

MPUC Docket No. E002/TL-23-157
CAH Docket No. 65-2500-40099

**STATE OF MINNESOTA
BEFORE THE COURT OF ADMINISTRATIVE HEARINGS
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE APPLICATION
FOR A ROUTE PERMIT FOR THE
MANKATO TO MISSISSIPPI RIVER 345
KV TRANSMISSION PROJECT IN
SOUTHERN MINNESOTA

**XCEL ENERGY'S PROPOSED
FINDINGS OF FACT,
CONCLUSIONS OF LAW,
AND RECOMMENDATIONS**

TABLE OF CONTENTS

	Page
STATEMENT OF ISSUES	2
SUMMARY OF RECOMMENDATIONS.....	2
FINDINGS OF FACT	3
I. APPLICANT.....	3
II. PROCEDURAL HISTORY	4
III. THE PROPOSED PROJECT	15
A. Overview of the Project	15
B. Transmission Line Structures and Conductor Design.....	17
C. Associated Facilities	18
D. Route Width and Right-of-Way.....	20
1. Route Width	20
2. Right-of-Way	21
E. Project Schedule	22
F. Project Costs	22
G. Permittee.....	22
IV. PUBLIC PARTICIPATION	23
A. Pre-Application Filing Public Outreach	23
B. Post-Application Filing Public Outreach	24
C. Public Comments Received During and Following the Public Hearings.....	24
V. TRIBAL, FEDERAL, STATE, AND LOCAL GOVERNMENT PARTICIPATION	25
A. Applicant's Outreach	25
1. Tribal Nations	25
2. Federal Agencies	26
3. State Agencies.....	27
4. Local Government Units	29
B. Participation in Route Permit Docket	30

TABLE OF CONTENTS

(continued)

	Page
1. Tribal Nations	30
2. Federal Agencies	30
3. State Agencies.....	31
a. MnDNR.....	31
b. MnDOT.....	32
c. SHPO.....	33
d. VMPWG.....	34
4. Local Government Units	34
VI. ROUTES EVALUATED FOR PROJECT	35
A. Applicant's Route Development	35
B. Routes Proposed in the Application.....	37
1. Segment 1.....	37
2. Segment 2.....	38
3. Segment 3.....	39
4. Segment 4.....	40
C. Route Alternatives Added During Scoping Process	40
1. Segment 1.....	41
2. Segment 2.....	41
3. Route Segment 17.....	42
4. Segment 3.....	42
5. Segment 4.....	42
D. Applicant's Preferred Routes	43
1. Segments 1 and 2	44
2. Segment 3.....	46
3. Segment 4.....	46
E. Full Routes Analyzed in the EIS	47

TABLE OF CONTENTS

(continued)

	Page
VII. FACTORS FOR A ROUTE PERMIT	48
VIII. APPLICATION OF ROUTING FACTORS.....	51
A. Effects on Human Settlement	51
1. Displacement.....	51
a. 345 kV Route Options.....	52
b. 161 kV Route Options.....	54
2. Noise.....	56
3. Aesthetics	57
a. 345 kV Route Options.....	58
b. 161 kV Route Options.....	59
4. Cultural Values	60
a. 345 kV Route Options.....	62
b. 161 kV Route Options.....	62
5. Recreation	62
6. Socioeconomics.....	64
7. Environmental Justice	65
a. 345 kV Route Options.....	65
b. 161 kV Route Options.....	66
8. Public Service and Infrastructure.....	67
B. Effects on Public Health and Safety	67
1. Construction and Operation of the Project.....	68
2. Electric and Magnetic Fields	68
3. Stray Voltage and Induced Voltage	69
C. Effects on Land-Based Economies.....	71
1. Agriculture	71
a. 345 kV Route Options.....	71

TABLE OF CONTENTS

(continued)

	Page
b. 161 kV Route Options.....	72
2. Forestry	73
a. 345 kV Route Options.....	73
b. 161 kV Route Options.....	74
3. Tourism.....	74
a. 345 kV Route Options.....	74
b. 161 kV Route Options.....	74
4. Mining	74
a. 345 kV Route Options.....	75
b. 161 kV Route Options.....	75
D. Effects on Archeological and Historic Resources.....	76
a. 345 kV Route Options.....	77
b. 161 kV Route Options.....	78
E. Effects on Natural Environment	79
1. Air Quality	80
a. 345 kV Route Options.....	81
b. 161 kV Route Options.....	82
2. Greenhouse Gas Emissions	82
a. 345 kV Route Options.....	82
b. 161 kV Route Options.....	83
3. Climate Change	83
a. 345 kV Route Options.....	83
b. 161 kV Route Options.....	84
4. Water Quality and Resources	84
a. Groundwater.....	84
b. Wetlands	86

TABLE OF CONTENTS

(continued)

	Page
c. Surface Water.....	88
5. Flora.....	91
6. Fauna	93
F. Effects on Rare and Unique Natural Resources.....	96
G. Application of Various Design Considerations	100
H. Use or Paralleling of Existing Right-of-Way, Survey Lines, Natural Division Lines, and Agricultural Field Boundaries	100
I. Use of Existing Transportation, Pipeline, and Electrical Transmission System Rights-of-Way	103
J. Electrical System Reliability	105
K. Costs of Constructing, Operating, and Maintaining the Facility.....	105
L. Adverse Human and Natural Environmental Effects Which Cannot be Avoided	107
M. Irreversible and Irretrievable Commitments of Resources.....	108
N. Summary Comparison of Route Alternatives.....	108
1. 345 kV Route Options	108
2. 161 kV Route Options	111
IX. SPECIAL ROUTE PERMIT CONDITIONS	113
X. CONSIDERATION OF ISSUES PRESENTED BY STATE AGENCIES AND LOCAL UNITS OF GOVERNMENT	114
XI. NOTICE.....	114
XII. ADEQUACY OF THE EIS.....	115
CONCLUSIONS OF LAW	115
RECOMMENDATION.....	117

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This matter was assigned to Administrative Law Judge (ALJ) Ann C. O'Reilly to conduct public hearings on the Certificate of Need and Route Permit Application (Application) of Northern States Power Company, doing business as Xcel Energy (Xcel Energy, the Company, or the Applicant) to construct the Mankato – Mississippi River Transmission Project (Project) in Blue Earth, Le Sueur, Waseca, Rice, Dodge, Olmsted, Goodhue, Winona, and Wabasha counties.¹ The Minnesota Public Utilities Commission (Commission) also requested that the ALJ prepare findings of fact, conclusions of law, and provide recommendations related to the proposed Route Permit. The Commission directed that the Certificate of Need portion of the Application be handled through the Commission's informal process.

Public hearings were held before Judge O'Reilly on May 27, 28, and 29, 2025 in the above-captioned matter. In the morning of May 27, 2025, a public hearing was held at Country Inn and Suites by Radisson, 1900 Premier Dr., Mankato, Minnesota. In the evening of May 27, 2025, a public hearing was held at Waterville High School, 500 Paquin St. E, Waterville, Minnesota. In the morning of May 28, 2025, a public hearing was held at Eagles Club Owatonna, 141 E Rose St., Owatonna, Minnesota. In the evening of May 28, 2025, a public hearing was held at Zumbrota VFW, 25 E 1st St., Zumbrota, Minnesota. In the morning of May 29, 2025, a virtual public hearing was held via conference call and WebEx. In the evening of May 29, 2025, a public hearing was held at Faribault American Legion, 112 5th Street NE, Faribault, Minnesota. Written public comments were received until June 10, 2025.

¹ This list of counties includes all counties where the Applicant's proposed route alternatives are located.

The following appearances were made:

Valerie T. Herring, Taft Stettinius & Hollister, LLP, Lauren Steinhäuser, Assistant General Counsel, and Ellen Heine, Principal Siting and Land Rights Agent, appeared on behalf of Xcel Energy.

Richard Dornfeld, Assistant Attorney General, appeared on behalf of the Minnesota Department of Commerce (Department). Richard Davis, Environmental Review Manager for the Energy Environmental Review and Analysis unit (EERA),² and Jamie MacAlister, Director of Regulatory Affairs for the Division of Energy Resources (DER), also appeared on behalf of the Department.

Amelia Vohs and Abigail Hencheck appeared on the behalf of the Minnesota Center for Environmental Advocacy, Fresh Energy, and Clean Grid Alliance (collectively, the Clean Energy Organizations or CEOs).

Carol Overland appeared on behalf of NoCapX 2020 and the Prehn Family.

Bret Eknes and Cezar Panait appeared on behalf of Commission staff.

STATEMENT OF ISSUES

Has Xcel Energy satisfied the criteria established in Minn. Stat. Ch. 216E³ and Minn. R. Ch. 7850 for a Route Permit for Project?

Does the Environmental Impact Statement (EIS) include the information required by applicable law, and was it prepared in compliance with applicable law?

SUMMARY OF RECOMMENDATIONS

The ALJ concludes that the Applicant has satisfied all relevant criteria set forth in Minnesota law for a Route Permit for the Project and recommends that the Commission grant a Route Permit for Route Option B, incorporating Route Segment

² On July 1, 2025, the Minnesota Energy Infrastructure Permitting Act, Minn. Stat. Ch. 216I, took effect and consolidated EERA staff and the Commission's Energy Facilities Permitting staff into one unit, the Energy Infrastructure Permitting (EIP) unit. This filing refers to EERA rather than EIP as the majority of the filings in this docket were made by EERA prior to July 1, 2025.

³ As the Application for this Project was filed prior to July 1, 2025, the Application is being reviewed under Minn. Stat. Ch. 216E and Minn. R. Ch. 7850 rather than Minn. Stat. Ch. 216I. *See* Notice of Legislative Changes (July 9, 2025) (eDocket No. [20257-220799-01](#)).

18 and Alignment Alternative 2, in Segments 1 and 2, Segment 3, and either Route Option A or Route Option D for Segment 4.⁴

The ALJ recommends that the Commission determine that the EIS prepared for these proceedings was prepared in compliance with applicable law, addresses the issues and alternatives raised in scoping to a reasonable extent considering the availability of information and the time limitations for considering the Application, and provides responses to the comments received during the draft EIS review process.

Based on the information in the Application, the EIS, testimony at the public hearings, written comments, exhibits received in this proceeding, and other evidence in the record, the ALJ makes the following:

FINDINGS OF FACT

I. APPLICANT

1. Northern States Power Company, doing business as Xcel Energy, is a Minnesota corporation headquartered in Minneapolis, Minnesota, that is engaged in the business of generating, transmitting, distributing and selling electric power and energy and related services in the states of Minnesota, North Dakota, and South Dakota.⁵ In Minnesota, Xcel Energy provides electric service to 1.5 million customers.⁶ Xcel Energy is a wholly-owned utility operating company subsidiary of Xcel Energy Inc. and operates its transmission and generation system as a single integrated system with its sister company, Northern States Power Company, a Wisconsin corporation, known together as the NSP Companies.⁷ The NSP Companies are vertically integrated transmission-owning members of Midcontinent Independent System Operator, Inc. (MISO).⁸ Together, the NSP Companies have over 46,000 conductor miles of transmission lines and approximately 550 transmission and distribution substations.⁹

2. Segments of the Project will either be individually or jointly owned by Xcel Energy, Dairyland Power Cooperative, Southern Minnesota Municipal Power Agency, and the City of Rochester, Minnesota, acting through its Public Utility Board.¹⁰ As the Project Manager for the Project, Xcel Energy will be responsible for the construction of the proposed transmission facilities, and as such, Xcel Energy is the sole Applicant

⁴ These route options are described in the Final Environmental Impact Statement (FEIS). Ex. EERA-10 at 518 and 794 (FEIS). A map of the Segment 1 and 2 route options is provided as Map 47 of the FEIS and a map of the route options for Segment 4 is provided as Map 74 in the FEIS.

⁵ Ex. Xcel-15 at 11 (Application).

⁶ Ex. Xcel-15 at 11 (Application).

⁷ Ex. Xcel-15 at 11 (Application).

⁸ Ex. Xcel-15 at 11 (Application).

⁹ Ex. Xcel-15 at 11 (Application).

¹⁰ Ex. Xcel-15 at 11 (Application).

for the Certificate of Need and Route Permit for the Project and will be the sole permittee for the Project.¹¹

II. PROCEDURAL HISTORY

3. On April 2, 2024, the Applicant filed the Certificate of Need and Route Permit Application.¹²

4. On April 8, 2024, the Commission issued a Notice of Comment Period on Application Completeness, requesting initial comments by April 22, 2024, reply comments by April 29, 2024, and supplemental comments by May 6, 2024.¹³

5. On April 19, 2024, the Commission received public comments requesting the Commission consider residential impacts on route options.¹⁴

6. On April 22, 2024, the EERA filed comments and recommendations on completeness of the Application.¹⁵ EERA recommended that the Commission accept the Application as substantially complete after the Applicant files a new set of maps that accurately displays all lakes, public waters, watercourses, and public road throughout the Project area.¹⁶ EERA further recommended that the Commission combine the proceedings for the Certificate of Need and Route Permit, and take no action on an advisory task force.¹⁷

7. NoCapX 2020 and the Prehn Family also filed comments on April 22, 2024 on completeness and recommended the Commission find the Application incomplete, appoint an advisory task force to identify route alternatives, and direct the Executive Secretary to issue an authorization to the Applicant to initiate consultation with the State Historic Preservation Office (SHPO).¹⁸

8. The Operating Engineers Local 49 and North Central States Regional Council of Carpenters (IUOE Local 49/NCSRC of Carpenters) also filed comments noting the importance of timely permitting and deployment of projects like this one to

¹¹ Ex. Xcel-15 at 11 (Application).

¹² Ex. Xcel-15 (Application).

¹³ Ex. PUC-6 (Notice of Comment Period on Application Completeness).

¹⁴ Public Comment (April 19, 2024) (eDocket No. [20244-205732-01](#)); Public Comment (Trevor Scrabeck) (April 19, 2024) (eDocket No. [20244-205687-01](#)).

¹⁵ Ex. EERA-1 (Comments and Recommendations on Application Completeness Extension Variance Request).

¹⁶ Ex. EERA-1 (Comments and Recommendations on Application Completeness Extension Variance Request).

¹⁷ Ex. EERA-1 (Comments and Recommendations on Application Completeness Extension Variance Request).

¹⁸ Comments (Prehn Family and NoCapX 2020) (April 22, 2024) (eDocket No. [20244-205817-02](#)).

meet Minnesota's energy goals in a reliable manner.¹⁹ IUOE Local 49/NCSRC of Carpenters also conclude that an advisory task force is not warranted at this time.²⁰

9. Comments were also filed by two landowners. Trevor Scrabeck filed comments related to potential impacts of the Project on his personal use airport in New Haven Township.²¹ Dale Thomforde, Supervisor on the New Haven Township Board, filed comments on potential route impacts and recommendations for route alternatives.²²

10. On April 29, 2024, the Applicant filed reply comments responding to the Department, Division of Energy Resources, EERA, NoCapX 2020 and the Prehn Family, commenters in the Certificate of Need proceeding, and the two landowners.²³ The Applicant requested the Commission find the Application to be complete, evaluate the Certificate of Need Application using the Commission's informal process, order the Certificate of Need and Route Permit be processed jointly, decline to appoint an advisory task force, and delegate authority to the Executive Secretary to issue delegation of authority to the Applicant for Minnesota SHPO consultation.²⁴ NoCapX 2020 and Prehn Family also filed reply comments responding to comments from MISO, the Department, Division of Energy Resources, EERA, and from the members of the public.²⁵ Lastly, the Mayor of Oronoco provided comments related to potential impacts to Lake Shady and supporting an alternative route for the 161 kV transmission line along the existing CapX2020 345 kV line.²⁶ The City Council of Oronoco filed a resolution requesting supporting evaluation of an alternative route for the 161 kV transmission line along the existing CapX2020 345 kV line.²⁷

11. On May 6, 2024, the Applicant filed supplemental comments responding to NoCapX 2020 and the Prehn Family, the City and Mayor of Oronoco, and commenters in the Certificate of Need proceeding.²⁸ The Applicant reiterated its prior recommendations and suggested that the route alternative proposed by the City and Mayor of Oronoco be evaluated during the scoping process.²⁹

¹⁹ Comments (IUOE Local 49 and NCSRC of Carpenters) (April 26, 2024) (eDocket No. [20244-206045-01](#)).

²⁰ Comments (IUOE Local 49 and NCSRC of Carpenters) (April 26, 2024) (eDocket No. [20244-206045-01](#)).

²¹ Public Comment (Trevor Scrabeck) (April 22, 2024) (eDocket Nos. [20244-205759-01](#) and [20244-205756-01](#)).

²² Public Comment (Dale Thomforde) (April 23, 2024) (eDocket No. [20244-205870-01](#)).

²³ Ex. Xcel-19 (Reply Comments).

²⁴ Ex. Xcel-19 (Reply Comments).

²⁵ Comments (Reply Comments of the Prehn Family and NoCapX 2020) (April 29, 2024) (eDocket No. [20244-206134-02](#)).

²⁶ Public Comments (Mayor of Oronoco) (April 29, 2024) (eDocket No. [20244-206072-01](#)).

²⁷ Public Comment (City of Oronoco, City Council Resolution) (April 29, 2024) (eDocket No. [20244-206073-01](#)).

²⁸ Ex. Xcel-20 (Supplemental Comments).

²⁹ Ex. Xcel-20 at 5 (Supplemental Comments).

12. On May 17, 2024, Xcel Energy submitted a compliance filing demonstrating that the notices required by Minn. Stat. § 216E.03, subd. 4 and Minn. R. 7850.2100, subps. 2 and 4 were published or mailed.³⁰ The Commission also issued a notice of Commission agenda meetings for May 28 and May 30, 2024.³¹

13. On May 22, 2024, the Commission filed a sample Route Permit.³² The Commission also filed on this same day its Briefing Papers for its May 30, 2024 agenda meeting.³³ On May 23, 2024, the Commission filed Briefing Papers with revised staff decision options for its May 30, 2024 agenda to discuss Application completeness.³⁴ On May 30, 2024, the Commission filed Briefing Papers with second revised decision options and the Commission met to consider the completeness of the Application.³⁵

14. On June 24, 2024, the Commission issued a Notice of Public Information and EIS Scoping Meetings.³⁶

15. On June 26, 2024, the Commission issued an Order: (1) accepting the Certificate of Need portion of the Application as substantially complete and directing that the Certificate of Need Application be reviewed using the information review process; (2) accepting the Route Permit portion of the Application as substantially complete and referring the Route Permit matter to the Office of Administrative Hearings (OAH) for a contested case; (3) authorizing joint hearings and combined environmental review of the Certificate of Need and Route Permit applications; (4) denying the request to establish an advisory task force; and (5) authorizing the Executive Secretary to issue an authorization to the Applicant to initiate consultation with SHPO.³⁷

16. On June 26, 2024, the Notice of Public Information and EIS Scoping Meetings was published in the *Environmental Quality Board (EQB) Monitor*.³⁸

17. On July 3, 2024, the Applicant filed comments on the scope of the EIS recommending the EIS evaluate a route alternative for Segment 4 that would involve double-circuiting the 161 kV line with the existing North Rochester – Northern Hills

³⁰ Ex. Xcel-21 (Notice of Filing of Application Compliance Filing).

³¹ Ex. PUC-8 (Notice of May 28 and 30, 2024 Agenda Meeting).

³² Ex. PUC-9 (Sample Route Permit).

³³ Ex. PUC-10 (May 30, 2024 Agenda Briefing Papers).

³⁴ Ex. PUC-11 (May 30, 2024 Agenda - Revised Staff Decision Options).

³⁵ Ex. PUC-12 (May 30, 2024 Agenda – 2nd Revised Decision Options).

³⁶ Ex. PUC-13 (Public Information and Environmental Impact Statement Scoping Meetings).

³⁷ Ex. PUC-15 (Accepting Applications as Complete, Establishing Procedural Requirements, and Notice of and Order for Hearing).

³⁸ Ex. PUC-14 (EQB Monitor).

161 kV line for a portion of its length, referred to as Segment 4 West Modification in the EIS.³⁹

18. On July 29, 2024, NoCapX 2020 and the Prehn Family filed comments on the scope of the EIS.⁴⁰

19. On July 30, 2024, the Commission filed public comments from Dale Thomforde and Gerald Rausch regarding the scope of the EIS.⁴¹

20. On July 31, 2024, the Minnesota Department of Natural Resources (MnDNR) filed comments regarding the scope of the EIS and proposed conditions for the Route Permit.⁴²

21. On August 1, 2024, the Commission filed the presentation used at the public information and EIS scoping meetings.⁴³ On this same day, the EERA filed written public comments received at public meetings and tribal and agency comments.⁴⁴ A public comment was also filed by Michael Collins.⁴⁵ The Minnesota Department of Transportation (MnDOT) filed comments on the scope of the EIS.⁴⁶ The Citizens for Environmental Rights & Safety (CFERS) also filed comments on the scope of the EIS.⁴⁷ Lastly, the OAH issued an order for prehearing conference.⁴⁸

22. On August 5, 2024, the first prehearing conference was held.⁴⁹ Also on August 5, 2024, the Commission filed the minutes from the May 30, 2024 agenda meeting.⁵⁰

23. On August 6, 2024, OAH issued an order for a continued prehearing conference.⁵¹

³⁹ Ex. Xcel-22 (Comments on Scope of Environmental Impact Statement).

⁴⁰ Comments (Scoping Comments – Prehn Family and NoCapX 2020) (July 29, 2024) (eDocket No. [20247-209032-01](#)).

⁴¹ Public Comment (Dale Thomforde) (July 30, 2024) (eDocket No. [20247-209097-02](#)); Public Comment (Gerald Rausch) (July 30, 2024) (eDocket No. [20247-209102-01](#)).

⁴² Minnesota Department of Natural Resources Comments (July 31, 2024) (eDocket No. [20247-209122-01](#)).

⁴³ Ex. PUC-16 (Public Meeting Presentation).

⁴⁴ Written Public Comments Received at Public Meetings (August 1, 2024) (eDocket No. [20248-209559-03](#)); Tribal and Agency Comments (August 1, 2024) (eDocket No. [20248-209559-01](#)).

⁴⁵ Public Comment (Michael Collins) (Aug. 1, 2024) (eDocket No. [20247-209158-01](#)).

⁴⁶ Comments (Minnesota Department of Transportation) (Aug. 1, 2024) (eDocket No. [20248-209198-01](#)).

⁴⁷ Comments (Scoping Comments for EIS) (Citizens for Environmental Rights and Safety) (Aug. 1, 2024) (eDocket No. [20247-209158-01](#)); Notice of Appearance (Citizens for Environmental Rights and Safety) (Aug. 7, 2024) (eDocket No. [20248-209330-01](#)).

⁴⁸ Order for Prehearing Conference (Aug. 1, 2024) (eDocket No. [20248-209204-01](#)).

⁴⁹ Prehearing Tr. (August 5, 2025) (eDocket No. [20248-209635-02](#)).

⁵⁰ Ex. PUC-17 (May 30, 2024, Minutes).

⁵¹ Order for Continued Prehearing Conference (Aug. 6, 2024) (eDocket No. [20248-209284-01](#)).

24. On August 5 and 7, 2024, the CFERS filed additional comments and a notice of appearance.⁵²

25. On August 12, 2024, the Applicant filed affidavits of publication and newspaper tear sheets for the Notice of Public Information and EIS Scoping Meetings.⁵³

26. On August 13, 2024, the EERA filed comments received via email, mail, and internet form.⁵⁴ The EERA also filed public meeting minutes from the public information and EIS scoping meetings.⁵⁵

27. On August 14, 2024, the second prehearing conference was held.⁵⁶

28. On August 27, 2024, NoCapX 2020 and the Prehn Family petitioned the OAH to intervene in the contested case proceeding.⁵⁷

29. On August 28, 2024, OAH filed its first prehearing order.⁵⁸ The Applicant also filed comments responding to comments on the scope of the EIS.⁵⁹

30. On September 9, 2024, the OAH issued an order granting the petition to intervene from NoCapX 2020 and the Prehn Family.⁶⁰

⁵² Other (Aug. 5, 2024) (eDocket No. [20248-209253-01](#)); Public Comment (Page 1 of 6) (Aug. 7, 2024) (eDocket No. [20248-209329-02](#)); Public Comment (Page 2 of 6) (Aug. 7, 2024) (eDocket No. [20248-209329-04](#)); Public Comment (Page 3 of 6) (Aug. 7, 2024) (eDocket No. [20248-209329-06](#)); Public Comment (Page 4 of 6) (Aug. 7, 2024) (eDocket No. [20248-209329-08](#)); Public Comment (Page 5 of 6) (Aug. 7, 2024) (eDocket No. [20248-209329-10](#)); Public Comment (Page 6 of 6) (Aug. 7, 2024) (eDocket No. [20248-209329-12](#)).

⁵³ Ex. Xcel-24 (Affidavit of Publication for Notice of Public Information and Environmental Impact Statement Scoping Meetings).

⁵⁴ Public Comments (Received Email, Mail, Internet Form, and eDockets Part 1 of 7) (Aug. 13, 2024) (eDocket No. [20248-209459-01](#)); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 2 of 7) (Aug. 13, 2024) (eDocket No. [20248-209459-03](#)); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 3 of 7) (Aug. 13, 2024) (eDocket No. [20248-209459-05](#)); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 4 of 7) (Aug. 13, 2024) (eDocket No. [20248-209459-07](#)); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 5 of 7) (Aug. 13, 2024) (eDocket No. [20248-209459-09](#)); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 6 of 7) (Aug. 13, 2024) (eDocket No. [20248-209459-11](#)); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 7 of 7) (Aug. 13, 2024) (eDocket No. [20248-209459-13](#)).

⁵⁵ Public Comment (Public Meeting Minutes) (Aug. 13, 2024) (eDocket No. [20248-209459-15](#)).

⁵⁶ Prehearing Tr. (August 14, 2024) (eDocket No. 20248-209635-02).

⁵⁷ Intervention (NoCapX 2020 and the Prehn Family) (August 27, 2024) (eDocket No. [20248-209823-02](#)).

⁵⁸ First Prehearing Order (Aug. 28, 2024) (eDocket No. [20248-209844-02](#)).

⁵⁹ Ex. Xcel-25 (Response to Environmental Impact Statement Scoping Comments).

⁶⁰ Order Granting Petition to Intervene by NoCapX 2020 and the Prehn Family (Sept. 9, 2024) (eDocket No. [20249-210073-02](#)).

31. On September 13, 2024, the EERA filed public comments and a comment from the Putrah Family filed outside of the public comment period.⁶¹

32. On September 19, 2024, the EERA filed its summary of the scoping process and its recommendations for the scope of the EIS.⁶²

33. On September 20, 2024, the Commission filed its notice of Commission meeting for October 3, 2024.⁶³

34. On September 21, 2024, NoCapX 2020 and the Prehn Family filed comments on the Commission's meeting notice.⁶⁴

35. On September 26, 2024, the CFERS provided additional comments on route options.⁶⁵ On the same day, the Commission filed briefing papers for its October 3, 2024, agenda meeting.⁶⁶

36. On October 1, 2024, the Commission filed a new decision option from Commissioner Tuma.⁶⁷ An attachment to the new decision option was filed on October 3, 2024, and that same day the Commission met to consider the scope of the EIS.⁶⁸

37. On October 9, 2024, the Commission issued an order adopting the system alternatives and route alternatives recommended by EERA for inclusion in the EIS and adding one additional alternative to the scope of the EIS.⁶⁹

38. On October 15, 2024, the Commission filed a letter authorizing the Applicant to initiate consultation with the Minnesota SHPO.⁷⁰

39. On November 8, 2024, the Applicant filed a letter to request to remove Segment Alternative 1L.⁷¹

⁶¹ Public Comment (Putrah Family - Comment Outside Comment Period) (Sept. 13, 2024) (eDocket No. [20249-210197-02](#)); Public Comment (Public Comments 1-26) (Sept. 13, 2024) (eDocket No. [20249-210198-04](#)); Public Comments (Public Comments 27-49) (Sept. 13, 2024) (eDocket No. [20249-210198-06](#)); Public Comment (Public Comments 50-96) (Sept. 13, 2024) (eDocket No. [20249-210198-08](#)).

⁶² Ex. EERA-5 (Scoping Summary and Recommendations).

⁶³ Ex. PUC-18 (Notice of Commission Meeting).

⁶⁴ Comments (Omissions from Commission Mtg Notice – Prehn Family and NoCapX 2020) (Sept. 21, 2024) (eDocket No. [20249-210398-02](#)).

⁶⁵ Citizens for Environmental Rights & Safety Comments (Sept. 26, 2024) (eDocket No. [20249-210505-01](#)).

⁶⁶ Ex. PUC-19 (October 3, 2024 Agenda Briefing Papers).

⁶⁷ Ex. PUC-20 (October 3, 2024 Agenda – New Decision Option – Commissioner Tuma).

⁶⁸ Ex. PUC-21 (October 3, 2024 Agenda – Attachment to Decision Option – Commissioner Tuma).

⁶⁹ Ex. PUC-22 (Order Adding Alternative to Scope of Environmental Impact Statement).

⁷⁰ Ex. PUC-23 (Letter).

⁷¹ Ex. Xcel-26 (Response to Environmental Impact Statement Scoping Comments).

40. On November 19, 2024, NoCapX 2020 and the Prehn Family filed comments with additional information to consider for the EIS.⁷²

41. On December 2, 2024, the EERA filed the scoping decision for the EIS.⁷³ On December 11, 2024, the EERA filed notice of the EIS scoping decision.⁷⁴

42. On December 18, 2024, the Commissioned filed minutes from its October 3, 2024 agenda meeting.⁷⁵

43. On December 23, 2024, the Clean Energy Organizations filed a petition for intervention with the OAH.⁷⁶

44. On January 3, 2025, the OAH granted the Clean Energy Organizations' petition for intervention.⁷⁷

45. On January 8, 2025, the OAH issued its second prehearing order.⁷⁸

46. Between January 31, 2025 and February 12, 2025, the Applicant mailed notice of the EIS scoping decision to landowners with property located either on one of the newly added route or alignment alternatives or on one of the routes originally proposed in the Application.⁷⁹ The Applicant also sent this mailing to local government units.⁸⁰

47. On March 10, 2025, comments were filed by MnDOT and No CapX 2020 and the Prehn Family.⁸¹

48. On March 28, 2025, the Applicant filed Direct Testimony and Schedules of Ellen Heine and Tony Wendland.⁸²

49. On May 1, 2025, the OAH issued its third prehearing order.⁸³

⁷² Comments (Info for DEIS) (Nov. 19, 2024) (eDocket No. [202411-212167-01](#)).

⁷³ Ex. EERA-6 (Environmental Impact Statement Scoping Decision).

⁷⁴ Ex. EERA-7 (Notice of Environmental Statement Scoping Decisions).

⁷⁵ Ex. PUC-24 (October 3, 2024 Minutes).

⁷⁶ Clean Energy Organizations Petition for Intervention (Dec. 23, 2024) (eDocket No. [202412-213285-01](#)).

⁷⁷ Order on Petition to Intervene by the Clean Energy Organizations (Jan. 3, 2025) (eDocket No. [20251-213528-01](#)).

⁷⁸ Second Prehearing Order (Jan. 8, 2025) (eDocket No. [20251-213668-01](#)).

⁷⁹ Ex. Xcel-34 (Letter Regarding Mailed Notice of Scoping Decision).

⁸⁰ Ex. Xcel-29 at Schedule 4 (E. Heine Direct Testimony and Schedules).

⁸¹ Comments (Minnesota Department of Transportation) (March 10, 2025) (eDocket No. [20253-216230-01](#)); Comments (No CapX 2020 and the Prehn Family) (March 10, 2025) (eDocket No. [20253-216250-01](#)).

⁸² Ex. Xcel-29 (E. Heine Direct Testimony and Schedules); Ex. Xcel-30 (T. Wendland Direct Testimony and Schedules).

⁸³ Third Prehearing Order (May 1, 2025) (eDocket No. [20255-218443-01](#)).

50. On May 5, 2025, the Applicant filed a letter requesting to expand width for portions of proposed Route Option 2 North and Route Option 2 South.⁸⁴

51. On May 5, 2025, the EERA filed its draft EIS (DEIS).⁸⁵

52. On May 6, 2025, the Commission filed a Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS with written comments accepted through June 10, 2025.⁸⁶

53. On May 7, 2025, the Commission filed an affidavit of publication documenting that it had published Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS in the *EQB Monitor*.⁸⁷

54. On May 8, 2025, EERA filed a letter explaining that mailed notice of the EIS scoping decision and a New Landowner Packet inadvertently did not get mailed to landowners that were newly affected by the route and alignment alternatives included in the EIS scoping decision in December 2024.⁸⁸ EERA explained that this mailing is not required by statute or rule and that it decided against providing this mailing in May 2025 as doing so may cause additional confusion as the notice of the DEIS would arrive around the same time.⁸⁹

55. On May 9, 2025, the OAH issued an order for a prehearing conference.⁹⁰

56. On May 12, 2025, the Applicant filed Rebuttal Testimony of Company witness Heine.⁹¹ On the same day, NoCapX 2020 and the Prehn Family filed comments on notice to landowners.⁹²

57. On May 13, 2025, the Applicant filed a letter stating that the Applicant sent a mailing to landowners with property located either on one of the newly added route or alignment alternatives or on one of the routes originally proposed in the Application.⁹³ This notice was sent to 2,878 landowners, including all of the 1,341 landowners that were not sent the EERA's New Landowner Packet.⁹⁴

⁸⁴ Ex. Xcel-32 (Request to Expand Width).

⁸⁵ Ex. EERA-8 (Draft Environmental Impact Statement).

⁸⁶ Ex. PUC-26 (Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS).

⁸⁷ Ex. PUC-27 (Affidavit of Publication).

⁸⁸ Letter (May 8, 2025) (eDocket No. [20255-218717-01](#)).

⁸⁹ EERA Letter (May 8, 2025) (eDocket No. [20255-218717-01](#)).

⁹⁰ Order for Prehearing Conference (May 9, 2025) (eDocket No. [20255-218768-01](#)).

⁹¹ Ex. Xcel-33 (E. Heine Rebuttal Testimony and Schedules).

⁹² Comments (May 12, 2025) (eDocket No. [20255-218810-01](#)).

⁹³ Ex. Xcel-34 (Letter Regarding Mailed Notice of Scoping Decision).

⁹⁴ Ex. Xcel-34 (Letter Regarding Mailed Notice of Scoping Decision).

58. Also on May 13, 2025, the Commission filed a certificate of service for a mailing of the Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS to landowners, federal and state representatives, local governments, and tribal representatives.⁹⁵

59. On May 14, 2025, NoCapX 2020 and the Prehn Family filed comments on the notices provided to the new landowners.⁹⁶

60. On May 16, 2025, the Commission provided an affidavit of mailing of the New Landowner Packet to newly affected landowners.⁹⁷

61. On May 19, 2025, the Applicant filed Surrebuttal Testimony of Company witness Wendland.⁹⁸

62. On May 20, 2025, the EERA filed its certificate of mailing the DEIS and cover letter to public libraries.⁹⁹

63. On May 21, 2025, the Commission filed comments from Duane Tiede.¹⁰⁰

64. On May 27, 2025, a public hearing was held at 11:00 a.m. in Mankato, Minnesota¹⁰¹ and 6:00 p.p. in Waterville, Minnesota.¹⁰² Also on May 27, 2025, the Commission filed its presentation used by Commission Staff at public hearings.¹⁰³

65. On May 28, 2025, a public hearing was held at 11:00 a.m. in Owatonna, Minnesota¹⁰⁴ and at 6:00 p.m. in Zumbrota, Minnesota.¹⁰⁵ Also on May 28, 2025, the Applicant filed a witness list, witness summaries, and a draft exhibit list,¹⁰⁶ and the Commission filed comments from Ryland Eichhorst, Mayor of the City of Oronoco.¹⁰⁷

⁹⁵ Ex. PUC-28 (Certificate of Service to Paper Recipients).

⁹⁶ Comments (May 14, 2025) (eDocket No. [20255-218922-01](#)).

⁹⁷ Ex. PUC-29 (Mailing to Newly Affected Landowners).

⁹⁸ Ex. Xcel-35 (T. Wendland Surrebuttal).

⁹⁹ Ex. EERA-9 (Certificate of Mailing DEIS to Libraries).

¹⁰⁰ Public Comment (Duane Tiede) (May 21, 2025) (eDocket No. [20255-219149-01](#)).

¹⁰¹ Mankato Pub. Hr. Tr. (May 27, 2025) (eDocket No. 20256-220419-01).

¹⁰² Waterville Pub. Hr. Tr. (May 27, 2025) (eDocket No. 20256-220419-02).

¹⁰³ Ex. PUC-30 (Public Hearing Presentation).

¹⁰⁴ Owatonna Pub. Hr. Tr. (May 28, 2025) (eDocket No. 20256-220419-03).

¹⁰⁵ Zumbrota Pub. Hr. Tr. (May 28, 2025) (eDocket No. 20256-220419-04).

¹⁰⁶ Ex. Xcel-37 (Witness List, Witness Summaries, and Draft Exhibit List).

¹⁰⁷ Public Comment (Ryland Eichhorst) (May 28, 2025) (eDocket No. [20255-219315-01](#)).

66. On May 28, 2025, a public meeting was held virtually at 11:00 a.m.,¹⁰⁸ and in-person at 6:00 p.m. in Faribault, Minnesota.¹⁰⁹ Also on May 29, 2025, the Commission filed three public comments.¹¹⁰

67. On May 30, 2025, the ALJ held the evidentiary hearing at the Commission large hearing room in St. Paul, Minnesota.¹¹¹ On the same day, the Applicant filed a map of its preferred route,¹¹² and the Commission filed 11 public comments.¹¹³

68. Between June 3, 2025 and June 10, 2025, the Commission filed numerous public comments it received on the Application.¹¹⁴

69. On June 10, 2025, the Commission filed public comments received from Dodge County.¹¹⁵

70. On June 10, 2025, NoCapX 2020 and the Prehn Family filed comments on the DEIS, the merits of the Certificate of Need Application, and on the merits of

¹⁰⁸ Virtual Pub. Hr. Tr. (May 29, 2025) (eDocket No. 20256-220419-06).

¹⁰⁹ Faribault Pub. Hr. Tr. (May 29, 2025) (eDocket No. 20256-220419-05).

¹¹⁰ Public Comment (Jean Bye) (May 29, 2025) (eDocket No. [20255-219331-02](#)); Public Comment (City of Madison Lake) (May 29, 2025) (eDocket No. [20255-219331-01](#)); Public Comment (Brady and Jennifer Taylor 1) (May 29, 2025) (eDocket No. [20255-219330-01](#)); Public Comment (Brady and Jennifer Taylor 2) (May 29, 2025) (eDocket No. [20255-219330-02](#)).

¹¹¹ Evid. Hr. Tr. (May 30, 2025) (eDocket No. 20256-220419-07).

¹¹² Ex. Xcel-36 (Maps of Preferred Route).

¹¹³ Public Comment (Dale and Thomforde New Haven Township Supervisor (1 of 2)) (May 30, 2025) (eDocket No. [20255-219445-01](#)); Public Comment (Dale and Thomforde New Haven Township Supervisor (1 of 2)) (May 30, 2025) (eDocket No. [20255-219445-02](#)); Public Comment (Harly and Daine Krause) (May 30, 2025) (eDocket No. [20255-219444-01](#)); Public Comment (Luis Barajas) (May 30, 2025) (eDocket No. [20255-219442-01](#)); Public Comment (Ryland Eichhorst, Mayor, Oronoco) (May 30, 2025) (eDocket No. [20255-219440-01](#)); Public Comment (Gordon Cariveau Jr and Yvonne Cariveau) (May 30, 2025) (eDocket No. [20255-219439-01](#)); Public Comment (Scott Condes) (May 30, 2025) (eDocket No. [20255-219438-01](#)); Public Comment (Lori Schulz and Joyce Schulz) (May 30, 2025) (eDocket No. [20255-219436-01](#)); Public Comment (Tom Sammon) (May 30, 2025) (eDocket No. [20255-219434-01](#)); Public Comment (Tamra Berg) (May 30, 2025) (eDocket No. [20255-219417-01](#)); and Public Comment (Dale Thomforde) (May 30, 2025) (eDocket No. [20255-219416-01](#)).

¹¹⁴ Public Comment (Brad Stadsvold) (June 3, 2025) (eDocket No. [20256-219553-01](#)); Public Comment (Michael and Christine Brown) (June 3, 2025) (eDocket No. [20256-219551-01](#)); Public Comment (Mark Jacobs) (June 3, 2025) (eDocket No. [20256-219545-01](#)); Public Comment (Kathryn Mueller) (June 3, 2025) (eDocket No. 20256-219543-01); Public Comment (Sarah Schmidt) (June 4, 2025) (eDocket No. [20256-219573-01](#)); Public Comment (Shawna Hanson) (June 4, 2025) (eDocket No. [20256-219572-01](#)); Public Comment (Andy Hart) (June 4, 2025) (eDocket No. [20256-219571-01](#)); and Public Comment (Angela Just) (June 4, 2025) (eDocket No. [20256-219570-01](#)); Public Comment (Matthew Kuehl) (June 5, 2025) (eDocket No. [20256-219605-01](#)); Public Comment (Matthew Kuehl) (June 5, 2025) (eDocket No. [20256-219605-01](#)); Public Comment (Michael Collins) (June 6, 2025) (eDocket No. [20256-219657-01](#)); Public Comment (Jeff Mattson) (June 6, 2025) (eDocket No. [20256-219655-01](#)); Public Comment (Thomas Gauthier) (June 9, 2025) (eDocket No. [20256-219705-01](#)); Public Comment (Jeff Mattson) (June 9, 2025) (eDocket No. [20256-219704-01](#)); Public Comment (Kevin Quinlan) (eDocket No. [20256-219703-01](#)); Public Comment (Batch 1 06102025 11 Comments) (June 10, 2025) (eDocket No. [20256-219788-03](#)); Public Comment (City of Waseca) (June 10, 2025) (eDocket No. [20256-219788-02](#)); Public Comment (Two Sisters Kitchen and Bar) (eDocket No. [20256-219788-01](#)); and Public Comment (Christopher Bultman) (June 10, 2025) (eDocket No. [20256-219760-01](#)).

¹¹⁵ Public Comment (Dodge County) (June 10, 2025) (eDocket No. [20256-219808-01](#)).

the Application.¹¹⁶ On the same day, NoCapX 2020 and the Prehn Family filed comments on the family landowner notice,¹¹⁷ the landowner mailing list,¹¹⁸ Department and Xcel Energy responses to landowner mailing information requests,¹¹⁹ scoping comments,¹²⁰ and completeness comments.¹²¹

71. On June 10, 2025, the EERA filed four public comments.¹²² On the same day, the Minnesota Interagency Vegetation Management Planning Working Group filed public comments on the Applicant's vegetation management plan.¹²³

72. On June 10, 2025, MnDNR filed comments recommending special permit conditions for the Route Permit.¹²⁴

73. On June 10, 2025, MnDOT filed comments on the DEIS, specifically focusing on Route Segment 17.¹²⁵

74. On June 10, 2025, the Applicant filed comments on the DEIS.¹²⁶

75. On June 11, 2025, the Commission filed six public comments it received on the Application.¹²⁷

¹¹⁶ NoCapX 2020 and the Prehn Family (NoCapX 2020 and the Prehn Family DEIS and Final Comments) (June 10, 2025) (eDocket No. [20256-219811-01](#)).

¹¹⁷ NoCapX 2020 and the Prehn Family (NoCapX 2020 and the Prehn Family Landowner Notice Comments) (June 10, 2025) (eDocket No. [20256-219811-02](#)).

¹¹⁸ NoCapX 2020 and the Prehn Family (NoCapX 2020 and the Prehn Commerce Landowner Mailing List) (June 10, 2025) (eDocket No. [20256-219811-03](#)).

¹¹⁹ NoCapX 2020 and the Prehn Family (NoCapX 2020 - Prehn DOC and Xcel Responses to Landowner Mailing Info Requests) (June 10, 2025) (eDocket No. [20256-219811-04](#)).

¹²⁰ NoCapX 2020 and the Prehn Family (NoCapX 2020 - Prehn Family Scoping Comments) (June 10, 2025) (eDocket No. [20256-219811-06](#)).

¹²¹ NoCapX 2020 and the Prehn Family (NoCapX - Prehn Completeness Comments) (June 10, 2025) (eDocket No. [20256-219811-07](#)).

¹²² Public Comment (Erin Glorbigen) (June 10, 2025) (eDocket No. [20256-219768-01](#)); Public Comment (Jeanne Allen) (June 10, 2025) (eDocket No. [20256-219770-01](#)); Public Comment (Nathan Brandt) (June 10, 2025) (eDocket No. [20256-219809-01](#)); Public Comment (Erin Glorvigen) (June 10, 2025) (eDocket No. [20256-219803-01](#)).

¹²³ Hearing Comments (June 10, 2025) (eDocket No. [20256-219785-01](#)).

¹²⁴ Comments (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket Nos. [20256-219807-01](#), [20256-219807-02](#), [20256-219807-03](#), and [20256-219807-04](#)).

¹²⁵ Comments (MnDOT) (June 10, 2025) (eDocket No. [20256-219788-03](#)).

¹²⁶ Ex. Xcel-38 (Comments on DEIS).

¹²⁷ Public Comment (John & Kristine Paro) (June 11, 2025) (eDocket No. [20256-219823-01](#)); Public Comment (Loren Quaale) (June 11, 2025) (eDocket No. [20256-219822-01](#)); Public Comment (Jennifer Bromeland) (June 11, 2025) (eDocket No. [20256-219821-01](#)); Public Comment (Gary Henslin) (June 11, 2025) (eDocket No. [20256-219820-01](#)); Public Comment (Zach Knutson) (June 11, 2025) (eDocket No. [20256-219818-01](#)); Public Comment (Jeannie Mattson) (June 11, 2025) (eDocket No. [20256-219817-01](#)).

76. On June 16, 2025, the Commission filed a batch of public comments and one public comment it received on the Application and the DEIS.¹²⁸

77. On June 17, 2025, the Commission filed public comments received from the Blue Earth County Public Works Department.¹²⁹

78. On June 30, 2025, the Commission filed sign-in sheets,¹³⁰ hearing exhibits,¹³¹ public hearing transcripts,¹³² and the evidentiary hearing transcript.¹³³

79. On July 25, 2025, the EERA filed its final EIS (FEIS).¹³⁴

80. On August 1, 2025, Applicant filed its Response to Hearing Comments, Proposed Findings of Fact, Conclusions of Law, and Recommendations, and Post-Hearing Brief.

III. THE PROPOSED PROJECT

A. Overview of the Project

81. The proposed Project involves the construction of a new, approximately 130-mile, 345 kV transmission line between the existing Wilmarth Substation in Mankato, Minnesota and the Mississippi River, and a new approximately 20-mile 161 kV transmission line between the North Rochester Substation and an existing transmission line northeast of Rochester, Minnesota.¹³⁵ The Project is divided into four

¹²⁸ Public Comment Batch (June 16, 2025) (eDocket No. [20256-219908-01](#)); Public Comment (Dan Sheady) (June 16, 2025) (eDocket No. [20256-219901-01](#)).

¹²⁹ Public Comment (Blue Earth Public Works Department) (June 17, 2025) (eDocket No. [20256-219968-01](#)).

¹³⁰ Other (Sign-In Sheet – Mankato Public Hearing) (June 30, 2025) (eDocket No. [20256-220421-05](#)); Other (Sign-In Sheet – Waterville Public Hearing) (June 30, 2025) (eDocket No. [20256-220421-06](#)); Other (Sign-In Sheet – Owatonna Public Hearing) (June 30, 2025) (eDocket No. [20256-220421-07](#)); Other (Sign-In Sheet – Faribault Public Hearing) (June 30, 2025) (eDocket No. [20256-220421-08](#)); Other (Sign-In Sheet Zumbrota Public Hearing) (June 30, 2025) (eDocket No. [20256-220421-09](#)).

¹³¹ Exhibit – Hearings (Exhibit B – Waterville Public Hearing) (June 30, 2025) (eDocket No. [20256-220421-01](#)); Exhibit – Hearings (Exhibit C – Zumbrota Hearing) (June 30, 2025) (eDocket No. [20256-220421-02](#)); Exhibit – Hearings (Exhibit D – Zumbrota Hearing) (June 30, 2025) (eDocket No. [20256-220421-03](#)); Exhibit – Hearings (Exhibit E – Zumbrota Hearing) (June 30, 2025) (eDocket No. [20256-220421-04](#)).

¹³² Transcripts (Public Hearing – Mankato – 5-27-25) (June 30, 2025) (eDocket No. 20256-220419-01); Transcripts (Public Hearing – Waterville – 5-27-25) (June 30, 2025) (eDocket No. 20256-220419-02); Transcripts (Public Hearing – Owatonna – 5-28-25) (June 30, 2025) (eDocket No. 20256-220419-03); Transcripts (Public Hearing – Zumbrota – 5-28-25) (June 30, 2025) (eDocket No. 20256-220419-04); Transcripts (Public Hearing – Faribault – 5-29-25) (June 30, 2025) (eDocket No. 20256-220419-05); Transcripts (Public Hearing – Virtual – 5-29-25) (June 30, 2025) (eDocket No. 20256-220419-06).

¹³³ Transcripts (Evidentiary Hearing – 5-30 – 25) (June 30, 2025) (eDocket No. 20256-220419-07).

¹³⁴ Ex. EERA-10 (FEIS).

¹³⁵ Ex. Xcel-15 at 1 (Application).

segments: Segments 1, 2, and 3 making up the 345 kV portion and Segment 4 making up the 161 kV portion.¹³⁶ These four segments are described as follows:

- Segment 1 is a new 48-to-54-mile 345 kV transmission line that will be constructed from the existing Wilmarth Substation and a point near the existing West Faribault Substation.¹³⁷
- Segment 2 is a new 34-to-42 mile 345 kV transmission line that will be constructed between a point near the existing West Faribault Substation and the existing North Rochester Substation.¹³⁸
- Segment 3 is a new 345 kV transmission line that will be constructed between the existing North Rochester Substation and the Mississippi River.¹³⁹ This segment converts approximately 27 miles of existing 161/345 kV transmission line to 345/345 kV operation and installs approximately 16 miles of new 345 kV circuit on an existing 345 kV transmission line.¹⁴⁰ Segment 3 would displace the 161 kV line where it is currently double-circuited with an existing 345 kV line.¹⁴¹
- Segment 4 is the relocation of a portion of an existing 161 kV transmission line which is needed because a portion of the new 345 kV transmission line in Segment 3 would displace the 161 kV transmission line where it is currently double-circuited with an existing 345 kV transmission line.¹⁴²

82. These four segments, collectively, will make up the transmission line portion of the Project.¹⁴³ The proposed Project may span Blue Earth, Le Sueur, Waseca, Rice, Dodge, Olmsted, Goodhue, Winona, and Wabasha counties in Minnesota depending on the final route selected by the Commission.¹⁴⁴ The Project will also include upgrades at the existing Wilmarth and North Rochester substations.¹⁴⁵ Depending on the route selected, the Project may also include upgrades to the Eastwood Substation.¹⁴⁶

¹³⁶ Ex. Xcel-15 at 1 (Application).

¹³⁷ Ex. Xcel-15 at 1 (Application); Ex. EERA-10 at 16 (FEIS).

¹³⁸ Ex. Xcel-15 at 1 (Application); Ex. EERA-10 at 16 (FEIS).

¹³⁹ Ex. Xcel-15 at 1 (Application); Ex. EERA-10 at 16 (FEIS).

¹⁴⁰ Ex. Xcel-15 at 1 (Application); Ex. EERA-10 at 16 (FEIS).

¹⁴¹ Ex. Xcel-15 at 1 (Application); Ex. EERA-10 at 16 (FEIS).

¹⁴² Ex. Xcel-15 at 2 (Application); Ex. EERA-10 at 16 (FEIS).

¹⁴³ Ex. Xcel-15 at 2 (Application).

¹⁴⁴ Ex. Xcel-15 at 2 (Application).

¹⁴⁵ Ex. Xcel-15 at 25 (Application).

¹⁴⁶ Ex. Xcel-15 at 25 (Application).

83. The Project was studied, reviewed, and approved as part of the Long-Range Transmission Planning (LRTP) Tranche 1 Portfolio by MISO's Board of Directors in July 2022 as part of its 2021 Transmission Expansion Plan (MTEP21) report.¹⁴⁷

84. The LRTP Tranche 1 Portfolio will provide significant benefits to the Midwest subregion of the MISO footprint by facilitating more reliable, safe, and affordable energy delivery.¹⁴⁸ The Project, designated as a portion of LRTP4 in MTEP21, is a key part of the LRTP Tranche 1 Portfolio.¹⁴⁹ The transmission system in southern Minnesota is the nexus between significant renewable resources in Minnesota and the Dakotas and the regional load center of the Twin Cities and load centers to the east in Wisconsin.¹⁵⁰ The amount of renewable energy generation on the electric system is increasing as aging traditional generation resources retire and are replaced with renewable resources.¹⁵¹ This Project will provide additional transmission capacity that is needed to reliably deliver this renewable energy to customers.¹⁵² This Project will relieve overloads on existing transmission facilities and will also reduce congestion on the transmission system resulting in lower energy costs.¹⁵³

B. Transmission Line Structures and Conductor Design

85. For the 345 kV portions of the Project in Segments 1 and 2, single-pole steel structures will be primarily used.¹⁵⁴ For the portions of the 345 kV line that will be co-located with existing 115 kV or 345 kV transmission lines, the 115 kV and 345 kV circuits will be constructed in a double circuited configuration.¹⁵⁵ For portions of the Project where the new 345 kV will be co-located with existing 69 kV transmission lines, Xcel Energy will underbuild these existing 69 kV transmission lines with the new 345 kV line.¹⁵⁶ For the remaining portions of the 345 kV transmission line, single-circuit structures will be used. Both the single-circuit and double-circuit structures are typically 85 to 175 feet tall and would be spaced approximately 1,000 feet apart.¹⁵⁷ No new structures are anticipated to be required for Segment 3.¹⁵⁸ This segment involves

¹⁴⁷ Ex. Xcel-15 at 4 (Application).

¹⁴⁸ Ex. Xcel-15 at 4 (Application).

¹⁴⁹ Ex. Xcel-15 at 3 (Application).

¹⁵⁰ Ex. Xcel-15 at 3 (Application).

¹⁵¹ Ex. Xcel-15 at 4 (Application).

¹⁵² Ex. Xcel-15 at 4 (Application).

¹⁵³ Ex. Xcel-15 at 4 (Application).

¹⁵⁴ Ex. Xcel-15 at 20 (Application); Ex. EERA-10 at 52 (FEIS).

¹⁵⁵ Ex. Xcel-15 at 20-21 (Application); Ex. EERA-10 at 53 (FEIS).

¹⁵⁶ Ex. Xcel-15 at 21 (Application); Ex. EERA-10 at 53 (FEIS).

¹⁵⁷ Ex. Xcel-15 at 21-22, Table 2-1 (Application); Ex. EERA-10 at 52 (FEIS).

¹⁵⁸ Ex. Xcel-15 at 6-7 (Application).

converting an existing 161/345 kV transmission line to 345/345 kV operation or installing a new 345 kV circuit on existing double-circuit structures.¹⁵⁹

86. For 161 kV transmission line portion of the Project in Segment 4, single-pole, self-weathering steel structures will be used.¹⁶⁰ In some locations, the 161 kV line will be single-circuit, and in other locations the 161 kV line will be double-circuited with existing 69 kV or 161 kV transmission lines on double-circuit structures.¹⁶¹ Both the single-circuit and double-circuit structures are typically 75 to 140 feet tall and would be spaced approximately 350 to 700 feet apart.¹⁶²

87. The Project will use a double bundled 2X636 kcmil 36/7 Twisted Pair ACSR “Grosbeak” conductor for the new 345 kV transmission line.¹⁶³ New double bundled 954 kcmil ACSS/TW 20/7 “Cardinal” conductor will be installed as the second 345 kV circuit on the existing structures between the North Rochester Substation and the Mississippi River in Segment 3 to match the wire type of the existing circuit.¹⁶⁴

88. The 161 kV portion of the Project in Segment 4 will use a single 2x397.5 kcmil 36/7 Twisted Pair ZTACSR “Ibis” to match the wire type of the rest of the existing 161 kV line. Rebuilt sections of 115 kV and 69 kV transmission lines will use 2x336 kcmil 36/7 Twisted Pair ACSR “Linnet” conductor in a double bundle and single wire configuration, respectively.¹⁶⁵

89. The Project will be designed to meet or surpass relevant local and state codes including National Electric Safety Code (NESC) and Xcel Energy’s standards.¹⁶⁶ Applicable standards will be met for construction and installation, and applicable safety procedures will be followed during design, construction, and after installation.¹⁶⁷

C. Associated Facilities

90. Associated facilities for the Project include modifications to the existing Wilmarth and North Rochester substations in Minnesota.¹⁶⁸ Depending on the route selected, the Project may also include modifications to the Eastwood Substation.¹⁶⁹

¹⁵⁹ Ex. Xcel-15 at 6-7 (Application).

¹⁶⁰ Ex. Xcel-15 at 22 (Application); Ex. EERA-10 at 54 (FEIS).

¹⁶¹ Ex. EERA-8 at 54 (FEIS).

¹⁶² Ex. Xcel-15 at 22-24, Table 2-2 (Application); Ex. EERA-10 at 54-55 (FEIS).

¹⁶³ Ex. Xcel-15 at 24 (Application).

¹⁶⁴ Ex. Xcel-15 at 24 (Application).

¹⁶⁵ Ex. Xcel-15 at 24 (Application).

¹⁶⁶ Ex. Xcel-15 at 24 (Application).

¹⁶⁷ Ex. Xcel-15 at 24 (Application).

¹⁶⁸ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 56 (FEIS).

¹⁶⁹ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 57 (FEIS).

91. The existing Wilmarth Substation, owned by Xcel Energy, is the western endpoint of the Project and is located in Segment 1.¹⁷⁰ This substation is located on the northern edge of the City of Mankato, adjacent to Xcel Energy's refuse derived fuel plant, just east of the Minnesota River.¹⁷¹ New substation equipment necessary to accommodate the proposed 345 kV transmission line will be installed at the Wilmarth Substation.¹⁷² Modifications would include: (1) two new 345 kV circuit breakers; (2) four new 345 kV group-operated switches; (3) three new one-phase bus stands; (4) rigid bus to extend the existing rigid bus to the switches; and (5) a flexible bus to connect the switches to the breakers.¹⁷³ An approximately 0.8 acre expansion of the current fenced area and pad on the northeast corner of the Wilmarth Substation will be installed to accommodate the new substation equipment.¹⁷⁴

92. The existing Eastwood Substation is owned by the Applicant and is located near the eastern boundary of the city of Mankato.¹⁷⁵ Modifications to the Eastwood Substation would only be applicable if Segment 1 South were to be selected by the Commission.¹⁷⁶ Modifications, if needed, would include: (1) installation of approximately 500 feet of new 69 kV transmission line to connect an existing 69 kV line at the substation; and (2) installation of new substation equipment to accommodate the interconnection of this new line, which would include a new 69/115 kV transformer on the north side of the site.¹⁷⁷ The modifications would be necessary to re-terminate the existing 69 kV line at the Eastwood Substation.¹⁷⁸ In this scenario, the existing 69 kV transmission line would be removed between the Eastwood Substation and the Wilmarth Substation and replaced with the Project's 345 kV transmission line.¹⁷⁹

93. The existing North Rochester Substation is located near Pine Island, Minnesota at the endpoints of Segment 3 and Segment 4.¹⁸⁰ New substation equipment necessary to accommodate the proposed 345 kV transmission lines will be installed at the North Rochester Substation.¹⁸¹ The equipment needed would include new 345 kV circuit breakers, new 345 kV switches, new rigid and flexible bus, bus stand and an

¹⁷⁰ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 57 (FEIS).

¹⁷¹ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 57 (FEIS).

¹⁷² Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 57 (FEIS).

¹⁷³ Ex. EERA-10 at 57 (FEIS).

¹⁷⁴ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 57 (FEIS).

¹⁷⁵ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 57 (FEIS).

¹⁷⁶ Ex. EERA-10 at 57 (FEIS).

¹⁷⁷ Ex. EERA-10 at 57 (FEIS).

¹⁷⁸ Ex. EERA-10 at 57 (FEIS).

¹⁷⁹ Ex. EERA-1 at 57 (FEIS).

¹⁸⁰ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 59 (FEIS).

¹⁸¹ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 59 (FEIS).

expansion of the Electrical Equipment Exposure (EEE).¹⁸² No expansion of the current fenced area will be required to accommodate this new substation equipment.¹⁸³

D. Route Width and Right-of-Way

1. Route Width

94. The route width is typically wider than the right-of-way (ROW) needed for the transmission line.¹⁸⁴ The additional route width provides the permittee the flexibility in constructing the line to make alignment adjustments during final design in coordination with landowners, avoid sensitive natural resources, and to manage construction constraints as practical.¹⁸⁵ The route width and anticipated alignment adjustments are intended to balance flexibility and predictability.¹⁸⁶ The transmission line must be constructed within the route width designated by the Commission unless, after permit issuance, permission to proceed outside of the route is approved by the Commission.¹⁸⁷

95. For this Project, the Applicant requested a route width of 1,000 feet (500 feet to either side of the proposed centerlines), with wider areas around Project substations, locations with routing constraints, and where route options come together.¹⁸⁸

96. On May 12, 2025, the Applicant requested a route width expansion in a letter filed to the Commission.¹⁸⁹ This route expansion is needed due to a recently approved transmission project from MISO that involves adding a second 345 kV circuit to the existing Hampton to North Rochester 345 kV transmission line.¹⁹⁰ The approved transmission line prevents the proposed Project from double-circuiting with this existing line as proposed in the Application.¹⁹¹ The Applicant explained that portions of Segment 2 North and Segment 2 South near the North Rochester Substation will now need to be constructed parallel to the existing 345 kV transmission project in new ROW.¹⁹² There is one location in the requested ROW that bears south and deviates from being parallel to the existing line and would extend beyond the route width

¹⁸² Ex. EERA-10 at 59 (FEIS).

¹⁸³ Ex. Xcel-15 at 25 (Application); Ex. EERA-10 at 59 (FEIS).

¹⁸⁴ Ex. EERA-10 at 60 (FEIS).

¹⁸⁵ Ex. Xcel-15 at 19 (Application).

¹⁸⁶ Ex. EERA-10 at 60 (FEIS).

¹⁸⁷ Ex. EERA-10 at 60 (FEIS).

¹⁸⁸ Ex. EERA-10 at 60 (FEIS).

¹⁸⁹ Ex. Xcel-32 at 1 (Request to Expand Width); Ex. Xcel-33 at 1:15-20 (E. Heine Rebuttal Testimony).

¹⁹⁰ Ex. Xcel-32 at 1 (Request to Expand Width); Ex. Xcel-33 at 2:3-13 (E. Heine Rebuttal Testimony).

¹⁹¹ Ex. Xcel-32 at 1 (Request to Expand Width); Ex. Xcel-33 at 2:3-13 (E. Heine Rebuttal Testimony).

¹⁹² Ex. Xcel-32 at 2 (Request to Expand Width); Ex. Xcel-33 at 1:15-20 (E. Heine Rebuttal Testimony).

included in the Application due to a residence located south of the existing line.¹⁹³ As a result, the Applicant requested the route width be expanded to include an area within 500 feet of the new proposed transmission centerline.¹⁹⁴ The Applicant mailed notices to the 46 affected landowners of the proposed route width expansion and revised alignment.¹⁹⁵

2. *Right-of-Way*

97. The ROW is the specific area required for the safe construction and operation of the transmission line, as defined by the NESC and the North American Electric Reliability Corporation (NERC) reliability standards.¹⁹⁶ The ROW must be within the designated route and is the area by which the Applicant obtains rights from landowners to construct, operate, and maintain the transmission line.¹⁹⁷ The 345 kV portion of the Project will require a 150-foot wide ROW.¹⁹⁸ The 161 kV portion of the Project will require an 80¹⁹⁹ to 100-foot wide ROW.²⁰⁰

98. Where the proposed transmission lines parallel existing roadways or other infrastructure (for example, other transmission lines), the amount of new required ROW may be reduced.²⁰¹ The Applicant's typical practice when paralleling existing road ROW is to place the poles on adjacent private property near the ROW.²⁰² With this pole placement, the transmission line shares the existing infrastructure ROW, thereby reducing the size of the easement required from landowner(s).²⁰³ For example, if the required ROW is 150 feet, and the transmission pole is placed 5 feet off an existing road ROW, only an 80-foot ROW easement would be required from the landowner.²⁰⁴ The additional 70 feet of required ROW would be shared with the road ROW.²⁰⁵

¹⁹³ Ex. Xcel-33 at 2:16-22 (E. Heine Rebuttal Testimony).

¹⁹⁴ Ex. Xcel-33 at 2:16-3:9 (E. Heine Rebuttal Testimony); Ex. Xcel-32 at Attachment A, Figures 1 and 2 (Request to Expand Width).

¹⁹⁵ Ex. Xcel-33 at 3:21-26 (E. Heine Rebuttal Testimony).

¹⁹⁶ Ex. EERA-10 at 61 (FEIS).

¹⁹⁷ Ex. EERA-10 at 61 (FEIS).

¹⁹⁸ Ex. Xcel-15 at 20 (Application); Ex. EERA-10 at 62 (FEIS).

¹⁹⁹ In the Application, the Applicant stated that the ROW for the 161 kV line would be 100 feet. There are portions of the 161 kV line that are proposed to be double-circuited with existing transmission lines that have a narrower ROW. For these portions of the route, the right-of-way may only be 80 feet to stay within the existing ROW.

²⁰⁰ Ex. Xcel-15 at 20 (Application); Ex. EERA-10 at 62 (FEIS).

²⁰¹ Ex. EERA-10 at 61 (FEIS).

²⁰² Ex. EERA-10 at 61 (FEIS).

²⁰³ Ex. EERA-10 at 61 (FEIS).

²⁰⁴ Ex. EERA-10 at 61 (FEIS).

²⁰⁵ Ex. EERA-10 at 61 (FEIS).

E. Project Schedule

99. The Applicant anticipates that it will start construction of the Project in the fourth quarter of 2026 or the first quarter of 2027 and place the Project in service in the first quarter of 2030.²⁰⁶ Table 1 provides the current permitting and construction schedule for the Project.²⁰⁷

Table 1. Anticipated Project Schedule

Activity	Estimated Dates
Minnesota Certificate of Need and Route Permit for Issued	Fourth Quarter 2025
Land Acquisition Begins	Fourth Quarter 2025
Survey and Transmission Line Design Begins	Third Quarter 2024
Other Federal, State, and Local Permit Issued	Third/Fourth Quarter 2026 ²⁰⁸
Start Right-of-Way Clearing	Third Quarter 2026
Start Project Construction	Fourth Quarter 2026 or First Quarter 2027
Project In-Service	First Quarter 2030

F. Project Costs

100. Xcel Energy estimates that the Project will cost \$436.8 million to \$589.7 million depending on the route selected.²⁰⁹ These costs are based on specific routes for both the 345 kV and 161 kV transmission lines.²¹⁰

G. Permittee

101. Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy, is the requested permittee for the Project.²¹¹

²⁰⁶ Ex. Xcel-15 at 26-27 (Application); Ex. Xcel-30 at 3:5-7 (T. Wendland Direct Testimony).

²⁰⁷ Ex. Xcel-15 at 27 (Application); Ex. Xcel-30 at 3:8 (T. Wendland Direct Testimony).

²⁰⁸

²⁰⁹ Ex. Xcel-35 at 2:21 (T. Wendland Surrebuttal Testimony).

²¹⁰ Ex. Xcel-30 at 4:17-5:1-2 (T. Wendland Direct Testimony).

²¹¹ Ex. Xcel-15 at 11 (Application).

IV. PUBLIC PARTICIPATION

A. Pre-Application Filing Public Outreach

102. Prior to filing the Application, Xcel Energy held two rounds of open houses, in May and September 2023, to gather information about potential route alternatives and answer questions from the public about the Project.

103. Xcel Energy sent out two mailers to approximately 17,000 recipients in the Project Study Area to provide notice of the May 2023 and September 2023 open houses to landowners and agencies.²¹² In addition to providing information on dates and locations of the open houses, notifications also included a general Project description, a Project schedule, a map of the Project Study Area, the Project's website address, and Project contact information. Open houses were also promoted on Xcel Energy's social media accounts and advertised in the Faribault Daily News, Kasson Dodge County Independent, Kenyon Leader, Lake Crystal Tribune, Mankato Free Press, Plainview News, Rochester Post Bulletin, Wabasha County Herald, Waseca County News, Waterville LifeEnterprise, Winona Daily News, and Zumbrota News Record.²¹³

104. In May 2023, eight open house meetings were held for the Project including: six in-person events, one live virtual event, and one on-demand self-guided open house was available on the Project website.²¹⁴

105. A total of 68 people attended the in-person open houses at the Goodhue County Fairgrounds, 27 people attended the in-person open houses in Rice County Fairgrounds, 20 people attended the in-person open houses at the Country Inn & Suites by Radisson in Mankato, Minnesota, and 3 people logged on to attend the live virtual meetings.²¹⁵ A total of 145 comments were submitted, including: 38 through in-person comment forms, 17 through online comment forms, 28 through in-person mapping stations, 26 through the online comment map, 19 through the Project email, and 17 through the Project hotline.²¹⁶

106. In September 2023, an additional five open house meetings were held for the Project, including: three in-person events, one live virtual event, and the on-demand self-guided virtual open house available on the Project website.²¹⁷ A total of 50 people attended the in-person open house at the Goodhue County Fairgrounds in Zumbrota,

²¹² Ex. Xcel-15 at 337 (Application).

²¹³ Ex. Xcel-15 at 337 (Application); Ex. Xcel-21 at 2 (Notice of Filing Application Compliance Filing).

²¹⁴ Ex. Xcel-15 at 337 (Application).

²¹⁵ Ex. Xcel-15 at 337 (Application).

²¹⁶ Ex. Xcel-15 at 337-338 (Application).

²¹⁷ Ex. Xcel-15 at 338 (Application).

Minnesota, 28 people attended the in-person open house at the Country Inn & Suites by Radisson in Mankato, Minnesota, 32 people attended the in-person open house at the Rice County Fairgrounds in Faribault, Minnesota, and 5 people logged on to attend the live virtual meetings.²¹⁸ A total of 76 comments were submitted during this period, with 9 at the in-person house in Zumbrota, 4 at the in-person open house in Mankato, and 11 at the in-person open house in Faribault.²¹⁹

B. Post-Application Filing Public Outreach

107. After filing the Application, the Applicant continued to engage with the public about the Project by updating the Project website on multiple occasions to keep the public informed about the dates and times for the EIS scoping meetings, the route alternatives included in the scoping decision, and how to comment in the proceeding.²²⁰

108. Xcel Energy also sent out a mailing in January and February 2025 to local units of government and landowners that provided information about the EIS scoping decision and the new route alternatives that would be studied as part of the EIS.²²¹ This mailing provided information about the Project, information on how to submit public comments, and a map of all of the route and alignment alternatives being studied in the EIS.²²²

C. Public Comments Received During and Following the Public Hearings

109. Comments on the Application and the DEIS were gathered during in-person and virtual public hearings held on May 27, 28, and 29, 2025. The dates and times for these public hearings were provided above. Written public comments were received until June 10, 2025. Due to the volume of comments, a summary of public comments is attached as **Addendum 2**.

²¹⁸ Ex. Xcel-15 at 338 (Application).

²¹⁹ Ex. Xcel-15 at 338 (Application).

²²⁰ Ex. Xcel-29 at 24:21-24 (E. Heine Direct Testimony).

²²¹ Ex. Xcel-29 at 24:24-25:3 (E. Heine Direct Testimony).

²²² Ex. Xcel-34 at 2 (Letter Regarding Mailed Notice of Scoping Decision).

V. TRIBAL, FEDERAL, STATE, AND LOCAL GOVERNMENT PARTICIPATION

A. Applicant's Outreach

110. Prior to submitting the Application, Xcel Energy initiated outreach to tribal, federal, state, and local agencies through meetings and Project notification letters.²²³

1. *Tribal Nations*

111. Xcel Energy engaged with all Tribal Nations sharing geography with Minnesota, including those Tribal Nations in nearest proximity to the Project.²²⁴ On May 1, 2023, initial outreach letters were sent to all federally recognized Tribes in Minnesota and Tribes currently located in other states that have ancestral interest in the Minnesota counties crossed by the Project.²²⁵ A second follow up letter was sent to Tribal contacts on October 31, 2023.²²⁶ The letter introduced the Project and invited tribal comments and ongoing communications with Tribal sovereign nations having an historical interest in the Project Study Area.²²⁷

112. In May 2023, representatives from the Prairie Island Indian Community (PIIC) contacted Xcel Energy and noted that one of the proposed route options crossed lands that were owned by the Tribe.²²⁸ On July 17, 2023, Xcel Energy and PIIC discussed the potential impacts of the Project on PIIC's property, which is located on the east side of U.S. Highway 52.²²⁹ On November 15, 2023, PIIC sent a letter to Xcel Energy noting their concerns with the Segment 4 East.²³⁰ To address these concerns, the Applicant identified an additional alignment alternative, Alignment Alternative 4F, to parallel the highway on the southwestern side of U.S. Highway 52.²³¹ On December 14, 2023, Xcel Energy had a call with PIIC to discuss the overall scope of the route options in Segment 4, including the new alignment alternative.²³² On December 18, 2023, Xcel Energy emailed PIIC a map of the proposed route alternatives for Segment 4.²³³

²²³ Ex. Xcel-15 at 323 (Application).

²²⁴ Ex. Xcel-15 at 324 (Application).

²²⁵ Ex. Xcel-15 at 324 (Application).

²²⁶ Ex. Xcel-15 at 324 (Application).

²²⁷ Ex. Xcel-15 at 323-324 (Application).

²²⁸ Ex. Xcel-15 at 325 and Appendix M (Application).

²²⁹ Ex. Xcel-15 at 325 and Appendix M (Application).

²³⁰ Ex. Xcel-15 at 325 and Appendix M (Application).

²³¹ Ex. Xcel-15 at 136, 325 and Appendix M (Application).

²³² Ex. Xcel-15 at 325 and Appendix M (Application).

²³³ Ex. Xcel-15 at 325 and Appendix M (Application).

113. On December 12, 2023, the Lower Sioux Indian Community responded to Xcel Energy's October 31, 2023 letter and requested to be identified as a consulting party on the Project and receive more detailed information regarding Segment 1 and Segment 4.²³⁴

2. *Federal Agencies*

114. The Applicant sent initial outreach letters in May 2023 to the following federal agencies: U.S. Army Corps of Engineers, Federal Aviation Administration, U.S. Department of Agriculture, U.S. Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency.²³⁵ The letter introduced the Project and requested input regarding public and environmental resources that may be located within the Project Study, or resources that could potentially be affected by the Project.²³⁶

115. The U.S. Army Corps of Engineers responded to the Project notification letter on May 8, 2023, and on May 9, 2023, provided contact information for the project manager who will evaluate the Applicant's Section 404 permit once a route has been ordered.²³⁷ The Applicant responded to the U.S. Army Corps of Engineers' May 8, 2023 letter with Project updates.²³⁸

116. The Federal Aviation Administration responded to the Project notification letter on May 9 and May 10, 2023 and directed the Applicant to use the Notice Criteria Tool to determine whether Form 7460-1, Notice of Proposed Construction of Alteration is required for the Project.²³⁹ The Federal Aviation Administration contact indicated the agency could meet with the Applicant to further review the Project as needed.²⁴⁰

117. The U.S. Department of Agriculture responded to the Applicant's May 2023 outreach letter indicating that the agency will review the proposed routes to ensure the proposed routes do not intersect with any of the agency's easement.²⁴¹ The Applicant provided the agency with maps on June 22, 2023 showing the current routes

²³⁴ Ex. Xcel-15 at Appendix M (Application).

²³⁵ Ex. Xcel-15 at 326 (Application).

²³⁶ Ex. Xcel-15 at 324 and Appendix M (Application).

²³⁷ Ex. Xcel-15 at 326 (Application).

²³⁸ Ex. Xcel-15 at 326 (Application).

²³⁹ Ex. Xcel-15 at 326 (Application).

²⁴⁰ Ex. Xcel-15 at 327 (Application).

²⁴¹ Ex. Xcel-15 at 327 and Appendix M (Application).

for the Project.²⁴² The Applicant will continue to coordinate and consult with the agency to identify easements crossed by the Project.²⁴³

118. The U.S. Bureau of Indian Affairs responded through the Project website comment tool that the agency reviewed the map provided in May 2023 and found the proposed routes are not close to any tribal lands in the State, but indicated that the PIIC would be the closest tribe.²⁴⁴ The Applicant indicated it will continue to consult with the agency for the Project.²⁴⁵

119. Xcel Energy provided a copy of the Information for Planning and Consultation report for the Project Study Area and the initial Project letter to the U.S. Fish and Wildlife Service (USFWS) in May 2023.²⁴⁶ In a follow up meeting on September 8, 2023, USFWS staff noted a new eagle ruling was pending and was expected to be final at the end of 2023.²⁴⁷ The agency recommended waiting for this final rule, which was published on February 12, 2024, to determine how it would impact the Project.²⁴⁸ The Applicant will continue to coordinate with the USFWS on the application of this new rule to this Project and other relevant requirements.²⁴⁹

3. *State Agencies*

120. Xcel Energy had a call with MnDNR on July 17, 2023 to go over the Project, preliminary route alternatives for the Project, and to discuss natural resource concerns.²⁵⁰ MnDNR requested that a formal Natural Heritage Information System request for the Project be made through the Minnesota Conservation Explorer.²⁵¹ A copy of the Minnesota Conservation Explorer review was provided to the Applicant by the MnDNR on January 23, 2024.²⁵² Xcel Energy used this information to assess potential Project impacts in the Application.²⁵³

121. Xcel Energy has had numerous discussions about the Project with MnDOT.²⁵⁴ On August 22, 2023, Xcel Energy and MnDOT had a call to discuss all of the currently proposed route segments and alignment alternatives.²⁵⁵ Feedback included

²⁴² Ex. Xcel-15 at 327 and Appendix M (Application).

²⁴³ Ex. Xcel-15 at 327 and Appendix M (Application).

²⁴⁴ Ex. Xcel-15 at 327 (Application).

²⁴⁵ Ex. Xcel-15 at 327 (Application).

²⁴⁶ Ex. Xcel-15 at 327 (Application).

²⁴⁷ Ex. Xcel-15 at 327 (Application).

²⁴⁸ Ex. Xcel-15 at 327 and Appendix M (Application).

²⁴⁹ Ex. Xcel-15 at 327 and Appendix M (Application).

²⁵⁰ Ex. Xcel-15 at 328 and Appendix M (Application).

²⁵¹ Ex. Xcel-15 at 329 and Appendix M (Application).

²⁵² Ex. Xcel-15 at 329 and Appendix M (Application).

²⁵³ Ex. Xcel-15 at 329 and Appendix M (Application).

²⁵⁴ Ex. Xcel-15 at 329 and Appendix M (Application).

²⁵⁵ Ex. Xcel-15 at 329 and Appendix M (Application).

locations where roadway construction is upcoming, existing infrastructure MnDOT would prefer to be avoided or would prefer the proposed transmission line would be parallel to, and to highlight that US Highway 61 is a scenic byway.²⁵⁶

122. On September 13, 2023, MnDOT and Xcel Energy had another call where MnDOT explained the new Early Notification Memo process that MnDOT has begun using and requested that Xcel Energy also use this form.²⁵⁷ Xcel Energy then submitted the Early Notification Memo to MnDOT.²⁵⁸ On January 30, 2024, MnDOT provided its Early Coordination response for the Project and included information concerning meeting summaries, general transmission line routing considerations, and an attachment with detailed MnDOT recommendations and comments concerning resources associated with the Project.²⁵⁹

123. Xcel Energy contacted the Minnesota SHPO on March 7, 2023, to request information on known cultural resources within the Project Study Area.²⁶⁰ The Minnesota SHPO responded on March 10, 2023, with a Microsoft Access database file containing all known records of cultural resources within the Project Study Area.²⁶¹ On May 1, 2023, Xcel Energy sent the initial outreach letter to the Minnesota SHPO describing Project and requesting comments.²⁶² Xcel Energy prepared a draft Cultural Resources Literature Review of the Project Study Area and submitted a copy of that to the Minnesota SHPO with a completed Request for Project review form on February 16, 2024.²⁶³

124. In addition to the general Project description and outreach letter, Xcel Energy sent a copy of the Project's draft Agricultural Impact Mitigation Plan (AIMP) to the Minnesota Department of Agriculture (MDA) on February 5, 2024.²⁶⁴ MDA provided comments on the draft AIMP to Xcel Energy on February 7, 2024, which Xcel Energy has incorporated into the AIMP filed with the Application.²⁶⁵

125. Xcel Energy sent an initial outreach letter with Project information and request for comment to the Minnesota Pollution Control Agency (MPCA) on May 1, 2023.²⁶⁶ MPCA staff met with Xcel Energy to discuss the proximity of the Project to a closed landfill and concerns of replacing existing transmission structures with new

²⁵⁶ Ex. Xcel-15 at 329 and Appendix M (Application).

²⁵⁷ Ex. Xcel-15 at 329 and Appendix M (Application).

²⁵⁸ Ex. Xcel-15 at 329 and Appendix M (Application).

²⁵⁹ Ex. Xcel-15 at 330 (Application).

²⁶⁰ Ex. Xcel-15 at 330 and Appendix M (Application).

²⁶¹ Ex. Xcel-15 at 330 and Appendix M (Application).

²⁶² Ex. Xcel-15 at 330 and Appendix M (Application).

²⁶³ Ex. Xcel-15 at 330 (Application); Ex. Xcel-29 at 22:8-14 (E. Heine Direct Testimony).

²⁶⁴ Ex. Xcel-15 at 330 and Appendix M (Application).

²⁶⁵ Ex. Xcel-15 at 331 and Appendix M (Application).

²⁶⁶ Ex. Xcel-15 at 331 and Appendix M (Application).

double circuit 345/115 kV structures if this route is selected.²⁶⁷ After the meeting, the Applicant incorporated additional information from the MPCA into the Project routing map.²⁶⁸ Xcel Energy also met with the owner of the landfill site on November 9, 2023, to discuss the Project and its proximity to the closed landfill.²⁶⁹ Xcel Energy will continue to coordinate and consult both the MPCA and the landowner of the closed landfill regarding the replacement of the existing 115 kV line with a double circuit 345 kV/115 kV transmission line.²⁷⁰

4. *Local Government Units*

126. On May 1, 2023, Xcel Energy sent an initial outreach letter to the local government units in the Project Study Area describing the Project and requesting comments.²⁷¹ As required by Minn. Stat. § 216E.03, subd. 3(a), Xcel Energy also sent a notice letter to local government units on October 5, 2023, informing them of the Project and the opportunity to arrange for a pre-application consultation meeting with the Applicant.²⁷²

127. Lime Township representatives spoke with Xcel Energy at the September 2023 open houses and provided written comments regarding concerns about airport safety, the proximity of the current proposed routes to the Mankato Airport, and the proximity of the proposed routes to the Mankato Airport control tower.²⁷³ Additional concerns were provided regarding the Project's proximity to the Summit Avenue Demolition Landfill.²⁷⁴ Xcel Energy held a virtual meeting with Lime Township on November 28, 2023, to discuss the concerns raised, provide updates on information the Applicant had learned regarding the airport and landfill, and address any further questions or concerns.²⁷⁵

128. City of Mankato staff also attended the September 2023 public open houses and spoke with Xcel Energy about the Project.²⁷⁶ Xcel Energy held a virtual meeting with such staff on October 25, 2023, to discuss routing options near Mankato Airport.²⁷⁷ The City of Mankato staff provided Xcel Energy with airspace easements in locations where the Proposed Routes were located.²⁷⁸ The Applicant incorporated that

²⁶⁷ Ex. Xcel-15 at 331 and Appendix M (Application).

²⁶⁸ Ex. Xcel-15 at 331 and Appendix M (Application).

²⁶⁹ Ex. Xcel-15 at 331 and Appendix M (Application).

²⁷⁰ Ex. Xcel-15 at 331 (Application).

²⁷¹ Ex. Xcel-15 at 332 (Application).

²⁷² Ex. Xcel-15 at 332 and Appendix M (Application).

²⁷³ Ex. Xcel-15 at 334 (Application).

²⁷⁴ Ex. Xcel-15 at 334 (Application).

²⁷⁵ Ex. Xcel-15 at 334 (Application).

²⁷⁶ Ex. Xcel-15 at 334 (Application).

²⁷⁷ Ex. Xcel-15 at 334 (Application).

²⁷⁸ Ex. Xcel-15 at 334 (Application).

information into the Application and eliminated certain potential route segments south of the airport. Xcel Energy held a virtual meeting with the City of Mankato staff to discuss those changes to the proposed routes.²⁷⁹

129. Xcel Energy attended a Goodhue County Committee meeting on January 16, 2024, to provide a presentation of the Project and answer questions regarding the Project.²⁸⁰

130. Xcel Energy met with and presented to city council members at the City of Oronoco City Council meeting on January 16, 2024.²⁸¹ City council members expressed concerns regarding routing along Highway 52 and expressed a preference that the new single-circuit 161 kV line be built parallel to the existing Hampton – La Crosse 345 kV transmission line.²⁸² Following the presentation by Xcel Energy, Cascade Township, Oronoco Township, Pine Island Township, and the City of Oronoco passed resolutions requesting that route alternative for the new single-circuit 161 kV line be added which would parallel the Hampton – La Crosse 345 kV line.²⁸³

B. Participation in Route Permit Docket

1. Tribal Nations

131. On August 1, 2024, the EERA filed public comments from the PIIC regarding the scope of the EIS for the Project.²⁸⁴ PIIC encouraged the EIS to study and review the proposed route Segment 4 East on PIIC and its Elk Run property for undue community burden, past injustices, and the impact on tribal natural resources.²⁸⁵

2. Federal Agencies

132. On August 1, 2024, the EERA filed public comments received from the U.S. Army Corps of Engineers indicating that the Project is likely to require a permit from the U.S. Army Corps of Engineers (USACE) based on an initial review of the Application.²⁸⁶ Xcel Energy responded in its August 28, 2024 letter stating that it will continue to coordinate with USACE as this Project proceeds and will apply for all required federal permits.²⁸⁷

²⁷⁹ Ex. Xcel-15 at 334-335 and Appendix M (Application).

²⁸⁰ Ex. Xcel-15 at 335 and Appendix M (Application).

²⁸¹ Ex. Xcel-15 at 335 (Application).

²⁸² Ex. Xcel-15 at 335 (Application).

²⁸³ Ex. Xcel-15 at 335 and Appendix M (Application).

²⁸⁴ Tribal and Agency Comments at 1-5 (Aug. 1, 2024) (eDocket No. [20248-209559-01](#)).

²⁸⁵ Tribal and Agency Comments at 3-5 (Aug. 1, 2024) (eDocket No. [20248-209559-01](#)).

²⁸⁶ Tribal and Agency Comments at 25 (Aug. 1, 2024) (eDocket No. [20248-209559-01](#)).

²⁸⁷ Ex. Xcel-25 at 16 (Response to Environmental Impact Statement Scoping Comments).

3. *State Agencies*

a. MnDNR

133. On July 30, 2024, MnDNR filed comments regarding potential environmental impacts that the agency recommended be considered in the EIS.²⁸⁸ Specifically, MnDNR recommended the EIS should fully describe the timing of the work, the equipment and materials, and any temporary staging areas and work spaces in or near the McCarthy Lake Wildlife Management Area and calcareous fen.²⁸⁹ MnDNR further noted that the routes in Olmsted County are in close proximity to mapped karst features and MnDNR recommended that the EIS should address how the Project will account for karst geology in pole structure design and placement, and what measures the Applicant will take should it encounter karst features during construction.²⁹⁰ Lastly, MnDNR recommended that any additional route alternatives considered in the EIS, should be submitted to the MnDNR Natural Heritage staff to update the January 23, 2024 Natural Heritage letter.²⁹¹

134. On January 13, 2025, Xcel Energy submitted a Natural Heritage Review request to the MnDNR via the Minnesota Conservation Explorer to address the additional route alternatives that were added during scoping.²⁹² On March 10, 2025, Xcel Energy contacted the MnDNR for an update on its response.²⁹³ The MnDNR provided that such a response would be issued three months from the initial filing date.²⁹⁴

135. On May 1, 2025, the MnDNR issued a refresh of its initial natural heritage response (MCE 2023-00832) which incorporated review of the route alternatives being analyzed in the DEIS (MnDNR refreshed responses are labeled MCE 2025-00029 and MCE 2025-00030).²⁹⁵ These updated reviews were filed on the docket on June 10, 2025, and were used in preparing the final FEIS and included in Appendix M of the FEIS.

136. On June 10, 2025, MnDNR filed additional comments outlining its route preferences and proposed special conditions for the Route Permit.²⁹⁶ The MnDNR stated a preference for Route Segment 17 for Segments 1 and 2 “[t]o mitigate potential

²⁸⁸ Comments at 1 (July 30, 2024) (eDocket No. [20247-209122-01](#)).

²⁸⁹ Comments at 1-2 (July 30, 2024) (eDocket No. [20247-209122-01](#)).

²⁹⁰ Comments at 2 (July 30, 2024) (eDocket No. [20247-209122-01](#)).

²⁹¹ Comments at 2 (July 30, 2024) (eDocket No. [20247-209122-01](#)).

²⁹² Ex. Xcel-29 at 24:1-5 (E. Heine Direct Testimony).

²⁹³ Ex. Xcel-29 at 24:1-5 (E. Heine Direct Testimony).

²⁹⁴ Ex. Xcel-29 at 24:1-5 (E. Heine Direct Testimony).

²⁹⁵ Comments (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket Nos. [20256-219807-01](#), [20256-219807-02](#), [20256-219807-03](#), and [20256-219807-04](#)).

²⁹⁶ Comments (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket Nos. [20256-219807-01](#), [20256-219807-02](#), [20256-219807-03](#), and [20256-219807-04](#)).

impacts on native plant communities, state-administrated lands, and public waters.”²⁹⁷ The MnDNR stated that if Route Segment 17 is not selected, that it strongly encourages “double -circuiting the final route as much as feasible to minimize long-term impacts on natural resources.”²⁹⁸ The MnDNR opposed selection of Route Alternative 1J, part of Segment 1 South, because this route alternative does not follow an existing transmission line and crosses between multiple areas known for their waterfowl population including Ballantyne, Duck, and Madison Lakes, all Lakes of Outstanding Biological Significance, and Gilfillan Lake WMA.²⁹⁹ The MnDNR also supported use of Segment 2 South near the Faribault WMA rather than Segment 2 North because Segment 2 South has the potential to be double-circuited with an existing transmission line in this area.³⁰⁰ For Segment 4, the MnDNR supports the CapX Co-Locate Option as it co-locates the re-located 161 kV line with the existing CapX2020 Hampton – La Crosse 345 line across the Zumbro River.³⁰¹

137. In its June 10, 2025 comments, MnDNR requested that to the extent that there is any ROW expansion or staging areas on the east side of the Zumbro River, that the tree removal within Minnesota Biological Survey (MBS) Site of Moderate Biodiversity Significance and riparian zone of the Zumbro River be limited.³⁰² MnDNR also recommended that the Route Permit include special conditions regarding: (1) coordination with USFWS on avoidance and permitting of federally-protected species; (2) avian flight divertors; (3) coordination with the Vegetation Management Planning Working Group (VMPWG) on the Vegetation Management Plan (VMP) and that the VMP should address vegetation removal timing and avoiding removal in floodplains and near designated trout streams; (4) wildlife friendly erosion control; (5) require that dust control products do not contain calcium chloride or magnesium chloride; and (6) use of downward-facing facility lighting that minimizes blue hue.³⁰³

b. MnDOT

138. On August 1, 2024, MnDOT filed comments during the scoping process for the EIS.³⁰⁴ In these comments, MnDOT highlighted a wooded wetland complex within Segment 1 and advised the Applicant that all transmission line structures in proximity of the wooded wetland should comply with all MnDOT requirements associated with wetland buffers and U.S. Army Corps of Engineers regulations.³⁰⁵

²⁹⁷ Comments at 1 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

²⁹⁸ Comments at 1 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

²⁹⁹ Comments at 1 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

³⁰⁰ Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

³⁰¹ Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

³⁰² Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

³⁰³ Comments at 2-4 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

³⁰⁴ Comments (August 1, 2024) (eDocket No. [20248-209198-01](#)).

³⁰⁵ Comments at 2 (August 1, 2024) (eDocket No. [20248-209198-01](#)).

MnDOT also recommended continued cooperation with the City of Madison Lake to ensure the placement of transmission poles and lines are coordinated with the placement of the site infrastructure, sidewalks, and street extensions.³⁰⁶

139. On November 22, 2024, Xcel Energy submitted an Early Notification Memo request to MnDOT to address the new route alternatives that were added during EIS scoping for the Project.³⁰⁷ On November 26, 2024, MnDOT requested clarification on an alignment to which Xcel Energy responded to on the same day.³⁰⁸ On January 17, 2025, Xcel Energy submitted a supplemental Early Notification Memo request to MnDOT for Segment 4 West Modification, to which MnDOT provided it had no interest or assets along this route alternative that would be affected.³⁰⁹ On March 25, 2025, MnDOT formally responded to the Early Notification Memo request and filed its response with the Commission.³¹⁰ In this letter, MnDOT outlined potential impacts of the route alternatives, suggested mitigative measures, and potential permit limitations/requirements.³¹¹

140. On June 10, 2025, MnDOT filed comments on the DEIS suggesting edits to certain sections of the DEIS.³¹² MnDOT stated that it appreciated the work of EERA staff and the Applicant to include MnDOT's findings from the Applicant's Early Notification Memo on Route Segment 17 into the DEIS.³¹³

c. SHPO

141. On May 1, 2024, the SHPO responded to the Literature Review submission and assigned the Project SHPO Number 2024-1231.³¹⁴ On October 15, 2024, the Commission submitted a letter to the Applicant and the SHPO authorizing Xcel Energy to act on the Commission's behalf to consult with SHPO.³¹⁵ On March 21, 2025, Xcel Energy contacted SHPO staff to request a meeting.³¹⁶ On April 18, 2025, Xcel Energy met with SHPO staff to discuss the Project, review cultural resources work completed to date, federal nexus and Section 106 matters, status of permitting and anticipated Route Permit decision date, review of future cultural resources work of the selected route, and format of anticipated cultural resource report.

³⁰⁶ Comments at 2 (August 1, 2024) (eDocket No. [20248-209198-01](#)).

³⁰⁷ Ex. Xcel-29 at 23:19-24:1 (E. Heine Direct Testimony).

³⁰⁸ Ex. Xcel-29 at 23:19-24:1 (E. Heine Direct Testimony).

³⁰⁹ Ex. Xcel-29 at 23:23-25 (E. Heine Direct Testimony).

³¹⁰ Ex. Xcel-29 at 24:1-3 (E. Heine Direct Testimony).

³¹¹ Ex. Xcel-29 at 24:3-5 (E. Heine Direct Testimony).

³¹² Comments at 1 (Minnesota Department of Transportation) (June 10, 2025) (eDocket No. [20256-219788-03](#)).

³¹³ Comments at 2-3 (Minnesota Department of Transportation) (June 10, 2025) (eDocket No. [20256-219788-03](#)).

³¹⁴ Ex. Xcel-29 at 22:18-20 (E. Heine Direct Testimony).

³¹⁵ Ex. Xcel-29 at 22:23 -23:2 (E. Heine Direct Testimony); Ex. PUC-23 (Letter).

³¹⁶ Ex. Xcel-29 at 23:4-10 (E. Heine Direct Testimony).

d. VMPWG

142. On June 10, 2025, the EERA filed comments on behalf of the interagency Vegetation Management Planning Working Group (VMPWG) regarding the draft Vegetation Management Plan (VMP) included as Appendix V to the Application.³¹⁷ The VMPWG stated that it was not recommending any action by the Commission at this time but was providing its comments on the draft VMP to facilitate transparency in the record as the VMPWG and Xcel Energy work together to finalize the VMP for this Project.³¹⁸ The VMPWG provided several recommendations for updates to the draft VMP and recommended that Xcel Energy continue to coordinate with the VMPWG as it finalizes the VMP.³¹⁹

4. *Local Government Units*

143. On April 29, 2024, the Major of Oronoco provided comments regarding route alternative Segment 4 East and asked the Commission to consider city development plans in regards to route alternatives.³²⁰ On the same day, the City of Oronoco provided a city council resolution in support of the Project's Segment 4 route and at least one alternative for the new single-circuit 161 kV line that follows the existing CapX2020 transmission line route from the North Rochester Substation to the Chester Junction.³²¹

144. On May 29, 2025, the City of Madison Lake commented and expressed concerns regarding the proposed Segment 1 South route as the route may interrupt commercial and residential development in the area.³²² The City of Madison Lake expressed its preference for Segment 1 North over the Segment 1 South.³²³

145. On May 29, 2025, Dodge County filed comments expressing concern about the addition of Highway 14 route alternative (Route Segment 17).³²⁴ Dodge County stated that it did not receive notice of this alternative until May 16, 2025 and that it did not have adequate time to provide feedback on this alternative.³²⁵ Dodge County requested an extension of the public comment deadline to allow additional time to formulate its comments.³²⁶

³¹⁷ Hearing Comments at 1 (June 10, 2025) (eDocket No. [20256-219785-01](#)).

³¹⁸ Hearing Comments at 1 (June 10, 2025) (eDocket No. [20256-219785-01](#)).

³¹⁹ Hearing Comments at 6 (June 10, 2025) (eDocket No. [20256-219785-01](#)).

³²⁰ Public Comment (April 29, 2024) (eDocket No. [20244-206072-01](#)).

³²¹ Public Comment (April 29, 2024) (eDocket No. [20244-206073-01](#)).

³²² Public Comment (May 29, 2025) (eDocket No. [20255-219331-01](#)).

³²³ Public Comment (May 29, 2025) (eDocket No. [20255-219331-01](#)).

³²⁴ Public Comment (May 29, 2025) (eDocket No. [20256-219808-01](#)).

³²⁵ Public Comment (May 29, 2025) (eDocket No. [20256-219808-01](#)).

³²⁶ Public Comment (May 29, 2025) (eDocket No. [20256-219808-01](#)).

146. On June 10, 2025, the City of Waseca filed a City Council ordinance supporting a comprehensive socioeconomic analysis and potential business development benefits of the proposed route along Highway 14 (Route Segment 17) as compared to the other route alternatives for Segments 1 and 2.³²⁷

147. On June 17, 2025, Blue Earth County Public Works filed a comment summarizing the potential impacts of Segment 1 North and Segment 1 South on its county roads and future road construction projects.³²⁸ Blue Earth County Public Works also stated that they anticipate that Xcel Energy will work with the County on developing and executing a Haul Road Use and Temporary Access Agreement.³²⁹

VI. ROUTES EVALUATED FOR PROJECT

A. Applicant's Route Development

148. Xcel Energy conducted a thorough and systematic route selection process beginning in 2022 and extending through late-2023.³³⁰ This process included consideration of statutory and rule requirements, identification and review of existing transmission lines and linear infrastructure, information gathering and data compilation, public outreach and input, meeting and collecting stakeholder comments, and comparison of route segments and alignment.³³¹ The Applicant also met with tribal government contacts and state and local agencies as part of the outreach program for the Project.³³²

149. Xcel Energy developed a geographic information system (GIS) database of information gathered from publicly available data resources and from on-site field review efforts that was used to compare the merits of various routing options with a goal of developing Application routes that minimize impacts to sensitive resources to the extent practicable.³³³

150. Xcel Energy identified the following steps that were taken as part of this process:

- Established boundaries for Project Study Area;
- Identified opportunities and constraints;

³²⁷ Public Comment (June 10, 2025) (eDocket No. [20256-219788-02](#)).

³²⁸ Public Comment (June 17, 2025) (eDocket No. [20256-219968-01](#)).

³²⁹ Public Comment (June 17, 2025) (eDocket No. [20256-219968-01](#)).

³³⁰ Ex. Xcel-15 at 108 (Application).

³³¹ Ex. Xcel-29 at 5:4-11 (E. Heine Direct Testimony); Ex. Xcel-15 at 108 (Application).

³³² Ex. Xcel-29 at 5:4-11 (E. Heine Direct Testimony); Ex. Xcel-15 at 108 (Application).

³³³ Ex. Xcel-29 at 5:13-19 (E. Heine Direct Testimony); Ex. Xcel-15 at 108 (Application).

- Developed preliminary route alternatives;
- Conducted tribal, local government and agency outreach;
- Conducted initial landowner outreach;
- Reviewed initial route network in the field;
- Held public open house meetings;
- Reviewed and refined routes based on feedback and analysis, ran comparative analysis to remove most impactful routes;
- Conducted a second round of public open house meetings;
- Reviewed, refined routes, ran comparative analysis to remove most impactful routes. Optimized route segments and connected to create end-to-end routes included in the Application; and
- Conducted constructability review of end-to-end routes.³³⁴

151. To minimize impacts on the environment and landowners, Xcel Energy stated that, where feasible, it attempted to avoid the following areas within the Routing Study Area:

- Residences;
- Municipal boundaries;
- Tribally-owned properties;
- Federally-owned properties;
- State-owned properties;
- Lakes, rivers, and calcareous fens;
- Public airports; and

³³⁴ Ex. Xcel-29 at 5:23-6:11 (E. Heine Direct Testimony); Ex. Xcel-29 at 5-6 (Application).

- Regional, county, and municipal Parks.³³⁵

152. Xcel Energy also took the additional steps to minimize impacts of the Project on the environment and affected landowners to share existing rights-of-way or follow existing linear features.³³⁶ Xcel Energy searched for the following opportunities:

- Locations with the opportunity to double-circuit with or parallel existing transmission lines;
- Locations with the opportunity to parallel a roadway, and potentially share public rights-of-way between the transmission line and road, and avoid the constraints;
- Locations with the opportunity to place the proposed transmission line centerline on a field or property line, where land uses could continue to be uninterrupted in the transmission line easement; and
- Routes that reduce the number of two-pole angle or dead-end structures by following straight lines.³³⁷

B. Routes Proposed in the Application

153. As a result of the Applicant's routing development process, the Applicant proposed two end-to-end route alternatives for Segments 1, 2, and 4 of the Project in the Application.³³⁸ In addition, Xcel Energy provided five alternative segments and three connector segments in its Application.³³⁹ Alternative routes were not provided by the Applicant for Segment 3 because route alternatives were evaluated to this segment during the Hampton – La Crosse project route permit proceeding.³⁴⁰

1. Segment 1

154. Segment 1 is the proposed new 345 kV transmission line that would run from the Wilmarth Substation in the city of Mankato to a point near the West Faribault Substation near the city of Faribault.³⁴¹ Two potential routes were identified for

³³⁵ Ex. Xcel-29 at 6:17-7:1 (E. Heine Direct Testimony).

³³⁶ Ex. Xcel-29 at 6:6-20 (E. Heine Direct Testimony).

³³⁷ Ex. Xcel-29 at 7:8-20 (E. Heine Direct Testimony).

³³⁸ Ex. Xcel-29 at 4:16-19 (E. Heine Direct Testimony).

³³⁹ Ex. Xcel-29 at 4:22-24 (E. Heine Direct Testimony).

³⁴⁰ Ex. Xcel-15 at 7 (Application).

³⁴¹ Ex. Xcel-15 at 123 (Application).

Segment 1 in the Application: Segment 1 North (48.1 miles) and Segment 1 South (53.6 miles).³⁴²

155. Segment 1 North follows existing Xcel Energy transmission lines from the Wilmarth Substation until it ends near the West Faribault Substation.³⁴³ Nearly all of Segment 1 North (96 percent) could be double-circuited with either an existing 115 kV line or a 69 kV line.³⁴⁴ For Segment 1 North, no route segment or alignment alternatives were proposed in the Application.³⁴⁵

156. Segment 1 South generally follows existing 115 kV and 69 kV transmission lines from the Wilmarth Substation to near the West Faribault Substation.³⁴⁶ More than half of Segment 1 South (69 percent) could be double-circuited with existing 69 kV and/or 115 kV line.³⁴⁷ For Segment 1 South, one route segment alternative and zero alignment alternatives were proposed in the Application.³⁴⁸

2. *Segment 2*

157. Segment 2 is the proposed new 345 kV transmission line that would run from a point near the West Faribault Substation, southwest of the city of Faribault, to the North Rochester Substation, just north of the city of Pine Island.³⁴⁹ The Applicant proposed two route options for Segment 2 in the Application: Segment 2 North (41.2 miles) and Segment 2 South (33.6 miles).³⁵⁰

158. As proposed in the Application, Segment 2 North could be double-circuited with existing 69 kV transmission line for 51 percent of its length and would be parallel to an existing 345 kV transmission line for 17 percent of its length.³⁵¹ For Segment 2 North, no route segment or alignment alternatives were proposed in the Application.³⁵²

159. Segment 2 South would be primarily constructed in a new ROW that parallels some (27 percent) existing infrastructure (transmission lines, roads, or

³⁴² Ex. Xcel-15 at 123 (Application).

³⁴³ Ex. EERA-10 at 32 (FEIS).

³⁴⁴ Ex. EERA-10 at 32 (FEIS); Ex. Xcel-15 at 123 (Application).

³⁴⁵ Ex. Xcel-15 at 123 (Application).

³⁴⁶ Ex. EERA-10 at 33 (FEIS).

³⁴⁷ Ex. EERA-10 at 33 (FEIS).

³⁴⁸ Ex. Xcel-15 at 123 (Application).

³⁴⁹ Ex. EERA-10 at 35 (FEIS).

³⁵⁰ Ex. EERA-10 at 35 (FEIS).

³⁵¹ Ex. EERA-10 at 37 (FEIS).

³⁵² Ex. Xcel-15 at 127 (Application).

railroads) but mostly (77 percent in total) parallels property lines.³⁵³ For Segment 2 South, no route segment or alignment alternatives were proposed in the Application.³⁵⁴

160. Xcel Energy did propose a connector segment for Segment 2 in the Application, Connector 2G.³⁵⁵ Connectors, where present, connect the north and south options.³⁵⁶ Connector 2G connects Segment 2 North and Segment 2 South in Rice County and travels north to south across agricultural land.³⁵⁷ Connector 2G would require a greenfield ROW.³⁵⁸

3. *Segment 3*

161. Segment 3 is the proposed new 345 kV transmission line that would run from the North Rochester Substation near Pine Island to the Mississippi River (and Minnesota/Wisconsin border), where it would cross the river at a point near the city of Kellogg.³⁵⁹ Segment 3 is 43.4 miles and will be double-circuited in its entirety. The existing double-circuit structures were previously permitted as a 345 kV double-circuit capable line by the Commission as part of the CapX2020 Hampton – La Crosse Project in 2012.³⁶⁰ The Applicant did not propose an alternative route for Segment 3 because route alternatives to this segment were evaluated during the Hampton – La Crosse Project route permit proceeding and no additional ROW would be required for Segment 3.³⁶¹

162. The westernmost 27 miles of Segment 3 would convert an existing 161 kV transmission line to 345 kV operation.³⁶² The easternmost 16 miles of Segment 3 would involve installing new 345 kV transmission lines on existing transmission structures.³⁶³ The Mississippi River crossing would not require any new construction as the existing 69 kV line would be converted to 345 kV operation.³⁶⁴

163. An alternative route for Segment 3 was not proposed because route alternatives to this segment were evaluated as part of a prior route permit proceeding

³⁵³ Ex. EERA-10 at 37 (FEIS).

³⁵⁴ Ex. Xcel-15 at 127 (Application).

³⁵⁵ Ex. EERA-10 at 38 (FEIS).

³⁵⁶ Ex. EERA-10 at 38 (FEIS).

³⁵⁷ Ex. EERA-10 at 38 (FEIS).

³⁵⁸ Ex. EERA-10 at 38 (FEIS).

³⁵⁹ Ex. EERA-10 at 42 (FEIS).

³⁶⁰ Ex. EERA-10 at 42 (FEIS); *In the Matter of Xcel Energy's Application for a Route Permit for the CapX2020 Hampton – Rochester – La Crosse High Voltage Transmission Line*, Order Issuing Route Permit as Amended, Docket No. E002/TL-09-1448 (May 30, 2012).

³⁶¹ Ex. EERA-10 at 42 (FEIS).

³⁶² Ex. EERA-10 at 42 (FEIS).

³⁶³ Ex. EERA-10 at 42 (FEIS).

³⁶⁴ Ex. Xcel-15 at 130 (Application).

and the entire length of Route Option 3 is within an existing transmission corridor and no additional ROW will be required.³⁶⁵

4. Segment 4

164. Segment 4 is the proposed relocation of a portion of the existing North Rochester to Chester 161 kV transmission line that will be displaced by Segment 3.³⁶⁶ Two potential routes were identified for Segment 4 in the Application: Segment 4 West (23.7 miles) and Segment 4 East (19.6 miles).³⁶⁷ Portions of both routes would parallel existing transmission line rights-of-way, but both routes also require significant segments where new greenfield ROW would be required.³⁶⁸

165. Segment 4 West parallels a combination of roads, property lines, and existing transmission lines for nearly all of its length; it could be double-circuited in part with an existing 161 kV line at its northernmost portion.³⁶⁹ For Segment 4 West, two route segment alternatives, and one connector (4Q) were proposed in the Application.³⁷⁰

166. Segment 4 East parallels U.S. Highway 52 for most of its length and includes some double-circuiting where it runs east/west.³⁷¹ For Segment 4 East, route segment alternatives, and one connector (4Q) were proposed in the Application.³⁷²

167. In the Application, the Applicant proposed Connector 4Q.³⁷³ Connector 4Q connects Segment 4 West and Segment 4 East in Olmsted County, east of Highway 52.³⁷⁴ It travels north to south across agricultural land and parallels 20th Avenue Northeast. The connector would require a greenfield ROW.³⁷⁵

C. Route Alternatives Added During Scoping Process

168. During the EIS scoping comment period, members of the public and the Applicant recommended 12 route segments and five alternative alignments.³⁷⁶ During the scoping process, the Applicant also requested that Segment Alternative 1L be

³⁶⁵ Ex. Xcel-15 at 130-131 (Application).

³⁶⁶ Ex. Xcel-15 at 133 (Application); Ex. EERA-10 at 44 (FEIS).

³⁶⁷ Ex. Xcel-15 at 133 (Application).

³⁶⁸ Ex. Xcel-15 at 133 (Application).

³⁶⁹ Ex. EERA-10 at 47 (FEIS).

³⁷⁰ Ex. Xcel-15 at 133 (Application).

³⁷¹ Ex. EERA-10 at 48 (FEIS).

³⁷² Ex. Xcel-15 at 133 (Application).

³⁷³ Ex. EERA-10 at 50 (FEIS).

³⁷⁴ Ex. EERA-10 at 50 (FEIS).

³⁷⁵ Ex. EERA-10 at 50 (FEIS).

³⁷⁶ Ex. EERA-5 at 6 (Scoping Summary and Recommendations).

removed from consideration as a potential route to avoid potential conflicts with CenterPoint Energy's gas wells in the area.³⁷⁷

169. EERA staff analyzed the route segments, connectors, and alternative alignments recommended by the public to determine if their inclusion in the EIS would aid in the Commission's decision on the Application. EERA recommended that 10 route segments and 5 alignment alternatives be evaluated in the EIS.³⁷⁸

170. The Commission adopted the route and alignment alternatives recommended by EERA for inclusion in the scope of the EIS but also added one additional alternative to Route Segment 9.³⁷⁹

1. Segment 1

171. For Segment 1 North, two route segment alternatives and two alignment alternatives were proposed during scoping.³⁸⁰ For Segment 1 South, seven subsegments, six route segments and zero alignment alternatives were proposed during scoping.³⁸¹ These alternatives are summarized in Table 2 below.

Table 2. Segment 1 Alternatives

Route Alternatives	Route Segment Alternatives	Alignment Alternatives
Segment 1 North	Route Segment 9 Route Segment 18	Alignment Alternative 2 Alignment Alternative 8
Segment 1 South	Route Segment 1 Route Segment 5 Route Segment 6 Route Segment 7 Route Segment 10 Route Segment 11	None

2. Segment 2

172. No route, route segment, or alignment alternatives were proposed during scoping for Segment 2.³⁸²

³⁷⁷ Ex. Xcel-29 at 8:4-8 (E. Heine Direct Testimony).

³⁷⁸ Ex. EERA-5 at 6 (Scoping Summary and Recommendations).

³⁷⁹ Ex. PUC-22 (Order Adding Alternative to Scope of Environmental Impact Statement).

³⁸⁰ Ex. EERA-10 at 30 (FEIS).

³⁸¹ Ex. EERA-10 at 30 (FEIS).

³⁸² Ex. EERA-10 at 35 (FEIS).

3. *Route Segment 17*

173. Route Segment 17 is a route alternative to both Segment 1 and 2 proposed during scoping.³⁸³ Route Segment 17 runs from the Wilmarth Substation in the city of Mankato, to the Byron Substation, and ultimately to the North Rochester Substation, just north of the city of Pine Island.³⁸⁴ It is also referred to as the “Highway 14 Option” because it would primarily parallel U.S. Highway 14.³⁸⁵ It is approximately 86.1 miles long and requires a wider ROW and route width to allow the Applicant to work with MnDOT on the final design if this route is selected.³⁸⁶

4. *Segment 3*

174. No route, route segment, or alignment alternatives were proposed during scoping for Segment 3.³⁸⁷

5. *Segment 4*

175. During scoping, two end-to-end route alternatives and two alignment alternatives were proposed for Segment 4.³⁸⁸ The two route alternatives were Segment 4 West Modification and Segment 4 CapX Co-Locate Option.³⁸⁹

176. Segment 4 West Modification was proposed by the Applicant during scoping and begins at the same point as Segment 4 West (at 50th Avenue Northeast) and is the same as Segment 4 West until it heads north at 75th Avenue Northwest, where it begins to be double-circuited with the existing North Rochester – Northern Hills 161 kV line.³⁹⁰ This portion could be double-circuited all the way through to the North Rochester Substation.³⁹¹

177. Segment 4 Cap-X Co-Locate Option, also referred to as Route Segment 12, was proposed during scoping and is 16.2 miles long.³⁹² The commenter suggesting this alternative requested that the EIS study an option to construct the 161 kV line parallel to the existing CapX2020 Hampton – La Crosse line along Segment 3 in its

³⁸³ Ex. EERA-10 at 40 (FEIS).

³⁸⁴ Ex. EERA-10 at 40 (FEIS).

³⁸⁵ Ex. EERA-10 at 40 (FEIS).

³⁸⁶ Ex. EERA-10 at 40 (FEIS).

³⁸⁷ Ex. EERA-10 at 42 (FEIS).

³⁸⁸ Ex. EERA-10 at 44 (FEIS).

³⁸⁹ Ex. EERA-10 at 44 (FEIS).

³⁹⁰ Ex. EERA-10 at 48 (FEIS).

³⁹¹ Ex. EERA-10 at 48 (FEIS).

³⁹² Ex. EERA-10 at 50 (FEIS).

entirety.³⁹³ This route alternative starts at the North Rochester Substation and would parallel Segment 3 to 40th Avenue NE.³⁹⁴

178. The route and alignment alternatives for Segment 4 are summarized in Table 3 below.

Table 3. Segment 4 Alternatives

Route Alternatives	Route Segment Alternatives	Alignment Alternatives
Segment 4 West	Route Segment 4M Route Segment 4R	None
Segment 4 West Modification	Route Segment 13	None
Segment 4 East	Route Segment 4C Route Segment 4E	Alignment Alternative 16
Segment 4 CapX Co-Locate Option	Route Segment 12	Alignment Alternative 15

D. Applicant's Preferred Routes

179. At the time of the filing of the Application, the Applicant did not identify a route preference.³⁹⁵ In the Direct Testimony of Company witness Heine, however, the Applicant stated that it had analyzed the route and alignment alternatives studied in the EIS and, as a result of that analysis, determined its current preferred route for each segment of the Project.³⁹⁶ A summary of these preferred routes as stated in Company's Direct Testimony is provided in Table 4 below.

Table 4. Xcel Energy's Preferred Routes in Direct Testimony³⁹⁷

Segment	Route Alternative	Route Subsegments, Route Alternatives, and Alignment Alternatives Included
Segment 1	Segment 1 North (with Route Segment 18)	1A, 1O, 1I, 1F, 1E, 1D (including scoping alternatives Route Segments 9, 18, and 1F)
Segment 2	Segment 2 North, Connector 2G, and Segment 2 South	2A, 2B, 2D, 2F, and 2G
Segment 3	Segment 3	3A, 3B, and 3C

³⁹³ Ex. EERA-10 at 50 (FEIS).

³⁹⁴ Ex. EERA-10 at 50 (FEIS).

³⁹⁵ Ex. Xcel-16 at 6 (Application).

³⁹⁶ Ex. Xcel-29 at 16:8 (E. Heine Direct Testimony).

³⁹⁷ Ex. Xcel-29 at 16:8 (E. Heine Direct Testimony).

Segment 4	Segment 4 West Modification until cross Highway 52 then Segment 4 East	4I, 4J, 4N-East, and 4S
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1. *Segments 1 and 2*

180. For Segment 1, Xcel Energy's preferred route is Segment 1 North which generally follows, and would be double-circuited with, an existing 115 kV transmission line with the exception of a section where it diverges from the 115 kV line to avoid aviation easements surrounding the Mankato Airport.³⁹⁸ That section follows an existing double-circuit 115/115 kV line south to an existing 69 kV corridor, where it would be double-circuited parallel to an existing trail.³⁹⁹ Company witness Heine testified that Xcel Energy prefers this route for Segment 1 because it uses the existing 115 kV right-of-way to the greatest extent possible, thus minimizing the amount of new right-of-way that is needed.⁴⁰⁰ In addition, as compared to the other route alternative for Segment 1, Company witness Heine testified that Segment 1 North has fewer homes within close proximity to the proposed centerline.⁴⁰¹ Company witness Heine testified that Xcel Energy's preferred route has 70 residences within 500 feet of the anticipated centerline as compared to 142 residences within 500 feet of the anticipated centerline of the other route alternatives in Segment 1.⁴⁰² Company witness Heine also noted that Xcel Energy's Preferred Route is shorter, at 42 miles in length, as compared to 47-49 miles long for the other route alternatives.⁴⁰³ The Applicant's preferred route for Segment 1 also avoids timing and constructability constraints that are present with the alternative routes for Segment 1.⁴⁰⁴ Specifically, Segment 1 South, requires installing equipment at the Eastwood Substation to re-terminate the existing 69 kV line between the Wilmarth and Eastwood substations at Eastwood before construction on the new 345 kV transmission line could begin.⁴⁰⁵

181. For Segment 2, Xcel Energy's preferred route is a combination of Segment 2 North and Segment 2 South.⁴⁰⁶ This route generally follows a combination of property lines and/or roads until it reaches the existing Hampton – North Rochester 345 kV transmission line.⁴⁰⁷ At this point, Xcel Energy's preferred route is parallel to the existing Hampton – North Rochester 345 kV transmission line for 2.5 miles to the

³⁹⁸ Ex. Xcel-29 at 16:11-17:2 (E. Heine Direct Testimony).

³⁹⁹ Ex. Xcel-29 at 16:12-17:2 (E. Heine Direct Testimony).

⁴⁰⁰ Ex. Xcel-29 at 17:2-4 (E. Heine Direct Testimony).

⁴⁰¹ Ex. Xcel-29 at 17:7-9 (E. Heine Direct Testimony).

⁴⁰² Ex. Xcel-29 at 17:9-12 (E. Heine Direct Testimony).

⁴⁰³ Ex. Xcel-29 at 17:12-13 (E. Heine Direct Testimony).

⁴⁰⁴ Ex. Xcel-29 at 17:13-15 (E. Heine Direct Testimony).

⁴⁰⁵ Ex. Xcel-29 at 17:16-20 (E. Heine Direct Testimony).

⁴⁰⁶ Ex. Xcel-29 at 18:4-5 (E. Heine Direct Testimony).

⁴⁰⁷ Ex. Xcel-29 at 18:4-9 (E. Heine Direct Testimony).

North Rochester Substation.⁴⁰⁸ Witness Heine provided that Xcel Energy prefers this route because it is shorter in length than the alternative route as it is 34 miles long instead of 42.5 miles long, and it crosses fewer acres of wetland (129 acres within the route width for preferred route versus 314 acres for the alternative route).⁴⁰⁹ Company witness Heine stated in her Direct Testimony that while the alternative route for Segment 2 generally follows an existing 69 kV line that runs along state and local roads, a 69 kV line has a much narrower right-of-way than the 150 foot wide right-of-way required for the new 345 kV line.⁴¹⁰ As a result, the alternative route will be required to diverge from the existing 69 kV transmission right-of-way at multiple locations to avoid displacing existing residences.⁴¹¹ For instance, the alternative route will need to leave the 69 kV right-of-way near the cities of Faribault and Kenyon to avoid displacing homes in these and other residentially dense areas.⁴¹² The alternative route will also need to cross back and forth across the road several times to avoid homes that are located within close proximity of the 69 kV line and the road.⁴¹³

182. In the FEIS, the Applicant's preferred route for Segments 1 and 2 is labeled "Route Option B" that is comprised of Segment 1 North (with Route Segment 18) and within the Segment 2 West Faribault to Rochester Study Area, Segment 2 North, Connector Segment 2G, and Segment 2 South.⁴¹⁴

183. During EIS scoping, there were two route segments and two alignment alternatives proposed for Route Option B within Segment 1.⁴¹⁵ The two route segment alternatives are Route Segments 9 and 18.⁴¹⁶ Route Segment 18 is a longer version of Route Segment 9. Both alternatives were proposed to minimize tree clearing and to shift the alignment further from Cannon Lake.⁴¹⁷ Both alternatives would require shifting the alignment of the existing 115 kV line that is proposed to be double-circuited with the 345 kV line in this area.⁴¹⁸ In its Post-Hearing Brief, Xcel Energy stated that it supports inclusion of Route Segment 18 into Route Option B as it minimizes tree clearing in this portion of the route.

184. The two alignment alternatives for Route Option B are Alignment Alternative 2 and Alignment Alternative 8. In its Post-Hearing Brief, Xcel Energy stated it supports Alignment Alternative 2 as it would avoid impacts to a new development

⁴⁰⁸ Ex. Xcel-33 at 1:16-18 (E. Heine Rebuttal Testimony).

⁴⁰⁹ Ex. Xcel-29 at 18:11-14 (E. Heine Direct Testimony).

⁴¹⁰ Ex. Xcel-29 at 18:14-17 (E. Heine Direct Testimony).

⁴¹¹ Ex. Xcel-29 at 18:17-19:1 (E. Heine Direct Testimony).

⁴¹² Ex. Xcel-29 at 19:1-4 (E. Heine Direct Testimony).

⁴¹³ Ex. Xcel-29 at 19:4-6 (E. Heine Direct Testimony).

⁴¹⁴ Ex. EERA-10 at 518 (FEIS).

⁴¹⁵ Ex. EERA-10 at 30 (FEIS); No route segment or alignment alternatives were proposed for Segment 2.

⁴¹⁶ Ex. EERA-10 at 30 (FEIS); Ex. EERA-10 at Map 13-15 (FEIS).

⁴¹⁷ Ex. EERA-10 at 233-235 (FEIS).

⁴¹⁸ Ex. EERA-10 at 233-235 (FEIS).

that is currently under construction in this area.⁴¹⁹ Xcel Energy also stated that it takes no position on Alignment Alternative 8 which was proposed to avoid tree removal. IN its Post-Hearing Brief, Xcel Energy noted that this alignment alternative would also require shifting the alignment of the existing 115 kV line, which would be double-circuited with the 345 kV line in this portion of the route.⁴²⁰

2. *Segment 3*

185. For Segment 3, Company witness Heine explained that there is only one route under consideration because Segment 3 involves either converting an existing 161 kV to 345 kV operation or stringing an additional 345 kV circuit on existing double-circuit 345/345 kV capable structures.⁴²¹

3. *Segment 4*

186. For Segment 4, Company witness Heine stated in Direct Testimony that the Applicant's preferred route follows existing transmission lines and road between the North Rochester Substation and its intersection with the existing 161 kV transmission line.⁴²² The Applicant prefers this route because it maximizes the amount of shared ROW with existing transmission lines as compared to the alternatives.⁴²³ Company witness Heine highlighted that Xcel Energy's preferred route for Segment 4 is double-circuited with an existing 69 kV transmission for 6.4 miles and double-circuited with an existing 161 kV transmission line for approximately 11.3 miles.⁴²⁴ In total, Company witness Heine provides that Xcel Energy's preferred route shares existing transmission line ROW for 17.7 miles of its 22.2 mile length or for nearly 80 percent of its total length.⁴²⁵

187. In the FEIS, the Applicant's preferred route, as outlined in Direct Testimony, is Route Option A which is comprised of Segment 4 West Modification option within the North Rochester to Highway 52 Study Area and then the south-south option within the Highway 52 to the Existing 161 kV line Study Area.⁴²⁶

188. In its Post-Hearing Brief, Xcel Energy stated that in addition to the preferred route outlined in Direct Testimony, it also supported selection of Route Option D, also referred to as the CapX Co-Locate Option.

⁴¹⁹ Ex. Xcel-29 at Schedule 2 at 1 (E. Heine Direct Testimony and Schedules).

⁴²⁰ Ex. Xcel-29 at Schedule 2 at 4 (E. Heine Direct Testimony and Schedules).

⁴²¹ Ex. Xcel-29 at 19:11-15 (E. Heine Direct Testimony).

⁴²² Ex. Xcel-29 at 20:9-12 (E. Heine Direct Testimony).

⁴²³ Ex. Xcel-29 at 20:12-15 (E. Heine Direct Testimony).

⁴²⁴ Ex. Xcel-29 at 20:15-21:2 (E. Heine Direct Testimony).

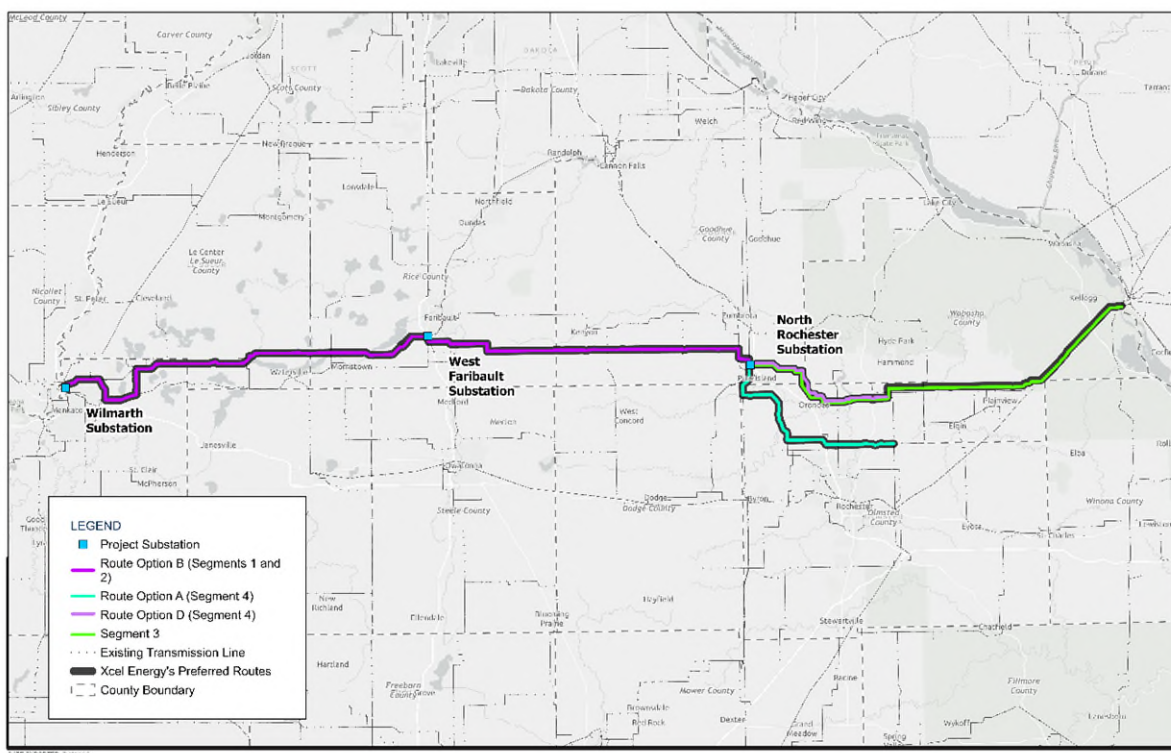
⁴²⁵ Ex. Xcel-29 at 21:2-6 (E. Heine Direct Testimony).

⁴²⁶ Ex. EERA-10 at 794 (FEIS).

189. During EIS scoping, there were no alignment alternatives proposed for Route Option A and there was one alignment alternative proposed for Route Option D.⁴²⁷ This alignment alternative is Alignment Alternative 15 which is approximately 1.2 miles long and is an alternative Zumbro River crossing location for Route Option D. Route Option D crosses the Zumbro River adjacent to the existing CapX line, and Alignment Alternative 15 would cross the river further south, on the south side of County Road 12.⁴²⁸ In its Post-Hearing Brief, Xcel Energy took no position on this alignment alternative because it has similar impacts as the proposed alignment.⁴²⁹

190. Maps of Applicant's preferred routes are provided in **Addendum 1** to this filing. An overview map of Applicant's preferred routes is shown below in **Figure 1**.

Figure 1. Applicant's Preferred Routes



E. Full Routes Analyzed in the EIS

191. The EIS analyzed the potential impacts of three end-to-end routes for Segment 1 and Segment 2 in Chapter 8 of the EIS.⁴³⁰ These three end-to-end route

⁴²⁷ Ex. EERA-10 at 44 (FEIS).

⁴²⁸ Ex. EERA-10 at 50 (FEIS).

⁴²⁹ Ex. Xcel-29 at Schedule 2 at 5 (E. Heine Direct Testimony and Schedules).

⁴³⁰ Ex. EERA-10 at 518 (FEIS).

options are: (1) Route Option A, which is a combination of Segment 1 North and Segment 2 North; (2) Route Option B, which is a combination of Segment 1 North (with Route Segment 18), a portion of Segment 2 North, Connector Segment 2G, and Segment 2 South; and (3) Route Option C, which is Route Segment 17 or the Highway 14 Route Option.⁴³¹ Route Option B is Applicant's preferred route as stated in Direct Testimony.⁴³² These findings compare the Route Option B (Applicant's preferred route) to these two other route options for Segment 1 and 2 of the Project.⁴³³

192. The EIS only analyzed one end-to-end route for Segment 3 as this portion of the Project involves converting an existing 161/345 kV line to 345/345 kV operation or installing a second 345 kV circuit on existing 345/345 kV double-circuit capable structures and no alternatives for this Segment were proposed.⁴³⁴

193. The EIS analyzed the potential impacts of four end-to-end Segment 4 route options: (1) Route Option A – Segment 4 West Modification option within the North Rochester to Highway 52 Study Area and then the south-south option within the Highway 52 to the Existing 161 kV Line Study Area; (2) Route Option B – Segment 4 West Modification option within the North Rochester to Highway 52 Study Area and then the south-north option in the Highway 52 to the Existing 161 kV Line Study Area; (3) Route Option C – Segment 4 East option within the North Rochester to Highway 52 Study Area and then the south-north option in the Highway 52 to the Existing 161 kV Line Study Area; and (4) Route Option D – the CapX Co-Locate Option. Applicant's Preferred Route for Segments 4 as "Route Option A" in Chapter 10 of the EIS. In its Post-Hearing Brief, the Applicant stated that it preferred either Route Option A or the CapX Co-Locate Option for Segment 4. These findings compare the Applicant's two preferred routes to the other two route options for Segment 4 of the Project.

VII. FACTORS FOR A ROUTE PERMIT

194. The Power Plant Siting Act (PPSA), Minn. Stat. Ch. 216E, requires that Route Permit determinations "be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure."⁴³⁵

⁴³¹ Ex. EERA-10 at 518 (FEIS).

⁴³² Ex. Xcel-29 at 16:1-8 (E. Heine Direct Testimony).

⁴³³ Ex. EERA-10 at 518 (FEIS).

⁴³⁴ Ex. EERA-10 at 518 (FEIS).

⁴³⁵ Minn. Stat. § 216E.03, subd. 7(a).

195. Under the PPSA, the Commission must be guided by the following responsibilities, procedures, and considerations:

- (1) evaluation of research and investigations relating to the effects on land, water and air resources of large electric power facilities and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;
- (2) environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air, and human resources of the state;
- (3) evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;
- (4) evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;
- (5) analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;
- (6) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;
- (7) evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2;
- (8) evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;
- (9) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;
- (10) evaluation of the future needs for additional high-voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;

(11) evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved;

(12) when appropriate, consideration of problems raised by other state and federal agencies and local entities;

(13) evaluation of the benefits of the proposed facility with respect to (i) the protection and enhancement of environmental quality, and (ii) the reliability of state and regional energy supplies;

(14) evaluation of the proposed facility's impact on socioeconomic factors; and

(15) evaluation of the proposed facility's employment and economic impacts in the vicinity of the facility site and throughout Minnesota, including the quantity and quality of construction and permanent jobs and their compensation levels. The commission must consider a facility's local employment and economic impacts and may reject or place conditions on a site or route permit based on the local employment and economic impacts.⁴³⁶

196. Also, Minn. Stat. § 216E.03, subd. 7(e), provides that the Commission “must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the [C]ommission must state the reasons.”

197. In addition to the PPSA, the Commission is governed by Minn. R. 7850.4100, which mandates consideration of the following factors when determining whether to issue a Route Permit for a high-voltage transmission line:

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

B. effects on public health and safety;

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

D. effects on archaeological and historic resources;

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

⁴³⁶ Minn. Stat. § 216E.03, subd. 7(b).

- F. effects on rare and unique natural resources;
- G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;
- H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;
- I. use of existing large electric power generating plant sites;⁴³⁷
- J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;
- K. electrical system reliability;
- L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;
- M. adverse human and natural environmental effects which cannot be avoided; and
- N. irreversible and irretrievable commitments of resources.

198. There is sufficient evidence in the record for the ALJ to assess the Project using the criteria and factors set out above.

VIII. APPLICATION OF ROUTING FACTORS

A. Effects on Human Settlement

199. Minnesota Rule 7850.4100(A) requires consideration of the Project's effects on human settlement, including displacement of residences and businesses, noise created during construction and by operation of the Project, and impacts to aesthetics, cultural values, recreation, and public services.

1. Displacement

200. Displacement occurs when a residence or building is required to be removed for construction of the project.⁴³⁸ Residences and other buildings are not generally allowed by the utilities to be within the ROW of a transmission line for

⁴³⁷ This factor is not applicable here because it applies only to power plant siting.

⁴³⁸ Ex. EERA-10 at 107 (FEIS).

electrical safety code and maintenance reasons.⁴³⁹ Any residences or other buildings within a proposed ROW have the potential to be removed or displaced.⁴⁴⁰

a. 345 kV Route Options

201. The right-of-way required for a 345 kV transmission line is 150 feet, or 75 feet on either side of the centerline of the route.⁴⁴¹ A potential displacement is defined by the Applicant as any occupied structure located within 75 feet of the centerline of the route.⁴⁴² If a potential displacement is identified during the final design of the Project, the Applicant will adjust the final alignment to avoid displacing residents.⁴⁴³

202. For Segment 1 and 2, there are no residences located within 75 feet of the Route Option B, so no displacement is anticipated.⁴⁴⁴ Route Option C has 4 residences and Route Option A has 1 residence within the ROW that could be subject to displacement; however, the Applicant has indicated no residences would be displaced by the Project.⁴⁴⁵

203. The following table provides the number of residences located within 1,600 feet for the proposed transmission line centerline for the three route options for Segments 1 and 2.⁴⁴⁶

Table 5. Comparison of Residential Impacts for Segments 1 and 2

Route Option	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Residences within 0-75 feet of centerline	0	1	4
Residences within 75- 500 feet of centerline	122	175	71

⁴³⁹ Ex. EERA-10 at 107 (FEIS).

⁴⁴⁰ Ex. EERA-10 at 107 (FEIS).

⁴⁴¹ Ex. Xcel-15 at 138 (Application).

⁴⁴² Ex. Xcel-15 at 138 (Application); Ex. EERA-10 at 107 (FEIS).

⁴⁴³ Ex. EERA-10 at 107 (FEIS).

⁴⁴⁴ Ex. EERA-10 at 519 (FEIS).

⁴⁴⁵ Ex. EERA-10 at 519 (FEIS); Ex. Xcel-15 at 154 (Application).

⁴⁴⁶ Ex. EERA-10 at 519 (FEIS).

Residences within 500-1,600 feet of centerline	96	158	179
Total Residences within 0-1,600 feet of centerline	218	334	254

204. As shown in the table above, the Route Option B has 218 residences within 1,600 feet of the centerline compared to 334 residences for Route Option A and 254 residences for Route Option C.⁴⁴⁷

205. The following table provides the number of non-residential structures within 1,600 feet for the proposed transmission line centerline for Segments 1 and 2.⁴⁴⁸

**Table 6. Comparison of Non-Residential Structure Impacts
for Segments 1 and 2**

Route Option	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Non-Residential within 0-75 feet of centerline	6	7	9
Non-Residential within 75-500 feet of centerline	279	504	261
Total Non-Residential within 0-500 feet of centerline	285	511	270

206. Route Option A has the most non-residential structures within the 500 feet of the centerline, as compared to Route Option B and Route Option C.⁴⁴⁹ All three options have a similar count of non-residential structures within the ROW (6 to 9).⁴⁵⁰

⁴⁴⁷ Ex. EERA-10 at 519 (FEIS).

⁴⁴⁸ Ex. EERA-10 at 519 (FEIS).

⁴⁴⁹ Ex. EERA-10 at 519 (FEIS).

⁴⁵⁰ Ex. EERA-10 at 519 (FEIS).

207. For Segment 3, there are no residences or non-residential structures within the ROW of Segment 3 and no displacement is anticipated.⁴⁵¹ Segment 3 has 59 residences within 1,600 feet.⁴⁵²

b. 161 kV Route Options

208. The right-of-way required for a 161 kV transmission line is 100 feet wide, or 50 feet on either side of the centerline of the route.⁴⁵³ A potential displacement is defined by the Applicant as any occupied structure located within 50 feet of the centerline of the route.⁴⁵⁴ If a potential displacement is identified during the final design of the Project, the Applicant will adjust the final alignment to avoid displacing residents.⁴⁵⁵

209. There is one residence located within 50 feet of Route Option A, Route Option B, and Route Option C.⁴⁵⁶ No residences are located within 50 feet of Route Option D.⁴⁵⁷ While Route Options A, B, and C each have one residence that could be subject to displacement because it is located within ROW, the Applicant has indicated no residences would be displaced by the Project.⁴⁵⁸

210. The following table provides the number of residences located within 1,600 feet for the proposed transmission line centerline for the four Segment 4 route options.⁴⁵⁹

Table 7. Comparison of Residential Impacts for Segment 4

Route Option	Route Option A (Segment 4 West Mod. and South-South)	Route Option B (Segment 4 West Mod. and then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Residences within 0-50 feet of centerline	1	1	1	0

⁴⁵¹ Ex. EERA-10 at 635 (FEIS).

⁴⁵² Ex. EERA-10 at 532 (FEIS).

⁴⁵³ Ex. Xcel-15 at 138 (Application).

⁴⁵⁴ Ex. Xcel-15 at 138 (Application); Ex. EERA-10 at 657 (FEIS).

⁴⁵⁵ Ex. EERA-10 at 659 (FEIS).

⁴⁵⁶ Ex. EERA-10 at 795 (FEIS).

⁴⁵⁷ Ex. EERA-10 at 795 (FEIS).

⁴⁵⁸ Ex. Xcel-15 at 154 (Application).

⁴⁵⁹ Ex. EERA-10 at 795 (FEIS).

Residences within 50-250 feet of centerline	49	34	28	1
Residences within 250-500 feet of centerline	82	45	75	21
Total Residences within 500-1,600 feet of centerline	64	92	130	18
Total Residences within 0-1600 feet of centerline	196	172	234	40

211. As shown in the table above, Route Option D has the fewest number of residences within 1,600 feet of the centerline at 40 residences.⁴⁶⁰ Route Option A has 196 residences within 1,600 feet of the centerline compared to 172 residences for Route Option B and 234 residences for Route Option C.⁴⁶¹

212. The following table provides the number of non-residential structures located within 1,600 feet for the proposed transmission line centerline for Segment 4.⁴⁶²

Table 8. Comparison of Non-Residential Structure Impacts for Segment 4

Route Option	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Non-Residential Structures within 0-50 feet of centerline	3	3	2	0

⁴⁶⁰ Ex. EERA-10 at 795 (FEIS).

⁴⁶¹ Ex. EERA-10 at 795 (FEIS).

⁴⁶² Ex. EERA-10 at 795 (FEIS).

Non-Residential Structures within 50-250 feet of centerline	72	62	65	2
Non-Residential Structures within 250-500 feet of centerline	123	82	116	48
Non-Residential Structures within 500-1,600 feet of centerline	71	88	139	42
Total Non-Residential Structures within 0-1600 feet of centerline	269	235	322	92

213. Route Option D does not contain any non-residential structures within ROW.⁴⁶³ Route Options A and B have three non-residential structures, and Route Option C has two non-residential structures, that could be subject to displacement within ROW.⁴⁶⁴ Overall, Route Option A has the most non-residential structures within 0-1,600 feet of the centerline with 269 structures and Route Option D has the fewest with 92 structures.⁴⁶⁵

2. Noise

214. The Minnesota Pollution Control Agency has the authority to adopt noise standards pursuant to Minn. Stat. § 116.07, subd. 2.⁴⁶⁶ The adopted noise standards are set forth in Minnesota Rule 7030.0050, which sets noise limits for different land uses.⁴⁶⁷ These land uses are grouped by Noise Area Classification (NAC) and are separated between the daytime and nighttime noise limits.⁴⁶⁸ Residences are classified as NAC-1.⁴⁶⁹ The most restrictive MPCA noise limits are 60-65 A-weighted decibels (dBA) during the daytime and 50-55 dBA during the nighttime.⁴⁷⁰

⁴⁶³ Ex. EERA-10 at 798 (FEIS).

⁴⁶⁴ Ex. EERA-10 at 798 (FEIS).

⁴⁶⁵ Ex. EERA-10 at 798 (FEIS).

⁴⁶⁶ Minn. Stat. § 116.07, subd. 2; Ex. EERA-10 at 118 (FEIS).

⁴⁶⁷ Minnesota R. 7030.0050; Ex. EERA-10 at 118 (FEIS).

⁴⁶⁸ Ex. EERA-10 at 118 (FEIS).

⁴⁶⁹ Ex. EERA-10 at 118 (FEIS).

⁴⁷⁰ Ex. EERA-10 at 118 (FEIS).

215. The primary noise-sensitive receptors in the Project area are rural residences.⁴⁷¹ Short-term noise impacts would occur during construction.⁴⁷² Impacts would be minimal, and the Applicant would be required to comply with state noise standards.⁴⁷³ Noise impacts during operation would be negligible except for perceptible noise impacts, particularly during periods of foggy, damp, or light rain conditions.⁴⁷⁴ Operation of the Project would meet state noise standards.⁴⁷⁵

216. Noise levels during construction, operation, and maintenance of the 345 kV lines are minimal and are not anticipated to exceed MPCA noise limits.⁴⁷⁶

217. Noise levels during construction, operation, and maintenance of the 161 kV transmission lines are minimal and are not anticipated to exceed MPCA noise limits.⁴⁷⁷

3. *Aesthetics*

218. Aesthetics refers to the visual quality of an area as perceived by the viewer and forms the impression a viewer has of an area.⁴⁷⁸ Aesthetics are unique to the human subject or population, meaning their relative value, held individually or communally, depends upon several factors that may include perception, and the strength of values, history, and memory, held either individually or communally resulting in potentially varied and unique responses.⁴⁷⁹ Impacts to aesthetic changes are expected to be equally diverse, depending upon individual perception of impact, degree of aesthetic change, strength of commitment to the unimpacted aesthetic, and acceptance of the proposed project.⁴⁸⁰ This means that how an individual values aesthetics and reacts to their change, especially perceived impacts to a viewshed, can vary greatly.⁴⁸¹

219. The landscape in the Project area is primarily agricultural and characterized by fields, rural roads, farms, and homesteads.⁴⁸² The majority of the Project area contains existing utility infrastructure, including electric transmission and distribution lines, which visually altered the landscape upon initial establishment.⁴⁸³ The proposed overhead transmission lines will be visible to observers in the area

⁴⁷¹ Ex. Xcel-15 at 179 (Application).

⁴⁷² Ex. EERA-10 at 117 (FEIS).

⁴⁷³ Ex. EERA-10 at 117 (FEIS).

⁴⁷⁴ Ex. EERA-10 at 117 (FEIS).

⁴⁷⁵ Ex. EERA-10 at 117 (FEIS).

⁴⁷⁶ Ex. EERA-10 at 117, 266, and 541 (FEIS).

⁴⁷⁷ Ex. EERA-10 at 664 (FEIS).

⁴⁷⁸ Ex. EERA-10 at 7 (FEIS).

⁴⁷⁹ Ex. EERA-10 at 7 (FEIS).

⁴⁸⁰ Ex. EERA-10 at 8 (FEIS).

⁴⁸¹ Ex. EERA-10 at 8 (FEIS).

⁴⁸² Ex. Xcel-15 at 180 (Application).

⁴⁸³ Ex. Xcel-15 at 180 (Application).

surrounding the Project.⁴⁸⁴ The height of new 345 kV structures would generally range in height from 85 to 175 feet.⁴⁸⁵ Several taller structures, approximately 195 feet, would be necessary where Segment 1 South crosses Highway 14 and an existing double-circuit 115 kV line north of the Eastwood substation.⁴⁸⁶ The height of new 161 kV structures would generally range in height from 75 to 140 feet.⁴⁸⁷

220. Areas of higher scenic value that intersect with the proposed routes include the Minnesota River Valley Scenic Byway, the Sakatah Singing Hills State Trail, shoreland of waterways and waterbodies, and wildlife management areas.⁴⁸⁸

221. In the Application, the Applicant committed to minimizing aesthetic impacts by avoiding removal of trees where possible, spanning natural areas when feasible, and using existing infrastructure and roadway or transmission facility rights-of-way to the maximum practicable extent.⁴⁸⁹

a. 345 kV Route Options

222. Aesthetic impacts can be minimized by selecting routes that are located away from homes, schools, businesses, and other places where people congregate (for example, parks or other recreation areas).⁴⁹⁰ Aesthetic impacts can also be minimized by following existing transmission line ROW where elements of the built environment already define the viewshed.⁴⁹¹

223. For Segments 1 and 2, aesthetic impacts are anticipated to be moderate for Route Option A, B, and C.⁴⁹² Route Option B has less residences within the ROW, route width, and local vicinity, with a total of 218 residences within the local vicinity compared to Route Option A (334 residences) and Route Option C (254 residences).⁴⁹³

224. Route Option B also has less non-residential structures within the local vicinity as compared to the two other route alternatives.⁴⁹⁴

225. All three route options for Segments 1 and 2 would result in aesthetic impacts to areas used for recreational purposes as all three would introduce new

⁴⁸⁴ Ex. Xcel-15 at 180 (Application).

⁴⁸⁵ Ex. Xcel-15 at 181 (Application); Ex. EERA-10 at 53 (FEIS).

⁴⁸⁶ Ex. Xcel-15 at 181 (Application).

⁴⁸⁷ Ex. EERA-10 at 55 (FEIS).

⁴⁸⁸ Ex. Xcel-15 at 182-183 (Application).

⁴⁸⁹ Ex. Xcel-15 at 183 (FEIS).

⁴⁹⁰ Ex. EERA-10 at 522 (FEIS).

⁴⁹¹ Ex. EERA-10 at 522 (FEIS).

⁴⁹² Ex. EERA-10 at 522 (FEIS).

⁴⁹³ Ex. EERA-10 at 522 (FEIS).

⁴⁹⁴ Ex. EERA-10 at 522 (FEIS).

crossings at the Straight River, a state water trail, where there is no existing infrastructure already present.⁴⁹⁵

226. Route Option A could be double-circuited with or paralleling existing transmission lines for 74 percent of its length, and 90 percent of its length would be parallel to existing infrastructure (transmission lines, roads, or railroads).⁴⁹⁶ Route Option B could be double-circuited with or paralleling existing transmission lines for 55 percent of its length and 64 percent of its length would be parallel to existing infrastructure (transmission lines, roads, or railroads).⁴⁹⁷ Route Option C could be double-circuited with or paralleling existing transmission lines for 22 percent of its length and 86 percent of its length would be parallel to existing infrastructure (transmission lines, roads, or railroads).⁴⁹⁸

227. The Segment 3 portion of the Project is anticipated to have minimal aesthetic impacts because it will be double-circuited on existing structures.⁴⁹⁹

b. 161 kV Route Options

228. Aesthetic impacts are anticipated to be moderate for the 161 kV route options of the transmission lines.⁵⁰⁰

229. Aesthetic impacts can be minimized by selecting routes that are located away from homes, schools, businesses, and other places where people congregate (for example, parks or other recreation areas).⁵⁰¹ Route Option D has less residences within the ROW, route width, and local vicinity, with 40 residences compared to the Route Option A with 196 residences, Route Option B with 172 residences, and Route Option C with 234 residences.⁵⁰²

230. All four 161 kV route options would crossing the Zumbro River, a state water trail, where there is existing infrastructure already present.⁵⁰³ Route Options A, B, and C cross the Zumbro River south of 75th Street and would be double-circuited with an existing 69 kV line.⁵⁰⁴ Route Option D would cross the Zumbro River near White Bridge Road and would be parallel to an existing 345 kV line crossing.⁵⁰⁵ Route Options

⁴⁹⁵ Ex. EERA-10 at 522 (FEIS).

⁴⁹⁶ Ex. EERA-10 at 522 (FEIS).

⁴⁹⁷ Ex. EERA-10 at 522 (FEIS).

⁴⁹⁸ Ex. EERA-10 at 522 (FEIS).

⁴⁹⁹ Ex. EERA-10 at 635 (FEIS).

⁵⁰⁰ Ex. EERA-10 at 798 (FEIS).

⁵⁰¹ Ex. EERA-10 at 645 (FEIS).

⁵⁰² Ex. EERA-10 at 798 (FEIS).

⁵⁰³ Ex. EERA-10 at Maps 66-21 and 66-27 (FEIS).

⁵⁰⁴ Ex. EERA-10 at Map 66-21 (FEIS).

⁵⁰⁵ Ex. EERA-10 at Map 66-27 (FEIS).

A and B would intersect the Douglas State Trail near Rochester, where there is no existing transmission line infrastructure.⁵⁰⁶

231. Efforts to mitigate aesthetic impacts primarily include double-circuiting or paralleling with existing transmission lines.⁵⁰⁷ Route Option A would be double-circuiting with or paralleling existing transmission lines for 74 percent of its length and 82 percent of its length would be parallel to existing infrastructure.⁵⁰⁸ Route Option B would be double-circuiting with or paralleling existing transmission lines for 61 percent of its length and 71 percent of its length would be parallel to existing infrastructure.⁵⁰⁹ Route Option C would be double-circuiting with or paralleling existing transmission lines for 13 percent of its length and 70 percent of its length would be parallel to existing infrastructure.⁵¹⁰ Route Option D would be double-circuiting with or paralleling existing transmission lines for 0 percent of its length and 84 percent of its length would be parallel to existing infrastructure.⁵¹¹

4. *Cultural Values*

232. Cultural values consist of shared community beliefs and attitudes expressed within a given area and provide a framework for community unity.⁵¹² Cultural values can be informed by history and heritage, local resources, economy, local and community events, and common experiences.⁵¹³

233. The Project area is generally rural in nature, with pockets of more populated municipal areas.⁵¹⁴ Southeastern Minnesota is known for its vast landscapes and wooded bluffs along the Mississippi River corridor.⁵¹⁵ It is a health care and agricultural powerhouse, where advanced manufacturing is a strong industry.⁵¹⁶

234. Segment 1 goes through Blue Earth, Le Sueur, Waseca, and Rice counties in the southeastern region of Minnesota.⁵¹⁷ Segment 1 is primarily in a rural setting, with some more populated municipal areas scattered throughout.⁵¹⁸

⁵⁰⁶ Ex. EERA-10 at 798 (FEIS).

⁵⁰⁷ Ex. EERA-10 at 798 (FEIS).

⁵⁰⁸ Ex. EERA-10 at 798 (FEIS).

⁵⁰⁹ Ex. EERA-10 at 798 (FEIS).

⁵¹⁰ Ex. EERA-10 at 798 (FEIS).

⁵¹¹ Ex. EERA-10 at 798 (FEIS).

⁵¹² Ex. EERA-10 at 103 (FEIS).

⁵¹³ Ex. EERA-10 at 103 (FEIS).

⁵¹⁴ Ex. EERA-10 at 103, 256, 534, and 652 (FEIS).

⁵¹⁵ Ex. EERA-10 at 104 (FEIS).

⁵¹⁶ Ex. EERA-10 at 104 (FEIS).

⁵¹⁷ Ex. EERA-10 at 104 (FEIS).

⁵¹⁸ Ex. EERA-10 at 104 (FEIS).

235. Segment 2 goes through Rice County and Goodhue County in the southeastern region of Minnesota.⁵¹⁹ Segment 2 is primarily in a rural setting with two cities, Faribault and Wanamingo, along the proposed routes.⁵²⁰

236. Segment 3 goes through Goodhue, Olmsted, and Wabasha counties in the southeastern region of Minnesota.⁵²¹ Segment 3 is primarily in a rural setting, with two cities, Pine Island and Oronoco.⁵²²

237. Segment 4 goes through Goodhue, Olmsted, and Wabasha County in the southeastern region of Minnesota.⁵²³ Segment 4 is primarily in a rural setting, with two cities, Pine Island and Oronoco along the proposed routes.⁵²⁴

238. The Project area was populated primarily by Dakota and Ojibwe tribes in the early to mid-1800s.⁵²⁵ Most lands in the local vicinity of the Project were ceded to the U.S. government during the 1851 treaty.⁵²⁶

239. Today, only the Prairie Island Indian Community (PIIC) owns property crossed by the routes proposed for the Project.⁵²⁷ They own property southeast of Pine Island adjacent to Highway 52 in Segment 4 referred to as Elk Run.⁵²⁸ The Elk Run property is within PIIC ancestral territory that holds historical and cultural significance.⁵²⁹ The property has areas within it that are intended to be preserved due to the rare native land cover.⁵³⁰ This land would continue to be protected and utilized for Tribal members participating in culturally sensitive activities.⁵³¹

240. The route width of the Segment 4 CapX Co-locate Option intersects the northeastern portion of the Elk Run property, while Segment 4 East would be outside its southern boundary, on the south of Highway 52.⁵³² The route width of the Segment 4 CapX Co-locate Option was extended east in order to have the ability for the final alignment to avoid the Elk Run property.⁵³³

⁵¹⁹ Ex. EERA-10 at 258 (FEIS).

⁵²⁰ Ex. EERA-10 at 258 (FEIS).

⁵²¹ Ex. EERA-10 at 536 (FEIS).

⁵²² Ex. EERA-10 at 536 (FEIS).

⁵²³ Ex. EERA-10 at 655 (FEIS).

⁵²⁴ Ex. EERA-10 at 655 (FEIS).

⁵²⁵ Ex. EERA-10 at 103 (FEIS).

⁵²⁶ Ex. EERA-10 at 103 (FEIS).

⁵²⁷ Ex. Xcel-15 at 190 (Application); Ex. EERA-10 at 654 (FEIS).

⁵²⁸ Ex. Xcel-15 at 190 (Application); Ex. EERA-10 at 654 (FEIS).

⁵²⁹ Ex. EERA-10 at 655 (FEIS).

⁵³⁰ Ex. EERA-10 at 655 (FEIS).

⁵³¹ Ex. EERA-10 at 655 (FEIS).

⁵³² Ex. EERA-10 at 656 (FEIS).

⁵³³ Ex. EERA-10 at 656 (FEIS).

a. 345 kV Route Options

241. No adverse impacts to cultural resources are anticipated to occur as a result of the construction of operation of the 345 kV portion of the Project.⁵³⁴

b. 161 kV Route Options

242. In their scoping comment letter, the PIIC stated that construction of the Segment 4 CapX Co-Locate Option would be in very close proximity to land of significant prairie biodiversity and intact botanical genetics.⁵³⁵ They also noted that the Segment 4 CapX Co-Locate Option would undermine the purpose of its acquisition of Elk Run by perpetuating undue infrastructure burdens on a historically disadvantaged Tribal community.⁵³⁶ PIIC believes these impacts can be avoided or minimized selection of either Segment 4 West, Segment 4 West Modification, or Segment 4 East.⁵³⁷

243. No other adverse impacts to cultural resources are anticipated to occur as a result of the construction of operation of the 161 kV portion of the Project.⁵³⁸

5. *Recreation*

244. Recreational opportunities in and near the proposed routes for the Project include local parks, the Sakatah Singing Hills State Trail, public watercourses, and snowmobile trails.⁵³⁹ Recreational activities near the proposed routes for the Project could including picnicking, hiking, cross-country skiing, biking, bird-watching, fishing, hunting, canoeing/kayaking, and snowmobiling.⁵⁴⁰

a. 345 kV Route Options

245. For Segments 1 and 2, there are local parks within the route width, but not the right-of-way, and impacts to these local parks are not anticipated for Route Options A, B, or C.⁵⁴¹ Intermittent impacts to these parks would occur during construction, and long-term impacts would include aesthetic impacts.⁵⁴² The route width for Route Option A and Route Option B cross the Sakath Singing Hills State Trail for 4.2 miles.⁵⁴³ Existing infrastructure, including roads and transmission lines,

⁵³⁴ Ex. EERA-10 at 103, 256, and 534 (FEIS); Ex. Xcel-15 at 192 (Application).

⁵³⁵ Ex. EERA-10 at 657 (FEIS).

⁵³⁶ Ex. EERA-10 at 657 (FEIS).

⁵³⁷ Ex. EERA-10 at 657 (FEIS).

⁵³⁸ Ex. EERA-10 at 652 (FEIS); Ex. Xcel-15 at 192 (Application).

⁵³⁹ Ex. EERA-10 at 122, 271, 546, and 669 (FEIS).

⁵⁴⁰ Ex. EERA-10 at 123 (FEIS).

⁵⁴¹ Ex. EERA-10 at 522 (FEIS).

⁵⁴² Ex. EERA-10 at 522 (FEIS).

⁵⁴³ Ex. EERA-10 at 522 (FEIS).

crosses the trail in multiple locations.⁵⁴⁴ Impacts to the trail are anticipated to be minimal.⁵⁴⁵ The Cannon River is a designated state water trail and wild and scenic river and is located within the route width of Route Option A and Route Option B; there is an existing transmission line at the proposed crossing location.⁵⁴⁶ The Straight River is a state water trail and is located within the route width of Route Options A, B, and C.⁵⁴⁷ There are no existing transmission lines at the crossings.⁵⁴⁸ The Zumbro River is a state water trail and is located within the route width of Route Option C; there are existing transmission lines at the three crossings.⁵⁴⁹ Impacts to the Cannon River, Straight River, and Zumbro River are anticipated to be minimal.⁵⁵⁰ The Minnesota River Valley Scenic Byway follows the Minnesota River and crosses Route Options A, B, and C; minimal impacts to the scenic byway are anticipated.⁵⁵¹

246. Impacts on recreation as a result of Segment 3 are anticipated to be minimal and temporary during construction of the Project.⁵⁵²

b. 161 kV Route Options

247. For Segment 4, the 161 kV transmission line might be visible from recreation areas include a publicly accessible trail system, public watercourses, and snowmobile trails.⁵⁵³ Recreational resources within the route width of the proposed routes for Segment 4 subject to impact include a publicly accessible trail system, public watercourses (including a designated state water trail), and snowmobile trails.⁵⁵⁴ Intermittent impacts would occur during construction and long-term impacts would include aesthetic impacts.⁵⁵⁵ Approximately 8.1 miles of the Douglas State Trail is within the route width of Route Options A and B. Existing infrastructure, including roads and transmission lines, cross the trail in multiple locations. Impacts to the trail are anticipated to be minimal.⁵⁵⁶ Route Options A, B, and C cross the Zumbro River, a designated state water trail, in multiple locations, while the Route Option D route width

⁵⁴⁴ Ex. EERA-10 at 522 (FEIS).

⁵⁴⁵ Ex. EERA-10 at 125 and 522 (FEIS).

⁵⁴⁶ Ex. EERA-10 at 522 (FEIS).

⁵⁴⁷ Ex. EERA-10 at 522 (FEIS).

⁵⁴⁸ Ex. EERA-10 at 522 (FEIS).

⁵⁴⁹ Ex. EERA-10 at 522 (FEIS).

⁵⁵⁰ Ex. EERA-10 at 522 (FEIS).

⁵⁵¹ Ex. EERA-10 at 522 (FEIS).

⁵⁵² Ex. EERA-10 at 635 (FEIS).

⁵⁵³ Ex. EERA-10 at 798 (FEIS).

⁵⁵⁴ Ex. EERA-10 at 795 (FEIS).

⁵⁵⁵ Ex. EERA-10 at 795 (FEIS).

⁵⁵⁶ Ex. EERA-10 at 795 (FEIS).

only crosses once.⁵⁵⁷ There are existing transmission lines at most of the crossings, including the one crossing of Route Option D.⁵⁵⁸

248. Other recreational resources noted during scoping include a private airstrip, the Rochester Archery Club, and the Rochester Aero Model Society.⁵⁵⁹ The City of Oronoco also provided during scoping that Route Option C (Segment 4 East) would impact Oronoco City Park and the Lake Shady lakebed.⁵⁶⁰

6. *Socioeconomics*

249. The construction and operation of the Project is expected to have minimal long-term impacts on local (county and municipal) economies due to the relatively short-term time frame of construction (2-3 years).⁵⁶¹ Construction of the Project will last approximately 2-3 years and will employ 50-100 construction workers.⁵⁶² The Applicant will pay prevailing wages for applicable construction jobs in the Project area.⁵⁶³ The Project will support multiple employment sectors (i.e., utilities, construction, manufacturing) and provide employment opportunities during the duration of construction and operation.⁵⁶⁴ During construction, local businesses may experience increases in revenue due to increased purchase of goods and services.⁵⁶⁵ Local construction crew expenditures will result in a temporary, positive impacts on local economies.⁵⁶⁶

250. Long-term benefits of the Project include ensuring continued, reliable electric service for communities served by the Project and economic benefits through incremental increases in revenues from utility property taxes.⁵⁶⁷ Additionally, the Project will support increases in renewable energy production and enhance the capacity for the transmission system to accommodate growing communities, which will benefit local economies.⁵⁶⁸

251. No adverse socioeconomic impacts are anticipated as a result of construction or operation of the Project.⁵⁶⁹

⁵⁵⁷ Ex. EERA-10 at 795 (FEIS).

⁵⁵⁸ Ex. EERA-10 at 795 (FEIS).

⁵⁵⁹ Ex. EERA-10 at 671 (FEIS).

⁵⁶⁰ Ex. EERA-10 at 671 (FEIS).

⁵⁶¹ Ex. Xcel-15 at 186 (Application); Ex. EERA-10 at 127, 274, 410, 549, and 673 (FEIS).

⁵⁶² Ex. Xcel-15 at 186 (Application); Ex. EERA-10 at 127, 274, 410, 549, and 673-674 (FEIS).

⁵⁶³ Ex. Xcel-15 at 186 (Application); Ex. EERA-10 at 127, 274, 410, 549-550, and 674 (FEIS).

⁵⁶⁴ Ex. Xcel-15 at 186 (Application); Ex. EERA-10 at 127, 274, 410, 550, and 674 (FEIS).

⁵⁶⁵ Ex. Xcel-15 at 186 (Application); Ex. EERA-10 at 127, 274, 410, 550, and 674 (FEIS).

⁵⁶⁶ Ex. Xcel-15 at 186 (Application); Ex. EERA-10 at 127, 274, 410, 550, and 674 (FEIS).

⁵⁶⁷ Ex. Xcel-15 at 186 (Application).

⁵⁶⁸ Ex. Xcel-15 at 186 (Application).

⁵⁶⁹ Ex. Xcel-15 at 186 (Application); Ex. EERA-10 at 127, 274, 410, 550, and 674 (FEIS).

7. *Environmental Justice*

252. Environmental justice involves the fair treatment and meaningful involvement of people regardless of race, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.⁵⁷⁰ An environmental justice analysis is typically conducted through the analysis of socioeconomic indicators to determine areas where adverse environmental and human health impacts could disproportionately affect low-income or minority (American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic) populations. Areas with disproportionately high low-income or minority populations are considered environmental justice areas.⁵⁷¹

253. Minn. Stat. § 216B.1691, subd. 1(e), defines an “environmental justice area” as an area that meets one or more of the following criteria: (1) 40 percent or more of the area’s total population is nonwhite; (2) 35 percent or more of households in the area have an income that is at or below 200 percent of the federal poverty level; (3) 40 percent or more of the area’s residents over the age of five have limited English proficiency; or (4) the area is located within Indian county, as defined in United States Code, title 18, section 1151.⁵⁷²

254. The Draft EIS assessed potential environmental justice impacts by first identifying if any census tracts meet a definition of an environmental justice area per its socioeconomic information.⁵⁷³ Second, census tracts meeting an environmental justice definition are reviewed to consider if those residents might be disproportionately affected.⁵⁷⁴

a. 345 kV Route Options

255. For Segment 1, following the statutory definition of environmental justice areas, census tracts 1703 and 1704 in Blue Earth County were identified as an environmental justice area of concern because around 39 percent and 36 percent of the population have a reported income that is less than 200 percent of the federal poverty level.⁵⁷⁵ These two census tracts are crossed by Segment 1 South but not Segment 1 North.⁵⁷⁶ However, disproportionate impacts to census tracts 1703 and 1704 are not

⁵⁷⁰ Ex. Xcel-15 at 186 (Application).

⁵⁷¹ Ex. Xcel-15 at 186 (Application).

⁵⁷² Minn. Stat. § 216B.1691, subd. 1(e).

⁵⁷³ Ex. EERA-10 at 108 (FEIS).

⁵⁷⁴ Ex. EERA-10 at 109 (FEIS).

⁵⁷⁵ Ex. EERA-10 at 109 (FEIS).

⁵⁷⁶ Ex. EERA-10 at 111 (FEIS).

anticipated because the proposed transmission line could be double-circuited with existing transmission lines through these tracts.⁵⁷⁷

256. For Segment 2, census tract 708.01 in Rice County was identified as an environmental justice area of concern because around 41.5 percent of the population identifies as a person of color.⁵⁷⁸ This census tract crosses Segment 2 North and Segment 2 South, which is included in both the Applicant's Preferred Route and Route Option A.⁵⁷⁹ However, disproportionate impacts to census tract 708.01 are not anticipated.⁵⁸⁰ Segment 2 North could be double-circuited with an existing 161 kV line where the anticipated alignment occurs within census tract 708.1.⁵⁸¹ Segment 2 South intersects the census tract, but the anticipated alignment is outside of the tract.⁵⁸² In addition, there is already existing transmission line infrastructure in the area.⁵⁸³

257. Overall, for Segments 1 and 2, no environmental justice impacts are anticipated for the Route Option A, B, or C.⁵⁸⁴

258. Similarly, construction, maintenance, and operation of Segment 3 is not anticipated to result in any environmental impacts.⁵⁸⁵ No environmental justice areas were identified in Segment 3.⁵⁸⁶

b. 161 kV Route Options

259. No environmental justice impacts are anticipated for the 161 kV route options, however, while no reservations are located near Segment 4, the PIIC owns property that is partially located near Route Option C and Route Option D.⁵⁸⁷ PIIC requested that other route options for Segment 4 be selected to avoid potential impacts to the property.⁵⁸⁸

⁵⁷⁷ Ex. EERA-10 at 111 (FEIS).

⁵⁷⁸ Ex. EERA-10 at 261 (FEIS).

⁵⁷⁹ Ex. EERA-10 at 261 (FEIS).

⁵⁸⁰ Ex. EERA-10 at 261 (FEIS).

⁵⁸¹ Ex. EERA-10 at 263 (FEIS).

⁵⁸² Ex. EERA-10 at 263 (FEIS).

⁵⁸³ Ex. EERA-10 at 263 (FEIS).

⁵⁸⁴ Ex. EERA-10 at 108, 263, and 395 (FEIS).

⁵⁸⁵ Ex. EERA-10 at 538 (FEIS).

⁵⁸⁶ Ex. EERA-10 at 539 (FEIS).

⁵⁸⁷ Ex. EERA-10 at 659 (FEIS).

⁵⁸⁸ Ex. EERA-10 at 660 (FEIS).

8. *Public Service and Infrastructure*

260. Public services within the Project area include police, fire, and ambulance services; hospitals; water and wastewater services; school districts; utilities; and other public services such as public utility infrastructure.⁵⁸⁹

261. Potential impacts to roads, railroads, and electric and other utilities are anticipated to be short-term, intermittent, and localized during construction of the Project.⁵⁹⁰ Impacts to water wells, septic systems, and pipelines are not expected to occur.⁵⁹¹

262. Section 5.3.4 and 5.3.14 of the Sample Route Permit contain mitigation measures related to transportation and public services and utilities.⁵⁹² In addition, the Applicant committed to ongoing coordination with MnDOT, local and county road authorities, railroad companies, and the FAA.⁵⁹³ The Applicant also committed to attempt to avoid or limit roadway closures to the maximum extent practicable and using conductor safety guides over roads or utilize helicopters for stringing activities where possible.⁵⁹⁴ The Applicant also noted impacts to traffic would be mitigated by limiting construction traffic to the project right-of-way and existing access points to the maximum extent feasible and minimizing impacts related to dust by proper use of BMPs (e.g., soil matting, wetting) to reduce the potential for dust.⁵⁹⁵ The Applicant also committed to utilizing appropriate safety measures such as use of safety signage, installation of temporary barrier structures, and employing spotters during clearing or stringing activities.⁵⁹⁶ Finally, the Applicant will meet with MnDOT, county highway departments, township road supervisors, and/or city road personnel to address any issues that occur during roadway construction.⁵⁹⁷

B. Effects on Public Health and Safety

263. Minnesota Rule 7850.4100(B) requires consideration of the Project's effect on public health and safety.

⁵⁸⁹ Ex. EERA-10 at 128-131 (FEIS).

⁵⁹⁰ Ex. EERA-10 at 132 (FEIS).

⁵⁹¹ Ex. EERA-10 at 132 (FEIS).

⁵⁹² Ex. EERA-10 at 133 (FEIS).

⁵⁹³ Ex. EERA-10 at 133 (FEIS).

⁵⁹⁴ Ex. EERA-10 at 133 (FEIS).

⁵⁹⁵ Ex. EERA-10 at 133 (FEIS).

⁵⁹⁶ Ex. EERA-10 at 133 (FEIS).

⁵⁹⁷ Ex. EERA-10 at 134 (FEIS).

1. Construction and Operation of the Project

264. The Project will be designed according to local, state, and National Electrical Safety Code standards regarding ground clearance, crossing utilities clearance, building clearance, strength of materials, and right-of-way widths.⁵⁹⁸ Construction crews and/or contract crews will comply with local, state, and National Electrical Safety Code standards regarding facility installation and standard construction practices.⁵⁹⁹ Established Applicant and industry safety procedures will be followed during and after installation of the transmission line, including clear signage during all construction activities.⁶⁰⁰

265. The proposed transmission line will be equipped with protective devices (circuit breakers and relays located in substations where transmission lines terminate) to safeguard the public in the event of an accident, or if the structure or conductor falls to the ground.⁶⁰¹ The protective equipment will de-energize the transmission line should such an event occur.⁶⁰² In addition, the substation facilities will be properly fenced and accessible only by authorized personnel.⁶⁰³

266. As a result of proper safeguards and protective measures, impacts to public health and safety are not anticipated.⁶⁰⁴

2. Electric and Magnetic Fields

267. Electric and magnetic fields (EMF)s are invisible areas of energy associated with use of electrical power.⁶⁰⁵ 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.⁶⁰⁶ Electric fields are dependent on the voltage of a transmission line and magnetic fields are dependent on the current carried by a transmission line.⁶⁰⁷ 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 per second).⁶⁰⁸

⁵⁹⁸ Ex. Xcel-15 at 174 (Application).

⁵⁹⁹ Ex. Xcel-15 at 174 (Application).

⁶⁰⁰ Ex. Xcel-15 at 174 (Application).

⁶⁰¹ Ex. Xcel-15 at 174 (Application).

⁶⁰² Ex. Xcel-15 at 174 (Application).

⁶⁰³ Ex. Xcel-15 at 174 (Application).

⁶⁰⁴ Ex. Xcel-15 at 174 (Application).

⁶⁰⁵ Ex. Xcel-15 at 158 (Application).

⁶⁰⁶ Ex. Xcel-15 at 158 (Application).

⁶⁰⁷ Ex. Xcel-15 at 158 (Application).

⁶⁰⁸ Ex. Xcel-15 at 158 (Application).

268. Because the EMF associated with a transmission line is proportional to the amount of electrical current passing through the power line, it will decrease as distance from the line increases.⁶⁰⁹ This means that the strength of EMF that reaches a house adjacent to a transmission line ROW will be significantly weaker than it would be directly under the transmission line.⁶¹⁰ Electric fields are easily shielded by conducting objects, such as trees and buildings, further shielding electric fields.⁶¹¹

269. There is no federal standard for transmission line electric fields.⁶¹² The Commission, however, has imposed a maximum electric field limit of 8 kV/m measured at one meter above the ground.⁶¹³ The maximum electric field associated with the Project is calculated to be 6.9 kV/m.⁶¹⁴ The Commission has not adopted a magnetic field standard for transmission lines.⁶¹⁵

270. The possible impact of EMF exposure on human health has been investigated by public health professionals for the past several decades.⁶¹⁶ The Commission, based on research conducted by others, has repeatedly found that there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects.⁶¹⁷

271. No impacts to human health due to EMF are anticipated as a result of the Project.⁶¹⁸

3. *Stray Voltage and Induced Voltage*

272. Stay 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.⁶¹⁹ The term generally describes a voltage between two objects where no voltage difference should exist.⁶²⁰ Stray voltage, more specifically, is voltage that exists between the neutral wire of either the service entrance or of premise wiring and grounded objects in buildings such as barns or milking parlors.⁶²¹

⁶⁰⁹ Ex. EERA-10 at 282 (FEIS).

⁶¹⁰ Ex. EERA-10 at 282 (FEIS).

⁶¹¹ Ex. EERA-10 at 282 (FEIS).

⁶¹² Ex. EERA-10 at 283 (FEIS).

⁶¹³ Ex. EERA-10 at 283-284 (FEIS).

⁶¹⁴ Ex. EERA-10 at 284 (FEIS).

⁶¹⁵ Ex. EERA-10 at 284 (FEIS).

⁶¹⁶ Ex. EERA-10 at 283 (FEIS).

⁶¹⁷ Ex. Xcel-15 at 172 (Application).

⁶¹⁸ Ex. EERA-10 at 135, 282, 425, 556, and 680 (FEIS).

⁶¹⁹ Ex. EERA-10 at 145 (FEIS).

⁶²⁰ Ex. EERA-10 at 145 (FEIS).

⁶²¹ Ex. EERA-10 at 145 (FEIS).

273. Stray voltage is generally associated with distribution lines and this Project – a transmission line – does not create stray voltage because it does not directly connect to businesses, residences, or farms.⁶²²

274. The Applicant has committed to work with landowners that have any issues with stray voltage following construction of the Project.⁶²³

275. No impacts to human health are anticipated from stay voltage due to construction of the Project.⁶²⁴

276. Induced voltage occurs when electric fields from a transmission line extend to a conductive object near the transmission line.⁶²⁵ Conductive objects include tractors, automobiles, insulated pipelines, electric fences, or telecommunication lines.⁶²⁶

277. The transmission line would follow NESC standards, which require the steady-state (continuous) current between the earth and an insulated object located near a transmission line to be below 5 milliamps (mA).⁶²⁷ A shock at 5 mA is considered unpleasant, not dangerous, and allows for a person to still release the energized object that they are holding that is causing the shock.⁶²⁸ In addition, the Commission imposed a maximum electric field limit of 8 kV/m measured at one meter above the ground.⁶²⁹ The standard is designed to prevent serious hazards from shocks when touching large objects parked under AC transmission lines of 500 kV or greater.⁶³⁰

278. Section 5.3.4 of the Sample Route Permit 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 ROW, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the ROW, except electric fences that parallel or cross the ROW, 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 milliamperes rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the NESC. The Permittee shall

⁶²² Ex. EERA-10 at 145 (FEIS).

⁶²³ Ex. EERA-10 at 146 (FEIS).

⁶²⁴ Ex. EERA-10 at 145, 292, 430, 565, and 691 (FEIS).

⁶²⁵ Ex. EERA-10 at 146 (FEIS).

⁶²⁶ Ex. EERA-10 at 147 (FEIS).

⁶²⁷ Ex. EERA-10 at 147 (FEIS).

⁶²⁸ Ex. EERA-10 at 147 (FEIS).

⁶²⁹ Ex. EERA-10 at 147 (FEIS).

⁶³⁰ Ex. EERA-10 at 147 (FEIS).

address and rectify any induced current problems that arise during transmission line operation.”⁶³¹

279. The Applicant committed to meeting electrical performance standards.⁶³² Appropriate measures would be taken to prevent induced voltage problems when the Project parallels or crosses objects.⁶³³

280. No impacts to human health are anticipated from induced voltage due to the Project.⁶³⁴

C. Effects on Land-Based Economies

281. Minnesota Rule 7850.4100 (C) requires consideration of the Project’s effects on land-based economies, specifically agriculture, forestry, tourism, and mining.

1. Agriculture

282. Agriculture is the predominant land-use within the Project area, and when structures are placed within an agricultural field, they would interfere with farming operations.⁶³⁵ Potential impacts are assessed through consideration of total agricultural land use, presence of prime farmlands, and agricultural practices.⁶³⁶

a. 345 kV Route Options

283. The majority of the land within the route width is agricultural and impacts to agriculture can only be mitigated.⁶³⁷ Prudent routing (e.g., ROW sharing via double-circuiting or paralleling with existing infrastructure) could help minimize agricultural impacts.⁶³⁸ Route Option A shares or parallels existing infrastructure for 90 percent of its length, Route Option B shares or parallels existing infrastructure for 64% of its length, and Route Option C shares or parallels existing infrastructure for 86% of its length.⁶³⁹

284. The following table provides the acres of agricultural land and prime farmland impacted for each route option for Segments 1 and 2.⁶⁴⁰

⁶³¹ Ex. EERA-10 at Appendix H (FEIS).

⁶³² Ex. Xcel-15 at 174 (Application).

⁶³³ Ex. Xcel-15 at 174 (Application).

⁶³⁴ Ex. EERA-10 at 147, 294, 431, 567, and 692 (FEIS).

⁶³⁵ Ex. EERA-10 at 150 (FEIS).

⁶³⁶ Ex. EERA-10 at 150 (FEIS).

⁶³⁷ Ex. EERA-10 at 522 (FEIS).

⁶³⁸ Ex. EERA-10 at 522 (FEIS).

⁶³⁹ Ex. EERA-10 at 522 (FEIS).

⁶⁴⁰ Ex. EERA-10 at 520 (FEIS).

**Table 9. Potential Agricultural and Prime Farmland Impacts
for Segments 1 and 2**

Route Option	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Agricultural land (acres in ROW)	1,061	1,024	1,208
Prime Farmland (acres in ROW)	907	967	1,436

285. Overall, agricultural impacts are anticipated to be minimal for the 345 kV proposed routes.⁶⁴¹

286. Segment 3 is located within an existing right-of-way and no new agricultural impacts are anticipated during the operation of the Project.⁶⁴² During construction, temporary agricultural impacts may occur.⁶⁴³

b. 161 kV Route Options

287. The majority of the land within the route width for the proposed 161 kV line is agricultural and impacts can only be mitigated.⁶⁴⁴ All routing options share or parallel ROW with existing infrastructure for 70 percent or more of their respective length.⁶⁴⁵

288. The following table provides the acres of agricultural land and prime farmland impacted for each route option for Segments 4.⁶⁴⁶

⁶⁴¹ Ex. EERA-10 at 522 (FEIS).

⁶⁴² Ex. EERA-10 at 635 (FEIS).

⁶⁴³ Ex. EERA-10 at 635 (FEIS).

⁶⁴⁴ Ex. EERA-10 at 798 (FEIS).

⁶⁴⁵ Ex. EERA-10 at 798 (FEIS).

⁶⁴⁶ Ex. EERA-10 at 796 (FEIS).

**Table 10. Potential Agricultural and Prime Farmland Impacts
for Segment 4**

Route Option	Route Option A (Segment 4 West Mod. And South- South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co- Locate)
Agricultural land (acres in ROW)	153	170	119	159
Prime Farmland (acres in ROW)	190	193	154	108

289. Overall, agricultural impacts are anticipated to be minimal for the 161 kV proposed routes.⁶⁴⁷

2. *Forestry*

290. Forestry is a land-based economy that was assessed in the Draft EIS to determine whether the Project would impact the forestry industry.⁶⁴⁸ Potential impacts are assessed through identification of commercial operations.⁶⁴⁹

a. 345 kV Route Options

291. No notable forestry resources were identified within the route width of Route Options A, B, or C; therefore, no impacts to forestry are anticipated.⁶⁵⁰

292. Route Segment 3 does cross the Richard J. Dorer Memorial Hardwood State Forest for approximately 2 miles within the existing right-of-way.⁶⁵¹ This ROW is currently cleared, and Segment 3 would result in the continued permanent loss of forestry resources.⁶⁵²

⁶⁴⁷ Ex. EERA-10 at 798 (FEIS).

⁶⁴⁸ Ex. EERA-10 at 154 (FEIS).

⁶⁴⁹ Ex. EERA-10 at 154 (FEIS).

⁶⁵⁰ Ex. EERA-10 at 522 (FEIS).

⁶⁵¹ Ex. EERA-10 at 635 (FEIS).

⁶⁵² Ex. EERA-10 at 635 (FEIS).

b. 161 kV Route Options

293. No notable forestry resources were identified within the route width of Route Options A, B, C, or D; therefore, no impacts to forestry are anticipated.⁶⁵³

3. *Tourism*

294. The EIS for assessed potential impacts to the tourism land-based economy based on potential tourist sites within the local vicinity of the Project.⁶⁵⁴ Potential impacts were assessed through identification of known resources used by non-residents that would likely bring in non-local revenue to the area.⁶⁵⁵

a. 345 kV Route Options

295. Tourism impacts in nearby incorporated towns and recreational opportunities in publicly accessible lands and waters are anticipated to be negligible to minimal for Route Options A, B, and C.⁶⁵⁶

296. Impacts to tourism as a result of the construction, operation, and maintenance of Segment 3 are anticipated to be negligible to minimal.⁶⁵⁷

b. 161 kV Route Options

297. Recreational opportunities within Segment 4 include publicly accessible lands and waters used for outdoor activities.⁶⁵⁸ Impacts to the tourism-based economy anticipated to be negligible to minimal as a result of the construction, operation, and maintenance of the 161 kV route options.⁶⁵⁹

4. *Mining*

298. Potential impacts to the mining industry are assessed through identification of known, existing mining operations and assessing potential impacts to those operations given the potential introduction of the Project.⁶⁶⁰

⁶⁵³ Ex. EERA-10 at 798 (FEIS).

⁶⁵⁴ Ex. EERA-10 at 156 (FEIS).

⁶⁵⁵ Ex. EERA-10 at 156 (FEIS).

⁶⁵⁶ Ex. EERA-10 at 522 (FEIS).

⁶⁵⁷ Ex. EERA-10 at 635 (FEIS).

⁶⁵⁸ Ex. EERA-10 at 799 (FEIS).

⁶⁵⁹ Ex. EERA-10 at 799 (FEIS).

⁶⁶⁰ Ex. EERA-10 at 155 (FEIS).

a. 345 kV Route Options

299. No active gravel pits were identified within the route width of Route Options A, B, or C.⁶⁶¹ Any impacts to mining are anticipated to be minimal for the route options for Segment 1 and 2.⁶⁶²

300. No active gravel pits were identified within the route width of Segment 3; therefore, no impacts are anticipated.⁶⁶³

b. 161 kV Route Options

301. Two gravel pits, a borrow pit, sand quarry, a prospect mine, and a bedrock quarry were identified within Route Option A and B's route widths.⁶⁶⁴ The gravel pits and sand quarry appear inactive based on a review of aerial imagery.⁶⁶⁵ The borrow pit, prospect mine, and bedrock quarry appear active based on a review of aerial imagery.⁶⁶⁶ The anticipated alignment of Route Option A and B do not cross any workspaces of active mining operations based on the aerial imagery.⁶⁶⁷

302. Three prospect mines, two bedrock quarries, and a sand quarry were identified within Route Option C's route width.⁶⁶⁸ The prospect mines and quarries appear to be inactive.⁶⁶⁹

303. Impacts to aggregate mines and prospective site could be negatively by construction of the transmission line if the structures interfere with access to aggregate resources or the ability to remove them.⁶⁷⁰ If impacts to mining operations would occur, the Applicant would be required to coordinate those impacts with the mining operator.⁶⁷¹ The Applicant noted in the Application that they have been meeting with the operators of the Milestone Materials Rochester Landscape Supply Center, an active aggregate mining operation, to discuss the Project and no impacts on facility operations are anticipated.⁶⁷²

⁶⁶¹ Ex. EERA-10 at 522 (FEIS).

⁶⁶² Ex. EERA-10 at 522 (FEIS).

⁶⁶³ Ex. EERA-10 at 635 (FEIS).

⁶⁶⁴ Ex. EERA-10 at 799 (FEIS).

⁶⁶⁵ Ex. EERA-10 at 799 (FEIS).

⁶⁶⁶ Ex. EERA-10 at 799 (FEIS).

⁶⁶⁷ Ex. EERA-10 at 799 (FEIS).

⁶⁶⁸ Ex. EERA-10 at 799 (FEIS).

⁶⁶⁹ Ex. EERA-10 at 799 (FEIS).

⁶⁷⁰ Ex. EERA-10 at 702 (FEIS).

⁶⁷¹ Ex. EERA-10 at 702 (FEIS).

⁶⁷² Ex. EERA-10 at 702 (FEIS).

D. Effects on Archeological and Historic Resources

304. Minnesota's HVTTL rules requires consideration of the effects of the Project on archaeological and historic resources, also referred to collectively as cultural resources.⁶⁷³

305. To determine potential impacts on archeological and historic resources of the Project, the EIS assessed such impacts within one mile of the route alternatives.⁶⁷⁴ Direct impacts to archaeological and historic resources could result from construction activities such as ROW clearing, placement of structures, construction associated with substations and access roads, temporary construction areas, and vehicle and equipment operation.⁶⁷⁵

306. Section 5.3.15 of the Sample Route Permit contains the following condition 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 State Historic Preservation Office and State Archaeologist requirements.

Prior to construction, 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 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 Department of Commerce staff or Commission staff.⁶⁷⁶

⁶⁷³ Minn. R. 7850.4100(D).

⁶⁷⁴ Ex. EERA-10 at 157 (FEIS).

⁶⁷⁵ Ex. EERA-10 at 157 (FEIS).

⁶⁷⁶ Ex. PUC-9 at 8-9 (Sample Route Permit).

a. 345 kV Route Options

307. With regard to archeological resources, Route Option C's route width contains two National Registry of Historic Places (NRHP)-eligible archaeological sites as compared to no sites within the route width for Route Options A and B.⁶⁷⁷ Route Option C's route width has more unevaluated sites for the NRHP (28) compared to Route Option A (7) and Route Option B (3).⁶⁷⁸ Route Option C's route width contains more potential historic cemeteries (12) than Route Option A (9) or Route Option B (3).⁶⁷⁹ However, the exact locations of the cemeteries are unknown.⁶⁸⁰

308. With regard to historic resources, Route Option C's route width has more previously documented NRHP-eligible historic architectural resources (14) compared to Route Option A (3) and Route Option B (0).⁶⁸¹ Route Option C's route width includes more historic architectural resources which are unevaluated for the NRHP (37) compared to Route Option A (17) and Route Option B (2).⁶⁸²

309. The following table compares the number archaeological sites, historic architectural resources, and historic cemeteries within the route width of the three route options for Segments 1 and 2.⁶⁸³

Table 11. Archaeological and Historic Resources in Segments 1 and 2

Route Option	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Archaeological sites in route width (count in route width)	3	7	34
Historic architectural resources in route width (count in route width)	10	19	54

⁶⁷⁷ Ex. EERA-10 at 523 (FEIS).

⁶⁷⁸ Ex. EERA-10 at 523 (FEIS).

⁶⁷⁹ Ex. EERA-10 at 523 (FEIS).

⁶⁸⁰ Ex. EERA-10 at 523 (FEIS).

⁶⁸¹ Ex. EERA-10 at 523 (FEIS).

⁶⁸² Ex. EERA-10 at 523 (FEIS).

⁶⁸³ Ex. EERA-10 at 520 (FEIS).

Historic cemeteries (count in route width)	3	9	12
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310. Route Option B encounters the fewest archaeological and historic architecture within the route width as compared to Route Option A and Route Option C.⁶⁸⁴

311. The Applicant will conduct survey efforts to inform potential impacts on archaeological and historic resources and mitigation efforts.⁶⁸⁵ Impacts to archaeological and historic resources in Segments 1 and 2 are anticipated to be avoided or mitigated.⁶⁸⁶

312. One potential historic cemetery is within Segment 3's route width, but the exact location is unknown.⁶⁸⁷ The Applicant will conduct survey efforts to inform potential impacts and mitigation efforts.⁶⁸⁸

b. 161 kV Route Options

313. With regard to archeological resources, Route Option C and Route Option D's route widths contain one (the same) NRHP-eligible archaeological site; route widths for Route Options A and B do not contain any NRHP-eligible sites.⁶⁸⁹ Route Options A and B have more unevaluated sites for the NRHP (4) compared to Route Option C (2), and Route Option D (1).⁶⁹⁰ Route Option A's route width contains more potential historic cemeteries (3), than Route Option B (2), Route Option C (1), and Route Option D (1).⁶⁹¹ However, the exact locations of the cemeteries are unknown.⁶⁹²

314. With regard to historic resources, there is one eligible historic architectural resource within the route width of Route Option C.⁶⁹³ The NRHP-eligible resource, OL-ORT-00013/ William-Rucker Farmstead, intersects the route width along U.S. Highway 52, south of Oronoco, along a portion of the segment that would not be double-circuited or parallel an existing transmission line.⁶⁹⁴

⁶⁸⁴ Ex. EERA-10 at 520 (FEIS).

⁶⁸⁵ Ex. EERA-10 at 523 (FEIS).

⁶⁸⁶ Ex. EERA-10 at 523 (FEIS).

⁶⁸⁷ Ex. EERA-10 at 636 (FEIS).

⁶⁸⁸ Ex. EERA-10 at 636 (FEIS).

⁶⁸⁹ Ex. EERA-10 at 799 (FEIS).

⁶⁹⁰ Ex. EERA-10 at 799 (FEIS).

⁶⁹¹ Ex. EERA-10 at 799 (FEIS).

⁶⁹² Ex. EERA-10 at 799 (FEIS).

⁶⁹³ Ex. EERA-10 at 799 (FEIS).

⁶⁹⁴ Ex. EERA-10 at 799 (FEIS).

315. The following table compares the number archaeological sites, historic architectural resources, and historic cemeteries within the ROW and/or route width of the four route options for Segment 4.⁶⁹⁵

Table 12. Archaeological and Historic Resources in Segment 4

Route Option	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Archaeological sites in route width (count in ROW, count in route width)	3	3	5	2
Historic architectural resources in route width (count in ROW, count in route width)	9	5	29	3
Historic cemeteries (count in route width)	3	2	1	1

316. The Applicant will conduct survey efforts to inform potential impacts on archaeological and historic resources and mitigation efforts.⁶⁹⁶ Impacts to archaeological and historic resources in Segment 4 are anticipated to be avoided or mitigated.⁶⁹⁷

E. Effects on Natural Environment

317. Minnesota's HVTTL routing factors require consideration of the Project's effects on the natural environment including effects on air and water quality, flora, and fauna.⁶⁹⁸

⁶⁹⁵ Ex. EERA-10 at 795 (FEIS).

⁶⁹⁶ Ex. EERA-10 at 799 (FEIS).

⁶⁹⁷ Ex. EERA-10 at 799 (FEIS).

⁶⁹⁸ Minn. Stat. § 216E.03, subd. 7(b)(1)-(2); Minn. R. 7850.4100, subp. E.

1. *Air Quality*

318. Air quality for the Project is considered within the Project area.⁶⁹⁹ Construction of the Project will result in intermittent and temporary emissions of criteria pollutants.⁷⁰⁰ Impacts associated with fugitive dust and exhaust can be mitigated.⁷⁰¹ Long-term impacts to air quality would also be minimal and are associated with the creation of ozone and nitrous oxide emissions along the HVTL and substations.⁷⁰²

319. 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 criteria pollutants: ground-level ozone (O₃), particular matter (PM₁₀/PM_{2.5}), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), and lead (Pb).⁷⁰³ The EPA designates all counties traversed by the Project to be in attainment for all NAAQS.⁷⁰⁴

320. Air emissions during construction would primarily consist of emissions from construction equipment and vehicles and would include pollutants such as CO₂, nitrogen oxides (NO_x), and PM.⁷⁰⁵ Dust generated from earth disturbing activities also gives rise to PM₁₀/PM_{2.5}.⁷⁰⁶ Double-circuiting with an existing transmission line would result in less PM₁₀/PM_{2.5} emissions due to less ground disturbance.⁷⁰⁷ Adverse effects on the surrounding environment are expected to be negligible due to the temporary disturbance during construction and the intermittent nature of the emission- and dust-producing construction phases.⁷⁰⁸

321. During operations, air emissions would not require any air quality permits.⁷⁰⁹ Small amounts of emissions would be associated with the intermittent project operation and maintenance activities via mobile combustion and particulate roadway dust generation.⁷¹⁰

⁶⁹⁹ Ex. EERA-10 at 169 (FEIS).

⁷⁰⁰ Ex. EERA-10 at 169 (FEIS).

⁷⁰¹ Ex. EERA-10 at 169 (FEIS).

⁷⁰² Ex. EERA-10 at 169 (FEIS).

⁷⁰³ Ex. EERA-10 at 170 (FEIS).

⁷⁰⁴ Ex. EERA-10 at 170 (FEIS).

⁷⁰⁵ Ex. EERA-10 at 171 (FEIS).

⁷⁰⁶ Ex. EERA-10 at 171 (FEIS).

⁷⁰⁷ Ex. EERA-10 at 171 (FEIS).

⁷⁰⁸ Ex. EERA-10 at 171 (FEIS).

⁷⁰⁹ Ex. EERA-10 at 171 (FEIS).

⁷¹⁰ Ex. EERA-10 at 171 (FEIS).

322. During operation, small amounts of NO_x and O₃ would be created due to corona from the operation of transmission lines.⁷¹¹ The production rate of O₃ due to corona discharges decreases with humidity and less significantly with temperature. Rain causes an increase in O₃ production.⁷¹² In addition to weather conditions, design of the transmission line also influences the O₃ production rate.⁷¹³ The O₃ production rate decreases significantly as the conductor diameter increases and is greatly reduced for bundled conductors over single conductors.⁷¹⁴ Conversely, the production rate of O₃ increases with applied voltage.⁷¹⁵ The emission of O₃ from the operation of a transmission line of the voltages proposed for the Project would be minimal.⁷¹⁶

323. Emissions would be generated from fuel combustion during routine inspection and maintenance activities.⁷¹⁷ The Applicant would perform an annual aerial inspection of the line.⁷¹⁸ Once every four years, crews would visually inspect the lines from the ground.⁷¹⁹ Additionally, vegetation maintenance would generally occur once every four years. Emissions from routine inspection and maintenance activities would be minimal.⁷²⁰

324. If construction activities generate problematic dust levels, the Applicant would employ construction-related practices to control fugitive dust as needed.⁷²¹ 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 vehicular traffic on unpaved roads, and covering open-bodied haul trucks⁷²².

a. 345 kV Route Options

325. Construction of Route Options A, B, and C will result in minor short-term air quality impacts from the operation of heavy-duty construction equipment and fugitive dust due to travel on unpaved roads and excavation of transmission structure foundations.⁷²³ If construction activities generate problematic dust levels, the Applicant will employ construction-related practices to control fugitive dust as needed.⁷²⁴

⁷¹¹ Ex. EERA-10 at 171 (FEIS).

⁷¹² Ex. EERA-10 at 171 (FEIS).

⁷¹³ Ex. EERA-10 at 171 (FEIS).

⁷¹⁴ Ex. EERA-10 at 171 (FEIS).

⁷¹⁵ Ex. EERA-10 at 171 (FEIS).

⁷¹⁶ Ex. EERA-10 at 171 (FEIS).

⁷¹⁷ Ex. EERA-10 at 171 (FEIS).

⁷¹⁸ Ex. EERA-10 at 171 (FEIS).

⁷¹⁹ Ex. EERA-10 at 171 (FEIS).

⁷²⁰ Ex. EERA-10 at 171 (FEIS).

⁷²¹ Ex. EERA-10 at 171 (FEIS).

⁷²² Ex. EERA-10 at 171 (FEIS).

⁷²³ Ex. EERA-10 at 169, 313, and 464 (FEIS).

⁷²⁴ Ex. EERA-10 at 169, 313, and 464 (FEIS).

326. For Segment 3, construction of the Project will also result in minor-short term air quality impacts from the operation of heavy-duty construction equipment and fugitive dust.⁷²⁵ The Applicant will follow construction-related practices to control fugitive dust as needed.⁷²⁶

b. 161 kV Route Options

327. Similar to the 345 kV route options, construction of the Route Options A, B, C, and D will result minor-short-term air quality impacts from the operation of heavy-duty construction equipment and fugitive dust.⁷²⁷ The Applicant will employ construction-related practices to control fugitive dust as needed.⁷²⁸

2. *Greenhouse Gas Emissions*

328. Greenhouse gas (GHG) emissions for the Project is considered within the ROW.⁷²⁹ Project construction activities will result in temporary and intermittent increases in GHG emissions from fuel combustion in construction equipment and commuter vehicles.⁷³⁰ These emissions would be short-term and dispersed over the right-of-way; therefore, total emissions would be minimal and would not result in a direct impact to any single location.⁷³¹

329. The use of fluorinated gas, sulfur hexafluoride (SF6), in high-voltage circuit breakers may increase GHG emissions associated with the Project.⁷³² Potential emissions from SF6 are minimal and not expected routinely because they are attributed to faulty equipment and leakage.⁷³³ Equipment containing SF6 is designed to avoid SF6 emissions.⁷³⁴

a. 345 kV Route Options

330. Minimization efforts to reduce Project GHG emission may include efficient planning of vehicle and equipment mobilization and travel, vehicle idle time reduction, property equipment upkeep, efficient planning of material deliver, proper use of power tools, battery power tools when feasible, and alternative fuel vehicle usage

⁷²⁵ Ex. EERA-10 at 585 (FEIS).

⁷²⁶ Ex. EERA-10 at 585 (FEIS).

⁷²⁷ Ex. EERA-10 at 716 (FEIS).

⁷²⁸ Ex. EERA-10 at 716 (FEIS).

⁷²⁹ Ex. EERA-10 at 178 (FEIS).

⁷³⁰ Ex. EERA-10 at 178 (FEIS).

⁷³¹ Ex. EERA-10 at 178 (FEIS).

⁷³² Ex. EERA-10 at 180 (FEIS).

⁷³³ Ex. EERA-10 at 180 (FEIS).

⁷³⁴ Ex. EERA-10 at 180 (FEIS).

when feasible.⁷³⁵ The Project would ultimately result in a net decrease of GHG emissions during operation, as it would facilitate the replacement of legacy fossil fuel generation with renewable resources.⁷³⁶

331. The Applicant would employ similar mitigation measures for Segment 3 to reduce GHG emissions during construction.⁷³⁷

b. 161 kV Route Options

332. The same GHG minimization efforts used for the 345 kV route options would be followed for the 161 kV route options so as to minimize impacts while achieving an overall net GHG reduction for the Project.⁷³⁸

3. *Climate Change*

333. Climate change is considered within the Project area.⁷³⁹ The impact analysis for climate considers existing patterns in the region of influence and how the Project could be impacted by climate change, as well as how the Project could affect climate change.⁷⁴⁰

a. 345 kV Route Options

334. The Project is engineered to be resilient under changing climate factors and is designed to follow or exceed North America Electric Reliability Corporation reliability standards.⁷⁴¹ Construction of the Project would result in additional GHG emissions that contribute to climate change; however, the operation of the Project will provide additional transmission capacity to support additional renewable resources.⁷⁴²

335. The EIS analyzed the risk assessment for each of the counties which the Route Option A, B, and C traverse within Segments 1 and 2 to help identify current and future climate change risks.⁷⁴³ Across the 345 kV route options for Segments 1 and 2, the flood risk is minor or moderate for all counties, the fire risk is moderate for all counties, and the wind, air quality, and heat risk are all minor.⁷⁴⁴

⁷³⁵ Ex. EERA-10 at 178, 320, and 472 (FEIS).

⁷³⁶ Ex. EERA-10 at 178, 320, and 472 (FEIS).

⁷³⁷ Ex. EERA-10 at 594 (FEIS).

⁷³⁸ Ex. EERA-10 at 724 (FEIS).

⁷³⁹ Ex. EERA-10 at 172 (FEIS).

⁷⁴⁰ Ex. EERA-10 at 172 (FEIS).

⁷⁴¹ Ex. EERA-10 at 174, 318, and 469 (FEIS).

⁷⁴² Ex. EERA-10 at 175, 318, and 469 (FEIS).

⁷⁴³ Ex. EERA-10 at 172, 315, and 466 (FEIS).

⁷⁴⁴ Ex. EERA-10 at 172, 315, and 466 (FEIS).

336. Segment 3 is also engineered to be resilient under changing climate factors and its operation will provide additional transmission capacity to support additional renewable resources.⁷⁴⁵ The EIS analyzed the risk assessment for each of the counties that Segment 3 traverses across to identify current and future climate change risks.⁷⁴⁶ Across Segment 3, the flood risk is minor or moderate for all counties, the fire risk is moderate for all counties, and the wind, air quality, and heat risk are all minor.⁷⁴⁷

b. 161 kV Route Options

337. The 161 kV Route Options are similarly engineered to be resilient under changing climate factors and will provide additional transmission capacity to support additional renewable resources.⁷⁴⁸

338. The EIS analyzed the risk assessment for each of the counties that Route Options A, B, C, and D traverse within Segment 4 to help identify current and future climate change risks.⁷⁴⁹ Across the 161 kV route options, the flood risk is minor or moderate for all counties, the fire risk is moderate for all counties, and the wind, air quality, and heat risk are all minor.⁷⁵⁰

4. *Water Quality and Resources*

339. The Application and EIS analyzed impacts to water quality and resources, including groundwater, wetlands, and surface water that will be crossed by or located in the right-of-way of the proposed 345 kV route options and the 161 kV route options.⁷⁵¹

a. Groundwater

340. Impacts to groundwater is considered within the ROW.⁷⁵² Minnesota is divided into six groundwater provinces based on bedrock and glacial geology.⁷⁵³ Installation of concrete structure foundations could require dewatering to enable construction activities and could impact bedrock and groundwater if it is unable to be avoided or if minimization measures are not implemented.⁷⁵⁴

⁷⁴⁵ Ex. EERA-10 at 590-591 (FEIS).

⁷⁴⁶ Ex. EERA-10 at 590 (FEIS).

⁷⁴⁷ Ex. EERA-10 at 590 (FEIS).

⁷⁴⁸ Ex. EERA-10 at 718 (FEIS).

⁷⁴⁹ Ex. EERA-10 at 718 (FEIS).

⁷⁵⁰ Ex. EERA-10 at 718 (FEIS).

⁷⁵¹ Minn. R. 7850.4100(G).

⁷⁵² Ex. EERA-10 at 180 (FEIS).

⁷⁵³ Ex. EERA-10 at 180 (FEIS).

⁷⁵⁴ Ex. EERA-10 at 180 (FEIS).

341. Wells are documented in the Project area as identified in the Minnesota Well Index, which provides information about wells and borings such as location, depth, geology, construction, and static water level at the time of construction.⁷⁵⁵

342. The Wellhead Protection Area program administers the public and non-public community water supply source-water protection in Minnesota.⁷⁵⁶ This program also identifies areas surrounding public water supply wells that contribute groundwater to the well and identify contamination on the land surface or in the water that can affect the drinking water supply.⁷⁵⁷

343. The Applicant will coordinate with the MnDNR to confirm that geotechnical evaluations and structure installation placements do not disrupt groundwater hydrology.⁷⁵⁸ Based on the results of the geotechnical evaluations, the Applicant will obtain a Water Appropriate Permit from the MnDNR if groundwater dewatering activities would be greater than 10,000 gallons of water per day or 1 million gallons per year.⁷⁵⁹

(a) 345 kV Route Options

344. Two wells were identified in the Minnesota Well Index in Route Option A and B.⁷⁶⁰ Three drinking water supply management areas were also identified in Route Option A and B.⁷⁶¹ The Applicant also identified underground natural gas aquifer storage and production facilities near Waterville, Minnesota.⁷⁶² There are numerous gas injection/withdrawal wells, water observation wells, and test wells within the extent of the gas storage field and lands under lease.⁷⁶³ According to the Minnesota Well Index, there are nine wells that appear to be associated with facility operations located within the Segment 1 South ROW, which is not part of Route Options A, B, or C.⁷⁶⁴

345. Multiple wells are located within the Project Area of Route Option C, as well as numerous drinking water supply management areas.⁷⁶⁵

⁷⁵⁵ Ex. EERA-10 at 181 (FEIS).

⁷⁵⁶ Ex. EERA-10 at 182 (FEIS).

⁷⁵⁷ Ex. EERA-10 at 182 (FEIS).

⁷⁵⁸ Ex. EERA-10 at 186, 326, and 478 (FEIS).

⁷⁵⁹ Ex. EERA-10 at 186, 326, and 479 (FEIS).

⁷⁶⁰ Ex. EERA-10 at 179 and 321 (FEIS).

⁷⁶¹ Ex. EERA-10 at 181-182 and 324 (FEIS).

⁷⁶² Ex. EERA-10 at 181-182 (FEIS).

⁷⁶³ Ex. EERA-10 at 182 (FEIS).

⁷⁶⁴ Ex. EERA-10 at 182 (FEIS).

⁷⁶⁵ Ex. EERA-10 at 476 (FEIS).

346. For Segment 3, the Applicant will assess any wells identified within the right-of-way during construction to determine if they are open, and seal them, in accordance with Minnesota requirements.⁷⁶⁶

347. Potential impacts to groundwater could occur during construction if the artesian groundwater conditions are present and the confining layer is breached.⁷⁶⁷ Indirect impacts to groundwater can be mitigated by avoiding or minimizing impacts to surface waters, such as controlling soil erosion and sedimentation during construction activities.⁷⁶⁸

348. Overall impacts to groundwater resources are not anticipated because the Applicant will store materials, including fuel and gasoline, in sealed containers to prevent spills, leaks, or other discharges to groundwater.⁷⁶⁹

(b) 161 kV Route Options

349. There are 10 wells within the Project right-of-way for Route Options A, B, and C.⁷⁷⁰ Further, there are four drinking water supply management areas in Route Options A, B, and C.⁷⁷¹

350. The Applicant will coordinate with the Minnesota Department of Natural Resources to confirm geotechnical investigation and structure installation placement does not disrupt groundwater hydrology.⁷⁷² The Applicant will also assess any wells identified within the right-of-way during Project construction to determine if they are open and seal them if necessary.⁷⁷³

351. The 161 kV route options will experience similar potential impacts and mitigation as the 345 kV route options.⁷⁷⁴

b. Wetlands

352. Impacts to wetlands are considered within the ROW.⁷⁷⁵ The Project could temporarily or permanently impact wetlands if they cannot be avoided through Project design.⁷⁷⁶ In most cases, wetlands can be spanned to avoid placing structures within the

⁷⁶⁶ Ex. EERA-10 at 599 (FEIS).

⁷⁶⁷ Ex. EERA-10 at 182, 321, 476, and 598 (FEIS).

⁷⁶⁸ Ex. EERA-10 at 182, 321, 476, and 598 (FEIS).

⁷⁶⁹ Ex. EERA-10 at 182, 321 476, and 598 (FEIS).

⁷⁷⁰ Ex. EERA-10 at 728-729 (FEIS).

⁷⁷¹ Ex. EERA-10 at 730 (FEIS).

⁷⁷² Ex. EERA-10 at 731 (FEIS).

⁷⁷³ Ex. EERA-10 at 731 (FEIS).

⁷⁷⁴ Ex. EERA-10 at 731-732 (FEIS).

⁷⁷⁵ Ex. EERA-10 at 215 (FEIS).

⁷⁷⁶ Ex. EERA-10 at 215 (FEIS).

wetland.⁷⁷⁷ When a wetland cannot be spanned, construction would occur within the wetland.⁷⁷⁸

353. The National Wetlands Inventory (NWI), as updated by the MnDNR, identifies wetland complexes in the EIS.⁷⁷⁹

(a) 345 kV Route Options

354. All three 345 kV route options for Segments 1 and 2 have relatively similar acreages of wetlands, with Route Option A having the most wetland in the ROW (141 acres) and Route Option C having the least (129 acres).⁷⁸⁰ The ROW of all three route options intersect forested wetland, with Route Option C intersecting the most (15 acres) and Route Option B intersecting the least (11 acres).⁷⁸¹ Because Route Option C would parallel U.S. Highway 14 for the majority of its length and Route Option A and Route Option B would double-circuit an existing transmission line for much of their lengths, most of forested wetlands within the existing ROW for both options have already been cleared.⁷⁸² However, there are three forested wetlands within the ROW of Route Option C that would require clearing adjacent to PWI watercourses.⁷⁸³ The ROW Route Option A and Route Option B have nine crossings of wetlands that are wider than 1,000 feet; Route Option C has two crossings of wetlands that are wider than 1,000 feet.⁷⁸⁴

355. Two calcareous fens are located less than five miles from Route Options A and B.⁷⁸⁵

356. For Segment 3, the wetlands within this right-of-way are primarily non-forested, with only 10 acres of forested wetlands.⁷⁸⁶ Temporary impacts for access could occur to the wetlands, but impacts will be minimal.⁷⁸⁷

(b) 161 kV Route Options

357. Route Option A and B have the most wetland acreage within the ROW, 12 and 11 acres respectively, and 5 acres of which is forested wetland.⁷⁸⁸ Route Option

⁷⁷⁷ Ex. EERA-10 at 215 (FEIS).

⁷⁷⁸ Ex. EERA-10 at 215 (FEIS).

⁷⁷⁹ Ex. EERA-10 at 213 (FEIS).

⁷⁸⁰ Ex. EERA-10 at 523 (FEIS).

⁷⁸¹ Ex. EERA-10 at 523 (FEIS).

⁷⁸² Ex. EERA-10 at 523 (FEIS).

⁷⁸³ Ex. EERA-10 at 523 (FEIS).

⁷⁸⁴ Ex. EERA-10 at 523 (FEIS).

⁷⁸⁵ Ex. EERA-10 at 523 (FEIS).

⁷⁸⁶ Ex. EERA-10 at 636 (FEIS).

⁷⁸⁷ Ex. EERA-10 at 636 (FEIS).

⁷⁸⁸ Ex. EERA-10 at 799 (FEIS).

D has the least wetland acreage in the ROW at 4 acres.⁷⁸⁹ Route Option C has 8 acres of wetland and is the only route option that does not have forested wetland within its ROW.⁷⁹⁰

358. Route Options A and B cross a wetland that is wider than 700 feet, where an existing transmission line is not present, and could require pole placement within the wetland.⁷⁹¹

c. Surface Water

359. The Project is within the Upper Mississippi and Minnesota River Basins and crosses two major watersheds.⁷⁹² Many of these watercourses and waterbodies are designated as public watercourses and public water basins by the Minnesota Department of Natural Resources in the public waters inventory (PWI).⁷⁹³

360. Major watercourses in the route width include Long Lake, Eagle Lake, Fish Lake, Mud Lake, Tentoka Lake, Lower Sakatah Lake, Wells Lake, Sprague Lake, Lily Lake, and several unnamed lakes.⁷⁹⁴

(a) 345 kV Route Options

361. Table 13 below summarizes the surface waters within the ROW and route widths of three end-to-end routes studied in the EIS for Segment 1 and 2.⁷⁹⁵

Table 13. Surface Water Crossings for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
National Hydrography Dataset stream crossings (count)	73	84	62
PWI stream crossings (count)	23	32	9
Trout stream crossings (count)	0	0	1

⁷⁸⁹ Ex. EERA-10 at 799 (FEIS).

⁷⁹⁰ Ex. EERA-10 at 799 (FEIS).

⁷⁹¹ Ex. EERA-10 at 799 (FEIS).

⁷⁹² Ex. EERA-10 at 206 (FEIS).

⁷⁹³ Ex. EERA-10 at 207 (FEIS).

⁷⁹⁴ Ex. EERA-10 at 207 (FEIS).

⁷⁹⁵ Ex. EERA-10 at 520 (FEIS).

Impaired stream crossings (count)	12	15	6
National Hydrography Dataset Lake crossings	4	4	4
Impaired lake crossings	1	1	0
PWI basin/wetland crossings	10	10	1
Forested wetlands (acres in ROW)	11	12	15
Total wetlands (acres in ROW)	135	141	129
Wetland crossings greater than 1,000 feet (count)	9	9	2

362. For Segments 1 and 2, Route Option A has the most watercourse crossings (84) and Route Option C has the least (62).⁷⁹⁶ However, Route Option A would cross approximately half of these watercourses while double-circuiting existing transmission lines. Route Option C would cross a trout stream, while Route Options A and B avoid trout streams.⁷⁹⁷ Route Options A and B have 10 PWI basin/wetland crossings, while Route Option C only has 1; however, these PWI crossings are in areas that could be double-circuited.⁷⁹⁸

363. All three route options would cross waterbodies that are greater than 1,000 feet wide (e.g., Eagle Lake) and could require placement of structures within them if they cannot be spanned.⁷⁹⁹

364. Wetlands within the ROW of Segment 3 is mostly non-forested with 10 acres being forested wetlands.⁸⁰⁰ Temporary impacts for access could occur to the wetlands, but impacts may be minimized by using best management practices.⁸⁰¹

⁷⁹⁶ Ex. EERA-10 at 520 (FEIS).

⁷⁹⁷ Ex. EERA-10 at 520 (FEIS).

⁷⁹⁸ Ex. EERA-10 at 520 (FEIS).

⁷⁹⁹ Ex. EERA-10 at 520 (FEIS).

⁸⁰⁰ Ex. EERA-10 at 636 (FEIS).

⁸⁰¹ Ex. EERA-10 at 636 (FEIS).

(b) 161 kV Route Options

365. Table 14 below denotes the surface waters within the right-of-way and route widths of four end-to-end routes for Segment 4 studied in the EIS.⁸⁰²

Table 14. Surface Water Crossings for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South- South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co- Locate)
National Hydrography Dataset stream crossings (count)	20	21	23	30
PWI stream crossings (count)	5	5	3	1
Impaired stream crossings (count)	3	3	3	0
National Hydrography Dataset Lake crossings	0	0	5	1
PWI basin/wetland crossings	0	0	5	1
Forested wetlands (acres in ROW)	5	5	0	1
Total wetlands (acres in ROW)	12	11	8	4

366. Route Option D has 30 stream crossings, the most of any route crossing, while the other three options have between 20 and 23 crossings.⁸⁰³ Route Options A

⁸⁰² Ex. EERA-10 at 796 (FEIS).

⁸⁰³ Ex. EERA-10 at 796 (FEIS).

and B would have the most PWI watercourse crossings.⁸⁰⁴ Route Option C would have the most waterbody crossings, including PWI basins.⁸⁰⁵ Route Options A and B would not cross any waterbodies.⁸⁰⁶

367. Many of the watercourse crossings would occur in areas that the Project would be double circuited with or paralleling existing transmission lines or highway ROW.⁸⁰⁷

5. *Flora*

368. Vegetation resources across the Project are dominated by agricultural vegetation and crops, including grain, soybeans, hay/haylage, sweet corn, corn for silage, green peas, corn for grain, and oats for grain.⁸⁰⁸

369. Construction of the Project may result in short-term impacts such as clearing, compacting, or otherwise disturbing vegetation, could occur during construction and maintenance activities.⁸⁰⁹ Potential long-term impacts on vegetation would occur where structures are located or where conversion of forested vegetation to low-growing vegetation would be requirements.⁸¹⁰

370. The Project area is located within the Eastern Broadleaf Forest Province, which is a forested vegetation province that serves as an ecotone between semi-arid prairie of the southwest and semi-humid conifer-deciduous forests of the northwest.⁸¹¹ The Project crosses four ecological subsections including the Big Woods, Oak Savanna, Rochester Plateau, and Blufflands subsections.⁸¹²

371. Construction and maintenance activities have the potential to result in the introduction or spread of noxious weeds.⁸¹³ Other potential impacts to flora include vegetation disturbance along wind breaks, woodlots, fence rows, grassland swales, and other natural areas.⁸¹⁴ Disturbance may include cutting, mowing, and removal of vegetation, crushing of vegetation with construction equipment, and grading soils. This disturbance will be temporary during construction.⁸¹⁵

⁸⁰⁴ Ex. EERA-10 at 796 (FEIS).

⁸⁰⁵ Ex. EERA-10 at 796 (FEIS).

⁸⁰⁶ Ex. EERA-10 at 796 (FEIS).

⁸⁰⁷ Ex. EERA-10 at 796 (FEIS).

⁸⁰⁸ Ex. EERA-10 at 213, 349, 503, 620, and 756 (FEIS).

⁸⁰⁹ Ex. Xcel-15 at 288 (Application).

⁸¹⁰ Ex. EERA-10 at 212 (FEIS).

⁸¹¹ Ex. Xcel-15 at 286 (Application).

⁸¹² Ex. Xcel-15 at 286 (Application).

⁸¹³ Ex. Xcel-15 at 289 (Application).

⁸¹⁴ Ex. Xcel-15 at 289 (Application).

⁸¹⁵ Ex. Xcel-15 at 289 (Application).

372. Most of the existing vegetation in the right-of-way across all the regions is consists of forested landcover.⁸¹⁶ Table 15 below summaries the number of acres covered of forested landcover in the 345 kV route options for Segments 1 and 2.⁸¹⁷

Table 15. Forested Landcover in the ROW of the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Forested landcover in the ROW (acres)	75	94	42

373. All three route options would impact forested vegetation, with Route Option A having the most forested vegetation in the ROW (94 acres) and Route Option C having the least amount of forested vegetation in the ROW (42 acres).⁸¹⁸ Because all three route options would follow existing transmission line and/or road ROW for most of their lengths, most of these forested areas have already been fragmented.⁸¹⁹ However, there are densely forested areas in the ROW of Route Option C in areas that do not follow an existing ROW; as such, these forested areas would become fragmented.⁸²⁰

374. The ROW for Segment 3 is already free of woody vegetation, but additional impacts to vegetation could occur as a result of construction activities and heavy equipment.⁸²¹

375. Table 16 below summaries the number of acres covered of forested landcover in the four 161 kV route options for Segment 4.⁸²²

⁸¹⁶ Ex. EERA-10 at 520 (FEIS).

⁸¹⁷ Ex. EERA-10 at 520 (FEIS).

⁸¹⁸ Ex. EERA-10 at 523 (FEIS).

⁸¹⁹ Ex. EERA-10 at 523 (FEIS).

⁸²⁰ Ex. EERA-10 at 523 (FEIS).

⁸²¹ Ex. EERA-10 at 636 (FEIS).

⁸²² Ex. EERA-10 at 796 (FEIS).

Table 16. Forested Landcover in the ROW of the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Forested landcover in the ROW (acres)	18	22	15	19

376. Route Option B has the most forested vegetation within the ROW (22 acres), and Route Option C has the least (15 acres). Given the proposed double-circuiting and/or paralleling of existing transmission line or road rights-of-way, fragmentation of forested areas has mostly already occurred where the rights-of-way intersect forested vegetation.⁸²³

6. *Fauna*

377. Wildlife inhabiting in the vicinity of the Project is typical of those found in disturbed habitats associated with agriculture and rural and suburban residential development.⁸²⁴ Typical wildlife species inhabiting the route width include mammals such as deer, fox, squirrels, raccoons, and beavers; birds, such as turkeys, hawks, pheasants, and ducks; reptiles and amphibians, such as toads, salamanders, frogs, turtles, and snakes; and fish, such as large-mouth bass, bluegills, and brown bullheads.⁸²⁵

378. Construction activities that generate noise, dust, or disturbance of habitat could result in short-term, indirect impacts on wildlife.⁸²⁶ Larger or more mobile animals, such as deer, foxes, and birds will be able to vacate the immediate area of construction and should return upon completion of construction.⁸²⁷ Smaller species such as reptiles, amphibians, and small mammals could be more affected by construction because of their inability to vacate the construction area.⁸²⁸ Nocturnal animals and aquatic specific will unlikely be permanently impacted by construction and

⁸²³ Ex. EERA-10 at 796 (FEIS).

⁸²⁴ Ex. Xcel-15 at 289 (Application).

⁸²⁵ Ex. Xcel-15 at 290-291 (Application).

⁸²⁶ Ex. Xcel-15 at 290-291 (Application).

⁸²⁷ Ex. Xcel-15 at 291 (Application).

⁸²⁸ Ex. Xcel-15 at 291 (Application).

should return to preconstruction conditions following completion of the Project.⁸²⁹ The construction, operation, and maintenance of the Project will be designed to minimize potential adverse impacts to wildlife resources.⁸³⁰

379. Table 17 below summarizes the wildlife resources within the route width and ROW for the three end-to-end 345 kV route options for Segments 1 and 2.⁸³¹

Table 17. Wildlife Resources in the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Wildlife Management Areas (acres in ROW, acres in route width)	10 79	10 79	0
Important Bird Areas (acres in ROW, acres in route width)	4 42	4 42	0
Grassland Bird Conservation Areas (acres in ROW, acres in route width)	443 2,958	509 3,400	67 446
State Game Refuge (acres in ROW, acres in route width)	17 127	17 127	64 428
Waterfowl Production area (acres in ROW, acres in route width)	0 <1	0 <1	0
Designated Shallow Wildlife Lakes (count in ROW, count in route width)	1	1	1
Aquatic Management Areas crossings (count in ROW, count in route width)	1 1	1 1	0

⁸²⁹ Ex. Xcel-15 at 291 (Application).

⁸³⁰ Ex. Xcel-15 at 291 (Application).

⁸³¹ Ex. EERA-10 at 520 (FEIS).

Wildlife Action Network Corridors (acres in ROW, acres in route width)	123 841	181 1,219	92 754
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380. The route width and ROW of all three route options would intersect wildlife resources.⁸³² Route Options A and B would generally intersect more acres of wildlife resources but would mostly do so while double-circuiting existing transmission lines.⁸³³ While the ROW may need to be expanded to accommodate the double-circuiting, these areas have already been fragmented. Route Option C would mostly follow U.S. Highway 14 and as such, would also mostly intersect wildlife resources in areas that have already been fragmented.⁸³⁴ There is one location where the anticipated alignment of Route Option C would cross a densely forested Wildlife Action Network corridor in an area where there is not an existing transmission line or road ROW; as a result, this corridor would be fragmented.⁸³⁵ In addition, the majority of Route Option C would not follow an existing transmission line corridor, this could result in more avian impacts relative to Route Options A and B, which follow existing transmission line corridors for most of their length.⁸³⁶

381. Segment 3 would intersect with a National Wildlife Refuge, an Important Bird Area, a Wildlife Management Area, and Wildlife Action Network corridors.⁸³⁷ Segment 3 would double-circuit with an existing transmission line for its entire length and the proposed double-circuiting would require an additional horizontal plane to the transmission line, which could increase potential impacts to avian species.⁸³⁸

382. Table 18 below summarizes the wildlife resources within the route width and ROW for the four end-to-end 161 kV route options for Segment 4.⁸³⁹

⁸³² Ex. EERA-10 at 523 (FEIS).

⁸³³ Ex. EERA-10 at 523 (FEIS).

⁸³⁴ Ex. EERA-10 at 523 (FEIS).

⁸³⁵ Ex. EERA-10 at 523 (FEIS).

⁸³⁶ Ex. EERA-10 at 523 (FEIS).

⁸³⁷ Ex. EERA-10 at 636 (FEIS).

⁸³⁸ Ex. EERA-10 at 636 (FEIS).

⁸³⁹ Ex. EERA-10 at 796 (FEIS).

Table 18. Wildlife Resources in the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Grassland Bird Conservation Areas (acres in ROW, acres in route width)	33 328	33 328	0 0	0 0
Wildlife Action Network Corridors (acres in ROW, acres in route width)	25 255	25 255	9 109	23 269

383. The ROW of Route Options A and B intersect a Grassland Bird Conservation Area (GBCA), while the rights-of-way of Route Options C and D avoid the GBCA.⁸⁴⁰ However, impacts would be minimized because Route Options A and B would cross the GBCA in an existing transmission line corridor while double-circuiting a 161 kV line.⁸⁴¹ The ROW of all four route options would intersect several Wildlife Action Network corridors.⁸⁴² All route options would cross Wildlife Action Network corridors in an existing transmission line or road ROW; as such, these corridors are already fragmented.⁸⁴³

F. Effects on Rare and Unique Natural Resources

384. Minnesota Rule 7850.4100(F) requires consideration of the Project's effects on rare and unique resources.

385. Rare and unique natural resources include federally and state-protected species and sensitive ecological resources.⁸⁴⁴ The EIS evaluated potential impacts of the protected specifics by reviewing documented occurrences within one mile of the Project area.⁸⁴⁵ The EIS also evaluated potential impacts to sensitive ecological

⁸⁴⁰ Ex. EERA-10 at 799 (FEIS).

⁸⁴¹ Ex. EERA-10 at 799 (FEIS).

⁸⁴² Ex. EERA-10 at 799 (FEIS).

⁸⁴³ Ex. EERA-10 at 799 (FEIS).

⁸⁴⁴ Ex. EERA-10 at 189 (FEIS).

⁸⁴⁵ Ex. EERA-10 at 189 (FEIS).

resources, which could provide suitable habitat for protected species, by assessing the presence of these resources within the route width.⁸⁴⁶

386. The MnDNR established several categories for sensitive ecological resources across the state, many of which are scattered throughout the Project.⁸⁴⁷ The MnDNR also designates Scientific and Natural Areas to protect natural features with exceptional scientific or educational value including native plant communities, populations of rare species, and geological features.⁸⁴⁸

387. Table 19 below summarizes the rare and unique natural resources in the three 345 kV route options for Segments 1 and 2.⁸⁴⁹

Table 19. Rare and Unique Natural Resources in the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
State Threatened or Endangered Species (documented records in NHIS database; count in ROW, count in route width)	6 12	6 12	7 10
Scientific and Natural Areas (acres in ROW, acres in route width)	2 28	2 28	0
Sites of Biodiversity Significance (acres in ROW, acres in route width)	41 363	47 388	21 357
Native Plant Communities (acres in ROW, acres in route width)	23 191	27 212	7 177

⁸⁴⁶ Ex. EERA-10 at 189 (FEIS).

⁸⁴⁷ Ex. EERA-10 at 195 (FEIS).

⁸⁴⁸ Ex. EERA-10 at 195 (FEIS).

⁸⁴⁹ Ex. EERA-10 at 521 (FEIS).

Designated Old Growth (acres in ROW, acres in route width)	<1 6	<1 6	0
Railroad rights-of-way prairie crossings (count)	1	1	3
Lakes of Biological Significant (count in ROW, count in route width)	1 3	1 3	1 1

388. All three route options have a similar number of NHIS records within the ROW and route width.⁸⁵⁰ Route Options A and B would intersect the Townsend Woods Scientific and Natural Area, in an area where it could be double-circuited; Route Option C would avoid this resource⁸⁵¹

389. The ROW of Route Options A and B intersect more acres of SBS and native plant communities than Route Option C.⁸⁵² Route Option C intersects more railroad rights-of-way prairie than Route Options A and B. Route Options A and B would generally intersect sensitive ecological resources in areas that could be double-circuited with an existing transmission line.⁸⁵³ For the most part, Route Option C would traverse these sensitive ecological resources while paralleling U.S. Highway 14 or an existing transmission line or railroad ROW.⁸⁵⁴ However, in a few situations, the Route Option C anticipated alignment would cross a sensitive ecological resource while establishing a new corridor, such as through the Kaplan Woods SBS (ranked outstanding) and associated southern floodplain forest.⁸⁵⁵

390. The ROW of Segment 3 will intersect with a National Wildlife Refuge, an Important Bird Area, a Wildlife Management Area, and Wildlife Action Network corridors.⁸⁵⁶ Segment 3 will be double-circuited for its entire length, as these wildlife resources have already been fragmented, and the additional horizontal plane to the transmission line could increase impacts to avian species.⁸⁵⁷

⁸⁵⁰ Ex. EERA-10 at 524 (FEIS).

⁸⁵¹ Ex. EERA-10 at 524 (FEIS).

⁸⁵² Ex. EERA-10 at 524 (FEIS).

⁸⁵³ Ex. EERA-10 at 524 (FEIS).

⁸⁵⁴ Ex. EERA-10 at 524 (FEIS).

⁸⁵⁵ Ex. EERA-10 at 524 (FEIS).

⁸⁵⁶ Ex. EERA-10 at 636 (FEIS).

⁸⁵⁷ Ex. EERA-10 at 636 (FEIS).

391. Table 20 below summarizes the rare and unique natural resources in the four 161 kV route options for Segment 4.⁸⁵⁸

Table 20. Rare and Unique Natural Resources in the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
State Threatened or Endangered Species (documented records in NHIS database; count in ROW, count in route width)	4 7	4 7	3 4	1 1
Sites of Biodiversity Significance (acres in ROW, acres in route width)	1 39	1 39	<1 30	9 110
Native Plant Communities (acres in ROW, acres in route width)	1 33	1 33	0 8	3 28

392. Route Options C and D have fewer NHIS records within the ROW and route width than Route Options A and B.⁸⁵⁹

393. Blanding's turtle, Blanchard's cricket frog, glade mallow, and a mussel species have been documented within the ROW of Route Options A and B.⁸⁶⁰ Tuberous Indian-plantain has been documented within the ROW of Route Options C and D; two mussel species have also been documented within the ROW of Route Option C.⁸⁶¹ All four route options could impact terrestrial protected species should

⁸⁵⁸ Ex. EERA-10 at 796 (FEIS).

⁸⁵⁹ Ex. EERA-10 at 800 (FEIS).

⁸⁶⁰ Ex. EERA-10 at 800 (FEIS).

⁸⁶¹ Ex. EERA-10 at 800 (FEIS).

they be present in the ROW during construction.⁸⁶² Watercourses would be spanned by all Route Options; as such impacts to protected mussel species are not anticipated.⁸⁶³

394. The ROW of Route Option D would intersect with 9 acres of sites of biodiversity significance and 3 acres of native plant communities, the most among the four route options.⁸⁶⁴

G. Application of Various Design Considerations

395. Minnesota Rule 7850.4100(G) requires consideration of whether the applied design options maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity.

396. The Project is designed to maximize the use of existing ROWs to the extent practicable as demonstrated in sections VIII(H) and (I) below.⁸⁶⁵

397. The Project is also designed to meet current and projected future needs of the local and regional transmission network.⁸⁶⁶

398. To accommodate future expansion, the Project was designed to route the new 345 kV transmission line near the West Faribault Substation.⁸⁶⁷ This will allow for the potential for a 345 kV connection into the West Faribault Substation in the future as needed to support greater renewable generation in this area.⁸⁶⁸ By routing the new 345 kV transmission line in close proximity to the existing lower voltage transmission system near Faribault, there is the ability to make this connection to the backbone transmission system in the future while also minimizing additional impacts to the surrounding area.⁸⁶⁹

H. Use or Paralleling of Existing Right-of-Way, Survey Lines, Natural Division Lines, and Agricultural Field Boundaries

399. Minnesota's HVTL routing factors require consideration of the Project's use of or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries.⁸⁷⁰

⁸⁶² Ex. EERA-10 at 800 (FEIS).

⁸⁶³ Ex. EERA-10 at 800 (FEIS).

⁸⁶⁴ Ex. EERA-10 at 800 (FEIS).

⁸⁶⁵ Ex. Xcel-15 at 157 (Application).

⁸⁶⁶ Ex. Xcel-15 at 26 (Application).

⁸⁶⁷ Ex. Xcel-15 at 26 (Application).

⁸⁶⁸ Ex. Xcel-15 at 26 (Application).

⁸⁶⁹ Ex. Xcel-15 at 26 (Application).

⁸⁷⁰ Minn. Stat. § 216E.03, subd. 7(b)(8) and (9); Minn. R. 7850.4100, subp. H.

400. Table 21 summarizes the paralleling of transmission lines, roads and railroads, existing survey lines, natural division lines, and agricultural field boundaries for the three end-to-end 345 kV route options for Segments 1 and 2.⁸⁷¹

Table 21. Use or Paralleling with Existing Rights-of-Way for the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segments 1 and 2 North and North)	Route Option C (Highway 14 or Route Segment 17)
Transmission line (miles, percent)	41.5 (55%)	68.9 (83%)	21.2 (22%)
Roads (miles, percent)	12.9 (17%)	32.2 (38%)	67.3 (71%)
Railroad (miles, percent)	2.9 (4%)	2.9 (4%)	8.2 (9%)
Pipeline (miles, percent)	0	0	0
Total ROW sharing or paralleling with existing infrastructure (transmission line, road, railroad, and pipeline) (miles, percent)	48.8 (64%)	75.1 (90%)	81.5 (86%)
Total ROW paralleling with division lines (parcel, section, and field lines) (miles, percent)	59.5 (78%)	68.4 (82%)	81.4 (86%)
Total ROW sharing or paralleling (all)	69.3 (91%)	80.3 (96%)	89.1 (94%)

401. Cumulatively, Route Option A parallels existing infrastructure (transmission lines, roads, or railroads) for 90 percent of its length. Route Option B parallels existing infrastructure (transmission lines, roads, or railroads) for 64 percent of its length.⁸⁷² Route Option C parallels existing infrastructure (transmission lines, roads, or railroads) for 86 percent of its length.⁸⁷³

⁸⁷¹ Ex. EERA-10 at 519 (FEIS).

⁸⁷² Ex. EERA-10 at 524 (FEIS).

⁸⁷³ Ex. EERA-10 at 524 (FEIS).

402. Segment 3 would parallel existing transmission lines, roads, or railroads for 100 percent of its length.⁸⁷⁴

403. Table 22 summarizes the paralleling of transmission lines, roads and railroads, existing survey lines, natural division lines, and agricultural field boundaries for the four 161 kV route options for Segment 4.⁸⁷⁵

Table 22. Use or Paralleling with Existing Rights-of-Way for the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Transmission line (miles, percent)	16.4 (74%)	13.8 (61%)	4.0 (20%)	13.7 (84%)
Roads (miles, percent)	9.5 (43%)	7.4 (33%)	12.2 (61%)	<0.1 (0%)
Railroad (miles, percent)	0	0	0	0
Pipeline (miles, percent)	0	0	0	0
Total ROW sharing or paralleling with existing infrastructure (transmission line, road, railroad, and pipeline) (miles, percent)	18.2 (82%)	16.1 (71%)	13.9 (70%)	13.7 (84%)
Total ROW paralleling with division lines (parcel, section, and field lines) (miles, percent)	19.3 (87%)	20.0 (89%)	18.9 (95%)	7.8 (48%)
Total ROW sharing or paralleling (all)	21.2 (96%)	21.8 (97%)	19.2 (96%)	14.7 (90%)
Total length following no infrastructure or division lines (miles, percent)	1.0 (4%)	0.7 (3%)	0.8 (4%)	1.7 (10%)

⁸⁷⁴ Ex. EERA-10 at 637 (FEIS).

⁸⁷⁵ Ex. EERA-10 at 795 (FEIS).

404. Cumulatively, Route Option A parallels existing infrastructure (transmission lines, roads, or railroads) for 82 percent of its length.⁸⁷⁶ Route Option B parallels existing infrastructure (transmission lines, roads, or railroads) for 71 percent of its length.⁸⁷⁷ Route Option C parallels existing infrastructure (transmission lines, roads, or railroads) for 70 percent of its length.⁸⁷⁸ Route Option D parallels existing infrastructure (transmission lines, roads, or railroads) for 84 percent of its length.⁸⁷⁹

I. Use of Existing Transportation, Pipeline, and Electrical Transmission System Rights-of-Way

405. Minnesota HVTL routing factors require consideration of the Project's use of paralleling of existing transportation, pipeline, and electrical transmission system rights-of-way.⁸⁸⁰

406. Table 23 below summarizes the opportunities for double-circuiting with existing transmission lines for the three 345 kV route options for Segments 1 and 2.⁸⁸¹

Table 23. Opportunities for Double-Circuiting the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Double-circuit with existing 69 kV line (miles, percent)	5.5 (7%)	26.7 (32%)	0
Double-circuit with existing 115 kV line (miles, percent)	33.5 (44%)	35.0 (42%)	4.0 (4%)
Double-circuit with existing 161 kV line (miles, percent)	<0.1	<0.1	<0.1

⁸⁷⁶ Ex. EERA-10 at 800 (FEIS).

⁸⁷⁷ Ex. EERA-10 at 800 (FEIS).

⁸⁷⁸ Ex. EERA-10 at 800 (FEIS).

⁸⁷⁹ Ex. EERA-10 at 800 (FEIS).

⁸⁸⁰ Minn. R. 7850.4100(J).

⁸⁸¹ Ex. EERA-10 at 519 (FEIS).

Double-circuit with existing 345 kV line (miles, percent)	0 (0%)	0 (0%)	13.9 (15%)
Total opportunity for double-circuiting (miles, percent)	39.0 (51%)	61.7 (74%)	17.9 (19%)

407. Route Option A provides the greatest opportunity for double-circuiting, and Route Option B has the second greatest opportunity for double-circuiting.⁸⁸²

408. Segment 3 would be double circuited within existing 345 kV transmission line for 43.4 miles, which is 100 percent of its length.⁸⁸³

409. Table 24 below summarizes the opportunities for double-circuiting with existing transmission lines for the four 161 kV end-to-end route options.⁸⁸⁴

Table 24. Opportunities for Double-Circuiting for the 161 kV Route Options

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Double-circuit with existing 69 kV line (miles, percent)	5.1 (23%)	2.5 (11%)	2.5 (13%)	0
Double-circuit with existing 161 kV line (miles, percent)	11.3 (51%)	11.3 (50%)	0	0
Total opportunity for double-circuiting (miles, percent)	16.4 (74%)	13.8 (61%)	2.5 (13%)	0

410. Route Option A offers the greatest opportunity for double-circuiting, followed by Route Option B and C.⁸⁸⁵ Route Option D has zero miles of double-

⁸⁸² Ex. EERA-10 at 519 (FEIS).

⁸⁸³ Ex. EERA-10 at 636 (FEIS).

⁸⁸⁴ Ex. EERA-10 at 795 (FEIS).

⁸⁸⁵ Ex. EERA-10 at 795 (FEIS).

circuiting as it will be constructed adjacent to the existing 345/345 kV Hampton – La Crosse line.

J. Electrical System Reliability

411. Minnesota's HVTL routing factors require consideration of the Project's impact on electrical system reliability.⁸⁸⁶

412. The North American Electric Corporation has established mandatory reliability standards for American utilities.⁸⁸⁷ For new transmission lines, these standards require the utility to evaluate whether the grid would continue to operate adequately under various contingencies.⁸⁸⁸

413. The purpose of the Project is to construct a transmission line that will provide additional transmission capacity to reduce congestion and improve electric system reliability throughout the region as more renewable resources are added to the transmission system.⁸⁸⁹ The Project would increase transfer capability across the MISO Midwest subregion to allow reliability to be maintained for all hours under varying dispatch patterns driven by differences in weather conditions.⁸⁹⁰

K. Costs of Constructing, Operating, and Maintaining the Facility

414. Minnesota's HVTL routing factors require consideration of the Project's cost of construction, operation, and maintenance.⁸⁹¹

415. Xcel Energy provided the total estimated cost to construct the Project based the specific costs for each route alternative included in the EIS.⁸⁹² There are several main components of the cost estimate, including (1) transmission line structures and materials; (2) transmission line construction and restoration; transmission line and substation permitting design; transmission line ROW acquisition; and (5) substation materials, substation land acquisition, and construction. Each of these components also may include a risk reserve.⁸⁹³ Below is a table of total estimated construction costs for the Project.⁸⁹⁴

⁸⁸⁶ Minn. R. 7850.4100(K).

⁸⁸⁷ Ex. Xcel-15 at 91 (Application).

⁸⁸⁸ Ex. Xcel-15 at 91 (Application).

⁸⁸⁹ Ex. ERRRA-10 at 1 (FEIS).

⁸⁹⁰ Ex. ERRRA-10 at 227 (FEIS).

⁸⁹¹ Minn. R. 7850.4100(L).

⁸⁹² Ex. EERRA-10 at 71 (FEIS).

⁸⁹³ Ex. EERRA-10 at 71 (FEIS).

⁸⁹⁴ Ex. Xcel-35 at 2-3 (T. Wendland Surrebuttal).

Table 25. Total Estimated Construction Costs for the Project⁸⁹⁵

Project Components	Low Capital Expenditures (\$Millions)	High Capital Expenditures (\$Millions)
Mankato – Mississippi River 345 kV Transmission Line	\$376.6	\$490.7
Wilmarth Substation Modifications	\$8.6	\$9.1
North Rochester Substation	\$10.5	\$11.5
North Rochester to Chester 161 kV Transmission Line	\$41.1	\$69.7
Eastwood Substation Modifications	\$0	\$8.7
Total	\$436.8	\$589.7

416. Xcel Energy also provided a comparison of the estimated costs of Route Option B to Route Option C for Segments 1 and 2.⁸⁹⁶ The estimated cost for Route Option A is \$341.9 million as compared to \$397.1 million for Route Option C.⁸⁹⁷

417. Xcel Energy also provided a comparison of the estimated costs of Route Option A to Route Option D for Segment 4.⁸⁹⁸ The estimated cost for Route Option A is \$69.7 million as compared to \$41.1 million for Route Option C.⁸⁹⁹

418. These costs include all transmission line and substation modification costs, including materials, associated construction, permitting and design costs, and risk reserves.⁹⁰⁰ The aerial inspections cost approximately \$75 to \$100 per mile and the ground inspections cost approximately \$200 to \$400 per mile.⁹⁰¹ 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.⁹⁰²

⁸⁹⁵ Ex. Xcel-35 at 2-3 (T. Wendland Surrebuttal).

⁸⁹⁶ Ex. Xcel-35 at 4 (T. Wendland Surrebuttal).

⁸⁹⁷ Ex. Xcel-35 at 4 (T. Wendland Surrebuttal).

⁸⁹⁸ Ex. Xcel-30 at 8 (T. Wendland Direct).

⁸⁹⁹ Ex. Xcel-30 at 8 (T. Wendland Direct).

⁹⁰⁰ Ex. Xcel-30 at 3 (T. Wendland Direct).

⁹⁰¹ Ex. Xcel-15 at 348 (Application).

⁹⁰² Ex. Xcel-15 at 348 (Application).

L. Adverse Human and Natural Environmental Effects Which Cannot be Avoided

419. Minnesota Rule 7850.4100(M) requires consideration of unavoidable human and environmental impacts.

420. Resource impacts are unavoidable when an impact cannot be avoided even with mitigation strategies.⁹⁰³

421. Transmission lines are infrastructure projects that have unavoidable adverse human and environmental impacts.⁹⁰⁴ Unavoidable adverse impacts associated with construction of the proposed Project include possible traffic delays and fugitive dust on roadways; visual and noise disturbances; potential impacts to agricultural operations, such as crop losses; soil compaction and erosion; vegetative clearing; changes to forested wetland type and function; disturbance and temporary displacement of wildlife, as well as direct impacts to wildlife inadvertently struck or crushed during structure placement or other activities; minor amounts of habitat loss; converting the underlying land use; greenhouse gas emissions.⁹⁰⁵

422. Unavoidable adverse impacts associated with the operation of the proposed project include visual impact of structures and conductors; loss of land for other purpose, such as agriculture, where structures are placed; injury or death of avian species that collide with, or are electrocuted by, conductors; interference with AM radio signals; potential decrease to property values; continued maintenance of tall-growing vegetation; greenhouse gas emissions; increased electromagnetic fields on the landscape, however, potential impacts from electromagnetic fields are minimal and are not expected to impact human health.⁹⁰⁶

423. These potential impacts and the possible ways to mitigate against them were discussed in the Application and the EIS.⁹⁰⁷ However, even with mitigation strategies, certain impacts cannot be avoided.⁹⁰⁸

⁹⁰³ Ex. EERA-10 at 804 (FEIS).

⁹⁰⁴ Ex. EERA-10 at 804 (FEIS).

⁹⁰⁵ Ex. EERA-10 at 804 (FEIS).

⁹⁰⁶ Ex. EERA-10 at 804 (FEIS).

⁹⁰⁷ Ex. EERA-10 at 804 (FEIS); Ex. 15 at 320-322 (Application).

⁹⁰⁸ Ex. EERA-10 at 804 (FEIS).

M. Irreversible and Irretrievable Commitments of Resources

424. Minnesota's HVTL routing factors require consideration of the irreversible and irretrievable commitments of resources that are necessary for the Project.⁹⁰⁹

425. Resource commitments are irreversible when it is impossible or very difficult to redirect that resource to a different future use; an irretrievable commitment of resources means the resource is not recoverable for later use by future generations.⁹¹⁰

426. Irreversible impacts include the land required to construct the transmission line.⁹¹¹ Certain land uses within the right-of-way will no longer be able to occur, especially at the substation.⁹¹² While it is possible that the structures, conductors, and substations, could be removed and the right-of-way restored to previous conditions, this is unlikely in the reasonably foreseeable future (approximately 50 years).⁹¹³ The loss of forested wetlands is considered irreversible, because replacing these wetlands would take a significant amount of time.⁹¹⁴

427. Irretrievable impacts are primarily related to Project construction, including the use of water, aggregate, hydrocarbons, steel, concrete, wood, and other consumable resources.⁹¹⁵ The commitment of labor and fiscal resources is also considered irretrievable.⁹¹⁶

N. Summary Comparison of Route Alternatives

1. 345 kV Route Options

428. The EIS provided a comparison of Route Options A, B, and C for Segments 1 and 2 based on routing criteria.⁹¹⁷ The table below summarizes a comparison of certain routing criteria.⁹¹⁸

⁹⁰⁹ Minn. Stat. § 216E.03, subd. 7(b)(11); Minn. R. 7850.4100(N).

⁹¹⁰ Ex. EERA-10 at 805 (FEIS).

⁹¹¹ Ex. EERA-10 at 805 (FEIS).

⁹¹² Ex. EERA-10 at 805 (FEIS).

⁹¹³ Ex. EERA-10 at 805 (FEIS).

⁹¹⁴ Ex. EERA-10 at 805 (FEIS).

⁹¹⁵ Ex. EERA-10 at 805 (FEIS).

⁹¹⁶ Ex. EERA-10 at 805 (FEIS).

⁹¹⁷ Ex. EERA-10 at 519-521 (FEIS).

⁹¹⁸ Ex. EERA-10 at 519-521 (FEIS).

Table 26. Summary Comparison of 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Length (miles)	76.0	83.3	95.2
Total opportunity for double-circuiting (miles, percent)	39.0 (51%)	61.7 (74%)	17.9 (19%)
Total ROW sharing or paralleling (miles, percent)	69.3 (91%)	80.3 (96%)	89.1 (94%)
Total Residences within 1,600 feet	218	334	254
Total Non-Residential Structures within 1,600 feet	546	842	769
Agricultural land (acres in ROW)	1,061	1,024	1,208
Prime Farmland (acres in ROW)	907	967	1,436
Total Archaeology and Historic Architecture within route width (count in route width)	16	35	100
Total Wetlands (acres in ROW)	135	141	129
Estimated Construction Costs	\$341.9 Million ⁹¹⁹	Not estimated ⁹²⁰	\$397.1 Million ⁹²¹

429. Xcel Energy noted in its Post-Hearing Brief that it also supported Route Option B because it more easily enables future expansion of the transmission system. Route Option B allows for the potential for a future 345 kV connection into the West Faribault Substation to support greater renewable generation in this area while

⁹¹⁹ Ex. Xcel-35 at 4 (T. Wendland Surrebuttal).

⁹²⁰ Xcel Energy did not estimate that cost to construct Route Option A but because Route Option is longer than Route Option B it is expected that it would be more costly to construct than Route Option B. Ex. EERA-10 at 524 (FEIS).

⁹²¹ Ex. Xcel-35 at 4 (T. Wendland Surrebuttal).

minimizing future impacts.⁹²² Route Option B is located approximately 0.13 miles or 690 feet from the West Faribault Substation while Route Option C is located 15 miles to the south. If Route Option C is selected, a new 15-mile 345 kV transmission line would be required for any future connection of this Project to the West Faribault Substation.⁹²³

430. Xcel Energy also stated in its Post-Hearing Brief that Route Option C also has the potential to make the routing of future transmission projects more difficult. In order to connect to the North Rochester Substation, Route Option C requires a new approximately 13-mile long 345 kV line from where this alternative leaves Highway 14 near Byron to the North Rochester Substation.⁹²⁴ There is already an existing 345 kV line in this corridor, the Pleasant Valley – North Rochester 345 kV line.⁹²⁵ In December 2024, MISO approved its Tranche 2.1 portfolio of projects. One of the projects that was approved was the Pleasant Valley – North Rochester – Hampton 345 kV project which involves rebuilding the existing Pleasant Valley – North Rochester 345 kV line as a double-circuit 345/345 line.⁹²⁶ The Tranche 2.1 portfolio of projects also includes a new 765 kV transmission line from Pleasant Valley to North Rochester.⁹²⁷ These two new projects are planned for the same corridor as Route Option C and selection of Route Option C will limit the routing opportunities for these two future projects making their routing more challenging.⁹²⁸ In comparison, Route Option B avoids this congested corridor because it enters the North Rochester Substation from the northwest.⁹²⁹

431. Based on the information presented in the Application and EIS, Route Option B is consistent with the Commission’s routing criteria and best balances and minimizes potential impacts, considering each of those criteria (including, but not limited to, residential impacts, agricultural impacts, archeological and historic resource impacts, natural resource impacts, and cost). Route Segment 18 and Alignment Alternative 2 should be included in Route Option B as these options minimize tree clearing (Route Segment 18) and avoid a development that is under construction (Alignment Alternative 2).⁹³⁰

⁹²² See Ex. Xcel-15 at 26 (Application) (“By routing the new 345 kV transmission line as close as possible to the existing lower voltage transmission system near Faribault, there is the ability to make this connection to the backbone transmission system in the future while also minimizing additional impacts to the surrounding area.”)

⁹²³ Ex. Xcel-29 at 14 (E. Heine Direct Testimony and Schedules).

⁹²⁴ Ex. Xcel-29 at 14 (E. Heine Direct Testimony and Schedules).

⁹²⁵ Ex. Xcel-29 at 14 (E. Heine Direct Testimony and Schedules).

⁹²⁶ Ex. Xcel-29 at 14 (E. Heine Direct Testimony and Schedules).

⁹²⁷ Ex. Xcel-29 at 15 (E. Heine Direct Testimony and Schedules).

⁹²⁸ Ex. Xcel-29 at 15 (E. Heine Direct Testimony and Schedules).

⁹²⁹ See Ex. EERA-8 at Map 47 (FEIS).

⁹³⁰ Ex. EERA-10 at 233-235 (FEIS).

2. *161 kV Route Options*

432. The EIS provided a comparison of the Route Option A, B, C, and D based on certain routing criteria.⁹³¹ The table below summarizes a comparison of certain routing criteria.⁹³²

⁹³¹ Ex. EERA-10 at 795-796 (FEIS).

⁹³² Ex. EERA-10 at 795-796 (FEIS).

Table 27. Summary Comparison of 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co- Locate)
Length (miles)	22.1	22.5	20.0	16.4
Total opportunity for double-circuiting (miles, percent)	16.4 (74%)	13.8 (61%)	2.5 (13%)	0
Total ROW sharing or paralleling (miles, percent)	18.2 (82%)	16.1 (71%)	13.9 (70%)	13.7 (84%)
Total Residences within 1,600 feet	196	172	234	40
Total Non-Residential Structures within 1,600 feet	269	235	322	92
Agricultural land (acres in ROW)	153	170	119	159
Prime Farmland (acres in ROW)	190	193	154	108
Total Archaeology and Historic Architecture within route width (count in route width)	18	10	35	6
Total Wetlands (acres in ROW)	12	11	8	4
Estimated Construction Costs	\$69.7 Million	Not estimated ⁹³³	Not estimated ⁹³⁴	\$41.1 Million

⁹³³ Xcel Energy did not prepare a cost estimate for this Route Option.

⁹³⁴ Xcel Energy did not prepare a cost estimate for this Route Option.

433. Based on the information presented in the Application and EIS, Route Options A and D are consistent with the Commission's routing criteria and best balances and minimizes potential impacts, considering each of those criteria (including, but not limited to, residential and natural resource impacts).

IX. SPECIAL ROUTE PERMIT CONDITIONS

434. Special conditions on the Route Permit were proposed by the MnDNR in its two comment letters.⁹³⁵ The record supports inclusion of the conditions discussed below.

435. Calcareous Fen: Should any calcareous fens be identified within the Project area, the Applicant must work with the MnDNR to determine if any impacts will occur during any phase of the Project.⁹³⁶ If the Project is anticipated to impact any calcareous fens, the Applicant must develop a Calcareous Fen Management Plan in coordination with the MnDNR, as specified in Minn. Stat. § 103G.223.⁹³⁷ Should a Calcareous Fen Management Plan be required, the approved plan must be submitted currently with the plan and profile.⁹³⁸

436. Avian Flight Diverters: The Applicant in cooperation with the MnDNR 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.⁹³⁹ 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.⁹⁴⁰ The Applicant shall submit documentation of its avian protection coordination with the plan and profile.⁹⁴¹

437. Vegetation Management Plan: The Applicant shall coordinate with the Vegetation Management Plan Working Group to develop a Vegetation Management Plan for the Project.⁹⁴²

⁹³⁵ Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹³⁶ Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹³⁷ Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹³⁸ Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹³⁹ Comments at 3 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹⁴⁰ Comments at 3 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹⁴¹ Comments at 3 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹⁴² Comments at 3 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

438. Wildlife Friendly Erosion Control: The Applicant shall only use “bio-netting” or “natural netting” types of erosion control materials and mulch products without synthetic (plastic) fiber additives.⁹⁴³

439. Dust Control: To protect plants and wildlife from chloride products that do not break down in the environment, the Applicant is prohibited from using dust control products containing calcium chloride or magnesium chloride during construction and operation of the Project.⁹⁴⁴

440. Facility Lighting: The Applicant shall utilize downlit and shielded lighting and minimize blue hue to reduce harm to birds, insects, and other animals.⁹⁴⁵

X. CONSIDERATION OF ISSUES PRESENTED BY STATE AGENCIES AND LOCAL UNITS OF GOVERNMENT

441. Minnesota Statute § 216E.03, subd. 7(b)(12) requires the Commission to examine, when appropriate, issues presented by federal and state agencies and local entities. The issues presented by federal, state, and local units of government are addressed in the findings above as part of the analysis of the Commission’s routing factors.

XI. NOTICE

442. Minnesota statutes and rules require an applicant for a Route Permit to provide certain notice to the public, as well as to local governments, before and after the filing of an application for a Route Permit.⁹⁴⁶

443. The Applicant provided notice to the public and to local governments in satisfaction of Minnesota statutory and rule requirements.⁹⁴⁷

444. Minnesota statutes and rules also require the EERA and the Commission to provide certain notice to the public throughout the Route Permit process.⁹⁴⁸ The

⁹⁴³ Comments at 3 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹⁴⁴ Comments at 4 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹⁴⁵ Comments at 4 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. [20256-219807-01](#)).

⁹⁴⁶ Minn. Stat. § 216E.03, subd. 3(a) and 4; Minn. R. 7850.2100, subps. 2 and 4.

⁹⁴⁷ Ex. Xcel-15 at 323 and Appendix M (Application); Ex. Xcel-21 (Notice of Filing of Route Permit Application Compliance Filing).

⁹⁴⁸ Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300, subp. 2; Minn. R. 7850.2500, subps. 2, 7, 8, and 9.

EERA and the Commission provided the notice in satisfaction of Minnesota statutes and rules.⁹⁴⁹

XII. ADEQUACY OF THE EIS

445. The Commission is required to determine the adequacy of the EIS.⁹⁵⁰

446. The EIS addresses the issues and alternatives raised in scoping to a reasonable extent considering the availability of information and the time limitations for considering the permit application.⁹⁵¹

447. The EIS provides responses to the comments received during the draft environmental impact statement review process.⁹⁵²

448. The EIS was prepared in compliance with the procedures in Minnesota Rules.⁹⁵³

Based on the foregoing Findings of Fact and the record in this proceeding, the ALJ makes the following:

CONCLUSIONS OF LAW

1. Any of the forgoing Findings of Fact more properly designated as Conclusions of Law are hereby adopted as such.

2. The Commission and the ALJ have jurisdiction to consider the Applicant's Application.

3. The Commission determined that the Application was substantially complete and accepted the Application on June 26, 2024.

4. EERA has conducted an appropriate environmental analysis for the Project for purposes of these proceeding and the FEIS satisfied applicable law, including Minn. Stat. § 216E.03, subd. 5 and Minn. R. 7850.2500.

⁹⁴⁹ Ex. PUC-7 (Notice of Comment Period on Application Completeness); Ex. PUC- 13 (Public Information and Environmental Impact Statement Scoping Meetings); Ex. PUC-14 (EQB Monitor); Ex. PUC-26 (Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of Draft Environmental Impact Statement); and Ex. EERA-7 (Notice of Environmental Statement Scoping Decisions); Ex. Xcel-39 (Affidavits of Publication); Notice of Availability of Final Environmental Impact Statement and Comment Period (July 25, 2025) (eDocket No.[20257-221385-01](#)).

⁹⁵⁰ Minn. R. 7850.2500, subp. 10.

⁹⁵¹ Ex. EERA-8 at 22 (DEIS).

⁹⁵² Ex. EERA-10 at Appendix A (FEIS).

⁹⁵³ Minn. R. 7850.1000 - 7850.5600.

5. The Applicant gave notice as required by Minn. Stat. § 216E.03, subd. 3(a) and 4 and Minn. R. 7850.2100, subps. 2 and 4.

6. The Commission and/or the EERA gave notice as required by Minn. Stat. § 216E.03, subd. 6, Minn. R. 7850.2300, subp. 2, and Minn. R. 7850.2500, subps. 2 and 7-9.

7. Public hearings were conducted in communities along the proposed routes. The Applicant, EERA, and the Commission gave proper notice of the public hearings, as required by Minn. Stat. § 216E.03, subd. 6, and the public was given the opportunity to appear at the hearing or submit written comments.

8. All procedural requirements for processing the Route Permit have been met.

9. The record demonstrates that the Route Option B, incorporating Route Segment 18 and Alignment Alternative 2 (for Segments 1 and 2), Segment 3, and Route Options A and D (for Segment 4) satisfies the Route Permit criteria set forth in Minn. Stat. § 216E.03, subd. 7(a) and 7(b) and Minn. R. 7850.4100.

10. The record evidence demonstrates that Route Option B, incorporating Route Segment 18 and Alignment Alternative 2 (for Segments 1 and 2), Segment 3, and either Route Option A or D (for Segment 4) are the best routes for the Project.

11. The record evidence demonstrates that constructing the Project along Route Option B, incorporating Route Segment 18 and Alignment Alternative 2 (for Segments 1 and 2), Segment 3, and Route Options A and D (for Segment 4) does not present a potential for significant adverse environmental effects pursuant to the Minnesota Environmental Rights Acts, Minn. Stat. § § 116B.01-116B.13, and the Minnesota Environmental Policy Act, Minn. Stat. § § 116D.01-116D.11.

12. There is no feasible and prudent alternative to the construction of the Project, and the Project is consistent with and reasonably required for the promotion of public health and welfare in light of the state's concern for the protection of its air, water, land, and other natural resources as expressed in the Minnesota Environmental Rights Act.

13. The Applicant's requested route widths are reasonable and appropriate for the Project.

14. The Applicant's right-of-way request for a 150-foot-wide right-of-way for the 345 kV portion of the Project and a 100-foot right-of-way for the 161 kV portion of the Project is reasonable and appropriate.

15. The evidence in the record demonstrates that the general Route Permit conditions are appropriate for the Project, as modified in Section IX herein.

Based on these Findings and Fact and Conclusions of Law, the ALJ makes the following:

RECOMMENDATION

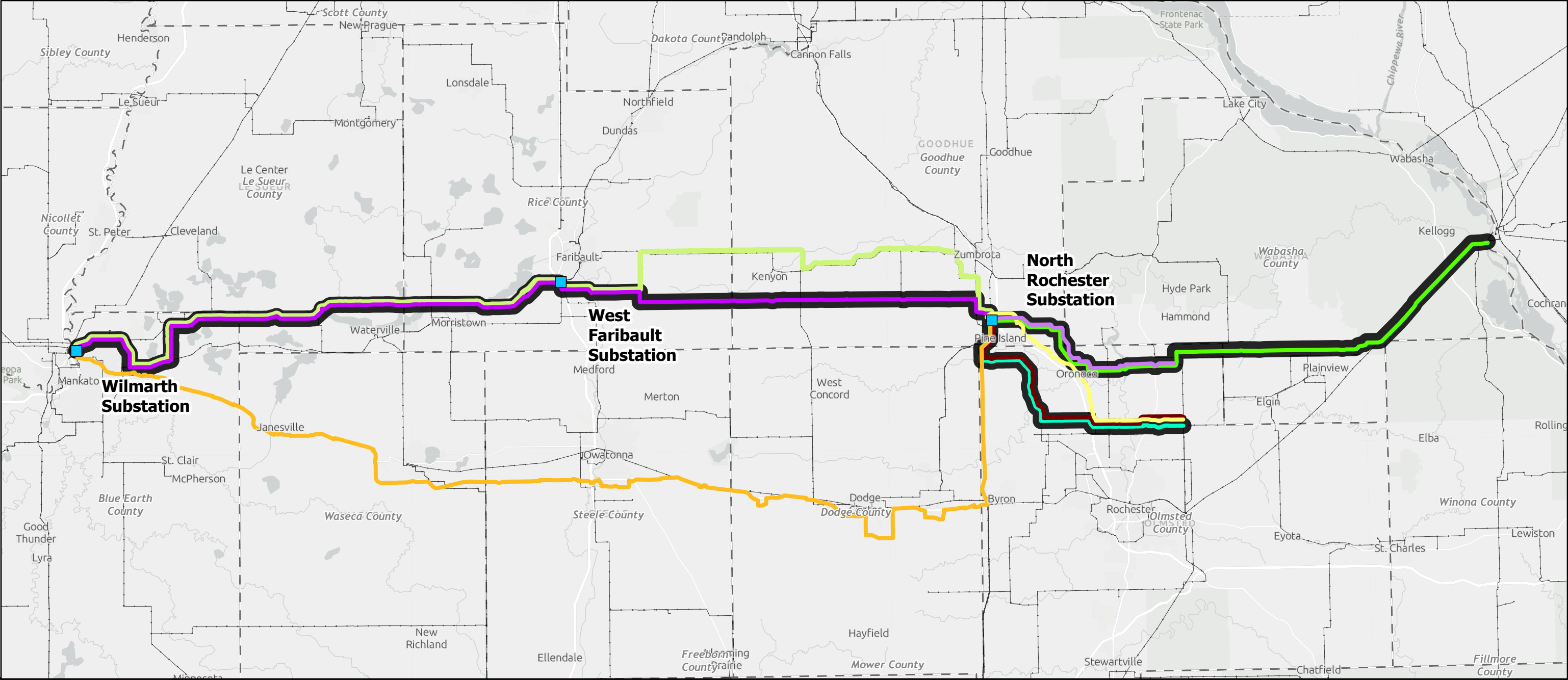
Based upon these Findings of Fact and Conclusions of Law, the ALJ recommends that the Commission issue a Route Permit for the Route Option B, incorporating Route Segment 18 and Alignment Alternative 2 (for Segments 1 and 2), Segment 3, either Route Option A or D (for Segment 4), and associated facilities to Xcel Energy to construct and operate the Project in Blue Earth, Goodhue, Le Sueur, Olmsted, Rice, and Wabasha counties in Minnesota.

THIS REPORT IS NOT AN ORDER AND NO AUTHORITY IS GRANTED HEREIN. THE MINNESOTA PUBLIC UTILITIES COMMISSION WILL ISSUE THE ORDER THAT MAY ADOPT OR DIFFER FROM THE PRECEDING RECOMMENDATION.

Dated: _____

Ann O'Reilly
Administrative Law Judge

MMRT OVERVIEW



LEGEND

Segments 1 & 2

- Route Option A
- Route Option B
- Route Option C
- Segment 3

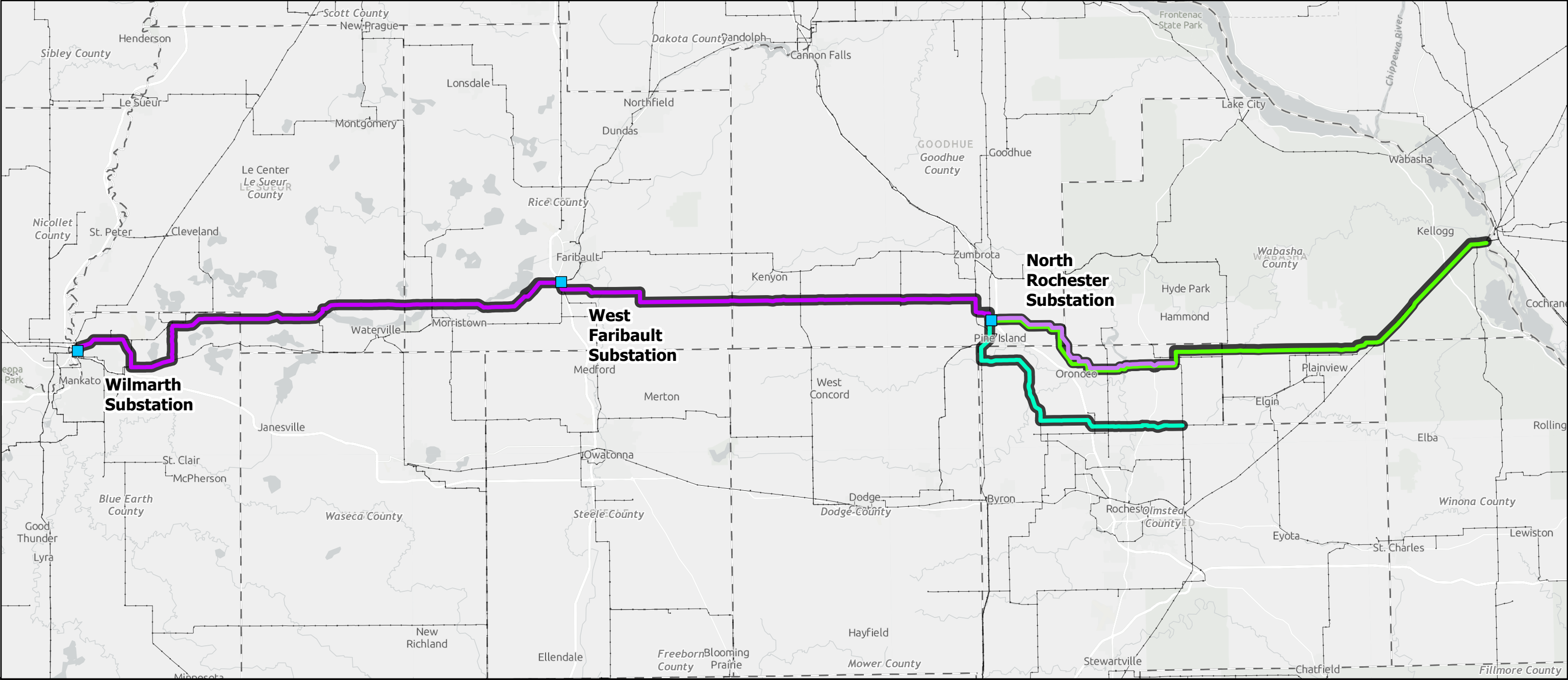
Segment 4

- Route Option A
- Route Option B
- Route Option C
- Route Option D

- Project Substation
- Existing Transmission Line
- Xcel Energy's Preferred Routes
- County Boundary



PREFERRED ROUTE OPTIONS



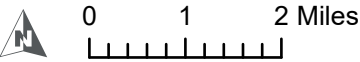
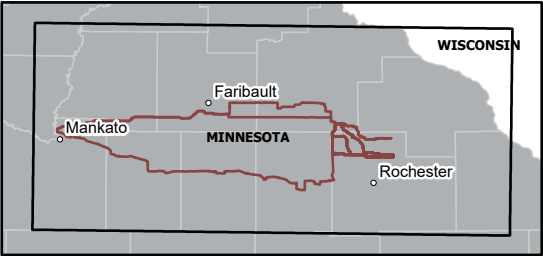
LEGEND

- Project Substation
-
- Existing Transmission Line

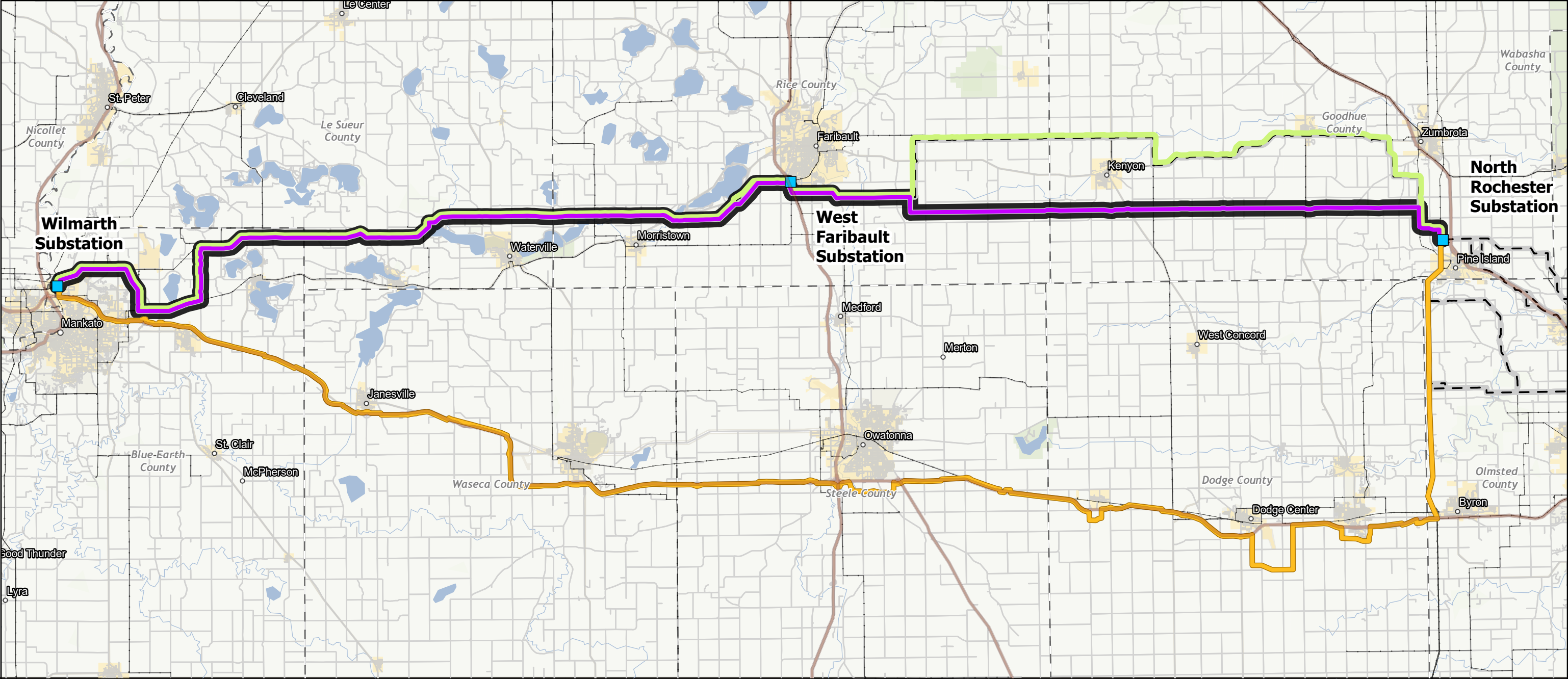
Segments 1 & 2

Route Option B (Segments 1 and 2)

Segment 4

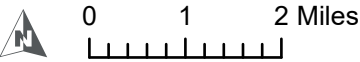
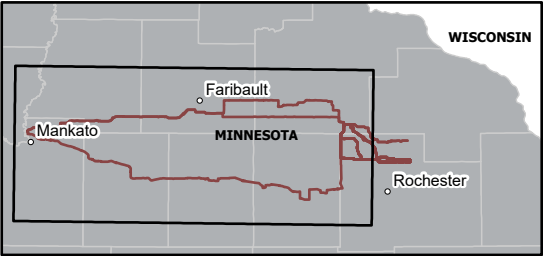
Route Option A (Segment 4)Route Option D (Segment 4)Segment 3Xcel Energy's Preferred RoutesCounty Boundary

SEGMENT 1 & 2 ROUTE OPTIONS



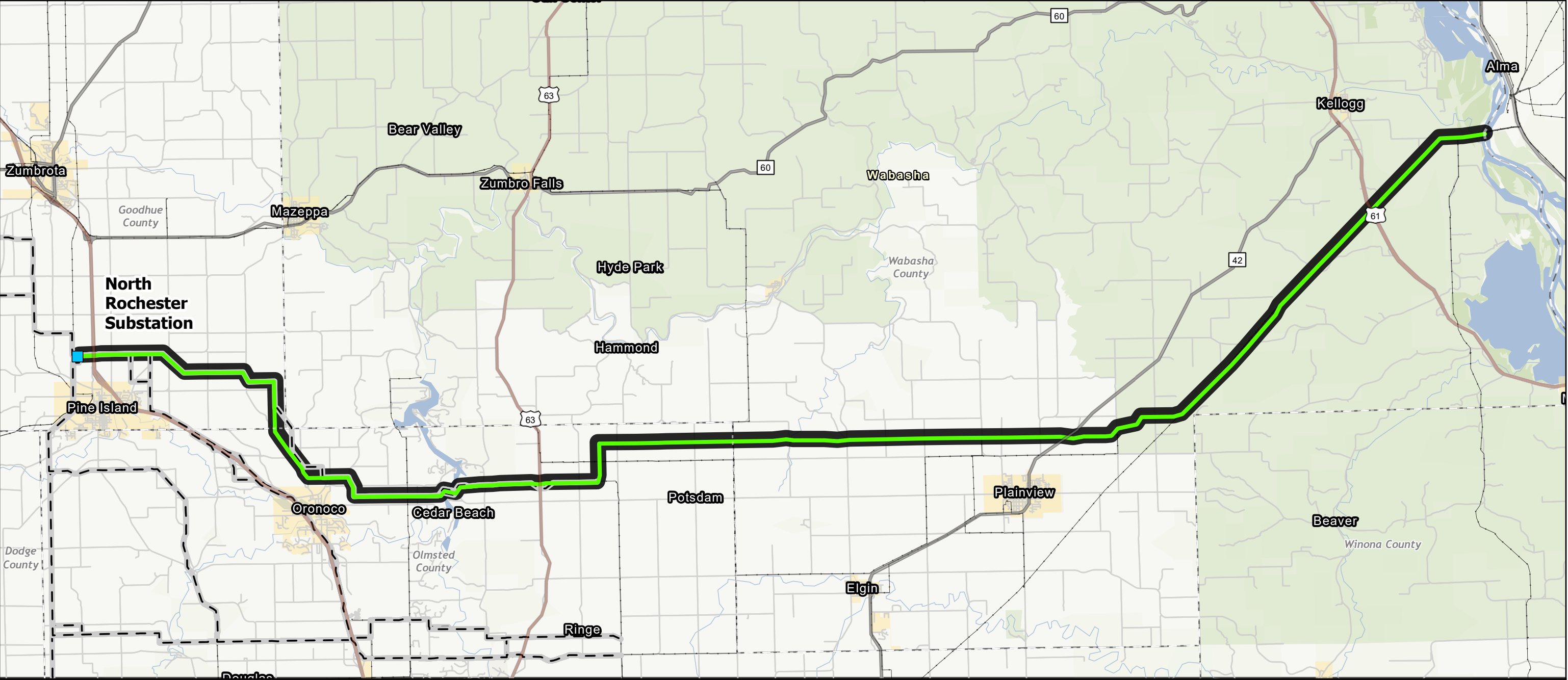
LEGEND

- | | | |
|----------------------------|----------------|----------------------------------|
| Project Substation | City Boundary | Route Option C |
| Existing Transmission Line | Segments 1 & 2 | Xcel Energy's Preferred Route |
| County Boundary | Route Option A | Route Options for Other Segments |
| | Route Option B | |



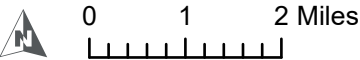
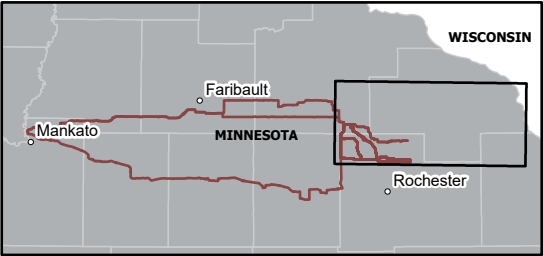


SEGMENT 3

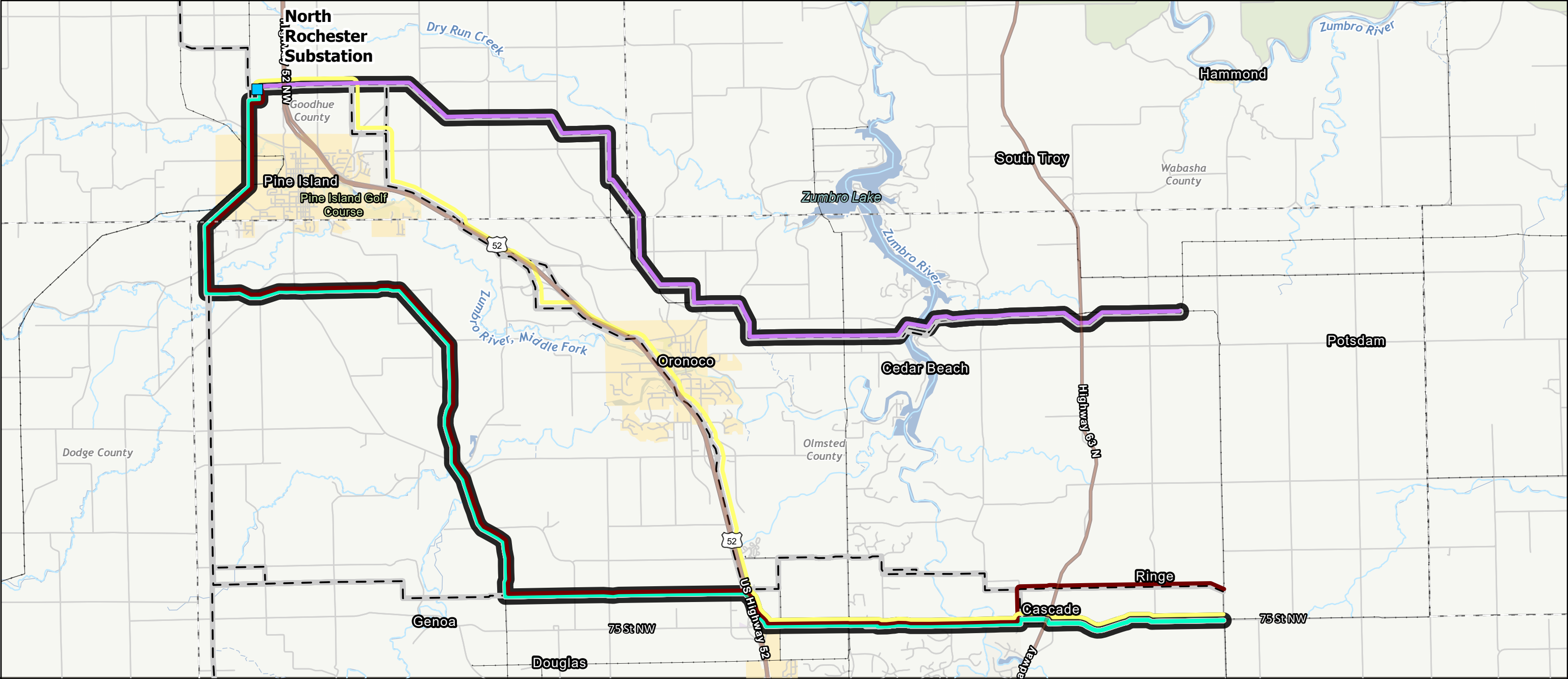


LEGEND


- Project Substation
- Existing Transmission Line
- Segment 3
- Xcel Energy's Preferred Route
- Route Option for Other Segments
- County Boundary
- City Boundary





SEGMENT 4 ROUTE OPTIONS





LEGEND


-  Project Substation



 Existing Transmission Line


 City Boundary
- Segment 4


 Route Option A

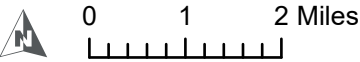
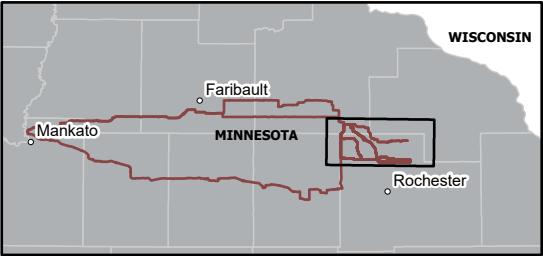
 Route Option B

 Route Option C

 Route Option D
-  Xcel Energy's Preferred Routes

 Route Options for Other Segments

 County Boundary



I. SUMMARY OF PUBLIC COMMENTS¹

A. Public Comments Received During the Proceeding

1. Over 50 individuals provided oral comments at the public hearings held on May 27, 28, and 29, 2025 both virtually and in person regarding the Certificate of Need and Route Permit Application filed by Northern States Power, doing business as Xcel Energy, (Xcel Energy or the Applicant) for the Mankato – Mississippi River Transmission Project (Project). In addition, over 50 written public comments were received between the issuance of the Draft Environmental Impact Statement (DEIS) on May 5, 2025 and the June 10, 2025 deadline for written comments.

2. All comments made at the public hearings or submitted in writing were fully considered.

2. *Comments at Public Hearings*

3. Minnesota House Representative Thomas Sexton stated that the alternative route comes through his district, House District 19B. Representative Sexton encouraged the public to reach out to their representatives about the Project.²

4. Dustin Mueller stated that the Segment 1 North alignment would pass roughly 100 feet from his home, place a 150-foot-wide clearing over his front yard. He expressed concern about safety risks from a falling pole during storms and losing his entire front yard due to required clearing.³

5. Robert Burns commented on Route Segment 17 (Highway 14 Option) and expressed concerns about the impact of the Project on farmland and potential commercial opportunities along Highway 14.⁴

6. Vern Benson inquired about how Route Segment 17 (Highway 14 Option) would impact local cities like Janesville, specifically regarding access to electricity and potential effects on businesses.⁵

7. Harry Tolzman opposed Segment 1 South due to residential properties falling within the proposed right-of-way. He raised concerns about property devaluation resulting from easements and encouraged adoption of the north alternative,

¹ Applicants include descriptions of these comments below for reference but does not adopt or endorse comments unless otherwise specifically noted.

² Mankato Public Hearing Transcript (Pub. Hrg. Tr.) at 39:15-40:10 (May 27, 2025) (Sexton).

³ Mankato Pub. Hrg. Tr. at 40:21-45:18 (May 27, 2025) (Mueller).

⁴ Mankato Pub. Hrg. Tr. at 45:19-50:14 (May 27, 2025) (Burns).

⁵ Mankato Pub. Hrg. Tr. at 51:07-52:24 (May 27, 2025) (Benson).

Segment 1 North, instead of Segment 1 South.⁶ Mr. Tolzman also asked about renewable energy projects will benefit from the Project.⁷

8. Brent Dauk commented on Route Segment 5, an alternative to Route Segment 1 South, stating a preference for transmission lines to be placed along existing rights-of-way, along county roads or state highways, instead of cutting directly across private property north of Madison Lake.⁸

9. Erin Guentzel opposed the Applicant's preferred route, where Segment 1 North and Segment 1 South share a common segment, because of the aesthetic impacts. She noted that the Applicant's preferred route would cross Eagle Lake South and the Sakatah Singing Hills State Trail.⁹

10. Jerome Westphal opposed the Applicant's preferred route of the Project because it would pass closely between two homes, approximately 500 feet apart, north of Eagle Lake. He explained the area currently has a smaller, existing 69 kV wooden pole transmission line, and expressed opposition to placing significantly larger transmission infrastructure near residences.¹⁰

11. Nathan Dull, Senior Field Manager of the Minnesota Land & Liberty Coalition, expressed support for the Project. He emphasized the need for expanding transmission infrastructure to ensure grid reliability, support national security, and potentially reduce electricity rates.¹¹

12. Nancy Prehn raised questions about the impact of the Project on local landowners. Ms. Prehn asked about the exact number of landowners affected by the preferred and alternative routes.¹²

13. Brady Taylor raised questions about the electric and magnetic fields (EMF) near his home and their potential effects on his children. Taylor expressed additional concerns about the environmental impacts on local wetlands and water tables due to pole foundations potentially disrupting groundwater.¹³

⁶ Mankato Pub. Hrg. Tr. at 55:04-57:21 (May 27, 2025) (Tolzman).

⁷ Waterville Pub. Hrg. Tr. at 64:20-66:03 (May 27, 2025) (Tolzman).

⁸ Mankato Pub. Hrg. Tr. at 58:12-60:06 (May 27, 2025) (Dauk).

⁹ Mankato Pub. Hrg. Tr. at 60:17-68:04 (May 27, 2025) (Guentzel).

¹⁰ Mankato Pub. Hrg. Tr. at 68:11-70:04 (May 27, 2025) (Westphal).

¹¹ Mankato Pub. Hrg. Tr. at 70:11-72:10 (May 27, 2025) (Dull).

¹² Waterville Pub. Hrg. Tr. at 38:20-43:19 (May 27, 2025) (Prehn).

¹³ Waterville Pub. Hrg. Tr. at 38:20-43:19 (May 27, 2025) (Taylor).

14. Carl Sonnenberg, City Manager for Waseca, asked questions related to the alternative route proposal process. Mr. Sonnenberg asked clarifying questions about the ability of the City of Waseca to submit written public comments.¹⁴

15. Carol Overland expressed concerns regarding notification issues, stating some landowners might not have received notices about the Project. Ms. Overland emphasized the necessity of data on landowner impacts. Ms. Overland also highlighted the option of “Buy the Farm.”¹⁵

16. Grant Thomson raised concerns about the construction impact of Route Segment 1 South on Highway 60, questioning how the transmission line would be feasibly constructed. Mr. Thomson sought clarification on setbacks and construction logistics.¹⁶

17. Gerald Giese inquired about the source of the power for the proposed transmission line, questioning whether it originates from Mississippi or Mankato. A representative for the Applicant explained that the power is generated from various sources across the interconnected power grid, primarily flowing west to east but also capable of flowing east to west. Mr. Giese asked specifically about hydropower from the Mississippi River, and the Applicant clarified that while the Mississippi does generate some hydropower, it constitutes a relatively small portion of overall power generation.¹⁷

18. Randy Zimmerman expressed concerns regarding the selection of the route and potential economic and environmental impacts. He encouraged a thorough analysis of all alternatives.¹⁸

19. Peter Neigebauer opposed the Route Segment 17, or the Highway 14 Option alternative, expressing concerns about potential issues impacting other property owners. Additionally, Mr. Neigebauer highlighted concerns about the suitability of soils along the proposed alternative route, stating they could create construction difficulties.¹⁹

20. Shirley Bauer initially sought clarification about the timeline and communication regarding the final decision on the chosen transmission line route. Ms. Bauer raised concerns involving interference with her property. She appreciated

¹⁴ Waterville Pub. Hrg. Tr. at 52:2-63:24 (May 27, 2025) (Sonnenberg).

¹⁵ Waterville Pub. Hrg. Tr. at 66:11-68:18 (May 27, 2025) (Overland).

¹⁶ Waterville Pub. Hrg. Tr. at 69:04-72:22 (May 27, 2025) (Thomson).

¹⁷ Owatonna Pub. Hrg. Tr. at 53:15-55:05 (May 28, 2025) (Giese).

¹⁸ Owatonna Pub. Hrg. Tr. at 55:15-58:08 (May 28, 2025) (Zimmerman).

¹⁹ Owatonna Pub. Hrg. Tr. at 58:19-60:03 (May 28, 2025) (Neigebauer).

confirmation that affected landowners would receive direct communication about the final route decision.²⁰

21. Doug Smith expressed concerns about potential damage and soil compaction resulting from the installation of transmission towers on agricultural property along Highway 14. Mr. Smith also asked questions regarding easement access for Project structures.²¹

22. Lauren Cornelius, Director of Environmental Services for Dodge County, raised concerns regarding prior consultation and late notification to the County about the alternative route along Highway 14. She requested an extension to the comment period to allow the County sufficient time to prepare a thorough response.²²

23. Paul Strand commented on the potential impact of the Project on his family's farm. He expressed concern that the proposed route would divide the property and interfere with agricultural operations.²³

24. Luis Barajas stated his opposition to the Segment 4 route options due to the proximity to his home and cited potential impacts to property values.²⁴

25. Keith Knutson commented on potential disruptions to farming practices, including drainage tile systems and field access. He expressed concern about dividing farmland and questioned why routes along public roadways, such as U.S. Highway 52, were not being prioritized.²⁵

26. Dale Thomforde, Supervisor of New Haven Township, raised questions regarding the CapX Co-locate option. He commented that the proposed route would pass close to homes and through farmland and woodland. Mr. Thomforde also raised concerns about visual and ecological impacts, including bird collisions and disruptions to deer habitat.²⁶

27. Gordon Cariveau expressed concerns related to Route Segment 4 East, and potential impacts on environmental and wildlife in the area along U.S. Highway 52. Mr. Cariveau also expressed concerns related to the proximity to residences.²⁷

²⁰ Owatonna Pub. Hrg. Tr. at 60:11-63:12 (May 28, 2025) (Bauer).

²¹ Owatonna Pub. Hrg. Tr. at 63:17-67:06 (May 28, 2025) (Smith).

²² Owatonna Pub. Hrg. Tr. at 67:10-69:04 (May 28, 2025) (Cornelius).

²³ Zumbrota Pub. Hrg. Tr. at 50:10-53:18 (May 28, 2025) (Strand).

²⁴ Zumbrota Pub. Hrg. Tr. at 54:05-56:21 (May 28, 2025) (Barajas).

²⁵ Zumbrota Pub. Hrg. Tr. at 57:02-63:11 (May 28, 2025) (K. Knutson).

²⁶ Zumbrota Pub. Hrg. Tr. at 64:01-74:05 (May 28, 2025) (Thomforde).

²⁷ Zumbrota Pub. Hrg. Tr. at 75:05-85:14 (May 28, 2025) (Cariveau).

28. Ryland Eichhorst, Mayor of the City of Oronoco, expressed concern about Route Segment 4 East along Highway 52 and the potential impact of the proposed transmission lines on Lake Shady and a city park. Mr. Eichhorst also provided comments about new developments along Highway 52 and expressed concern about the potential impacts of Route Segment 4 East on these new developments. Mr. Eichhorst expressed a preference for double-circuiting with or paralleling with existing transmission lines.²⁸

29. Virginia Adler Hassler expressed preference for the CapX Co-locate option but expressed concerns related to environmental and wildlife impacts of the Project.²⁹

30. Paul Burandt stated that the proposed route would affect both farmland and residential properties he owns. He expressed opposition to Route Segment 17, or the Highway 14 Option alternative, and raised concerns about the potential for property damage during construction and referenced previous negative experiences with infrastructure projects.³⁰

31. Shane Grivna expressed support for Applicant's preferred route and opposition to Segment 4 West. Mr. Grivna expressed general concerns about the Project's potential to reduce property values.³¹

32. Paul Langer expressed concerns related to the visual impact of pole structures near his property.³²

33. Zach Knutson asked questions pertaining to the route width and right-of-way and raised questions regarding landowner notifications and the inclusion of maps in these notices.³³

34. Alan Muller questioned the overall need for the Project and whether demand forecasts justified the transmission line. He requested greater public oversight and more analysis from the Minnesota Public Utilities Commission (Commission).³⁴

²⁸ Zumbrota Pub. Hrg. Tr. at 85:23–91:16 (May 28, 2025) (Eichhorst).

²⁹ Zumbrota Pub. Hrg. Tr. at 91:22–97:01 (May 28, 2025) (Hassler).

³⁰ Zumbrota Pub. Hrg. Tr. at 97:11–106:25 (May 28, 2025) (Burandt).

³¹ Zumbrota Pub. Hrg. Tr. at 108:01–114:15 (May 28, 2025) (Grivna).

³² Zumbrota Pub. Hrg. Tr. at 114:21–116:25 (May 28, 2025) (Langer).

³³ Zumbrota Pub. Hrg. Tr. at 117:13–125:09 (May 28, 2025) (Z. Knutson).

³⁴ Zumbrota Pub. Hrg. Tr. at 131:16–135:07 (May 28, 2025) (Muller).

35. David Just expressed concerns about Segment 4 of the Applicant's preferred route and its proximity and impact to the area where the Rochester Aero Model Society flies model airplanes.³⁵

36. Mark Hassler expressed concerns related to the accessibility of the public hearing for community members.³⁶

37. Ronald Berie raised concerns about the Applicant's preferred route's impact on private land and rural communities citing potential impacts to fruit trees and farms.³⁷

38. Ed Westad stated a preference for Route Segments 10 and 11 as an alternative to Route Segment 1 South. Mr. Westad asked for clarification on the impact of the preferred route and the selection process of Route Segments 10 and 11.³⁸

39. Barb Wegner expressed support for the Applicant's preferred route and opposition to Segment 2 North, due to the proximity to her home. Ms. Wegner also stated her opposition to data centers and the potential impact on the environment.³⁹

40. Preston Bauer raised questions related to the Project and impact on renewable energy and non-renewable energy sources.⁴⁰

41. Maxine Bauernfeind expressed opposition to the Route Segment 2 North and stated that she was concerned about how it would affect her home due to the proximity to her home.⁴¹

42. Carin Draper asked questions related to the route width and right-of-way in proximity to her property.⁴²

43. Stephan Joy raised questions pertaining to the routing of Segment 2. Mr. Joy expressed support for Segment 2 North.⁴³

44. Joanne Spitzack asked questions regarding example maps and requested clarity on the different route options. Ms. Spitzack asked questions related to her home

³⁵ Zumbrota Pub. Hrg. Tr. at 135:13–140:13 (May 28, 2025) (Just).

³⁶ Zumbrota Pub. Hrg. Tr. at 140:19–142:06 (May 28, 2025) (Hassler).

³⁷ Zumbrota Pub. Hrg. Tr. at 142:16–143:24 (May 28, 2025) (Berie).

³⁸ Faribault Pub. Hrg. Tr. at 45:22–49:24 (May 29, 2025) (Westad).

³⁹ Faribault Pub. Hrg. Tr. at 50:10–52:16, 89:04–90:10 (May 29, 2025) (Wegner).

⁴⁰ Faribault Pub. Hrg. Tr. at 52:24–54:11 (May 29, 2025) (Bauer).

⁴¹ Faribault Pub. Hrg. Tr. at 55:17–56:03 (May 29, 2025) (Bauernfeind).

⁴² Faribault Pub. Hrg. Tr. at 56:15–59:19, 94:19–96:5 (May 29, 2025) (Draper).

⁴³ Faribault Pub. Hrg. Tr. at 60:23–65:18 (May 29, 2025) (Joy).

in proximity to the route options. Ms. Spitzack expressed support for the preferred route citing environmental considerations.⁴⁴

45. Keith Allen stated that the transmission line would pass near his home and asked questions regarding easements and equalization payments. Mr. Allen also asked questions relating to the route width and right-of-way in connection to his property.⁴⁵

46. Bruce Chmelik asked a question related to the voltage of the existing transmission line near his home and whether the new 345 kV line would be double-circuited with the existing 69 kV line if Segment 2 North was selected.⁴⁶

47. Dan Sheady expressed concerns about the proposed line's impact on wetlands and the ecosystem near his property.⁴⁷

48. Tom Sammo stated that the proposed route would place transmission structures close to his residence and limit future land use. Mr. Sammo also expressed concerns about impacts to drain tiles. Mr. Sammo expressed support for Segment 2 South.⁴⁸

49. Lorry Kispert raised questions regarding the need for the Project and practical challenges of the proposed line running through her recently acquired farmland. Ms. Kispert also expressed concern about the long-term viability of the land and resources utilizing the line.⁴⁹

50. Frank Kubicek voiced concerns about the potential impact Project construction may have on his farm and agricultural business.⁵⁰

51. Brad Brech discussed the Applicant's preferred route in connection to the environment, human impacts, and costs.⁵¹

52. Jarrod Scrodin asked questions related to the route width and right-of-way relative to his property.⁵²

⁴⁴ Faribault Pub. Hrg. Tr. at 66:2–71:10 (May 29, 2025) (Spitzack).

⁴⁵ Faribault Pub. Hrg. Tr. at 71:15–75:01, 90:13–92:20 (May 29, 2025) (Allen).

⁴⁶ Faribault Pub. Hrg. Tr. at 75:6–76:15 (May 29, 2025) (Chmelik).

⁴⁷ Faribault Pub. Hrg. Tr. at 78:11–80:23 (May 29, 2025) (Sheady).

⁴⁸ Faribault Pub. Hrg. Tr. at 81:06–84:05 (May 29, 2025) (Sammo).

⁴⁹ Faribault Pub. Hrg. Tr. at 84:13–88:18 (May 29, 2025) (Kispert).

⁵⁰ Virtual Pub. Hrg. Tr. at 52:24–55:01 (May 29, 2025) (Kubicek).

⁵¹ Virtual Pub. Hrg. Tr. at 56:07–60:07 (May 29, 2025) (Brech).

⁵² Virtual Pub. Hrg. Tr. at 61:03–64:07 (May 29, 2025) (Scrodin).

53. Mark Jacobs raised questions regarding pole structures and the potential environmental impact certain materials have on the soil and groundwater. Mr. Jacobs also asked questions on specific engineering aspects of Project construction.⁵³

54. Ryan Motta asked questions regarding the location of the CapX Co-locate route in proximity to his property.⁵⁴

55. Mary Ellen Dreher asked questions related to the route width and right-of-way in proximity to her property.⁵⁵

56. Curtis Kuecker asked questions related to the route width and right-of-way as related to her property.⁵⁶

57. Jarrett Spitzach asked questions about the Applicant's preferred route and impacts to environmentally sensitive areas during construction. Mr. Spitzach also ask questions pertaining to landowner-specific exemptions.⁵⁷

3. *Public Hearing Comment Period – Written Comments*

58. Duane D. Tiede objected to Xcel Energy's request for a 1,000-foot route width that could place towers over his farmstead; he argued the permanent right-of-way should remain 150 feet total. Citing potential EMF exposure from up to four 345 kV circuits beside his property, he asked the Commission to adopt the more direct southern route to disperse the lines and reduce risk.⁵⁸

59. Brady Taylor and Jennifer Heibel supported Xcel Energy's preferred Segment 1 North route citing its directness, heavier use of existing rights-of-way, and smaller number of nearby homes compared with the southern route alternative. They warned that the Segment 1 South route would threaten their family home and fabrication business on State Highway 60.⁵⁹

60. Dale Thomforde, Supervisor of New Haven Township, presented detailed materials favoring co-location of Segment 4 with the existing CapX corridor,

⁵³ Virtual Pub. Hrg. Tr. at 64:11–68:25 (May 29, 2025) (Jacobs).

⁵⁴ Virtual Pub. Hrg. Tr. at 69:23–73:24 (May 29, 2025) (Motta).

⁵⁵ Virtual Pub. Hrg. Tr. at 76:03–79:03 (May 29, 2025) (Dreher).

⁵⁶ Virtual Pub. Hrg. Tr. at 79:14–85:13 (May 29, 2025) (Kuecker).

⁵⁷ Virtual Pub. Hrg. Tr. at 87:09–90:10 (May 29, 2025) (Spitzach).

⁵⁸ Comment by Duane D. Tiede (May 20, 2025) (eDocket No. [20255-219149-01](#)).

⁵⁹ Comment by Brady Taylor & Jennifer Heibel (May 28, 2025) (eDocket No. [20255-219330-01](#)).

asserting it would cost less and affect fewer homes than the Applicant's preferred route, though he acknowledged potential effects on the Douglas Trail.⁶⁰

61. Harley Krause requested dust control during construction, fuller reimbursement for permanently lost land, and compensation beyond three years for yield losses from soil compaction. He added that farming and maneuvering equipment around new poles would be impractical and would reduce tillable acreage.⁶¹

62. Luis Barajas observed that the preferred line would pass close to million-dollar homes and urged either selection of the alternate route or burial of the conductors to minimize neighborhood impacts.⁶²

63. Ryland Eichhorst, Mayor of the City of Oronoco, provided maps showing that a Highway 52 corridor would impact the City of Oronoco's viewshed for residents and businesses. He reiterated support for routing alternatives that avoid the City of Oronoco.⁶³

64. Gordon Cariveau Jr. opposed the Segment 4 East alignment through Oronoco, noting it would swing south of Highway 52 and place a transmission structure in his front yard where shallow limestone would complicate construction. He argued that the route offered no logical benefit and should be abandoned.⁶⁴

65. Scott Condes questioned why Xcel Energy amended its plans to install a second set of poles instead of re-using the existing structures west of Zumbrota, south of Minnesota Highway 60. He cautioned that doubling the poles would depress surrounding agricultural land values.⁶⁵

66. Joyce H. Schulz opposed the Segment 2 South route that would bisect her farm on 227th Street E. in Faribault, saying it would restrict farming operations, reduce rental income, and depress property value; she endorsed the Highway 14 Option corridor instead.⁶⁶

67. Thomas and Linda Sammon submitted a map of Segment 1 North highlighting existing and planned land development that could be hindered by the

⁶⁰ Comment by Dale Thomforde (May 28, 2025) (eDocket Nos. [20255-219445-01](#) and [20255-219445-02](#)).

⁶¹ Comment by Harley Krause (May 28, 2025) (eDocket No. [20255-219444-01](#)).

⁶² Comment by Luis Barajas (May 28, 2025) (eDocket No. [20255-219442-01](#)).

⁶³ Comment by Ryland Eichhorst (May 28, 2025) (eDocket No. [20255-219315-01](#)).

⁶⁴ Comment by Gordon Cariveau Jr. (May 28, 2025) (eDocket No. [20255-219439-01](#)).

⁶⁵ Comment by Scott Condes (May 28, 2025) (eDocket No. [20255-219438-01](#)).

⁶⁶ Comment by Joyce H. Schulz and Lori Schulz (May 29, 2025) (eDocket No. [20255-219436-01](#)).

proposed alignment, stating that route adjustments are necessary to accommodate future growth.⁶⁷

68. Tamra Berg objected to the preferred route that would cut across cropland, stating that affected owners receive no benefit from a line serving distant consumers, and emphasizing that we cannot make any more farmland.⁶⁸

69. Michael Chase, on behalf of CFERS, maintained that Route Segment 17 within the Highway 14 right-of-way remained the fairest option despite a higher estimated cost, arguing it would spare small farms from 150-foot clear-cuts, allow routing away from homes within the wide median, and align with recent state law favoring utility use of public corridors. He requested parcel-level data on acreage and tree removal, questioned the Project's need versus mere desire to facilitate new wind and solar, and criticized late notification of 1,341 landowners.⁶⁹

70. Jean Bye advocated for the selection of the route that parallels U.S. Highway 14. She stated that this route is preferred because it is the most equitable route that minimizes interruption to existing farmland.⁷⁰

71. Bard Stadsvold expressed concern that the proposed line along Route Segment 4 East would make a 90-degree turn on his parcel at 605 Lake Shady Avenue in the City of Oronoco, blocking plans for an office/warehouse; he asked that the corner be shifted 500 feet northwest.⁷¹

72. Michael Brown Sr. and Christine Brown supported the Applicant's preferred route for the 345 kV transmission line, and opposed the alternate, which would pass about 270 feet from their residence, asserting it would lower property value through visual, noise, and perceived health impacts.⁷²

73. Mark Jacobs requested soil borings near existing poles along the Segment 1 North route to test for legacy wood-preserved toxins, noting that wetlands of the Cannon Valley watershed could be contaminated if treated-pole debris were disturbed. He argued that a Highway 14 Option alignment would enable coordination with MnDOT, avoid sensitive soils, and reduce future easement expansion.⁷³

⁶⁷ Comment by Thomas A. & Linda K. Sammon (May 29, 2025) (eDocket No. [20255-219434-01](#)).

⁶⁸ Comment by Tamra Berg (May 29, 2025) (eDocket No. [20255-219417-01](#)).

⁶⁹ Comment by Michael W. Chase (May 29, 2025) (eDocket No. [20255-219426-01](#)).

⁷⁰ Comment by Jean Bye (May 29, 2025) (eDocket No. [20255-219331-02](#)).

⁷¹ Comment by Bard Stadsvold (June 2, 2025) (eDocket No. [20256-219553-01](#)).

⁷² Comment by Michael Brown Sr. & Christine Brown (June 3, 2025) (eDocket No. [20256-219551-01](#)).

⁷³ Comment by Mark Jacobs (June 3, 2025) (eDocket No. [20256-219545-01](#)).

74. Dustin and Kathryn Mueller objected to Route Segment 1 North because the right-of-way would run into their front yard on 604th Avenue and warned of property-value losses, constant line noise, and storm hazards.⁷⁴

75. Sarah Schmidt opposed routing the Project along Highway 14 Option corridor near Claremont, saying it would create an eyesore, compact adjacent cropland, expose residents to additional electric fields, and provide no direct power-supply benefit to local towns given the lack of substations.⁷⁵

76. Shawna Hanson reiterated that a new 161 kV line along the north side of 75th Street could erase her mature tree buffer, worsen highway noise, and devalue her home; she urged collocating the circuit with the existing CapX2020 corridor or placing it on the highway's south side where little screening now exists.⁷⁶

77. Andy Hart of Elgin, Minnesota preferred that the transmission line run along the south edge of his property rather than bisecting his farm or his neighbor's land, citing safety concerns if the line crossed cultivated fields.⁷⁷

78. Matthew Kuehl reiterated opposition to the Segment 4 West route alternate that bisects his natural acreage instead of following roads, questioned why property-tax assessors are excluded from eminent-domain negotiations, and emphasized the need to preserve increasingly scarce undeveloped landscapes when less disruptive options exist.⁷⁸

79. Angela Just sought additions and corrections to the draft EIS, including documentation of coordination with Rochester, MnDOT, Destination Medical Center planners, and People's Energy Cooperative; updates to mapping that omitted a residence; clarification of impact counts; and statistics on transmission-line damage frequency. She supported the Segment 4 CapX Co-locate route option as least costly, shortest, and least disruptive to households and cultural resources.⁷⁹

80. Michael and Julie Collins expressed concerns regarding health problems they attributed to EMF exposure.⁸⁰

81. Jeffrey Mattson submitted maps showing plans to build a residence on family farmland in Cherry Grove Township and argued that the Segment 2 South route

⁷⁴ Comment by Dustin & Kathryn Mueller (June 3, 2025) (eDocket No. [20256-219543-01](#)).

⁷⁵ Comment by Sarah Schmidt (June 3, 2025) (eDocket No. [20256-219573-01](#)).

⁷⁶ Comment by Shawna Hanson (June 3, 2025) (eDocket No. [20256-219572-01](#)).

⁷⁷ Comment by Andy Hart (June 3, 2025) (eDocket No. [20256-219571-01](#)).

⁷⁸ Comment by Matthew Kuehl (June 3, 2025) (eDocket No. [20256-219605-01](#)).

⁷⁹ Comment by Angela Just (June 4, 2025) (eDocket No. [20256-219570-01](#)).

⁸⁰ Comment by Michael & Julie Collins (June 5, 2025) (eDocket No. [20256-219657-01](#)).

alternative would violate multiple statutory siting factors by fragmenting prime cropland and cultural legacy acreage. He said the Highway 14 Option route alternative with existing right-of-way, was the only responsible alternative if the Project proceeds.⁸¹

82. Thomas Gauthier of Cedarpointe Partners expressed relief that the Highway 52/Oronoco alignment appeared abandoned, stating that a major line in the Minnesota Avenue right-of-way would drastically affect his south-edge development property; he asked that the record reflect his concerns should the route be reconsidered.⁸²

83. Kevin Quinlan asked that any added route width stay on the north side of the existing transmission line to avoid clearing a steep, pine-covered deer bedding hill to the south. He expressed concerns about property-value losses from higher EMF perceptions and questioned whether a 75-year-old corridor still made sense for a 345 kV upgrade that now skirts many homes instead of vacant farmland.⁸³

84. Erin Glorvigen expressed a preference for routing the 161 kV line along 75th Street NW as the route alternative that is located near her home would require removal of a number of large trees.⁸⁴

85. Paul Weber opposed the Highway 14 Option route alternative noting it would parallel Dodge Center Creek within 300 yards of a public game refuge, diminish hunting quality, and add unnecessary mileage and cost compared with northern routes. Mr. Weber said farming around the towers would cut efficiency, cause long-term soil compaction, and devalue land; he also criticized inadequate outreach and unclear mailings related to the Highway 14 route option.⁸⁵

86. Dale Thomforde, Supervisor of New Haven Township, submitted additional analysis showing the Segment 4 CapX Co-locate route alternative was shorter, cheaper, and less intrusive to residences than the preferred route, with only 13 homes within 500 feet, many farther from the new line than from the existing 345 kV line. He urged correction of EIS residence counts and reaffirmed that the co-locate option best met the Commission's criteria for resource conservation, human-settlement minimization, and cost-effective infrastructure.⁸⁶

⁸¹ Comment by Jeffrey Mattson (June 5, 2025) (eDocket No. [20256-219704-01](#)).

⁸² Comment by Thomas Gauthier (June 8, 2025) (eDocket No. [20256-219705-01](#)).

⁸³ Comment by Kevin Quinlan (June 8, 2025) (eDocket No. [20256-219703-01](#)).

⁸⁴ Comment by Erin Glorvigen (June 10, 2025) (eDocket No. [20256-219768-01](#)).

⁸⁵ Comment by Paul Weber et al. (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁸⁶ Comment by Dale Thomforde (June 10, 2025) (eDocket No. [20256-219788-03](#)).

87. Steven Eckdahl, co-owner of Northwoods Orchard, said the Segment 4 West route alternative and its easement could strip shelterbelts essential for pesticide drift control, wind protection, and agritourism aesthetics, threatening long-term viability of the 10-acre apple operation and ornamental crops. He supported the CapX Co-locate route alternative which showed fewer economic and environmental impacts and would spare the orchard's buffers.⁸⁷

88. Ryland Eichhorst, Mayor of the City of Oronoco, updated his earlier comments to note four new Oronoco developments (106-unit housing, a 54-unit condominium, Two Sisters Kitchen + Bar, and a 72-acre commercial park) that would be affected by the Segment 4 East route's 19-38 poles and two Highway 52 crossings. He emphasized aesthetic, property values, and historic-resource conflicts and reiterated that other Segment 4 route options would avoid 1,800-plus Oronoco residents altogether.⁸⁸

89. Pete Stevens opposed the Segment 2 route alternate that would follow 2,330 feet of his property line located in Walcott Township, saying the visual presence and perceived health risks of high-voltage conductors would depress the value of the buildable 55-acre tract. He asked the Commission to keep the preferred route.⁸⁹

90. Loren Quaale argued that a 1,000-foot right-of-way along 450th Street in Kenyon, Minnesota was excessive and that the zig-zag course around houses seemed inefficient and costly. He preferred using the wide Highway 14 Option corridor, questioned the wisdom of exporting wind- or solar-generated power across Minnesota, and cited a cluster of cancers along 450th Street as reason to avoid that alignment.⁹⁰

91. Leonard Laures objected to placing the Segment 4 route on the south side of 75th St. NE, where approximately 90 percent of homes lie, saying earlier easement expansions had already removed screening oaks. He urged moving the new transmission circuit to the north side or co-locating it with existing structures to minimize further tree loss and visual impacts on residents.⁹¹

92. John and Kristine Paro supported the Applicant's preferred route for Segment 2 and opposed the alternate, explaining that the preferred alignment skirts owner-occupied homes along Decker Avenue and instead crosses forest habitat. They

⁸⁷ Comment by Steven Eckdahl (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁸⁸ Comment by Ryland Eichhorst (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁸⁹ Comment by Pete Stevens (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁹⁰ Comment by Loren Quaale (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁹¹ Comment by Leonard Laures (June 10, 2025) (eDocket No. [20256-219788-03](#)).

believed the alternate would degrade more residential properties and asked the Commission to retain the preferred path.⁹²

93. Eric Van Norman, speaking for the Rochester Aero Model Society, contended the Segment 4 West route alternative would run a 161 kV line across the club's Federal Aviation Administration (FAA)-Recognized Identification Areas (FRIAs) approach path on 85th Street NW. He said shortened landing patterns would jeopardize safety and could force closure of the 40-member, 50-year-old club that offers public outreach and training. The society favored the CapX Co-Locate route option as it is least disruptive to the club's activities.⁹³

94. Dustin Thompson, owner of Thompson's Garage Door & Openers, said the Segment 4 East route option would place a pole that blocks visibility of his showroom and billboard from Highway 52, undermining the 2020 relocation investment premised on highway exposure. He supported the CapX Co-locate route alternative which would leave business sight-lines intact.⁹⁴

95. Two Sisters Kitchen + Bar opposed siting either the 345 kV or 161 kV circuits through Oronoco or along 75th Street, noting the restaurant, a home, and hundreds of neighboring residences would suffer health-risk perceptions, property-value losses, and land takings. They urged collocating both voltages on the existing CapX2020 structures or choosing a route with fewer human impacts.⁹⁵

96. Jeanne Allen stated that two alternate Segment 4 routes north of 75th Street NW would bisect a subdivision designed to preserve trees and wildlife near the Zumbro River. She warned the lines would fragment habitat for deer, turkey, and fox, cut through an archery center, and remove mature timber protected by covenants. Ms. Allen favored routing along 75th Street, where conductors already exist, or farther north where environmental disruption would be lower.⁹⁶

97. Christopher Bultman opposed the Segment 2 North route alternative that would traverse his sesquicentennial Rice County farm and neighboring Home & Harvest nursery. He favored keeping the line south of Highway 60 or, if necessary, along Highway 14's existing right-of-way arguing that rural heritage, local businesses, and future maintenance access all weighed against the Segment 2 North route.⁹⁷

⁹² Comment by John & Kristine Paro (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁹³ Comment by Eric Van Norman (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁹⁴ Comment by Dustin Thompson (June 10, 2025) (eDocket No. [20256-219788-03](#)).

⁹⁵ Comment by Two Sisters Kitchen + Bar (June 10, 2025) (eDocket No. [20256-219788-01](#)).

⁹⁶ Comment by Jeanne Allen (June 10, 2025) (eDocket No. [20256-219770-01](#)).

⁹⁷ Comment by Christopher Bultman (June 10, 2025) (eDocket No. [20256-219788-03](#)).

98. John and Kristine Paro again supported the Applicant's preferred route for Segment 2 noting it crossed forest on the north edge of their property and minimized disruption to owner-occupied homes, whereas the alternate would degrade residential settings.⁹⁸

99. Loren Quaale reiterated that a 1,000-foot right-of-way along 450th Street was excessive, that zig-zag routing around houses was wasteful, and that the Highway 14 Option offered a wider corridor with fewer homes; they also cited a local cancer cluster as reason to avoid the 450th Street alignment.⁹⁹

100. Jennifer Bromeland, City Administrator for the City of Eagle Lake, opposed the Highway 14 Option stating that it would conflict with or limit the flexibility of future roadway improvements that are being studied by MnDOT and Blue Earth County. Ms. Bromeland also stated that the Highway 14 Option would restrict annexed growth areas for the City of Eagle Lake north of Highway 14; she asked the Commission to choose a route that does not impede transportation planning or the economic vitality of the City of Eagle Lake.¹⁰⁰

101. Gary Henslin opposed the Highway 14 Option alternative where it leaves the roadway and crosses his cropland, citing aerial-spraying, potential irrigation, and long-term farm viability impacts on future generations.¹⁰¹

102. Zach Knutson objected to a 1,000-foot wide route corridor for Route Segment 2 North that could place towers over his farmstead, concentrate four 345 kV circuits near grazing pastures, and raised concerns about EMF. He urged selection of the more direct Segment 2 South route to disperse lines, reduce costs, and protect livestock.¹⁰²

103. Jeannie Mattson opposed the Segment 2 South route across her family's farm, founded in 1872, noting planned home construction and arguing that Highway 14 Option route better satisfies statutory siting factors while sparing prime agricultural land.¹⁰³

⁹⁸ Comment by John & Kristine Paro (June 11, 2025) (eDocket No. [20256-219788-03](#)).

⁹⁹ Comment by Loren Quaale (June 11, 2025) (eDocket No. [20256-219822-01](#)).

¹⁰⁰ Comment by Jennifer Bromeland (June 11, 2025) (eDocket No. [20256-219821-01](#)).

¹⁰¹ Comment by Gary Henslin (June 11, 2025) (eDocket No. [20256-219820-01](#)).

¹⁰² Comment by Zach Knutson (June 11, 2025) (eDocket No. [20256-219818-01](#)).

¹⁰³ Comment by Jeannie Mattson (June 11, 2025) (eDocket No. [20256-219817-01](#)).

104. The Waseca County Board of Commissioners asked for expanded study of Highway 14 Option route citing research that highlights the corridor's strategic role in Minnesota's medical-device supply chain and broader economic growth.¹⁰⁴

105. Todd Schmidt asked for detailed economic analysis and favored the Highway 14 Option route for its development potential and environmental advantages over routes along Highway 60.¹⁰⁵

106. Don Byron backed a full comparison of the Highway 14 Option route and the Highway 60 corridor, citing annexation interest and commercial prospects tied to the Highway 14 Option.¹⁰⁶

107. The West Interchange Group supported additional economic-impact studies on transmission and other infrastructure, and sought continued talks on annexation and development timing.¹⁰⁷

108. Wayne O'Conner asked to be included in city-county planning discussions and routing deliberations, stressing Highway 14's suitability for large-scale development.¹⁰⁸

109. The Waseca Economic Development Authority recommended full review of the Highway 14 Option asserting it better matched state energy goals, regional growth priorities, and community interests as compared to Xcel Energy's preferred route.¹⁰⁹

110. The Waseca City Council endorsed a further socioeconomic analysis of the Highway 14 Option route noting its development potential and regional benefits of this route.¹¹⁰

111. Dan Shedy favored the Applicant's preferred route in Segment 2 and opposed the alternate, stating that the preferred route avoided densely settled areas and would have less visual and property-value impact on his home.¹¹¹

¹⁰⁴ Comment by Waseca County Board of Commissioners (June 16, 2025) (eDocket No. [20256-219908-01](#)).

¹⁰⁵ Comment by Todd Schmidt (June 16, 2025) (eDocket No. [20256-219908-01](#)).

¹⁰⁶ Comment by Don Byron (June 16, 2025) (eDocket No. [20256-219908-01](#)).

¹⁰⁷ Comment by West Interchange Group (June 16, 2025) (eDocket No. [20256-219908-01](#)).

¹⁰⁸ Comment by Wayne O'Conner (June 16, 2025) (eDocket No. [20256-219908-01](#)).

¹⁰⁹ Comment by Waseca Economic Development Authority (June 16, 2025) (eDocket No. [20256-219908-01](#)).

¹¹⁰ Comment by Waseca City Council (June 16, 2025) (eDocket No. [20256-219908-01](#)).

¹¹¹ Comment by Dan Shedy (June 16, 2025) (eDocket No. [20256-219908-01](#)).