Xcel Energy
NORTHERN STATES POWER

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January 24, 2008

VIA ELECTRONIC FILING
Dr. Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

RE: Application to Public Utilities Commission for a Route Permit
Mary Lake 115 kV Transmission Line Tap Project
Alternative Permitting Process

PUC Docket No. E002/TL-07-1365

Dear Dr. Haar:

Northern States Power Company, a Minnesota corporation, is electronically filing its request for a route permit for a high voltage transmission line. The application is made pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7849. We request that the application be considered under the Alternative Permitting Process set forth in Minnesota Rules 7849.5500 to 7849.5720 as authorized by Minnesota Rule 7849.5500, subp. 1(c).

The proposed project consists of a new, approximately five-mile long, 115 kV transmission line from a new switch to be located along the existing 69 kV Buffalo Power – Maple Lake transmission line to another new switch to be located along the existing Mary Lake – Dickinson Junction 69 kV transmission line to the south.

This filing consists of the body of the application and appendices A through G. The application fee payment is being sent to the Department of Commerce under separate cover. Please call me at (763) 493-1808 if you have any questions regarding this filing.

Sincerely,

Darrin F. Lahr

Enclosures

cc: Department of Commerce (5 Paper Copies and one electronic copy on CD)

Northern States Power Company Application to the Minnesota Public Utilities Commission for a Route Permit

January 24, 2008

Alternative Permitting Process
MPUC Docket No. E002/TL-07-1365

Mary Lake 115 kV Transmission Line Tap Project

Table of Contents

Table of Contents

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF APPENDICES

1.0 EXECUTIVE SUMMARY

1.1 PROPOSAL SUMMARY

Northern States Power Company, a Minnesota corporation ("NSPM", "Xcel Energy," or the "Company"), submits this application for a route permit to the Minnesota Public Utilities Commission ("MPUC," "Minnesota PUC" or "Commission") pursuant to Minnesota Rules Chapter 7849 and Minnesota Statutes Chapter 216E ("Application"). Xcel Energy requests a route permit to construct a new approximately five-mile long 115,000 volt ("115 kV") line from a new switch to be located along the existing 69 kV Buffalo Power – Maple Lake ("Maple Lake Switch") transmission line to another new switch to be located along the existing Mary Lake – Dickinson Junction 69 kV transmission line to the south ("Mary Lake Switch"). The line initially will be operated at 69 kV. The proposed route ("Proposed Route") for the project (the "Project" or "Mary Lake Transmission Line Tap Project") is shown in Appendix B.2.

The Mary Lake Transmission Line Tap Project's high voltage transmission line ("HVTL") requires a route permit because the facilities will be built to 115 kV specifications. Chapter 216E and the Commission rules provide for an Alternative Permitting Process for certain facilities (Minnesota Statutes § 216E.04; Minnesota Rule 7849.5500). The Project qualifies for the Alternative Permitting Process because it meets the requirements of Minnesota Rule 7849.5500, subp. 1(C), which authorizes the Alternative Permitting Process when the HVTL is capable of operating between 100 and 200 kilovolts.

1.2 COMPLETENESS CHECKLIST

The content requirements for an application with the Commission under the Alternative Permitting Process are identified in Minnesota Rules 7849.5500 – 7849.5720. The Commission submittal requirements are listed in Table 1 with cross references indicating where the information can be found in this Application.

TABLE 1
COMPLETENESS CHECKLIST

Authority	Required Information	Where
Minnesota Statutes Section 216E.04, Subd. 3; Minnesota Rule 7849.5530	**Contents of Application (alternative permitting process)**	
	The Company shall include in the application the same information required in part 7849.5220, except the Company need not propose any alternative sites or routes to the preferred site or route. If the Company has rejected alternative sites or routes, the Company shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them.	4.2 (See also 7849.5220, Subp. 2 below)
Minnesota Rule 7849.5220, subp. 2 (applicable per Minnesota Rule 7849.5530)	**Route Permit for HVTL**	
A.	a statement of proposed ownership of the facility at the time of filing the application and after commercial operation	2.1
B.	the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated	2.2
C.	at least two proposed routes for the proposed high voltage transmission line and identification of the Company's preferred route and the reasons for the preference	Not applicable, per Minnesota Rule 7849.5530
D.	a description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line	3.2, 4.1, 4.2, 5.1

Authority	Required Information	Where
E.	the environmental information required under 7849.5220, subp. 3	See Minnesota R. 7849.5220, subp. 3 (A) – (H) below
F.	identification of land uses and environmental conditions along the proposed routes	Chapter 6.0
G.	the names of each owner whose property is within any of the proposed routes for the high voltage transmission line	7.2, Appendix F
H.	United States Geological Survey topographical maps or other maps acceptable to the Commission showing the entire length of the high voltage transmission line on all proposed routes	Appendix B
I.	identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share right-of-way, the land used by a public utility (as for a transmission line), with the proposed line	5.2
J.	the engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line	5.1, 5.7
K.	cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route	3.4
L.	a description of possible design options to accommodate expansion of the high voltage transmission line in the future	4.3
M.	the procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line	5.3-5.6
N.	a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line	7.4

Authority	Required Information	Where
O.	a copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required	2.3, Appendix A
Minnesota Rule 7849.5220, subp. 3	**Environmental Information**	
A.	a description of the environmental setting for each site or route	6.1
B.	a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services	6.2
C.	a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	6.3
D.	a description of the effects of the facility on archaeological and historic resources	6.4
E.	a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna	6.5
F.	a description of the effects of the facility on rare and unique natural resources	6.6
G.	identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route	See all of the effects described in Section 6.0
H.	a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures	See all of the mitigative measures identified in Section 6.0

2.0 INTRODUCTION

2.1 STATEMENT OF OWNERSHIP

NSPM is a Minnesota corporation with its headquarters in Minneapolis. The Company is a wholly-owned subsidiary of Xcel Energy Inc., a utility holding company with its headquarters in Minneapolis. Xcel Energy provides electricity services to approximately 1.2 million customers and natural gas services to 425,000 retail, residential, commercial, and industrial customers in the State of Minnesota. The Company also provides retail electric service to customers in South Dakota and North Dakota. The Company will own and operate the new 115 kV transmission line which will run from the Maple Lake Switch to the Mary Lake Switch. Xcel Energy Services Inc. is the service company for the Xcel Energy Inc. holding company system and its personnel prepare, submit and administer regulatory applications to the Commission on behalf of NSPM, including route permit applications.

2.2 PERMITTEE

The permittee for the Project will be:

Permittee: Northern States Power Company

Contact: Darrin Lahr, Supervisor Siting and Permitting

Address: Xcel Energy Services Inc.
8701 Monticello Lane
Maple Grove, Minnesota 55369

Phone: (763) 493-1808

Email: darrin.f.lahr@xcelenergy.com

2.3 CERTIFICATE OF NEED

Minnesota Statutes § 216B.243, subd. 2 states that no "large energy facility" shall be sited or constructed in Minnesota without the issuance of a Certificate of Need by the Public Utilities Commission. However, the 115 kV

transmission line proposed for the Project does not qualify as a "large energy facility" under Minnesota Statutes Chapter 216B because it is less than 10 miles long and does not cross state borders. *See* Minnesota Statutes § 216B.2421, subd. 2(3). Therefore, no Certificate of Need is required for the Project.

2.4 ROUTE PERMIT, ALTERNATIVE PERMITTING PROCESS

Minnesota Statutes §216E.03, subd. 2 provides that no person may construct a HVTL without a route permit from the Commission. A HVTL is defined under Minnesota Statutes Chapter 216E as a transmission line of 100 kV or more and greater than 1,500 feet in length. Minnesota Statute §216E.01, subd. 4. The 115 kV transmission line project proposed is an HVTL, and therefore a permit is required prior to construction.

The Commission rules provide for an Alternative Permitting Process for certain facilities (Minnesota Statutes §216E.04; Minnesota Rules 7849.5500, subp. 1). The proposed transmission line qualifies for the Alternative Permitting process because it is between 100 and 200 kV. Minnesota Statutes §216E.04, subd. 2(C) and Minnesota Rule 7849.5500, subp. 1(C) authorizes the alternative process for HVTLs between 100 and 200 kV. This Application is submitted pursuant to the Alternative Permitting Process outlined in Minnesota Rules 7849.5500 to 7849.5720.

2.5 NOTICE TO THE COMMISSION

The Company notified the Commission by letter dated October 17, 2007 that the Company intended to apply for a route permit for the Project under the Alternative Permitting Process. This letter complies with the requirement of Minnesota Rule 7849.5500, subp. 2, to notify the Commission at least 10 days prior to submitting an application for a route permit under the alternative process. A copy of this notice is attached as Appendix A.

3.0 PROJECT INFORMATION

3.1 PROJECT LOCATION

The proposed Project is located in Buffalo and Rockford townships and the city of Buffalo in Wright County, Minnesota. Table 2 below identifies the sections, townships, and range within the project area ("Project Area"). Maps of the Project are located in Appendix B.1, Appendix B.2, Appendix B.3, Appendix B.4 and Appendix B.5.

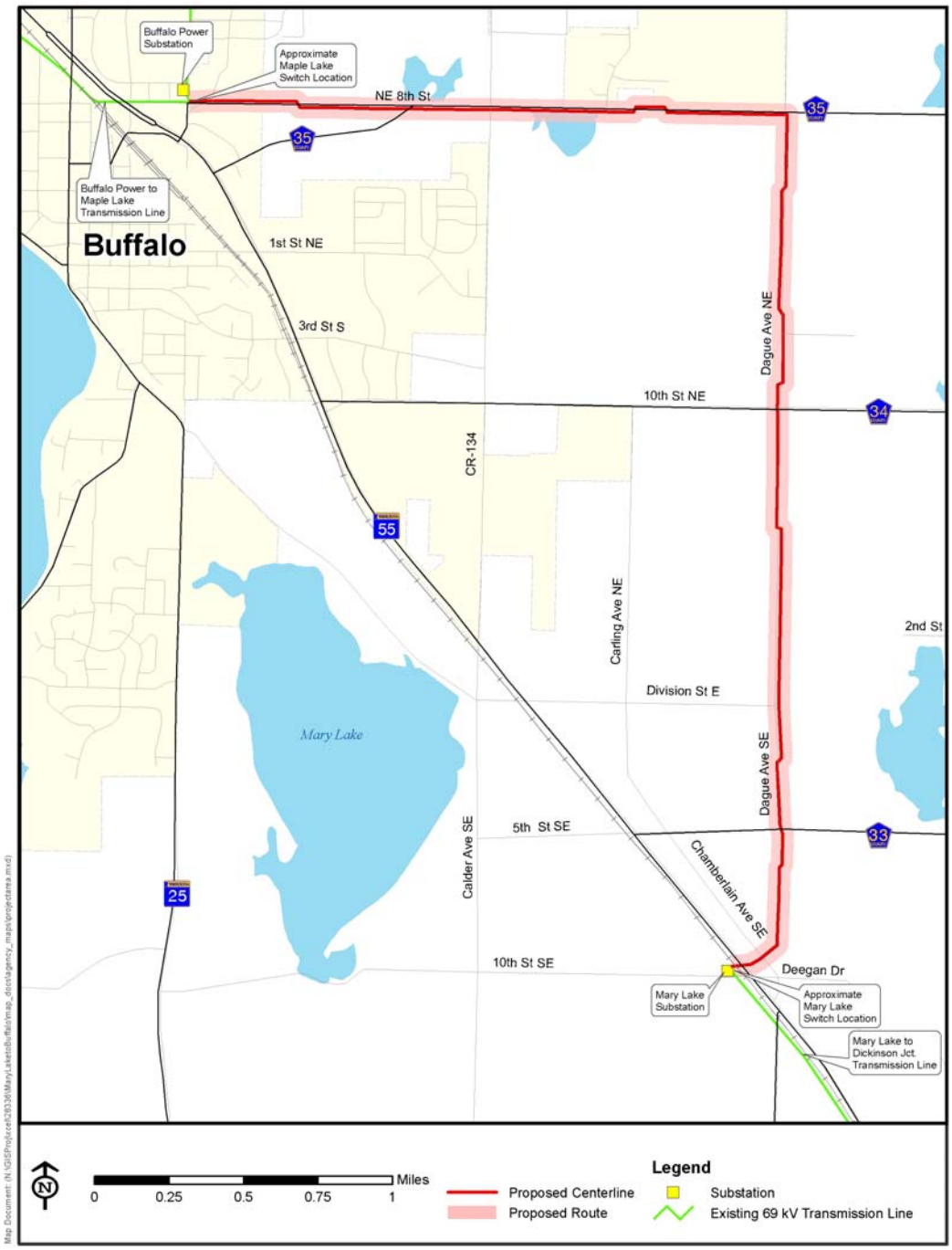
TABLE 2
PROJECT LOCATION

County	Political Township	Township	Range	Sections
Wright	Buffalo	120N	25W	19-21, 27-29 33-34
Wright	Rockford	119N	25W	3-4

3.2 PROJECT PROPOSAL

Xcel Energy proposes construction of a new single circuit 115 kV transmission line that initially will operate at 69 kV. The approximately five-mile line will tap the existing Buffalo Power – Maple Lake 69 kV transmission line just south of the Buffalo Power Substation. From the tap, the line will run east along 8th Street NE, and will continue south along Dague Avenue NE and SE, crossing Trunk Highway ("TH") 55 and terminating at the Mary Lake Switch located just southeast of the Mary Lake Substation. A map of the Project is shown in Figure 1. The pink shaded area represents the Proposed Route and the red line represents the Proposed Centerline for the Project.

FIGURE 1
GENERAL VIEW OF PROPOSED ROUTE
AND PROPOSED CENTERLINE



The Project is necessary to improve and ensure electric reliability to the City of Buffalo area. The Buffalo Power Substation is currently fed by two 69 kV

transmission lines. The primary source of service to the Buffalo Power Substation is the 69 kV Lake Pulaski – Buffalo Power transmission line and the secondary source of service to the Buffalo Power Substation is the 69 kV Buffalo Power – Maple Lake transmission line.

When the Lake Pulaski – Buffalo Power 69 kV transmission line experiences a disruption of service, the area may experience a low voltage condition, placing its customers at risk of outage. This contingency occurred in the summer of 2005 resulting in unacceptable low voltage levels in the City of Buffalo and the surrounding area. In determining alternatives to address the need, planning engineers determined that a new 69 kV primary source was not required for the area, but that the capacity (MVA available) of the secondary source to the area, the Buffalo Power – Maple Lake 69 kV transmission line, needed to be improved so that it could provide the area with adequate voltage levels in the event of a Lake Pulaski – Buffalo Power 69 kV transmission line outage. The Project will connect the Buffalo Power – Maple Lake 69 kV transmission line with the Mary Lake – Dickinson Junction 69 kV transmission line. This connection will provide additional capacity (MVA) to the existing Buffalo Power – Maple Lake 69 kV transmission line, thereby improving its performance. After the Project, the Buffalo Power – Maple Lake 69 kV transmission line will have adequate load serving capability to reliably serve the area's needs should the Lake Pulaski – Buffalo Power 69 kV transmission line experience an interruption in service.

3.3 PROJECT SCHEDULE

Xcel Energy anticipates a summer 2009 in-service date for the Mary Lake Transmission Line Tap Project. Construction for the Project is expected to begin in the fall of 2008. This schedule is based on information known as of the date of this filing and upon planning assumptions that balance the timing of implementation with the availability of crews, material and other practical considerations. This schedule may be subject to adjustment and revision as further information is developed.

3.4 PROJECT COSTS

Xcel Energy has prepared a preliminary cost estimate for the transmission line described in this Application. The estimated Project cost is $3.3 million.

Operating and maintenance costs for the transmission line will be nominal for several years, since the line will be new and there is minimal vegetation maintenance required. Typical annual operating and maintenance costs for 115 kV transmission voltages across Xcel Energy's Upper Midwest system area are on the order of $300 to $500 per mile of transmission right-of-way. The principal operating and maintenance cost will be inspections, usually done by fixed-wing aircraft on a monthly basis and by helicopter once a year.

4.0 DETAILED FACILITY DESCRIPTION AND ROUTE SELECTION RATIONALE

4.1 DETAILED ROUTE DESCRIPTION

The Proposed Route is approximately five miles long between the Buffalo Power – Maple Lake 69 kV transmission line and the Mary Lake – Dickinson 69 kV transmission line. The new single circuit 115 kV transmission line will tap the existing Buffalo Power – Maple Lake 69 kV transmission line approximately 240 feet from the Buffalo Power Substation (Appendix B.2 and Appendix B.3). The line will head east, following an existing double circuit distribution line owned by Buffalo Municipal Electric on the north side of 8th Street NE for approximately 1,900 feet. Xcel Energy proposes to consolidate the new transmission line with the City of Buffalo's existing distribution facilities along this segment by underbuilding the distribution line. The Company has conferred with the City of Buffalo and the city is supportive of the consolidation of facilities in this area. *See* letter dated November 9, 2007 (Appendix E.5). *See Also* Appendix B.5 for the Local Distribution Facilities Map.

The proposed transmission line will then cross to the south side of the road and continue east for approximately 1.1 miles. At this point the proposed transmission line will cross to the north side of the road and will underbuild existing distribution facilities for approximately 520 feet, crossing back to the south side of County State Aid Highway ("CSAH") 35 to the intersection of CSAH 35 and Dague Avenue NE. The transmission line will follow Dague Avenue NE (which changes to Dague Avenue SE at Division Street SE) south for approximately 2.4 miles, crossing approximately six times to minimize impacts on residences. Along Dague Avenue Xcel Energy will underbuild with existing distribution facilities, where feasible. At the intersection of Dague Avenue SE and CSAH 33, the transmission line will continue south along the property line for approximately 0.5 mile. At the south end of the segment, the proposed transmission line will turn southwest for 915 feet, where it will meet the existing Wright-Hennepin Cooperative Electric Association ("Wright-

Hennepin") distribution line. From this point, Xcel Energy proposes to underbuild the Wright-Hennepin distribution line with the proposed transmission line across TH 55, where the proposed transmission line will tap the Mary Lake Substation to Dickinson Junction Substation 115 kV Transmission Line just southeast of the Mary Lake Substation. In consultations, Wright-Hennepin representatives have stated that the company will cooperate with the Company to consolidate the facilities in this area should the Proposed Route be approved.

For the portions of the Proposed Route where facilities will be consolidated, Xcel Energy proposes placing the structures on a specific side of roadways (*e.g.* north or south) to minimize impacts to residences and to accommodate the Minnesota Department of Transportation's ("MnDOT") concerns. However, Xcel Energy requests that the Commission authorize a route 400 feet wide, 200 feet on each side of the Proposed Centerline to accommodate site-specific construction issues and landowner concerns.

4.2 ROUTE SELECTION PROCESS

The Proposed Route was developed by Xcel Energy routing and engineering personnel based on their investigation of the overall Project Area and input from the public and government entities about how best to minimize impacts. Throughout the process, Xcel Energy evaluated approximately 40 route segments, considering feedback provided at a series of three public meetings and through written comments. The segments analyzed are shown on Appendix B.4.

The initial public meeting was held on July 31, 2007, at the Buffalo Public Library to inform landowners in the area of the Project and to gather input early in the route selection process. The maps presented at the first public meeting showed the general Project Area (Appendix F.3), existing transmission line facilities and substation locations. At the initial public hearing, the public expressed a preference for minimizing impacts to homes, avoiding daycares located near County Road 134 (Calder Avenue), avoiding the Buffalo Municipal Airport, and using the railroad corridor.

Based on the Company's analysis and comments received at the first public meeting, Xcel Energy developed a potential route ("Preliminary Route") for the Project. The Preliminary Route is shown in Appendix F.3. Information about the Preliminary Route was provided prior to the second public meeting which was held October 11, 2007.

Prior to and at the second public meeting, Xcel Energy received comments about the Preliminary Route that concerned the visual appearance of the structures, electric and magnetic fields, and compatibility of the line with the land uses on the northern and southern ends of the Project Area.

On November 14, 2007, Xcel Energy held a third public meeting to provide information to the public about the Proposed Route before filing this Application. The primary public comments related to clarifications about the Proposed Route. No alternatives to the Proposed Route were identified. The Proposed Route is shown in Appendix B.2 and B.3. The segments for the Proposed Route are shown on the maps in Appendix B.4 and are identified as LL, CC, BB, V, M, H, D, and MM. Appendix F.3 has a detailed description of the route development process.

In developing the Proposed Route, the Company also considered other segment alternatives.

Appendix B.4 shows the route segment alternatives evaluated. Xcel Energy eliminated several route segment alternatives because of the magnitude of residential impacts, conflicts with existing land use, the railroad, the airport safety zones and flight paths, and cost considerations. A summary of the analyses follows:

- Route Segments C and G west of Mary Lake Substation along 10th Street SE to County Road 134 (Calder Avenue) north and the Route Segment along the railroad (Segment F) were rejected due to visual constraints with Mary Lake, interference with the Buffalo Municipal Airport flight path and safety issues on the north side of TH 55.

- Route Segments T and Y along County Road 134 (Calder Avenue) have limited space between the road right-of-way and the commercial and industrial buildings on the south end near TH 55. Other considerations included potential Buffalo Municipal Airport flight path interference, which would require undergrounding the transmission line at significant increased cost. Additionally, these segments would be within 300 feet of 28 homes, compared to Segment M of the Proposed Route, which has five homes within 300 feet.

- Route Segments DD2 and JJ along the new alignment for CSAH 35 (Willems Way) were eliminated after discussion with the City of Buffalo and the commercial developers in the area. This route segment conflicts with planned development along CSAH 35 (Willems Way).

- Route Segments P, N, X, and W running east and west along 10th Street NE and Division Street E were eliminated due to the increased number of impacts to homes that would occur by following County Road 134. These segments would also require undergrounding to avoid interference with the Buffalo Municipal Airport.

- Route Segments E1 and K following Chamberlain Avenue SE were rejected because they would impact 16 additional homes than the Proposed Route, Segments D and H.

- Route Segments NN, KK, E1, A, and B, located near the Mary Lake Switch, were eliminated after discussion with landowners, Wright-Hennepin and MnDOT.

4.3 DESIGN OPTIONS TO ACCOMMODATE FUTURE EXPANSION

The transmission line proposed for this Project is being designed to 115 kV specifications but initially will be operated at 69 kV. The 115 kV voltage was selected to accommodate future 115 kV upgrades planned in the region. The City of Buffalo experienced an average load growth of 4 percent from 2000 to 2005. Based on this growth rate, Xcel Energy anticipates that the Maple Lake to Buffalo Power Substation 69 kV transmission line might have to be

converted to 115 kV in 2014. In such case, it is expected that the transmission line proposed in this Application also would be operated at 115 kV to meet the demand.

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

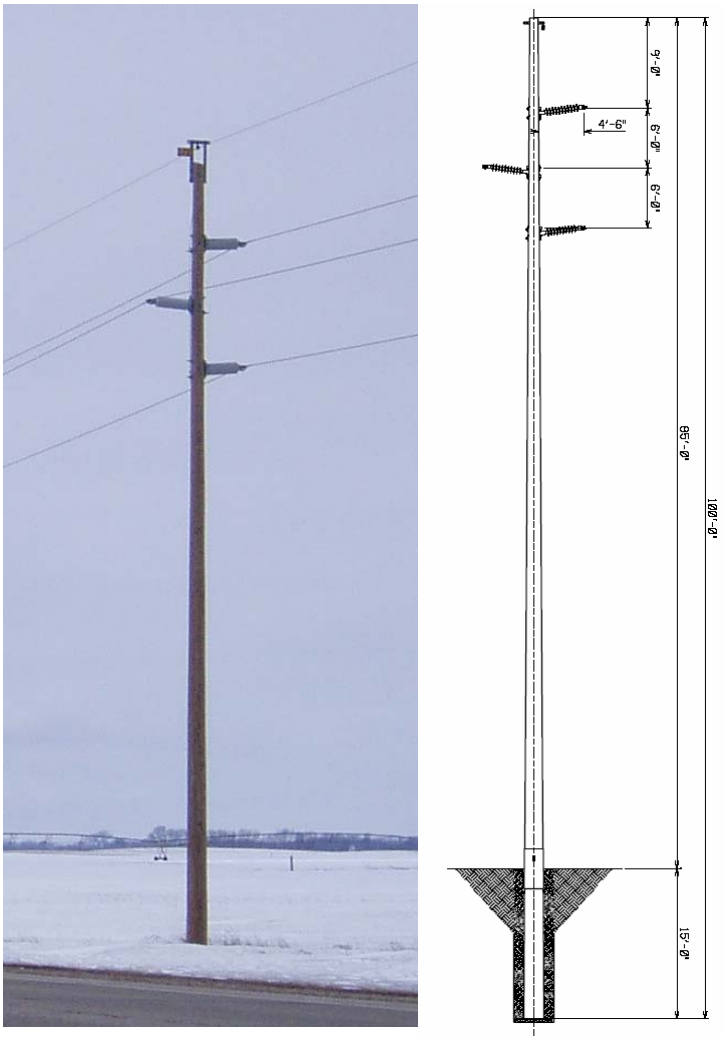
5.1 TRANSMISSION STRUCTURES AND RIGHT-OF-WAY DESIGN

The proposed transmission line will be designed to meet or surpass all relevant local and state codes, North American Electric Reliability Corporation standards, the National Electric Safety Code ("NESC"), and Xcel Energy standards. Appropriate standards will be met for construction and installation, and all applicable safety procedures will be followed during and after installation.

5.1.1. Transmission Line Structures

The proposed structures for the majority of the route are wood, single circuit poles with a horizontal line post configuration. A picture and schematic of this proposed structure type are shown below in Figure 2.

FIGURE 2
115 KV SINGLE-CIRCUIT HORIZONTAL LINE POST STRUCTURE



There will also be several segments where the new 115 kV line will be underbuilt with existing facilities. Xcel Energy anticipates that it may use one of three underbuild designs for the Project: 1) a single circuit 115 kV structure with a double circuit for two three-phase distribution lines, 2) a single circuit 115 kV structure with a single circuit or one three-phase distribution line and 3) a single circuit 115 kV structure with a single circuit, single phase distribution line. Poles will be made of wood or steel. The final structure

determination will be made during detailed design. Figure 3 shows the 115 single circuit horizontal line post structure with distribution underbuild.

FIGURE 3
115 KV SINGLE CIRCUIT HORIZONTAL LINE POST STRUCTURE WITH DISTRIBUTION UNDERBUILD

The map in Appendix B.4 shows the sections which Xcel Energy proposes to consolidate the distribution facilities using underbuild:

- For the approximately 1,900 foot segment from the Buffalo Substation Switch along 8th Street NE (in segment LL),

- Along CSAH 35, approximately 2,115 feet west of the intersection of Dague Ave NE (in Segment BB),

- The portion of the Wright-Hennepin distribution line between the intersection of Deegan Drive and Chamberlain Avenue SE, across TH 55 to just southwest of the Mary Lake Substation, and

- Along segments M & V (Dague Avenue NE).

Final design and geotechnical investigations may warrant the use of steel pole or special structures to avoid sensitive areas or to accommodate special engineering circumstances. The needs for angle structures will be determined once design is complete.

The conductor on the single circuit line will be 795 Aluminum Core Steel Supported ("ACSS"). The poles will be direct embedded with crushed rock backfill foundation. If the pole is located in a wet location, a steel culvert will be installed. All significant angle structures will be steel poles and may be placed on concrete foundations. The heights of the poles and the distance between each pole ("span") are shown in Table 3. The average span is expected to be 300 feet.

Table 3 summarizes the structure design for the line.

TABLE 3
STRUCTURE DESIGN SUMMARY

Project Component	Line Voltage	Structure Type	ROW Required	Conductor	Foundation	Double Circuit / Single Circuit	Average Span Length (feet)	Average Height (feet)
Single Circuit Transmission Line	Designed at 115 kV but operated at 69kV	Horizontal line post	75	795 ACSS	Direct Embed	Single	250-400	70-90
Single Circuit Transmission Line with Distribution Underbuild	Designed at 115 kV but operated at 69 kV with Distribution Underbuild Operated at 12.5 kV	Horizontal line post	50	795 ACSS – transmission 336 ACSR– distribution	Direct Embed	Single	250-350	80-95

5.1.2. Transmission Switch Structures ("Tap")

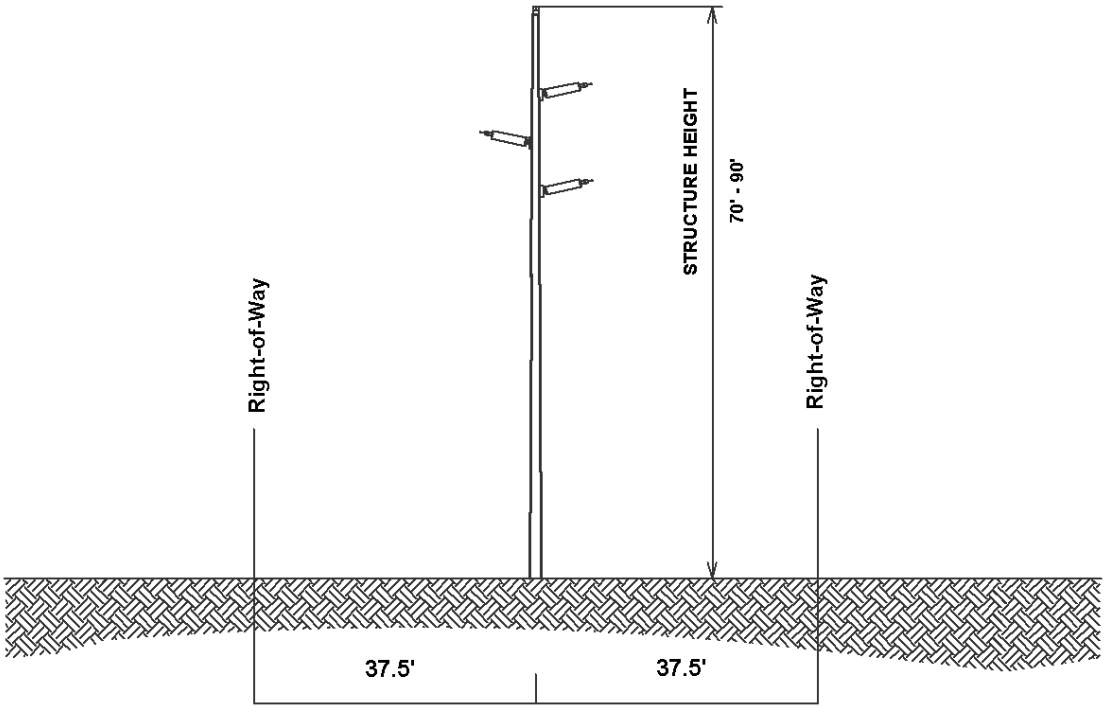
Since the proposed transmission line will tap existing transmission lines and will not connect into substations, switch structures will be installed for the Project. Please see Figure 4 for a picture of the steel switch structures proposed at the Buffalo Power to Maple Lake 69 kV Transmission Line tap and the Mary Lake to Dickinson Junction 69 kV Transmission Line tap. Tap structure will be placed on concrete foundations. No additional right-of-way beyond that required for the transmission line is needed to install the transmission line tap structures.

FIGURE 4
115 KV SINGLE-CIRCUIT SWITCH STRUCTURE

5.1.3. Right-of-Way

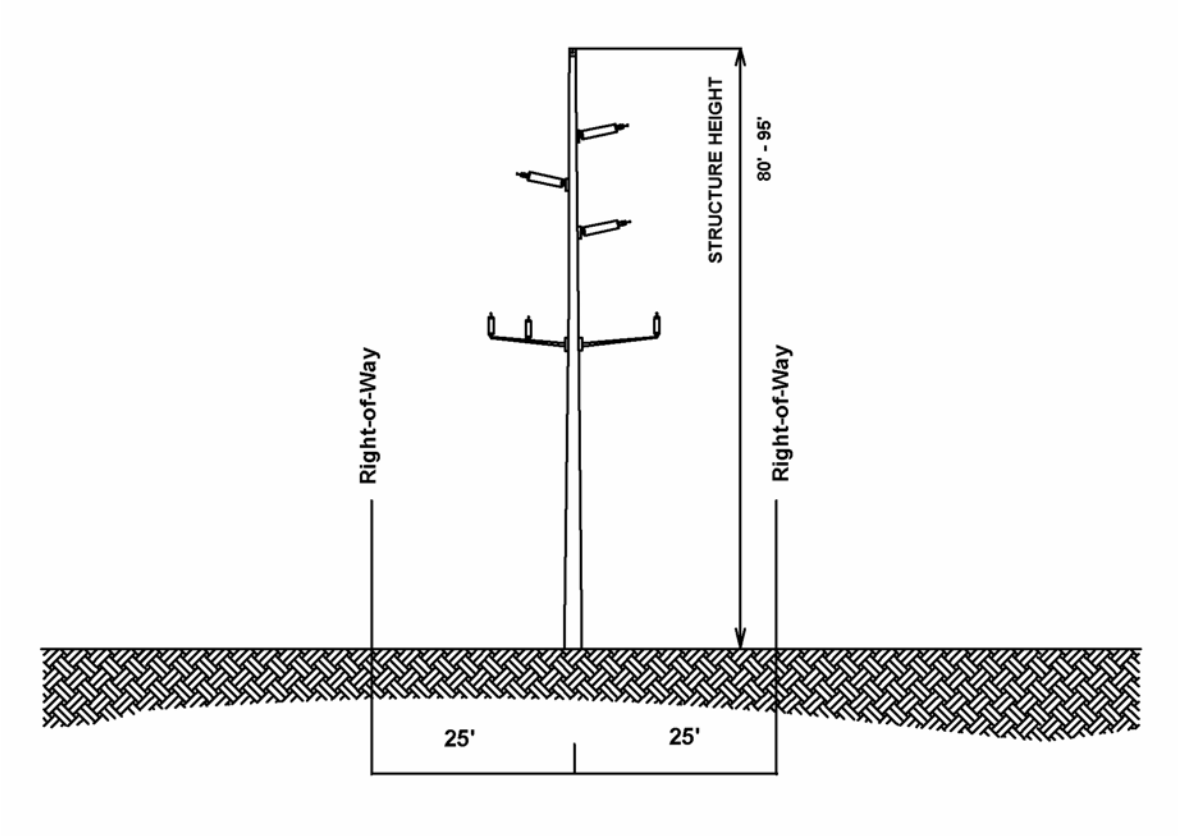
For the Project, up to 75 feet of right-of-way will be required (Figure 5). When the line is parallel to a roadway, poles generally will be placed five feet from the roadway right-of-way on private land, resulting in an easement of lesser width required from the landowner. The amount of new easement required will depend upon the road configuration and the distance between the road and the transmission line. Additionally for the portion of the Proposed Route along 8th Street, between 6th Avenue NE and the intersection of 8th Street NE and CSAH 35 (Willems Way), the line will be constructed with shorter spans so that only a 50 foot right-of-way will be required (Figure 6). *See* Table 4 below.

FIGURE 5
TYPICAL RIGHT-OF-WAY REQUIREMENTS



115 kV Line Typical Structure
75' Typical Total Right-of-Way Width

FIGURE 6
TYPICAL RIGHT-OF-WAY REQUIREMENTS ALONG
8TH STREET NE



115 kV Line Typical Structure
50' Total Right-of-Way Width

5.2 IDENTIFICATION OF EXISTING UTILITY AND PUBLIC RIGHTS-OF-WAY

The Project will follow existing public rights-of-way for 90 percent of the Proposed Route. Table 4 identifies the amount and types of public rights-of-way shared for the Project.

TABLE 4
SHARED RIGHT-OF-WAY

Description	Length (miles)	Existing Transmission ROW (miles)	Existing Distribution ROW (miles)	Roadway ROW (miles)	Railroad ROW (miles)	Total Shared ROW (miles)	New ROW (miles)
Maple Lake Switch to Mary Lake Switch	5	0	1.3	4.5	0.00	4.5	0.5

5.3 RIGHT-OF-WAY EVALUATION AND ACQUISITION

The right-of-way acquisition process begins early in the detailed design process. For transmission lines, utilities acquire easement rights across the parcels to accommodate the facilities. The evaluation and acquisition process includes title examination, initial owner contacts, survey work, document preparation, and purchase. Each of these activities, particularly as it applies to easements for transmission line facilities, is described in more detail below.

The first step in the right-of-way process is to identify all persons and entities that may have a legal interest in the real estate upon which the facilities will be built. To compile this list, a right-of-way agent or other persons engaged by the utility will complete a public records search of all land involved in the Project. A title report is then developed for each parcel to determine the legal description of the property and the owner(s) of record of the property, and to gather information regarding easements, liens, restriction, encumbrances, and other conditions of record.

After owners are known, a right-of-way representative personally contacts each property owner or the property owner's representative. The right-of-way agent describes the need for the transmission facilities and how the specific Project may affect each parcel. The right-of-way agent also seeks information from the landowner about any specific construction concerns.

The next step in the acquisition process is evaluation of the specific parcel. For this work, the right-of-way agent will request permission from the owner for survey crews to enter the property to conduct preliminary survey work. Permission may also be requested to take soil borings to assess the soil conditions and determine appropriate foundation design. Surveys are conducted to locate the right-of-way corridors, natural features, man-made features, and associated elevations for use during the detailed engineering of the line. The soil analysis is performed by an experienced geotechnical testing laboratory.

During the evaluation process, the location of the proposed transmission line will be staked. This means that the survey crew locates each structure or pole on the ground and places a surveyor's stake to mark the structure's anticipated location. By doing this, the right-of-way agent can show the landowner exactly where the structure(s) will be located on the property. The right-of-way agent also delineates the boundaries of easement area required for safe operation of the lines.

Prior to the acquisition of easements, land value data will be collected, and based upon the impact of the easement to the market value of each parcel, a fair market value offer will be developed. The right-of-way agent then contacts the property owner(s) to present the offer for the easement and discuss the amount of just compensation for the rights to build, operate, and maintain the transmission facilities within the easement area and reasonable access to the easement area. The agent will also provide maps of the transmission line route or site, maps showing the landowner's parcel. The landowner is allowed a reasonable amount of time in which to consider the offer and to present any material that the owner believes is relevant to determining the property's value.

In nearly all cases, utilities are able to work with the landowners to address their concerns and an agreement is reached for the utilities' purchase of land rights. The right-of-way agent prepares all of the documents required to complete each transaction. Some of the documents that may be required include: easement, purchase agreement or contract, and deed.

In rare instances, a negotiated settlement cannot be reached and the landowner chooses to have an independent third party determine the value of the rights taken. Such valuation is made through the utility's exercise of the right of eminent domain pursuant to Minnesota Statutes Chapter 117. The process of exercising the right of eminent domain is called condemnation.

To start the condemnation process, a utility files a Petition in the district court where the property is located and serves that Petition on all owners of the property. If the court approves the Petition, the court then appoints a three-person condemnation "commission." The three people must be knowledgeable of applicable real estate issues. Once appointed, the commissioners schedule a viewing of the substation location or property over and across which the transmission line easement is to be located. Next, the commission schedules a valuation hearing where the utility and landowners can testify as to the fair market value of the easement or fee. The commission then makes an award as to the value of the property acquired and files it with the court. Each party has 40 days from the filing of the award to appeal to the district court for a jury trial. In the event of an appeal, the jury hears land value evidence and renders a verdict. At any point in this process, the case can be dismissed if the parties reach a settlement.

As part of the right-of-way acquisition process, the right-of-way agent will discuss with the owner of each parcel the construction schedule and construction requirements. To ensure safe construction of the line, special consideration may be needed for fences, crops or livestock. For instance, fences may need to be moved or temporary or permanent gates may need to be installed; crops may need to be harvested early; and livestock may need to be moved. In each case the right-of-way agent coordinates these processes with the landowner.

5.4 TRANSMISSION CONSTRUCTION PROCEDURES

Construction will begin after federal, state and local approvals are obtained, property and rights-of-way are acquired, soil conditions are established and final design is completed. The precise timing of construction will take into

account various requirements that may be in place due to permit conditions, system loading issues and available workforce, and materials.

The actual construction will follow standard construction and mitigation practices that were developed from experience with past projects. These best practices address right-of-way clearance, staging, erecting transmission line structures and stringing transmission lines. Construction and mitigation practices to minimize impacts will be developed based on the proposed schedule for activities, permit requirements, prohibitions, maintenance guidelines, inspection procedures, terrain and other practices. In some cases these activities, such as schedules, are modified to minimize impacts to sensitive environments.

Transmission line structures are generally designed for installation at existing grades. Typically, structure sites with 10 percent or less slope will not be graded or leveled. Sites with more than 10 percent slope will have working areas graded level or fill brought in for working pads. If the landowner permits, it is preferred to leave the leveled areas and working pads in place for use in future maintenance activities, if any. If permission is not obtained, the site is graded back to its original condition as much as possible and all imported fill is removed from the site.

Typical construction equipment used on a project consists of tree removal equipment, mowers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, dump trucks, front end loaders, bucket trucks, bulldozers, flatbed tractor-trailers, flatbed trucks, pickup trucks, concrete trucks and various trailers. Many types of excavation equipment are set on wheel or track-driven vehicles. Poles are transported on tractor-trailers.

Staging areas are usually established for the project. Staging involves delivering the equipment and materials necessary to construct the new transmission line facilities. Structures are delivered to staging areas, sorted and loaded onto structure trailers for delivery to the staked location. The materials are stored until they are needed for the project. In some cases, additional space (temporary laydown areas) may be required. These areas will be selected for

their location, access, security, and ability to efficiently and safely warehouse supplies. The areas are chosen to minimize excavation and grading. The temporary laydown areas outside of the transmission line right-of-way will be obtained from affected landowners through rental agreements. Insulators and other hardware are attached to the structure while it is on the ground in the laydown area. Wood poles structures may be framed at the stake. Framing involves attaching insulators, brackets, and other hardware to the transmission line pole.

When it is time to install the poles, structures are moved from the staging areas, delivered to the staked location and placed within the right-of-way until the structure is set. Typically, access to the transmission line right-of-way corridor is made directly from existing roads or trails that run parallel or perpendicular to the transmission line right-of-way. In some situations, private field roads or trails are used. Permission from the property owner is obtained prior to accessing the transmission line corridor. Where necessary to accommodate the heavy equipment used in construction (including cranes, concrete cement trucks, and hole-drilling equipment) existing access roads may be upgraded or new roads may be constructed. New access roads may also be constructed when no current access is available or the existing access is inadequate to cross roadway ditches.

To place direct-embedded single poles in the ground, the spoils are removed from the ground. Temporary casing may be required if the hole does not stay open during the excavation process. The pole is set and backfilled with crushed rock. The spoils are either spread on site or removed based on the easement agreement. For the concrete foundations, the excavation process will utilize temporary steel casing and rebar, concrete and anchor bolts will be placed in the hole. The standard projection is one foot above grade. The spoils are either spread or removed from the site.

Environmentally sensitive areas and wetland areas may also require special construction techniques in some circumstances. During construction, the most effective way to minimize impacts to wet areas will be to span all streams and rivers. In addition, Xcel Energy will not allow construction equipment to be

driven across waterways except under special circumstances and only after consultation with and obtaining necessary approvals from the appropriate resource agency. Where waterways must be crossed to pull in the new conductors and shield wires, workers may walk across, use boats, or drive equipment across ice in the winter. These construction practices help prevent soil erosion and ensure that equipment fueling and lubricating will occur at a distance from waterways.

If impacts to wetlands occur, they will be minimized through construction practices. Construction crews will maintain sound water and soil conservation practices during construction and operation of the facilities to protect topsoil and. adjacent water resources and minimize soil erosion. Practices may include containing excavated material, protecting exposed soil and stabilizing restored soil. Crews will avoid major disturbance of individual wetlands and drainage systems during construction. This will be accomplished by strategically locating new access roads and spanning wetlands and drainage systems where possible. When it is not feasible to span the wetland, construction crews will rely on several options during construction to minimize impacts:

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

5.5 RESTORATION PROCEDURES

During construction, crews will attempt to limit ground disturbance wherever possible. However, areas are disturbed during the normal course of work, which can take several weeks in any one location. As construction on each parcel is completed, disturbed areas are restored to their original condition to the maximum extent practicable. The right-of-way agent contacts each property owner after construction is completed to see if any damage has

occurred as a result of the Project. If damage has occurred to crops, fences or the property, Xcel Energy will fairly reimburse the landowner for the damages sustained. In some cases, Xcel Energy may engage an outside contractor to restore the damaged property to as near as possible to its original condition. Portions of vegetation that are disturbed or removed during construction of transmission lines will naturally reestablish to pre-disturbance conditions. Resilient species of common grasses and shrubs typically reestablish with few problems after disturbance. Areas with significant soil compaction and disturbance from construction activities along the Proposed Route will require assistance in reestablishing the vegetation stratum and controlling soil erosion. Commonly used methods to control soil erosion and assist in reestablishing vegetation include, but are not limited to:

- Erosion control blankets with embedded seeds
- Silt fences
- Hay bales
- Hydro seeding
- Planting individual seeds or seedlings of native species

5.6 MAINTENANCE PROCEDURES

Transmission lines are designed to operate for decades and require only moderate maintenance, particularly in the first few years of operation.

The estimated service life of the proposed transmission line for accounting purposes is approximately 40 years. However, practically speaking, high voltage transmission lines are seldom completely retired. Transmission infrastructure has very few mechanical elements and is built to withstand weather extremes that are normally encountered. With the exception of severe weather such as tornadoes and heavy ice storms, transmission lines rarely fail. Transmission lines are automatically taken out of service by the operation of protective relaying equipment when a fault is sensed on the system. Such interruptions are usually only momentary. Scheduled maintenance outages are also infrequent. As a result, the average annual availability of transmission infrastructure is very high, in excess of 99 percent.

The principal operating and maintenance cost for transmission facilities is the cost of inspections, usually done monthly by air. Annual operating and maintenance costs for transmission lines in Minnesota and the surrounding states vary. However, voltage from 115 kV through 345 kV, past experience shows that costs are approximately $300 to $500 per mile. Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used, and the age of the line.

5.7 ELECTRIC AND MAGNETIC FIELDS

The term EMF refers to electric and magnetic fields that are coupled together, such as in high frequency radiating fields. For the lower frequencies associated with power lines, EMF should be separated into electric and magnetic fields. Electric and magnetic fields arise from the flow of electricity and the voltage of a line. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors. Transmission lines operate at 60 hertz (cycles per second).

5.7.1. Electric Fields

Voltage on any wire ("conductor") produces an electric field in the area surrounding the wire. The electric field associated with a high voltage transmission line extends from the energized conductors to other nearby objects such as the ground, towers, vegetation, buildings, and vehicles. The electric field from a power line gets weaker as it moves away from the line. Nearby trees and building material also greatly reduce the strength of power line electric fields.

The intensity of electric fields is associated with the voltage of the line and is measured in kilovolts per meter ("kV/m"). Power line electric fields near ground are designated by the difference in voltage between two points (usually 1 meter). Table 5 provides the electric fields at maximum conductor voltage for the proposed 115 kV transmission line. Maximum conductor voltage is defined as the nominal voltage plus five percent.

The proposed single circuit 115 kV transmission line operated at 69 kV with a distribution underbuild at 12.5 kV will have a maximum electric field density of approximately 0.08 kV per meter, at a distance of twenty five feet from centerline of the structure. The proposed 115 kV transmission line operated at 115 kV with distribution underbuild operated at 12.5 kV will have a maximum electric field density of approximately 0.11 kV per meter, at a distance of 25 feet from centerline of the structure. The proposed single circuit transmission line operated at 69 kV will have a maximum electric field density of 0.23 kV per meter at the centerline of the structure. The proposed single circuit transmission line operated at 115 kV will have a maximum electric field density of 0.39 at the centerline of the structure. The values of these configurations are significantly less than the maximum electric field density limit of 8 kV per meter that has been a route permit condition imposed by the Minnesota Environmental Quality Board ("EQB") in other HVTL applications. The Minnesota EQB standard was designed to prevent serious hazard from shocks when touching large objects, such as tractors, parked under extra high voltage transmission lines of 500 kV or greater.

TABLE 5
CALCULATED ELECTRIC FIELDS (KV/M)*

Structure Type	Voltage	Distance to Proposed Centerline									
		-300'	-200'	-100'	-50'	0'	25'	50'	100'	200'	300'
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 69 kV with Distribution Underbuild Operated at 12.5 kV	72 kV	0.00	0.01	0.02	0.03	0.05	0.08	0.03	0.02	0.01	0.00
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 115 kV with Distribution Underbuild Operated at 12.5 kV	121 kV	0.01	0.02	0.04	0.05	0.08	0.11	0.03	0.04	0.02	0.01
Single Circuit Horizontal Line Post 115 kV Transmision Line Operated at 69 kV	72 kV	0.00	0.01	0.01	0.04	0.23	0.16	0.05	0.01	0.01	0.00
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 115 kV	121 kV	0.01	0.01	0.02	0.06	0.39	0.27	0.08	0.02	0.01	0.01

* - Calculated Electric Fields (kV/m) for Proposed Transmission Line Designs at 3.28 feet above ground

5.7.2. Magnetic Fields

Magnetic fields are present around any electrical device, and can occur indoors and outdoors. Magnetic fields are the result of the flow of electricity or current that travels along transmission lines, distribution (feeder) lines, substation transformers, house wiring, and household electrical appliances. The intensity of a magnetic field is related to the current flow through the conductors (wire).

Considerable research has been conducted throughout the past three decades to determine whether exposure to power-frequency (60 hertz) electric and magnetic fields causes biological responses and health effects. Epidemiological and toxicological studies have shown no statistically significant association or weak associations between EMF exposure and health risks.

In 1999, the National Institute of Environmental Health Sciences ("NIEHS") issued its final report on "Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields" in response to the Energy Policy Act of 1992. NIEHS concluded that the scientific evidence linking EMF exposures with health risks is weak and that this finding does not warrant aggressive regulatory concern. However, because of the weak scientific evidence that supports some association between EMF and health effects, and the common exposure to electricity in the United States, passive regulatory action, such as providing public education on reducing exposures, is warranted.

Minnesota, California and Wisconsin have all recently conducted literature reviews or research to examine this issue. In 2002, Minnesota formed an Interagency Working Group to evaluate the body of research and develop policy recommendations to protect the public health from any potential problems resulting from high voltage transmission line EMF effects. The Working Group consisted of staff from various state agencies. The Working Group published its findings in a White Paper on EMF Policy and Mitigation Options in September 2002 (Minnesota Department of Health, 2002). The findings of the Working Group are summarized below.

> Research on the health effects of EMF has been carried out since the 1970s. Epidemiological studies have mixed results — some have shown no statistically significant association between exposure to EMF and health effects, some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a biological mechanism for how magnetic fields may cause cancer. A number of scientific panels convened by national and international health agencies and the United States Congress have reviewed the

> research carried out to date. Most researchers concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe.

The Minnesota EQB addressed the matter of EMF with respect to new transmission lines in a number of separate dockets over the past few years. In the Lakefield Junction to Split Rock 345 kV line routing proceedings, Docket No. 03-73-TR-XCEL, for example, the EQB made the following findings with regard to EMF:

> 118. No significant impacts on human health and safety are anticipated from the Project. There is at present insufficient evidence to demonstrate a cause and effect relationship between EMF exposure and any adverse health effects. The EQB has not established limits on magnetic field exposure and there are no Federal or Minnesota health-based exposure standards for magnetic fields. There is uncertainty, however, concerning long term health impacts and the Minnesota Department of Health and the EQB all recommend a "prudent avoidance" policy in which exposure is minimized.

The EQB made similar findings in Docket No. 04-84-TR-XCEL (Buffalo to White 115 kV line) and 04-81-TR-Air Lake-Empire (115 kV line in Dakota County). Documents from those matters are available on the Commission webpage: www.energyfacilities.puc.state.mn.us.

The calculated normal and peak magnetic fields, Magnetic Flux Density (Milligauss), for the proposed 115kV transmission line and structure designs (3.28 feet above ground) are shown below in Table 6. The expected magnetic field for the proposed structure type and phase current has been calculated at various distances from the center of the structure in milligauss. The proposed single circuit 115 kV transmission line operated at 69 kV with distribution underbuild at 12.5 kV will have a calculated magnetic flux density of approximately 16.87 milligauss during peak flows at the centerline of the structure. The proposed 115 kV transmission line operated at 115 kV with

distribution underbuild operated at 12.5 kV will have a calculated magnetic flux density of approximately 16.69 milligauss during peak flows at the centerline of the structure. The proposed single circuit transmission line operated at 69 kV and 115 kV will have a calculated magnetic flux density of 6.07 during peak flows at the centerline of the structure.

TABLE 6
CALCULATED MAGNETIC FLUX DENSITY (MILLIGAUSS)*

Structure Type	System Condition	Current (Amps)	Distance to Proposed Centerline									
			-300'	-200'	-100'	-50'	0'	25'	50'	100'	200'	300'
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 69 kV with Distribution Underbuild Operated at 12.5 kV	Peak	209	0.27	0.56	1.88	5.25	16.87	11.54	6.04	2.00	0.51	0.22
	Average	125	0.16	0.34	1.13	3.15	10.12	7.11	3.63	1.20	0.31	0.13
Single Circuit Horizontal Line Post 115 kV Transmision Line Operated at 115 kV with Distribution Underbuild Operated at 12.5 kV	Peak	209	0.27	0.56	1.86	5.20	16.69	11.74	5.99	1.98	0.51	0.22
	Average	125	0.16	0.34	1.13	3.15	10.12	7.11	3.63	1.20	0.31	0.13
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 69 kV	Peak	209	0.17	0.36	1.1.7	2.84	6.07	5.19	3.32	1.33	0.39	0.18
	Average	125	0.10	0.21	0.70	1.70	3.63	3.11	1.99	0.79	0.23	0.11
Single Circuit Horizontal Line Post 115 kV Transmision Line Operated at 115 kV	Peak	209	0.17	0.36	1.17	2.84	6.07	5.19	3.32	1.33	0.39	0.18
	Average	125	0.10	0.21	0.70	1.70	3.63	3.11	1.99	0.79	0.23	0.11

* Calculated Magnetic Flux Density (milligauss) for Proposed Transmission Line Designs at 3.28 feet above ground

5.8 STRAY VOLTAGE

"Stray voltage" is a condition that can occur on the electric service entrances to structures from distribution lines, not transmission lines. More precisely, stray voltage is a voltage that exists between the neutral wire of the service entrance and grounded objects in buildings such as barns and milking parlors. Transmission lines do not, by themselves, create stray voltage because they do not connect to businesses or residences. Transmission lines, however, can induce stray voltage on a distribution circuit that is parallel to and immediately under the transmission line. Appropriate measures will be taken to prevent stray voltage problems when the transmission line proposed in this Application is parallel to or crosses distribution lines.

6.0 ENVIRONMENTAL INFORMATION

This section provides a description of the environmental setting, potential impacts and mitigative measures Xcel Energy has proposed, where necessary, to minimize the impacts of siting, constructing and operating the proposed Project. If the 115 kV line were removed in the future, the land could be restored to its prior condition and/or put to a different use. The majority of the measures proposed are part of Xcel Energy's standard construction practices. Unless otherwise identified in the following text, the costs of the mitigative measures proposed are considered nominal.

6.1 DESCRIPTION OF ENVIRONMENTAL SETTING

The Project is located in the eastern half of the City of Buffalo and Rockford and Buffalo townships in eastern Wright County. According to the MnDNR, the Project Area lies within the Big Woods subsection of the Eastern Broadleaf Forest province under the Ecological Classification System. The Big Woods is a landscape typically dominated by a loamy mantled end moraine associated with the Des Moines lobe of the Late Wisconsin glaciation. The Big Woods landscape is characterized by broad level areas between gently rolling hills, interspersed with closed depressions containing lakes and peat bogs. Drainage is often controlled by the lake levels. The topography along the Proposed Route is gently rolling hills with several wetlands. Lakes in the area include Lake Pulaski to the north, Buffalo Lake to the northwest and Mary Lake to the west of the Proposed Route. The streams along the Proposed Route drain to nearby Mary Lake and Buffalo Lake. Elevations along the Proposed Route range from approximately 950 to 1,100 feet above mean sea level.

Presettlement vegetation consisted primarily of oak woodland and maple-basswood forest. The primary present-day use of the land is agriculture, rural residential, suburban and commercial. There are several woodlots along the Proposed Route. The majority of the Proposed Route crosses cropland used to grow corn and soybeans.

The City of Buffalo has an estimated 2005 population of approximately 13,250 people, which reflects a 31 percent growth in the population since the 2000 census. The community is growing rapidly due to its proximity to the metropolitan area. Agricultural influences are still apparent. Along the Proposed Route, the area within the city limits is primarily urban/rural transition comprised of medium density residential with areas of commercial. Further east, land use in the area transitions to agriculture and includes small wetlands and woodlots with agriculture and rural residential areas.

6.2 HUMAN SETTLEMENT

6.2.1. Public Health and Safety

The Project will be designed in compliance with local, State, NESC, and Xcel Energy standards regarding clearance to ground, clearance to utilities, clearance to buildings, strength of materials, and right-of-way widths. Xcel Energy construction crews and/or contract crews will comply with local, State, NESC, and Xcel Energy standards regarding installation of facilities and standard construction practices. Established Xcel Energy and industry safety procedures will be followed during and after installation of the transmission line in cooperation with MnDOT. This will include clear signage during all construction activities. When stringing wire across roads and railroads, proper signage and guard structures will be used. Guard structures can be temporary wood poles with a cross arm or line trucks with their booms used to protect the lanes of traffic.

The proposed transmission line will be equipped with protective devices to safeguard the public from the transmission line if an accident occurs, such as a structure or conductor falling to the ground. The protective devices are breakers and relays located where the line connects to the substation. The protective equipment will de-energize the line should such an event occur. Proper signage will be posted warning the public of the risk of coming into contact with the energized equipment.

Mitigative Measures

There are no further mitigative measures proposed to address human health and safety.

6.2.2. Commercial, Industrial, Residential Land Use

Residential areas along the Project are rural residential, suburban, and urban near the Buffalo Power Substation. Most of the occupied homes and structures are located more than 100 feet from the Proposed Route. Three homes are located within 50 feet of the Proposed Route and seven homes are located between 50 and 100 feet from the Proposed Route. There are 31 homes located between 100 and 200 feet of the Proposed Route and 19 homes between 200 and 300 feet.

The 2007 Northeast Quadrant ("NEQ") Land Use Plan, Buffalo, Monticello and Rockford Townships for Wright County indicates the transmission line crosses a combination of grassland, cultivated land, residential, commercial and industrial areas outside the Buffalo city limits (Appendix C.1). According to the Wright County Future Land Use Plan Map, the Proposed Route is located along future land use plans for Agriculture, Commercial, and Transition Area near the City of Buffalo limits. *See* Appendix C.1 for the Wright County Existing Land Use Map, Appendix C.2 for the Wright County Zoning Map, and Appendix C.3 for the Wright County Future Land Use Plan Map.

The portion of the Proposed Route within the City of Buffalo crosses areas zoned as rural/urban transitional, medium residential and major growth land use. According to the City of Buffalo, 2006 Draft Comprehensive Plan, the current land use along the Proposed Route is primarily agriculture with some low density residential along CSAH 35 near Buffalo High School and medium density residential land in the Maple Lake Switch area. The area south of 8th Street NE along CSAH 35 is currently agricultural. The area along 8th Street NE is zoned general agriculture and urban/rural transition.

There is planned commercial development located adjacent to CSAH 35 and south of 8th Street NE (Appendix C.8 and Appendix C.9). The City conducted a special study for the commercial land south of 8th Street NE, known as the

CSAH 35 Design Study. The study included a conceptual land use and development plan, and a set of development standards for use in the district. The following is a summary of the future land use:

- There is a new housing development planned in the northeast corner of the intersection of CSAH 35 and County Road 134 (Calder Avenue). Appendix C.5 identifies this area as Low Density Residential. (In the City of Buffalo Current Land Use Map, it had been identified at general agriculture. *See* Appendix C.4.)

- The area north of the Proposed Route along CSAH 35 is currently low density residential and agriculture, and has future plans for low density residential and two city owned parks. See Appendix C.9 for a map of where the new parks are proposed and Appendix C.4 and C.5 for the City of Buffalo Existing Land Use Map and the Future Land Use Map.

- The area south of CSAH 35 along Dague Avenue is zoned agriculture and the current land use is classified general agriculture. The future land use plans represent the area east of County Road 134 (Calder Avenue) and west of Dague Avenue SE as low density residential and medium residential land use.

Mr. Fred Naaktgeboren, Mayor, City of Buffalo, stated in a letter dated November 9, 2007, that the Proposed Route is consistent with the City of Buffalo's Comprehensive Plan and future infrastructure design (Appendix E.5). See Appendix C.4 for the City of Buffalo Land Use Map and see Appendix C.5 for the City of Buffalo Future Land Use Map.

Mitigative Measures

The Proposed Route minimizes the impacts to the existing and planned land use. To the extent practical, Xcel Energy will maximize distances to homes along the Proposed Route.

6.2.3. Displacement

NESC and Company standards require certain clearances between transmission line facilities and buildings for safe operation of the transmission line. The Company acquires a right-of-way for transmission lines that is sufficient to maintain these clearances. Displacement can occur when an existing structure is located within the right-of-way for a new transmission facility. No displacement is anticipated as a result of this Project. The line will be designed so that all existing structures are located outside of the right-of-way.

Mitigative Measures

Because no displacement is anticipated, no mitigative measures are proposed.

6.2.4. Noise

Transmission conductors produce noise under certain conditions. There is no additional noise generated by the tap structures during normal operation. The level of noise depends on conductor conditions, voltage level, and weather conditions. Generally, activity-related noise levels during the operation and maintenance of substations and transmission lines are minimal.

Noise emission from a transmission line occurs during certain weather conditions. In foggy, damp, or rainy weather, power lines can create a crackling sound due to the small amount of electricity ionizing the moist air near the wires. During heavy rain the background noise level of the rain is usually greater than the noise from the transmission line. As a result, people do not normally hear noise from a transmission line during heavy rain. During light rain, dense fog, snow, and other times when there is moisture in the air, transmission lines can produce noise. Noise levels produced by a 115 kV transmission line are generally less than outdoor background levels and are therefore not usually audible. At substations, a humming noise can be created primarily by transformers.

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

measured in dBA, which is the A-weighted sound level recorded in units of decibels. A noise level change of 3 dBA is barely perceptible to human hearing. A 5 dBA change in noise level, however, is clearly noticeable. A 10 dBA change in noise level is perceived as a doubling of noise loudness, while a 20 dBA change is considered a dramatic change in loudness. Table 7 below shows noise levels associated with common, everyday sources.

TABLE 7
COMMON NOISE SOURCES AND LEVELS

Sound Pressure Level (dBA)	Noise Source
140	Jet Engine (at 25 meters)
130	Jet Aircraft (at 100 meters)
120	Rock and Roll Concert
110	Pneumatic Chipper
100	Jointer/Planer
90	Chainsaw
80	Heavy Truck Traffic
70	Business Office
60	Conversational Speech
50	Library
40	Bedroom
30	Secluded Woods
20	Whisper

Source: A Guide to Noise Control in Minnesota, MPCA (revised, 1999),
http://www.pca.state.mn.us/programs/pubs/noise.pdf.

In Minnesota, statistical sound levels (L Level Descriptors) are used to evaluate noise levels and identify noise impacts. The L_{50} is the noise level exceeded 50 percent of the time, or for 30 minutes in an hour.

Land areas, such as picnic areas, churches, or commercial spaces, are assigned to an activity category based on the type of activities or use occurring in the area. Activity categories are then categorized based on their sensitivity to traffic noise. The Noise Area Classification ("NAC") is listed in the Minnesota

Pollution Control Agency's ("MPCA") noise regulations to distinguish the categories.

Table 8 identifies the established daytime and nighttime noise standards by NAC. The standards are expressed as a range of permissible dBA within a one hour period; L_{50} is the dBA that may be exceeded 50 percent of the time within an hour, while L_{10} is the dBA that may be exceeded 10 percent of the time within the hour.

TABLE 8
NOISE STANDARDS BY NOISE AREA CLASSIFICATION

Noise Area Classification	Daytime		Nighttime	
	L_{50}	L_{10}	L_{50}	L_{10}
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

All the residences fall within NAC 1. The noise generated by the proposed transmission line is not expected to exceed approximately 10 dBA, which is significantly below the noise standards established for NAC 1 and below background levels. Xcel Energy does not anticipate the transmission line structure proposed for the Project would be audible at any receptor location under normal operating conditions (Table 9).

TABLE 9
CALCULATED AUDIBLE NOISE – L_{50} (DBA)*

Structure Type	Voltage	Distance to Proposed Centerline									
		-300'	-200'	-100'	-50'	0'	25'	50'	100'	200'	300'
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 69 kV with Distribution Underbuild Operated at 12.5 kV	72 kV	0	0	0	0	0	0	0	0	0	0
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 115 kV with Distribution Underbuild Operated at 12.5 kV	121 kV	0.0	2.1	5.3	7.6	9.5	9.1	8.0	5.6	2.3	0.0
Single Circuit Horizontal Line Post 115 kV Transmision Line Operated at 69 kV	72 kV	0	0	0	0	0	0	0	0	0	0
Single Circuit Horizontal Line Post 115 kV Transmission Line Operated at 115 kV	121 kV	0	2.0	5.2	7.4	9.3	8.9	7.8	5.5	2.2	0

* Calculated audible noise for proposed transmission line at 3.28 feet above ground Audible noise prediction metods do not apply to all line geometries, voltages, or weather conditions.

Mitigative Measures

Minimal impacts are anticipated. Therefore, no mitigative measures are proposed.

6.2.5. Radio and Television Interference

Corona from transmission line conductors can generate electromagnetic "noise" at the same frequencies that radio and television signals are transmitted. This noise can cause interference with the reception of these signals depending on the frequency and strength of the radio and television signal. Tightening loose hardware on the transmission line usually resolves the problem.

If radio interference from transmission line corona does occur, satisfactory reception from AM radio stations presently providing good reception can be obtained by appropriate modification of (or addition to) the receiving antenna system. Moreover, AM radio frequency interference typically occurs immediately under a transmission line and dissipates rapidly within the right-of-way to either side.

FM radio receivers usually do not pick up interference from transmission lines because:

- Corona-generated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88-108 Megahertz).

- Also, the excellent interference rejection properties inherent in FM radio systems make them virtually immune to amplitude type disturbances.

A two-way mobile radio located immediately adjacent to and behind a large metallic structure (such as a steel tower) may experience interference because of signal-blocking effects. Movement of either mobile unit so that the metallic structure is not immediately between the two units should restore communications. This would generally require a movement of less than 50 feet by the mobile unit adjacent to a metallic tower.

Television interference is rare but may occur when a large transmission structure is aligned between the receiver and a weak distant signal, creating a shadow effect. Loose and/or damaged hardware may also cause television interference. If television or radio interference is caused by or from the

operation of the proposed facilities in those areas where good reception is presently obtained, Xcel Energy will inspect and repair any loose or damaged hardware in the transmission line, or take other necessary action to restore reception to the pre-Project level, including the appropriate modification of receiving antenna systems if deemed necessary.

Mitigative Measures

If radio or television interference occurs because of the transmission line, Xcel Energy will work with the affected landowner to address the problem so that reception is restored to pre-Project levels.

6.2.6. Aesthetics

The transmission line structures will be in contrast to the primarily residential, agricultural, and commercial land along the majority of the Proposed Route. However, the area is developing and includes a mixture of residential, commercial, and industrial land uses. There are existing transmission lines within two miles and existing distribution lines within a half mile of all the residences and businesses along the Proposed Route and 90 percent of the Proposed Route follows existing roadway corridors.

Mitigative Measures

Although the line will be a contrast to surrounding land uses, Xcel Energy has identified the route that follows existing corridors and avoids homes to the greatest extent practical. Xcel Energy will work with landowners to further mitigate aesthetic impacts.

6.2.7. Socioeconomic

Population and economic characteristics based on the 2000 U.S. Census are presented in Table 10.

TABLE 10
POPULATION AND ECONOMIC CHARACTERISTICS

Location	Population	Minority Population (Percent)	Caucasian Population (Percent)	Per Capita Income	Percentage of Population Below Poverty Level
State of Minnesota	5,205,091*	11.8	88.2	$23,198	7.9
Wright County	110,836*	2.0	98.0	$21,844	5.0
City of Buffalo	13,251*	3.0	97.0	$21,424	5.0
Buffalo Township	1,899	0.2	99.8	$21,972	1.9
Rockford Township	3,444	0.4	97.1	$30,536	2.0

Source: Minnesota Department of Employment and Economic Development, 2000 U.S. Census: General Demographic Characteristics. * *Denotes 2005 estimate from Minnesota Department of Employment and Economic Development.*

According to the 2000 Census demographics, Wright County is 98 percent Caucasian. Of the townships within the Project area, the population ranges from 97 to almost 100 percent Caucasian. Minority groups in the area constitute a very small percentage of the total population in the townships as a whole, though the minority population in the City of Buffalo has a percentage similar to the county.

Per capita incomes within the city and Buffalo Township are similar to those found in Wright County. Rockford Township has a substantially higher per capita income than the remainder of the Project area.

Approximately eight to 10 workers will be required by Xcel Energy for transmission line construction. The transmission crews are expected to spend approximately 13 weeks constructing the transmission line. During construction, there will be a small positive impact on the community due to the expenditures of the construction crews in the local community.

There will be short-term impacts to community services as a result of construction activity and an influx of contractor employees during construction of the various projects. Utility personnel or contractors will be used for all construction activities. The communities near the Project Area will likely experience short-term positive economic impacts through the use of the hotels, restaurants and other services by the various workers.

It is not expected that additional permanent jobs will be created by any of these actions. The construction activities will provide a seasonal influx of additional dollars into the community during the construction phase, and materials such as concrete may be purchased from local vendors where feasible. Long-term beneficial impacts from the proposed transmission lines and local tax base resulting from the incremental increase in revenues from utility property taxes.

Socioeconomic impacts resulting from the Project will be primarily positive with an influx of wages and expenditures made at local businesses during Project construction.

Mitigative Measures

No impacts are anticipated and therefore no mitigative measures are proposed.

6.2.8. Cultural Values

Cultural values include those perceived community beliefs or attitudes in a given area that provide a framework for that community's unity. The communities in the vicinity of the Mary Lake Transmission Line Tap Project area primarily have cultural values tied to rural agriculture, light industry and recreation. Buffalo, the seat of Wright County, is a small town with a range of metropolitan amenities and opportunities. Residents and visitors enjoy the town's multiple lakes, especially Buffalo Lake and Lake Pulaski, for fishing,

recreation and swimming as well as local parks, playgrounds and golf. Agriculture and farm-related business remain important to the regional economy. The area has a diversified agricultural mix of crops, including corn, soybeans, and hay.

The construction of the proposed transmission line will serve the region with a stable power supply. As the Twin Cities metropolitan area continues to expand into the region, the available power supplied by upgraded facilities will likely encourage this development and afford the residents a stable economic environment in which to live and work. In addition, these opportunities presented by the diverse economy may continue to encourage civic pride; tourism may benefit from this unity as well.

Mitigative Measures

No impacts are anticipated, therefore no mitigation is proposed.

6.2.9. Recreation

There are no current recreational opportunities along the Proposed Route. "H" Eagle Roost Wright County Park Preserve is located about a quarter mile northwest of the Mary Lake Switch. This preserve has native vegetation, large trees, and provides habitat for various plant and animal species. City recreational facilities are located along County 134 located 1 mile west of the Proposed Route and include trails and ball fields (Appendix C.12). Mary Lake, Buffalo Lake and Lake Pulaski are located within ½ to 1 mile of the Proposed Route. Buffalo Lake and Mary Lake are located west of the Proposed Route and Lake Pulaski is located north of the Proposed Route. The Project will not directly impact these recreational resources.

The City of Buffalo has two planned parks located on the north side of 8th Street NE just east of the Maple Lake Switch and west of Tatanka Elementary School and a planned trail north of 8th Street NE and CSAH 35. See Appendix C.9 and Appendix C.12 for details.

Mitigative Measures

Xcel Energy will work with the City of Buffalo regarding the proposed parks and trail and placement of the transmission line structures to mitigate impacts

to the planned recreational areas along 8th Street NE. No concerns have been identified regarding impacts to planned recreational areas.

6.2.10. Public Services

The City of Buffalo provides typical public infrastructure to the community with their Public Works Department. The Public Works provides water, sewer, parks and recreation, streets and facilities. Wright County provides services along county roads and outside the City Limits of the City of Buffalo. According to Paul Johnson, City of Buffalo Utilities Engineer, there are no planned future utilities including distribution lines, substations, wastewater and water treatment facilities or expansions along the Proposed Route. *See* Appendix E.5 for the phone log of the conversation with Paul Johnson.

There are three area schools located along the Proposed Route. Tatanka Elementary and the Phoenix Learning Center are located along 8th Street NE and Buffalo High School is located in the northwest corner of the intersection of Dague Avenue NE and CSAH 35. All school district buildings are more than 110 feet from the Proposed Centerline. At the third public meeting held, Mr. Chuck Klassen, representing the Buffalo Public Schools, expressed concerns about construction near the entrance of Tatanka Elementary on the north side of 8th Street NE while school is in session. Mr. Klassen requested that construction take place during summer break from June 15 to August 15 to reduce complications.

The Buffalo Municipal Airport is located between Carling Avenue and County Road 134 (Calder Avenue) north of TH 55 and west of the Proposed Route. The transmission line will not interfere with the safety zones of the airport. Additionally, the transmission line structures will not exceed 200 feet in height or FAA slope regulations and therefore will not be subject to FAA obstruction notice requirements. See Appendix C.13 for the safety zone information for the Buffalo Municipal Airport.

There is a planned parkway along the eastern boundary of the City. The parkway will serve as an alternative minor arterial roadway providing the primary access to major arterials for new development in this area, as well as

alleviating some of the inter-regional traffic that must travel through the core of the community. The parkway will include travel lanes separated by a broad landscaped median. The Proposed Route will cross the proposed parkway at the intersection of Division Street and Dague Avenue. See Appendix C.6 for the City of Buffalo Future Transportation Map.

Electrical service in the Project Area is provided by Wright-Hennepin Xcel Energy, and Buffalo Municipal Electric. These systems are fed by Xcel Energy and Great River Energy sources. There is approximately 1.3 miles of distribution level voltage line along the Proposed Route owned by Wright-Hennepin and the City of Buffalo. As noted, Xcel Energy proposes to consolidate the new facilities with these existing distribution facilities.

MnDOT's current TH 55 expansion plans are to expand the road east of the existing TH 55 alignment. Please refer to Appendix C.7 for the Design Sheet for the Highway Expansion. See Section 6.2.2 for a detailed description of the planned parkway.

Mitigative Measures

Proper safety regulations and requirements will be followed along roadways, railroad, and existing utilities along the Proposed Route. Xcel Energy will work with Wright-Hennepin, MnDOT and Buffalo Municipal Electric to coordinate any outages required when consolidating facilities.

Xcel Energy will work with MnDOT to address potential temporary impacts associated with construction across TH 55. The line will be designed to ensure that no poles are placed within the current clear zone areas. Additionally, Xcel Energy will continue to work with MnDOT on pole placement to minimize conflicts with future expansion plans in the area. Xcel Energy will also work with Canadian Pacific Railway regarding safety requirements during construction across the railroad near Mary Lake Substation.

Impacts to Tatanka Elementary School will be minimized through scheduling. According to the current schedule, Xcel Energy will be constructing the transmission line during late fall 2008 and early winter 2009. Xcel Energy will

work with Buffalo Public Schools to construct the transmission line in this location during an academic break or at times during the day when fewer people, cars, and buses are present.

6.3 LAND-BASED ECONOMICS

6.3.1. Agriculture

According to the 2007 Minnesota Agricultural Statistics Bulletin, there were 213,776 acres of cropland in 2002 in Wright County. In 2006, the primary crops in the county were soybean, corn and hay. The agricultural land along the Proposed Route is planted in corn and soybeans.

Approximately 4,386 square feet (0.1 acres) of agricultural land will be permanently impacted by the Project. Permanent impacts will occur due to the placement of the transmission line poles. Temporary impacts may include soil compaction and crop damages within the right-of-way. Temporary impacts are estimated at 703,849 square feet (16.2 acres).

Mitigative Measures

To minimize loss of farmland and to ensure reasonable access to the land near the poles, Xcel Energy intends to place the poles approximately five feet from the roadway right-of-way. Xcel Energy will work with landowners to construct the transmission line before crops are planted or following harvest.

Where possible, spring time construction will be avoided. However, if construction during spring time is necessary, disturbance to farm soil from access to each structure location will be minimized by using the shortest access route. This may require construction of temporary driveways between the roadway and the structure, but would limit traffic on fields between structures. Construction mats may also be used to minimize impacts on the access paths and in construction areas.

The Company will compensate landowners for the easements acquired and for any crop damage and soil compaction that occurs as a result of the Project.

6.3.2. Forestry

There was no data available for tree harvest areas within the Project Area. There are scattered areas of privately owned wooded land which potentially could be affected by the line. For potential impacts to Flora, please see Section 6.5.3.

Mitigative Measures

No mitigative measures are proposed.

6.3.3. Tourism

The various trails and parks and lakes located north and west of the Proposed Route are the main tourist attractions. The lakes, parks and trails will not be impacted by the Proposed Route.

Mitigative Measures

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

6.3.4. Mining

According to the 2003 Wright County Pit Map, there are no commercial aggregate operations along the Proposed Route. According to the Wright County Aggregate Resources Map there are Organic Deposits consisting of Peat and organic-rich silt and clay, ranging from three to greater than 20 feet thick, overlying surrounding or immediately adjacent unit(s). Additionally, the Proposed Route falls in the Limited Potential for Aggregate Resources area. These geologic units generally have little or no potential for aggregate resources. See Appendix C.10 for the Aggregate Map and Appendix C.11 for the County Pit Map.

Mitigative Measures

No mitigative measures are proposed because the Project will not impact any mining operations.

6.4 ARCHAEOLOGICAL AND HISTORICAL RESOURCES

In September 2007 Xcel Energy reviewed the records of State Historic Preservation Office ("SHPO") to identify any archaeological or cultural resources within one mile of the Proposed Route. The review identified three

archaeological sites within one mile of the Proposed Route (Sites 21-WR-0084, 21-WR-0157, and 21-WR-159). Site WR-0084 is a pre-contact lithic scatter, and Sites 21-WR-0157 and 21-WR-0159 are each defined by a single pre-contact artifact.

In addition to archaeological sites, the review identified five historic structures within one mile of the Proposed Route. These include three farmsteads, one house, and one schoolhouse. None of these sites is listed on the National Register of Historic Places ("NRHP"), nor do they appear to qualify for the NRHP.

Approximately 90 percent of the line will be built adjacent to county roads. Much of the Project Area has already been disturbed by previous construction activities and the likelihood of affecting archaeological resources is relatively low. However, the Project involves construction of a new transmission line, and archaeological sites may be disturbed during construction of transmission structures, staging areas, and access roads. It appears that the Project will not have any impacts to historic structures listed on the NRHP.

Also, it is uncertain what archaeological sites might exist, since most of the Proposed Route has not undergone formal systematic archaeological survey. On June 6, 2007, SHPO noted that a moderate to high probability of unreported archaeological deposits might be present within the Project Area, and recommended a survey. Xcel Energy also received comments from the SHPO in a letter dated October 26, 2007 (Appendix E.2). In a letter dated October 26, 2007, SHPO again recommended that a survey be completed for this Project based on the Preliminary Route information sent October 9, 2007.

Mitigative Measures

Although there are no identified resources along the Proposed Route, two sites are near (within ¼ mile) and unreported properties could exist in limited areas. The Proposed Route will avoid impacts to identified archaeological and historic resources to the extent possible. Xcel Energy will work with SHPO to identify specific areas where surveying is indicated. Should an impact be identified, Xcel Energy will consult with SHPO on whether the resource is eligible for

listing in the NRHP. The Company, in consultation with SHPO, will also employ the appropriate mitigation measures depending on the resource encountered, including formal excavation of the site, monitoring of the site during construction or over a specified period of time, or photo documentation.

6.5 NATURAL ENVIRONMENT

6.5.1. Air Quality

Currently, both state and federal governments have regulations regarding permissible concentrations of ozone and oxides of nitrogen. The national standard is 0.08 parts per million ("ppm") during an eight-hour averaging period. The state standard is 0.08 ppm based upon the fourth-highest eight-hour daily maximum average in one year.

The only potential air emissions from a 115 kV transmission line result from corona and are limited. Corona consists of the breakdown or ionization of air in a few centimeters or less immediately surrounding conductors, and can produce ozone and oxides of nitrogen in the air surrounding the conductor. For a 115 kV transmission line operated at 69 kV or 115 kV, the conductor gradient surface is usually below the air breakdown level. Typically, some imperfection such as a scratch on the conductor or a water droplet is necessary to cause corona. Ozone is not only produced by corona, but also forms naturally in the lower atmosphere from lightning discharges and from reactions between solar ultraviolet radiation and air pollutants such as hydrocarbons from auto emissions. The natural production rate of ozone is directly proportional to temperature and sunlight and inversely proportional to humidity. Thus, humidity (or moisture), the same factor that increases corona discharges from transmission lines, inhibits the production of ozone. Ozone is a very reactive form of oxygen and combines readily with other elements and compounds in the atmosphere. Because of its reactivity, it is relatively short-lived. The area near the Proposed Route presently meets all federal air quality standards.

During construction of the proposed transmission line and substation there will be limited emissions from vehicles and other construction equipment and

fugitive dust from right-of-way clearing. Temporary air quality impacts caused by construction-related emissions are expected to occur during this phase of activity.

The magnitude of the construction emissions is influenced heavily by weather conditions and the specific construction activity occurring. Exhaust emissions, primarily from diesel equipment, will vary according to the phase of construction, but will be minimal and temporary. Adverse impacts to the surrounding environment will be minimal because of the short and intermittent nature of the emission and dust-producing construction phases.

Mitigative Measures

Xcel Energy anticipates nominal impacts to air quality. Therefore, no mitigative measures are proposed.

6.5.2. Water Quality

During construction there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic. Once the Project is complete it will have no impact on surface water quality. Frederick Creek is the only waterway located along the Proposed Route. This creek flows southwest and drains into Mary Lake. There are forested and emergent wetlands along the Proposed Route. The Proposed Route is not in a mapped 100-year floodplain (FEMA, 1981).

Four Public Waters Inventory (PWI) Basins are located along the Proposed Route. Two of the four PWIs are wetlands (337W and 428W), one is Fredrick Creek, and one is identified as a basin (60P). Impacts to wetlands are estimated at 0.01 acres.

Mitigative Measures

Xcel Energy will follow standard erosion control measures identified in the MPCA's Stormwater Best Management Practices Manual, such as using silt fencing to minimize impacts to adjacent water resources. A license to cross public waters will be required for the Project. During construction, the applicant will control construction operations to prevent materials from falling

into the water. If material does enter the stream, the material will promptly be removed and disposed of properly. During construction there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic. Once the Project is complete it will have no impact on surface water quality. Xcel Energy will minimize impacts to public waters and public water wetlands to the extent possible. By maximizing the typical span length in these areas, permanent impacts to these resources can be minimized.

6.5.3. Flora

The flora along the Proposed Route is primarily agricultural and associated with wetlands and woodlots. There are emergent and forested wetlands along the Proposed Route. Typical primary vegetation in emergent and forested wetlands consists of cattails, non-native grass, bulrush, and other wetland vegetation, such as arrowhead and smartweed. In a comment letter from MnDNR, Mr. Mike North, REAE, noted there is one of the largest wooded lots in the area located adjacent to the Proposed Route on the west side of Dague Avenue SE (Appendix E.1). The wooded lot is located approximately two miles west of a known Red-Shouldered Hawk nesting area. Mr. North stated his preference that the Project avoid a real loss or fragmentation to this wooded area. Xcel Energy estimates approximately 1.3 acres of trees on the far eastern portion of the wooded area, near the road will be removed for the Project.

A majority of the remaining area is agricultural, residential and commercial. For a discussion on impacts to agriculture, please see Section 6.3.1.

Mitigative Measures

To minimize impacts to trees along the Proposed Route, Xcel Energy will only remove trees located in the right-of-way for the transmission lines or that would impact the safe operation of the facility. Trees outside the right-of-way that would need to be removed include trees that are leaning and could potentially fall into the transmission facilities. Impacts to wetland vegetation will be mitigated in accordance with state and federal requirements.

6.5.4. Fauna

There is a potential for temporary displacement of wildlife during construction and the loss of small amounts of habitat from the Project. Wildlife that inhabit trees that will be removed for the Project, organisms that inhabit agricultural areas, and organisms that inhabit suburban areas will likely be displaced. Comparable habitat is adjacent to the Proposed Route for both habitat types, and it is likely that these organisms would only be displaced a short distance. A list of common mammal, avian, and amphibian and reptile species in the Project Area is included as Appendix D.

Fallow farm fields, fencerows, and woodlots in cultivated areas also provide cover for organisms within the Proposed Route. A list of organisms known to occur in habitats of this region of Minnesota is included in Appendix D.

Raptors, waterfowl and other bird species may be affected by the construction and placement of the transmission lines. Avian collisions are a possibility after the completion of the transmission line in areas where there are agricultural fields that serve as feeding areas, wetlands, and open water. Electrocution is commonly a concern with electrical facilities. The electrocution of large birds, such as raptors, is more commonly associated with distribution lines. Electrocution occurs when birds with large wingspans come in contact with two conductors or a conductor and a grounding device. Xcel Energy transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution, so there are few concerns about avian electrocution as a result of the Project.

Mitigative Measures

Displacement of fauna is anticipated to be temporary in nature. No long term population-level effects are anticipated; therefore, no mitigation is proposed.

The Company has been working with various state and federal agencies over the past 20 years to address avian issues as quickly and efficiently as possible. In 2002, the Company, entered into a voluntary memorandum of understanding ("MOU") with the U.S. Fish and Wildlife Service to work together to address avian issues throughout its service territories. This includes

the development of Avian Protection Plans ("APP") for each state the Company serves: Minnesota, South Dakota and North Dakota. Work is currently underway on the NSPM APP

In cooperation with the MnDNR and the U.S. Fish and Wildlife Service ("USFWS"), Xcel Energy will identify areas where installation of swan flight diverters on the shield wire may be warranted. In most cases, the shield wire of an overhead transmission line is the most difficult part of the structure for the bird to see. Xcel Energy has had success in reducing collisions on transmission lines by marking the shield wires with swan flight diverters ("SFD"). SFDs are pre-formed spiral shaped devices made of polyvinyl chloride that are wrapped around the shield wire.

6.6 RARE AND UNIQUE NATURAL RESOURCES

There are no known occurrences of rare species or special communities within the vicinity of the Proposed Route (NHDB 2000). The DNR did not identify any known occurrences of rare and unique resources that would be affected by the Project (NHNRP Contact #: ERDB 20070781). In follow-up e-mail, October 11, 2007, Ms. Joyal stated that due to no occurrences of special concern species, MnDNR had no further comments on the Preliminary Route (Appendix E.1).

After the second public meeting, Xcel Energy received comments from Mr. Mike North, MnDNR Regional Environmental Assessment Ecologist ("REAE"), in a letter dated October 29, 2007 (Appendix E.1). The letter requested that the Project avoid loss or fragmentation of the wooded lot located west of Dague Ave SE due to a known Red-Shouldered Hawk (a special concern species) nesting location approximately two miles west of the site.

Mitigative Measures

As noted in Section 6.5.3, Xcel Energy will localize the tree removal to the far eastern portion of the wooded lot near the road. No additional mitigative measures are proposed.

7.0 AGENCY INVOLVEMENT, PUBLIC PARTICIPATION AND REQUIRED PERMITS AND APPROVALS

7.1 AGENCY CONTACTS

7.1.1. Minnesota Department of Natural Resources

The DNR Natural Heritage and Non-game Research Program was contacted on May 3, 2007, to review the Project area for State threatened and endangered species and rare natural features. In the DNR's response, May 18, 2007, Lisa Joyal, on behalf of the DNR, concurred that, based on review, there are no known occurrences of rare species or native plant communities in the area searched (Appendix E.1).

The DNR REAE, Mr. North, was contacted on July 3, 2007. Mr. North had no comments or concerns for the Project but requested to receive further comments (Appendix E.1). A follow-up letter to the DNR was sent October 9, 2007, regarding the Preliminary Route and requesting further comments. Ms. Joyal responded on October 10, 2007, that there are no occurrences of rare features along the Preliminary Route and therefore, she had no further comments (Appendix E.1). Additionally, Mr. North responded in letter dated October 29, 2007, Xcel Energy will need to acquire a License to Cross a Public Water due to the Proposed Route crossing Public Water 337W. In that letter, Mr. North also noted that the wooded area adjacent to the Proposed Route along the west side of Dague Avenue SE contains a nesting area for the Red-Shouldered Hawk and he recommended that tree removal be minimized in this area.

7.1.2. Minnesota SHPO

On May 3, 2007, SHPO was asked to provide comments regarding potential effects to known or suspected archaeological sites or historic standing structures in the Project area. On June 6, 2007, Xcel Energy received comments related to the proposal (Appendix E.2). The SHPO indicated that they believed there was a good probability that unreported archaeological properties may be present in the Project area. A survey was recommended

(Appendix E.2). A follow-up letter to SHPO was sent October 9, 2007, regarding the Preliminary Route and requesting further comments. A response was received on October 26, 2007, requesting a survey be conducted for the Project.

7.1.3. Wright County, Planning and Zoning Office

Xcel Energy contacted the Wright County Planning and Zoning Office on May 3, 2007, for comments on the Project. On July 3, 2007 Xcel Energy received comments related to the proposal (Appendix E.3). The County requested consulting Section 725 Essential Services of the Wright County Zoning Ordinance. They also requested to remain informed of the route development for further permitting questions.

Mr. Tom Salkowski, Wright County, requested written confirmation from the Company that the County would be preempted from regulating construction of this Project. In a letter dated October 19, 2007, Xcel Energy stated that the Company would be seeking a route permit from the Commission and that this route permit would have preemptive effect. Minnesota Statutes Section 216E.03, subd. 2 (providing that "such permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government therefore local authorities"). See Appendix E.3 for a copy of the letter.

7.1.4. City of Buffalo

Xcel Energy contacted the City of Buffalo on May 3, 2007, for comments on the Project. On June 19, 2007, Xcel Energy received comments related to the proposal (Appendix E.5). The City provided its preferred routes and requested that Xcel Energy consider the airport clear zone easement. The City requested to be kept informed of route development.

A follow-up letter to the City of Buffalo was sent October 9, 2007 regarding the Preliminary Route and requesting further comments. Stephen Grittman serves as the consulting City Planner for the City of Buffalo and responded on October 10, 2007. Mr. Grittman was concerned with the Maple Lake Switch location and the planned commercial development in the area. Mr. Grittman's

concerns related to the structures and the compatibility with the future land use of the area. Mr. Grittman preferred the route follow 8th Street NE or underground this portion of the transmission line. In addition, Mr. Grittman mentioned Wright County Conditional Use Permit requirements for overhead transmission lines 33 kV and above. As stated in Section 7.1.3, because Xcel Energy is seeking a route permit, local approvals are not required. Minn. Stat. § 216E.10, subd. 1.

Additionally, Joe Steffel, City of Buffalo, Utilities Director, responded on October 9, 2007. Mr. Steffel was concerned with the Preliminary Route along CSAH 35 due to the planned commercial development. Mr. Steffel proposed the route follow the old CSAH 35 straight west along 8th Street NE. Xcel Energy and Mr. Steffel set up a meeting on Thursday, October 11, 2007, for a field visit to look at the options for the transmission line route. Upon further review of the Project and in light of the City of Buffalo's long range plan's, the Proposed Route was developed and is now presented in this Application.

As stated in Section 6.2.10, at the third public meeting held, Mr. Chuck Klassen, representing the Buffalo Public Schools, expressed concerns about construction near the entrance of Tatanka Elementary on the north side of 8th Street NE while school is in session. Mr. Klassen requested that construction take place during summer break from June 15 to August 15 to reduce complications.

Mr. Fred Naaktgeboren, City of Buffalo Mayor, stated in a letter dated November 9, 2007, that the Proposed Route is consistent with the City Comprehensive Plan and future infrastructure design. Mr. Naaktgeboren stated the Proposed Route along 8th Street NE fits with the City's long term plan for a second substation. Mr. Naaktgeboren also stated that the City of Buffalo will work closely with Xcel Energy on right-of-way issues along 8th Street NE and wholeheartedly supports the 8th Street NE Corridor (Appendix E.5).

7.1.5. Minnesota Department of Transportation, District 3B

Xcel Energy contacted the MnDOT on May 3, 2007, District 3B to provide the agency with an opportunity to comment on the transmission line improvements prior to filing this Application. On May 21, 2007, MnDOT provided comments on the Project (Appendix E.4). The MnDOT noted that the TH 55 corridor is a major link between Central Minnesota and the metro area, and state the highway is slated for expansion. The TH 55 expansion plans address safety needs where the Proposed Route crosses the highway. Xcel Energy also met with MnDOT TH 55 project information contact Claudia Dumont on August 21, 2007, to discuss the Project.

A follow-up letter to the MnDOT was sent October 9, 2007 regarding the Preliminary Route requesting further comments. On November 7, 2007, MnDOT advised that it had no concerns regarding the Proposed Route (Appendix E.4).

7.2 IDENTIFICATION OF LAND OWNERS

A list of all the landowners is in Appendix F. There are 38 landowners along the Proposed Route. This list does not include landowners along the rejected route segment alternatives.

7.3 PUBLIC PARTICIPATION

Xcel Energy held three public information meetings prior to developing this Application. These meetings were held to inform landowners and public officials of the Project and solicit input to be used in route selection. A discussion of these meetings follows. Comments received at the public meetings are included as Appendix F. A summary of written and verbal public comments received prior to submission of this Route Permit Application is included in Appendix F.

Xcel Energy held three public meetings to assist with development of a transmission line route. The initial meeting was held on July 31, 2007, at the Buffalo Public Library to inform landowners in the area of the Project and to gather input early in the route selection process. The maps presented at the

first public meeting showed the general project area (Appendix F.3), existing transmission line facilities and substation locations. Approximately 14 landowners and interested persons identified areas of concern in the Project Area during the public meeting. Preferences identified included minimizing impacts to homes, avoiding daycare centers located near County Road 134 (Calder Avenue), avoiding the Buffalo Municipal Airport, and using the railroad corridor.

The Company then developed the Preliminary Route. The Company also sent out follow-up letters to agencies to respond to questions received, address concerns related to the Project, and to inform the agencies of the Preliminary Route. No concerns were raised by the agencies. Section 7.1 identifies agency responses to the follow-up letters. The Company conducted a second public meeting held October 11, 2007. Prior to the meeting, Xcel Energy met with the City of Buffalo to discuss its concerns about the Project. At the public meeting, individuals provided comments on the Preliminary Route related to visual appearance, EMF, and compatibility of the line with each end of the Preliminary Route.

After the second public meeting, Xcel Energy further refined the proposal and developed the Proposed Route and Proposed Centerline. On November 14, 2007, Xcel Energy held a third public meeting to provide information to the public about the Proposed Route before filing this Application. Approximately 14 landowners and interested persons attended the meeting held at the Buffalo American Legion. The landowners who attended asked questions to clarify the Proposed Route.

7.4 REQUIRED PERMITS AND APPROVALS

The table below summarizes the potential required permits for the Project.

TABLE 11
POTENTIAL REQUIRED PERMITS

Permit	Jurisdiction
State of Minnesota Approvals	
License to Cross Public Waters	MnDNR Division of Lands and Minerals
Application for utility permit (long form)	MnDOT
Local Approvals	
Road Crossing Permits	County, Township, City
Lands Permits	County, Township, City
Over-width Loads Permits	County, Township, City
Driveway/Access Permits	County, Township, City

7.4.1. State of Minnesota Permits

In addition to the Certificate of Need and Route Permit sought by this Application, the Project will also potentially require the State permits identified above in Table 11.

License to Cross Public Waters

The MnDNR Division of Lands and Minerals regulates utility crossings on, over or under any state land or public water identified on the Public Waters and Wetlands Maps. A license to cross Public Waters is required under Minnesota Statutes Section 84.415 and Minnesota Rules, Chapter 6135. Xcel Energy works closely with the MnDNR on these permits and will file for them once the line design is complete.

Minnesota Department of Transportation

The MnDOT requires the Application For Utility Permit on County Highways Right-Of-Way form for the majority of utility placements and relocations. Utility owners use this form to request permission to place, construct, and reconstruct utilities within trunk highway right-of-way, whether longitudinal, oblique, or perpendicular to the centerline of the highway.

7.4.2. Local Permits

Once the Commission issues a route permit, zoning, building and land use regulations and rules are preempted per Minnesota Statutes Section 216E.10, subdivision 1. Therefore no local construction permits will be required. Below is a summary of other potential local permits required.

Road Crossing Permits

These permits may be required to cross or occupy county, township, and city road right-of-way.

Lands Permits

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

Over-Width Loads Permits

These permits may be required to move over-width loads on county, township, or city roads.

Driveway/Access Permits

These permits may be required to construct access roads or driveways from county, township, or city roadways.

8.0 ACRONYMS

Following are a list of acronyms used in this Application.

TABLE 12: LIST OF ACRONYMS

Acronym	Meaning
ACSS	Aluminum Core Steel Supported
APP	Avian Protection Plans
CSAH	County State Aid Highway
EQB	Environmental Quality Board
HVTL	High Voltage Transmission Line
kV/m	Kilovolts Per Meter
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MOU	Memorandum of Understanding
MPCA	Minnesota Pollution Control Agency
MPUC	Minnesota Public Utilities Commission
MVA	Megavolt-Ampere
NAC	Noise Area Classification
NEQ	Northeast Quadrant
NESC	National Electric Safety Code
NIEHS	National Institute of Environmental Health Sciences
NRHP	National Register of Historic Places
NSPM	Northern States Power Company, a Minnesota corporation
ppm	Parts Per Million
PWI	Public Waters Inventory
REAE	Regional Environmental Assessment Ecologist
ROW	Right-Of-Way
SFD	Swan Flight Diverters
SHPO	State Historic Preservation Office
TH	Trunk Highway
USFWS	U.S. Fish and Wildlife Service

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10.0 DEFINITIONS

Avian	Of or relating to birds.
Breaker	Device for opening a circuit
Conductor	A material or object that permits an electric current to flow easily.
Corona	The breakdown or ionization of air in a few centimeters or less immediately surrounding conductors.
Excavation	A cavity formed by cutting, digging, or scooping.
Fauna	The collective animals of any place or time that live in mutual association.
Flora	The collective plants of any place or time that live in mutual association.
Grading	To level off to a smooth horizontal or sloping surface.
Grounding	To connect electrically with a ground.
Habitat	The place or environment where a plant or animal naturally or normally lives and grows.
High Voltage Transmission Lines (HVTL)	Overhead and underground conducting lines of either copper or aluminum used to transmit electric power over relatively long distances, usually from a central generating station to main substations. They are also used for electric power transmission from one central station to another for load sharing. High voltage transmission lines typically have a voltage of 115 kV or more.
Hydrocarbons	Compounds that contain carbon and hydrogen, found in fossil fuels.
Ionization	Removal of an electron from an atom or molecule.
Mitigate	To lessen the severity of or alleviate the effects of.
Oxide	A compound of oxygen with one other more positive element or radical.
Ozone	A very reactive form of oxygen that combines readily with other elements and compounds in the atmosphere.

Raptor	A member of the order Falconiformes, which contains the diurnal birds of prey, such as the hawks, harriers, eagles and falcons.
Sediment	Material deposited by water, wind, or glaciers.
Stray Voltage	A condition that can occur on the electric service entrances to structures from distribution lines. Stray voltage is a voltage that exists between the neutral wire of the service entrance and grounded objects in buildings such as barns and milking parlors.
Substation	A substation is a high voltage electric system facility. It is used to switch generators, equipment, and circuits or lines in and out of a system. It also is used to change AC voltages from one level to another. Some substations are small with little more than a transformer and associated switches. Others are very large with several transformers and dozens of switches and other equipment.
Voltage	A unit of electrical pressure, electric potential or potential difference expressed in volts.
Waterfowl	A bird that frequents water; especially: a swimming game bird (as a duck or goose) as distinguished from an upland game bird or shorebird.
Wetland	Wetlands are areas that are periodically or permanently inundated by surface or ground water and support vegetation adapted for life in saturated soil. Wetlands include swamps, marshes, bogs and similar areas.