route width, on the north side of County Highway 81. One additional cemetery, South Maple Grove Cemetery, has an unknown location and is therefore mapped in the OSA Portal at the 36-square-mile PLSS Township level. It is therefore possible, though unlikely, that South Maple Grove Cemetery is located within the route width. There are nine historic architectural resources within the route width. This includes resource XX-RRD-GNR014, the Minneapolis and Northwestern Railroad Corridor, which is eligible for the NRHP. Within 1-mile of the Project, 39 historic architectural resources have been documented.

Impacts to cultural resources within the route width may occur where ground disturbance is necessary for Project construction and maintenance. Each new structure foundation will result in approximately 80 square feet of ground disturbance. The new substation will consist of up to 13.5 acres of ground disturbance. However, other portions of the Project consist of connecting a new 115 kV double-circuit in-and-out transmission line into Xcel's existing line 0827 between Elm Creek and Hassan Substations. Ground disturbance related to this aspect of the Project will be minimal; therefore, this portion of the Project is not anticipated to result in impacts to cultural resources.

PUC-issued route permits generally include recommendations regarding cultural resources, and permit conditions may include conducting a Phase Ia literature review, Phase I archaeological survey, or an archaeological assessment for the Project. Coordination with the Minnesota SHPO will help determine the need for additional cultural resource studies in relation to the Project.

1 Introduction

In response to a request from Xcel Energy (Xcel), Barr conducted a Phase Ia cultural resources literature review (Phase Ia) prior to the construction of an approximately two-mile-long, new 115 kV double-circuit, alternating current transmission line from a new 115/34.5 kV substation, the West Maple Grove Substation, on the west side of Interstate 94, to a proposed tap point. The new transmission line will parallel the right-of-way (ROW) along the west side of Interstate 94 for 0.5 miles before turning east. It will then roughly follow the ROW along 105th Ave North for 1.5 miles, where it will then tie into an existing 115 kV line (line 0827) along County Highway 81, west of the existing Elm Creek Substation. The Project is located in Sections 4, 5, and 8, Township 119N, Range 22W on the Anoka, Minnesota 7.5' USGS topographic quadrangle (1993) (Figure 1). Construction of the Project is anticipated to last approximately one year, starting in Q4 2026, with the Project anticipated to be in service in the last quarter of 2028.

Xcel is submitting a route permit application (RPA) for the Project to the Minnesota Public Utilities Commission (PUC) in December 2025. This Phase Ia was completed concurrent with the RPA in an effort to understand how the Project may impact cultural resources, and to provide baseline cultural resources information that Xcel can utilize as Project design is advanced.

Background research was completed through a review of the Minnesota Office of the State Archaeologist (OSA) online Portal as well as a review of MnSHIP, Minnesota's Statewide Historic Inventory Portal. The records review focused on a 1-mile (mi) study area around the route width. Barr gathered information about previously documented cultural resources as well as the environmental and cultural context of the region to assess the potential for the Project to contain undocumented cultural resources.

Key personnel committed to the Project include archaeological Principal Investigator Ms. Veronica Parsell. Mr. Aaron Birr completed the report graphics.

This report presents the results of the background research in Section 2. Section 3 outlines the applicable regulations and guidelines governing the Project. Section 4 provides the conclusions and recommendations. The references cited in this report appear in Section 5. Appendix A contains specifications and example photographs of anticipated infrastructure to be installed for the Project, Appendix B contains a table of documented historic architectural resources within 1-mile of the route width, and Appendix C contains historic maps and aerials of the Project area.

1.1 Project Overview

The Project is needed to provide additional transmission capacity to mitigate current capacity issues due to a significant increase in electric demand from new homes, businesses, and neighborhoods in the Twin Cities northwest suburbs, and to improve electric system reliability throughout the region as more renewable energy resources are added to the electric system in and around the region. The loading on existing lines in the area immediately affected by the Project currently ranges from 55 to 80 percent (optimal loading is 50 percent), which in turn is causing contingency/N-1 risk on the feeders in this area; the Project will mitigate this risk. Xcel plans to begin Project construction upon regulatory approval and anticipates that the Project will start addressing the needs of the Twin Cities northwest suburbs upon commercial operation in 2028.

A new 115 kV double-circuit in-and-out transmission line will be connected into Xcel's existing line 0827 between Elm Creek and Hassan Substations. The new 115 kV double-circuit transmission line will connect to the West Maple Grove Substation, built to meet growing demand. These lines are comprised

of individual structures that support the lengths of conductors made of steel and aluminum braided cable, typically around one inch in diameter, along with two optical ground wires (OPGW). The OPGWs function as both a shield wire to be used for lightning protection as well as a fiber optic communication line. This type of shield wire requires special splicing and extra splice boxes to be placed on transmission poles intermittently. Transmission lines are built in teams of three wire groupings; each individual grouping is called a phase. A group of three phases is called a circuit. Each phase can be a single wire or multiple wires called a bundle. This new double-circuit line will contain a two-wire bundle for each phase. Each conductor bundle is supported at every structure by an insulator (Appendix A1).

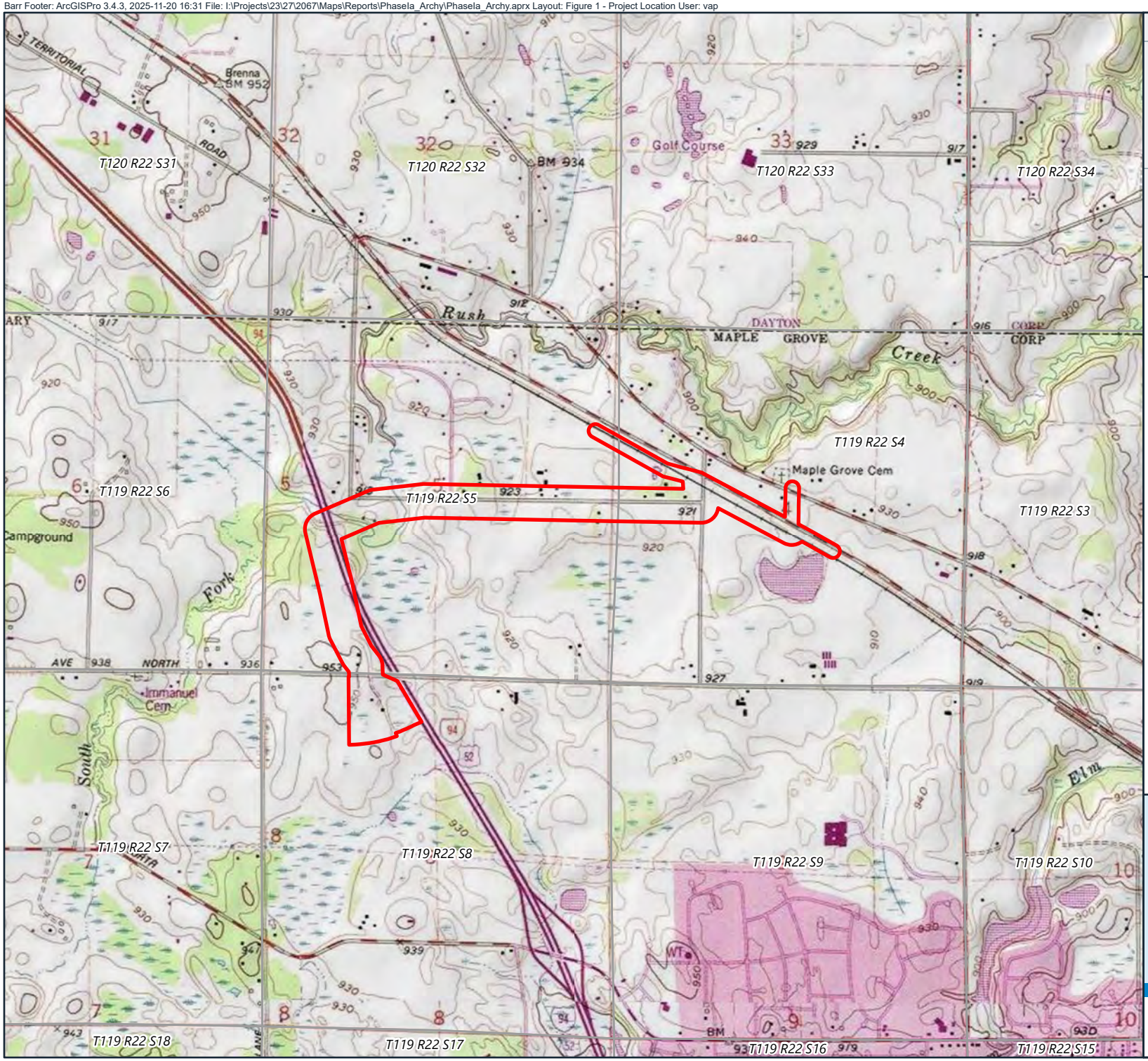
The Project includes the installation of approximately 30 to 35 new 115 kV tower structures using a combination of structure types (Appendix A2). Each new structure foundation will result in approximately 80 square feet of ground disturbance. The typical structures will be a monopole, silver/galvanized or brown/weathering steel, double-circuit structure (Appendix A3). Tangent and angle structures will be used to brace line post insulators. Dead-end and cut-in structures will have davit arms. Distribution underbuild (lower-voltage conductors installed below the 115 kV conductors on the same structures) is anticipated for a partial section of the Project.

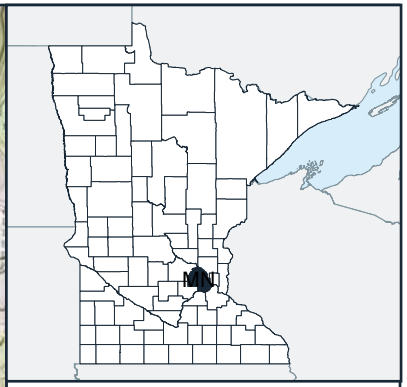
The Project parallels existing infrastructure for 100 percent of its length, including 1.6 miles (84 percent) along existing roads and 0.3 miles (16 percent) where the anticipated alignment parallels road, rail, and existing transmission line. When paralleling existing road ROW, Xcel would place structures on adjacent private property with a 20-foot offset from the existing road ROW, subject to easements with landowners and road authority design requirements that could affect the offset distance.

The Project would also include construction of a new substation. The new West Maple Grove Substation will be a 115/34.5 kV substation located 1.5 miles west of the existing Elm Creek Substation. This substation is planned to be located on a 13.5-acre parcel of land purchased from the city of Maple Grove by Xcel; this area is being referred to as the “West Maple Grove Substation Area”.

The West Maple Grove Substation is being designed with sufficient space to accommodate both the initial infrastructure and future expansions; therefore, ground disturbance throughout the entire 13.5-acre parcel is anticipated. Initially, the substation will feature six transmission circuit breakers to support the connection of two transmission lines and two distribution transformers. In its ultimate configuration, the substation will be capable of housing up to thirteen transmission circuit breakers, enabling the connection of four transmission lines and three distribution transformers. The facility will be situated on a graded and fenced site within the West Maple Grove Substation Area. The fenced portion of the site will be approximately 3.5 acres. Within this fenced-in portion of the site there will be one building that will be 10 to 12 feet tall and structural columns to support the equipment ranging from 60 to 84 feet tall. Lighting will be mounted on poles or structures at 12 to 30 feet high. Lighting is only activated during scheduled maintenance or emergency work; otherwise, the substation remains dark to reduce light pollution. Fixtures include full cutoff LED fixtures to prevent upward light spill and shielded luminaires to direct light only where needed. Typical maintained illuminance is 0.5–1 foot-candles for general access and 5–10 foot-candles for detailed work areas. Also included in the 13.5-acre West Maple Grove Substation Area are access roads, maintenance roads, a stormwater pond and landscaping/vegetative screening (Figure 2).

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Route Width

N

0 1,000 2,000

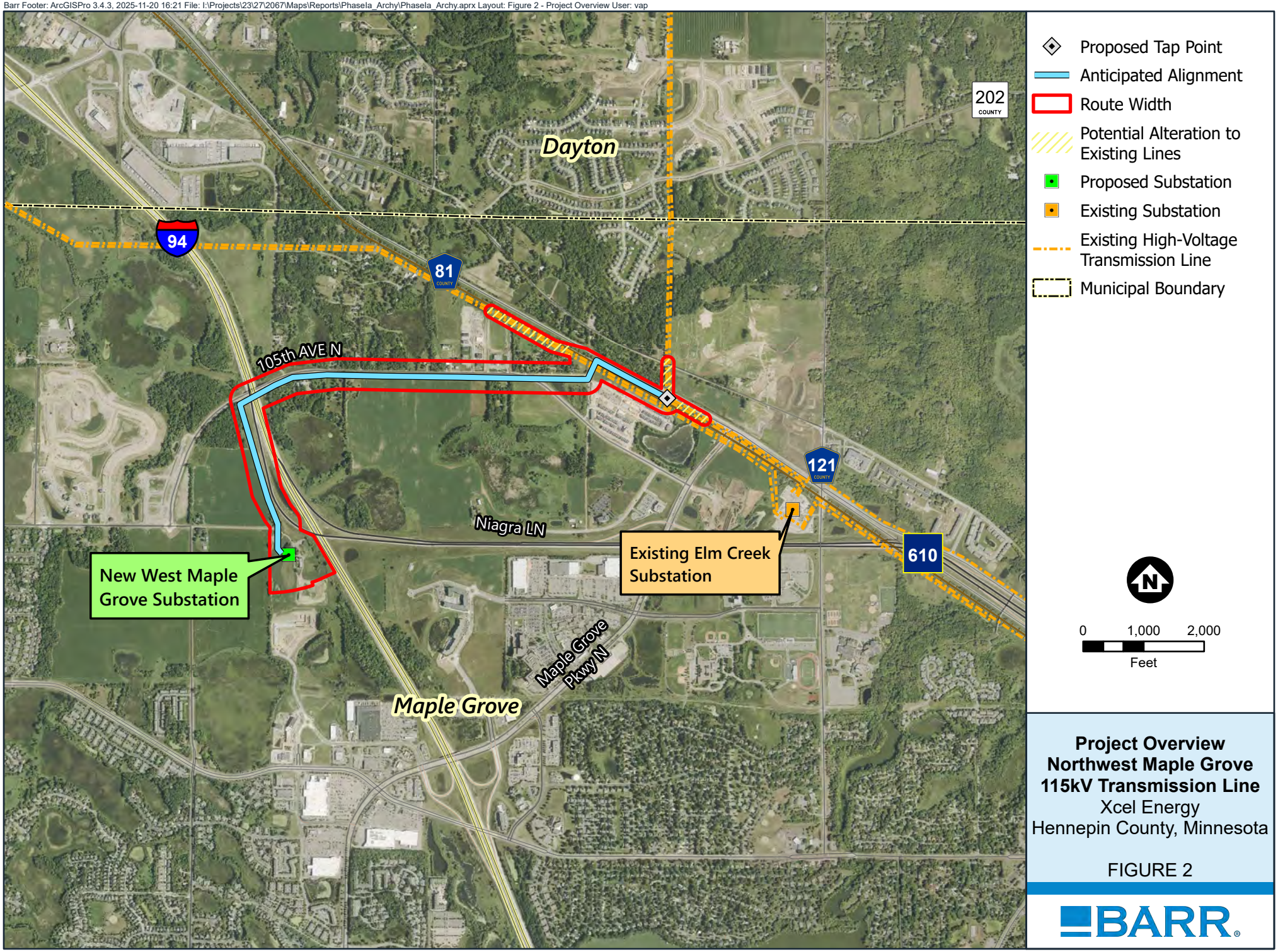
Feet

Project Location
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

FIGURE 1

BARR

Barr Footer: ArcGISPro 3.4.3, 2025-11-20 16:21 File: I:\Projects\23\27\2067\Maps\Reports\PhaseIa_Archy\PhaseIa_Archy.aprx Layout: Figure 2 - Project Overview User: vap



Project Overview
Northwest Maple Grove 115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

FIGURE 2

BARR

2 Background Research

The objective of the literature review is to identify any cultural resources present in or adjacent to the Project, as well as assess the effects of the Project on these resources, if identified. Barr's cultural resources review focused on identifying archaeological and historic architectural resources. Archaeological resources are defined as any site location that contains material remains of past human life or activities, or other places and/or items that possess cultural importance to individuals or a group. Historic architectural resources include "buildings, bridges, tunnels, statues, and other structures that create tangible links to the American past, whether in relation to historical events and people, traditional ways of life, architectural design, or methods of construction"[1].

Once identified through documentary research and/or fieldwork, archaeological sites and historic architectural resources are evaluated for National Register of Historic Places (NRHP) eligibility based on the following criteria.

> "The quality of significance in American history, architecture, archaeology, engineering and culture is present in the districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> a. *That are associated with the events that have made a significant contribution to the broad patterns of our history; or*
> b. *That are associated with the lives of persons significant in our past; or*
> c. *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
> d. *That have yielded or may be likely to yield, information important in prehistory or history" (36 CFR 60.4)."*

The purpose of this section is to provide a basic context through which to evaluate the results of Barr's research. This section briefly outlines the environmental and cultural background of the region in and around Hennepin County, Minnesota.

2.1 Literature Review

The literature review was directed toward identifying previously recorded archaeological sites, historic architectural resources, and other cultural resources. Barr reviewed the Minnesota OSA Portal for archaeological site location information. MnSHIP, Minnesota's Statewide Historic Inventory Portal, was also reviewed for information pertaining to historic architectural resources. Barr focused on previously recorded resources within 1-mi of the Project, and included a review of the following resources:

- National Historic Landmark list;
- NRHP list;
- Archaeological Site Files;
- Historic Architectural Inventory Files;
- Historic Cemeteries (as documented in the OSA Portal);
- Historic maps and aerial photographs.

[1] https://www.nps.gov/orgs/1027/architecture.htm

The data viewed through MnSHIP and the OSA Portal indicate that no previously recorded archaeological sites have been documented within the route width. However, nine documented historic architectural resources are located within the route width. Within 1-mi of the route width, eight archaeological sites and 39 historic architectural resources have been recorded (Figure 3).

2.1.1 National Historic Landmarks List

No National Historic Landmarks are located within the route width or a 1-mi buffer.

2.1.2 National Register of Historic Places

One resource has been evaluated and determined eligible for the NRHP. Resource XX-RRD-GNR014, the Minneapolis and Northwestern Railroad Corridor, represents the railroad right-of-way in Hennepin, Wright, and Stearns Counties, between a junction with the St. Paul and Pacific Main Line at Van White Boulevard in Minneapolis and a junction with the St. Vincent Extension in St. Cloud. It was determined eligible for the NRHP in 2018 (Schmidt 2024). This resource is located along the eastern end of the route width, where it parallels a series of existing transmission lines, some of which may be altered as part of the current Project.

The Minneapolis and Northwestern Railroad Corridor, historically known as the Minneapolis and Northwestern Railroad Company, later the St. Paul Minneapolis and Manitoba Railway Company, and eventually the Great Northern Railway Company, is an important component of Minnesota's historical transportation infrastructure. Constructed between 1882 and 1956, the corridor played a pivotal role in connecting early population centers and facilitating the movement of agricultural and industrial commodities, notably granite from the St. Cloud area, which became accessible for large-scale shipping only after the railroad's arrival (Schmidt 2024). The corridor is eligible for the NRHP under Criterion A for its association with significant events in transportation history, particularly its contribution to the development of Minnesota's railroad network and its influence on settlement and economic growth. The corridor retains sufficient integrity in terms of location, feeling, and association, despite some alterations to its setting and materials, thereby qualifying it as an NRHP-eligible historic district.

The corridor's extensive length and historical complexity have led to various segments of the corridor being documented separately under distinct inventory numbers, reflecting different phases of evaluation, ownership, and historical significance. Resource XX-RRD-00010 within the route width is one such example of this occurrence. The most recent inventory form, XX-RRD-GNR014, consolidates these earlier evaluations into a single comprehensive document, streamlining the historical record and providing a unified assessment of the corridor's eligibility for the NRHP (Schmidt 2024).

2.1.3 Archaeological Site Files

The OSA Portal indicates that eight archaeological sites have been documented within 1-mi of the route width (Table 1). None of these sites are located within or adjacent to the route width.

Table 1 Documented Archaeological Sites within 1-mile of the Route Width

Site Number	Site Name	Site Type	NRHP Eligibility	Location
21HE0186	Osseo High School Site	Precontact lithic isolate	Unevaluated	within 1 mile

Site Number	Site Name	Site Type	NRHP Eligibility	Location
21HE0320	Gellerman	Precontact lithic scatter	Recommended Not Eligible	within 1 mile
21HE0321	DMR I	Precontact lithic scatter	Unevaluated	within 1 mile
21HE0322	DMR II	Precontact lithic isolate	Unevaluated	within 1 mile
21HE0323	Meloche I	Precontact lithic scatter	Unevaluated	within 1 mile
21HE0324	Meloche II	Precontact camp site	Unevaluated	within 1 mile
21HE0325	Meloche III	Precontact lithic isolate	Unevaluated	within 1 mile
21HEb	none	Alpha Site - unknown historic site	Unevaluated	within 1 mile

2.1.4 Historic Cemeteries

A review of the 2011 data on Minnesota's unrecorded historical cemeteries (Vermeer and Terrell 2011), as available through the OSA Portal, shows four historic cemeteries within 1-mile of the route width, including two historic cemeteries overlapping the route width or a portion of the route width (Table 2). The Maple Grove/Rush Creek Cemetery (MN Cem ID 20851) is mapped at the Public Land Survey System (PLSS) "40" level in the OSA Portal. While this provides the location of the cemetery at the PLSS quarter-quarter section level, it is not an accurate representation of the cemetery property boundaries. The Maple Grove/Rush Creek Cemetery has well-defined parcel boundaries that are outside of the route width, on the north side of County Highway 81. One additional cemetery, South Maple Grove Cemetery (MN Cem ID 20933), has an unknown location and is therefore mapped in the OSA Portal at the 36-square-mile PLSS Township level. It is therefore possible, though unlikely, that South Maple Grove Cemetery is located within the route width. Two additional cemeteries, as mapped in the OSA Portal, are located within 1-mile of the route width. These include the Immanuel United Methodist Cemetery (MN Cem ID 20855) and the Koehler Family Cemetery (MN Cem ID 20934).

Table 2 Historic Cemeteries within 1-mile of the Route Width

MN Cemetery ID	Cemetery Name	Mapping Accuracy	Cemetery Location	Notes
20933	South Maple Grove Cemetery	Township-level	Unknown	
20851	Maple Grove/Rush Creek Cemetery	PLS Forty-level	Known	Small pioneer cemetery established in 1861 More than 525 interments

MN Cemetery ID	Cemetery Name	Mapping Accuracy	Cemetery Location	Notes
20855	Immanuel United Methodist Cemetery	PLS Forty-level	Known	More than 275 interments
20934	Koehler Family Cemetery	Section-level	Unknown	Pope notes, "on Hwy 101 north of 97th Ave N"

2.1.5 Historic Architecture Inventory Files

The MnSHIP Portal indicates that 39 historic architectural resources have been documented within 1-mi of the route width (Appendix B). Of these, nine resources are located within the route width. Documented historic architectural resources in the route width include three farmsteads, two houses, two bridges, one Trunk Highway, and one railroad corridor that has been documented multiple times and therefore has multiple historic inventory numbers (Table 3). The vast majority of these resources are unevaluated for the NRHP; however, resource XX-RRD-GNR014, the Minneapolis and Northwestern Railroad Corridor, was determined eligible for the NRHP in 2018 (Schmidt 2024). See Section 2.1.2 for a detailed discussion of this resource.

Table 3 Documented Historic Architectural Resources within the Route Width

Historic Inventory Number	Resource Name/Type	Date Constructed (if known)	NRHP Eligibility
HE-MGC-00005	Glendon Unke Farmstead	1910	Unevaluated
HE-MGC-00007	House	1905	Unevaluated
HE-MGC-00008	Farmstead		Unevaluated
HE-MGC-00009	House, Arts and Crafts Style	1925	Unevaluated
HE-MGC-00060	Roeder Farmstead, Arts and Crafts Style	1933	Unevaluated
HE-MGC-00089	Township Bridge		Unevaluated
HE-MGC-00111	Bridge L8083		Unevaluated
XX-ROD-00185	US Trunk Highway 52	1955, 1920	Unevaluated
XX-RRD-00010*	Osseo Branch Line/ St. Paul Minneapolis & Manitoba /Great Northern Railroad (part of Resource XX-RRD-GNR014)		Considered Eligible

Historic Inventory Number	Resource Name/Type	Date Constructed (if known)	NRHP Eligibility
XX-RRD-GNR014	Minneapolis and Northwestern Railroad Corridor		Considered Eligible

*Resource XX-ROD-00010 represents a segment of the Minneapolis and Northwestern Railroad Corridor (XX-RRD-GNR014)

[NONPUBLIC DATA BEGINS]

[NONPUBLIC DATA ENDS]

2.1.6 Previous Cultural Resource Investigations

Barr did not complete an in-person records check at the Minnesota State Historic Preservation Office (SHPO). Instead, Barr reviewed cultural resource data electronically via MnSHIP and the OSA Portal. This data often indicates whether a survey report was completed in conjunction with the identification of a cultural resource. Negative survey report information is not included. As a result, the location of any previous investigations where survey results were negative for cultural resources is not readily available. Nevertheless, the data summarized here is believed to be adequate for the purposes of this literature review.

Available data from OSA and MnSHIP indicates that within 1-mi of the Project area, at least seven previous cultural resource investigations have occurred (Table 4). A large portion of the route width was surveyed for archaeological resources in 2011 by Summit Environmental Solutions prior to the expansion of Trunk Highway (TH) 610 (O'Brien et al. 2011). Portions of the route width were surveyed for historic architectural resources in 1994 prior to construction of TH610 (Schweigert 1994), and in 2018 prior to work on Interstate 94 (Granger and Kelly 2018).

Table 4 Previous Cultural Resource Investigations within 1-mile of the Route Width

Report Year	Report Authors	Report Title	Resources Investigated	In Route Width?
2011	O'Brien, M., R. Hutter, J. Jerve, M. Madson, L. Ollila, A. Schmidt, and T. Varilek	Phase I and II Cultural Resources Studies for the Trunk Highway 610 Construction Project, Maple Grove, Hennepin County, Minnesota	21He0320	Yes
2000	Harrison, C.	Report on Cultural Resource Reconnaissance Conducted for the I-94/TH 610 West and East Alternative Urban Areawide Reviews (AURs), City of Maple Grove, Hennepin County, Minnesota	21He0320 21He0321 21HE0322 21HE0323 21HE0324 21HE0325	Yes
1993	Ketz, A.	Archaeological Reconnaissance Survey for the Osseo High School Site, Osseo ISD #279	21He0186	No
1994	Schweigert, K.	Cultural Resource Survey of Proposed Trunk Highway 610 in Maple Grove and Brooklyn Park, Hennepin County, Minnesota	HE-MGC-005 HE-MGC-057 HE-MGC-058 HE-MGC-059 HE-MGC-063	Yes

Report Year	Report Authors	Report Title	Resources Investigated	In Route Width?
2018	Granger, S. and S. Kelly	Phase I and II Architecture-History Investigation, I-94 Unbonded Concrete Overlay (UBOL) and Other Improvements, Rogers to Maple Grove, Hennepin County	HE-MGC-060 HE-MGC-089	Yes

2.1.7 Historic Maps and Aerials

Several available historic maps and aerial photographs were referenced for information pertaining to the historic use of the Project area between 1856 and 1972 (BLM 1856; Dahl 1898; Westby1913; Wright 1873; Regents of the University of Minnesota 2015; USGS 1902, 1955, 1967; 1972) (Appendix C).

2.1.7.1 Historic Maps

The 1856 General Land Office (GLO) map shows the route width located in an unpopulated area (BLM 1856). Several streams and wetlands are present in the vicinity, as is an early road just northeast of the Project (Appendix C1). By 1873, settlement in and around the Project area is apparent (Wright 1873). At least three roads are now located within the route width as are two houses, and Schoolhouse No. 42 is shown just outside of the route width (Appendix C2). Property owners within the route width include Charles Saussele, Fred Bonn, Ferdinand Radings, Henry Burlecamp, William Evans, John Mitchell, M.K. Pike, and others (Wright 1873). The route width is mostly unchanged in 1898. Several more houses are present within the route width, and property owners are largely unchanged (Dahl 1898). The route width is located in “Part of School District No. 42”, and Maple Grove/Rush Creek Cemetery is now depicted outside of Project boundaries (Appendix C3). The Great Northern Railroad has also been constructed and runs through a portion of the route width. The “Maple Grove Post Office” is also depicted in or directly adjacent to the Project (Dahl 1898).

The 1902 Anoka, Minnesota 1:62,500 USGS topographic map shows the small town of Maple Grove at the northern end of the route width (Appendix C4). Rush Creek meanders through the Project area and appears to cross a portion of the route width (USGS 1902). At least two residences and the Great Northern Railroad are also within the route width. The 1913 Atlas Map does not depict structure locations; however, it shows that land ownership has been consolidated in and around the Project (Appendix C5). Landowners now include E.L. Roberts, C. Sauselle, V. Unke, F. Radintz, B.F. Loflin, D.J. Sauselle, C.F. Ziebarth, and others (Westby 1913). The Maple Grove Post Office is still depicted in the route width, as is Rush Creek and the Great Northern Railroad.

The 1955 Anoka, Minnesota USGS 7.5’ topographic quadrangle shows limited new development in and around the route width; additional housing construction appears to be the biggest change (Appendix C6). At least six houses are located within the route width. Several wetlands are shown in and around the Project, and Rush Creek still travels through the west side of the route width (USGS 1955). The 1967 Anoka, Minnesota USGS 7.5’ topographic quadrangle shows no changes from 1955, aside from the depicting the proposed location of Interstate (I) 94 through the western end of the route width (Appendix C7). By 1972, I-94 has been constructed, and the Great Northern Railroad is now shown as the

Burlington and Northern Railroad (Appendix C8). Limited other changes are apparent in and around the Project (USGS 1972).

2.1.7.2 Historic Aerials

Historic aerials from 1945 through 1971, as available through the University of Minnesota's Historical Aerial Photographs Online (Regents of the University of Minnesota 2015) were reviewed to gain an understanding of the historic use of the Project area for the past approximately 80 years.

In 1945, limited development is apparent in and around the Project area (Appendix C9). The Great Northern Railroad runs through the eastern end of the route width, and several farmsteads are visible in the route width as well. Rush Creek appears to have a natural meander across the Project area. The Project setting is generally rural and agricultural. Not much has changed by 1957. The Project setting remains rural and agricultural (Appendix C10). Several wetlands related to Rush Creek are visible, and the development in and around the Project appears mainly the same as it did in 1945. The 1964 aerial shows some changes to Rush Creek as well as some additional residential construction in the route width (Appendix C11). However, the Project area is still largely rural and undeveloped. By 1971, I-94 has been constructed through the western end of the route width (Appendix C12). No other major changes are apparent in or around the Project.

2.2 Environmental Context

Barr reviewed Chapters 3 and 8 of the MnModel Phase 3, prepared by the Minnesota Department of Transportation (MnDOT), for information pertaining to the Project area's physiography, climate, and flora and fauna (Gibbon et al. 2002; Hobbs et al. 2002). The MnModel Phase 3 indicates that the route width is located in the Central Lakes Deciduous Archaeological Region (Region 4), which covers most of central Minnesota (Gibbon et al. 2002). Following the Ecological Classification System utilized in MnModel Phase 3, the Project area is further located within the Big Woods Subsection of the Minnesota and NE Iowa Morainal Section of the Eastern Broadleaf Forest Province (Gibbon et al. 2002; Hobbs et al. 2002).

The Big Woods Subsection is characterized by a large block of deciduous forest present at the time of Euro-American settlement (MN DNR 2025). Topography is gently to moderately rolling, and the primary landform is a loamy, mantled moraine formed by the Des Moines lobe of the late Wisconsin glaciation. Circular, level-topped hills with smooth side slopes dominate the landscape, with broad level areas between the hills that contain closed depressions with lakes and peat bogs. The "Big Woods" consisted of Northern red oak, sugar maple, basswood, and American elm (MN DNR 2025). Wet prairies were also interspersed with forest throughout the landscape. Soils are predominantly loamy and range from loam to clay loam formed by the calcareous glacial till of the Des Moines lobe, with depth to bedrock ranging between 100 and 400 feet.

The climate of this region ranges from 78 to 82 degrees Fahrenheit in the summer to 12 to 24 degrees in the winter. The growing season is approximately 160 days per year in the south, and the region's average annual precipitation is between 22 and 28 inches (Gibbon et al. 2002).

Late Holocene fauna would have historically included deer, bison, and elk. Fish and waterfowl would have been abundant, and wild rice and acorns would have also been prevalent (Gibbon et al. 2002).

2.2.1 Precontact Site Suitability

A review of the *MnModel Phase 4*, prepared by the MnDOT and available for reference through the OSA Portal, indicates that portions of the route width have high potential for containing Woodland period precontact archaeological sites, while the remaining portions of the project have low potential for Woodland period precontact archaeological sites. The MM4 landform model shows the route width is predominantly located on a Plain landform in a Stagnant Ice landscape (MDA State Archaeologist 2022a).

2.2.2 Soils

Soil information was obtained from the U.S. Department of Agriculture-Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database (NRCS 2025).

Soils within the route width are dominated by loams and clay loams. Silt loams, clay loams, and muck are also present in smaller amounts (Table 5). Approximately half of the soils in the route width are classified as well drained or moderately well drained; the remaining soils are classified as poorly drained, somewhat poorly drained, or very poorly drained. For the most part, the poorly drained soils are also predominantly hydric or hydric. A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Hydric soils are typically associated with lowlands and wetlands and are rated by their proportion of hydric soil in the map unit (100 percent for a hydric soil and 66 to 99 percent for a predominantly hydric soil).

Predominant soil types in the route width include Glencoe, Nessel, and Cordova soils. Glencoe soils consist of very deep, very poorly drained soils formed in loamy sediments from till; typically found in closed depressions on moraines (NRCS 2014). Nessel soils are very deep, moderately well drained soils that formed in loamy calcareous glacial till on glacial moraines (NRCS 2006). Cordova soils consist of very deep, poorly drained soils that formed in loamy calcareous glacial till on ground moraines and till plains (NRCS 2011).

Table 5 Soil Types within the Route Width

Map Unit Symbol	Map Unit Name	Drainage Classification	Hydric Rating
L37B	Angus loam, 2 to 6 percent slopes	Well drained	Non-hydric
L40B	Angus-Kilkenny complex, 2 to 6 percent slopes	Well drained	Non-hydric
L23A	Cordova loam, 0 to 2 percent slopes	Poorly drained	Predominantly hydric
L45A	Dundas-Cordova complex, 0 to 3 percent slopes	Somewhat poorly drained	Predominantly non-hydric
L24A	Glencoe clay loam, 0 to 1 percent slopes	Very poorly drained	Hydric
L36A	Hamel, overwash-Hamel complex, 0 to 3 percent slopes	Somewhat poorly drained	Somewhat Hydric
L49A	Klossner soils, depressional, 0 to 1 percent slopes	Very poorly drained	Hydric
L35A	Lerdal loam, 1 to 3 percent slopes	Somewhat poorly drained	Predominantly non-hydric
L22C2	Lester loam, 6 to 10 percent slopes, moderately eroded	Well drained	Non-hydric
L41E	Lester-Kilkenny complex, 16 to 22 percent slopes	Well drained	Non-hydric
L41C2	Lester-Kilkenny complex, 6 to 10 percent slopes, moderately eroded	Well drained	Non-hydric
L44A	Nessel loam, 1 to 3 percent slopes	Moderately well drained	Non-hydric
L27A	Suckercreek loam, 0 to 2 percent slopes, frequently flooded	Very poorly drained	Predominantly hydric
W	Water	n/a	n/a

2.3 Cultural Contexts

Archaeological sites in the Central Lakes Deciduous Region tend to be associated with lakes and major rivers throughout time. Precontact sites, including small campsites, specialized activity sites, and larger village sites, are found along major rivers and larger lakes (Gibbon et al. 2002). At contact with Euro-Americans, Santee Dakota groups occupied the eastern part of the Central Lakes Deciduous Region, and other Dakota groups, such as the Yankton and Yanktonai, controlled the western part. The Ojibwe began to move into the northern part of the region in the mid-1700s and controlled this area by the early 1800s (Gibbon et al. 2002). Historic Native American villages were generally located near major sources of water and/or wild rice beds. By the late 1600s, French traders had entered the region and established posts on some major lakes and rivers, a pattern generally followed by later Euro-American settlers (Gibbon et al. 2002).

The following summaries provide a context through which to examine the cultural history of the Project area. These contexts are based on information found in MnModel Phase 3 (Gibbon et al. 2002), *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region*. (Gibbon 2012) and available Euroamerican county and state histories (Blegen 1963; Brunt 1922; Clark 1989).

Archaeological sites are well documented in Hennepin County relative to other counties in the region. To date, 644 sites have been documented within the county, which is approximately 607 square miles (MDA State Archaeologist 2022a). Upland areas along lake and river shores would have been conducive to precontact occupation in the greater vicinity of the Project area.

2.3.1 Precontact Cultural Setting

The precontact occupation of southern Minnesota has been divided into three taxonomic periods, based on the material culture present at a site and the subsistence patterns interpreted from the artifact assemblage (Gibbon et al. 2002). These are defined by geographic region in Minnesota and include Paleoindian, Archaic, and Woodland. Within the Central Lakes Deciduous Archaeological Region, in which the Project area is located, sites dating to each of these time periods have been identified.

The Paleoindian period encompasses the cultural remains of the earliest recorded occupations in the region. Paleoindian sites date to early postglacial times, after 12,000 BP (years Before Present), and the fewest number of sites in the Central Lakes Deciduous Archaeological Region date to this time period, consisting mostly of surface finds. Paleoindian sites are generally identified through the presence of fluted projectile points, a characteristic artifact type for the Paleoindian period. Although Paleoindian projectile points are some of the most widely distributed types across North America, they are underrepresented in Minnesota (Gibbon et al. 2002). In the Central Lakes Deciduous Archaeological Region, sites are concentrated along lakes and major rivers. For instance, Site 21AN8/A.H. Anderson Site on Howard Lake produced a concentration of fluted points (Gibbon et al. 2002). Plano points have been identified throughout the region, while stemmed points are concentrated in the western portion of the region and eastern narrow leaf and concave base point are mostly found in the east (Gibbon et al. 2002).

The Archaic period is identified by archaeologists as the timespan when more localized seasonal settlement and subsistence patterns replaced the broad seasonal migration patterns of the Paleoindian period. In Minnesota, the beginning of the Archaic period coincides with a warmer, drier postglacial environment. Spruce forests retreated north with the glaciers, and melting glacial ice formed large lakes and rivers. As a result, Archaic period subsistence included more aquatic resources, such as fish and shellfish, as well as smaller game and the foraging of wild plants (Gibbon et al. 2002). Archaic period

sites in the western Central Lakes Deciduous Region, like Paleoindian sites, are concentrated around lakes and rivers. Burial sites (e.g. 21GR4, 21PO3, 21PO13) are mainly found in the western portion of the region (Gibbon et al. 2002).

The innovation of ceramic technology and the emergence of burial mounds, which were present by 200 B.C., generally define the transition to the Woodland period. By A.D. 500, the bow and arrow were developed, and wild rice harvesting became more important for subsistence. In the Central Lakes Deciduous Archaeological Region, larger habitation sites were concentrated around lakes as lifeways became less nomadic. Special activity sites were also focused primarily along major rivers and lakes. Ceramics common to this region include Mamo, Howard Lake, Brainerd, St. Croix, Onamia, Blackduck, Kathio, and Clam River (Gibbon et al. 2002).

At contact, the Santee Dakota, Cree occupied the eastern Central Lakes Deciduous Archaeological Region and the Yankton and Yanktonai Dakota occupied the west. By the mid-1700s, the Ojibwe moved to the northern portion of the region, but did not occupy much of the southern portion, including the Project area. By the late seventeenth century, French fur traders began to settle in the region, followed shortly thereafter by Anglo-American fur traders (Gibbon et al. 2002).

2.3.2 Native American Cultural Setting

The Project is located on land that was home to the Dakota (Očhéthi Šakówiŋ and Wahpekute), although other tribes were likely present as well (https://native-land.ca/). Minnesota is the Dakota homeland. Prior to Euroamerican settlement, the Dakota were plentiful and prosperous in Minnesota. As Euroamerican settlers expanded into these states, the Dakota were subjected to war and disease. Following the Dakota War in 1862, the Dakota underwent forced removal (MDA State Archaeologist 2022b).

The Project is located within the boundaries of the 1851 Dakota Land Cession Treaties, also referred to as the 1851 Treaties with the Dakota at Traverse des Sioux and Mendota (Weber 2025). These two treaties represented the near-complete loss of Dakota land in Minnesota to the United States. Over 35 million acres were lost through these treaties, with the Dakota maintaining only a strip of land 20 miles wide on the north and south sides of the Minnesota River (MIAC and MHS 2011).

The 1851 Treaty of Traverse des Sioux ceded land from the Sisseton and Wahpeton bands of the Dakota to the U.S. government. By 1851, land within the Sisseton and Wahpeton bands' territory had been overhunted and depleted of animals, particularly bison, that the Dakota relied on for food and trade. While many of the Sisseton and Wahpeton Dakota leaders did not support land cession treaties, a consensus was eventually reached that they believed would help supplement their struggling hunting and gathering economy, as the land cession treaty offered annuity payments (Becker 2020). When signed, the treaty ceded 24 million acres for $1,665,000. A reservation, consisting only of a ten-mile-wide area on each side of the Minnesota River (20 miles wide in total), was retained for the tribes (Weber 2025). In addition, the U.S. government kept more than 80 percent of the money, leaving the Dakota to receive the interest on the amount, at five percent for 50 years (MHS 2012). The Dakota Leaders also signed the "Traders Papers," which unfairly siphoned substantial funds from the treaty to pay alleged Dakota debts to settler fur traders (Becker 2020).

After the Treaty of Traverse de Sioux was signed by the upper bands of the Dakota, the treaty delegation travelled to the lower bands of the Dakota. The Treaty of Mendota was also signed in 1851, between the Mdewakanton and Wahpekute bands of Dakota. At the time, the Mdewakanton and Wahpekute were not as in need of food and goods to support their tribes as the upper bands were. The Mdewakanton and

Wahpekute leaders asked that annuity from the Treaty of 1837 be paid before further discussion could occur, and they also attempted to change the boundaries of the proposed reservation. Under this treaty, the bands were to receive annual annuities of $1,410,000 (Decarlo 2025). The bands were given one year to move to the same reservation land along the Minnesota River outlined in the Treaty of Traverse des Sioux (Weber 2025). However, following the U.S.-Dakota War of 1862, Congress revoked all treaties made with the Dakota, who were then forcibly removed from the state. The four present-day Dakota reservations in Minnesota were reestablished in their current locations by acts of Congress in 1886 (MIAC 2025).

While the following narrative focuses on historic Euroamerican activities within present-day Minnesota, it is important to acknowledge that Native American nations played are vital part of Minnesota's history and continue to influence its culture today. Nations including the Dakota, Ojibwe, and others have demonstrated resilience and resistance in the face of concerted efforts to remove them from their land and culture. Despite these attempts at removal, many native peoples continued to return to their homeland. We acknowledge the circumstances that led to the forced removal of Native American tribal members in Minnesota and honor their history and resilience.

2.3.3 Historic Cultural Setting

At the end of the American Revolution, the U.S. acquired all of the land east of the Mississippi River in the Second Treaty of Paris (Blegen 1963). This acquisition included the north-central, northeast, and east-central portions of Minnesota. In 1803, the United States acquired the majority of what was to become Minnesota from France as part of the Louisiana Purchase (Blegen 1963). After spending most of the first half of the nineteenth century changing hands between Spain, France, and the U.S., the region was formed into the Minnesota Territory in 1849. Nine years later it became the thirty-second state (Blegen 1963). Between 1805 and 1867, a series of treaties between the federal government and tribes including the Dakota, Ojibwe, Ho-Chunk, Menominee, Sac, and Fox resulted in the opening of Minnesota to Euroamerican settlement (Minnesota Indian Affairs Council et al. 2011).

2.3.3.1 Statehood

As Minnesota entered the Union in 1858, tensions between the North and South were coming to a head over the issue of slavery. When the Civil War started in 1861, Minnesota largely supported the Union, and provided approximately 22,000 troops to the war effort (Blegen 1963). By the second year of the war, Minnesota was facing its own war: the Dakota War (Blegen 1963). The war was a result of growing tensions between the Dakota and the U.S. government over violations of the Treaty of Traverse des Sioux and the Treaty of Mendota, as well as unacceptable payments by Indian agents. Due to an impasse over negotiations, a Dakota hunting party attacked and killed five white settlers, leading to the attack of settlements throughout the Minnesota River valley (Blegen 1963). These battles continued for several months, until most of the Dakota were captured. Eventually, 38 Dakota were hanged, the largest one-day execution in U.S. history (Blegen 1963). By April of 1863, the remaining Dakota in the region were expelled to South Dakota and Nebraska (Blegen 1963).

After the Civil War, thousands of Americans came to Minnesota to take advantage of the state's cheap and fertile land (Brunt 1922). Largely due to advertisements by the railroad industry, the state's population quickly tripled (Brunt 1922). Many of these new settlers came to the area to farm and cut timber, becoming the backbone of the state's early economy (Brunt 1922). To further economic success, local Grange chapters were established (Brunt 1922). The organization had great political influence on important farming matters and also provided education on new farming methods.

By the end of the nineteenth century, Minnesota's industrial development began to take shape (Clark 1989). The state became one of the first to develop hydroelectric power with the building of a hydroelectric power plant in Saint Anthony Falls. The discovery of iron in the Mesabi Range and the Vermilion Range near Lake Superior in the 1880s established Minnesota's iron mining industry (Clark 1989).

2.3.3.2 Hennepin County

Hennepin County is named after Father Louis Hennepin, a French Franciscan missionary and explorer who chronicled the region in the late seventeenth century (Hennepin County 2025). French fur traders were among the earliest Europeans to traverse the territory, followed by military expeditions and settlers in the early nineteenth century (Neill 1881). The construction of Fort Snelling in 1820 at the confluence of the Mississippi and Minnesota Rivers marked a pivotal moment, as treaties negotiated during this time opened the land for settlement and commerce. These developments laid the foundation for Minneapolis, which grew around the falls of St. Anthony on the Mississippi River, harnessing the river's power for lumber and flour milling industries (Hennepin County 2025).

Organized in 1852, six years before Minnesota achieved statehood, Hennepin County quickly emerged as a center of economic and cultural activity (Neill 1881). Minneapolis became the county seat and flourished as a hub for industry, transportation, and trade, driven by its strategic location along the Mississippi River and later by the expansion of railroads. While the city developed into a major urban center, rural portions of the county maintained an agricultural economy well into the nineteenth century. Today, Hennepin County is the most populous county in Minnesota, with Minneapolis at its core as a leading center for commerce, education, and the arts (Hennepin County 2025).

2.3.3.3 Maple Grove

Situated in the north-central part of Hennepin County, Maple Grove began as a sparsely populated area that is now considered a vibrant suburban community (Maple Grove nd). European settlement began in 1851 when Louis Gervais and Pierre Bottineau staked claims, soon followed by other settlers such as W. E. Evans and Harvey Abel (Maple Grove Historical Preservation Society nd). The township was officially organized in 1858, and early development included the construction of homes, a church, and a town hall by 1855 (Ostendorf 2024). The abundance of maple trees gave the community its name and provided a source for maple syrup production, an important early industry (Ostendorf 2024).

Maple Grove transitioned from a rural township to a suburban community during the mid-twentieth century. Incorporated as a village in 1954 and later as a city in 1974, Maple Grove experienced rapid growth following the construction of Interstate 94 and other major highways in the 1970s (Maple Grove Historical Preservation Society nd). Today, Maple Grove has a population of over 70,000 residents and serves as a major retail and residential hub in the Twin Cities metropolitan area (Maple Grove nd).

3 Applicable Regulations and Guidelines

This section describes the regulations and guidelines that require consideration of project-related effects to cultural resources.

3.1 Federal Regulations

Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR 800 (Section 106) require federal agencies to assess the effect(s) of their projects on cultural resources eligible for or listed in the NRHP (i.e., historic properties). Section 106 applies to any federal agency undertaking that has the potential to affect NRHP-eligible or listed cultural resources, should they be present. This federal agency action may include permitting, funding, or other approval of project activities. Currently the Project does not have federal involvement and is therefore not considered an undertaking subject to Section 106.

3.2 State Regulations

The Project requires a route permit from the Minnesota PUC. As outlined in Minnesota Rules, Chapter 7850, the application for a route permit must include a description of the effects of the project on archaeological and historic resources.

Additional state laws governing cultural resources include the Minnesota Historic Sites Act (Minnesota Statutes, sections 138.661 to 138.669) and the Field Archaeology Act (Minnesota Statutes, sections 138.31 to 138.42). The Minnesota Historic Sites Act (Minnesota Statutes, sections 138.661 to 138.669) requires that state agencies consult with the SHPO before undertaking or licensing projects that may affect properties listed on the State or National Registers of Historic Places. The Minnesota Field Archaeology Act (Minnesota Statutes, sections 138.31 to 138.42) establishes the position of State Archaeologist and requires State Archaeologist approval and licensing for any archaeological work that takes place on non-federal public property.

Under the Minnesota Private Cemeteries Act (Minn. Stat. §307.08, Subdivision 10), when human burials with Native American ancestry are known or suspected to exist in a project area, the landowner or developer must submit construction and development plans to the OSA and the Minnesota Indian Affairs Council (MIAC) for their review before the plans are finalized and prior to any disturbance within the burial area. Per Minn. Stat. §307.08, Subdivision 10, the OSA and MIAC have 45 days to make recommendations for the preservation in place or removal of the human burials or remains that may be endangered by construction or development activities. Additionally, if human remains are encountered during construction, Minn. Stat. §307.08 states that construction at that location must be halted immediately and local law enforcement and the Office of the State Archaeologist (OSA) contacted. Construction cannot proceed at that location until authorized by local law enforcement and the OSA.

4 Conclusions and Recommendations

Xcel will be submitting a RPA to the PUC for a two-mile-long, new 115 kV double-circuit, alternating current transmission line from a new 115/34.5 kV substation, on the west side of Interstate 94 to a proposed tap point in Maple Grove, Hennepin County, Minnesota.

Barr, on behalf of Xcel, completed a Phase Ia cultural resources literature review for the Project in an effort to understand how the Project may impact cultural resources, and to provide baseline cultural resources information that Xcel can utilize as Project design is advanced.

A records check completed through a review of the OSA Portal and MnSHIP found no previously recorded archaeological sites and nine historic architectural resources within the route width for the Project. The records check also indicates that portions of the route width were surveyed in 2011 prior to construction activities on TH 610. The previously recorded historic architectural resources consist of farmsteads, houses, bridges, a Trunk Highway, and a railroad corridor that has been documented multiple times and therefore has multiple historic inventory numbers. The railroad corridor, which has been consolidated as resource XX-RRD-GNR014 representing the Minneapolis and Northwestern Railroad Corridor, is considered eligible for the NRHP. However, as existing transmission line infrastructure is already present and parallels the railroad in this area, the Project is not anticipated to adversely affect this resource.

Each new structure foundation will result in approximately 80 square feet of ground disturbance. The new substation will consist of up to 13.5 acres of ground disturbance. Impacts to archaeological and historic resources have the potential to occur in the areas where new ground disturbance will occur. Additional impacts can result from transmission line location and operation, such as placement within view of a resource (typically a historic building or structure) that results in a negative effect on the setting, feeling, and/or association of said resource in the viewshed. This issue is especially pertinent when considering historic resources for which the surrounding environment plays a crucial role in defining their character and significance. Archaeological resources are most likely to be located on or near elevated landforms near permanent water sources. Historic resources have, for the most part, been identified within the local vicinity.

PUC-issued route permits generally include recommendations regarding cultural resources, and permit conditions may include conducting a Phase Ia literature review, Phase I archaeological survey, or an archaeological assessment for the Project. Coordination with the Minnesota SHPO will help determine the need for additional cultural resource studies in relation to the Project.

5 References

Becker, Jessica
2020 *1851 Treaty of Traverse Des Sioux*. Electronic document, https://www.nchsmn.org/1851-treaty-of-traverse-des-sioux/. Accessed November 2025.

Blegen, Theodore Christian
1963 *Minnesota: A History of the State*. Minneapolis: University of Minnesota Press.

Brunt, Walter Van
1921 *Duluth and St. Louis County, Minnesota: Their Story and People: An Authentic Narrative of the Past, with Particular Attention to the Modern Era in the Commercial, Industrial, Educational Civil and Social Development*. American Historical Society, 3 volumes.

Bureau of Land Management [BLM]
1856 Township No. 119N, Range No. 22W, 5th Mer. Minnesota [map]. Original Survey, Dakota County. St. Paul, MN: U.S. Department of the Interior, Surveyor Generals Office.

Clark, Clifford E.
1989 *Minnesota in a Century of Change: The State and Its People Since 19*00. Minnesota Historical Society Press, St. Paul, Minnesota.

Dahl, Peter
1898 *Plat book of Hennepin County, Minnesota; Plat book of Ramsey County, Minnesota*. Minnesota Historical Society. Electronic document, https://collection.mndigital.org/catalog/mhs:1299. Accessed November 2025.

Decarlo, Peter
2025 *Treaty of Mendota, 1851*. Electronic document, https://www.mnopedia.org/event/treaty-mendota-1851. Accessed November 2025.

Gibbon, Guy
2012 *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region.* University of Minnesota Press, Minneapolis.

Gibbon, Guy E., C. M. Johnson, and E. Hobbs
2002 Minnesota's Environment and Native American Culture History. In *A Predictive Model of Precontact Archaeological Site Location for the State of Minnesota, Phase 3*. Edited by G. J. Hudak, E. Hobbs, A. Brooks, C. A. Sersland, and C. Phillips. Minnesota Department of Transportation, St. Paul, Minnesota. Electronic document, Mn/Model Final Report Chapter 3: Minnesota's Environment and Native American Culture History (state.mn.us). Accessed November 2025.

Granger, S. and S. Kelly
2018 *Phase I and II Architecture-History Investigation, I-94 Unbonded Concrete Overlay (UBOL) and Other Improvements, Rogers to Maple Grove, Hennepin County*. Copy on file at the Minnesota State Historic Preservation Office, St. Paul

Harrison, C.
2000 *Report on Cultural Resource Reconnaissance Conducted for the I-94/TH 610 West and East Alternative Urban Areawide Reviews (AURs), City of Maple Grove, Hennepin County, Minnesota*. Copy on file at the Minnesota State Historic Preservation Office, St. Paul.

Hennepin County
2025 *Overview of Hennepin County*. Electronic document, https://www.hennepin.us/en/your-government/overview/overview-of-hennepin-county. Accessed November 2025.

Hobbs, Elizabeth, Craig M. Johnson, Guy E. Gibbon, Carol Sersland, Mark Ellis, and Tatiana Nawrocki
2002 Model Results and Interpretations. In *A Predictive Model of Precontact Archaeological Site Location for the State of Minnesota, Phase 3*. Edited by G. J. Hudak, E. Hobbs, A. Brooks, C. A. Sersland, and C. Phillips. Minnesota Department of Transportation, St. Paul, Minnesota. Electronic document, Mn/Model Final Report Chapter 8: Model Results and Interpretations (state.mn.us). Accessed November 2025.

Ketz, A.
1993 *Archaeological Reconnaissance Survey for the Osseo High School Site, Osseo ISD #279*. Copy on file at the Minnesota State Historic Preservation Office, St. Paul.

Maple Grove
Nd *Community*. Electronic document, https://www.maplegrovemn.gov/31/Community. Accessed November 2025.

Maple Grove Historical Preservation Society
Nd *Government*. Electronic document, https://www.maplegrovemnhistory.org/government.html. Accessed November 2025.

Minnesota Department of Administration (MDA) State Archaeologist
2022a Office of the State Archaeologist (OSA) Portal. Electronic Resource, https://osa.gisdata.mn.gov/OSAportal. Accessed November 2025.
2022b Post-Contact Period: An Overview of Post-Contact Period Archaeology in Minnesota (1837 - Present). Electronic document, Post Contact Period / Minnesota Office of the State Archaeologist (mn.gov). Accessed November 2025.

Minnesota Department of Natural Resources [MN DNR]
2025 *Big Woods Subsection*. Electronic document, https://www.dnr.state.mn.us/ecs/222Mb/index.html. Accessed November 2025.

Minnesota Historical Society (MHS)
2012 *Minnesota Treaties. The U.S.-Dakota War of 1862*. Electronic document, https://www.usdakotawar.org/history/treaties/minnesota-treaties. Accessed November 2025.

Minnesota Indian Affairs Council (MIAC)
2025 *Tribal Nations in Minnesota*. Electronic document, https://mn.gov/indian-affairs/tribal-nations-in-minnesota/. Accessed November 2025.

Minnesota Indian Affairs Council (MIAC) and Minnesota Humanities Center (MHC)
2025 *1851 Dakota Land Cession Treaties*. Electronic document, https://treatiesmatter.org/treaties/land/1851-dakota. Accessed November 2025.

Minnesota Indian Affairs Council, Minnesota Humanities Center, and Clean Water Land & Legacy Amendment
2011 *U.S.-American Indian Treaties in Minnesota*. Electronic document, https://treatiesmatter.org/exhibit/welcome/u-s-american-indian-treaties-in-minnesota/. Accessed November 2025.

Natural Resources Conservation Service, U.S. Department of Agriculture (NRCS)
2006 *Nessell Series*. Electronic document, https://soilseries.sc.egov.usda.gov/OSD_Docs/N/Nessel.html. Accessed November 2025.
2011 *Cordova Series*. Electronic document, https://soilseries.sc.egov.usda.gov/OSD_Docs/C/CORDOVA.html. Accessed November 2025.
2014 *Glencoe Series*. Electronic document, https://soilseries.sc.egov.usda.gov/OSD_Docs/G/Glencoe.html. Accessed November 2025.
2025 *Soil Survey Geographic Database (SSURGO)*. Electronic document, https://websoilsurvey.nrcs.usda.gov/. Accessed November 2025.

Neill, Edward
1881 *History of Hennepin County and the City of Minneapolis*. North Star Publishing, Minneapolis. Electronic document, https://babel.hathitrust.org/cgi/pt?id=umn.319510019618792. Accessed November 2025.

O'Brien, M., R. Hutter, J. Jerve, M. Madson, L. Ollila, A. Schmidt, and T. Varilek
2011 *Phase I and II Cultural Resources Studies for the Trunk Highway 610 Construction Project, Maple Grove, Hennepin County, Minnesota*. Copy on file at the Minnesota State Historic Preservation Office, St. Paul.

Ostendorf, Tim
2024 *Tracing Maple Grove's Roots: A Look into Its Historical Background*. Electronic document, https://realnews.themlsonline.com/2024/04/06/tracing-maple-groves-roots-a-look-into-its-historical-background/. Accessed November 2025.

Schmidt, Andrew
2024 Minnesota Multiple Property Inventory Form: XX-RRD-GNR014, *Minneapolis and Northwestern Railroad Company/St. Paul Minneapolis and Manitoba Railway Company/Great Northern Railway Company* a.k.a. *The Minneapolis and Northwestern railroad corridor.* Copy on file at the Minnesota State Historic Preservation Office, St. Paul.

Schweigert, K.
1994 *Cultural Resource Survey of Proposed Trunk Highway 610 in Maple Grove and Brooklyn Park, Hennepin County, Minnesota*. Copy on file at the Minnesota State Historic Preservation Office, St. Paul.

U.S. Geological Survey (USGS)
1902 Anoka, Minnesota. 1:62,500 topographic map. Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html. Accessed November 2025.
1955 Anoka, Minnesota. 1:24,000 topographic map. Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html. Accessed November 2025.
1967 Anoka, Minnesota. 1:24,000 topographic map. Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html. Accessed November 2025.
1972 Anoka, Minnesota (photorevised). 1:24,000 topographic map. Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html. Accessed November 2025.

Weber, Eric
2025 *Treaty of Traverse des Sioux, 1851*. Electronic document, https://www.mnopedia.org/event/treaty-traverse-des-sioux-1851. Accessed November 2025.

Westby, P.O.
1913 *Atlas of Hennepin County Minnesota*. Electronic document, https://geo.lib.umn.edu/plat_books/hennepin1913/composites/maple_grove.jpg. Accessed November 2025.

Wright, George Burdick
1873 *Map of Hennepin County, Minnesota*. Minnesota Historical Society. Electronic document, https://collection.mndigital.org/catalog/mhs:865. Accessed November 2025.

PUBLIC DOCUMENT - NONPUBLIC DATA HAS BEEN EXCISED

Appendix A

Project Specifications and Example Photographs

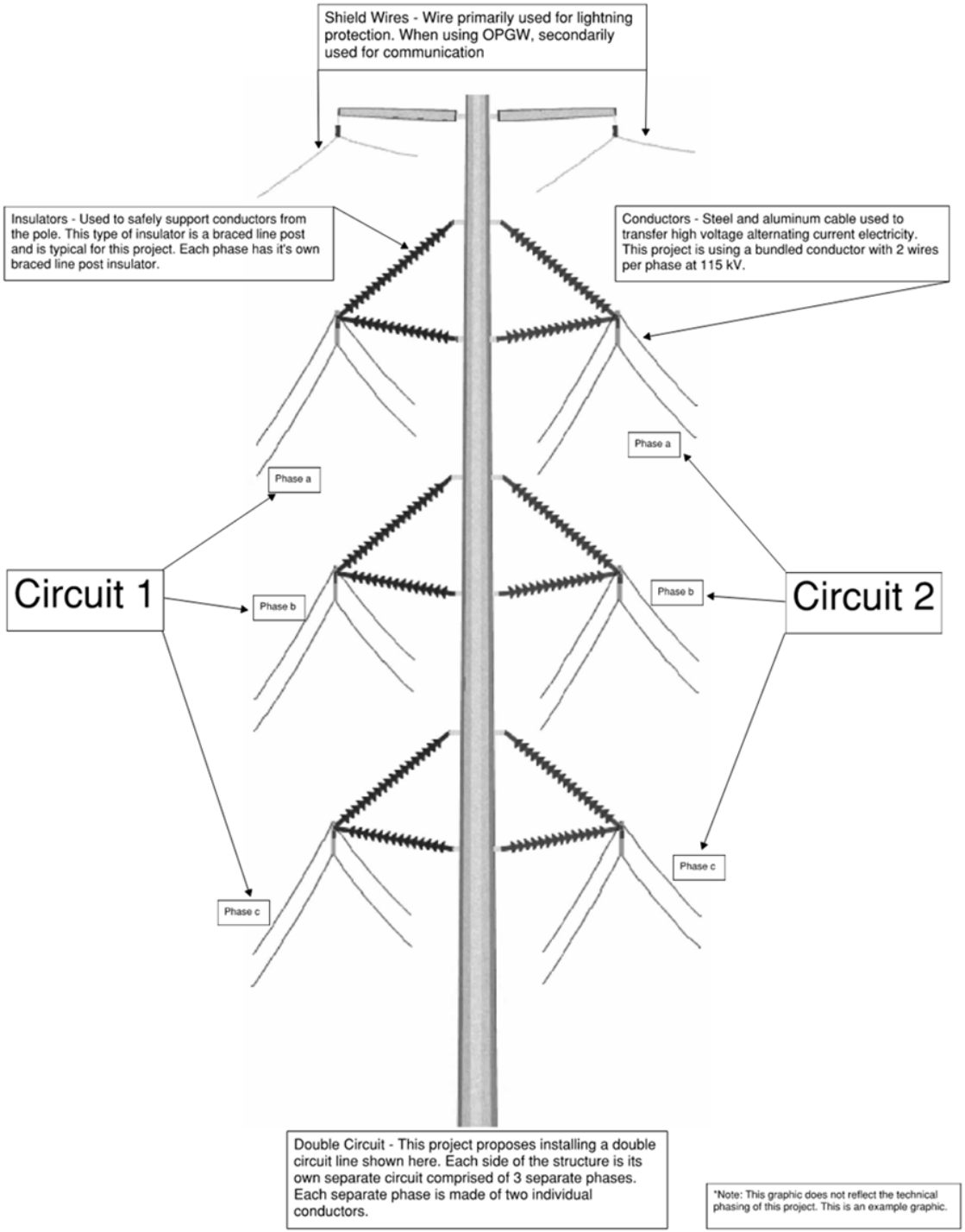
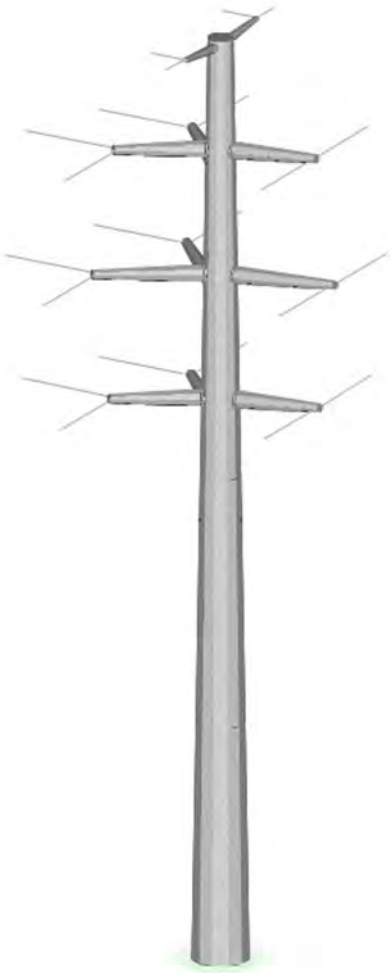


Image Courtesy Xcel Energy

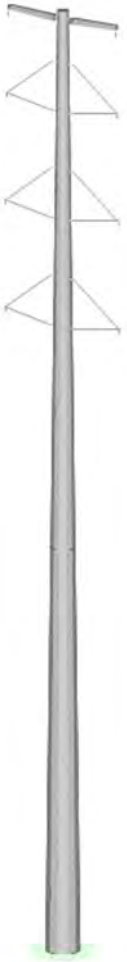
Typical Double-Circuit Structure
Northwest Maple Grove 115kV Transmission Line
Xcel Energy

Appendix A1

BARR



Cut-in



Tangent



Dead-end



Underbuild

Images Courtesy Xcel Energy

Typical 115 kV Structures
Northwest Maple Grove 115kV Transmission Line
Xcel Energy

Appendix A2

BARR



115 kV Steel Double-Circuit Monopole Structure: Silver/Galvanized Steel



115 kV Steel Double-Circuit Monopole Structure: Brown/Weathering Steel

Images Courtesy Xcel Energy

Typical 115 kV Structure Composition
Northwest Maple Grove 115kV Transmission Line
Xcel Energy

Appendix A3

BARR

Appendix B

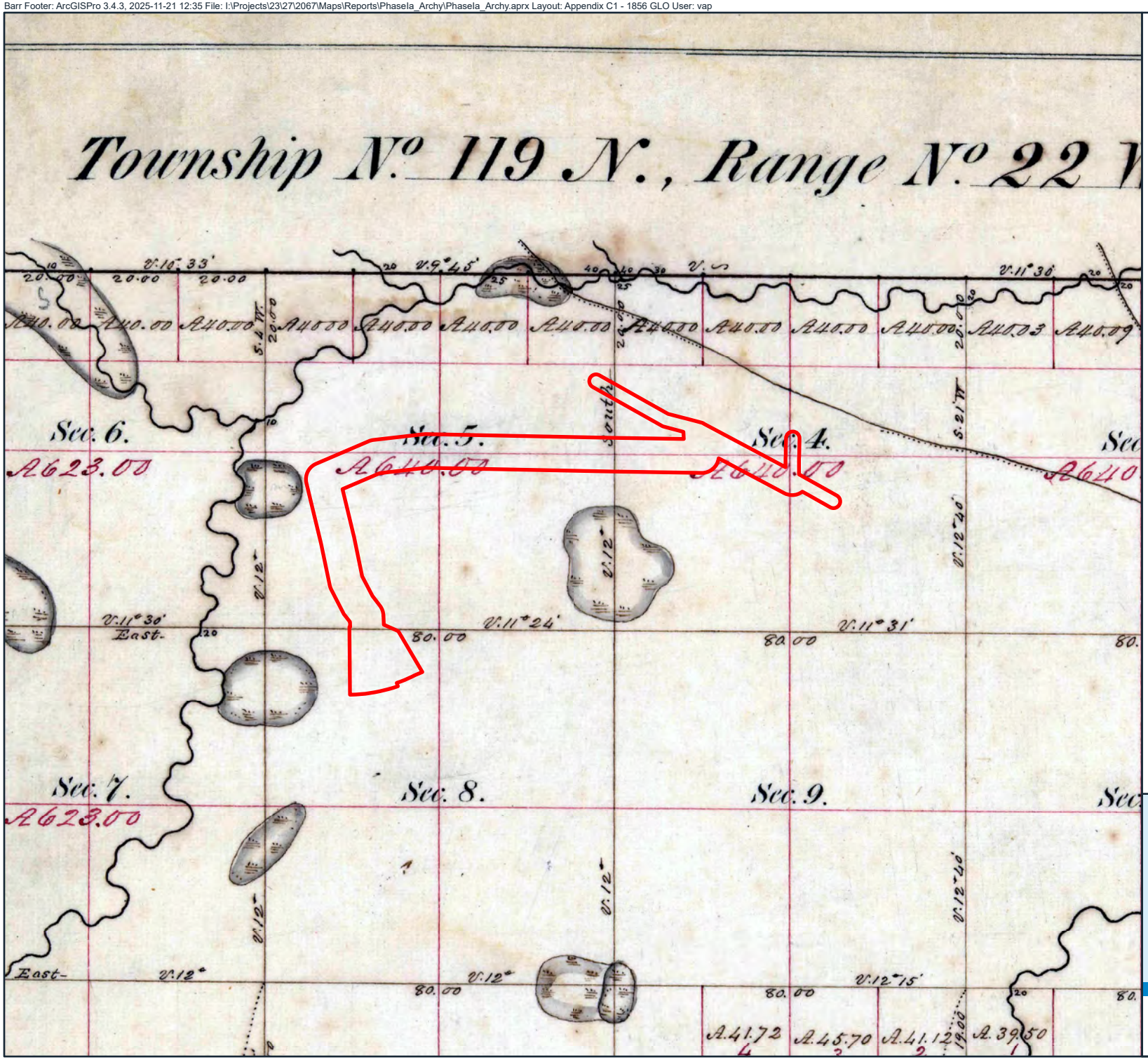
Documented Historic Architecture within 1-Mile of the Route Width

Inventory Number	Resource Type	Date Constructed (if known)	SHPO Evaluated?	NR-listed?	In Route Width?
HE-MGC-00005	Glendon Unke Farmstead	1910	No	No	Yes
HE-MGC-00007	House	1905	No	No	Yes
HE-MGC-00008	Farmstead		No	No	Yes
HE-MGC-00009	House, Arts and Crafts Style	1925	No	No	Yes
HE-MGC-00060	Roeder Farmstead, Arts and Crafts Style	1933	No	No	Yes
HE-MGC-00089	Township Bridge		No	No	Yes
HE-MGC-00111	Bridge L8083		No	No	Yes
XX-ROD-00185	US Trunk Highway 52	1955, 1920	No	No	Yes
XX-RRD-00010	Osseo Branch Line/ St. Paul Minneapolis & Manitoba /Great Northern RR		No	No	Yes
XX-RRD-GNR014	Minneapolis and Northwestern Railroad Corridor		Yes	No	Yes
HE-DYC-00018	M&NW/StPM&M/GN W Side Line (Osseo Branch): Dayton Segment	1882	No	No	No
HE-DYC-00020	Farmstead		No	No	No
HE-DYC-00024	Farmstead		No	No	No
HE-DYC-00025	M&NW/StPM&M/GN W Side Line (Osseo Branch): Rush Creek Trestle	1938	No	No	No
HE-DYC-00026	D. Chase House; Vernacular style	1870	No	No	No
HE-DYC-00050	Bridge 8817		No	No	No
HE-MGC-00004	Leonard Radintz Farmstead	1881, 1905	No	No	No
HE-MGC-00006	A.C.H. Schutte Farmstead	1895	No	No	No
HE-MGC-00024	Jones/Vigoren Farmstead	1915	No	No	No
HE-MGC-00025	Balvin Farmstead	1930, 1910	No	No	No
HE-MGC-00026	Maple Grove School	1920	No	No	No
HE-MGC-00027	Lynde/McLeod Farmstead	1880	No	No	No
HE-MGC-00030	House		No	No	No
HE-MGC-00031	Farmstead, Classical Revival Style	1912	No	No	No
HE-MGC-00039	House		No	No	No
HE-MGC-00044	H.C. Larson House		No	No	No
HE-MGC-00054	Richard Radintz Farmstead		No	No	No
HE-MGC-00055	Lynde Greenhouse/Compost	1975	No	No	No
HE-MGC-00056	Kottke Farmstead	1908, 1931	No	No	No
HE-MGC-00057	Radintz Farmstead, Ranch Style	1900, 1950	No	No	No
HE-MGC-00058	Robert Radintz House, Ranch Style	1975	No	No	No
HE-MGC-00059	Dale Berthiaume House	1953	No	No	No
HE-MGC-00062	Paul Radintz Farmstead		No	No	No
HE-MGC-00063	Alfred Radintz Farmstead	1931, 1952	No	No	No
HE-MGC-00064	Martin Farmstead, Arts and Crafts Style		No	No	No
HE-MGC-00066	Karrow Farmstead	1925	No	No	No
HE-MGC-00069	Bridge No. 6272	1909	No	No	No
HE-MGC-00082	Bridge 27959		No	No	No
HE-MGC-00112	Bridge L8084		No	No	No

Appendix C

Historic Maps and Aerials

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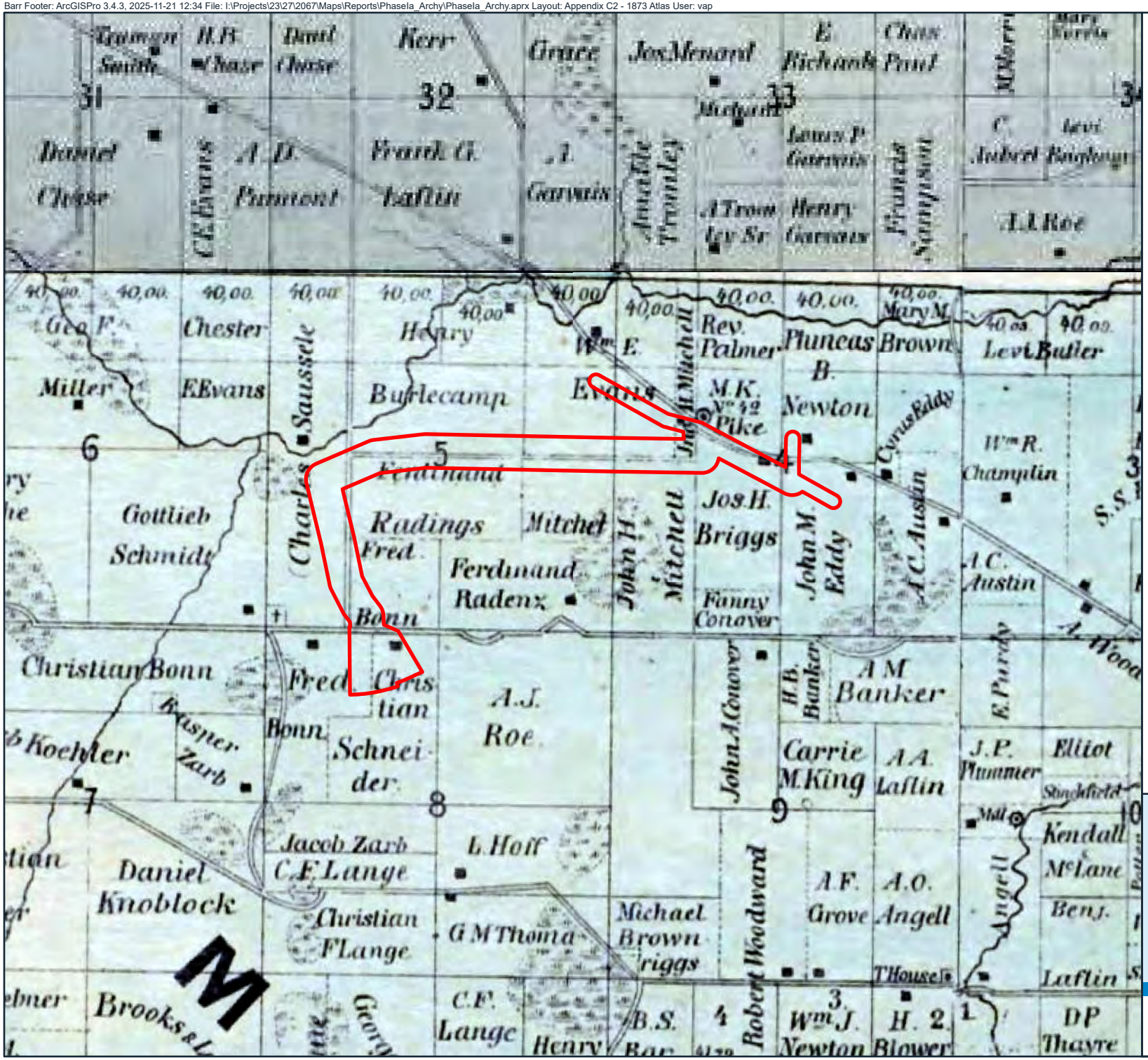
Feet

1856 GLO Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C1

BARR

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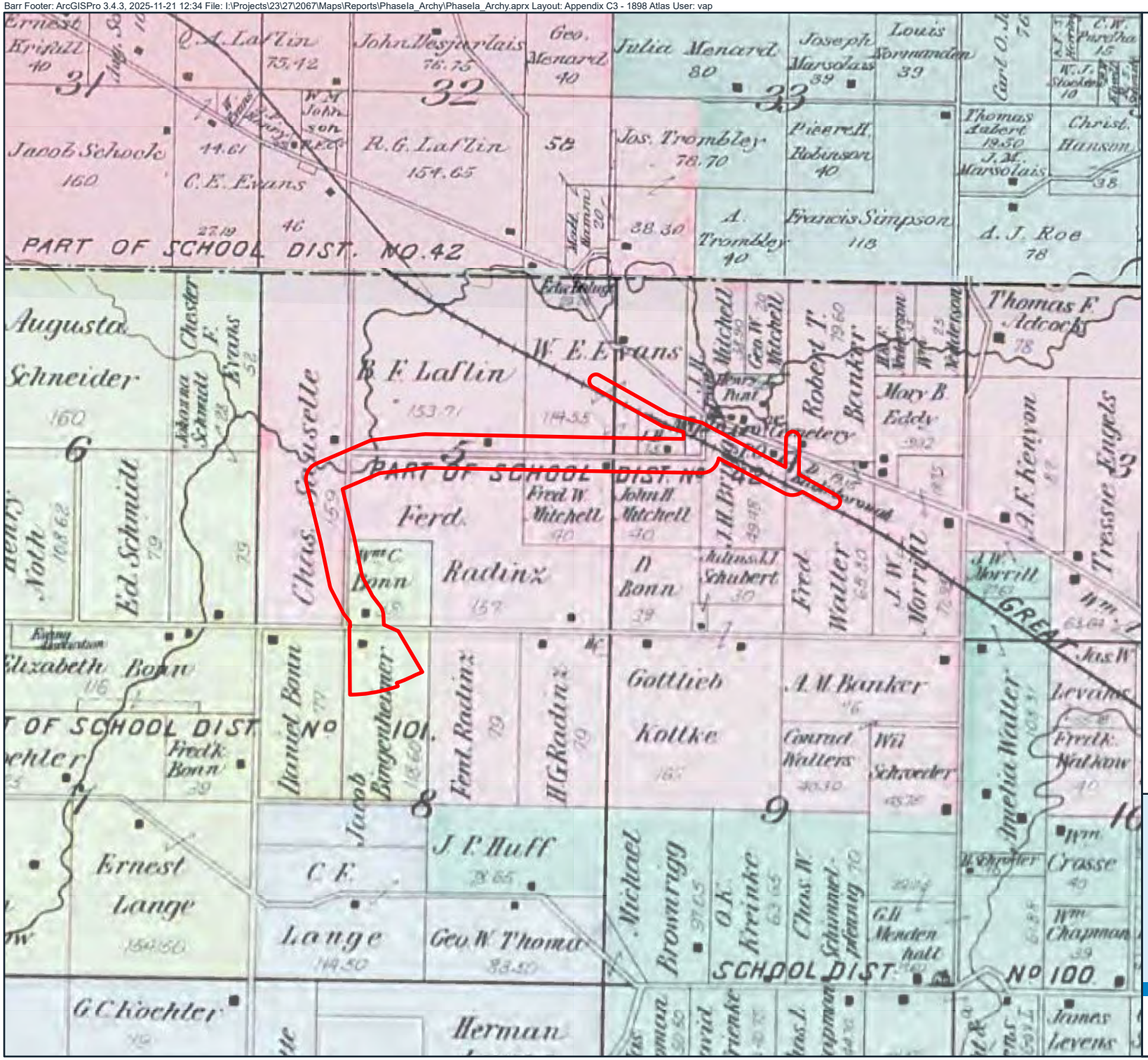


1873 Atlas Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C2

BARR

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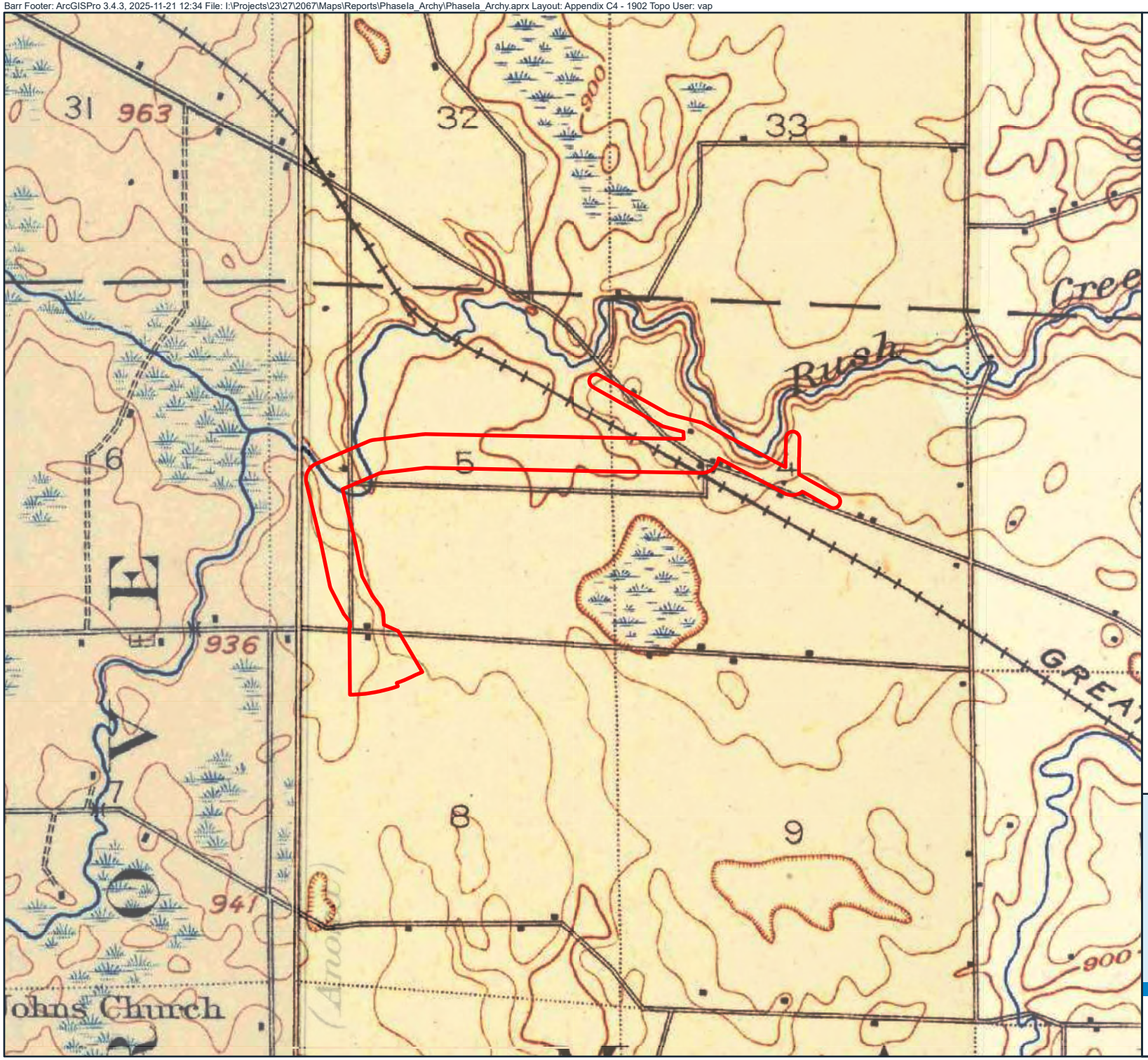
1898 Atlas Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C3

BARR

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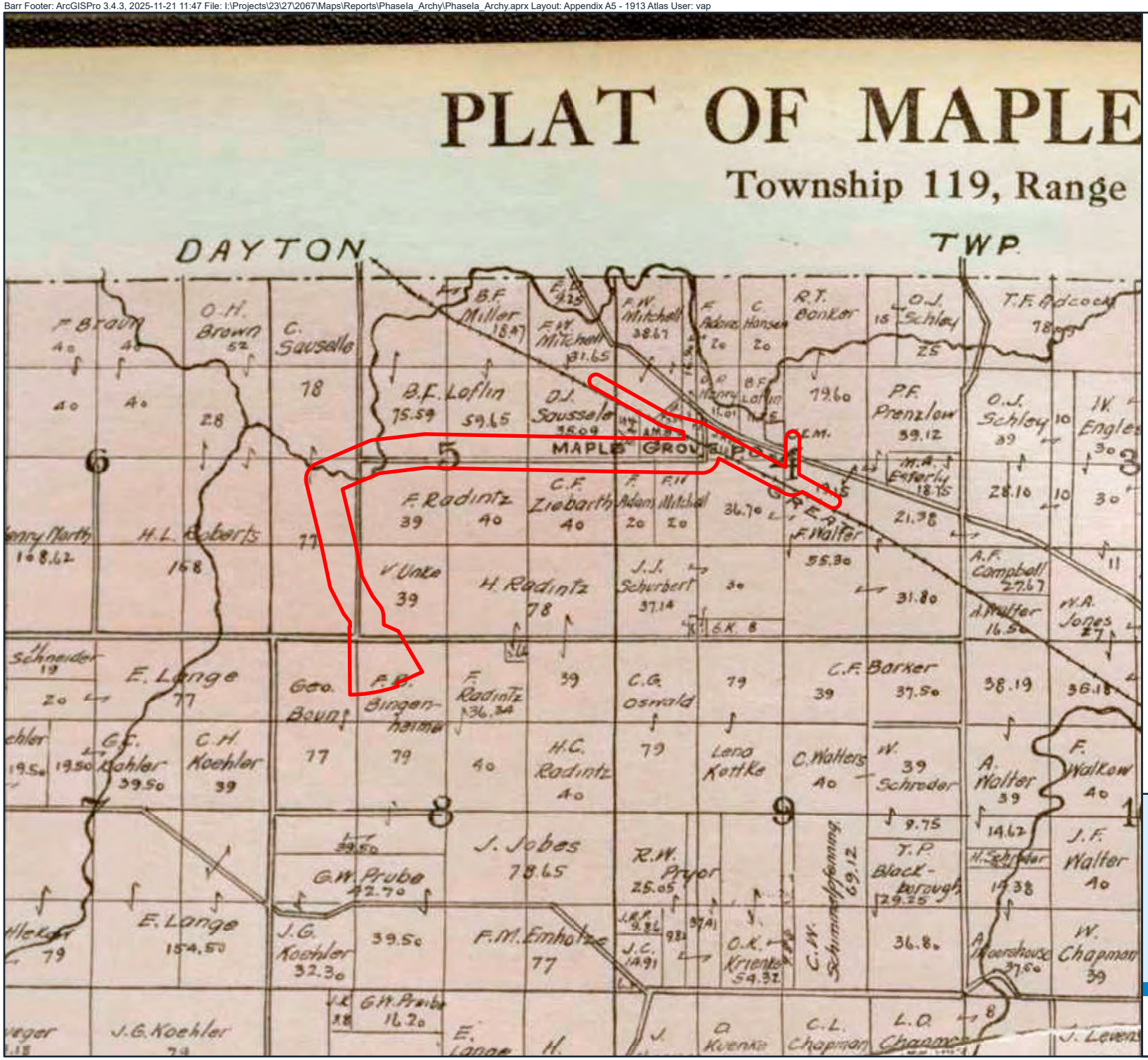
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1902 Topographic Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C4

BARR

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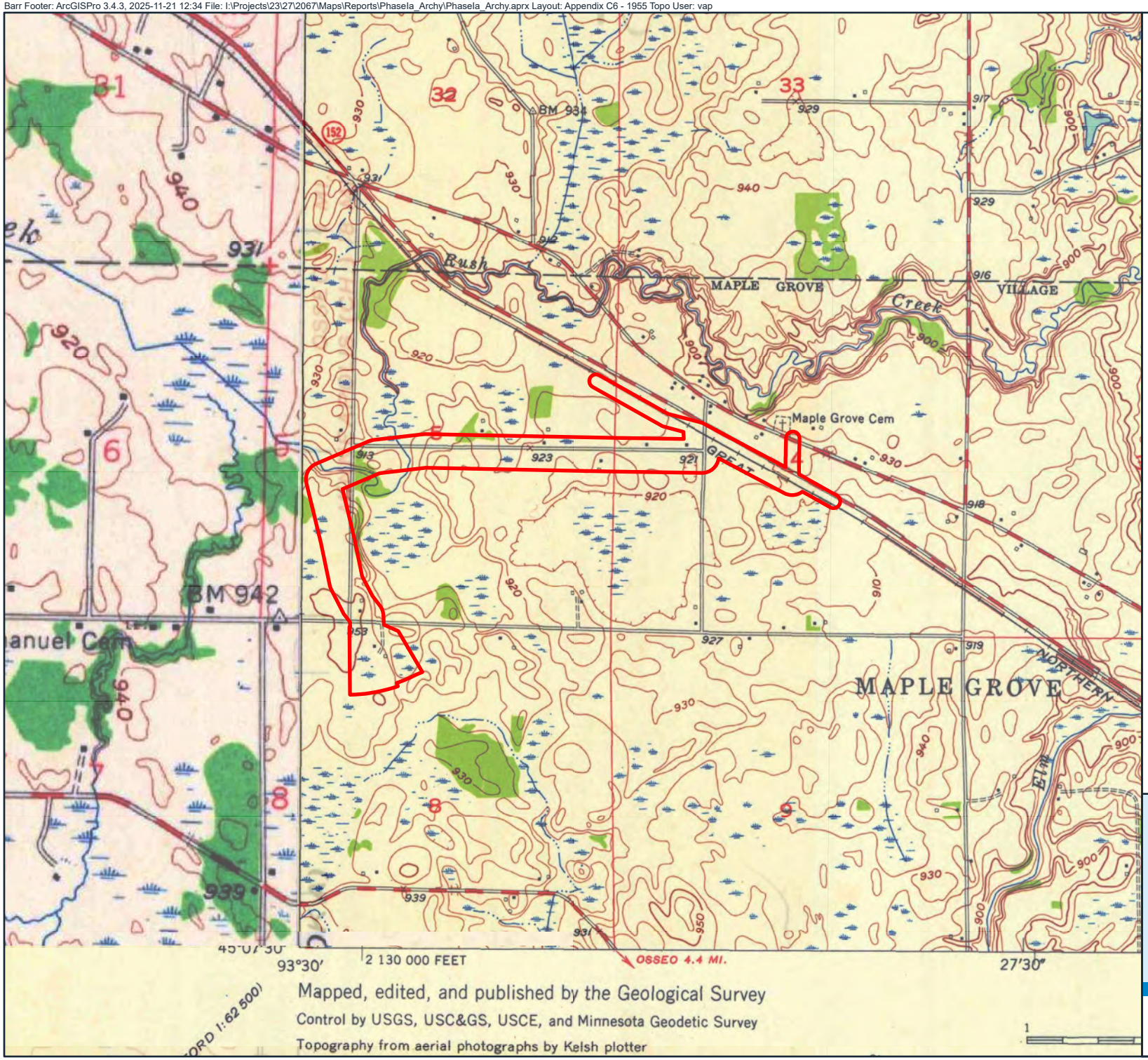


1913 Atlas Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C5

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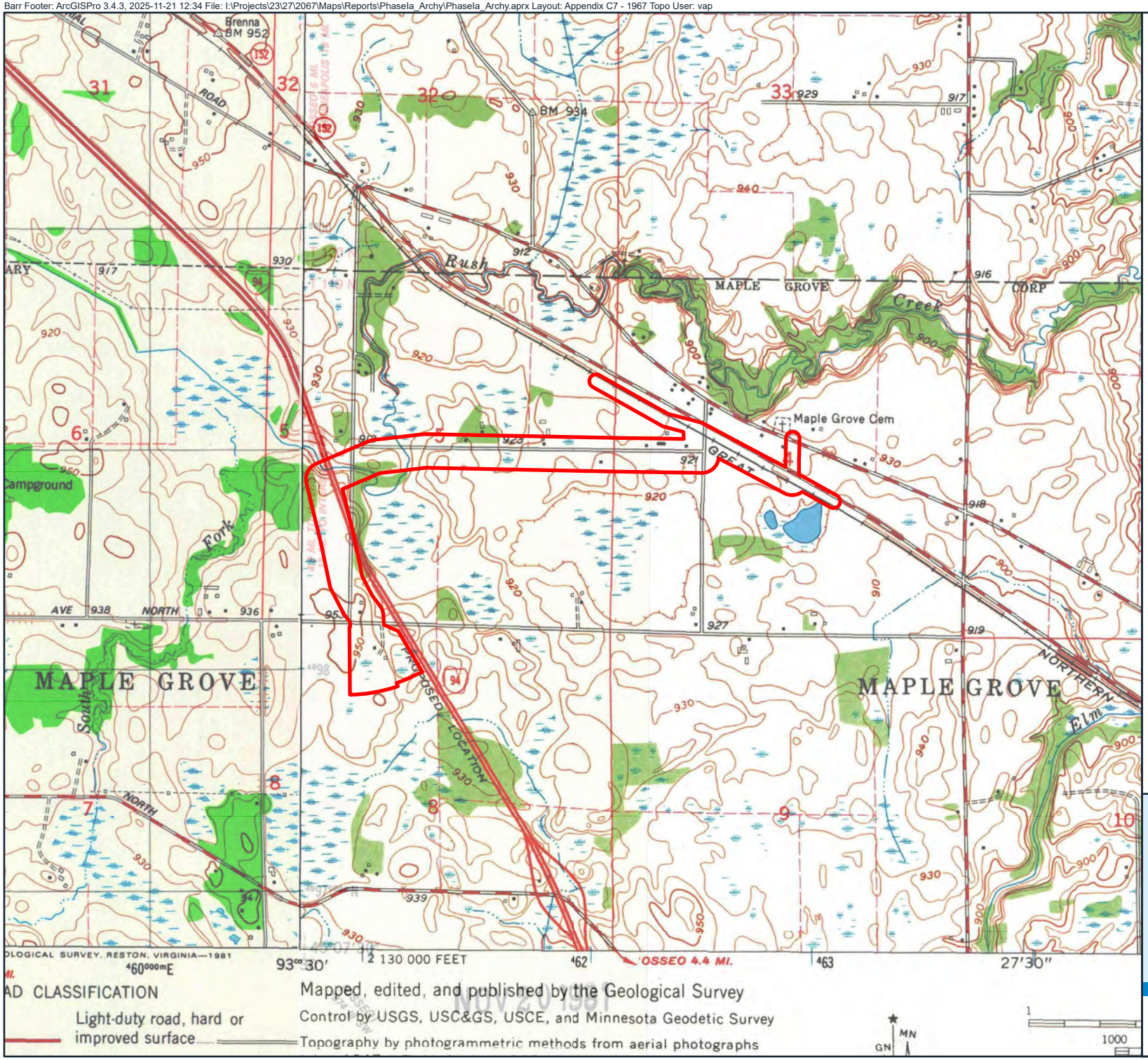


1955 Topographic Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C6

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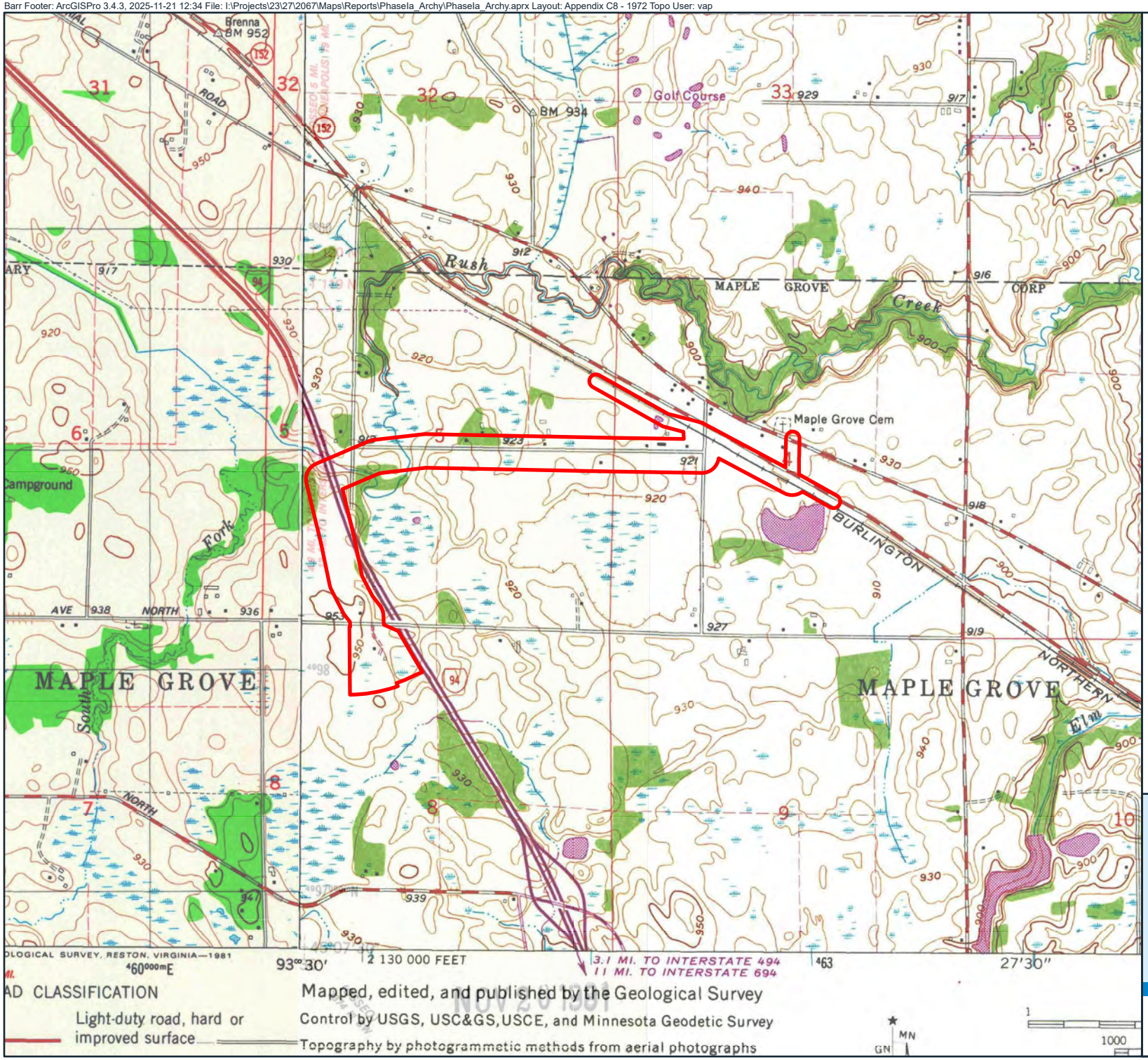
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1967 Topographic Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C7

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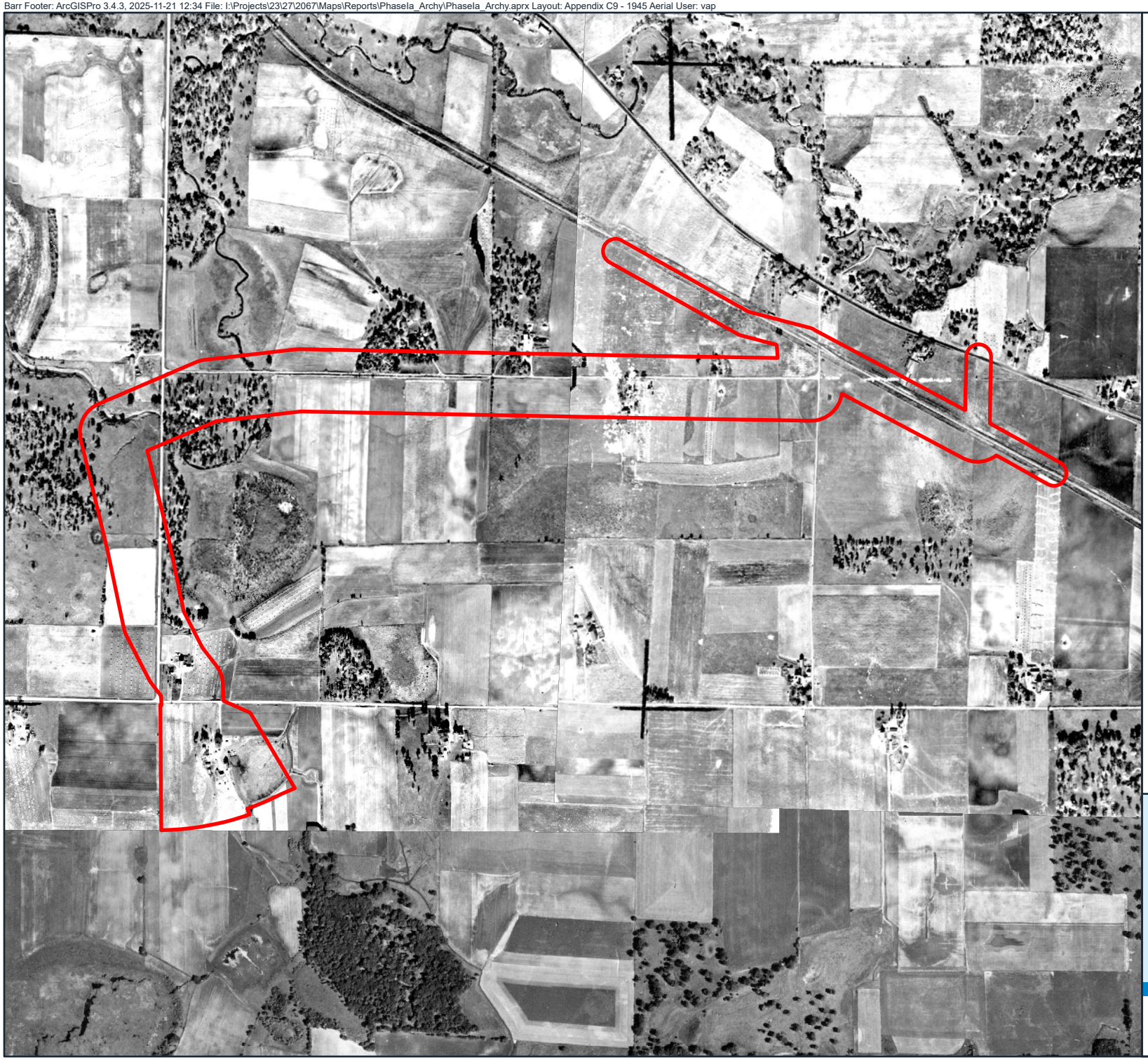
1972 Topographic Map
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C8

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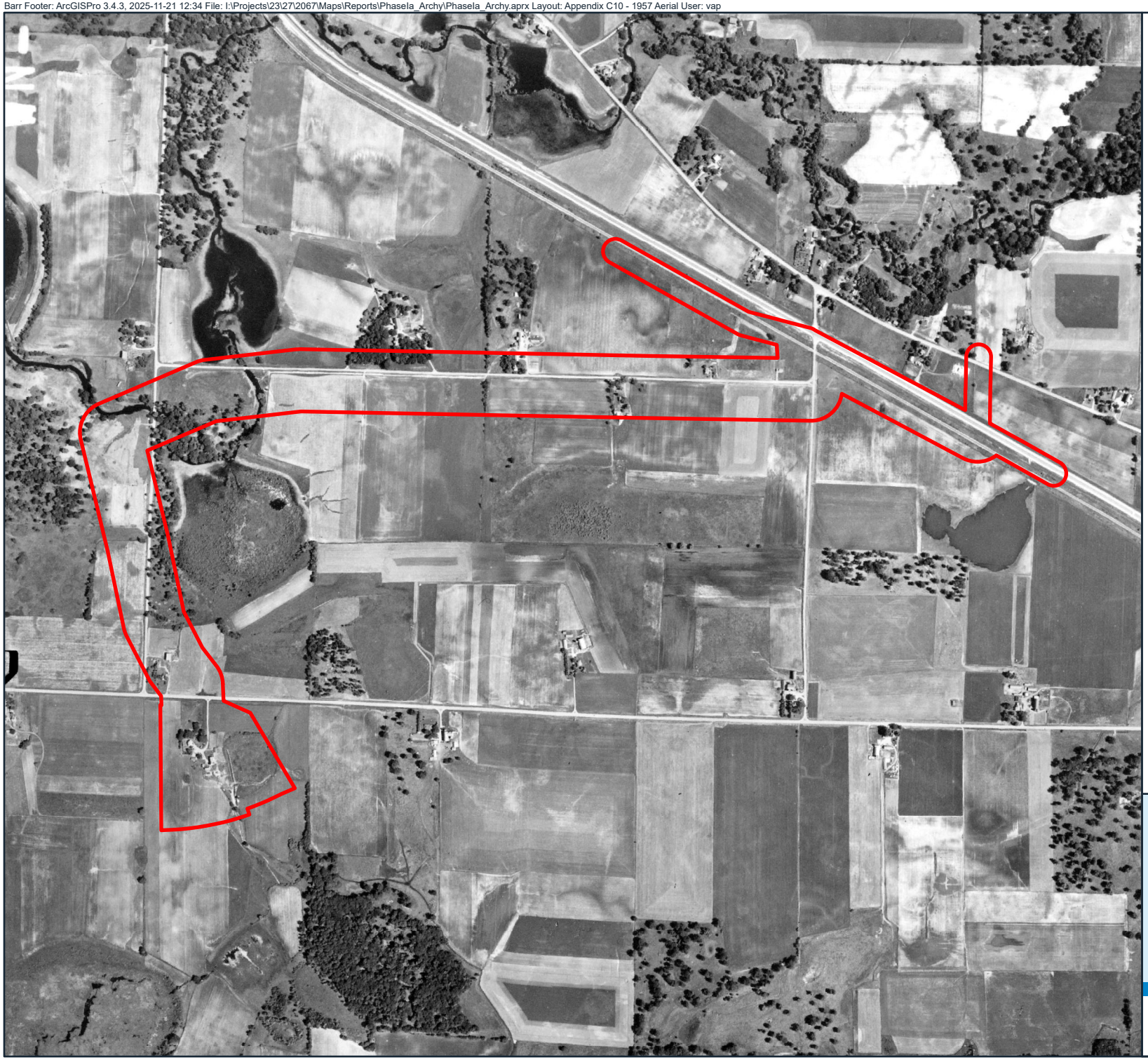
1945 Aerial
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C9

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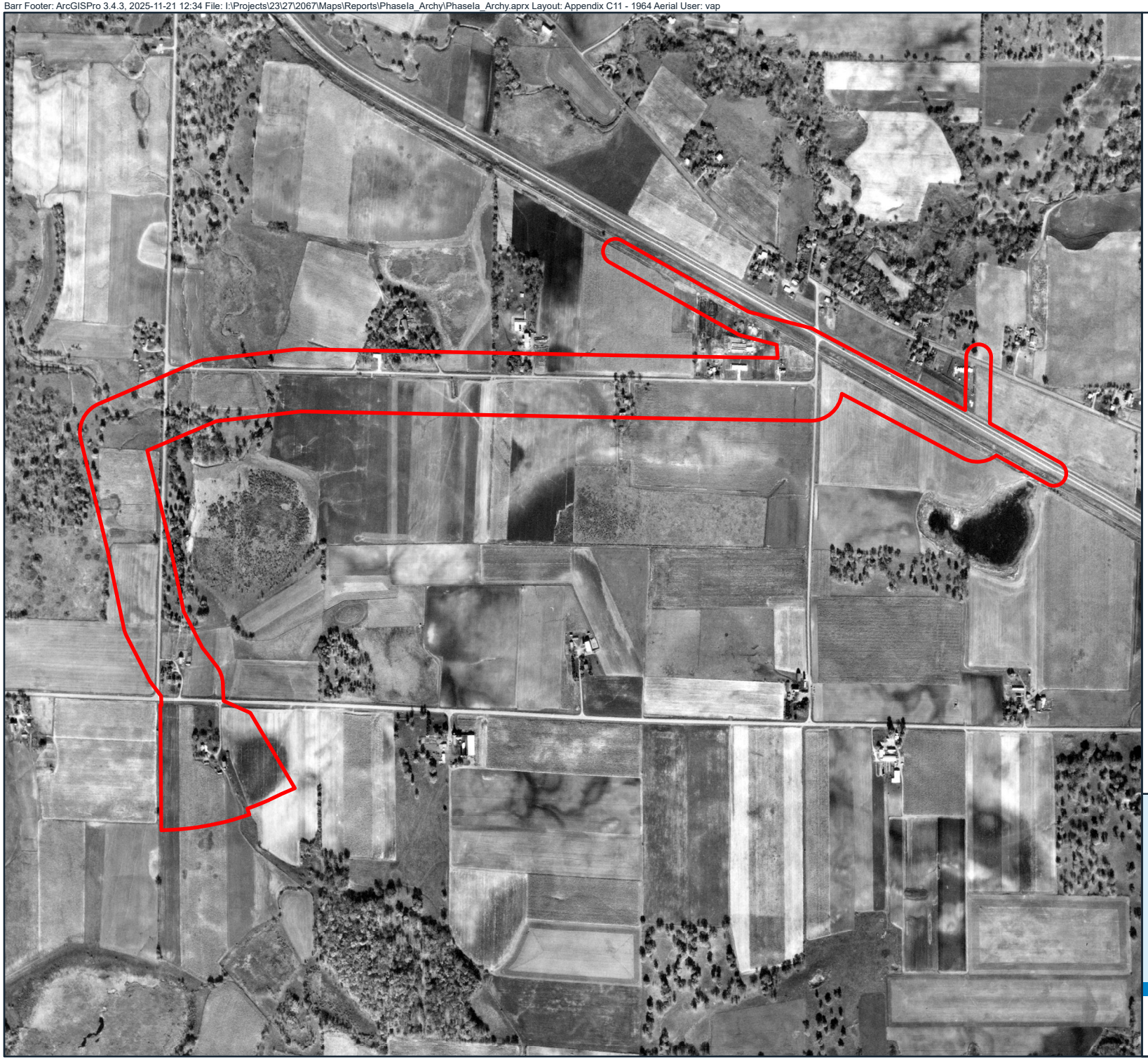
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1957 Aerial
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C10

BARR

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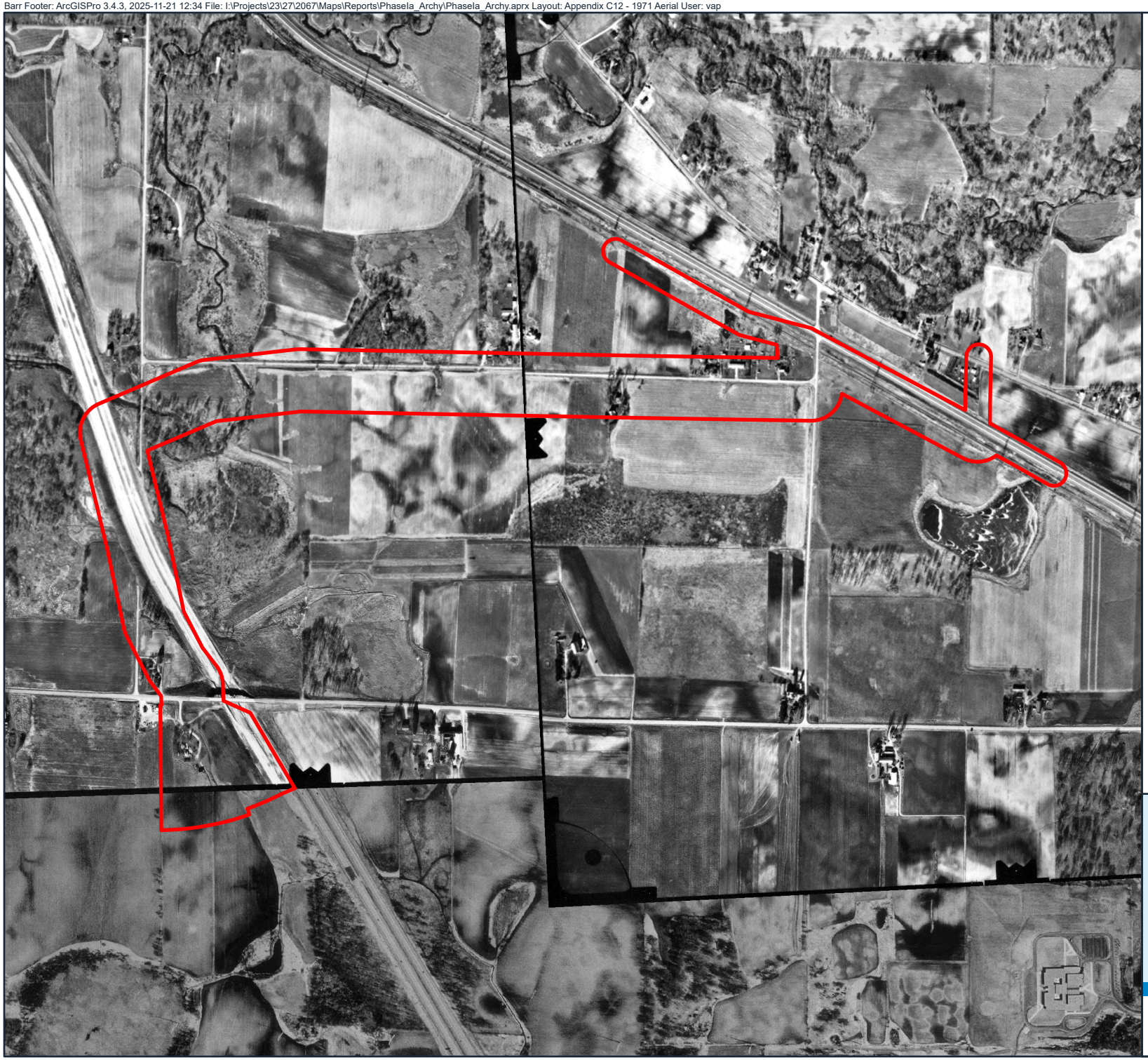


1964 Aerial
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C11

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1971 Aerial
Northwest Maple Grove
115kV Transmission Line
Xcel Energy
Hennepin County, Minnesota

APPENDIX C12

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Appendix E

Agricultural Impact Mitigation Plan

DEPARTMENT OF AGRICULTURE

February 11, 2026

Executive Secretary Sasha Bergman
Minnesota Public Utilities Commission
121 7th Place East
Suite 350
Saint Paul, MN 55101-2147

RE: Route Permit for the Northwest Maple Grove 115 KV Transmission Project
Docket TL 24-427

Dear Secretary Seuffert:

On behalf of Commissioner Petersen, I wish to inform the Commission that the Minnesota Department of Agriculture has received, reviewed, and approved the draft Agricultural Impact Mitigation Plan for the Northwest Maple Grove 115 KV Transmission Project.

As you know, these plans serve several objectives including outlining the appropriate construction procedures to protect the productivity of agricultural soil resources, protect surface and subsurface drainage infrastructure, and protect organic farming operations. These objectives ensure the continued productivity of agricultural operations after transmission line construction is completed.

Thank you for the opportunity to submit this comment. If you have any questions, please feel free to contact me.

Sincerely,



Stephan Roos
Environmental Planner
Energy and Environment Section
651-201-6631
stephan.roos@state.mn.us

cc: Commissioner Thom Petersen, MDA

In accordance with the Americans with Disabilities Act, this information is available in alternative forms of communication upon request by calling 651-201-6000. TTY users can call the Minnesota Relay Service at 711. The MDA is an equal opportunity employer and provider.

AGRICULTURAL IMPACT MITIGATION PLAN

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION PROJECT

MPUC Docket No. E002/TL-24-427

DRAFT AGRICULTURAL IMPACT MITIGATION PLAN

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION LINE PROJECT

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DRAFT AGRICULTURAL IMPACT MITIGATION PLAN

NORTHWEST MAPLE GROVE 115KV TRANSMISSION LINE PROJECT

Purpose

This Agricultural Impact Mitigation Plan ("AIMP" or 'the plan') was developed by Northern States Power Company, doing business as Xcel Energy (Xcel Energy) referred to as “the Utility”. The overall objective of this AIMP is to identify measures the Utility will take to avoid, mitigate, repair and/or provide compensation for impacts that may result from the construction of a 115 kV electric transmission line on Agricultural Land in Minnesota.

The Project will be owned by Xcel Energy, and is needed to provide additional transmission capacity, to mitigate current capacity issues, and to improve electric system reliability throughout the region.

The construction standards and policies in this plan apply only to construction activities occurring partially or wholly on privately owned Agricultural Land. The measures do not apply to construction activities occurring entirely on public rights-of-way, railroad rights-of-way, publicly owned land, or private land that is not Agricultural Land. The Utility will, however, adhere to the same construction standards relating to the repair of agricultural tile (Item No. 3 in the AIMP) when tiles are encountered on public highway rights-of-way, railroad rights-of-way, or publicly or privately owned land. No Organic Agricultural Land as described in the National Organic Program Rules, 7 CFR Part 205 will be crossed by the project.

Unless the Easement or other agreement, regardless of nature, between the Utility and the Landowner or Tenant specifically provides to the contrary, the mitigative actions specified in the construction standards and policies set forth in this AIMP will be implemented in accordance with the General Provisions.

General Provisions

The mitigative actions are subject to change by Landowners or Tenants, provided such changes are negotiated with and acceptable to the Utility.

Certain provisions of this AIMP require the Utility to consult with the Landowner and Tenant of a property. The Utility will engage in a good faith effort to secure the agreement of both Landowner and Tenant in such cases.

Unless otherwise specified, the Utility will retain qualified contractors to execute mitigative actions. However, the Utility may negotiate with Landowners or Tenants to carry out the mitigative actions that Landowners or Tenants wish to perform themselves.

Mitigative actions employed by the Utility pursuant to this AIMP, unless otherwise specified in this AIMP or in an Easement or other agreement negotiated with an individual Landowner or Tenant, will

be implemented within 45 days, weather permitting, following completion of Final Clean-up on an affected property, weather permitting, or unless otherwise delayed by mutual agreement between Landowner or Tenant and Utility. Temporary repairs will be made by the Utility during construction as needed to minimize the risk of additional property damage or interference with the Landowner's or Tenant's access to or use of the property that may result from an extended time period to implement mitigative actions.

The Utility will implement the mitigative actions contained in this AIMP to the extent that they do not conflict with the requirements of any applicable federal and/or state rules and regulations and other permits and approvals that are obtained by the Utility for the project or they are not determined to be unenforceable by reason of other requirements of federal and state permits issued for the project. To the extent a mitigative action required by this agreement is determined to be unenforceable in the future due to requirements of other federal or state permits issued for the project, the Utility will so inform the Landowner or Tenant and will work with them to develop a reasonable alternative mitigative action.

Prior to the construction of the transmission line, the Utility will provide each Landowner and Tenant with a telephone number and address which can be used to contact the Utility, both during and following the completion of construction, regarding the agricultural impact mitigation work which is performed on their property or other construction-related matter. If the contact information changes at any time before completion of Final Clean-up and/or after the completion of construction, the Utility will provide the Landowner and Tenant with updated contact information. The Utility will respond to Landowner and Tenant telephone calls and correspondence within a reasonable time.

The Utility will use good faith efforts to obtain a written acknowledgement of completion from each Landowner and Tenant upon the completion of Final Clean-up on their respective property.

If any provision of this AIMP is held to be unenforceable, no other provision will be affected by that holding, and the remainder of the AIMP will be interpreted as if it did not contain the unenforceable provision.

Mitigative Actions

The Utility will reasonably restore or compensate Landowners and/or Tenants, as appropriate, for damages caused by the Utility as a result of transmission line construction, and as outlined in this plan. The decision to restore land or compensate Landowners will be made by the Utility after discussion with the Landowner or Tenant.

1. Pole Placement

During the design of the project, the Utility’s engineering, land rights and permitting staff will work together to address pole placement issues. Utility’s staff will work with Landowners on pole placement. When the preliminary design is complete, the land rights agents will review the staked pole locations with the Landowners.

2. Soil and Rock Removal for Bored Holes

Any excess soil and rock will be removed from the site unless otherwise requested by the Landowner.

3. Damaged and Adversely Affected Tile

The Utility will contact affected Landowners or Tenants for their knowledge of Tile locations prior to the transmission line's installation. The Utility will make every attempt to probe for Tile if the Landowner does not know if Tile is located in the proposed pole location. Tile that is damaged, cut, or removed as a result of this probe will be immediately repaired. The repair will be reported to the Inspector.

If Tile is damaged by the transmission line installation, the Tile will be repaired in a manner that restores the Tile's operating condition at the point of repair. If Tiles on or adjacent to the transmission line's construction area are adversely affected by the construction of the transmission line, the Utility will take such actions as are necessary to restore the functioning of the Tile, including the relocation, reconfiguration, and replacement of the existing Tile. The affected Landowner or Tenant may elect to negotiate a fair settlement with the Utility for the Landowner or Tenant to undertake the responsibility for repair, relocation, reconfiguration, or replacement of the damaged Tile. In the event the Landowner or Tenant chooses to undertake the responsibility for repair, relocation, reconfiguration, or replacement of the damaged Tile, the Utility will not be responsible for correcting Tile repairs after completion of the transmission line (the Utility is responsible for correcting Tile repairs after completion of the transmission line, provided the repairs were made by the Utility or their agents or designees).

Where the damaged Tile is repaired by the Utility, the following standards and policies will apply to the Tile repair:

A. Tiles will be repaired with materials of the same or better quality as that which was damaged. If water is flowing through a damaged Tile, temporary repairs will be promptly installed and maintained until such time that permanent repairs can be made.

B. Before completing permanent Tile repairs, Tiles will be examined within the work area to check for Tile that might have been damaged by construction equipment. If Tiles are found to be damaged, they will be repaired so they operate as well after construction as before construction began.

C. The Utility will make efforts to complete permanent Tile repairs within a reasonable timeframe after Final Clean-up, taking into account weather and soil conditions.

D. Following completion of the Final Clean-up and damage settlement, the Utility will be responsible for correcting and repairing Tile breaks, or other damages to Tile systems that are discovered on the Right-of-Way to the extent that such breaks are the result of

transmission line construction. These damages are usually discovered after a couple significant rain events have occurred. The Utility will not be responsible for Tile repairs the Utility has paid the Landowner or Tenant to perform.

4. Installation of Additional Tiles

The Utility will be responsible for installing such additional Tile and other drainage measures as are necessary to properly drain wet areas on the Right-of-Way caused by the construction of the transmission line.

5. Construction Debris

Construction-related debris and material which are not an integral part of the transmission line, and which have been placed there by the Utility, will be removed from the Landowner's property at the Utility's cost. Such material to be removed would include excess construction materials or litter generated by the construction crews.

6. Compaction, Rutting, Fertilization, Liming, and Soil Restoration

A. Compaction will be alleviated as needed on Cropland traversed by construction equipment. Cropland that has been compacted will be plowed using appropriate deep-tillage and draft equipment. Alleviation of compaction of the topsoil will be performed during suitable weather conditions, and must not be performed when weather conditions have caused the soil to become so wet that activity to alleviate compaction would damage the future production capacity of the land as determined by the Agricultural Monitor.

B. The Utility will restore rutted land to as near as practical to its pre-construction condition.

C. Topsoil and subsoil layers that are removed during construction for facility structures, pole placement, or temporary road impacts will be stored separately and replaced in the proper sequence after the transmission line is installed. Unless otherwise specified in an easement or other agreement negotiated between the Company and Landowner, Xcel Energy will not use topsoil for other purposes, including creating access ramps at road crossings. No topsoil or subsoil (other than incidental amounts) may be removed from agricultural land without permission of the Landowner.

D. If there is a dispute between the Landowner or Tenant and the Utility as to what areas need to be ripped or chiseled, the depth at which compacted areas should be ripped or chiseled, or the necessity or rates of lime, fertilizer, and organic material application, the Agricultural Monitor's opinion will be considered by the Utility.

7. Damaged Soil Conservation Practices

Soil conservation practices such as terraces and grassed waterways which are damaged by the transmission line's construction, will be restored to their pre-construction condition.

8. Weed Control

On land which is owned by the Utility for substation facilities, the Utility will work with Landowners if requested on weed control activities outside of the substations with the intent to not allow the spread of weeds onto adjacent Agricultural Land. Any weed control spraying will be in accordance with State of Minnesota Department of Agriculture regulations.

9. Irrigation Systems

A. If the transmission line and/or temporary work areas intersect an operational (or soon to be operational) spray irrigation system, the Utility will establish with the Landowner or Tenant, an acceptable amount of time the irrigation system may be out of service.

B. If, as a result of the transmission line construction activities, an irrigation system interruption results in crop damages, either on the Right-of-Way or off the Right- of-Way, compensation of Landowners and/or Tenants, as appropriate, will be determined as described in section 12 of this AIMP.

C. If it is feasible and mutually acceptable to the Utility and the Landowner or Tenant, temporary measures will be implemented to allow an irrigation system to continue to operate across land on which the transmission line is also being constructed. The Utility will work with the Landowner or Tenant to identify a preferable construction time.

10. Temporary Roads

The location of temporary roads to be used for construction purposes will be discussed with the Landowner or Tenant.

A. The temporary roads will be designed so as to not impede proper drainage and will be built to mitigate soil erosion on or near the temporary roads.

B. Upon abandonment, temporary roads may be left intact through mutual agreement of the Landowner or Tenant and the Utility unless otherwise restricted by federal, state or local regulations.

C. If a temporary road is to be removed, the Agricultural Land upon which the temporary road is constructed will be returned to its previous use and restored to equivalent condition as existed prior to their construction.

11. Construction in Wet Conditions

If it is necessary to construct during wet conditions, and if the Agricultural Monitor believes conditions are too wet for continued construction, damages which may result from such construction will be paid for by the Utility and/or appropriate restoration will be conducted. Compensation for Landowners and/or Tenants, as appropriate, will be determined as described in section 12 of this AIMP.

12. Procedures for Determining Construction-Related Damages and Providing Compensation

A. The Utility will develop and put into place a procedure for the processing of anticipated Landowners' or Tenants' claims for construction-related damages. The procedure will be intended to standardize and minimize Landowner and Tenant concerns in the recovery of damages, to provide a degree of certainty and predictability for Landowners, Tenants and the Utility, and to foster good relationships among the Utility, Landowners and their Tenants over the long term.

B. Negotiations between the Utility and any affected Landowner or Tenant will be voluntary in nature and no party is obligated to follow any particular method for computing the amount of loss for which compensation is sought or paid. The compensation offered is only an offer to settle, and the offer shall not be introduced in any proceeding brought by the Landowner or Tenant to establish the amount of damages the Utility must pay. In the event the Utility and a Landowner or Tenant are unable to reach an agreement on the amount of damages, the Landowner or Tenant may seek recourse through mediation.

13. Advance Notice of Access to Private Property

The Utility will endeavor to provide the Landowner and/or Tenant advanced notice before beginning construction on the property. Prior notice will consist of a personal contact, email, letter or a telephone contact, whereby the Landowner and the Tenant are informed of the Utility's intent to access the land.

14. Role and Responsibilities of Agricultural Monitor

The Agricultural Monitor will be retained and funded by the Utility, but will report directly to the MDA, The primary function of the Agricultural Monitor will be to audit the Utility's compliance with this AIMP. The Agricultural Monitor will not have the authority to direct construction activities and will not have authority to stop construction. The Agricultural Monitor will notify the Utility's Inspector if he/she believes a compliance issue has been identified. The Agricultural Monitor will have full access to Agricultural Land crossed by the Project and will have the option of attending meetings where construction on Agricultural Land is discussed. Specific duties of the Agricultural Monitor will include, but are not limited to the following:

1. Participate in preconstruction training activities sponsored by the Utility.

2. Monitor construction and restoration activities on Agricultural Land for compliance with provisions of this AIMP.

3. Report instances of noncompliance to the Utility's Inspector.

4. Prepare regular compliance reports and submit to MDA, as requested by the MDA.

5. Act as liaison between Landowners and Tenants and MDA, if necessary.

6. Maintain a written log of communications from Landowners and/or Tenants regarding compliance with this AIMP. Report Landowner complaints to the Utility's Inspector and/or Right-of-Way representative.

7. In disputes between the Utility and a Landowner and/or Tenant over restoration, determine if agricultural restoration is reasonably adequate in consultation with the Utility's Inspector.

15. Qualifications and Selection of Agricultural Monitor

The Agricultural Monitor will have a bachelor's degree in agronomy, soil science or equivalent work experience. The Agricultural Monitor will have demonstrated practical experience with pipeline or electric transmission line construction and restoration on Agricultural Land. Final selection of the Agricultural Monitor will be a joint decision between the MDA and the Utility.

16. Role of the Utility's Inspector

The Utility's Inspector will:

1. Be full-time member of the Utility's inspection team.

2. Be responsible for verifying the Utility's compliance with provisions of this AIMP during construction.

3. Work collaboratively with other Utility's Inspectors, Right-of-Way agents, and the Agricultural Monitor in achieving compliance with this AIMP.

4. Observe construction activities on Agricultural Land on a regular basis.

5. Have the authority to stop construction activities that are determined to be out of compliance with provisions of this AIMP.

6. Document instances of noncompliance and work with construction personnel to identify and implement appropriate corrective actions as needed.

7. Provide construction personnel with training on provisions of this AIMP before construction begins.

8. Provide construction personnel with field training on specific topics as needed.

9. Notify the Agricultural Monitor if there are unresolved disputes with land owners.

Appendix A Definitions

Agricultural Land	Land that is actively managed for cropland, hayland, or pasture, and land in government set-aside programs.
Agricultural Monitor	Monitor retained and funded by the Utility, reporting directly to the Minnesota Department of Agriculture ("MDA") and responsible for auditing the Utility's compliance with provisions of this AIMP.
Cropland	Land actively managed for growing row crops, small grains, or hay.
Easement	The agreement(s) and/or interest in privately owned Agricultural Land held by the Utility by virtue of which it has the right to construct, operate and maintain the transmission line together with such other rights and obligations as may be set forth in such agreement.
Final Clean-up	Transmission line activity that occurs after the power line has been constructed. Final Clean-up activities include but are not limited to: removal of construction debris, de-compaction of soil as required, installation of permanent erosion control structures, final grading, and restoration of fences and required reseeding. Once Final Clean-up is finished, Landowners will be contacted to settle all damage issues and will be provided a form to sign confirming final settlement.
Landowner	Person(s) holding legal title to Agricultural Land on the transmission line route from whom the Utility is seeking, or has obtained, a temporary or permanent Easement, or their representatives.
Non-Agricultural Land	Any land that is not "Agricultural Land" as defined above.
Right-of-Way	The Agricultural Land included in permanent and temporary Easements which the Utility acquires for the purpose of constructing, operating and maintaining the transmission line.
Tenant	Any Person lawfully renting or sharing land for agricultural production which makes up the "Right-of-Way" as defined in this AIMP.
Tile	Artificial subsurface drainage system.
Topsoil	The uppermost horizon (layer) of the soil, typically with the darkest color and highest content of organic matter.
Utility’s Inspector	Full-time on-site inspector retained by the Utility to verify compliance with requirements of this AIMP during construction of the transmission line. The Inspector will have demonstrated experience with transmission line construction on Agricultural Land.

Appendix F

Draft - Vegetation Management Plan

Draft Vegetation Management Plan

NORTHWEST MAPLE GROVE 115 KV TRANSMISSION PROJECT

Hennepin County, Minnesota

February 2026

1 INTRODUCTION

Northern States Power Company, doing business as Xcel Energy is applying for a Route Permit from the Minnesota Public Utilities Commission for approval to construct the Northwest Maple Grove 115 kilovolt (kV) Transmission Project (Project) in the city of Maple Grove, Hennepin County, Minnesota. The Project involves construction of an approximately two-mile-long, 115 kV double-circuit transmission line from a new West Maple Grove Substation located on the west side of Interstate 94 to an interconnect point (or "tap") on an existing 115 kV line on the south side of County Highway 81 west of the existing Elm Creek Substation.

The Project is needed to provide additional transmission capacity to mitigate current capacity issues due to a significant increase in electric demand from new homes, businesses, and neighborhoods in the Twin Cities northwest suburbs, and to improve electric system reliability throughout the region as more renewable energy resources are added to the electric system in and around the region.

The Project will be owned by Northern States Power Company – Minnesota (NSPM) both before and after commercial operation. NSPM is a wholly owned subsidiary of Xcel Energy Inc., a utility holding company with its headquarters in Minneapolis. NSPM will be responsible for the construction and maintenance of both the proposed 115 kV transmission line and the West Maple Grove Substation. Equipment will be owned solely by NSPM.

In accordance with previously approved Route Permits, the Permittees shall develop a Vegetation Management Plan and submit it to the Commission prior to submitting the Plan and Profile. The purpose of the Vegetation Management Plan is to minimize tree clearing, prevent the introduction of noxious weeds and invasive species, and revegetate disturbed non-cropland areas with appropriate native species in cooperation with landowners and appropriate state, federal and local resource agencies.

This Vegetation Management Plan (Plan) shall:

- Identify measures that will be taken to minimize tree removal and minimize ground disturbance.
- Identify a comprehensive re-vegetation plan for non-cropland areas.
- Identify areas, such as trail crossings, where vegetative screening would minimize aesthetic impacts to the extent that such actions do not violate sound engineering principles or system reliability criteria.
- Identify vegetation control methods to be used during the operation and maintenance of the high voltage transmission line (HVTL).
- Identify areas where landowners or resource agencies have specified no herbicide application.

- Identify measures to prevent the introduction of noxious weeds and invasive species on lands disturbed by construction activities.
- Identify measures to limit impacts to state-listed species, rare features, and sensitive ecological areas as discussed in the Natural Heritage (NH) review letter (MCE# 2023-00630).

2 GENERAL RIGHT-OF-WAY VEGETATION MANAGEMENT

The standard practice of Permittees is to clear all woody vegetation within the proposed utility right- of-way (referred to right-of-way hereafter) for the new high voltage transmission line that may interfere with or restrict safe and reliable operation of the line. Cleared rights-of-way also provide for ready access or observation for inspection and maintenance purposes. There are limited circumstances when this practice is modified and selective vegetation can remain within the right-of-way provided National Electric Safety Code (NESC) clearance requirements are met. However, there may be select locations within the right-of-way where the retention of some vegetation may be feasible.

In these areas, Permittees may vary their standard procedure and retain some vegetation within the right-of-way to the extent practicable. While some trees may still be removed when necessary for the construction and safe and reliable operation of the facility, unnecessary tree or vegetation removal or destruction in these specific areas within the right-of-way may otherwise be avoided.

2.1 General

The following provides a list of general practices the Permittees will follow to minimize vegetation impacts related to Project construction.

- Use erosion control best management practices (BMPs) to intercept stormwater runoff from areas disturbed as part of clearing operations. Stormwater BMPs are addressed in the Stormwater Pollution Prevention Plan (SWPPP).
- Minimize rutting by using matting materials in wetland areas for all construction activities, including right-of-way clearing activities; or perform work on firm or frozen ground that can support the equipment used.
- Minimize soil disturbance in steeply sloped areas, to the extent possible and/or practicable.
- Limit construction activities, including vegetation removal, to the right-of-way and off right-of-way access.
- Selectively retain some vegetation within the right-of-way where feasible.
- Limit traffic in the right-of-way between transmission structure locations to a single access path to the extent practicable.

- Use BMPs to minimize the potential for spills or leaks from equipment during construction, including frequent inspections of equipment, requiring portable spill containment kits for construction equipment, ensuring that equipment operators are present at the nozzle at all times when fueling is in progress, and prohibiting the refueling of equipment in wetlands.
- Avoid placement of staging or laydown areas in and immediately adjacent to wetlands and sensitive ecological areas, to the extent practicable.
- Limit staging and lay-down areas to previously disturbed areas where practicable.
- Locate, design, construct, and maintain access paths to minimize rutting, maintain surface and subsurface water flows in the wetland, and reduce erosion and sedimentation.
- Where wetlands are to be crossed, create access through the shortest route within the wetland resulting in the least amount of physical impact to the wetland during construction. Typically, the project will follow previously approved access routes for existing work areas, with some changes based on land-owner circumstances. The project will follow all WCA and USACE permit requirements.
- Assemble structures on upland areas before transporting into wetlands where practicable.
- Use construction mats to minimize impacts within wetlands when construction during winter (frozen) months is not possible.
- Slash or woody vegetation that originates from outside wetlands is not to be left in wetlands. Slash or woody vegetation that originates from outside the wetland is considered unauthorized fill and must be removed.
- To the extent practicable, complete construction in wet organic soils when the ground is frozen.

2.2 Site Clean-Up and Restoration

As construction wastes are generated, respective materials will be properly disposed of in a manner which is suitable and appropriate for those wastes. Restoration of the natural landscape will begin as soon as construction or clearing activities cease. Restoration activities may include:

- Regrading areas disturbed by construction or clearing to reflect pre-

construction topography. Regraded areas will also be decompacted as necessary to support final vegetation regrowth.

- Return floodplain contours to their pre-construction profile if disturbed during construction.
- Plant or seed non-agricultural areas disturbed by transmission line structures to prevent erosion. Use native seed mixes from indigenous plants; ensure seeding and/or plantings are done at a time congruent with seeding and growth of the area, not during a time that would preclude germination or rooting. Seed mixes will be appropriate for the growing conditions of the area.
- Restore the right-of-way, temporary work spaces, access paths, and other areas of ground disturbance affected by Project construction upon completion of work.

3 VEGETATION REMOVAL

The Project will require the clearing of woody vegetation within the right-of-way, and clearing of brush along temporary construction access paths. Typically, the project will follow previously approved access routes for existing work areas, with some changes based on land-owner circumstances. Tall woody vegetation that may interfere with safe construction and safe and reliable operation of the transmission line will not be allowed to persist and will be controlled. In upland areas, woody vegetation will be removed within the right-of-way and managed through the operational life of the Project.

Clearing of vegetation within the right-of-way will occur prior to other construction activities as allowed by landowner agreements and permit conditions. Clearing of trees would occur during the Northern long-eared bat inactive season between November 15 through April 1st.Clearing of brush, trees, and herbaceous vegetation to facilitate access and to meet safety standards will occur. Clearing may be accomplished with the use of chainsaws, mowers, and hydraulic tree-cutting equipment.

Vegetation will be cut at, or slightly above, the ground surface. Rootstock or stumps will be left in place unless transmission structure installation or construction access requires otherwise or at the request of the landowner.

Landowners will be notified to allow them to harvest trees within easement boundaries prior to the initiation of clearing. At the time of clearing, any merchantable trees will be cut to standard logging lengths and stacked in upland areas within the right-of-way. The landowner will retain the title to all timber material, if desired. Non-merchantable material, including trees, brush, and slash, will be either cut and scattered, placed in windrow piles, chipped, or burned within the right-of-way. Non-merchantable felled material may also be removed from the right-of-way in a fashion that does not cause erosion unless BMPs are installed. No timber or slash mulch piles will be left on MnDOT ROW.

The cut and scatter method may be used in areas where limited clearing will occur in either

wetlands or uplands; however, no slash material may be deposited in wetlands. The purpose of this method is to limit the need for unnecessarily hauling and potentially disturbing existing ground or vegetation. Likely situations where this method will be used are in shrub and brush areas with a limited numbers of trees. No upland tree material is to be deposited within wetlands as this would constitute wetland fill, which is prohibited.

Woody vegetation may be chipped and scattered over the right-of-way to a maximum depth of one inch in non-agricultural upland areas. Chipping or scattering of chips will not occur in wetlands.

3.1 Wetlands

The use of heavy equipment in wetlands will be kept to the minimum extent practicable. Permanent wetland fill has not been approved beyond the extent of structure installation. Temporary fill will not be permitted without prior written consent from the U.S. Army Corps of Engineers (USACE). Wetland impact minimization will be accomplished by: constructing in wetlands during frozen conditions to the extent feasible; the use of ice roads; working in dry conditions; using low ground-pressure tires or specialized tracked vehicles; and using of matting materials during non-frozen ground conditions. These BMPs are intended to minimize damage to wetland vegetation and soils.

Forested wetlands may require the removal of woody vegetation within the right-of-way sufficient to provide access for stringing conductors and shield wires, for transmission structure installation, and for safe Project operation. The removal of woody vegetation within forested wetlands will be conducted in accordance with USACE permit conditions. Within these areas, all trees and large shrub species will be cleared to ground level. All woody material will be removed from temporary access paths. On either side of the access path within the right-of-way, small diameter trees and shrubs (<6" diameter) will be cut and debris scattered in place. Large diameter trees and shrubs (>6" diameter) will be hauled out of wetland areas to suitable upland locations and treated according to applicable procedures.

Stump removal may occur within wetlands only where stumps interfere with the placement of construction mats or pole locations, or pose a risk to construction tires and equipment. Where removal is required for access, stumps will be ground to a point at or slightly below the ground surface using low ground-pressure track-mounted equipment. Woody materials generated by stump grinding may be thin-spread in the wetland; but said material may not be mounded.

3.2 State Lands

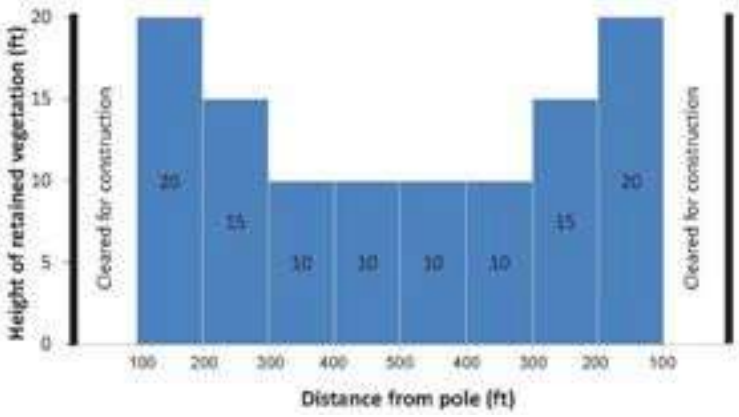
On state-owned lands, Permittees shall vary their standard practice of clearing all woody vegetation within the proposed right-of-way for a new high voltage transmission line. Where state-owned lands are crossed, Permittees will work with the appropriate agency in planning for the right-of way preparation prior to any clearing activities commencing on those lands. Selective right-of way vegetation removal typically includes the following practices:

- Woody vegetation within 100 feet of a transmission line pole will be cleared for

safe construction of the transmission line facilities.

- Woody vegetation whose mature height will not exceed the heights specified in Figure 1 below will be retained to the extent feasible.
- Within 75 feet of a DNR Public Water Inventory stream crossing, woody vegetation whose mature height will not exceed 10 feet will be retained to the extent feasible, so long as the woody vegetation is not within 100 feet of a transmission pole.
- DNR Operational Order #113, Invasive Species Prevention and Management, will be followed.

Figure 1 Woody Vegetation Removal for DNR Lands



This diagram assumes a typical span between poles of approximately 1,000 feet.

3.3 Sensitive Ecological Areas

The DNR has established several classifications for sensitive ecological resources across the state, such as Scientific and Natural Areas, Sites of Biodiversity Significance, native plant communities, native prairie bank easements, and Lakes of Biological Significance. None of these or other sensitive ecological resources intersect the route width.

4 HERBICIDE USE

Herbicides will not be used at organic farms or other properties where landowners prohibit their use. Herbicides will be used in accordance with manufacturer's specifications and all applicable federal and state regulations. Herbicides may be used to control the re-sprout of the stumps of tall-growing tree species or to control listed invasive or noxious weed species. Herbicides may not be used for right-of-way clearing within 75 feet of the vegetative buffer zone of waterbody crossings. Herbicides used in or near wetlands and waterbodies must be designed for use in wet areas as designated by manufacture's specifications and federal and state regulations. Herbicides may not be used on public lands or sensitive

ecological areas without permit and applied by a MN Licensed Commercial Pesticide Applicator in categories A and J.

5 NOXIOUS WEEDS AND INVASIVE SPECIES CONTROL

Permittees have identified the following mitigation measures to be implemented that should prevent the introduction of noxious weeds and invasive species (NWIS) on lands disturbed by construction activities.

- To prevent the introduction and spread of NWIS into the Project area from offsite locations, equipment will be cleaned prior to arrival onsite. Clumps of dirt must be removed from all equipment using high pressure compressed air blowers, brushing, or vehicle wash.

- The contractor(s) must maintain record of cleaning for wheeled and tracked equipment used onsite. This information will be available to MN PUC Route Permit authorized independent third-party monitor upon request.

- Non-compliance with equipment cleaning requirements may warrant a stop work order to be issued. Construction activity could then recommence only after Project equipment has been removed from the site and/or adequately cleaned.

Winter clearing within the right-of-way and for the purposes of access outside the right-of-way and will allow for spring regeneration of existing vegetation within the corridor. The MN PUC Route Permit authorized independent third-party monitor will be required to survey the project area for NWIS throughout the construction oversight period. Additionally, the construction contractor will report any observed or recognized NWIS infestations to the MN PUC Route Permit authorized independent third-party monitor who will then provide further instructions for control. The MN PUC Route Permit authorized independent third-party monitor will report any infestations of NWIS species to the Permittees, fee landowners, and the appropriate agencies.

Major infestation areas identified during the first growing season will be treated with the use of herbicides or by mechanical methods. The contractor applying herbicide is required to obtain any necessary permits and/or licenses prior to herbicide placement. The contractor applying herbicide must keep proper documentation of location and timing of herbicide use and be prepared to provide such documentation to the Permittees or the MN PUC Route Permit authorized independent third-party monitor upon request. Treatment shall conform to the herbicide label specifications.

For areas where state-certified weed-free straw mulch is used, the contractor will be responsible for locating and documenting the source of state-certified weed- free straw mulch. Copies of the applicable certification documentation must be given to the MN PUC Route Permit authorized independent third-party monitor and made available upon request to the appropriate agencies. Mulch derived from onsite locations may be spread up to six inches deep in upland areas to provide ground protection along access paths. Upon abandonment of access routes, slash mulch is to be spread evenly to a depth no greater than

two inches. No mulch is to be spread in wetland locations or road in and back slopes or ditch bottoms.

6 SEEDING, EROSION CONTROL, REVEGETATION, AND RESTORATION

Revegetation and restoration of disturbed areas associated with construction activities are intended to protect wetland and water resources from issues associated with erosion and sedimentation, to protect wildlife habitat, and reduce the movement of NWIS species within the right-of-way. Oversight for the implementation of revegetation and restoration procedures will be provided by the MN PUC Route Permit authorized independent third-party monitor.

Seed used will be purchased on a Pure Live Seed (PLS) basis for seeding revegetation areas. Seed tags will identify:

- Purity;
- Germination;
- Date tested;
- Total weight and PLS weight;
- Weed seed content; and
- Seed supplier's name and business information.

Seed will be used within 12 months of testing as required by applicable state rules and regulations. The seed tags on the seed sacks will also certify that the seed is "noxious weed free." Seed rates used on the project will be based on PLS rate, not actual weight. The species components of individual mixes are subject to availability at the time of purchase. Grass species may be substituted with alternative native or non-invasive species that are included in Natural Resource Conservation Service guidelines and subject to approval by the Permittees.

Seed tags must be collected by the contractor and provided to the MN PUC Route Permit authorized independent third-party monitor during seeding activities. The tags will be reviewed by the MN PUC Route Permit authorized independent third-party monitor prior to use to ensure that the seed mix complies with specifications described herein. Legume seed (where specified) will be treated with inoculants specific to the species and in accordance with the manufacture's recommended rate, appropriate for the seeding method (broadcast, drill, or hydroseeding).

Seedbed preparation and seeding are to occur immediately following completion of construction activities and site cleanup in any given location. Where applicable, soil will be tilled to a minimum depth of four inches with a disc, field cultivator, or chisel plow to prepare the seedbed, breaking up large clumps and firming the soil surface. Sensitive areas will be restored according to DNR guidance. Prior to seeding, prepared beds should be

sufficiently soft to allow for seed penetration and mulch anchoring, while sufficiently firm to provide surface soil stability. Seeding and mulching should occur parallel to ground contours as practicable.

In order to minimize ground disturbance along the entire right-of-way, forested areas are being cleared, but roots and stumps are being left in place where appropriate, but may be removed at the request of the landowner or in cases where access is needed for snowmobile, hiking, or maintenance crews. In-place stumps should be cut closest possible to the ground line. Within areas of cleared forest, it may not be practical to access large areas of ground with seeding and seedbed preparation equipment. In these areas, smaller vehicles may be required to perform tasks such as smoothing ruts, preparing seedbeds with small rakes, and surface packing after seeding. The contractor will work with the MN PUC Route Permit authorized independent third-party monitor to develop strategies to work around stumps. Fertilizers and other soil amendments are not recommended and will only be applied as requested by and agreed to with landowners.

6.1 Seeding Methods, Erosion Control and Timing

6.1.1 Seeding Methods

Drilled seed will be sown at a depth of 0.25 inches. Seeding equipment will be able to accommodate and uniformly distribute different sizes of seed at the required depth. Feeding mechanisms will be able to evenly distribute different seed types at the rates specified. Seedbed soil is to be suitably firmed immediately following seed drilling. Within cleared areas, it is assumed that seed drilling will be limited by the presence of stumps and roots left in place to retain the soil surface.

Broadcast seeding will occur as specified in the seed mixes. Seed is to be uniformly distributed by a mechanical, hand-operated seeder; or in small seeding areas, by hand. Following seeding, the surface is to be raked with a cultipacker, harrow, or hand rake. The bed is to be firmed as appropriate to site conditions.

When used, hydroseeding will occur as specified in the seed mixes using natural netting material. Seed will be applied in a broadcast, hydromulch slurry. The hydromulch seed mix will allow the contractor to see where application has taken place, ensuring uniform coverage of the seeding area. The hydroseeder must provide for continuous agitation of slurry and provide for a uniform flow of slurry. Hydroseed slurry is not to be held in the tank for more than one hour prior to application.

6.1.2 Erosion Control

Straw mulch will be applied to disturbed, non-cultivated upland areas if requested by landowners or land managers. State certified weed free mulch will be used on all state land areas and sensitive ecological areas if straw mulch is used. If state certified weed-free straw mulch is not used in non-state land owned areas, the project will manage any noxious weed growth in the right-of-way. The contractor will be responsible for acquiring certified weed-free straw mulch from approved sources and copies of applicable documentation must be provided to the MN PUC Route Permit authorized independent third-party monitor. Mulch will be required on disturbed, exposed soils on all slopes greater than five percent, and on

dry, sandy soils prone to erosion by wind or rain.

Straw mulch will be applied at a rate of two tons per acre in upland areas unless otherwise specified in permit conditions. Mulch rate may also be changed based on landowner discussion. Mulch will be uniformly distributed by mechanical blower or by hand in areas where vehicular access is limited. Mulch will be crimped to a depth of two to three inches using a mulch anchoring device where accessible. In areas where stumps and slash limit access by vehicles, mulch may be applied by hand at a reduced rate or at the specified rate needed to achieve 90 percent coverage of bare earth and anchored in place by a liquid tackifier. Should conditions prevent straw mulch to be anchored, it shall be applied at a rate to not cause the straw material to move in the wind.

Seeding periods for application of the native area vegetation seed mix and the wet meadow seed mix are recommended to April 1 to June 30, during spring, or when soil temperatures have fallen below 50 degrees Fahrenheit in the fall. Outside of these time windows, temporary seed mixes, applied according to temporary cover-crop seed mix specifications are to be used. The project is allowed to seed outside of recommended seeding periods but must meet MPCA construction stormwater general permit requirements for final vegetation establishment prior to closing out the construction stormwater general permit. Species used for cover crop will be dependent on landowner preferences and could include oats, rye, or winter wheat. Prior to installation of native seed mixes, the seedbed should be mowed and prepared for final seeding.

Seeding of the right-of-way is to occur as indicated in the project SWPPP and vegetation establishment plans. Where seeding is not possible, temporary stabilization using erosion control blanket or mulch (straw or slash) is required. Dormant seeding may be used after soil temperatures have fallen below 50 degrees Fahrenheit. Lower temperatures prevent seed from germinating. If dormant seeding is performed, temporary erosion control measures will be installed as indicated in the project SWPPP. Erosion control measures may consist of anchored straw mulch, hydromulch, slash mulch, or erosion control blankets.

6.2 Temporary Revegetation and Restoration

Temporary revegetation will be implemented to quickly establish vegetative cover with the primary purposes of minimizing soil erosion and reducing the potential for the establishment of noxious weeds. The temporary seed mix is considered a cover crop, has rapid germination, and provides a quick ground cover. This seed mix is not intended to provide multi-year cover.

Temporary seeding of cover crop will occur in locations where unfrozen, bare soil surface conditions and ruts will not be permanently restored within 30 days of completion of active work. Temporary restoration activities will include the repair of rutted surfaces and an even broadcast-seeding of the temporary cover-crop seed mix at a rate appropriate to the cover crop to provide erosion control of the soils. No mulch is to be applied in wetland areas.

Temporary vegetation will be placed in accordance to the SWPPP or as directed by the MN PUC Route Permit authorized independent third-party monitor. Temporary vegetation establishment may be expected to be successful between April 1 and September 30. Temporary

use of mulch to stabilize soils should be applied outside of the September 30 through April 1 window unless soil temperatures will support vegetation establishment.

Straw or slash mulch may be used to help stabilize areas or bare soils during the establishment of temporary vegetation or during the period between October 1 and April 1 (winter). The contractor will apply mulch during the establishment of temporary vegetation as requested by the landowner, specified in licenses or permits, or as requested by the Permittees.

Slash mulch may be used to protect areas where bare soils have been exposed due to tree clearing and construction activities. In winter situations, slash mulch or other appropriate BMPs such as erosion control blankets may be used as indicated in the project SWPPP to provide protection for bare soils exposed due to construction activities where out of season seeding is not applicable. Wetland areas will follow wetland permit requirements.

Woodchip mulch derived from onsite locations may be spread up to 6 inches deep in upland areas to provide ground protection along access paths. Upon abandonment of access routes, woodchip mulch is to be spread evenly to a depth no greater than 2 inches. Woodchip mulch will not be applied to sensitive ecological areas and slash mulch is not to be used within wetlands. Straw mulch may be used outside of the seeding window as a temporary erosion control measure, followed by temporary or permanent seeding after the April 1 seeding date. The contractor will be responsible for locating and documenting the source of certified weed-free mulch if used. Copies of the applicable documentation must be given to the MN PUC Route Permit authorized independent third-party monitor and made available upon request to the applicable agencies. Straw mulch will be applied as previously described.

6.3 Permanent Revegetation and Restoration

Appropriate vegetative cover of the right-of-way will be required along the entire length of the right-of-way. Because this project does not require major grading activities, in many cases natural revegetation by early successional native species following tree clearing is expected to occur. In areas where native species voluntarily revegetate the right-of-way, active restoration may not be required. Monthly monitoring during the first year, and adaptive management will be required to ensure that NWIS are controlled, that desirable native plant species become the dominant vegetation communities in natural areas, and that bare soils are quickly stabilized to reduce erosion. In areas of minimal disturbance (e.g. <10-foot-long vehicle tracks), vegetation will be allowed to regenerate naturally.

The MN PUC Route Permit authorized independent third-party monitor will consult with the appropriate agencies during the construction period to assess application of techniques in specific locations. Permanent seed mixes will include native seed varieties commonly found and/or available from local seed distributors. The third-party independent monitor will work the DNR to identify suitable seed mixes for sensitive ecological areas. The permanent seed mixes are designed to augment the natural colonization of the right-of-way by local, native seed sources.

On private agricultural lands, the Permittees' land agents will work with landowners to develop appropriate measures for protecting disturbed lands. Unless requested by the

landowner, a native area vegetation seed mix will be used in non-farmed land. Pastures will be seeded with landowner-specified seed mix. In accordance with the Route Permit, Permittees will advise the Commission, in writing, within 60 days after the completion of all restoration activities.

6.4 Wetland Areas

In wetland areas, clean-up and temporary or final restoration will occur immediately following construction activities, in accordance with the SWPPP. Wetland clean-up and site restoration activities include the following:

- Fertilizers, pesticides, or herbicides are not to be used in or near water bodies, including wetlands unless approved by the wetland permit(s).
- All waste, construction materials, and debris from construction activities will be collected and hauled from wetlands immediately upon work being completed in each wetland basin to the extent practical.
- Permanent restoration within wetland areas will include the removal of all construction mats and restoration of all ruts and depressions left by mats that are greater than six inches deep. No fill from outside of a wetland area is allowed to be used for repair of ruts.
- In areas of minimal disturbance, vegetation will be allowed to regenerate naturally.
- Where bare soils are created due to construction activities, but are limited to areas where natural revegetation from native seed bank and rhizomes is likely, a temporary cover- crop seed mix (e.g. winter wheat, oats, rye) will be broadcast-seeded for temporary cover to reduce opportunities for noxious weed invasion as allowed by the wetland permit(s).
- Where standing water is not present and surrounding vegetation is dominated by native species, the broadcast-seeding of bare soil using the temporary cover- crop seed mix may be sufficient as allowed by the wetland permit(s).

The MN PUC Route Permit authorized independent third-party monitor, in consultation with the appropriate agencies, will determine whether disturbed areas will require the use of the temporary cover crop only, seeding with a wetland-specific mix, or if no action is appropriate.

In areas where wetland plant species are dominated by native species with rhizomatous root systems that will likely recolonize areas of limited disturbance rapidly, bare soils are to be broadcast-seeded with the seasonally appropriate temporary cover-crop seed mix. In areas where disturbed and bare soils are sufficient to preclude revegetation from the local, native seed source, a native wetland seed mix will be applied as indicated in the wetland permit(s) or in consultation with wetland authority agencies.

7 MONITORING

The Permittees will be required to monitor and control NWIS within the right-of-way throughout the construction. The MN PUC Route Permit authorized independent third-party monitor will inspect and provide information regarding infestations of NWIS along the right-of-way to the appropriate agencies. The Permittees will be required to meet easement and lease conditions and obligations and will continue to work with landowners and the appropriate agencies to achieve standards set forth in easement or lease agreements.

The Permittees will monitor areas where seeding and erosion control measures have been implemented and will follow-up with reseeding measures where vegetative cover by the specified seed mix, or revegetation by the local, native seed source is inadequate to provide long term stability and sustainable native plant communities.

Appendix G

Commission Sample Route Permit

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

ROUTE PERMIT FOR
[PROJECT NAME]

A HIGH-VOLTAGE TRANSMISSION LINE AND ASSOCIATED FACILITIES

IN
[COUNTY]

ISSUED TO
[PERMITTEE]

PUC DOCKET NO. [Docket Number]

In accordance with the requirements of Minnesota Statutes Chapter 216I, this route permit is hereby issued to:

[Permittee]

[Permittee] is authorized by this route permit to construct and operate [Provide a description of the project authorized by the Minnesota Public Utilities Commission].

The high-voltage transmission line shall be constructed within the route identified in this route permit and in compliance with the conditions specified in this route permit.

Approved and adopted this ____ day of [Month, Year]

BY ORDER OF THE COMMISSION

_____
Sasha Bergman,
Executive Secretary

SAMPLE PERMIT

To request this document in another format such as large print or audio, call 651-296-0406 or 800-657-3782 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email consumer.puc@state.mn.us for assistance.

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SAMPLE PERMIT

1 ROUTE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to [Permittee Name] (Permittee) pursuant to Minnesota Statutes Chapter 216I. This route permit authorizes the Permittee to construct and operate a [Provide a description of the project as authorized by the Commission] ([Project Name, if applicable], henceforth known as Transmission Facility). The high-voltage transmission line shall be constructed within the route identified in this route permit and in compliance with the conditions specified in this route permit.

1.1 Pre-emption

Pursuant to Minn. Stat. § 216I.18, this route permit shall be the sole route approval required for construction of the Transmission Facility. This route permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose governments.

2 TRANSMISSION FACILITY DESCRIPTION

[Provide a description of the Transmission Facility as authorized by the Commission]

The Transmission Facility is located in the following:

County	Township Name	Township	Range	Section

2.1 Structures

The structure types as described in the Permittee's route permit application are detailed in the table below.

Line Type	Structure		Foundation	Height	Span
	Type	Material			

2.2 Conductors

Conductor types may include: [Provide a detailed description of the conductors authorized by the Commission]

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2.3 Substations and Associated Facilities

The substations and associated facilities authorized by this Route Permit include: [Provide a detailed description of the substations and associated facilities authorized by the Commission]

3 DESIGNATED ROUTE

The route designated by the Commission is depicted on the route maps attached to this route permit (Designated Route). The Designated Route is generally described as follows:

[Provide detailed description of the authorized route including the route widths and any other specifics relevant to each segment.]

The Designed Route includes an anticipated alignment and a right-of-way. The right-of-way is the physical land needed for the safe operation of the transmission line. The Permittee shall locate the alignment and associated right-of-way within the Designated Route unless otherwise authorized by this route permit or the Commission. The Designated Route provides the Permittee with flexibility for minor adjustments of the alignment and right-of-way to accommodate landowner requests and unforeseen conditions.

Any modifications to the Designated Route or modifications that would result in right-of-way placement outside the Designated Route shall be specifically reviewed by the Commission in accordance with Minn. Stat. § 216I.09 and Section 10 of this route permit.

4 RIGHT-OF-WAY

This route permit authorizes the Permittee to obtain a new permanent right-of-way for the transmission line up to [number] feet in width. The permanent right-of-way is typically [number] feet on both sides of the transmission line measured from its centerline or alignment.

The anticipated alignment is intended to minimize potential impacts relative to the criteria identified in Minn. Stat. § 216I.05, subd. 11. The final alignment must generally conform to the anticipated alignment identified on the route maps unless changes are requested by individual landowners and agreed to by the Permittee or for unforeseen conditions that are encountered or as otherwise provided for by this route permit.

Any right-of-way or alignment modifications within the Designated Route shall be located so as to have comparable overall impacts relative to the factors in Minn. Stat. § 216I.05, subd. 11, as does the right-of-way and alignment identified in this route permit and shall be specifically identified and documented in and approved as part of the plan and profile submitted pursuant to Section 9.2 of this route permit.

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Where the transmission line parallels existing highway and other road rights-of-way, the transmission line right-of-way shall occupy and utilize the existing right-of-way to the maximum extent possible; consistent with the criteria in Minn. Stat. § 216I.05, subd. 11, and the other requirements of this route permit; and for highways under the jurisdiction of the Minnesota Department of Transportation (MnDOT), the procedures for accommodating utilities in trunk highway rights-of-way.

5 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the Transmission Facility over the life of this route permit.

5.1 Route Permit Distribution

Within 30 days of issuance of this route permit, the Permittee shall provide all affected landowners with a copy of this route permit and the complaint procedures. An affected landowner is any landowner or designee that is within or adjacent to the Designated Route. In no case shall a landowner receive this route permit and complaint procedures less than five days prior to the start of construction on their property. The Permittee shall also provide a copy of this route permit and the complaint procedures to the applicable regional development commissions, county environmental offices, and city and township clerks. The Permittee shall file with the Commission an affidavit of its route permit and complaint procedures distribution within 30 days of issuance of this route permit.

5.2 Access to Property

The Permittee shall notify landowners prior to entering or conducting maintenance within their property, unless otherwise negotiated with the landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

5.3 Construction and Operation Practices

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the permitting record for this Transmission Facility unless this route permit establishes a different requirement in which case this route permit shall prevail.

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5.3.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this route permit during construction of the Transmission Facility. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative at least 14 days prior to the pre-construction meeting. The Permittee shall provide the field representative's contact information to affected landowners, local government units and other interested persons at least 14 days prior to the pre-construction meeting. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, local government units and other interested persons. The Permittee shall file with the Commission an affidavit of distribution of its field representative's contact information at least 14 days prior to the pre-construction meeting and upon changes to the field representative.

5.3.2 Employee Training

The Permittee shall train all employees, contractors, and other persons involved in the Transmission Facility construction regarding the terms and conditions of this route permit. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

5.3.3 Independent Third-Party Monitoring

Prior to any construction, the Permittee shall propose a scope of work and identify an independent third-party monitor to conduct Project construction monitoring on behalf of the Commission. The scope of work shall be developed in consultation with and approved by Commission staff. This third-party monitor will report directly to and will be under the control of the Commission with costs borne by the Permittee.

The Permittee shall file with the Commission the approved scope of work and the name, address, email, and telephone number of the third party-monitor at least 14 days prior to commencing any construction or right-of-way preparation and upon any change in contact information that may occur during Project construction and restoration of the right-of-way.

The Permittee shall keep records of compliance with this section and ensure that status reports detailing the construction monitoring are filed with the Commission in accordance with the approved scope of work.

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5.3.4 Public Services, Public Utilities, and Existing Easements

During Transmission Facility construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local entities to determine the most appropriate mitigation measures if not already considered as part of this route permit.

The Permittee shall coordinate with county and city road authorities to develop appropriate signage and traffic management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

5.3.5 Temporary Workspace

The Permittee shall limit temporary easements to special construction access needs and additional staging or lay-down areas required outside of the authorized right-of-way. Temporary space shall be selected to limit the removal and impacts to vegetation. The Permittee shall obtain temporary easements outside of the authorized transmission line right-of-way from affected landowners through rental or lease agreements. Temporary easements are not provided for in this route permit.

The Permittee may construct temporary driveways between roadways and transmission structures to minimize impacts by using the shortest route feasible. The Permittee shall use construction mats to minimize impacts on access paths and construction areas. The Permittee shall submit the location of temporary workspaces and driveways with the plan and profile pursuant to Section 9.2.

5.3.6 Noise

The Permittee shall comply with noise standards established under Minn. R. 7030.0010 to 7030.0080. The Permittee shall limit construction and maintenance activities to daytime working hours to the extent practicable.

5.3.7 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. The Permittee shall use care to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural

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surroundings in the vicinity of the Transmission Facility during construction and maintenance. The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads. The Permittee shall place structures at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings.

5.3.8 Soil Erosion and Sediment Control

The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Program. If construction of the Transmission Facility disturbs more than one acre of land or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit from the MPCA that provides for development of a Stormwater Pollution Prevention Plan that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the Transmission Facility shall be returned to pre-construction conditions.

5.3.9 Wetlands and Water Resources

The Permittee shall develop wetland impact avoidance measures and implement them during construction of the Transmission Facility. Measures shall include spacing and placing transmission structures at variable distances to span and avoid wetlands, watercourses, and floodplains. Unavoidable wetland impacts as a result of the placement of structures shall be limited to the immediate area around the structures. To minimize impacts, the Permittee shall construct in wetland areas during frozen ground conditions where practicable and according to permit requirements by the applicable permitting authority. When construction during winter is not possible, the Permittee shall use wooden or composite mats to protect wetland vegetation.

The Permittee shall contain soil excavated from the wetlands and riparian areas and not place it back into the wetland or riparian area. The Permittee shall access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent

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unnecessary impacts. The Permittee shall not place staging or stringing set up areas within or adjacent to wetlands or water resources, as practicable. The Permittee shall assemble structures on upland areas before they are brought to the site for installation.

The Permittee shall restore wetland and water resource areas disturbed by construction activities to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. The Permittee shall meet the U.S. Army Corps of Engineers (USACE), Minnesota Department of Natural Resources (DNR), Minnesota Board of Water and Soil Resources, and local units of government wetland and water resource requirements.

5.3.10 Vegetation Management

The Permittee shall minimize the number of trees to be removed in selecting the right-of-way specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences, and vegetation in areas such as trail and stream crossings where vegetative screening may minimize aesthetic impacts, to the extent that such actions do not violate sound engineering principles or system reliability criteria.

The Permittee shall remove tall growing species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission line. The Permittee shall leave undisturbed, to the extent possible, existing low growing species in the right-of-way or replant such species in the right-of-way to blend the difference between the right-of-way and adjacent areas, to the extent that the low growing vegetation will not pose a threat to the transmission line or impede construction.

The Permittees shall develop a vegetation management plan (VMP), in coordination with the Vegetation Management Plan Working Group (VMPWG), using best management practices established by the DNR and BWSR. The Permittee shall file the VMP and documentation of the coordination efforts between the Permittee and the DNR with the Commission as part of the plan and profile required in Section 9.2 of the Permit.

5.3.11 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture (MDA), DNR, and the U.S. Environmental Protection Agency (EPA). Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner at least 14 days prior to pesticide application on their

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property. The Permittee may not apply any pesticide if the landowner requests that there be no application of pesticides within the landowner's property. The Permittee shall provide notice of pesticide application to landowners and beekeepers operating known apiaries within three miles of the pesticide application area at least 14 days prior to such application. The Permittee shall use the MDA's Apiary Registry (https://mn.beecheck.org/map) to identify known apiaries for purposes of compliance with this condition. The Permittee shall keep pesticide communication and application records and provide them upon the request of Commission staff.

5.3.12 Invasive Species

The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by Transmission Facility construction activities. The Permittee shall develop an Invasive Species Prevention Plan and file it with the Commission at least 14 days prior to the pre-construction meeting. The Permittee shall comply with the most recently filed Invasive Species Prevention Plan.

5.3.13 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil the Permittee shall select site appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

5.3.14 Roads

The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city, or township roads that will be used during the construction phase of the Transmission Facility. Where practical, existing roadways shall be used for all activities associated with construction of the Transmission Facility. Oversize or overweight loads associated with the Transmission Facility shall not be hauled across public roads without required permits and approvals.

The Permittee shall construct the fewest number of site access roads required. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

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The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner.

5.3.15 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to archaeological and historic resources when constructing the Transmission Facility. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize Transmission Facility impacts on the resource consistent with State Historic Preservation Office and State Archaeologist requirements.

The Permittee shall develop an Unanticipated Discoveries Plan (UDP) to identify guidelines to be used in the event previously unrecorded archeological or historic properties, or human remains, are encountered during construction, or if unanticipated effects to previously identified archaeological or historic properties occur during construction. The UDP is in addition to and not in lieu of any other obligations that may exist under law or regulation relating to these matters. The Permittee shall file the UDP with the Commission at least 14 days prior to the preconstruction meeting.

The Permittee shall train workers about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall, in accordance with Minn. Stat. Ch. 307 (Private Cemeteries Act), immediately halt construction and promptly notify local law enforcement and the State Archaeologist. The Permittee shall not resume construction at such location until authorized by local law enforcement or the State Archaeologist. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

5.3.16 Avian Protection

The Permittee in cooperation with the DNR shall identify areas of the transmission line where bird flight diverters will be incorporated into the transmission line design to prevent large avian collisions attributed to visibility issues. Standard transmission design shall incorporate adequate spacing of conductors and grounding devices in accordance with Avian Power Line Interaction Committee standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices. The Permittee shall submit documentation of its avian protection coordination with the plan and profile pursuant to Section 9.2.

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5.3.17 Drainage Tiles

The Permittee shall avoid, promptly repair, or replace all drainage tiles broken or damaged during all phases of the Transmission Facility's life. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

5.3.18 Restoration

The Permittee shall restore the right-of-way, temporary workspaces, access roads, abandoned right-of-way, and other public or private lands affected by construction of the Transmission Facility. Restoration within the right-of-way must be compatible with the safe operation, maintenance, and inspection of the transmission line. Within 60 days after completion of all restoration activities, the Permittee shall file with the Commission a Notice of Restoration Completion.

5.3.19 Cleanup

The Permittee shall remove and properly dispose of all construction waste and scrap from the right-of-way and all premises on which construction activities were conducted upon completion of each task. The Permittee shall remove and properly dispose of all personal litter, including bottles, cans, and paper from construction activities daily.

5.3.20 Pollution and Hazardous Wastes

The Permittee shall take all appropriate precautions to protect against pollution of the environment. The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of all waste generated during construction and restoration of the Transmission Facility.

5.3.21 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

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5.3.22 Facility Lighting

The Permittee shall use shielded and downward facing lighting and LED lighting that minimizes blue hue.

5.3.23 Dust Control

The Permittee shall utilize non-chloride products for onsite dust control during construction.

5.3.24 Wildlife Friendly Erosion Control

The Permittee shall use only "bio-netting" or "natural netting" types of erosion control materials and mulch products without synthetic (plastic) fiber additives or malachite green dye.

5.4 Electrical Performance Standards

5.4.1 Grounding

The Permittee shall design, construct, and operate the transmission line in a manner so that the maximum induced steady-state short-circuit current shall be limited to five milliamperes root mean square (rms) alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one milliampere rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the National Electric Safety Code. The Permittee shall address and rectify any induced current problems that arise during transmission line operation.

5.4.2 Electric Field

The Permittee shall design, construct, and operate the transmission line in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms.

5.4.3 Interference with Communication Devices

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Transmission Facility, the Permittee shall take whatever action is necessary to restore or

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provide reception equivalent to reception levels in the immediate area just prior to the construction of the Transmission Facility. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

5.5 Other Requirements

5.5.1 Safety Codes and Design Requirements

The Permittee shall design the transmission line and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

5.5.2 Other Permits and Regulations

The Permittee shall comply with all applicable state statutes and rules. The Permittee shall obtain all required permits for the Transmission Facility and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations.

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission an Other Permits and Regulations Submittal that contains a detailed status of all permits, authorizations, and approvals that have been applied for specific to the Transmission Facility. The Other Permits and Regulations Submittal shall also include the permitting agency name; the name of the permit, authorization, or approval being sought; contact person and contact information for the permitting agency or authority; brief description of why the permit, authorization, or approval is needed; application submittal date; and the date the permit, authorization, or approval was issued or is anticipated to be issued.

The Permittee shall demonstrate that it has obtained all necessary permits, authorizations, and approvals by filing an affidavit stating as such and an updated Other Permits and Regulations Submittal prior to commencing construction. The Permittee shall provide a copy of any such permits, authorizations, and approvals at the request of Commission staff.

6 SPECIAL CONDITIONS

The special conditions shall take precedence over other conditions of this permit should there be a conflict.

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[Add Special Conditions in accordance with the record of the docket]

7 DELAY IN CONSTRUCTION

If the Permittee has not commenced construction or improvement of the route within four years after the date of issuance of this route permit the Permittee shall file a Failure to Construct Report and the Commission shall consider suspension of this route permit in accordance with Minn. Stat. § 216I.24.

8 COMPLAINT PROCEDURES

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission the complaint procedures that will be used to receive and respond to complaints. The complaint procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this route permit.

Upon request, the Permittee shall assist Commission staff with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

9 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this route permit is a failure to comply with the conditions of this route permit. Compliance filings must be electronically filed with the Commission.

9.1 Pre-Construction Meeting

Prior to the start of construction, the Permittee shall participate in a pre-construction meeting with Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the anticipated construction start date.

9.2 Plan and Profile

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission, and provide the counties where the Transmission Facility, or portion of the Transmission Facility, will be constructed with a plan and profile of the right-of-way and the

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specifications and drawings for right-of-way preparation, construction, structure specifications and locations, cleanup, and restoration for the Transmission Facility. The documentation shall include maps depicting the plan and profile including the right-of-way, alignment, and structures in relation to the route and alignment approved by this route permit.

The Permittee may not commence construction until the earlier of (i) 30 days after the pre-construction meeting or (ii) until the Commission staff has notified the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this route permit.

If the Commission notifies the Permittee in writing within 30 days after the pre-construction meeting that it has completed its review of the documents and planned construction, and finds that the planned construction is not consistent with this route permit, the Permittee may submit additional and/or revised documentation and may not commence construction until the Commission has notified the Permittee in writing that it has determined that the planned construction is consistent with this route permit.

If the Permittee intends to make any significant changes in its plan and profile or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission and county staff at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this route permit.

9.3 Status Reports

The Permittee shall file with the Commission monthly Construction Status Reports beginning with the pre-construction meeting and until completion of restoration. Construction Status Reports shall describe construction activities and progress, activities undertaken in compliance with this route permit, and shall include text and photographs.

If the Permittee does not commence construction of the Transmission Facility within six months of this route permit issuance, the Permittee shall file with the Commission Pre-Construction Status Reports on the anticipated timing of construction every six months beginning with the issuance of this route permit until the pre-construction meeting. The Status Reports shall include information on the Project's Midcontinent Independent System Operator (MISO) interconnection process, if applicable.

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9.4 Labor Statistic Reporting

The Permittee shall file quarterly Labor Statistic Reports with the Commission within 45 days of the end of the quarter regarding construction workers that participated in the construction of the Project. The Labor Statistic Reports shall:

A. detail the Permittee's efforts and the site contractor's efforts to hire Minnesota workers; and

B. provide an account of:

1) the gross number of hours worked by or full-time equivalent workers who are Minnesota residents, as defined in Minn. Stat. § 290.01, subd. 7;
2) the gross number of hours worked by or full-time equivalent workers who are residents of other states, but maintain a permanent residence within 150 miles of the Project; and
3) the total gross hours worked or total full-time equivalent workers.

The Permittee shall work with its contractor to determine the suitable reporting metric. The report may not include personally identifiable data.

9.5 Prevailing Wage

The Permittee, its contractors, and subcontractors shall (1) pay no less than the prevailing wage rate as defined in Minn. Stat. § 177.42; and (2) shall be subject to the requirements and enforcement provisions under Minn. Stat. §§ 177.27, 177.30, 177.32, 177.41 to 177.435, and 177.45. The Permittee shall keep records of contractor and subcontractor pay and provide them at the request of Commission staff.

9.6 In-Service Date

At least three days before the Transmission Facility is to be placed into service, the Permittee shall notify the Commission of the date on which the Transmission Facility will be placed into service and the date on which construction was completed.

9.7 As-Builts

Within 90 days after completion of construction, the Permittee shall submit to the Commission copies of all final as-built plans and specifications developed during the Transmission Facility construction.

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9.8 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (*e.g.*, ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the Transmission Facility and each substation connected.

9.9 Right of Entry

The Permittee shall allow Commission designated representatives to perform the following, upon reasonable notice, upon presentation of credentials and at all times in compliance with the Permittee's site safety standards:

A. To enter upon the facilities easement of the property for the purpose of obtaining information, examining records, and conducting surveys or investigations.

B. To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations.

C. To sample and monitor upon the facilities easement of the property.

D. To examine and copy any documents pertaining to compliance with the conditions of this route permit.

10 ROUTE PERMIT AMENDMENT

The Commission has the authority to modify this route permit at any time. The Permittee may request an amendment of the conditions of this route permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required under Minn. Stat. § 216I.09.

11 TRANSFER OF ROUTE PERMIT

The Permittee may request at any time that the Commission transfer this route permit to another person or entity (transferee). In its request, the Permittee must provide the Commission with:

A. the name and description of the transferee;
B. the reasons for the transfer;

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C. a description of the facilities affected; and
D. the proposed effective date of the transfer.

The transferee must provide the Commission with a certification that it has read, understands and is able to comply with the plans and procedures filed for the Transmission Facility and all conditions of this route permit. The Commission may authorize transfer of the route permit after affording the Permittee, the transferee, and interested persons such process as is required under Minn. Stat. § 216I.13.

12 REVOCATION OR SUSPENSION OF ROUTE PERMIT

The Commission may initiate action to revoke or suspend this route permit at any time. The Commission shall act in accordance with the requirements of Minn. Stat. § 216I.24, to revoke or suspend this route permit.

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Appendix H

Property Value Supplement

Property Value Supplement

Attempts to correlate proximity to transmission lines with impacts to property values are complicated by the interaction of several relevant factors, including geographic region, land use, variability in perceptions over time, and limited sales data for similar properties before and after the construction of transmission lines. Researchers have generally used survey-based techniques and statistical analyses to make inferences and draw conclusions about the relationship between transmission lines and property values. In general, surveys provide useful insights for estimating price effects based on public opinion, yielding what researchers refer to as "stated preferences." Statistical analyses, on the other hand, reflect the actual behavior of property buyers and sellers in terms of recorded sales prices, providing what researchers refer to as the "revealed preferences." In other words, there is often incongruity between what people think and how they actually behave. Measuring both perceptions and actual behaviors helps researchers understand the relationship between transmission lines and property values.

A recent literature review (Jackson and Pitts 2010, reference 1) examined 17 studies on the relationship between transmission lines and property values to compare their results and to develop some general conclusions. The 17 studies, spanning the time period between 1956 and 2009, were compiled and reviewed by Real Property Analytics, Inc., a private firm specializing in the valuation of property potentially affected by external environmental factors. The Real Property Analytics review was published in the Journal of Real Estate Literature, which is a publication of the American Real Estate Society. The studies evaluated impacts from transmission lines ranging from 69 kilovolts (kV) to 345 kV. They were placed into one of three categories designated by the authors:

- Survey-based studies;
- Statistical sales-based analyses using multivariate analysis to isolate the impact of transmission lines by holding other variables statistically constant; and
- Sales-based analyses not using multivariate analysis but utilizing factors such as sale/resale analysis, price per square foot comparisons, case studies, and "paired sales" analysis, where the values of two homes that are similar in all respects except for proximity to transmission lines are compared.

Upon completion of their review of the studies, Jackson and Pitts (2010, reference 1) concluded the following:

> *"The studies reviewed…generally pointed to small or no effects on sales prices due to the presence of electric transmission lines. Some studies found an effect but this effect generally dissipated with time and distance. The effects that were found ranged from approximately 2% to 9%. Most studies found no effect and in some cases a premium was observed."*

Jackson and Pitts discussed the utility of both survey-based and statistically-based methods, quoting one of the research papers to note that statistical analyses "reflect what buyers and sellers actually do, opposed to what potential buyers say they might do, under specified hypothetical circumstances" Selected findings from Jackson and Pitts's literature review are provided below, along with the year and type of study:

Survey-based studies

- Kinnard, 1967 – Questionnaires were sent to property owners intersected by or abutting transmission line right-of-way (ROW) in 17 Connecticut subdivisions. Over 85 percent indicated

they would purchase again in the same location. Kinnard concluded that property value is not significantly affected by proximity to transmission lines.

- Morgan et al., 1985 – A questionnaire asked participants to rank the risk from transmission lines, electric blankets, and 14 other common hazards. Electric blankets and transmission lines were ranked as presenting the least risk. Participants were then provided with information on electric and magnetic fields (EMF) and associated potential health effects. Subsequent questionnaire responses indicated a change in perception and an increased concern about the risk of EMF.
- Solum, 1985 – Presented a questionnaire to 180 agricultural, recreational, or residential property owners in northwest Wisconsin whose land was encumbered by transmission lines. All three types had some level of concern over the proximity of the lines but for varying reasons. Further interviews indicated that all but one of the properties sold at a market price comparable to non-encumbered properties and that none of the buyers had reduced their purchase offers due to the presence of the transmission line.
- Delaney and Timmons, 1992 – Survey results from 219 real estate appraisers found that 84 percent believed that transmission line proximity results in an average ten percent lower market value. Ten percent of respondents found no effect and six percent thought transmission lines increased property value due to larger lots for similar price.
- Kung and Seagle, 1992 – Sent a questionnaire to homeowners in Memphis and Shelby Counties, Tennessee. Half of the respondents considered the transmission line an eyesore; however, 72 percent of those who thought the lines were an eyesore also said the lines had no effect on the purchase price. Prices of homes adjacent to the transmission line are similar to prices of other homes in the same neighborhood.
- Priestly and Evans, 1996 – Conducted a survey of 445 homeowners living near transmission lines in the San Francisco area. Eighty-seven percent of the 267 respondents felt the transmission line was a negative element in their neighborhood.

Statistical Sales Price Analyses

- Brown, 1976 – Conducted regression analysis on sales of farmland in Saskatchewan, Canada, between 1965 and 1970 and found that the relationship of land value to the number of power line structures was not statistically significant and that the lines did not negatively affect property value. Brown also found that the structures can be an impediment to farming operations.
- Colwell and Foley, 1979 – Examined 200 property sales over a ten-year period in Decatur, Illinois, and found that sales prices increase as distance from a transmission line increases. Property values were approximately six percent lower within 50 to 200 feet of the transmission line, but there was no difference in property value beyond 200 feet.
- Colwell, 1990 – Followed up the study above and confirmed that the selling price of residential property increases as distance from the transmission line increases. The rate of increase slows with distance and eventually disappears.
- Rigdon, 1991 – Evaluated 46 properties sold in Marquette County, Michigan over a five-year period and found no statistically significant relationship between sales price and proximity to a transmission line easement.
- Hamilton and Schwann, 1995 – Reviewed previous literature and found that transmission lines can reduce adjacent property values, but that the reduction is generally less than five percent of property value and that the reduction diminishes at 600 feet.
- Des Rosiers, 1998 – Reviewed property values of 507 homes in the Montreal area and found an average drop in property value of 9.6 percent for homes immediately adjacent to the line. He also

found an average increase of up to 9.2 percent in value for homes one to two lots away from the transmission line and no effect beyond 500 feet.

- Wolverton and Bottemiller, 2003 and Cowger, Bottemiller, and Cahill, 1996 – Two studies, both conducted in Portland, Vancouver, and Seattle, the 2003 work repeating the 1996 study with more rigorous analytical methods. Both applied statistical methods to paired-sales analysis and found no price effect on residential property from proximity to transmission lines. The data also show no difference in appreciation rates between homes near a transmission line and homes further away.
- Chalmers and Voorvaart, 2009 – Studied residential properties sold in Connecticut and Massachusetts between 1999 and 2007 and found proximity to transmission lines to have an insignificant effect on sales prices.

Sales-based analyses

- Carll, 1956 – Compared property values and interviewed owners, buyers, and brokers along a transmission line in Los Angeles and found that residences adjoining the ROW had not sold at a discount and that lenders did not adjust loan amounts for lots adjacent to the ROW.
- Bigras, 1964 – Reviewed over 1,900 deeds of sale and mortgages in Quebec and found that prices for vacant land adjacent to transmission lines were generally higher than the average price of all transactions. Land adjacent to transmission lines was sold faster and was developed to a higher degree than land away from the lines.

Jackson and Pitts (2010) concluded from these studies that proximity to transmission lines results in little or no effect on property value. In studies where transmission lines were found to have impacts to property values, the decrease in values typically ranged from approximately two percent to ten percent. In some instances, increases in property value were found. The following additional studies and reviews generally reach a similar conclusion.

Another recent meta-analysis, Brinkley and Leach (2019) evaluated 54 studies spanning 40 years. Their research found that half of the literature and studies on the impact of power lines concluded no effect on property values, and the other half showed a loss in property values of 2 to 10%. While home value studies showed mostly no price impacts, with effects ranging from a 2 to 9% decrease in price, some homes experienced a price premium. Half of the studies showed negative impacts with the range of 3-6%. Significant effects are noticeable to properties closer than 60 meters with an average decrease in value from 0.2 to 27.3%. Ranges of value impact within energy types show a great deal of uncertainty and many under-researched caveats in planning for energy infrastructure. For example, the impact of overhead powerlines is mixed, with results prefaced by access to viewsheds. The distance of maximal impact for powerlines was 200 meters, with a range of average value change of a 10% increase (if including improved access to greenspace) to a 30% decrease.

Brinkley and Leach (2019 found that studies after 1979 showed a more consistent reduction between 5-10%. Though many studies assert that visual impacts are the greatest predictor of property prices, the influence of buried power lines has yet to be assessed and so is not included in this meta-analysis. Research suggests that diminution in price for properties near the power lines tends to disappear anywhere from five to fourteen years after construction. This could be because of vegetation growth that acts as a cover. No studies conducted property value assessments in relation to community perception or knowledge about the development or involvement in job creation.

Thomas and Welke (2017) performed an event study to examine the revealed price effect on residential properties from an upgrade to high-voltage transmission towers that were constructed on an existing ROW. The study looked at a period of two years where existing 220 kV towers that were not in use were upgraded to 500 kV towers, then three years later, they were removed, and the lines were buried. They found a significant loss in value from the upgrade for encumbered (8.3%) and abutting (4.9%) properties, and insignificant losses when the older towers were present, even for lots with an easement. Their conclusions are consistent with previous studies that found the price impact is initially large but diminishes over time. Thomas and Welke (2017) concluded that their results were consistent with other research findings:

- Over time, price impact is diminished.
- Price impact effects vanish beyond about 100 meters.
- The proximate sales results are largely driven by abutting lots.
- Encumbered sales are significantly negatively affected and abutting properties somewhat less so.

They further found no evidence that public information prior to the construction of the towers affected sales prices, even if the property abutted or was encumbered by the ROW. They did find that the burying of the 500 kV cables required disruption to immediately proximate homeowners, but presumably at a much lower level than towers. More research would need to be done on effects post burying of the lines.

Between 1978 and 1982, Jensen and Weber and the Jensen Management Company conducted three studies in west-central Minnesota. The studies in 1978 and 1982 are of particular interest since they consider effects to agricultural land. The 1978 study found that the landowners cited an inconvenience to the presence of the line but had not paid less for their land (Weber and Jensen 1978, reference 2). The 1982 study, however, found there was a broad range of effects from no effect to a 20 percent reduction, which depended on the amount of disruption to farm operations (Jensen and Weber 1982, reference 3).

The David Wyman and Chris Mothorpe's study, "The Pricing of Power Lines: A Geospatial Approach to Measuring Residential Property Values" (Reference 8), examines the relationship between high-voltage transmission lines and vacant property prices in Pickens County, South Carolina, using geospatial techniques. Analyzing 5,455 vacant lot sales in Pickens County, South Carolina, the study concluded that the proximity and visibility of these lines (based on geospatial analysis techniques) influence property values. Vacant lots adjacent to power lines experienced an average price discount of 44.9 percent, while those non-adjacent vacant properties up to 1,000 feet away saw a price discount of 17.9 percent. Visibility, particularly of transmission towers, amplifies this effect, with properties that had an unobstructed view resulting in greater devaluation. They state that their findings are site-specific to this study, and caution that pricing discounts for vacant properties in rural settings may not be generalizable to complex suburban settings or properties with residential housing structures. This study was also limited to a sample that excluded parcels larger than 20 acres in size.

James A. Chalmers' study, "High-Voltage Transmission Lines and Rural, Western Real Estate Values," (Reference 7) investigates the impact of 500 kV transmission lines on property values of agricultural, residential, and recreational uses throughout 640 miles of Montana between 2000 and 2010. The study was done using a combination of 49 transactions and an even larger number of lot sales in 7 subdivisions. The study utilized personal interviews, sales comparisons, and paired sales techniques. The research found that three issues were dominant: Use, size, and substitutes. If the property was more heavily oriented to residential use - it was more vulnerable to transmission line impacts, whereas property-oriented more toward purely recreational use were much less vulnerable to impacts. Properties that were oriented to agricultural use showed no price effects of transmission lines. The larger the

property, the less vulnerable it was to impacts. There can be price and absorption (that is – the time it takes a property to sell) effects if there are alternative properties similar to the subjected property. If the property affected is relatively unique and the transmission line is one of several differentiating factors, the property is less vulnerable to price and absorption effects. The study emphasized that the market response to high-voltage lines varies greatly depending on location, property-specific factors, and the visibility of the lines.

In the final EIS on the Arrowhead-Weston Electric Transmission Line Project, the Wisconsin Public Service Commission (PSC) addressed the issue of property value changes associated with high-voltage transmission lines. This document summarized the findings of approximately 30 papers, articles, and court cases covering the period from 1987 through 1999. The Arrowhead-Weston EIS provides six general observations (reference 4):

- The potential reduction in sale price for single-family homes may range from zero to 14 percent.
- Adverse effects on the sale price of smaller properties could be greater than effects on the sale price of larger properties.
- Other amenities, such as proximity to school or jobs, lot size, square footage of a house, and neighborhood characteristics, tend to have a much greater effect on sale price than the presence of a power line.
- The adverse effects appear to diminish over time.
- Effects on sale price are most often observed for properties crossed by or immediately adjacent to a power line, but effects have also been observed for properties farther away from the line.
- The value of agricultural property is likely to decrease if the power line poles are placed in an area that inhibits farm operations.

The Arrowhead-Weston Electric Transmission Line Project environmental impact statement (EIS) reported that in Midwest states such as Minnesota, Wisconsin, and the Upper Peninsula of Michigan, the average decrease appears to be between four and seven percent. The EIS noted that it is very difficult to make predictions about how a specific transmission line would affect the value of specific properties.

An additional potential adverse effect of transmission lines on adjacent properties is on the ability of homeowners and developers to obtain Federal Housing Administration (FHA) and/or Housing and Urban Development (HUD) loans. Section 2.2(J) of the current HUD guidebook 4150.2 addresses this issue in the following FAQ:

> *FAQ: Is a property eligible for FHA if there are overhead or high-voltage power lines nearby?*
>
> *The appraiser must indicate whether the dwelling or related property improvements are located within the easement serving a high-voltage transmission line, radio/TV transmission tower, cell phone tower, microwave relay dish or tower, or satellite dish (radio, TV cable, etc.).*
>
> *1) If the dwelling or related property improvement is located within such an easement, the lender must obtain a letter from the owner or operator of the tower indicating that the dwelling and its related property improvements are not located within the tower's (engineered) fall distance in order to waive this requirement.*
>
> *2) If the dwelling and related property improvements are located outside the easement, the property is considered eligible and no further action is necessary. The appraiser, however, is*

instructed to note and comment on the effect on marketability resulting from the proximity to such site hazards and nuisances.

In general, and for the safe operation of the line, a residence cannot be located within a transmission line ROW; thus, all residences near the project would fall into category 2 (a dwelling located "outside the easement"). For this category, the HUD appraiser is directed to comment on any effects on marketability resulting from the transmission line. These comments could affect loan values if an appraiser believes the residence is nevertheless located so near the transmission line that the line could be a hazard or nuisance.

The 2023 study from Qinan Lu, et al. "Disamenity or premium: Do electricity transmission lines affect farmland values and housing prices differently?" looks into the effects of transmission lines on nearby farmland and housing property values in 12 Midwest states from 2015 to 2019 (Reference 9). The study combines multiple datasets, including Zillow housing sales data, farmland sales data, satellite data on wind resources, land characteristics data, and other supplementary datasets. Their conclusion is that the results of their analysis reaffirm negative effects of transmission lines on residential property values, with a larger effect on urban houses than houses outside urban areas. General consensus in recent literature has shown largely null effects of transmission lines on farmland property value, potentially due to the adaptation to transmission lines in terms of agricultural production, aesthetic adjustment, and scientific awareness. The study also found contrarian evidence to the recent consensus in literature, that proximity to transmission lines creates higher land prices for farmland owners, especially for those owning parcels with abundant wind resources.

Max Harleman's 2024 study "Who Bears the Cost of Renewable Power Transmission Lines? Evidence from Housing Values" examines the Competitive Renewable Energy Zones (CREZ) in Texas, one of the largest transmission investment projects in U.S. history. The estimated impact of CREZ on the typical property accounts for a variety of local conditions such as terrain, income, and ruralness, making it more generalizable to other transmission projects. Limitations from the study include that over 90 percent of the evaluated lines are 345 kV, which typically have 150 foot ROWs and have towers that around 130 feet tall. Other limitations include that CREZ runs through areas with sparse vegetation, sampling bias in that Texas is a "non-disclosure state" where buyers and sellers of homes are not legally required to report transaction prices, and the analysis was not able to credibly quantify the effect of the lines on agricultural and vacant properties. Data for this study was used on real estate transactions. The residential properties within 0.5 km, but not crossed by the transmission lines, decreased in value by up to 10 percent on average within three years of construction. Beyond 0.5 km, the lines appear to have no detrimental effect on property values. The author makes an argument for compensating all affected residents, not just where the project infrastructure is sited.

James Chalmers 2019 study "High-Voltage Transmission Lines and Residential Property Values in New England: What Has Been Learned" summarizes work over ten years on the effects of high voltage transmission lines on residential property values in New England. The research reviewed in this article provides guidance to answering two questions:

1. Does the absence of consistent, measurable effects ensure that no properties are adversely affected?
2. Can the Incremental value effects of system upgrades in existing high-voltage transmission line corridors be anticipated for nearby residential properties?

To answer question one, they found that there is a small set of properties (within 100 feet of home to ROW boundary, visibility of structures, and encumbrance) for which there is a significant probability of an adverse sale price effect should all three attributes be present. The article provides guidelines from previous research in identifying the properties that fall into this set. To answer question two depends on whether the system upgrade changes the number of properties that fall into the set of vulnerable properties and on the extent to which the effects of the project can be mitigated. Because of the difficulty for appraisers to develop market evidence to adjust for loss in property value due to factors outside of the property itself, extracting appropriate adjustments from something like a case study approach would be appropriate. Overall, the research summarized that the critical variables to control for are encumbrance, distance of the home from the ROW boundary, and the visibility of structures.

A 2024 study from Cheng Tang and Stephen Gibbons “Are Friends Electric? Valuing the Social Costs of Power Lines Using House Prices” provides evidence on the costs from the impact of new transmission structures on local housing prices in England and Wales. The study compares price changes in neighborhoods that are close to overhead power lines, before and after they are constructed, with price changes in comparable neighborhoods farther away. The study findings suggest that new overhead structure construction reduces prices by 3.9 percent for properties within 1500 meters, suggesting that impacts extend further than previously estimated.

References

1. Jackson and Pitts, 2010. The Effects of Transmission Lines on Property Values: A Literature Review. Journal of Real Estate Literature. Volume 18, No 2.
2. Weber, William V. and Glenn A. Jensen. 1978. A Study of High Voltage Power Line Easements and their Effect on Farm Land Values in West Central Minnesota. Luverne, Minnesota: Jensen Management Service.
3. Jensen, Glenn A. and William V. Weber. 1982. High Voltage Transmission Lines and their Effect on Farm Land Value in West Central Minnesota. Luverne, Minnesota: Jensen Management Service, Inc.
4. Final Environmental Impact Statement, Arrowhead –Weston Electric Transmission Line Project, Volume I, Public Service Commission of Wisconsin Docket 05-CE-113, October 2000, pg 212-215.
5. Brinkley, Catherine and Leach, Andrew. 2019. Energy Next Door: A Meta-Analysis of Energy Infrastructure Impact on Housing Value. Energy Research & Social Science. DOI: 10.1016/j.erss.2018.11.014
6. Thomas, Charles and Welke, Gerd. 2017. The Effect of HVTLs on Property Values: An Event Study. International Real Estate Review. Volume 20, No 2.
7. Chalmers, James A., 2012. High-Voltage Transmission Lines and Rural, Western Real Estate Values. The Appraisal Journal. Volume 80, No. 3.
8. Wyman, David, and Mothorpe, Chris, 2018. The Pricing of Power Lines: A Geospatial Approach to Measuring Residential Property Values. Journal of Real Estate Research. Volume 40, No. 3.
9. Lu, Q., Cheng, N., Zhang, W., Liu, P. 2023. Disamenity or Premium: Do Electricty Transmission Lines Affect Farmland Values and Housing Prices Differently?. Journal of Housing Economics. DOI: https://doi.org/10.1016/j.jhe.2023.101968
10. Harleman, Max. 2024. Who Bears the Cost of Renewable Power Transmission Lines? Evidence from Housing Values. Journal of Energy Policy. DOI: https://doi.org/10.1016/j.enpol.2024.114179
11. Chalmers, James. 2019. High-Voltage Transmision Lines and Residential Property Values in New England: What Has Been Learned. Appraisal Journal.
12. Cheng Tang and Stephen Gibbons. 2024. Are Friends Electric? Valuing the Social Costs of Power Lines Using House Prices. Journal of Energy Economics. DOI: https://doi.org/10.1016/j.eneco.2024.107554

Appendix I

Greenhouse Gas Emission Calculations

Table F-1 Construction Greenhouse Gas Emissions Summary

Emission Source	CO_2 (metric tons)	CH_4 (metric tons)	N_2O (metric tons)	CO_2e (metric tons)[1]
Civil Construction	1,007.12	0.04	0.01	1,010.43
Transmission Line Construction	10,882.45	0.44	0.09	10,918.21
Substation Construction	8,603.28	0.35	0.07	8,631.55
Land Use Change	47.12	-	-	47.12
TOTAL	**20,539.97**	**0.83**	**0.17**	**20,607.30**

[1] CO2e calculated by multiplying the Global Warming Potential (GWP) for each pollutant by the potential pollutant emissions. GWPs (100-Year Time Horizon) are from Table A-1 to Subpart A of Part 98, Title 40.

Table F-2 Operation Greenhouse Gas Emissions Summary

Emission Source	CO_2 (metric tons/yr)	CH_4 (metric tons/yr)	N_2O (metric tons/yr)	CO_2e (metric tons/yr)[2]
Operation and Maintenance Activities	13.67	5.55E-04	1.11E-04	13.72
Land Use Change[1]	2.51	-	-	2.51
TOTAL	**16.18**	**5.55E-04**	**1.11E-04**	**16.23**

[1] Land use change assumes a 30 year realization.

[2] CO2e calculated by multiplying the Global Warming Potential (GWP) for each pollutant by the potential pollutant emissions. GWPs (100-Year Time Horizon) are from Table A-1 to Subpart A of Part 98, Title 40.

Table F-3 Conversions

Unit	Amount	Unit
ton =	2000	lbs
ton =	0.907185	metric tons
ton =	907.185	kg
ton =	907185	grams
lb =	0.453592	kg
lb =	453.592	grams
MWh =	1000	kWh
hectare =	2.47105	acres
hp-hr =	7000	Btu Diesel
hp-hr =	7000	Btu Gasoline
US gallon	3.785	L
US gallon (diesel)	53.9929	hp-h
US gallon (gasoline)[1]	126.833	MJ
US gallon (gasoline)	47.24606	hp-h

[1] US Energy Information Administration, 2024.
https://www.eia.gov/energyexplained/units-and-calculators/energy-conversion-calculators.php

Table F-4 Global Warming Potentials

Greenhouse Gas Name	CAS Number	Chemical Formula	Global Warming Potential (100-yr.) [1]
Carbon dioxide	124–38–9	CO2	1
Methane	74–82–8	CH4	28
Nitrous oxide	10024–97–2	N2O	265

[1] Global Warming Potentials, 100-Year Time Horizon, Table A-1 to Subpart A of Part 98, Title 40.

Table F-5 Civil Construction Greenhouse Gas Emissions

Equipment[1]	Fuel Type[2]	Quantity[1]	Total Construction Hours[1]	Anticipated Horsepower [1]	CO2 Emissions (metric tons/yr)[3]	CH4 Emissions (metric tons/yr)[3]	N2O Emissions (metric tons/yr)[3]	CO2e Emissions (metric tons/yr)[4]
E4_CIVIL EQP_1 TON CREW CAB PICKUP TRUCK_8001-11K_4X4	Diesel	4	300	405	305.73	1.24E-02	2.48E-03	306.74
M8_CIVIL EQP_DRILL RIG TRACK MOUNTED	Diesel	1	300	300	56.62	2.30E-03	4.59E-04	56.80
S2_CIVIL EQP_BACKHOE-LOADER_RUBBER TIRE_4X4	Diesel	1	300	70	13.21	5.36E-04	1.07E-04	13.25
S5_CIVIL EQP_LARGE-BACKHOE EXCAVATOR_TRACKED	Diesel	1	300	300	56.62	2.30E-03	4.59E-04	56.80
U1_CIVIL EQP_SKID STEER LOADER_TRACKED	Diesel	1	300	100	18.87	7.66E-04	1.53E-04	18.93
V5_CIVIL EQP_MATERIAL HANDLER-FORKLIFT_RUBBER TIRE_4X4	Diesel	1	300	135	25.48	1.03E-03	2.07E-04	25.56
V6_CIVIL EQP_70 TON ROUGH TERRAIN CRANE_RUBBER TIRE_4X4	Diesel	1	300	250	47.18	1.91E-03	3.83E-04	47.34
W2_CIVIL EQP_SIDE BY SIDE ATV_RUBBER TIRE_4X4	Diesel	1	300	61	11.51	4.67E-04	9.34E-05	11.55
G3_CIVIL EQP_DOCK TRUCK W/ FLAT BED_RUBBER TIRE_20K-33K_4x4	Diesel	1	300	300	56.62	2.30E-03	4.59E-04	56.80
Skid loader	Diesel	1	300	100	18.87	7.66E-04	1.53E-04	18.93
Material Handler	Diesel	1	300	135	25.48	1.03E-03	2.07E-04	25.56
1 ton truck	Diesel	2	300	405	152.87	6.20E-03	1.24E-03	153.37
semi Truck	Diesel	2	300	250	94.36	3.83E-03	7.66E-04	94.67
skid	Diesel	1	300	74	13.97	5.66E-04	1.13E-04	14.01
toro machine	Diesel	1	300	26.5	5.00	2.03E-04	4.06E-05	5.02
welder	Diesel	1	300	15	2.83	1.15E-04	2.30E-05	2.84
1 ton truck	Diesel	1	300	405	76.43	3.10E-03	6.20E-04	76.68
12 Ton material handler	Diesel	1	300	135	25.48	1.03E-03	2.07E-04	25.56
Total	-	-	-	-	**1,007.12**	**4.09E-02**	**8.17E-03**	**1,010.43**

[1] Civil construction portion of the transmission line. Data from Xcel Energy on 6/25/2025.

[2] Assumption based on equipment type.

[3] GHG Emission factors from 40 CFR Part 98 Subpart C Tables C-1 and C-2. Using a conversion of 7,000 btu diesel/hp-hr.

Pollutant	Emission Factor (kg/mmbtu)	Emission Factor (lb/hp-hr)
CO2	73.96	1.141
CH4	3.00E-03	4.63E-05
N2O	6.00E-04	9.26E-06

[4] CO2e calculated by multiplying the Global Warming Potential (GWP) for each pollutant by the potential pollutant emissions. GWPs (100-Year Time Horizon) are from Table A-1 to Subpart A of Part 98, Title 40.

Table F-6 Transmission Line Construction Greenhouse Gas Emissions

Equipment[1]	Fuel Type [2]	Quantity[1]	Operating Time (hours/day/unit)[1]	Days of Operation[1]	Total Construction Hours[1]	Anticipated Horsepower[1]	CO2 Emissions (metric tons)[3, 4]	CH4 Emissions (metric tons)[3, 4]	N2O Emissions (metric tons)[3, 4]	CO2e Emissions (metric tons)[5]
ATV 4 TO 6 WHEEL, W/ DUMP	Gasoline	1	2	90	180	13.5	1.45	6.20E-05	1.24E-05	1.46
BACKHOE W/ LOADER 4X4	Diesel	2	2	30	120	94	14.19	5.76E-04	1.15E-04	14.24
BUCKET 105' WORK HEIGHT	Diesel	2	8	75	1,200	300	452.93	1.84E-02	3.67E-03	454.42
BUCKET 125' WORK HEIGHT 8X6	Diesel	1	8	75	600	350	132.11	5.36E-03	1.07E-03	132.54
CRANE TRUCK 45 T HYDRAULIC 6 AXLE	Diesel	3	8	75	1,800	450	1528.66	6.20E-02	1.24E-02	1533.68
DIGGER DERRICK 15 T CAP	Diesel	2	8	50	800	330	332.15	1.35E-02	2.69E-03	333.24
DOZER 10 THRU 12 T, W/ WINCH	Diesel	1	4	45	180	80	9.06	3.67E-04	7.35E-05	9.09
DOZER 18 T W/ WINCH	Diesel	3	4	30	360	190	129.09	5.24E-03	1.05E-03	129.51
FORKLIFT 11,000 THRU 12,000# TELESCOPIC BOOM	Diesel	2	4	90	720	142	128.63	5.22E-03	1.04E-03	129.06
FRONT END LOADER 68,000# 4X4	Diesel	2	4	90	720	386	349.67	1.42E-02	2.84E-03	350.81
HYDRAULIC BULLWHEEL BUNDLE TENSIONER	Diesel	1	2	45	90	80	4.53	1.84E-04	3.67E-05	4.54
PULLER ROPE TRAILER 4,000# CAP W/ SPLIT REEL TOW TYPE TANDEM AXLE	Diesel	1	2	45	90	74	4.19	1.70E-04	3.40E-05	4.20
PULLER CABLE TRAILER 30,000# CAP TOW TYPE TANDEM AXLE	Diesel	1	2	45	90	400	22.65	9.19E-04	1.84E-04	22.72
PULLER ROPE TRAILER 4 DRUM 3,500# CAP TOW TYPE TANDEM AXLE	Diesel	1	2	45	90	115	6.51	2.64E-04	5.28E-05	6.53
300T AT Setting Crane	Diesel	1	6	50	300	577	108.89	4.42E-03	8.83E-04	109.25
60T RT Crane	Diesel	2	4	50	400	320	161.04	6.53E-03	1.31E-03	161.57
SKID STEER LOADER TRACK MTD 80 > 75 HP	Diesel	3	4	150	1,800	95	322.72	1.31E-02	2.62E-03	323.78
DUMP BOX TRUCK 2-1/2 T 6X6	Diesel	2	2	50	200	505	127.07	5.15E-03	1.03E-03	127.49
DUMP BOX TRUCK 1-1/4 & 1-1/2 T	Diesel	2	4	50	400	420	211.37	8.57E-03	1.71E-03	212.06
FLATBED (FRAMING) TRUCK 1-1/4 & 1-1/2 T	Diesel	4	4	50	800	420	845.48	3.43E-02	6.86E-03	848.26
PICKUP TRUCK 3/4 T	Diesel	4	8	150	4,800	420	5072.87	2.06E-01	4.12E-02	5089.54
TRUCK TRACTOR 2-1/2 T 6X4 & 5 T 6X6	Diesel	3	4	90	1,080	450	917.19	3.72E-02	7.44E-03	920.21
Total	-	-	-	-	-	-	**10,882.45**	**0.44**	**0.09**	**10,918.21**

[1] Equipment and usage data provided by Xcel Energy.

[2] Assumption based on equipment type.

[3] GHG Emission factors from 40 CFR Part 98 Subpart C Tables C-1 and C-2. Using a conversion of 7,000 btu gasoline/hp-hr.

Pollutant	Emission Factor (kg/mmbtu)	Emission Factor (lb/hp-hr)
CO2	70.22	1.084
CH4	3.00E-03	4.63E-05
N2O	6.00E-04	9.26E-06

[4] GHG Emission factors from 40 CFR Part 98 Subpart C Tables C-1 and C-2. Using a conversion of 7,000 btu diesel/hp-hr.

Pollutant	Emission Factor (kg/mmbtu)	Emission Factor (lb/hp-hr)
CO2	73.96	1.141
CH4	3.00E-03	4.63E-05
N2O	6.00E-04	9.26E-06

[5] CO2e calculated by multiplying the Global Warming Potential (GWP) for each pollutant by the potential pollutant emissions. GWPs (100-Year Time Horizon) are from Table A-1 to Subpart A of Part 98, Title 40.

Table F-7 Substation Construction Greenhouse Gas Emissions

Equipment[1]	Fuel Type [2]	Quantity[1]	Operating Time (hours/day/unit)[1]	Days of Operation[1]	Total Construction Hours[1]	Anticipated Horsepower [1]	CO2 Emissions (metric tons)[3, 4]	CH4 Emissions (metric tons)[3, 4]	N2O Emissions (metric tons)[3, 4]	CO2e Emissions (metric tons)[5]
ATV 4 TO 6 WHEEL, W/ DUMP	Gasoline	1	2	180	360	13.5	2.90	1.24E-04	2.48E-05	2.91
BACKHOE W/ LOADER 4X4	Diesel	2	2	180	720	94	85.15	3.45E-03	6.91E-04	85.43
BUCKET 105' WORK HEIGHT	Diesel	2	8	50	800	300	301.96	1.22E-02	2.45E-03	302.95
CRANE TRUCK 45 T HYDRAULIC 6 AXLE	Diesel	1	8	50	400	450	113.23	4.59E-03	9.19E-04	113.61
DIGGER DERRICK 15 T CAP	Diesel	1	8	40	320	330	66.43	2.69E-03	5.39E-04	66.65
DOZER 10 THRU 12 T, W/ WINCH	Diesel	1	4	40	160	80	8.05	3.27E-04	6.53E-05	8.08
DOZER 18 T W/ WINCH	Diesel	1	4	40	160	190	19.12	7.76E-04	1.55E-04	19.19
FORKLIFT 11,000 THRU 12,000# TELESCOPIC BOOM	Diesel	2	4	180	1,440	142	257.27	1.04E-02	2.09E-03	258.11
FRONT END LOADER 68,000# 4X4	Diesel	1	4	180	720	386	174.83	7.09E-03	1.42E-03	175.41
60T RT Crane	Diesel	2	4	50	400	320	161.04	6.53E-03	1.31E-03	161.57
SKID STEER LOADER TRACK MTD 80 > 75 HP	Diesel	1	4	180	720	95	43.03	1.75E-03	3.49E-04	43.17
DUMP BOX TRUCK 2-1/2 T 6X6	Diesel	2	2	50	200	505	127.07	5.15E-03	1.03E-03	127.49
DUMP BOX TRUCK 1-1/4 & 1-1/2 T	Diesel	2	4	50	400	420	211.37	8.57E-03	1.71E-03	212.06
FLATBED (FRAMING) TRUCK 1-1/4 & 1-1/2 T	Diesel	2	3	300	1,800	420	951.16	3.86E-02	7.72E-03	954.29
PICKUP TRUCK 3/4 T	Diesel	5	3	300	4,500	420	5944.77	2.41E-01	4.82E-02	5964.30
TRUCK TRACTOR 2-1/2 T 6X4 & 5 T 6X6	Diesel	2	4	30	240	450	135.88	5.51E-03	1.10E-03	136.33
Total	-	-	-	-	-	-	**8,603.28**	**3.49E-01**	**6.98E-02**	**8,631.55**

[1] Equipment and usage data provided by Xcel Energy.

[2] Assumption based on equipment type.

[3] GHG Emission factors from 40 CFR Part 98 Subpart C Tables C-1 and C-2. Using a conversion of 7,000 btu gasoline/hp-hr.

Pollutant	Emission Factor (kg/mmbtu)	Emission Factor (lb/hp-hr)
CO2	70.22	1.084
CH4	3.00E-03	4.63E-05
N2O	6.00E-04	9.26E-06

[4] GHG Emission factors from 40 CFR Part 98 Subpart C Tables C-1 and C-2. Using a conversion of 7,000 btu diesel/hp-hr.

Pollutant	Emission Factor (kg/mmbtu)	Emission Factor (lb/hp-hr)
CO2	73.96	1.141
CH4	3.00E-03	4.62971E-05
N2O	6.00E-04	9.25942E-06

[5] CO2e calculated by multiplying the Global Warming Potential (GWP) for each pollutant by the potential pollutant emissions. GWPs (100-Year Time Horizon) are from Table A-1 to Subpart A of Part 98, Title 40.

Table F-8 Operation and Maintenance Greenhouse Gas Emissions

Equipment[1]	Fuel Type [2]	Quantity[1]	Annual Operating Hours[1]	Anticipated Horsepower[1]	CO2 Emissions (metric tons/yr)[3]	CH4 Emissions (metric tons/yr)[3]	N2O Emissions (metric tons/yr)[3]	CO2e Emissions (metric tons/yr)[4]
E4_OTL EQP_PICKUP TRUCK-F350_CREW CAB _8001-11K_4X4	Diesel	1	10	500	3.15	1.28E-04	2.55E-05	3.16
K8_OTL EQP_HEAVY BUCKET TRUCK100 FT_RUBBER TIRE_6X6	Diesel	1	10	500	3.15	1.28E-04	2.55E-05	3.16
N4_OTL EQP_TRUCK MOUNTEDCRANE_45T/50T_RUBBER TIRE	Diesel	1	10	500	3.15	1.28E-04	2.55E-05	3.16
S2_OTL EQP_BACKHOE-LOADER_RUBBER TIRE_4X4	Diesel	1	10	120	0.75	3.06E-05	6.12E-06	0.76
U1_OTL EQP_SKID STEERLOADER_TRACKED	Diesel	1	10	120	0.75	3.06E-05	6.12E-06	0.76
W2_OTL EQP_ATV/UTV POLARIS/CAN AM/ARGO_RUBBER TIRE/TRACKED_4X4	Diesel	1	3	25	0.05	1.91E-06	3.83E-07	0.05
R1_OTL EQP_TRAILERUTV/FRAMING/ENCLOSED_<=12 K_RU BBER TIRE_TAN	Diesel	1	3	120	0.23	9.19E-06	1.84E-06	0.23
D2_OTL EQP_PICKUP TRUCK-F150_6001-8K_4X4	Diesel	1	3	500	0.94	3.83E-05	7.66E-06	0.95
R2_OTL EQP_TRAILER MEDIUMEQUIP_12001-20K_RUBBER TIRE_TANDEM	Diesel	1	10	120	0.75	3.06E-05	6.12E-06	0.76
R3_OTL EQP_TRAILER LARGEEQUIP_>20K_RUBBER TIRE_TANDEM	Diesel	1	10	120	0.75	3.06E-05	6.12E-06	0.76
Total	**-**	**-**	**-**	**-**	**13.67**	**5.55E-04**	**1.11E-04**	**13.72**

[1] Equipment and usage data provided by Xcel Energy. Number of units assumed based on operating time.

[2] Assumption based on equipment type.

[3] GHG Emission factors from 40 CFR Part 98 Subpart C Tables C-1 and C-2. Using a conversion of 7,000 btu diesel/hp-hr.

Pollutant	Emission Factor (kg/mmbtu)	Emission Factor (lb/hp-hr)
CO2	73.96	1.141
CH4	3.00E-03	4.63E-05
N2O	6.00E-04	9.26E-06

[4] CO2e calculated by multiplying the Global Warming Potential (GWP) for each pollutant by the potential pollutant emissions. GWPs (100-Year Time Horizon) are from Table A-1 to Subpart A of Part 98, Title 40.

Table F-9 Construction Land Use Change Greenhouse Gas Emissions

Existing Land Type[1]	Carbon Stock (metric tons CO2/acre)[2]	Estimated Disturbance (acres)[1]	Estimated CO2 Emissions (metric tons)[3]
Wetlands, not forested	776.23	0.00	0.00
Forest	363.00	0.35	4.98
Rivers and streams	0.00	0.00	0.00
Brush and grassland	149.60	0.65	3.78
Cropland	119.17	3.94	18.25
Livestock rangeland/pastureland	149.60	3.46	20.10
Impervious	0.00	0.00	0.00
Total	**-**	**8.40**	**47.12**

[1] Existing land type obtained from National Land Cover Database (NLCD) 2021 landcover data. Wetlands (non-forested), rivers and streams, and impervious areas will not be disturbed.

[2] Equation 8. Net Change in Carbon Stock from Construction , Minnesota Climate Calculator, Final Report, May 2025, Version 1.1, Minnesota Environmental Quality Board
https://www.eqb.state.mn.us/sites/eqb/files/climate_calculator_final_report.pdf

Conversion of 44/12 was applied to convert from carbon to CO_2.

[3] Emission factors assumes full realization of the land transition over 30 years. Therefore, emissions have been pro-rated to temporary construction disturbance.

Construction timeframe estimated as 14 months.

Estimated construction duration = 1.17 years

Table F-10 Operation Land Use Change Greenhouse Gas Emissions

Existing Land Type --> Reclaimed Land Type	Carbon Stock (metric tons CO2/acre)[2]	Estimated Reclaimed Area (acres)[1]	Estimated CO2 Emissions (metric tons)[3]
Wetlands, not forested (not disturbed)	--	--	--
Forest --> Brush and grassland	213.40	0.35	75.31
Rivers and streams (not disturbed)	--	--	--
Brush and grassland --> Brush and grassland	0.00	0.65	0.00
Cropland --> Cropland	0.00	3.94	-
Livestock rangeland/pastureland --> Livestock rangeland/pastureland	0.00	3.46	0.00
Impervious (not disturbed)	--	--	--
Total	**-**	**8.40**	**75.31**

[1] Existing land type obtained from National Land Cover Database (NLCD) 2021 landcover data. It was assumed that all cropland and livestock rangeland/pastureland will be reclaimed to pre-disturbed land type, and forest and brush and grassland will be reclaimed to brush and grassland.

[2] Equation 8. Net Change in Carbon Stock from Construction , Minnesota Climate Calculator, Final Report, May 2025, Version 1.1, Minnesota Environmental Quality Board
https://www.eqb.state.mn.us/sites/eqb/files/climate_calculator_final_report.pdf

Conversion of 44/12 was applied to convert from carbon to CO_2.

[3] Emission factors assumes full realization of the land transition over 30 years.

Appendix J

Protected Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 07/18/2025 13:35:23 UTC
Project Code: 2025-0123512
Project Name: Northwest Maple Grove Transmission Line Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species
The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance
Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, USDA Rural Development projects, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

We recommend running the project (if it qualifies) through our **Minnesota-Wisconsin Federal Endangered Species Determination Key (Minnesota-Wisconsin ("D-key"))**. A demonstration video showing how-to access and use the determination key is available. Please note that the Minnesota-Wisconsin D-key is the third option of 3 available d-keys. D-keys are tools to help Federal agencies and other project proponents determine if their proposed action has the potential to adversely affect federally listed species and designated critical habitat. The Minnesota-Wisconsin D-key includes a structured set of questions that assists a project proponent in determining whether a proposed project qualifies for a certain predetermined consultation outcome for all federally listed species found in Minnesota and Wisconsin (except for the northern long-eared bat- see below), which includes determinations of “no effect” or “may affect, not likely to adversely affect." In each case, the Service has compiled and analyzed the best available information on the species’ biology and the impacts of certain activities to support these determinations.

If your completed d-key output letter shows a "No Effect" (NE) determination for all listed species, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.

For Federal projects with a “Not Likely to Adversely Affect” (NLAA) determination, our concurrence becomes valid if you do not hear otherwise from us after a 30-day review period, as indicated in your letter.

If your d-key output letter indicates additional coordination with the Minnesota-Wisconsin Ecological Services Field Office is necessary (i.e., you get a “May Affect” determination), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of the key; ESA compliance cannot be concluded using the key for “May Affect” determinations unless otherwise indicated in your output letter.

Note: Once you obtain your official species list, you are not required to continue in IPaC with d-keys, although in most cases these tools should expedite your review. If you choose to make an effects determination on your own, you may do so. If the project is a Federal Action, you may want to review our section 7 step-by-step instructions before making your determinations.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected. For bat activity dates, please review Appendix L in the Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines.

Examples of unsuitable habitat include:
- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A monoculture stand of shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:
- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC

species list report for your records.

If any of the above activities are proposed, and the northern long-eared bat appears on the user's species list, the federal project user will be directed to either the northern long-eared bat and tricolored bat range-wide D-key or the Federal Highways Administration, Federal Railways Administration, and Federal Transit Administration Indiana bat/Northern long-eared bat D-key, depending on the type of project and federal agency involvement. Similar to the Minnesota-Wisconsin D-key, these d-keys helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. Additional information about available tools can be found on the Service's northern long-eared bat website.

Whooping Crane
Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities
Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. It is the responsibility of the project proponent to survey the area for any migratory bird nests. If there is an eagle nest on-site while work is on-going, eagles may be disturbed. We recommend avoiding and minimizing disturbance to eagles whenever practicable. If you cannot avoid eagle disturbance, you may seek a permit. A nest take permit is always required for removal, relocation, or obstruction of an eagle nest. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. **Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.**

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
(952) 858-0793

PROJECT SUMMARY

Project Code: 2025-0123512
Project Name: Northwest Maple Grove Transmission Line Project
Project Type: Transmission Line - New Constr - Above Ground
Project Description: The project involves 1.6 to 2.2 miles of new 115 kV transmission line and a new West Maple Grove Substation. The project will break the existing transmission line and create an in-&-out connection to Elm Creek. Construction is anticipated to start in Q2 of 2026.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@45.14186435,-93.47524029318757,14z



Counties: Hennepin County, Minnesota

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

CLAMS

NAME	STATUS
Salamander Mussel *Simpsonaias ambigua* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6208	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Rusty Patched Bumble Bee *Bombus affinis* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9383 General project design guidelines: https://ipac.ecosphere.fws.gov/project/K3KPKGHESZDRRAKY6J2DEGSSVQ/documents/generated/9225.pdf	Endangered
Western Regal Fritillary *Argynnis idalia occidentalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/12017	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

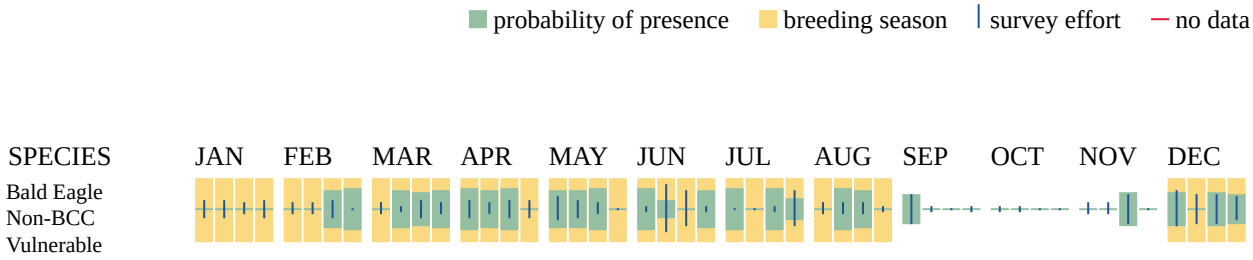
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Tern *Chlidonias niger surinamenisis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9643	Breeds May 20 to Aug 10

NAME	BREEDING SEASON
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Golden-winged Warbler *Vermivora chrysoptera* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

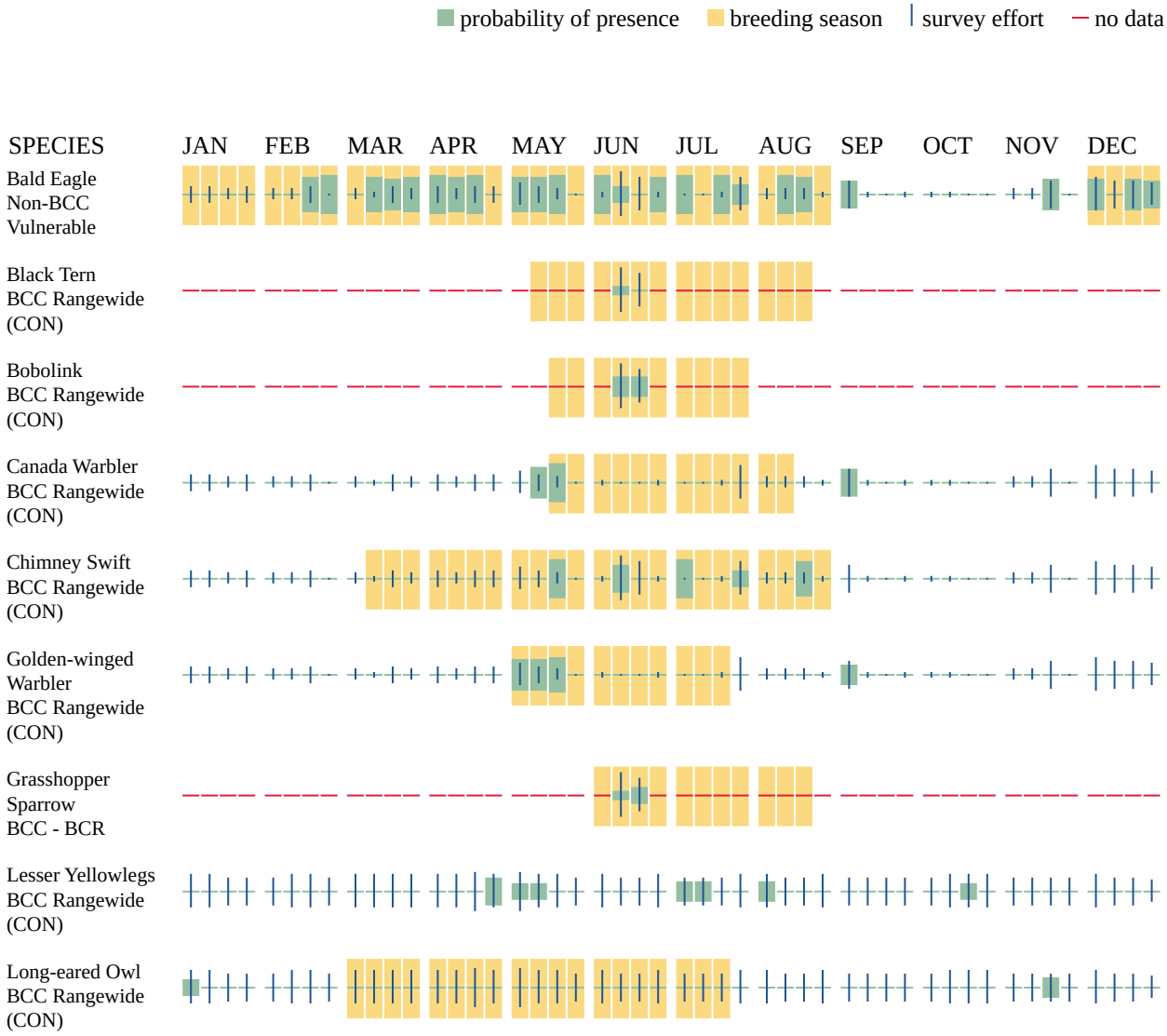
Probability of Presence (■)

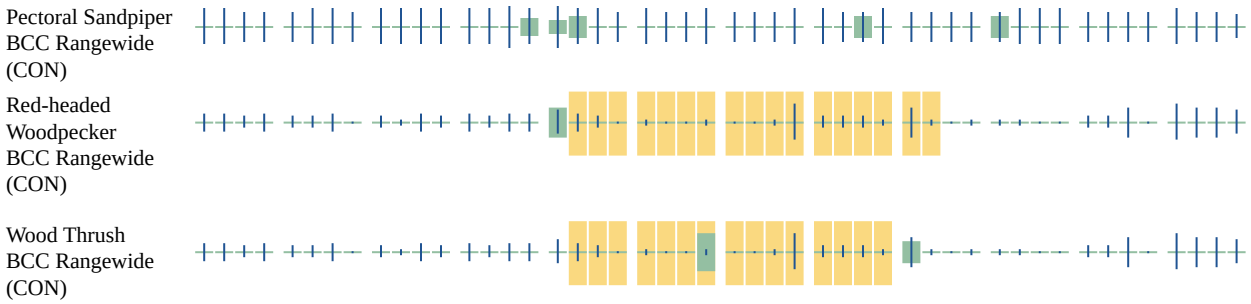
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

IPAC USER CONTACT INFORMATION

Agency:	Barr Engineering
Name:	Jess Butler
Address:	4300 MarketPointe Drive
Address Line 2:	Suite 200
City:	Minneapolis
State:	MN
Zip:	55435
Email	jbutler@barr.com
Phone:	9528322694

DEPARTMENT OF NATURAL RESOURCES

Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Maple Grove Area 115kV Transmission Line Project

Project Proposer: Xcel Energy

Project Type: Utilities, Transmission (electric, cable, phone)

Project Type Activities: Tree Removal;Waterbody or watercourse impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation, changes in hydrology))

TRS: T119 R22 S4, T119 R22 S5, T119 R22 S8, T119 R22 S9

County(s): Hennepin

DNR Admin Region(s): Central

Reason Requested: PUC Site or Route Application

Project Description: The project involves 1.6 to 2.2 miles of new 115 kV transmission line and a new West Maple Grove Substation. The project will break the existing transmission ...

Existing Land Uses: Suburban/industrial, forested, agricultural, wetland

Landcover / Habitat Impacted: Suburban/industrial, forested, agricultural, wetland

Waterbodies Affected: Rush Creek and wetlands would be crossed by the project.

Groundwater Resources Affected: Impacts to groundwater are not anticipated.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	Comments	Tree Removal - Recommendations
Ecologically Significant Area	No Comments	No Further Review Required
State-Listed Endangered or Threatened Species	No Comments	No Further Review Required
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	Comments	RPBB High Potential Zone

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

October 14, 2024

Project ID: MCE #2024-00870

Jessica Butler
Barr Engineering Company
4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435

RE: Automated Natural Heritage Review of the proposed Maple Grove Area 115kV Transmission Line Project
See Cover Page for location and project details.

Dear Jessica Butler,

As requested, the above project has been reviewed for potential effects to rare features. Based on this review, the following rare features may be adversely affected by the proposed project:

Project Type and/or Project Type Activity Comments

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed below, all of Minnesota's bats, including the federally endangered northern long-eared bat (*Myotis septentrionalis*), can be found throughout Minnesota. During the active season (approximately April-November) bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these impacts, the DNR recommends that tree removal be avoided from June 1 through August 15.

Ecologically Significant Area

No ecologically significant areas have been documented in the vicinity of the project.

State-Listed Endangered or Threatened Species

No state-listed endangered or threatened species have been documented in the vicinity of the project.

State-Listed Species of Special Concern

Taxonomic Group	Common Name	Scientific Name	Water Regime	Habitat	Federal Status
Vertebrate Animal	Acadian Flycatcher	Empidonax virescens		Mesic Hardwood Forest	
Vertebrate Animal	Big Brown Bat	Eptesicus fuscus		Mesic Hardwood Forest, Floodplain Forest, Fire Dependent Forest	
Vertebrate Animal	Little Brown Myotis	Myotis lucifugus		Floodplain Forest, Floodplain Forest, Mesic Hardwood Forest	

- The above table identifies state-listed species of special concern that have been documented in the vicinity of your project. If suitable habitat for any of these species occurs within your project footprint or activity impact area, the project may negatively impact those species. To avoid impacting state-listed species of special concern, the DNR recommends modifying the location of project activities to avoid suitable habitat or modifying the timing of project activities to avoid the presence of the species. Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. Species-specific comments, if any, appear below.

Federally Listed Species

- The area of interest overlaps with a U.S Fish and Wildlife Service (USFWS) Rusty Patched Bumble Bee High Potential Zone. The rusty patched bumble bee *(Bombus affinis)* is federally listed as endangered and is likely to be present in suitable habitat within High Potential Zones. From April through October this species uses underground nests in upland grasslands, shrublands, and forest edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. The rusty patched bumble bee may be impacted by a variety of land management activities including, but not limited to, prescribed fire, tree-removal, haying, grazing, herbicide use, pesticide use, land-clearing, soil disturbance or compaction, or use of non-native bees. If applicable, the DNR recommends reseeding disturbed soils with native species of grasses and forbs using BWSR Seed Mixes or MnDOT Seed Mixes. To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool. Please note that all projects, regardless of whether there is a federal nexus, are subject to federal take prohibitions. The IPaC review will determine if prohibited take is likely to occur and, if not, will generate an automated letter. The USFWS RPBB guidance provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota’s rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and the project description provided on the cover page. If project details change or construction has not occurred within one year, please resubmit the project for review before initiating project activities.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

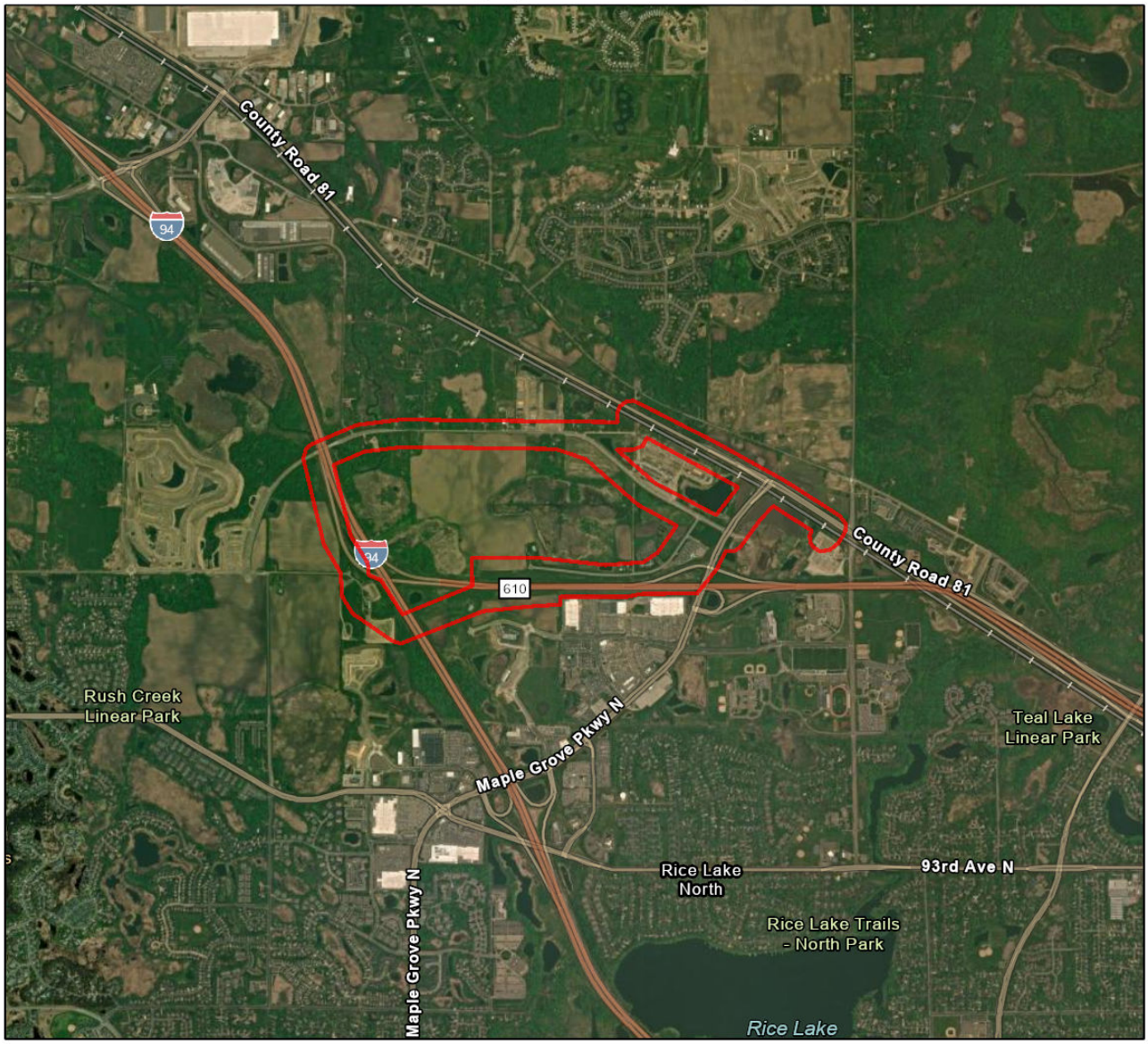
Sincerely,

Jim Drake Jim Drake
Natural Heritage Review Specialist
James.F.Drake@state.mn.us

Links: USFWS Information for Planning and Consultation (IPaC) tool
Information for Planning and Consultation (IPaC) tool
DNR Regional Environmental Assessment Ecologist Contact Info
https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

Maple Grove Area 115kV Transmission Line Project

Aerial Imagery With Locator Map



N
W E
S

0 0.2 0.4 0.8 1.2 1.6
Miles

Project_Boundary

Project Type: Utilities, Transmission (electric, cable, phone)

Project Size (acres): 309.48

County(s): Hennepin

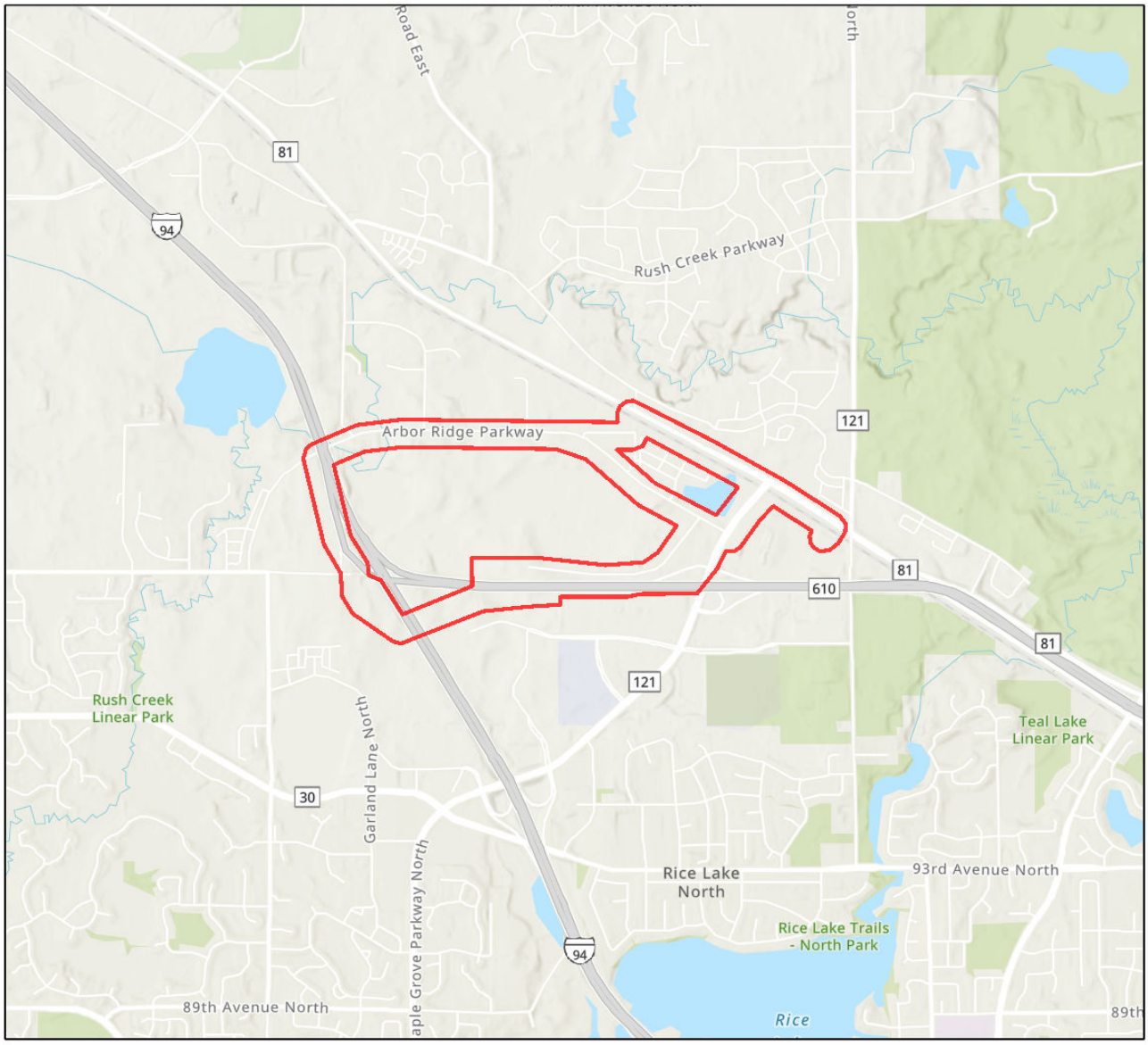
TRS: T119 R22 S4, T119 R22 S5, T119 R22 S8, T119 R22 S9

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
City of Maple Grove, Metropolitan Council, MetroGIS, Three Rivers Park District,
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,



Maple Grove Area 115kV Transmission Line Project

USA Topo Basemap With Locator Map



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0 0.2 0.4 0.8 1.2 1.6
Miles

Project_Boundary



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Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
City of Maple Grove, Metropolitan Council, MetroGIS, Three Rivers Park District,
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

From: Drake, James F (DNR)
To: Jessica L. Butler
Subject: RE: Slight project change for MCE # 2024-00870
Date: Wednesday, June 18, 2025 11:35:00 AM
Attachments: image001.png
image002.png

Hi Jessica,

Thanks for letting me know about the change to your project. This change won't alter the Natural Heritage Review you received originally and there is no need to resubmit the project. I'll attach this email to the MCE project page to document this. Let me know if you need anything else.

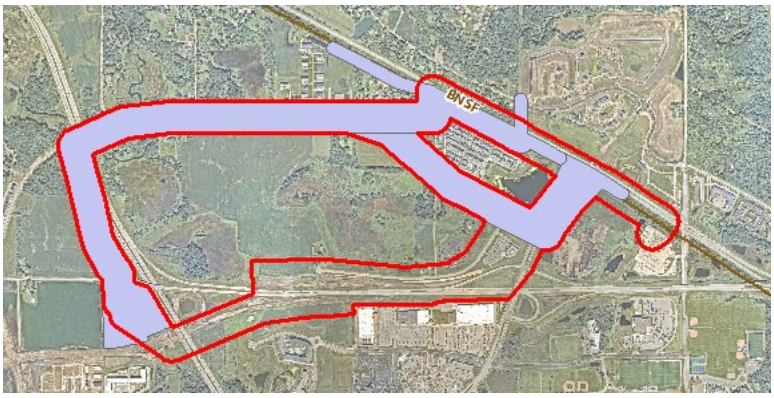
Jim

From: Jessica L. Butler <JButler@barr.com>
Sent: Wednesday, June 18, 2025 11:02 AM
To: Drake, James F (DNR) <James.F.Drake@state.mn.us>
Subject: Slight project change for MCE # 2024-00870

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Hi Jim,
We have a slight modification to the project area for the Maple Grove Area 115kV Transmission line Project.
My suspicion is that your outcome/NHR response will be the same. Do I need to actually resubmit the project?

Here is a screenshot of the original project area that you reviewed (in red outline) and the new one (purple fill).
I have attached the file of the new project area as well.
Thanks for your help with this!
Jess



Jessica L. Butler

Senior Ecologist
JButler@barr.com | 952.832.2694
Minneapolis, MN | barr.com

BARR

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Appendix K

List of Landowners in the Project Route

Appendix H List of Landowners in the Project Route

PID	Owner
411922130028	City Of Maple Grove
411922130030	City Of Maple Grove
411922130112	
411922130113	
411922230008	Michael L Mesher
411922230009	Darrel Corazalla
411922230010	The Falon Trust
411922230011	C & A Latia
411922230013	Great Northern Ry Co
411922240002	Rush Creek Cemetery
411922240008	Cblock Investments Llc
411922310012	Gep Xi Maple Grove Llc
411922320002	Doaa M Moussa & A M Moussa
411922320003	City Of Maple Grove
411922420005	Allen I Dehn
511922120002	Great Northern Ry Co
511922130001	Michael Raymond Reistroffer
511922130002	City Of Maple Grove
511922130003	City Of Maple Grove
511922140002	Paula Jo Gibson
511922140004	Northwood Community Church
511922140045	Francisco G Rodriguez
511922140046	V Murugesan/S S Vikram
511922140047	James Edwin Thompson
511922140048	Catherine Simonson
511922140049	S K A H Abidi & M U Rahman
511922140050	Robert Paul Abbondanza
511922140051	A P Mohammad & A Z Siddiqi
511922140052	K Singhal & M Singhal
511922140090	Weston Commons Homeownr Assn
511922140091	Weston Commons Homeownr Assn
511922140092	Weston Commons Hoa
511922220002	Shaw Fam Holdings Ltd Ptrshp
511922240005	Ryan T Zurek/Monica M Zurek
511922240006	C Durant & Nadiya Durant
511922240018	Three Rivers Park District
511922240019	City Of Maple Grove
511922310003	City Of Maple Grove
511922310004	Joanna M Gellerman Trust
511922310005	John M Cavanagh
511922320002	Three Rivers Park District
511922330003	The L & P Limited Ptnrshp
511922340001	State Of Mn
511922410001	D Peterson & L Peterson
511922410002	The Twr Lp/The L & P Lp
511922420004	Khosravi & Paddock Prop Llc
511922420005	The Twr Lp/The L & P Lp
811922210003	City Of Maple Grove
811922210004	City Of Maple Grove
811922210006	City Of Maple Grove
811922220002	L&P Family Ltd Ptnrshp Et Al