ENVIRONMENTAL ASSESSMENT

XCEL ENERGY

MARY LAKE TRANSMISSION PROJECT
PUC DOCKET E002/TL-07-1365

Prepared by the Staff of the

office of energy security
Minnesota Department of Commerce

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ABSTRACT

Pursuant to the provisions of Minnesota Statutes chapter 216E, Xcel Energy (Xcel) filed a route permit application (January 24, 2008) with the Minnesota Public Utilities Commission (PUC or the Commission) for the Mary Lake 115 kV Transmission Line Tap Project (the Project).

Xcel Energy proposes to build a 115 kV high voltage transmission line (HVTL) between the Buffalo Power – Maple Lake 69 kV transmission line and the Mary Lake – Dickinson 69 kV transmission line in Wright County. The proposed project does not include any substation modifications.

The project is being evaluated in conformance with the alternative review process (Minnesota Rules, part 7849.5500). The Office of Energy Security, Energy Facilities Permitting is the responsible government unit for preparing the environmental assessment required for a route permit under this process. An applicant is not required to propose any alternative routes or sites to the preferred, under the alternative review process. The Commission has six months to reach a final decision on the route permit starting the date the Commission determined the route permit application complete.

Persons interested in these matters can register their names on the project docket webpage at http://energyfacilities.puc.state.mn.us/Docket.html?Id=19402 or by contacting:

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Documents of interest can be found at the above website or also by going to the following: https://www.edockets.state.mn.us/EFiling/search.jsp and entering docket number "07-1365" under search criteria.

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1.0 INTRODUCTION

Xcel Energy proposes to construct approximately five miles of 115 kV high voltage transmission line (HVTL) between the Buffalo Power – Maple Lake 69 kilovolt (kV) transmission line and the Mary Lake – Dickinson 69 kV transmission line in Wright County (the "Project").

The Minnesota Department of Commerce (Department) is required to perform environmental review on applications for HVTL Route Permits to inform the Public Utilities Commission (PUC), which is the final decision-making body in these matters.

This Environmental Assessment (EA) addresses the environmental review requirements for the HVTL Route Permit. Chapter 1 provides specific information about the proposed project. Chapter 2 provides information on the regulatory procedure for the HVTL Route Permit processes. Chapter 3 describes the proposed Project, including structure types, right-of-way requirements, and construction and maintenance procedures. Chapter 4 describes the alternatives proposed in the scoping process, both those rejected from further consideration and the two alternatives considered in this document. Chapter 5 identifies the human and environmental impacts of all routes considered in this document, Xcel's proposed route as well as the two alternatives described in Chapter 4. Chapter 6 summarizes impacts by route alternative. Chapter 7 identifies other permits and approvals required for the Project. Chapter 8 lists acronyms, abbreviations and definitions of terms used in this document.

1.1 Project Purpose

Xcel Energy proposes to construct the Project to improve electric reliability to the Buffalo area. The Buffalo Power Substation is currently fed by two transmission lines: the 69 kV Lake Pulaski – Buffalo Power transmission line provides the primary source of service, while the 69 kV Buffalo Power – Maple Lake transmission line provides a secondary source of service. When the Lake – Pulaski – Buffalo Power 69 kV transmission line experiences a disruption of service, the area may experience a low voltage condition, placing customers at risk of outage.

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 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 proposed 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 to the existing Buffalo Power – Maple Lake 69 kV transmission line, thereby improving its performance. After construction of the Project, the Buffalo

Power – Mary Lake 69 kV transmission line will have adequate load serving capability to reliably serve the area's needs in the event of an interruption of service t o the Lake Pulaski – Buffalo Power 69 kV transmission line. Xcel Energy anticipates that the Project will address reliability issues related to the transmission system until approximately 2034.

1.2 Project Location

The Project will be located entirely within Wright County, in and near Buffalo, Minnesota. Table 1 provides township, range and section information for the project.

Table 1 – Project Location

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

1.3 Project Description

Xcel proposes to construct approximately five miles of overhead 115 kV transmission line to meet the growing electrical demand in the Buffalo area. .

The proposed transmission line route, shown in Figure 1, runs generally east and then south from a new tap outside the Buffalo Power Substation to a new tap outside of the Mary Lake Substation. As proposed, the transmission line will be constructed to 115 kV standards but will initially operate at 69 kV until 2014, when it will begin operating at 115 kV. The proposed Project will not require work at either substation, but will require the installation of taps outside both the Buffalo Power and Mary Lake substations. Xcel Energy proposes to use underbuild structures along some segments of the proposed route in order to consolidate existing distribution facilities with the new line.

1.4 Sources of Information

Much of the information used in this EA is derived from the *Mary Lake 115 kV Transmission Line Tap Project Route Permit Application*, dated January 24, 2008. The applications, maps, appendices, and other documents may be viewed on eDockets at: https://www.edockets.state.mn.us/EFiling/search.jsp. Route Permit documents are also available at the EFP website at: http://energyfacilities.puc.state.mn.us/Docket.html?Id=19402

First hand information was gathered by EFP staff field inspection and review of aerial photography along the proposed route. EFP staff also interviewed representatives from Wright County and Medtronic.

Other information sources include the World Health Organization, Environmental Assessments and Environmental Impact Statements prepared by Department of Commerce,

Energy Facilities Permitting staff on other transmission line projects, and certificate of need and route permit applications to the PUC for similar projects.

Additional information sources include:

- Minnesota Pollution Control Agency (http://www.pca.state.mn.us)
- Minnesota Department of Health (http://www.health.state.mn.us)
- Minnesota Department of Transportation (http://www.dot.state.mn.us)
- Minnesota Department of Natural Resources (http://www.dnr.state.mn.us)
- Public Service Commission of Wisconsin (http://www.psc.wi.gov)
- United States Census Bureau (http://www.census.gov)
- Wright County, Minnesota (http://www.co.wright.mn.us)
- City of Buffalo, Minnesota (http://www.ci.buffalo.mn.us)

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2.0 REGULATORY REQUIREMENTS

Minnesota Statute 216E.03, subp. 2, states that no person may construct a electric transmission line greater than 100 kV and more than 1,500 feet without a route permit approved by the PUC.

2.1 Need Determination

Because it is less than 10 miles in length and does not cross state borders, the proposed Project does not qualify as a "large energy facility" under Minnesota Statues 216B.2421, subd. 2(3); no Certificate of Need is required.

2.2 Route Permit

High voltage transmission lines with a voltage between 100 kV and 200 kV are eligible for the Alternative Review Process (Minnesota Rule 7849.5500) of the Power Plant Siting Act (Minnesota Statutes Chapter 216E).

Applicants are required to provide a 10 day advance notice to the Commission prior to submitting a route permit application under the Alternative Permitting Process (Minnesota Rule 7849.5500, subp. 2). Xcel Energy met this requirement by filing this notice on October 19, 2007.

On January 24, 2008, Xcel Energy filed a route permit application for the Project. The Commission accepted the application as complete in an order dated February 8, 2008.

This application is being reviewed under the Alternative Review process outlined in Minnesota Rules 7849.5500. Under this process, an applicant is not required to propose any alternative sites or routes. The Department's Energy Facility Permitting (EFP) staff conducts a public information and scoping meeting, develops a scoping decision recommendation, prepares an Environmental Assessment (EA), and a public hearing is required. The PUC has six months to reach a final decision from the time the application is accepted (Minnesota Rule 7849.5230).

2.2.1 Scoping Process

The process the Department must follow in preparing the EA is set forth in Minnesota Rules part 4400.2750. This process requires the Department to schedule at least one public meeting in the area of the proposed Project. The purpose of the meeting is to advise the public of the Project and to solicit public input into the scope of the environmental review. A "scope" is a determination of what needs to be assessed in the environmental review in order to fully inform decision-makers and the public about the possible impacts of a project or potential alternatives.

The public meeting for this project was held on March 11, 2008, in Buffalo, Minnesota. Representatives of the Department and Xcel Energy were available at the meeting to discuss the Project and the process and to answer questions. Approximately 18 people attended the public meeting. EFP staff received comments and questions regarding the Project's affect on property values; aesthetics; concern with electromagnetic fields, particularly the potential for interaction between the Project and implanted medical devices; and the timing of construction for the Project. EFP staff also received several comments expressing a desire to see additional routes evaluated. In particular, there was interest in evaluating a route alternative that followed the Canadian Pacific Railroad.

The comment period for interested parties to comment on the project was open until March 26, 2008. Six written comments were received, including three comments proposing alternatives to the route proposed by Xcel Energy.

After these processes, EFP staff reviewed the public comments on the scope of the environmental review. Based on that review, the Director of the Office of Energy Security issued a Scoping Order on April 9, 2008, as required by rule. The Scoping Decision is included in Appendix A of this EA.

In response to public comments, information on the following areas is included here: information on transmission line effects on property values is included in Section5.2; information on electromagnetic fields is included in Section 5.7; information on aesthetic impacts is included in Section 5.4; and information on the timing of construction is included in Sections 3.6, 5.9, and 5.11. A discussion of the alternatives proposed and alternatives evaluated in this EA is included in Section 4.

2.2.2 Determination of Route and Permit Conditions

Following the release of this EA, a public hearing will be held in the Project Area will be conducted in accordance with the requirements of the Power Plant Siting Act, Minnesota Statutes 216E.01 to 216E.18, and Minnesota Rules 7849.5500 to 7849.5720. The hearing will be presided over by an administrative law judge (ALJ).

The EFP staff will be present at the hearing to make a brief presentation describing the project, explain the process to be followed, and to introduce documents to be included in the record, including the application, the environmental assessment, and relevant procedural documents. Representatives from Xcel Energy will be present to introduce evidence by way of testimony or exhibits and to answer questions. Members of the public will have an opportunity to ask questions of EFP staff and Xcel Energy representatives, to make oral statements or presentations, and to offer written comments and documents into the record.

After the close of the public comment period, the ALJ will provide the Department a written summary of testimony given at the hearing. Based on information in the record, including the Route Permit Application, this EA, and public comments, EFP staff will prepare recommendations on a route and route permit with appropriate conditions. The PUC will

make a final decision on the route and route permit after receipt of the complete record. A recently issued route permit (absent the route maps) is provided in Appendix B to illustrate the types of permit conditions that may be required. Permit conditions will vary between Projects to reflect the particulars of each route.

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3.0 PROPOSED PROJECT

The Project, as proposed by Xcel, consists of four distinct segments as shown in Figure 2 and described below.

Segment 1 (1 mile): Segment 1 begins at a new tap structure located approximately 240 feet south of the Buffalo Power Substation. The segment then runs eastward along NE 8th Street/ County State Aid Highway (CSAH) 35 to Calder Avenue for approximately one mile. This segment crosses portions of the city of Buffalo and Buffalo Township that are identified as orderly annexation areas. This segment is the most densely settled portion of the proposed route. The surrounding land use is predominantly residential with two educational facilities – Tatanka Elementary School and the Phoenix Learning Center.

Segment 2 (1 mile): Segment 2 continues eastward along NE 8th Street/CSAH 35 until reaching Dague Avenue. This segment passes through portions of the City of Buffalo and Buffalo Township; the Buffalo Township land located north of CSAH is identified as orderly annexation areas by the City of Buffalo. Land use along this segment is a mixture of residential, rural residential, agricultural, and institutional uses. In general, there is more development along the northern side of CSAH 35 than along the south. Buffalo High School is located on the eastern edge of this segment.

Segment 3 (2.4 miles) : Segment 4 turns south along Dague Avenue for approximately 2.4 miles to 10th Street SE. This segment is located entirely within Buffalo Township. Land use in this area is a mixture of agricultural and rural residential.

Segment 4 (0.6 miles): Segment 4 continues south past 10th Street SE, following a property line for approximately 0.5 miles, until turning southwest for approximately 915 feet to meet the existing Wright-Hennepin Cooperative Electric Association distribution line. From this point, Xcel Energy proposes to underbuild the Wright-Hennepin distribution line with the proposed transmission line across Trunk Highway (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 addition to Xcel Energy's proposed route, two additional routes were evaluated. These routes are described in Section 4; potential impacts and mitigations are discussed in Section 5.

3.1 Route Width and Right-of-Way Requirements

Xcel Energy has requested that the PUC approve a route width of 400 feet, 200 feet each side of a centerline. Xcel Energy proposed a specific route alignment in its January 24, 2008, route permit application, but has not proposed specific route alignments for the two additional route alternatives included in this EA. In order to provide a consistent comparison between routes evaluated, this EA evaluates routes 200 feet each side of a centerline centered along the linear features (roads, railroads, field lines) that each route

alternative would follow. Within this 400-foot route width, Xcel proposes to acquire a much smaller easement for construction and maintenance of the Project.

Right-of-way (ROW) width depends on conductor blowout and the recommended clearances to obstructions along the proposed route. Xcel anticipates acquiring a ROW of 30 - 42.5 feet outside of the road ROW for segments 1 – 3 and 75 feet for segment 4. An illustration of ROW width is shown in Figure 3. Xcel Energy would seek a permanent easement from landowners, providing the right to construct, operate, and maintain the transmission line for the full width and length of the right-of-way. However, additional ROW may be needed in some select areas to accommodate longer spans or other special design requirements identified during the final survey.

3.2 Land Acquisition

Land rights acquisition would begin once approvals are received from the various state, federal and local agencies and governmental units. As a general practice, landowners will be contacted to review project details and to discuss the initial phase of the transmission Project including survey and soil investigation. Upon completion of the survey and preliminary design, landowners will be contacted again and easement acquisition negotiations will commence.

During the acquisitions phase of the Project, landowners are given a copy of the conveyance documents generally including easements, deeds, structure design or photos, offer sheets, and a plan showing the proposed transmission line or facility relative to the landowner's property. Additional information may also be given to each landowner explaining power line safety, easement acquisition procedures, and damage settlement. In addition to permanent easements necessary for the construction and operation of the transmission line, temporary easements may be obtained from certain landowners for temporary construction, access, or staging areas for temporary storage of poles, vehicles, or other related items. Xcel anticipates that a staging area will be required for the Project, but has not yet determined the location of size of the staging area. Landowners will be notified in the event site access for soil boring is required to determine soil suitability in areas where certain soil characteristics may require special transmission structure design.

3.3 Transmission Structures

Xcel Energy anticipates using four types of structures for the Project. Structure characteristics are described below and summarized in Table 2. Photographs of structure types similar to those proposed are shown in Figure 4.

- *Tangent Structures*: Tangent structures are those structures that are used when there is no change in the direction of the line and make up the majority of structures used in transmission projects, including this one. The majority of the route will be constructed using direct-embedded wood or steel single circuit poles with a horizontal line post configuration. In certain areas special structures or concrete

foundations may be used to avoid sensitive areas or to accommodate special engineering circumstances, such as poor soil conditions.

- *Underbuild Structures*: Portions of the route would use taller structures to allow the existing distribution lines to be placed on the same structures ("underbuilt") with the new transmission lines. These structures would be wood or steel and be directly embedded in the ground, unless special engineering circumstances indicate the need for a concrete foundation.

- *Angle Structures*: In situations where the line changes direction, more substantial angle structures are used to provide the necessary support. Xcel anticipates using self-supporting wood or steel angle structures. Locations requiring special structures would be determined once design is complete.

- *Transmission Switch Structures (Tap)*: The proposed transmission line will not connect into either substation, but will instead tap existing transmission lines directly. These tap structures would be steel structures on concrete foundations.

Table 2 – Structure Design Summary

Structure Function	Tangent Structure	Angle Structure	Underbuild Structure			Switch Structure
Structure Type						
	Horizontal Line Post	Horizontal Post or Suspension	Single-circuit 115 kV structure with two single-circuit 3-phrase distribution lines	Single circuit 115 kV structure with a single-circuit, 3-phase distribution line	Single circuit 115 kV structure with a single-circuit, single-phase distribution line	Switch
Structure Material						
	Wood or Steel	Wood or Steel	Wood or Steel			Steel
Estimated Maximum ROW Acquired						
Cross-Country	75	75	75			75
Parallel to Non-Urban Roadway	42.5	42.5	42.5			42.5
Urban	50	50	50			50
Parallel to Urban Roadway or Railway	30	30	30			30
Foundation						
	Direct Embed	Direct Embed or Concrete	Direct Embed or Concrete			Concrete Foundation
Pole diameter (inches at ground)						
	14-24	16 - 30	16 - 30			24 - 40
Average Span (feet)						
	275-400	275-400	200-325			250 - 400
Average Structure Height (feet)						
	70 - 95	70 - 95	80 - 95			70 - 95

3.4 Transmission Conductors and Capacity

High voltage transmission line circuits generally consist of three phases, each at the end of a separate insulator string, and physically supported by structures. A phase consists of one or more conductors.

A conductor is a cable typically less than one inch in diameter consisting of multiple strands of steel and aluminum wire wound together. There are also two shield wires strung above the phases to prevent damage from potential lightning strikes. The shield wire may also include a fiber optic cable that allows for substation protection equipment to communicate with other terminals on the line.

Xcel Energy proposes to use 795 Aluminum Core Steel Supported (ACSS) conductors on the single circuit line. The ampacity for this conductor is 1,811 amps at 200 degrees C. This limits maximum continuous electric power capacity of the line to 361 megavolt amperes (MVA), provided there is not a more restrictive limit associated with the line's termination facilities. There would be three single conductors for the 115 kV circuit. Portions of the line that would have underbuilding of distribution lines would use 336 Aluminium Core Steel Reinforced (ACSR) conductors; the power capacity and ampacity of distribution lines would vary by line.

3.5 Construction Procedures

After land rights have been secured, landowners would be contacted to discuss the initial construction phase of the project, including schedules, ingress and egress to and from the planned facility, tree and vegetation removal, damage mitigation, landowner concerns, and other related construction activities.

Construction crews are provided with information delineating easements, explaining easement limits, restrictions and permit conditions.

The first phase of construction activities would involve surveying and staking the centerline and ROW limits of the new transmission line, followed by removal of trees and other vegetation from the ROW. As a general practice, brush or low-growing tree species are allowable at the outer limits of the easement area. Taller tree species that endanger the safe and reliable operation of the transmission facility are removed. In developed areas, and to the extent practical, existing low-growing vegetation that will not pose a threat to the transmission facility or impede construction will remain in the easement area.

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 would 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, trackmounted 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 trackdriven vehicles. Poles are transported on tractor-trailers.

Staging areas are usually established for transmission projects. 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 site. Framing involves attaching insulators, brackets, and other hardware to the transmission line pole.

Typical tangent (in-line) structures would be solid wood or steel. Except for special situations, all structures would be directly embedded in the ground. The process of direct-embedding would require a hole of approximately 11 feet deep and 30 inches in diameter at each structure location. Temporary casing may be required if the hole does not stay open during the excavation process. The pole would be set and backfilled with crushed rock. The spoils would either be spread on site or removed based on the easement agreement. Structures requiring concrete foundations would require a hole of approximately 11 –13 feet deep and 3 – 4 feet in diameter to be dug at each structure location. A temporary steel casing would be inserted into the hole 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. Once the concrete is cured, a steel pole would be anchor bolded to the foundation.

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.

Xcel Energy anticipates that the Project will require a construction crew of 10 to13 people and that the construction process will take 10 to 14 weeks.

3.6 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 would negotiate with the landowner to determine appropriate reimbursement for the damages sustained under terms outlined in the easement agreement. In some cases, Xcel Energy may engage an outside contractor to restore the damaged property to as near as possible to its original condition.

3.7 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, for transmission lines with voltages 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.

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4.0 ALTERNATIVES TO PROPOSED PROJECT

During the scoping process, EFP staff received several comments requesting that routes in addition to the route proposed by Xcel Energy in their application be evaluated. At both the scoping meeting held in Buffalo on March 11, 2008, and in three of the six written comments received by the close of the comment period on March 26, 2008, members of the public expressed interest in a route that followed the Canadian Pacific Railroad tracks generally northwest from the Mary Lake tap to the Maple Lake Tap outside the Buffalo Power Substation.

In addition to the route proposed by Xcel Energy in their application two alternative routes were included for review in this Environmental Assessment.

4.1 Alternatives rejected from further consideration

Two written comments, as well as oral comments received at the public information meeting held on March 11, 2008, proposed following the Canadian Pacific railroad tracks between the Mary Lake Substation and the city of Buffalo. Xcel Energy responded to the comments received at the public information meeting in their comment letter dated March 26, 2008.

This alternative route would require burying of the line for approximately 1500 feet in the area of the airport in order to comply with Federal Aviation Administration (FAA) height restrictions. Xcel Energy estimated the cost of burying this portion of the Project, approximately 6 percent of the total Project length, would be approximately $1.7 million, approximately 52 percent of the estimated cost of the Project. Based on this information, this alternative was rejected from further consideration.

4.2 Additional Alternatives Included in Environmental Assessment

Two additional route alternatives are included in this EA. The Modified Railroad Alternative and the Calder Avenue Alternative are shown in Figure 2 and described below.

4.2.1 Modified Railroad Alternative

The "Modified Railroad Alternative," consists of the following segments:

Segment 5 (0.33 miles): Segment 5 begins at a new tap structure located approximately 240 feet south of the Buffalo Power Substation. The segment would continue south along 6th Street NE, crossing Highway 55, and terminating at the Canadian Pacific railroad tracks. This segment is located entirely within the city of Buffalo; land use along this segment is a mixture of residential and commercial.

Segment 6 (1.8 miles): Segment 6 follows the Canadian Pacific Railroad tracks southeast between 6th Ave. NE and Calder Avenue SE. Land use along this segment is a mixture of residential, commercial and agricultural.

Segment 7 (1.9 miles): Segment 7 continues south for approximately one mile along Calder Avenue SE from the Canadian Pacific railroad tracks and 10th St. SE. The segment then turns east and continues along 10th St. SE for approximately 0.9 miles until reaching the Mary Lake switch, just southeast of the Mary Lake Substation, where the Project will tap the Mary Lake – Dickinson 115 kV Transmission. This segment is located entirely within Buffalo Township. The land along this segment is zoned agricultural, and land use is a mixture of rural residential and agricultural.

4.2.2 Calder Avenue Alternative

The "Calder Avenue Alternative" consists of the following segments:

Segment 1 (1 mile): Segment 1 begins at a new tap structure located approximately 240 feet south of the Buffalo Power Substation. The segment then runs eastward along NE 8th/ Street/ County State Aid Highway (CSAH) 35 to Calder Avenue for approximately one mile. This segment crosses portions of city of Buffalo and Buffalo Township that are identified as orderly annexation areas. This segment is the most densely settled portion of the proposed route. The surrounding land use is predominantly residential with two educational facilities – Tatanka Elementary School and the Phoenix Learning Center.

Segment: 8 (1.8 miles): Segment 8 turns south along Calder Avenue NE for approximately 1.8 miles. The segment crosses Highway 55 and terminates at the intersection of Calder Avenue SE and the Canadian Pacific railroad tracks. This segment crosses portions of the City of Buffalo and Buffalo Township. The Buffalo Municipal Airport is located immediately east of Calder Avenue in this segment. Land use in this area is a mixture of residential, commercial, airport, and agricultural.

Segment 7 (1.9 miles): Segment 7 continues south for approximately one mile along Calder Avenue SE from the Canadian Pacific railroad tracks and 10th St. SE. The segment then turns east and continues along 10th St. SE for approximately 0.9 miles until reaching the Mary Lake switch, just southeast of the Mary Lake Substation, where the Project will tap the Mary Lake – Dickinson 115 kV Transmission. This segment is located entirely within Buffalo Township. The land along this segment is zoned Agricultural, and land use is a mixture of rural residential and agricultural.

5.0 ASSESSMENT OF POTENTIAL IMPACTS AND MITIGATION MEASURES

The construction of a transmission line involves both short and long-term impacts. An impact is a change in the status of the existing environment as a direct or indirect result of the proposed action. Direct impacts are caused by the action and occur at the same time and place. Indirect impacts are caused by the action and occur later or are further removed in distance, but are still reasonably foreseeable. Impacts may be negative or positive and temporary or permanent or long-lasting. Short-term impacts are generally associated with the construction phase of the Project and can include crop damage, soil compaction, and noise. Long-term impacts can exist for the life of the Project and may include land use restrictions or modifications.

There are a number of potential impacts associate with HVTLs that must be taken into account on any transmission line project. Minnesota Rule 4400.3150 A through N, identifies 14 factors that the PUC must consider when designating a route for a HVTL.

This section describes the potential impacts on resources and mitigation measures to minimize impacts from construction, operation and maintenance of the Project.

It may be possible to mitigate potential impacts by adjusting the proposed route, selecting a different type of structure or pole, using different construction methods, or implementing any number of post-construction practices. The PUC can require route permit applicants to use specific techniques to mitigate impacts or require certain mitigation thresholds or standards to be met through permit conditions.

5.1 Description of Environmental Setting

The ecological land classification system (ECS) is used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. The proposed transmission route is located in the Big Woods subsection of the Minnesota and Northeast Morainal Section of the ECS. Topography in this subsection is characterised by gently to moderately rolling hills. Loamy soils, varying between 100 to 400 feet in depth, overlay bedrock.

The primary landform in this subsection is a loamy mantled end moraine associated with the Des Moines lobe of the Late Wisconsin glaciation. Parts of the moraine have ice disintegration features. The dominant landscape feature is circular, level topped hills bounded by smooth side slopes. Broad level areas between the hills are interspersed with closed depressions containing lakes and peat bogs. Drainage is often controlled by the lake levels.

This subsection was predominantly forested prior to European settlement; vegetation was comprised most commonly of northern red oak, sugar maple, basswood, and American elm. Presently, most of the region is farmed.

5.2 Human Settlement

The proposed project is located in and near the city of Buffalo in Wright County, Minnesota. The city of Buffalo and nearby areas are undergoing rapid development, as shown in Table 3.

Table 3 –Project Area Population 1990 – 2006

Location	1990 Census	2000 Census	2006 Estimate	% Change 1990 - 2006
City of Buffalo	6,856	10,097	13,776	100.1
Buffalo Township	2,086	1,938	1,906	(8.6)
Rockford Township	3,380	3,444	3,347	(1.0)
Project Area	12,322	15,479	19,029	54.4

Census data indicate that minorities make up a very small percentage of the population in the Project area. The city of Buffalo and Buffalo and Rockford Townships are all in excess of 97 percent Caucasian.

Per capita income in Wright County, $21,844, is slightly less than in the State of Minnesota as a whole. Per capita income in the City of Buffalo and in Buffalo Township is similar to that of Wright County, while it is considerably higher, $30,536, in Rockford Township. The percentage of population below the poverty level is between 1.9 and 5.0 percent, similar to that of Wright County, 5.0 percent, and less than the State of Minnesota as a whole, 7.9 percent.

Potential Impacts

The direct socioeconomic impacts of transmission lines generally fall into construction phase and long term operational impacts.

Construction

During the construction phase, impacts to social and economic resources are expected to be short-term in nature. Construction phase spending in the host communities may increase revenue for some local businesses. Hotels, restaurants, gas stations and grocery stores will likely cater to crews working on the transmission lines. Other local businesses, such as excavation contractors, ready-mix concrete and gravel suppliers, hardware stores, welding and machine shops, packaging and postal services and heavy equipment repair and maintenance service providers may benefit by supplying materials and services during the construction phase. Impacts to social services would likely be minimal due to the short-term

nature of construction activities. Construction crews are estimated to consist of approximately 10 to 13 personnel for the proposed Project over a course of 10 to 14 weeks.

Distance to Homes

The number of homes directly affected by the Project would vary depending upon the route selected, as shown in Table 4. Routes under consideration would be within 300 feet of between 63 and 85 homes. Both the Xcel Energy proposed route and the Calder Avenue Alternative are within 50 feet of 1 home. None of the routes under consideration would require displacement of any homes.

Table 4 – Route Comparison – Distance to Homes

Segment	Houses w/in 50'	Houses 50 – 100'	Houses 100 – 200'	Houses 200 – 300'
Xcel Proposed Route – from road centerline				
1	1	10	17	8
2	0	0	9	5
3	0	4	6	3
4	0	0	0	0
Total	*1*	*14*	*32*	*16*
Modified RR Alternative – from railroad centerline				
5	0	1	2	1
6	0	0	56	10
7	0	0	10	5
Total	*0*	*1*	*68*	*16*
Calder Avenue Alternative – from road centerline				
1	1	10	17	8
8	0	2	13	8
7	0	0	10	5
Total	*1*	*12*	*40*	*21*

Property Values

One of the first concerns of many residents near existing or proposed transmission lines is how that proximity to the line could affect the value of their property. Research on this issue does not identify a clear cause and effect relationship between the two. Instead, the presence of a transmission line becomes one of several factors that interact to affect the value of a particular property.

The Shenehon Company of Minneapolis, a business and real estate valuation company, performed a study on property values in the Maple Grove area relative to proximity to transmission lines. Their conclusions were included in Great River Energy's application for a permit for a 115 kV line in Plymouth and Maple Grove in Hennepin County, EQB Docket No. 03-65-TRGRE PMG. According to the report, "it is our opinion that single source power lines do not cause a measurable and significant diminution in value to typical single-family homes in Maple Grove … homes defined as larger "family" homes exhibit a slightly larger incremental decrease in selling price. However, given the inexact nature of real estate

markets in general, we cannot conclude that the entire difference is attributed to proximity to the power line, or that the difference is considered significant."

The Wisconsin Public Service Commission (WPSC) also addressed the issue of changes in property value associated with high voltage transmission lines in their Final Environmental Impact Statement on the Arrowhead – Weston Electric Transmission Line Project. Their analysis of the relationship between property values and transmission lines looked at approximately 30 papers, articles and court cases covering the period from 1987 through 1999.

The WPSC analysis identified two types of property value impacts that property owners may experience: potential economic impact associated with the amount paid by a utility for a ROW easement, and potential economic impact regarding the future marketability of the property.

The Final EIS provides six general observations from the studies it evaluated. These are:

- The potential reduction in sale price for single family homes may range from 0 to 14 percent.
- Adverse effects on the sale price of smaller properties could be greater than effects on the sale price of larger properties.
- Other amenities, such as proximity to schools or jobs, lot size, square footage of a house and neighborhood characteristics, tend to have a much greater effect on sale price than the presence of a power line.
- The adverse effects appear to diminish over time.
- Effects on sale price are most often observed for property crossed by or immediately adjacent to a power line, but effects have also been observed for properties farther away from the line.
- The value of agricultural property is likely to decrease if the power line poles are placed in an area that inhibits farm operations.

Tax Base
Long-term beneficial impacts to from the Project would include increased local tax base resulting from the incremental increase in revenues from utility property taxes.

Employment
The Applicant does not anticipate that any new permanent jobs will be created as a result of the proposed Project.

Electric Reliability
The proposed Project is intended to improve electric reliability in the city of Buffalo and surrounding area.

Mitigations

Socioeconomic impacts resulting from the Project would be primarily positive with an influx of wages and expenditures made at local businesses during the Project construction, an increase in the local tax base, and improvement of the electric reliability in the Buffalo area.

Impacts on individual homeowners can be mitigated through the alignment of the route. Xcel has requested a route width of 400 feet. Xcel has the flexibility to align the Project within the requested 400-foot route to minimize impacts to homes. In their application, Xcel has proposed an alignment that it believes will minimize impacts to homes.

Project impacts to property values would be addressed in an easement agreement between the Applicant and the landowner.

5.3 Noise

Noise comprises a variety of sounds, of different intensities, across the entire frequency spectrum. Humans perceive sound when sound pressure waves encounter the auditory components in the ear. These components convert the pressure waves into perceivable sound. Noise is measured in decibels (dB) on a logarithmic scale. The A- weighted decibel (dBA) scale corresponds to the sensitivity range for human hearing. For example, a noise level change of 3 dBA is barely perceptible to average human hearing, while a 5 dBA change in noise level is noticeable.

Noise standards have been established by the Minnesota Pollution Control Agency (MPCA), Minnesota Rules Chapter 7030. The MPCA is the regulatory agency responsible for the enforcement of these standards. The standards are consistent with speech (hearing and conversation), annoyance, and sleep requirements for receivers within areas classified according to land use activities.

The MPCA has established various noise area classifications (NAC) and has established noise standards for each classification. The NAC area classification is based on the land use activity at the location of the receiver, and the NAC determines the applicable noise standard. Lower noise levels are required in residential areas, for example, than in industrial zones.

The four noise area classifications are: NAC-1, NAC-2, NAC-3, and NAC-4. Some of the land use activities under NAC-1 include household units, hospitals, religious services, correctional institutions, and entertainment assemblies. NAC-2 land use activities include mass transit terminals, retail trade, and automobile parking. Some NAC-3 land uses include manufacturing facilities, utilities, and highway and street ROW. NAC-4, which has no noise limits, consists of undeveloped and under construction land use areas. Table 5 identifies Minnesota Noise Standards for these noise area classifications.

Table 5 – MPCA Daytime and Nighttime Noise Limits (dBA)

Noise Area Classification	Daytime		Nighttime	
	L50	L10	L50	L10
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

Typical noise sensitive receptors along the routes under consideration would include residences, schools, businesses, the airport, agricultural land, and schools. Current average noise levels are assumed to be in the 30 to 60 dBA range, which is typical for the residential and rural land uses along the Project.

Potential Impacts

The direct impacts of noise associated with transmission lines are associated with initial construction and long term operation of the facility.

Noise will be generated by the construction of the HVTL; the construction noise will be predominantly intermittent sources originating from diesel engine driven construction equipment. Once the Project is in operation the conductors may produce noise under certain circumstances. 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 conductors. The level of noise depends upon conductor conditions, voltage level, and weather conditions.

An estimate of expected noise measurement at the edge of ROW for different structure types provided by the Applicants is shown in Table 6.

Table 6 – Calculated Audible Noise – L50 (DBA)

Structure Type	Voltage	Distance to Proposed Center Line								
		-300	-200	-100	-50	0	50	100	200	300
Single Circuit Horizontal Line Post 115 kV Transmission Line with 12. 5 kV Distribution Underbuild	121 kV	0.0	2.1	5.3	7.6	9.5	8.0	5.6	2.3	0
Single Circuit Horizontal Line Post 115 kV Transmission Line	121 kV	0.0	2.0	5.2	7.4	9.3	7.8	5.5	2.2	0

The maximum level of predicted noise from the Project would be 9.5 dBA directly under the center line. Cumulative noise increases occur on a logarithmic scale. If a noise source is doubled, there is a 3 dBA increase in noise, which is barely discernible to the human ear. For cumulative increases resulting from sources of different magnitudes, the rule of thumb is that if there is a difference of greater than 10 dBA between noise sources, there will be no

additive effect (only the louder source will be heard and the quieter source will not contribute to noise levels). Based on these assumptions, the Project is not predicted to increase the noise levels already experienced in the Project area.

The noise associated with the electrical components at the tap structures is expected to be similar to that expected with the rest of the Project during normal system conditions. On rare occasions, once a year or less, these switches may need to be opened for maintenance or to shift load on the system. When the switch is in the process of being opened from the closed position, an electrical arc may be produced. This action may produce a short (one second or less) impulse noise; if produced the noise would be expected to be in the range of conversational speech.

The primary noise sources from transmission projects are typically from transformers located at substations. Because the Project will not create any changes to either the Mary Lake or the Buffalo Power substation, the Project will not result in any noise from the substations.

Mitigations

Noise impacts associated with construction can be mitigated by limiting the hours of work to daytime hours. Heavy equipment used in construction can be equipped with sound attenuation devices such as mufflers to minimize the daytime noise levels.

Because the noise generated once the Project is operating is not expected to add to the noise levels currently existing in the project area, no additional mitigation measures are proposed.

5.4 Aesthetics

The Project passes through a landscape that contains a mixture of residential, rural residential, agricultural, woodland, commercial and institutional uses. For the most part, the Project would parallel existing roadways or, in the case of the Modified Railroad Alternative, an existing railway. There are several existing distribution and transmission lines throughout the project area; the Project would intersect or parallel some of these existing lines.

Potential Impacts

The Project would introduce a new visual element, wood or steel transmission poles between 70 – 95 feet in height, to existing landscape. Existing distribution poles in the area are wooden poles of 30 – 40 feet in height. In some instances the Project may double circuit with existing distribution lines, replacing the shorter distribution poles with taller transmission poles. Because of the existence of distribution and transmission lines, as well as the roadways and railroad, the change would be incremental.

The Project would also require some tree clearing. The extent of tree clearing would be limited to that required for safe construction and operation of the Project.

Mitigations

In general, mitigation includes enhancing positive effects as well as minimizing or eliminating negative effects. Potential mitigation measures include:

- Consultation with landowners or land management agencies when determining the final location of structures, right-of-way and other disturbed areas in order to minimize visual impacts;
- Minimizing tree clearing to the extent practicable;
- Paralleling existing transmission lines and other rights-of-way to the extent practicable, to minimize visual impacts;
- Underbuilding of existing distribution lines to minimize the number of electrical infrastructure features.

5.5 Recreation

There are a variety of recreational resources within Wright County. Identified recreational resources in the project area include Dague Avenue, which is listed as a trail on the Wright County Recreation map. Additionally the city of Buffalo maintains a recreational complex located at the southwest corner of Calder Avenue and 10th Street NE. The "H" Eagle Roost Park Preserve is maintained by the Wright County Park department as a resource area. There are no recreational facilities in the park and no plans for any at this time.

The city has identified two parks planned along 8th Street NE; one at the northeast corner of the junction of CSAH 35 and 8th Street NE and a second located just east of Tatanka Elementary School. The city also plans to construct a trail along the north side of 8th Street NE and CSAH 35.

Potential Impacts

Depending upon the route selected, the Project may result in tree removal of the "H" Eagle Roost Park Preserve; these impacts are discussed in Section 5.15, Flora.

Mitigations

Mitigation strategies to minimize impacts to recreation facilities include minimizing tree clearing to only that required for safe construction and operation of the Project and coordination with the city and county on final route alignment and construction timing.

5.6 Archaeological and Historic Features

During the Project's planning phase, the Minnesota State Historic Preservation Office (SHPO) was contacted to identify known archaeological and historic sites in the Project area and to solicit comments regarding the potential need for cultural resource surveys.

A review of records identified three archaeological sites within one mile of the Proposed Route. All three of these sites are defined by a single pre-contact artifact. The review also

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), and none of the structures are located along any of the routes evaluated in this EA.

The SHPO has recommended that a survey be completed prior to construction of the Project

Potential Impacts

Possible impacts to archaeological resources in the Project area include:

- Damage to surface soils throughout the Project area from heavy rubber-tread or metal-tracked vehicle operation.
- Subsurface excavations necessary to remove old wood power poles or install new poles.
- Damage to surface soils from dragging heavy objects (e.g., power poles).
- Damage to surface soils through grubbing, stump removal and grading.

No physical impacts to identified historic standing structures in the Project area are anticipated.

Mitigations

Avoidance of archaeological and historic architectural properties is the preferred mitigative measure.

SHPO has recommended that an archaeological survey be performed prior to construction of the Project. Results from that survey can be used to identify and avoid archaeological resources along the Project route.

5.7 Human Health and Safety

Generally human health and safety issues related to transmission projects can be grouped into issues associated with construction and those associated with the operation and maintenance of the Project.

Potential Impacts

As with any construction project involving heavy equipment and high-voltage electrical facilities, there are safety issues during construction. Potential health and safety impacts would be injuries related to worker falls, falling equipment and electrocution.

Potential health and safety impacts associated with the operation phase of the proposed Projects include: electrocution or injury from equipment failure, injuries associated with

unauthorized access to energized transmission equipment, health impacts from electric or magnetic fields associated with operation of the Projects, and stray voltage.

Equipment failure and unauthorized access to transmission equipment
Electric transmission lines, and their associated facilities, carry electricity at a very high voltage. This high voltage is transformed at distribution substations down to the voltage that is used by most customers at their homes.

Under certain conditions, high voltage transmission lines or high voltage substation equipment may fail. These failures are most commonly a result of extreme weather or electric circuit overloading. If equipment fails, injury or death may occur as a result.

Unauthorized access to transmission equipment by persons who are not trained to work with high voltage equipment can result in serious injury or death.

Electric and magnetic Fields (EMF)
Electric and magnetic fields are created when electricity flows through any conductor. Although they are calculated and measured differently, the two are often collectively referred to as EMF.

Many years of research on the biological effects of electromagnetic fields have been conducted on animals and humans. No association has been found between exposure to EMF and human disease. While the consensus is that EMF poses no risk to humans, the question of whether exposure to EMF can cause biological responses or even health effects continues to be the subject of medical research and public debate.

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 HVTL EMF effects. The Working Group consisted of staff from the Department of Health, the Department of Commerce, the Public Utilities Commission, the Pollution Control Agency, and the Environmental Quality Board (EQB). The Department of Health coordinated the activities of the Working Group.

In September 2002, the Working Group published its findings in a *White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*. The Minnesota Department of Health made the following statement on EMF exposure in the White Paper:

> "The Minnesota Department of Health concludes that the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects. However, as with many other environmental health issues, the possibility of a health risk from EMF cannot be completely dismissed. The uncertainty surrounding EMF health effects presents a difficult context in which to make regulatory decisions. This approach suggests that one should avoid any activity or exposure about which there are questions of safety or health, at least to the extent that an activity can be avoided easily or cheaply."

Electric Fields

The intensity of the electric field is related to the voltage of the line. Estimates of the anticipated electric fields by structure type are shown in Table 7:

Table 7 – Estimated Electric Fields (kV/meter)

Structure Type	Voltage	Distance to Proposed Center Line								
		-300	-200	-100	-50	0	50	100	200	300
Single Circuit Horizontal Line Post 115 kV Transmission Line with 12. 5 kV Distribution Underbuild	121 kV	0.01	0.02	0.04	0.05	0.08	0.03	0.04	0.02	0.01
Single Circuit Horizontal Line Post 115 kV Transmission Line	121 kV	0.01	0.01	0.02	0.06	0.39	0.08	0.02	0.01	0.01

If the electric field from a transmission line couples with a conductive object, such as a vehicle or metal fence located in close proximity to the line, a voltage will be induced on the conductive object. The magnitude of the induced voltage is dependent upon a variety of factors including the shape, size and orientation of the object, as well as weather conditions. If a person touches an object carrying the induced voltage, and that object is insulated or semi-insulated from the ground, then a small current would pass through the person's body to the ground. This might be accompanied by a spark discharge and mild shock – similar to what can occur when a person walks across a carpet and touches another grounded person or object.

High intensity electric fields also have the potential to interfere with the operation of pacemakers and implantable cardioverter/defibrillators (ICD). Interference with implanted cardiac devices can occur if the electric field intensity is high enough to induce sufficient body currents to cause interaction. Modern bipolar devices are much less susceptible to interactions with electric fields.

Older unipolar designs are more susceptible to interference from electric fields. Research has indicated that the earliest evidence of interference was in electric fields ranging from 1.2 to 1.7 kV/meter, well above the estimate for this project. For older style unipolar designs, the electric field for some proposed structure types do exceed levels that may produce interference. In the unlikely event a pacemaker is impacted, the effect is typically a temporary asynchronous pacing (commonly referred to as reversion mode or fixed rate pacing). The pacemaker would return to its normal operation when the person moves away from the source of the interference.

Magnetic Fields

The intensity of a magnetic field is related to the current flow through the wires and is measured in either Gauss or Teslas. For the purpose of measuring magnetic fields commonly found in the environment, milliGauss (mG) or micro Teslas (μT) are commonly used (one milliGauss = 10 micro Teslas). Project proposers estimated the anticipated magnetic fields for the structures being considered for the proposed Projects, as shown in Table 8:

Table 8 – Estimated Magnetic Fields (milliGauss)

Structure Type	System Condition	Current (Amps)	Distance to Proposed Center Line								
			-300	-200	-100	-50	0	50	100	200	300
Single Circuit Horizontal Line Post 115 kV Transmission Line with 12.5 kV Distribution Underbuild	Peak	209	0.27	0.56	1.86	5.20	16.69	5.99	1.98	0.51	0.22
	Average	125	0.16	0.34	1.13	3.15	10.12	3.63	1.20	0.31	0.13
Single Circuit Horizontal Line Post 115 kV Transmission Line	Peak	209	0.17	0.36	1.17	2.84	6.07	3.32	1.33	0.39	0.18
	Average	125	0.10	0.21	0.70	1.70	3.63	1.99	0.79	0.23	0.11

It should be noted that magnetic fields are not singularly associated with power lines. Every person has exposure to these fields to a greater or lesser extent throughout each day, whether at home or in schools and offices. The following table (2-6) contains field readings for a number of selected, commonly encountered items. These reading represent median readings, meaning one might expect to find an equal number of readings above and below these levels.

Table 9 – Magnetic Fields from Common Home and Business Appliances (millilgauss)

Type	Distance From Source in Feet			
	0.5	1	2	4
Computer Display	14	5	2	-
Fluorescent Lights	40	6	2	-
Hairdryer	300	1	-	-
Vacuum Cleaners	300	60	10	1
Microwave Oven	200	40	10	2
Conventional Electric Blanket	39.4 peak 21.8 average			
Low EMF Electric Blanket	2.7 peak .09 average			

Source: EMF In Your Environment, EPA 1992

Past decisions have reflected that the scientific data does not show any significant risk of health effects due to exposure to magnetic fields. Policy decisions have continued to support the construction of electric infrastructure, taking into consideration the most recent information available on the issue.

The World Health Organization (WHO) recently concluded a review of the health implications of electromagnetic fields. WHO's conclusions and recommendations are summarized in WHO Fact Sheet N°322, *Electromagnetic fields and public health: Exposure to extremely low frequency fields (June, 2007)*. The fact sheet noted that much of the scientific research on long-term health effects of electromagnetic fields focused on magnetic fields and childhood leukemia. This focus is the result of many previous studies on potential health effects of electromagnetic fields that noted a weak, statistical link between exposure to EMF and incidence of childhood leukemia. Additionally, some epidemiologic studies making a regression analysis of leukemia cases have found a statistical association. A similar link has not been noted with other types of cancer. In its report, after reviewing recent studies, WHO concludes that laboratory evidence does not support these findings:

> "In 2002, IARC published a monograph classifying ELF magnetic fields as "possibly carcinogenic to humans". This classification is used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence for carcinogenicity in experimental animals (other examples include coffee and welding fumes). This classification was based on pooled analyses of epidemiological studies demonstrating a consistent pattern of a two-fold increase in childhood leukaemia associated with average exposure to residential power-frequency magnetic field above 0.3 to 0.4 μT. The Task Group concluded that additional studies since then do not alter the status of this classification.

> "However, the epidemiological evidence is weakened by methodological problems, such as potential selection bias. In addition, there are no accepted biophysical mechanisms that would suggest that low-level exposures are involved in cancer development. Thus, if there were any effects from exposures to these low-level fields, it would have to be through a biological mechanism that is as yet unknown. Additionally, animal studies have been largely negative. Thus, on balance, the evidence related to childhood leukaemia is not strong enough to be considered causal."

WHO's guidance regarding long-term exposure to magnetic fields concludes that:

> "Regarding long-term effects, given the weakness of the evidence for a link between exposure to ELF magnetic fields and childhood leukaemia, the benefits of exposure reduction on health are unclear."

Stray Voltage

Stray voltage is defined as a natural phenomenon that can be found at low levels between two contact points in any animal confinement area where electricity is grounded. As required by code, electrical systems, including farm systems and utility distribution systems, must be grounded to earth to ensure continuous safety and reliability. Inevitably, some current flows through the earth at each point where the electrical system is grounded and a small voltage develops. This voltage is called neutral-to-earth voltage. When a portion of this neutral-to-earth voltage is measured between two objects that may be simultaneously contacted by an animal, it is frequently called stray voltage. Stray voltage is not electrocution, ground currents, EMF or earth currents.

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 and immediately under the transmission line. Stray voltage has been raised as a concern on some dairy farms because it may impact operations and milk production. Problems are usually related to the distribution and service lines directly serving the farm or the wiring on a farm. In those instances when transmission lines have been shown to contribute to stray voltage, the electric distribution system directly serving the farm or the wiring on a farm was directly under and parallel to the transmission line.

Mitigations

The National Electric Safety Code (NESC) provides standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths.

The United States Occupational Safety and Health Administration (OSHA) regulates worker safety in both construction and industrial settings. OSHA has developed and enforces regulations that are designed to protect workers from potential accidents.

Industry design standards minimize potential impacts that may occur if accidents, such as structure failure or the disconnection of a conductor, occur. Breakers and relays located at substations will de-energize a transmission line if an accident occurs. Substations are typically fenced and access is limited to authorized personnel. Proper signage warning the public of the risk of coming into contact with the energized equipment also help to avoid contact with energized electric equipment.

To ensure that any electric discharge does not reach unsafe levels, the NESC requires that any discharge be less than 5 milliamperes ("ma"). There are currently no state or federal standards for transmission line electric fields. However, in previous transmission line permits, the EQB and PUC have imposed a maximum electric field limit of eight (8) kV/meter measured one meter above the ground. The restriction was designed to prevent serious hazard from shocks when touching large objects like a bus or combine parked under high voltage transmission lines.

Minnesota does not have an exposure standard for magnetic fields. At least two other states have established standards for magnetic fields: Florida (150 milligauss limit) and New York (200 milligauss limit).

Minimizing the length of transmission line parallel to or co-located (through the use of structures that allow underbuilding of distribution lines) with distribution or local service conductors would minimize the potential for a transmission line to contribute to stray voltage. However, co-locating or paralleling existing distribution or local serving electric lines may be advantageous for minimizing other potential effects from the proposed transmission project

The primary mitigation strategy to minimize electric and magnetic fields are in the design and location of the transmission projects. Installations of HVTL of the size of these projects are generally placed well away from residences. Given that magnetic fields dissipate rapidly from the source, this provides significant mitigation from exposures.

Impacts from electric fields can be minimized by grounding metal buildings, fences or other large permanent conductive object in close proximity or parallel to the line to prevent excessive discharges. Vehicles which may be parked under or adjacent to transmission lines are generally grounded adequately through their tires. In some instances, such as vehicles with unusually old tires or those are parked on dry rock, plastic or other surfaces that insulate them from the ground, the vehicle can be grounded by attaching a grounding strap to the vehicle long enough to touch the earth.

Insulated electric fences used in livestock operations can pick up an induced charge from transmission lines. Usually, the induced charge will drain off when the charger unit is connected to the fence. When the charger is disconnected either for maintenance or when the fence is being built, shocks may result. Potential shocks can be prevented by shorting out one or more of the fence insulators to ground with a wire when the charger is disconnected or installing an electric filter to ground charges induced from a power line while still allowing the charger to be effective.

5.8 Radio and TV Reception

"Radio Noise" is a term used to refer to any unwanted interference of an electromagnetic nature with any signal or communication channels throughout the radio frequency band of operation, 3 kilohertz (kHz) to 30,000 kHz.

Potential Impacts

Corona-generated radio noise could cause interference with virtually any type of radio reception. (Corona consists of the ionization of air within a few centimeters immediately surrounding conductors.) However, in practice it has been found that the bands principally affected are the amplitude-modulated (AM) broadcast band, 535 to 1,605 kHz and in particular those stations broadcasting below approximately 1,000 kHz. Frequency-modulated (FM) stations are seldom impacted by electric transmission facilities. Cellular phones are unlikely to be affected due to the high frequencies used.

The radio noise generated from transmission lines is a function of conductor size and geometry, conductor height above ground, phase spacing, and ground resistance. Because radio noise is due to corona discharges, it also depends on the line's operating voltage and weather conditions.

The Federal Communications Commission (FCC) considers transmission lines inadvertent emitters and therefore they are not covered directly by FCC regulations. However, in the past, the FCC and the State of Minnesota have suggested that transmission line radio noise should not result in interference within a licensed broadcast station's primary coverage area for non-mobile receivers outside the line's right of way. The proposed HVTLs are not expected to impact reception of commercial AM radio stations with non-mobile receivers.

Corona generated noise could cause interference with TV picture reception similarly as in the case with AM radio interference since the picture is broadcast as an AM signal. The level of interference depends on the TV signal strength for a particular channel. TV audio is an FM signal that it is typically not affected by transmission line radio frequency noise.

Due to the higher frequencies of the TV broadcast signal (54 megahertz and above), transmission lines seldom result in reception problems within a station's primary coverage area. In the rare situation that the proposed transmission line would cause TV interference, Xcel Energy would work with the affected party to correct the problem.

Mitigations

Usually any reception problem can be corrected with the addition or modification of an outdoor antenna. TV picture reception interference can also be the result of a transmission structure blocking the signal to homes in close proximity to a structure. Measurements can be made to verify whether a structure is the cause of reception problems. Reception

problems can usually be corrected with the addition of an outside antenna, an amplifier or both. Route permits typically include a condition requiring the permittee(s) to correct any interference to communications facilities it causes or creates.

5.9 Public Services

The city of Buffalo provides water, sewer, parks, streets and other public services through their Public Works Department. Wright County provides services along county roads and in the townships of Buffalo and Rockford.

Several electrical distribution lines owned by Buffalo Municipal Utilities, Wright-Hennepin Electric Cooperative and Xcel Energy are located along routes evaluated in this EA. Buffalo Municipal Utilities has identified the need for a second distribution substation; although a location for that substation has not been determined, the city is considering a location along 8th Street NE.

There are three schools along the proposed route. Tatanka Elementary and the Phoenix Learning Center are located along 8th Street NE, near the Buffalo Power Substation, and Buffalo High School is located at the northwest corner of Dague Avenue NE and CSAH 35.

Potential Impacts

Depending upon the route and alignment selected, construction of the project could impact access to schools along the proposed route.

Depending upon the route selected, and the final alignment of the Project determined during engineering, certain portions of electric distribution facilities may be underbuilt with the Project.

Mitigations

Impacts to school access can be mitigated by scheduling construction at times, such as school breaks, where fewer people would need to access the school.

Coordination between Xcel and the distribution utility would minimize any disruptions occurring while facilities are underbuilt.

5.10 Land Use

The economy of the Buffalo area has traditionally been based on agricultural production, although land use has been transitioning from agricultural to more urban uses over the past several decades.

All of the routes evaluated in this EA pass through areas zoned as agricultural, commercial and residential. All of the routes under consideration also cross portions of Buffalo, Buffalo

Township, and Rockford Township. All of the routes also cross areas in Buffalo Township identified by the County as Orderly Annexation Areas.

An examination of future land uses identified in Wright County's *2007 Northeast Quadrant Land Use Plan* indicates that the routes evaluated in this EA cross through agricultural, rural residential, rural large lot, public lands and urban transitional areas. Buffalo's *2006 Comprehensive Plan Update* shows future land use along the proposed routes to be a mixture of residential, commercial and rural.

Transmission facilities are considered either a permitted use or a conditional use in these land use classifications. For this Project, the issuance of a Route Permit by the PUC would pre-empt local zoning.

5.11 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 soybeans, corn and hay.

Both the proposed route and alternate routes pass through some cultivated fields that typically are planted in corn and soybeans, as well as some pastured fields.

Potential Impacts

The project would result in both temporary and permanent impacts to agricultural land. Temporary impacts may include soil compaction and crop damages from construction activities within the ROW. Temporary impacts are calculated assuming a 20-foot wide area of disturbance and adding 2,000 square feet per pole. Permanent impacts would occur in the area immediately adjacent to the transmission line poles, and are estimated at approximately 50 square feet per pole. Based on these assumptions, estimated agricultural impacts for the proposed route and route alternatives are shown in Table 10.

Table 10 – Agricultural Impacts

Route	Temporary Impacts (acres)	Permanent Impacts (acres)
Xcel Proposed Route	10.3	0.06
Modified Railroad Alternative	8.4	0.05
Calder Avenue Alternative	7.9	0.05

Mitigations

There are several different mitigation techniques available to minimize impacts to cultivated fields.

- *Pole placement*: Placing the poles as near to the road as possible, providing some overlap of the transmission and roadway ROW, will minimize loss of farmland and ensure reasonable access to land near poles.

- *Construction timing*: The utility can also work with landowners on the timing of construction to construct before crops are planted or following harvest. Avoiding springtime construction is preferable, in order to avoid disturbance to soil and minimize the potential for soil compaction.

- *Construction mats*: Construction mats can also be used to minimize impacts to soils along access paths and in construction areas.

- *Compensation*: Even with use of mitigation to minimize impacts there will be some temporary and permanent impacts. Permanent impacts can be factored into the easement payments negotiated between the landowner and utility. Landowners can also negotiate payments or mitigation (such as chiseling) with the utility for soil compaction and crop damage occurring from construction.

5.12 Transportation

There are a number of local streets, county roads, county state aid highways (CSAHs) within the project area. All three alternatives follow existing roadway for a large portion of their routes, as shown in Table 11.

Table 11 – Comparison of Route Alternatives and Transportation Features

Route Alternative	Adjacent Roadways	% Along existing roadway	% Along railroad
Xcel Proposed Route	Dague Avenue, CSAH 35, 8th StreetNE	90	0
Modified Railroad Alternative	10th Street SE, Calder Avenue, 6th Avenue NE	55	45
Calder Avenue Alternative	10th Street SE, Calder Avenue, CSAH 35, 8th Street NE	100	0

Minnesota Department of Transportation (MnDOT) has long-term plans to expand TH 55 to the east of the existing TH 55 alignment between Annandale and Rockford. There is no budget or approved timeline for this long-term project.

Within the Project area, MnDOT plans improvements to the intersection of Highway 55 and Wright County Road 134 (Calder Avenue) in the summer of 2008. MnDOT's project would widen both roadways to improve capacity, add medians, turning lanes and a traffic signal to provide safer access to the Buffalo Airport Commercial Park.

In addition to the existing roadways, Wright County is in the planning stages for a parkway along the eastern boundary of the city. The planned parkway would 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 currently travels through the core of the community. The Buffalo Municipal Airport and Canadian Pacific Railroad are also in the Project area.

Potential Impacts

Roads

All routes under consideration must cross TH 55.

For the most part, portions of the Project located along road ROW would be constructed on easements obtained from private landowners. Depending upon the segment, and the distance between the edge of road ROW and structures, the easement would be 30 – 42.5 feet wide, as discussed in Section 3. Because of the proximity of several structures to road ROW along Calder Avenue just north of TH 55, portions of Segment 8 of the Calder Avenue Alternative may need to be constructed within the road ROW, possibly within the ditches located either side of the road. If the transmission structures are located within road ROW, Xcel would bear the cost burden of moving them to accommodate road widening.

Delivery of Project components, such as poles and conductors, may have temporary impacts along certain roadways. Construction crews may use portions of the road shoulder while poles are installed and conductors are strung.

Airport

The Buffalo Municipal Airport is located between County Road 134 (Calder Avenue) and Carling Avenue, north of TH 55 and south of 10th Street NE. The airport has one runway, running north-south. The airport has limitations on land uses and object heights in and surrounding the airport. The safety zone, established by the MnDOT Division of Aeronautics, establishes the types of land uses permitted in each of three safety zones extending outward from each runway and is shown in Appendix C.13 of the Application. Zone A, shown in Figure 5, which has the most stringent land use restrictions of the three established by MnDOT, prohibits exposed transmission wires within its boundaries. None of the route alternatives considered in this EA would be located within Zone A.

The Federal Aviation Administration (FAA) places height restrictions on objects in the runway approach paths. Estimated structure height restrictions are shown in Figure 5. Portions of route segment 7, common to both the "Modified Railroad Alternative" and the "Calder Avenue Alternative" may require limits to structure heights.

Railroad

All routes under consideration must cross the Canadian Pacific Railroad tracks, which would require design approval and coordination of construction timing with the railroad.

The Modified Railroad Alternative has one 1.8-mile segment, Route Segment 6, which runs along the railroad. The railroad ROW is estimated to be 50 feet either side of the tracks. Because of the width of the railroad ROW, Xcel anticipates that at least a portion of this segment would need to be constructed within the railroad ROW. The railroad between 1st Street NE and 5th Street South is located along an elevated grade, with steep slopes that present challenges for construction and maintenance. Some private fences may need to be temporarily removed in order to provide access for construction equipment. Although Xcel will not begin detailed design until a route is selected, it is also possible that taller transmission structures may be required along this portion in order to maintain adequate "blowout" distances to ensure safe operation of the line along a railway. Any construction or maintenance along this segment would require advance scheduling coordination with the railroad.

Mitigations

Any crossing or parallel installation of the Project along Highway 55 would require approval from MnDOT. Poles would need to be placed outside the MnDOT clear zone.

Construction of any portion of the Project would require coordination with the local jurisdiction (City or County).

Signage during construction activities can help to minimize traffic disruption. Guard structures, such as temporary wood poles with a cross arm or line trucks with booms, can be used to protect traffic lanes.

Structures located within the flight approach zones would need to be reviewed by the FAA.

Any construction within railroad ROW would require approval and coordination with Canadian Pacific Railway, as would any railroad crossings.

5.13 Forestry and Mining

Neither the proposed route nor the alternate routes will affect any mining or forestry resources of significant economic value.

5.14 Topography, Soils & Geology

Topography in the Big Woods subsection is characterized by gently to moderately rolling hills. Loamy soils, varying between 100 to 400 feet in depth, overlay bedrock.

Potential Impacts

Soil disturbance will result from construction activities, including vegetative clearing along ROW and excavation at structure locations.

Areas where disturbance has been minimal typically require minimal assistance in re-establishment of a vegetative stratum to control soil erosion. However, areas with significant soil compaction and disturbance from construction activities may require assistance in reestablishing the vegetation stratum and controlling soil erosion.

Mitigations

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

If the Project results in disturbance of more than one acre, it would require a National Pollutant Discharge Elimination System (NPDES) permit from the Minnesota Pollution Control Agency (MPCA). The NPDES permit would identify mitigation strategies. The area of disturbance will not be determined until final Project design is complete. Mitigation strategies may also be identified in the License to Cross Public Waters.

5.15 Flora

Flora along the proposed and alternate routes is comprised of a mixture of woodlots, pasture, cultivated areas, landscaping and grasses.

Potential Impacts

Project impacts to vegetation would primarily be related to removal of vegetation at the site of each pole installation and along the ROW where it may interfere with the construction, operation or maintenance of the Project. Due to safety concerns, any trees that would grow taller than 15 feet within the ROW would need to be removed beneath overhead lines. Additionally, a 10-foot radius around each structure would be kept free of woody vegetation.

The amount of tree clearing from the Project would depend upon the alignment within the selected route. Table 12 presents a "worst-case" scenario, estimating tree clearing by identifying the longest length of trees within each route and calculating removal of all trees within the anticipated ROW.

Table 12 – Estimated Tree Clearing

Route Alternative	Estimated Tree Clearing (acres)
Xcel Proposed Route	5.21
Modified Railroad Alternative	6.08
Calder Avenue Alternative	2.71

The majority of clearing along Xcel's proposed route would be in the large woodlot located on the south side of CSAH 35 in Segment 2. Clearing along the Modified Railroad Alternative would be concentrated along the railroad in Segment 6 and at the "H" Eagle Roost Park Preserve. Clearing along the Calder Avenue Alternative would be concentrated at the "H" Eagle Roost Park Preserve.

Resilient species of common grasses and shrubs that have been disturbed during construction typically reestablish with few problems. However, areas where construction has resulted in significant soil compaction may require more proactive measures to re-establish vegetation to pre-construction cover.

Mitigations

Tree clearing can be minimized through alignment of route avoid tree clearing to the extent possible. In areas where tree clearing cannot be avoided tree clearing should be limited to that required for safe construction, operation and maintenance of the project

Areas affected by soil compaction resulting from Project construction may require re-seeding or landscaping. Any re-vegetation should be done in consultation with property owners.

5.16 Fauna

Fauna along the route alternatives considered in this EA would be typical of those found in the habitats along the proposed routes: woodlots, pasture, cultivated areas, urban and rural residential areas. A list of common animal species in the Project Area is included in Appendix D of the Route Permit Application.

Potential Impacts

Construction of the Project, especially tree clearing where required, would be expected to temporarily displace some species. Because most of the impacts would occur along existing transportation ROW, comparable habitat is adjacent to all routes under consideration, it is expected that any organisms would be displaced only a short distance.

The construction and placement of the Project may affect raptors, waterfowl and other bird species. Avian collisions are a possibility after the completion of the Project in areas where there are agricultural fields that serve as feeding areas, wetlands, or 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 into contact with two conductors or a conductor and a grounding device.

Mitigative Measures

By minimizing tree-clearing to that necessary for safe construction and operation of the Project, the potential for species displacement is minimized.

Transmission line design is the primary mitigation strategy to reduce the incidence of avian electrocutions. Xcel's standard transmission design incorporates adequate spacing of conductors and grounding devices to eliminate the risk of avian electrocution.

In some areas, swan flight diverters, pre-formed spiral shaped devices made of polyvinyl chloride, may be wrapped around the shield wire to make the transmission facility more visible to birds. These devices have been successful in reducing avian collisions.

5.17 Rare and Unique Natural Resources

A review of the Natural Heritage Database maintained by the Minnesota Department of Natural Resources (DNR) did not identify any known occurrences of rare species or special communities in the Project area.

Comments from the DNR identified a Red Shouldered Hawk (as special concern species) nesting location approximately two miles east of Xcel's proposed route, in portions of Sections 25 and 26 of Buffalo Township.

Potential Impacts

Red-shouldered hawks require large tracts of unbroken woodlot. Loss or fragmentation of wooded lots may reduce perching opportunities, or potential nesting opportunities for the species. DNR comments have indicated a concern with tree clearing along CSAH 35 in the large woodlot located in Section 28 of Buffalo Township, along Segment 2 of Xcel Energy's proposed route. DNR has indicated that the wooded area of Wright County's "H" Eagle Roost Park Preserve is probably not large enough to support Red Shouldered Hawk habitat.

Mitigations

Tree clearing can be minimized through alignment of route avoid tree clearing to the extent possible. In areas where tree clearing cannot be avoided tree clearing should be limited to that required for safe construction, operation and maintenance of the project

5.18 Air Quality

There are minimal air quality impacts associated with transmission line construction and operation. The only potential air emissions from a transmission line result from corona. Corona can produce ozone and oxides of nitrogen in the air surrounding the conductor. Corona consists of the breakdown or ionization of air in a few centimeters or less

immediately surrounding conductors. For a 115 kV single-circuit transmission line, the conductor gradient surface is usually below the air breakdown level.

Usually some imperfection, such as a scratch on the conductor or a water droplet, is necessary to cause corona. Ozone 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 Project area presently meets all federal air quality standards.

Potential Impacts

Currently, both state and federal governments have regulations regarding permissible concentrations of ozone and oxides of nitrogen. The national standard is 0.08 ppm on 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. Calculations using the Bonneville Power Administration (BPA) Corona and Field Effects Program Version 3 (USDOE, BPA Undated) for a standard single-circuit 161 kV project, predicted the maximum concentration of 0.007 ppm near the conductor and 0.0003 ppm at one meter above ground during foul weather or worst-case conditions (rain at 4 inches per hour). During a mist rain (rain at 0.01 inch per hour), the maximum concentrations decreased to 0.0003 ppm near the conductor and 0.0001 ppm at one meter above ground level. For both cases, these calculations of ozone levels are well below the federal and state standards. Studies designed to monitor the production of ozone under transmission lines have generally been unable to detect any increase due to the transmission line facility. Given this, there would be no impacts relating to ozone for the Project.

There would be limited emissions from vehicles and other construction equipment and fugitive dust from ROW clearing during construction of the transmission line and substation. Temporary air quality impacts caused by the 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 from primarily diesel equipment would vary according to the phase of construction but would be minimal and temporary. Adverse impacts to the surrounding environment would be minimal because of the short and intermittent nature of the emission and dust-producing construction phases.

Mitigations

There will be no significant adverse air quality impacts to the surrounding environment because of the short and intermittent nature of the emission and dust-producing construction phases. No mitigation measures are necessary for the construction of the transmission lines.

5.19 Water and Wetland Resources

A determination of surface water and wetland resources was conducted by reviewing the United States Geological Survey (USGS) 7.5-minute quadrangle, the National Wetland Inventory (NWI) map and the Public Waters Inventory (PWI) map.

Depending upon the route selected, the Project would cross up to two streams. Segment 7, common to the Modified Railroad Alternative and the Calder Avenue Alternative, parallels Calder Avenue SE in the vicinity of Mary Lake.

Potential Impacts

During construction there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading and construction traffic. After construction maintenance and operation activities are not expected to have an adverse impact on surface water quality.

Environmentally sensitive areas and wetland areas may also require special construction techniques in some circumstances.

All of the route alternatives evaluated would have some impact to wetland areas. These impacts would be temporary impacts along the ROW and access to ROW from construction and permanent impacts resulting from pole placement in wetland areas. Estimated "worst case" wetland impacts based on NWI data are shown in Table 13.

Table 13 – Impacts to Water and Wetland Resources

Route Alternative	Wetlands Spanned	Wetlands unable to span	Wetland Impacts (Acres)	Stream Crossings
Xcel Proposed	9	6	0.55	1
Modified RR Alternative	6	4	0.35	2
Calder Avenue Alternative	11	4	0.35	2

Mitigation

Implementation of standard erosion control measures identified in the MPCA's *Stormwater Best Practices Manual*, such as silt fencing, can minimize impacts to nearby surface water resources.

The Project will also require a license to cross public waters from DNR. This license will identify construction practices to minimize impacts to surface water and PWI wetlands.

During construction, the most effective way to minimize impacts to wet areas will be to span all stream crossings and wetlands. In areas where spanning is not possible, there are several options to minimize impacts to these resources:

- Scheduling construction during frozen ground conditions when possible;
- Use of construction mats to minimize impacts to wetlands when winter construction is not possible;
- Accessing wetlands with the least amount of physical impact to the wetland (e.g. the shortest route);
- Assembling structures on upland areas before they are brought to the site for installation.

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6.0 SUMMARY OF UNAVOIDABLE IMPACTS BY ROUTE

For the most part, impacts from each route alternative evaluated in this EA are quite similar among route alternatives. Except for minor short-term impacts during construction, there are no impacts to air quality or to noise experienced in the Project Area anticipated from the Project. Impacts with respect to property values, aesthetics, recreation, archaeological and historic features, human health and safety, radio and TV reception, land use, soils and geology, and fauna are anticipated to be the same for all alternatives evaluated. Impacts to agriculture do not vary substantially among alternatives. Areas where there is some variation in impacts among alternatives are summarized by route alternative in Table 14 and in the text below.

6.1 Xcel Proposed Route:

This route would be within 300 feet of up to 63 homes and within 50 feet of up to one home. Depending upon ultimate alignment, this route may require the removal of up to 5.21 acres of trees and impacts to up to 0.55 acres of wetland.

The impacts particular to this route are related to access to Tatanka Elementary School and Phoenix Learning Center during Project Construction and the potential impact to Red-Shouldered Hawk habitat resulting from tree clearing along Segment 2.

6.2 Modified Railroad Alternative

Depending upon ultimate alignment this route would be within 300 feet of up to 85 homes; no homes are located within 50 feet of the route centerline. Depending upon ultimate alignment, this route may require the removal of up to 6.08 acres of trees and impact to up to 0.35 acres of wetland.

The potential impacts particular to this route are related to access and construction constraints along the Canadian Pacific railroad in Segment 6; potential need to construct within road ROW along portions of Calder Avenue in Segment 8; and potential limits to structure heights along portions of Segment 7.

6.3 Calder Avenue Alternative

Depending upon ultimate alignment this route would be within 300 feet of up to 74 homes; up to one home is located within 50 feet of the route centerline. Depending upon ultimate alignment, this route may require the removal of up to 2.71 acres of trees and impact to up to 0.35 acres of wetland.

The potential impacts particular to this route are related to access to Tatanka Elementary School and Phoenix Learning Center during construction; potential need to construct within road ROW along portions of Calder Avenue in Segment 8; and potential limits to structure heights along portions of Segment 7.

Table 14 – Summary of Impacts by Route Alternative

Category	Impact	Route Alternative			Mitigation
		Xcel Proposed	Modified Railroad	Calder Avenue	
Human Settlement	Maximum number of homes within 50 feet of route centerline	1	0	1	Minimize impacts to individual homes through route alignment and consultation with homeowners to determine pole placement to maintain use of property and minimize aesthetic impacts.
	Maximum number of homes Located within 300 feet of route centerline	63	85	74	
Public Services	Proposed route may impact access to Tatanka Elementary School and/or Phoenix Learning Center during Construction	X		X	Scheduling construction during school breaks, when fewer people would need to access the school
Transportation	Xcel anticipates that at least a portion of Segment 6 would need to be constructed within the railroad ROW. Steep slopes along a portion of this segment would present challenges for construction and maintenance. Some private fences may need to be temporarily removed in order to provide access for construction equipment. Taller transmission structures may be required along this portion in order to maintain adequate "blowout" distances to ensure safe operation of the line along a railway. Any construction or maintenance along this segment would require advance scheduling coordination with the railroad;		X		Coordination with Canadian Pacific Railway with respect to alignment, structure design, and construction and maintenance scheduling; Compensation to individual landowners for temporary construction impacts under terms of easement agreements;
	Portions of Segment 7 along 10th Street SE and Calder Avenue SE may require limits to structure heights to comply with FAA height restrictions.		X	X	Coordination with FAA to ensure that structure heights meet FAA requirements
	Portions of Segment 8 along Calder Avenue			X	Approval from and coordination with Wright

	may need to be constructed within road ROW, possibly within the ditches along either side of the road, requiring Xcel to bear the cost burden of moving them to accommodate road expansion				County in route alignment along Calder Avenue.
Flora	Maximum Acres of tree-clearing	5.21	6.08	2.71	Minimize tree clearing by alignment of route to minimize the need for tree clearing to the extent possible; limit tree clearing to that required for safe construction, operation and maintenance of the project.
Rare and Unique Natural Resources	Comments from the DNR identified a Red Shouldered Hawk (as special concern species) nesting location approximately two miles east of Xcel's proposed route. Red-shouldered hawks require large tracts of unbroken woodlot DNR is concerned that the Project not reduce available habitat for this species.	X			
Water and Wetland Resources	Stream Crossings	1	2	2	Minimize impacts to surface water and wetlands by spanning streams and wetlands where possible; implement standard erosion control measures identified in the MPCA's *Stormwater Best Practices Manual*, such as silt fencing; implementation of construction practices to minimize impacts to surface water and PWI wetlands as identified in DNR *Permit to Cross Public Waters*. In areas where spanning is not possible minimize impacts by: winter construction, when possible; use of construction mats to minimize impacts to wetlands; accessing wetlands with the least amount of physical impact to the wetland (e.g. the shortest route); assembling structures on upland areas before they are brought to the site for installation.

7.0 PERMITS AND APPROVALS

Table 15 contains a list of the anticipated permits and associated environmental approvals required for the Project. Compliance with the terms of all applicable and relevant regulatory permits and approvals will be a condition of any Route Permit issued by the PUC.

Table 15 – Required Permits

Permit	Jurisdiction	Applicable for Routes
Federal Approvals		
Flight Hazard Determination	FAA	Modified Railroad Alternative, Calder Avenue Alternative
State of Minnesota Approvals		
Route Permit	Minnesota PUC	All
License to Cross Public Waters	MN DNR, Division of Lands & Minerals	All
National Pollutant Discharge Elimination System Permit	MPCA	If one acre or more is disturbed by construction
Application for Utility Permit	MnDOT	All
Local Approvals		
Road Crossing Permits	Buffalo, Wright County	All
Lands Permit	Wright County	Modified Railroad Alternative, Calder Avenue Alternative
Over-width Road Permits	Wright County, Buffalo	All

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8.0 ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

ACSS	Aluminum Core Steel Supported
ACSR	Aluminum CoreSteel Reinforced
BMP	best management practice
Commission	Minnesota Public Utilities Commission
CSAH	County State Aid Highway
dB	decibels
dBA	A-weighted sound level recorded in units of decibels
DNR	Department of Natural Resources
DOC	Department of Commerce
EA	Environmental Assessment
EFP	Department of Commerce Energy Facilities Permitting
EMF	electromagnetic field
EPA	United States Environmental Protection Agency
EQB	Environmental Quality Board
G	Gauss
HVTL	high voltage transmission line
Hz	Hertz
kV	kilovolt
kV/M	Kilovolt per meter
Mn DOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
NAC	noise area classification
NESC	National Electrical Safety Code
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
ppm	parts per million
PUC	Public Utilities Commission
PWI	Public Waters Inventory
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SNA	Scientific and Natural Area
TH	Trunk Highway
USDOE	United States Department of Energy
USGS	United States Geological Survey
WHO	World Health Organization
WPSC	Wisconsin Public Service Commission

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FIGURES

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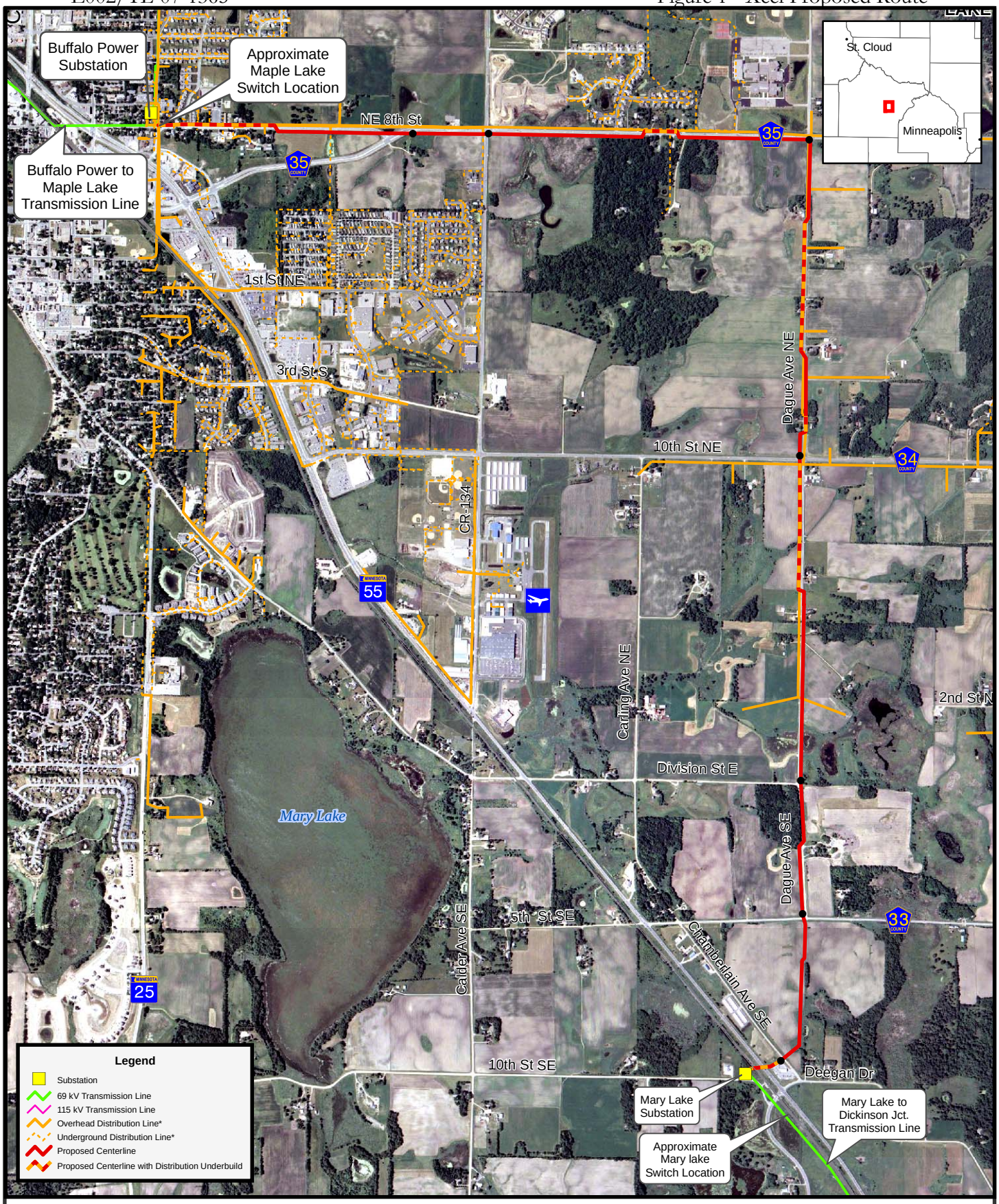
Figure 1 - Xcel Proposed Route



Map Document: (N:\GISProj\xcel\28336\MaryLaketoBuffalo\map_docs\route_app\ProjectArea_Aerials.mxd)

N

0 0.25 0.5 Miles

Distribution Lines*
Mary Lake
115 kV Transmission Line Tap Project

office of energy security

*Known distribution lines data from the City of Buffalo. Additional distribution lines may be present.

Figure 1

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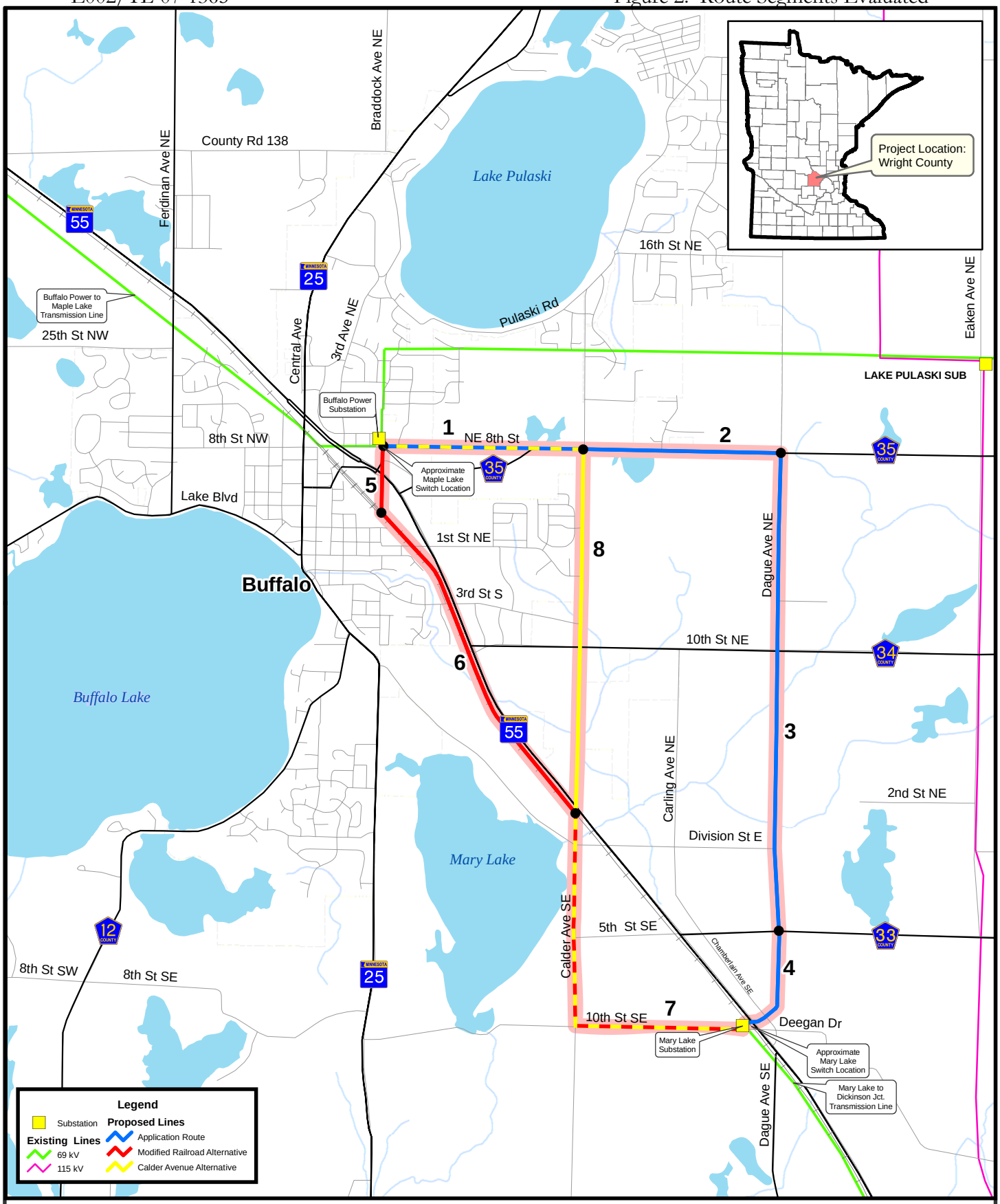
Figure 2: Route Segments Evaluated



Map Document: (N:\GISProj\xcel\28336\MaryLaketoBuffalo\map_docs\agency_maps\working\vicinity050508.mxd)

N

0 0.25 0.5 0.75 1 Miles

General Vicinity Map
Mary Lake
115 kV Transmission Line Tap Project

office of energy security

Figure 1

Figure 2

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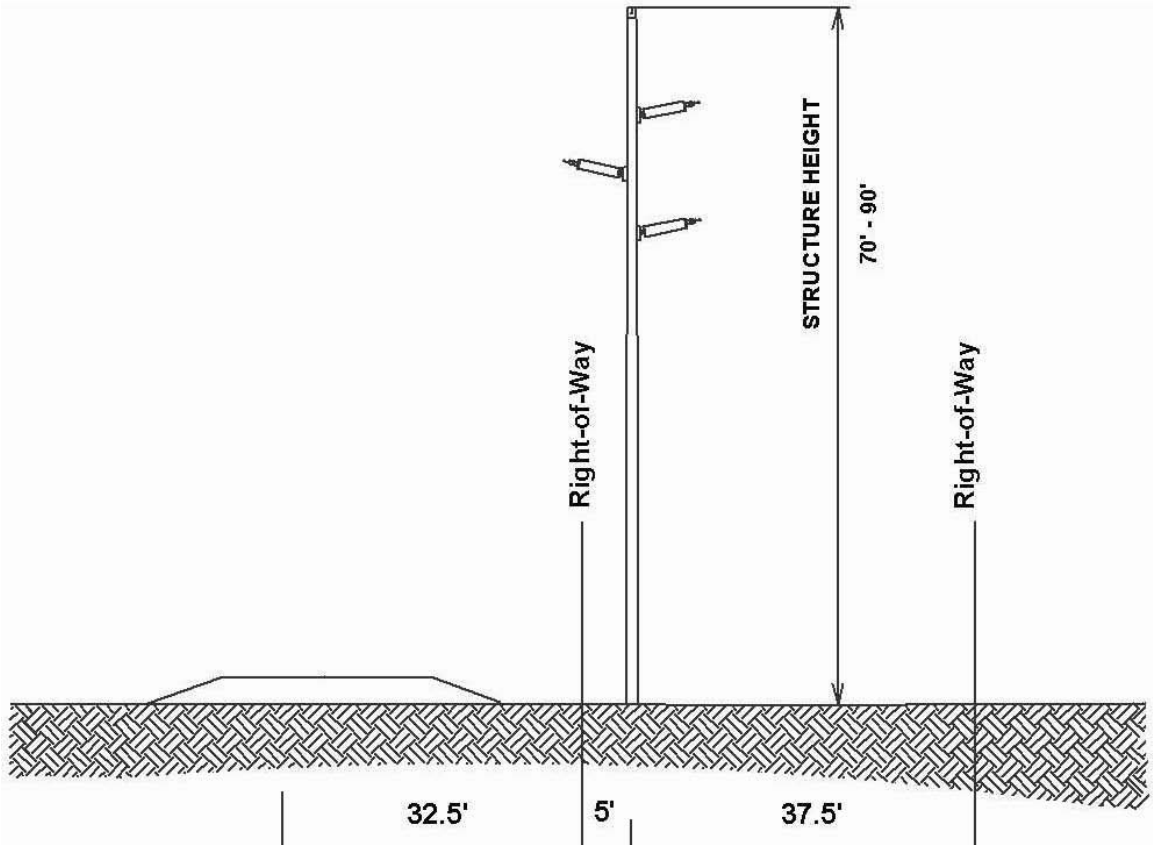
Right-of-Way
STRUCTURE HEIGHT
70' - 90'
Right-of-Way
32.5'
5'
37.5'

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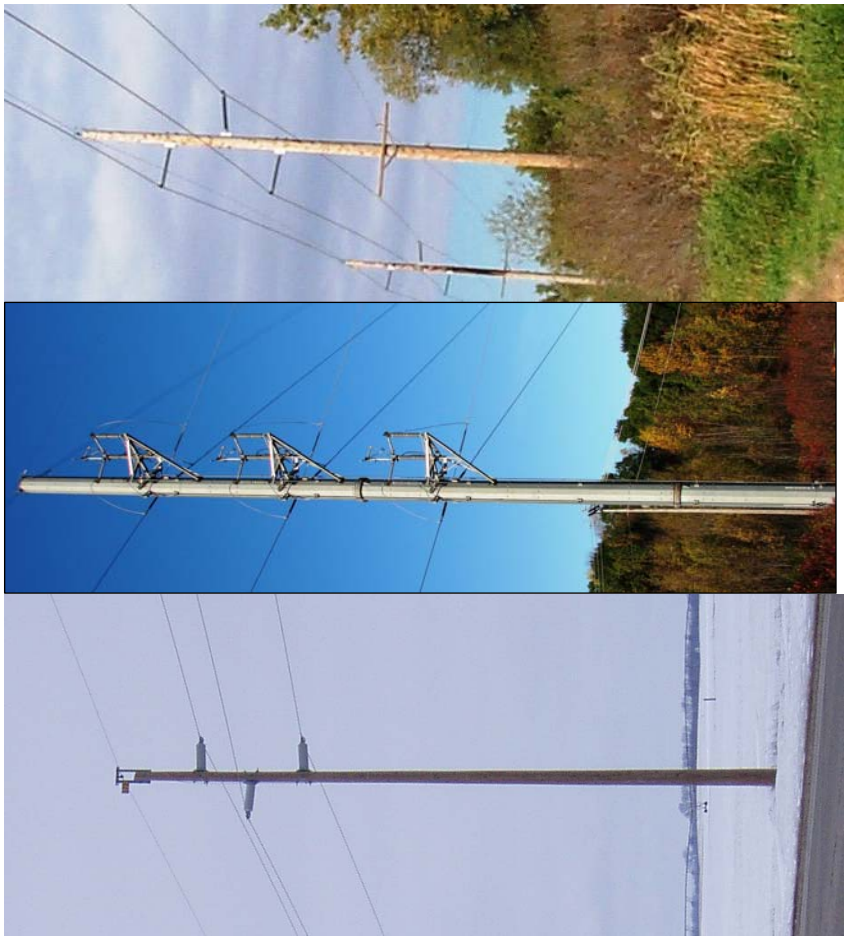

Mary Lake Structure Types (L-R): Tangent, Switch, Underbuild

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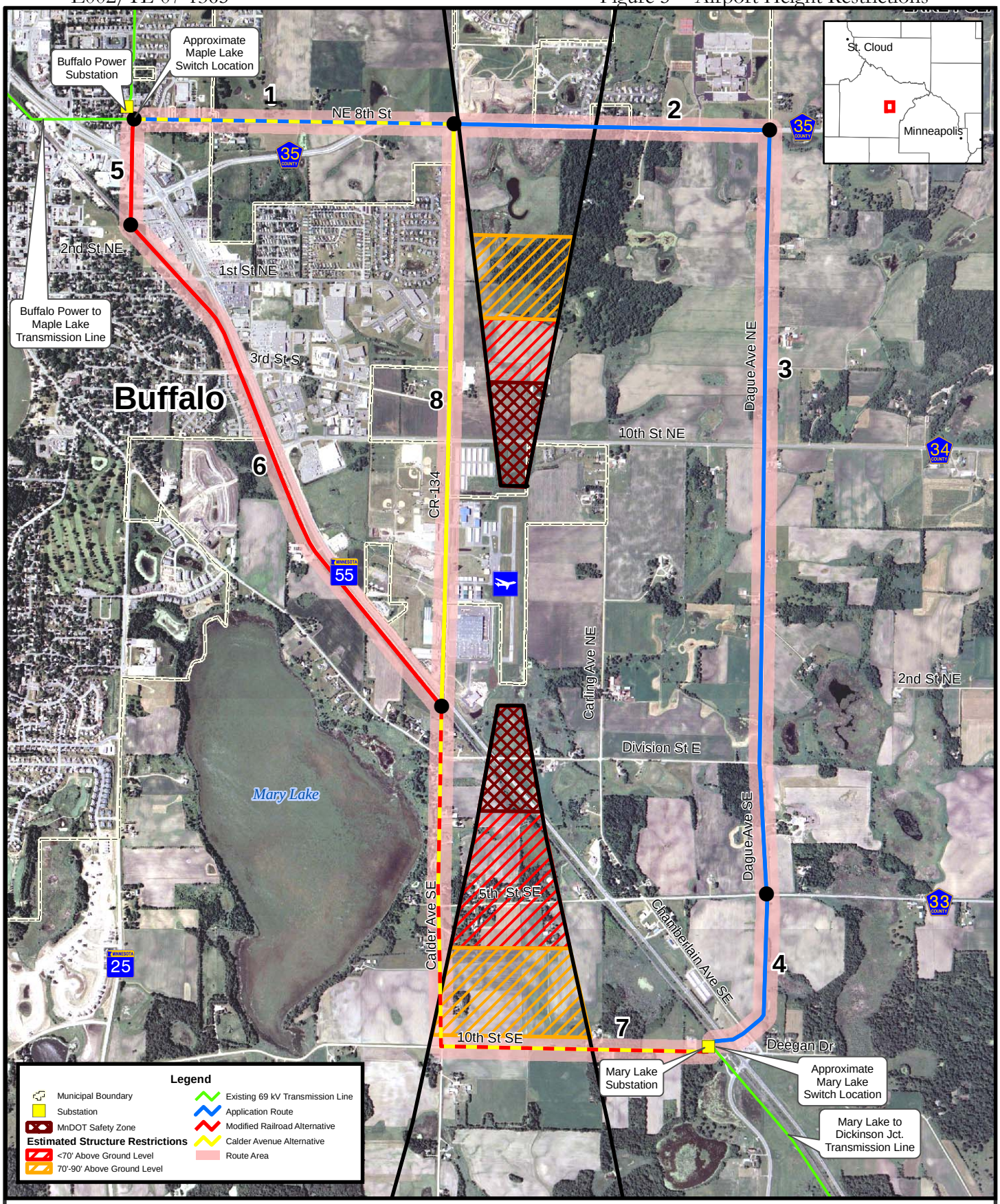
Figure 5 -- Airport Height Restrictions



Map Document: (N:\GISProj\xcel\28336\MaryLaketoBuffalo\map_docs\route_app\Alternatives_041408.mxd)

N

0 0.25 0.5 Miles

Airport Height Restriction Zones
Mary Lake
115 kV Transmission Line Tap Project

office of energy security

Figure 6

Figure 5

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APPENDIX A: EA SCOPING ORDER

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In the Matter of the Application for a Route Permit for the Mary Lake 115 kilovolt Transmission Line Project

ENVIRONMENTAL ASSESSMENT SCOPING DECISION PUC Docket No. E002/TL-07-1365

The above matter has come before the Director of the Department of Commerce Office of Energy Security (OES) for a decision on the scope of the Environmental Assessment (EA) to be prepared for the proposed Xcel Energy Mary Lake 115 kilovolt (kV) Transmission Line Project in Wright County, Minnesota.

Xcel Energy proposes to build approximately five miles of new 115 kV high voltage transmission line (HVTL) between the Buffalo Power – Maple Lake 69 kV transmission line and the Mary Lake – Dickinson 69 kV transmission line in Wright County. Except for a half-mile section crossing an agricultural field near the Mary Lake Substation, the entire proposed route runs parallel to state, county and city road rights-of-way.

The OES Energy Facilities Permitting (EFP) staff held a public information and EA scoping meeting on March 11, 2008, in Buffalo, Minnesota, to discuss the project with the public and to solicit input into the scope of the EA to be prepared. Approximately 18 persons attended the public meeting. A public comment period on the scope of the EA closed on March 26, 2008. A total of six written comments were received by the end of the public comment period. Of these comments, three proposed alternatives to the route proposed by Xcel Energy in their application.

Having reviewed the matter, consulted with the EFP staff, and in accordance with Minnesota Rule 7849.5700, I hereby make the following Scoping Decision:

MATTERS TO BE ADDRESSED

The Environmental Assessment on the Mary Lake Transmission Project will address and provide information on the following matters:

A. GENERAL DESCRIPTION OF THE PROPOSAL

1. Purpose of the Transmission Line
2. Project Location and Environmental Setting
3. Engineering and Operation Design
   a. Transmission Line and Structures

a. Transmission Line and Structures
b. Transmission Capacity
c. Construction Procedures
d. Right-of-Way Maintenance

B. IMPACTS AND MITIGATIVE MEASURES

1. Human Settlements
2. Noise
3. Aesthetics
4. Recreation
5. Transportation
6. Land Use
7. Prime Farmland
8. Soils and Geology
9. Flora
10. Fauna
11. Archaeological and Historic Features
12. Air Quality
13. Surface Water
14. Wetlands
15. Human Health and Safety to include Electric and Magnetic Fields (EMF)
16. Potential for radio, television and cell phone interference from transmission lines

C. ALTERNATIVES TO BE ADDRESSED IN THE EA

In its Application, Xcel Energy described several alternative route segments that were evaluated and rejected as potential routes for various reasons. Several members of the public have requested that the EFP staff further investigate some of these rejected routes. EFP staff believe that it is reasonable to evaluate additional route alternatives to determine each alternative's impact compared to the impact of the route proposed by Xcel Energy. Therefore, in addition to the route proposed by Xcel Energy, the EA will also address two route alternatives, the "Modified Railroad Alternative," and the "Calder Avenue Alternative."

The "Modified Railroad Alternative," would head west along 10th Street SE from the Mary Lake Switch located east of the Mary Lake Substation. The route would then turn north along Calder Avenue SE for slightly more than one mile until it reaches the Canadian Pacific Railroad tracks where it would follow northwest along the south side of the railroad until reaching 1st Street NE. At 1st Street NE, the route would cross to the north side of the tracks and continue northwest along the railroad until it turns north at 2nd Street NE. The route would then follow 2nd Street NE to the Maple Lake Switch location outside the Buffalo Power Substation.

The "Calder Avenue Alternative," would follow the same alignment as the first portion of the "Modified Railroad Alternative," running west along 10th Street SE and then north along Calder Avenue. This route would continue north along Calder Avenue until reaching CSAH 35 where it would turn west and follow the same alignment as Xcel Energy's proposed route along CSAH 35 and 8th Street NE to the Maple Lake Switch location outside the Buffalo Power Substation.

D. IDENTIFICATION OF PERMITS

The Environmental Assessment will include a list of permits that will be required for construction of this project.

ISSUES OUTSIDE THE SCOPE OF THE EA

The Environmental Assessment will not consider the following matters:

1. The manner in which land owners are paid for transmission right-of-way easements, as that is outside the PUC jurisdiction.
2. Any alternatives not described specifically in this Scoping Decision.

SCHEDULE

The EA shall be completed and available in May 2008. A public hearing will be held in the Buffalo area after the EA has been issued and notice served.

Signed this 9 day of April, 2008

STATE OF MINNESOTA
DEPARTMENT OF COMMERCE
OFFICE OF ENERGY SECURITY

Edward A. Garvey

Edward A. Garvey, Director

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APPENDIX B: SAMPLE ROUTE PERMIT

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ROUTE PERMIT FOR CONSTRUCTION OF A HIGH VOLTAGE TRANSMISSION LINE

IN

CROW WING COUNTY, MINNESOTA

ISSUED TO

GREAT RIVER ENERGY

PUC DOCKET No. ET-2/TL-06-980

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 4400, this Route Permit is hereby issued to:

Great River Energy

Great River Energy is authorized by this route permit to construct a 12 mile, single circuit, 115 kV transmission line, expand its Wilson Lake Substation approximately 4.55 acres, and add associated facilities at the Mud Lake Substation to accommodate the new transmission line as proposed in the Company's Route Permit Application, dated July 28, 2006.

The transmission line shall be built within the route identified in this permit and as portrayed on the attached official route map, and in compliance with the conditions specified in this permit.

Approved and adopted this 12th day of February, 2007

BY ORDER OF THE COMMISSION

Mark E. Oberlander for

Burl W. Haar,
Executive Secretary

(SEAL)

This document can be made available in alternative formats (i.e., large print or audio tape) by calling 651-201-2202 (voice) or 1-800-627-3529 (MN relay service)

I. ROUTE PERMIT

The Minnesota Public Utilities Commission (PUC) hereby issues this route permit to Great River Energy pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 4400. This permit authorizes the Great River Energy (GRE) to construct a 12 mile, 115 kV high voltage transmission line (HVTL), expand the Wilson Lake Substation approximately 4.55 acres, and add associated electrical equipment necessary for connection of the permitted line at the Mud Lake and Wilson Lake substations.

II. PROJECT DESCRIPTION

GRE is authorized to build a 12 mile, 115 kV transmission line, expand its Wilson Lake Substation approximately 4.55 acres, and add associated electrical equipment necessary for connection of the permitted line at the Mud Lake and Wilson Lake substations.

The transmission line authorized by this permit will utilize 795 aluminum conductor steel supported (ACSS) conductors. The line will be constructed on wood transmission structures (poles) with horizontal post insulators. GRE is authorized to place existing, new, or rebuilt distribution lines onto the 115 kV structures along the route, a practice called an "underbuild". Specialty transmission line structures including, but not limited to, steel or laminated wood post structures on concrete foundations are authorized for long spans, road or waterway crossings, and when circumstances require.

III. DESIGNATED ROUTE

The route designated by the Commission in this permit comprises the segments as described in detail below, as analyzed in the EA, and shown on the Official Route Map attached to this permit. In an effort to maximize Great River Energy's ability to accommodate individual landowners' needs, a route width of 250 feet on either side of the stated route centerline is approved. The approved right-of-way (ROW) widths for the selected segments are up to 45-feet where the route is adjacent to existing roadway ROW or clear zones, and up to 70-feet wide where the route travels "cross-country".

Segment 1: The route begins at the Mud Lake Substation in Oak Lawn Township. The route will exit the substation and to the east side of GRE's existing 230 kV transmission line and will travel cross-country north parallel the 230 kV line for approximately 1.5 miles to the intersection of Minnesota Trunk Highway 18 (Highway 18). The centerline of the route in this segment will be 70 feet east of GRE's existing "MR" 230 kV transmission line.

Segment 2: Upon intersecting Highway 18, the route will turn eastward and generally parallel to Highway 18 for approximately 10.5 miles until terminating at the Wilson Lake Substation in Bay Lake Township. The centerline of this segment is the Highway 18 roadway centerline.

Wilson Lake Substation Expansion and Mud Lake Associated Facilities: The Wilson Lake Substation will be rebuilt and expanded approximately 4.55 acres immediately west of the existing Wilson Lake Substation on property owned by Great River Energy and/or the Mille Lacs Electrical Cooperative (MLEC). Equipment to accommodate the interconnection of the new transmission line at the Mud Lake and Wilson Lake substations is permitted.

IV. PERMIT CONDITIONS

The Permittee shall comply with the following conditions during construction of the transmission line and associated facilities and the life of this permit.

A. **Plan and Profile.** At least 14 calendar days before right-of-way preparation for construction begins, the Permittee shall provide the PUC with a plan and profile of the right-of-way and the specifications and drawings for right-of-way preparation, construction, cleanup, and restoration for the transmission line. The Permittee may not commence construction until the 14 days has expired or until the PUC has advised the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this permit. If the Permittee intend to make any significant changes in its plan and profile or the specifications and drawings after submission to the PUC, the Permittee shall notify the PUC at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

B. **Construction Practices.**

1. **Application.** The Permittee shall follow those specific construction practices and material specifications described in the Great River Energy application to the PUC for a route permit, dated July 28, 2006, and as described in the EA unless this permit establishes a different requirement in which case this permit shall prevail.

2. **Field Representative.** At least 10 days prior to commencing construction, the Permittee shall advise the PUC in writing of the person or persons designated to be the field representative for the Permittee with the responsibility to oversee compliance with the conditions of this Permit during construction. This person's address, phone number, and emergency phone number shall be provided to the PUC, which may make the information available to local residents and public officials and other interested persons. The Permittee may change its field representative at any time upon written notice to the PUC.

3. **Cleanup.** All waste and scrap that is the product of construction shall be removed from the area and properly disposed of upon completion of each task. Personal litter, including bottles, cans, and paper, from construction activities shall be removed on a daily basis.

4. **Vegetation Removal.** The Permittee shall minimize the number of trees to be removed in selecting the right-of-way. As part of construction, low growing brush or tree species are allowable at the outer limits of the easement area. Taller tree species that

endanger the safe and reliable operation of the transmission facility need to be removed. To the extent practical, low growing vegetation that will not pose a threat to the transmission facility or impede construction should remain in the easement area.

5. **Erosion Control.** The Permittee shall implement reasonable measures to minimize runoff during construction and shall plant or seed non-agricultural areas that were disturbed where structures are installed.

6. **Temporary Work Space.** The Permittee shall limit temporary easements to special construction access needs and additional staging or lay-down areas required outside of the authorized ROW.

7. **Restoration.** The Permittee shall restore all temporary work spaces, access roads, abandoned ROW, and other private lands affected by construction of the transmission line. Restoration must be compatible with the safe operation, maintenance, and inspection of the transmission line. Within 60 days after completion of all restoration activities, the Permittee shall advise the PUC in writing of the completion of such activities.

8. **Notice of Permit.** The Permittee shall inform all employees, contractors, and other persons involved in the construction of the transmission line of the terms and conditions of this permit.

C. Periodic Status Reports. Upon request, the Permittee shall report to the PUC on progress regarding finalization of the route, design of structures, and construction of the transmission line. The Permittee need not report more frequently than quarterly.

D. Complaint Procedure. Prior to the start of construction, the Permittee shall submit to the PUC the company's procedures to be used to receive and respond to complaints. The procedures shall be in accordance with the requirements set forth in the complaint procedures attached to this permit.

E. Notification to Landowners. The Permittee shall provide all affected landowners with a copy of this permit at the time of the first contact with the landowners after issuance of this permit.

F. Completion of Construction.

1. **Notification to PUC.** At least three days before the line is to be placed into service, the Permittee shall notify the PUC of the date on which the line will be placed into service and the date on which construction was complete.

2. **As-Builts.** Upon request of the PUC, the Permittee shall submit copies of all the final as-built plans and specifications developed during the project.

3. **GPS Data.** Within 60 days after completion of construction, the Permittee shall submit to the PUC, in the format requested by the PUC, geo-spatial information (GIS

compatible maps, GPS coordinates, etc.) for all above ground structures associated with the transmission lines, each switch, and each substation connected.

G. Electrical Performance Standards.

1. **Grounding.** The Permittee shall design, construct, and operate the transmission line in such a manner that the maximum steady-state short-circuit current shall be limited to five milliamperes rms alternating current between the ground and any non-stationary object within the ROW including but not limited to, large motor vehicles and agricultural equipment. All fixed metallic objects on or off the ROW, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the short circuit current between ground and the object so as not to exceed one milliampere rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the National Electric Safety Code.

2. **Electric Field.** The transmission line shall be designed, constructed, and operated in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms.

3. **Interference with Communication Devices.** If interference with radio or television, satellite or other communication devices is caused by the presence or operation of the transmission line, the Permittee shall take whatever action is prudently feasible to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the line.

H. Other Requirements.

1. **Applicable Codes.** The Permittee shall comply with applicable Rural Utilities Service (RUS), North American Electric Reliability Council (NERC) construction standards and requirements of the National Electric Safety Code (NESC) including clearances to ground, clearance to crossing utilities, clearance to buildings, ROW widths, erecting power poles, and stringing of transmission line conductors.

2. **Other Permits.** The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required permits for the project and comply with the conditions of these permits. A list of the required permits is included in the permit application and the environmental assessment. The Permittee shall submit a copy of such permits to the PUC upon request.

3. **Pre-emption.** Pursuant to Minnesota Statutes 216E.10, subdivisions 1 and 2, this route permit shall be the sole route approval required to be obtained by the Permittee and this permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government.

I. Delay in Construction. If the Permittee has not commenced construction or improvement of the route within four years after the date of issuance of this permit, the PUC shall consider suspension of the permit in accordance with Minnesota Rule 4400.3750.

V. PERMIT AMENDMENT

The permit conditions in Section IV. may be amended at any time by the PUC. Any person may request an amendment of the conditions of this permit by submitting a request to the PUC in writing describing the amendment sought and the reasons for the amendment. The PUC will mail notice of receipt of the request to the Permittee. The PUC may amend the conditions after affording the Permittee and interested persons such process as is required.

VI. TRANSFER OF PERMIT

The Permittee may request at any time that the PUC transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer. The person to whom the permit is to be transferred shall provide the PUC with such information as the PUC shall require to determine whether the new permittee can comply with the conditions of the permit. The PUC may authorize transfer of the permit after affording the Permittee, the new permittee, and interested persons such process as is required.

VII. REVOCATION OR SUSPENSION OF THE PERMIT

The PUC may initiate action to revoke or suspend this permit at any time. The PUC shall act in accordance with the requirements of Minnesota Rules part 4400.3950 to revoke or suspend the permit.

PUBLIC UTILITIES COMMISSION
COMPLAINT REPORT PROCEDURES FOR
HIGH VOLTAGE TRANSMISSION LINES

1. Purpose

To establish a uniform and timely method of reporting complaints received by the Permittees concerning the permit conditions for right-of-way preparation, construction, cleanup and restoration, and resolution of such complaints.

2. Scope

This reporting plan encompasses complaint report procedures and frequency.

3. Applicability

The procedures shall be used for all complaints received by the Permittees.

4. Definitions

Complaint - A statement presented by a person expressing dissatisfaction, resentment, or discontent as a direct result of right-of-way preparation, construction, cleanup and restoration. Complaints do not include requests, inquiries, questions, or general comments.

Substantial Complaint - Any complaints submitted to the Permittees in writing that, if substantiated, could result in permit modification or suspension pursuant to the applicable regulations.

Person - An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

5. Responsibilities

Everyone involved with right-of-way preparation, construction, cleanup and restoration is responsible to ensure expeditious and equitable resolution of all complaints. It is therefore, necessary to establish a uniform method for documenting and handling complaints directed to this project. The following procedures will satisfy this requirement:

A. The Permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:

1. Name of the permittee and project.
2. Name of complainant, address and phone number.
3. Precise property description or tract number (where applicable).
4. Nature of complaint.
5. Response given.
6. Name of person receiving complaint and date of receipt.
7. Name of person reporting complaint to the DOC and phone number.
8. Final disposition and date.

B. The Permittee shall assign an individual to summarize complaints for transmittal to the PUC.

6. Requirements

The Permittee shall report all complaints to the DOC according to the following schedule:

Immediate Reports - All substantial complaints shall be reported to the DOC by phone the same day received (or on the following working day for complaints received after working hours) at 651-296-2096.

Monthly Reports

By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the proceeding month, and a copy of each complaint shall be sent to Minnesota Department of Commerce, 85 East 7th Place, Suite 500, Saint Paul, MN 55101.

7. Complaints Received by the DOC

Copies of complaints received directly by the DOC from aggrieved persons regarding right-of-way preparation, construction, cleanup and restoration shall be promptly sent to the Permittees.

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