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June 25, 2012

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101-2147

**RE: Comments and Recommendations of Department of Commerce  
Energy Facility Permitting Staff  
Docket No. ET2/TL-11-915**

Dear Dr. Haar,

Attached are comments and recommendations of Department of Commerce, Energy Facility Permitting (EFP) staff in the following matter:

In the Matter of the Route Permit Application by Great River Energy for the Enterprise Park to Crooked Lake 115 kV Transmission Line Project in Anoka County, Minnesota.

The route permit application was filed on October 4, 2011 by:

Mark Strohfus  
Great River Energy  
12300 Elm Creek Blvd.  
Maple Grove, MN 55369

EFP staff has prepared: (1) proposed findings of fact, conclusions of law, and order, and (2) a proposed route permit. Staff is available to answer any questions the Commission may have.

Sincerely,

A handwritten signature in black ink, appearing to read 'Matt Langan', is written over a light blue rectangular background.

Matthew A. Langan  
DOC EFP Staff



**BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION**

**COMMENTS AND RECOMMENDATIONS OF  
MINNESOTA DEPARTMENT OF COMMERCE  
ENERGY FACILITY PERMITTING STAFF**

DOCKET No. ET2/TL-11-915

EFP Staff: Matthew A. Langan.....651-296-2096

**In the Matter of the Route Permit Application by Great River Energy for the Enterprise Park to Crooked Lake 115 kV Transmission Line Project in Anoka County, Minnesota**

**Issues Addressed:** These comments and recommendations address the Commission’s final decision on route permit issuance, including findings of fact, route designation and permit conditions.

**Documents Attached:**

- (1) Proposed findings of facts, conclusions of law, and order
- (2) Proposed transmission line route permit

Additional documents and information can be found on <http://mn.gov/commerce/energyfacilities/Docket.html?Id=32289> and on eDockets <https://www.edockets.state.mn.us/EFiling/search.jsp> (11-915).

This document can be made available in alternative formats (i.e., large print or audio) by calling 651-296-0391 (voice). Persons with hearing or speech disabilities may call us through Minnesota Relay at 1-800-627-3529 or by dialing 711.

**Introduction and Background**

On October 4, 2011, Great River Energy (GRE) submitted a route permit application to the Commission for the proposed Enterprise Park to Crooked Lake 115 kilovolt (kV) transmission line project (project).

***Project Description***

The project involves the construction of approximately 5.8 miles of new overhead 115-kV transmission line between Xcel Energy’s existing Crooked Lake Substation in Section 8, Township 31N, Range 24W in Coon Rapids, Minnesota, and Anoka Municipal Utility’s existing Enterprise Park Substation in Section 35, Township 32N, Range 25W in Anoka, Minnesota.

The project would remove, rebuild and attach Anoka Municipal Utility's existing overhead distribution (12.5 kV) lines to the new transmission line where the proposed new overhead 115-kV transmission line overtakes the existing distribution. Alternatively, Anoka Municipal Utility may choose to bury some of the distribution lines that are overtaken by the new high voltage line.

The project would also modify the Xcel Energy Crooked Lake Substation and the Anoka Municipal Utility Enterprise Park Substation to accommodate the project. Work within the Crooked Lake Substation will include the reconstruction of the 115-kV side to a more reliable ring bus and breaker additions. Work within the Enterprise Park Substation will include the addition of a new 115-kV/12.5-kV step down transformer and associated switch gear.

In its route permit application, GRE requested a route width of 100 to 400 feet, except in the area near Anoka High School where the route width would be 800 feet. GRE has indicated the 115 kV line will require a right-of-way (easement) of 50-70 feet. Wooden poles, ranging in height from 60-85 feet, would be the primary structure type used for the new line. Some specialty poles may be required at specific locations (e.g., steel poles, or H-frames).

GRE estimates the total costs for construction of the project to be \$11.71 million dollars. The project is anticipated to begin construction in May 2013.

## **Regulatory Process and Procedures**

In Minnesota, no person may construct a high voltage transmission line (HVTL) without a route permit from the Commission (Minnesota Statute 216E.03). A high voltage transmission line is defined as a conductor of electric energy designed for and capable of operation at a voltage of 100 kV or more and greater than 1,500 feet in length (Minnesota Statute 216E.01). The project will consist of approximately 5.8 miles of new 115 kV transmission line and therefore requires a route permit from the Commission.

### ***Route Permit Application and Acceptance***

On October 4, 2011, GRE filed a route permit application under the alternative permitting process for the project.<sup>1</sup> On November 4, 2011, the Commission found the application complete and authorized Department of Commerce, Energy Facility Permitting (EFP) staff to process the application under the alternative permitting process pursuant to Minnesota Rules 7850.2800 to 7850.3900.<sup>2</sup>

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<sup>1</sup> Application to the Minnesota Public Utilities Commission for a Route Permit, Enterprise Park to Crooked Lake 115 kV Project, Great River Energy, October, 4, 2011, eDocket Numbers [201110-66943-04](#) ; [201110-66943-01](#) ; [201110-66943-03](#) ; [201110-66943-05](#) ; [201110-66943-07](#) ; [201110-66943-02](#) ; [201110-66943-08](#) ; [201110-66943-06](#) ; [201110-66943-09](#) [hereafter Route Permit Application].

<sup>2</sup> Commission Order Accepting Application as Complete, eDockets Number [201111-68101-01](#) ; [201111-68101-02](#).

***Public Information and Environmental Assessment Scoping Meeting***

EFP staff is responsible for conducting environmental review for route permit applications to the Commission (Minn. Rules 7850.3700). Environmental review under the alternative permitting process requires a public information and scoping meeting, development of a scoping decision, and the preparation of the environmental assessment (EA). The EA exams the potential human and environmental impacts of a proposed project, alternative routes for the project, and potential mitigative measures.

Following notice by mail and newspaper publication, EFP staff held public information and EA scoping meetings on December 1, 2011, at Anoka City Hall in Anoka, Minn. Approximately 20 members of the public attended the meetings, and six persons took the opportunity to make comments or ask questions. A court reporter was present at the public meetings and transcribed comments made by the public, as well as responses from EFP staff and GRE. Topics and issues raised by the public at the meetings included: transmission line structure construction and engineering, preferred route, regulatory framework, noise, tree removal, and parks. A citizen at the meeting proposed a route segment alternative to the project – referred to as Route Segment Alternative A. The route segment alternative is in the city of Anoka, and would depart from the applicant's preferred route at 6<sup>th</sup> Avenue where the route crosses railroad tracks, and instead run parallel to the railroad right-of-way to the northwest, then turn north along 4<sup>th</sup> Avenue, then turn east to join up with the applicant's preferred route at Garfield Avenue.

A comment period following the meeting ended on December 19, 2011. Four comment letters were received during this comment period. Letters were received from the Minnesota Department of Natural Resources (MnDNR), the Minnesota Department of Transportation (MnDOT), and two citizens who own land or live in the project area. Issues raised by the public for inclusion in the scope of the environmental assessment included transmission line routing near athletic fields, and possible noise mitigation strategies between a MnDOT garage and residential area once existing trees are removed for the transmission line right-of-way. No alternative routes were proposed in the written comments received.

MnDNR requested that information be provided in the EA on vegetation removal minimization techniques, including at the Rum River crossing, a state-designated Wild and Scenic River. MnDNR also requested information on placement of bird flight diverters in the Rum River area. MnDNR also sought clarification of which state agency was charged with the administration of a parcel of land along the route owned by the State of Minnesota. MnDNR sent a follow-up email clarifying that the land is administered by the Department of Administration. MnDNR attached to its letter fact sheets on wildlife-friendly erosion control matting, and the Blanding's turtle, a state-listed threatened species, along with a flyer on best management practices for reducing the potential for impacts to the species.

MnDOT requested information on transmission line impacts to Trunk Highway 10 interchanges at 7<sup>th</sup> Avenue and Thurston Avenue.

### ***Scoping Decision***

The issues and alternative raised during the EA scoping process were reviewed in preparation for the EA scoping decision. The scoping decision identified two routes to be evaluated in the EA – the route proposed by GRE in its route permit application, and a route incorporating Route Segment Alternative A. The scope also included all issues raised by the public in verbal and written comments.

The Department of Commerce (Department) issued its EA scoping decision on January 9, 2012.<sup>3</sup>

### ***Environmental Assessment***

An EA must be prepared for all transmission line projects reviewed under the alternative permitting process. The EA for the project identifies and characterizes the potential human and environmental impacts of the project, and methods to avoid, minimize, and mitigate such impacts. EFP staff issued the EA on March 29, 2012.<sup>4</sup>

### ***Public Hearing***

EFP staff requested that an administrative law judge (ALJ) from the Office of Administrative Hearings preside over the public hearing and provide a summary of testimony. After notice by mail and newspaper publication, a public hearing was held on April 16, 2012, at Anoka City Hall in Anoka, Minn. Judge Richard Luis presided over the hearing. A comment period following the hearing ended on April 30, 2012. Four persons made comments and asked questions at the public hearing; four comment letters were submitted to Judge Luis during the comment period after the hearing. Judge Luis issued a summary of testimony and written comments on May 25, 2012.<sup>5</sup>

Comments and questions received during the hearing related to: (1) Impact comparison between GRE's proposed route and Route Segment Alternative A; (2) impact reduction and mitigation measures at the Rum River crossing; (3) impact reduction and mitigation measures near the Anoka High School athletic fields; and, (4) the city of Anoka and Anoka County's existing and planned infrastructure developments.

## **Standards for Permit Issuance**

The Power Plant Siting Act requires that transmission lines be located “in an orderly manner compatible with environmental preservation and the efficient use of resources” and in a way that minimizes “adverse human and environmental impact while insuring” electric power reliability (Minnesota Statute 216E.02). Minnesota Statute 216E.03, subdivision 7(b) identifies 12 considerations to guide route designations, including the evaluation and minimization of adverse environmental impacts, impacts to public health and welfare, and adverse economic impacts.

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<sup>3</sup> Environmental Assessment Scoping Decision, PUC Docket No. ET2/TL-11-915, Minnesota Department of Commerce, January 9, 2012, eDockets Number [20121-70073-01](#).

<sup>4</sup> Environmental Assessment, Enterprise Park to Crooked Lake 115 kV Transmission Line Project, Minnesota Department of Commerce, March 29, 2012, eDockets Number [20123-73085-01](#) ; [20123-73085-02](#) [0123-72712-01](#).

<sup>5</sup> Summary of Testimony at Public Hearing and Summary of Written Comments, May 25, 2012, eDockets Number [20125-75013-01](#).

Minnesota Rule 7850.4100 establishes 14 factors to be considered in determining whether to issue a route permit, including effects on human settlement, effects on public health and safety, effects on land-based economies, and effects on the natural environment. The Commission, when issuing a route permit, may place such conditions on the permit as are appropriate and supported by the record (Minnesota Statute 216E.03).

## **DOC EFP Staff Analysis and Comments**

EFP staff has prepared: (1) proposed findings of fact, conclusions of law, and order, and (2) a proposed route permit (attached). The proposed findings demonstrate that the alternative permitting process has been conducted in accordance with Minnesota Rules 7850.2800, to 7850.3900.<sup>6</sup> The findings identify potential impacts of the route and alignments studied in the EA and mitigative measures.<sup>7</sup> The findings evaluate these impacts and mitigative measures against the criteria of Minnesota Statute 216E.03, subdivision 7(b) and Minnesota Rule 7850.4100.<sup>8</sup> The proposed permit includes measures to ensure that the project is constructed safely, operates reliably, and that impacts are minimized or mitigated.

EFP staff has developed its proposed findings, proposed route permit, and comments and recommendations based on the record in this matter and with consideration of the statutes and rules guiding permit issuance.<sup>9</sup>

There are two routing scenarios described in this record, previously described as 1) the applicant's proposed route, and 2) the applicant's proposed route incorporating Route Segment Alternative A. For many categories of impacts, the potential impacts of the project are anticipated to be minimal and independent of the routing or alignment of the new 115 kV transmission line, including potential impacts to public health and safety, electronic communications, water resources, cultural resources, soils, and fauna. However, there are differences in potential impacts to residences located near the line, cost, transportation, and land use.<sup>10</sup>

Route Segment Alternative A follows a route that would reduce the number of homes within 36 to 135 feet of the line. The proposed route has 20 more homes within this distance of the transmission line than does the segment alternative, whereas Route Segment Alternative A would be located within the same distance from the Volunteers of America, multi-family assisted living center currently under construction. Neither route alternative would cause displacement of residences as a result of constructing and operating the Project.<sup>11</sup>

Route Segment Alternative A would be 0.3 miles longer than the applicant's proposed route. This would result in an increase to project costs of \$450,000, or a 3.8 percent increase.<sup>12</sup>

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<sup>6</sup> Proposed Findings of Fact 26-64.

<sup>7</sup> Proposed Findings of Fact 67-159.

<sup>8</sup> Id.

<sup>9</sup> Proposed Findings of Fact 67-69.

<sup>10</sup> Proposed Finding of Fact 154.

<sup>11</sup> Proposed Finding of Fact 155.

<sup>12</sup> Proposed Finding of Fact 156.

Route Segment Alternative A would parallel a portion of the railroad right-of-way where insufficient right-of-way exists for the placement of a transmission line. The BNSF railroad right-of-way in the project area is 125 feet in width. The communities within the project area have developed around this railroad alignment, leaving minimal space between the railroad right-of-way and local businesses, industrial buildings, and communications towers. The applicant's proposed route, instead of paralleling the railroad right-of-way in this area, makes a perpendicular crossing at 6<sup>th</sup> Avenue.<sup>13</sup>

Route Segment Alternative A crosses or parallels land owned by the city of Anoka and Anoka County. These lands have development occurring or planned. Volunteers of America has begun construction of a senior continuum of care campus on the property located east of 4<sup>th</sup> Avenue and north of Grant Street. There is a monopole cell tower located in the city's Public Services equipment yard that is close to the BNSF right-of-way and would likely be impacted by the proposed route segment alternative. These current and future development plans would not be affected by the applicant's proposed route.<sup>14</sup>

Route Segment Alternative A may also impact the rail station which abuts both sides of the tracks. If the segment alternative were to be located on the south side of the tracks, it would impact the planned construction of a multi-level parking facility and pedestrian overpass as well as other commercial development. Locating the line along the north side of the tracks would impact the buildings at 2804 5<sup>th</sup> Avenue and 2707 6<sup>th</sup> Avenue which abut the BNSF right-of-way. These current and future development plans would not be affected by the applicant's proposed route.<sup>15</sup>

Based on the record in this matter, EFP staff recommends that the Commission permit GRE's proposed route and alignment as described in the proposed route permit and shown in the attached permit maps. EFP staff's recommendation is based on reduced project costs, transportation impacts, and land use impacts.

EFP staff has added text to Section 5.0 of the permit, Special Conditions, to clarify that any special conditions take precedence over other conditions in the permit should there be a conflict between the two.

#### Rum River and River Bend Park Crossing

As part of the plan and profile submission, the Permittee shall describe the actions taken and mitigative measures developed regarding the Rum River and River Bend Park crossing including, but not limited to, minimization of vegetative clearing, installation of bird flight diverters, use of wildlife-friendly erosion control matting, and best management practices used to avoid or minimize impacts to Blanding's Turtles and Creek Heelsplitters. MnDNR recommendations for construction Best Management Practices in Blanding's Turtle habitat, and erosion control matting are attached to this permit

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<sup>13</sup> Proposed Finding of Fact 157.

<sup>14</sup> Proposed Finding of Fact 158.

<sup>15</sup> Proposed Finding of Fact 159.

## **DOC EFP Recommendations**

Department EFP staff recommends that the Commission:

1. Approve and adopt the proposed findings of fact, conclusions of law, and order for the Great River Energy Enterprise Park to Crooked Lake 115 kV transmission line project which:
  - a. Determines that the environmental assessment (EA) and record created at the public hearing address the issues identified in the EA scoping decision;
  - b. Designates the proposed route as the route for the construction of the Enterprise Park to Crooked Lake 115 kV transmission line project, including all associated facilities; and
  - c. Issues a high voltage transmission line route permit, with appropriate conditions, to Great River Energy, a Minnesota cooperative corporation.

**BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION**

Phyllis Reha  
David Boyd  
J. Dennis O'Brien  
Betsy Wergin

Acting Chair  
Commissioner  
Commissioner  
Commissioner

In the Matter of the Route Permit  
Application for the Enterprise Park to  
Crooked Lake 115 kV Transmission Line  
Project in Anoka County, Minnesota.

ISSUE DATE:

DOCKET NO. ET2/TL-11-915

FINDINGS OF FACT,  
CONCLUSIONS OF LAW, AND  
ORDER ISSUING A ROUTE PERMIT TO  
GREAT RIVER ENERGY FOR A 115  
KILOVOLT TRANSMISSION LINE AND  
ASSOCIATED FACILITIES

The above matter came before the Minnesota Public Utilities Commission (Commission) acting on an application by Great River Energy for a route permit to construct a new, 5.8-mile long, 115 kV overhead transmission line in Anoka County, Minnesota.

A public hearing was held on April 16, 2012, at Anoka City Hall in city of Anoka, Minnesota. The hearing was presided over by Judge Richard Luis, Administrative Law Judge (ALJ) for the Minnesota Office of Administrative Hearings (OAH). The hearing continued until all persons who desired to speak had done so. The comment period closed on April 30, 2012, at 4:30 p.m.

**STATEMENT OF ISSUE**

Should the Commission find that the environmental assessment and the record adequately address the issues identified in the scoping decision? Should the Commission issue a route permit identifying a specific route and permit conditions for the Enterprise Park to Crooked Lake 115 kV Transmission Line project?

Based upon all of the proceedings herein, the Commission makes the following:

## **FINDINGS OF FACT**

### **I. Applicant**

1. Great River Energy (applicant) is a not-for-profit generation and transmission cooperative based in Maple Grove, Minnesota. Great River Energy provides electrical energy and related services to 28 member cooperatives.<sup>1</sup>
2. The applicant has applied for a high-voltage transmission line route permit to construct a new 115 kV transmission line and to upgrade the existing Crooked Lake and Enterprise Park substations (project). The applicant indicates the proposed project will strengthen and enhance the regional transmission system by providing an additional power delivery source into the Anoka and Ramsey industrial parks, relieving the pressure on the existing 69-kV transmissions system, and backing up transmission service to the Enterprise Park Substation and retail customers.<sup>2</sup>

### **II. Project Description**

3. The project consists of the following components:<sup>3</sup>
4. Constructing approximately 5.8 miles of new overhead 115-kV transmission line between Xcel Energy's existing Crooked Lake Substation in Section 8, Township 31N, Range 24W in Coon Rapids, Minnesota, and Anoka Municipal Utility's existing Enterprise Park Substation in Section 35, Township 32N, Range 25W in Anoka, Minnesota.
5. Removing, rebuilding and attaching Anoka Municipal Utility's existing overhead distribution (12.5 kV) lines to the new transmission line where the proposed new overhead 115-kV transmission line overtakes the existing distribution. Alternatively, Anoka Municipal Utility may choose to bury some of the distribution lines that are overtaken by the new high voltage line.
6. Modifying the Xcel Energy Crooked Lake Substation and the Anoka Municipal Utility Enterprise Park Substation to accommodate Great River Energy's new transmission line. Work within the Crooked Lake Substation will include the reconstruction of the 115-kV side to a more reliable ring bus and breaker additions. Work within the Enterprise Park Substation will include the addition of a new 115-kV/12.5-kV step down transformer and associated switch gear.

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<sup>1</sup> Exhibit (Ex.) 2 at p. 1-1 (Route Permit Application [hereafter RPA]).

<sup>2</sup> Ex. 2 at p. 1-1 (RPA).

<sup>3</sup> Ex. 2 at p. 1-3 (RPA).

## **A. Route and Route Width**

7. The applicant has identified and proposed one route for the project. This route extends from the Crooked Lake Substation in Coon Rapids, Minnesota, to the Enterprise Park substation in Anoka, Minn.<sup>4</sup>
8. The route proposed by the applicant, and one route segment alternative raised during the public environmental assessment scoping process, were evaluated in the environmental review of the project.<sup>5</sup>
9. The applicant requests a route width that varies along the length of the project from 50 to 200 feet on either side of the roadways paralleled by the project, except in the area near Anoka High School, where the applicant requests a route width up to 800 feet.<sup>6</sup>
10. The route segment included in the scope of the environmental assessment (Route Segment Alternative A) is 400 feet in width.<sup>7</sup>

## **B. Right-of-Way and Alignment**

11. The applicant indicates that the new 115 kV transmission line will require a right-of-way between 50 – 70 feet in width (25-35 feet on either side of the line).<sup>8</sup>
12. The applicant has provided a conceptual alignment for the project within the proposed route.<sup>9</sup>

## **C. Structures and Conductors**

13. GRE proposes to use single pole wooden structures for the project. Poles with horizontal post insulators will be the primary structure for project; braced post insulators will be used if longer spans are required. Structures would range in height from 60 to 85 feet with an average span of 300 to 400 feet between structures.<sup>10</sup>
14. Specialty structures (e.g., laminate wood poles, steel poles, taller poles) may be required in certain areas along the route. Guying may be required to minimize structure deflections.<sup>11</sup>

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<sup>4</sup> Ex. 2 at p. 1-1 (RPA).

<sup>5</sup> Exhibit 9 (Environmental Assessment Scoping Decision).

<sup>6</sup> Ex. 2 at p. 3-5 (RPA).

<sup>7</sup> Exhibit 9 (Environmental Assessment Scoping Decision).

<sup>8</sup> Ex. 2 at p. 3-5 (RPA).

<sup>9</sup> Ex. 2 at Figures 4-2 to 4-11 (RPA).

<sup>10</sup> Ex. 2 at pp. 5-1 to 5-2 (RPA).

<sup>11</sup> Id.

15. Single pole with underbuild design will be used in areas where the new transmission line overtakes Anoka Municipal Utility's 12.5 kV overhead distribution line. These structures will be taller because the higher voltage circuit is stacked on top of the lower voltage circuit, resulting in a pole that averages 75 to 85 feet in height above ground. Span lengths will average 250 to 300 feet.<sup>12</sup>
16. The single circuit structures will have three single-conductor phase wires (not bundled) and one shield wire. The phase wires will be 795 ACSS 26/7 (Aluminum Conductor Steel Supported with 7 steel core strands and 26 outer aluminum strands). The shield wire will be 0.528 optical ground wire (OPGW).<sup>13</sup>

#### **D. Substations**

17. The project involves modifications to the existing Crooked Lake 115-kV Substation, including installing a new breaker ring bus configuration, modifying the high side structures to accommodate the new 115-kV transmission line, and grading, fencing, constructing a control building, and erecting steel structures. Xcel Energy will own all common substation facilities (land, fence, etc.).<sup>14</sup>
18. The project involves modifications to the existing Enterprise Park 69-kV Substation, including installing one 115/12.47-kV transformer to receive the new 115-kV service and step it down to 12.47 kV for distribution, installing one box structure, a 115-kV switch with associated bus work and one 115-kV transrupter to accommodate the 115-kV transmission line termination, and grading, fencing, constructing a control building, and erecting steel structures. Portions of the high side structure will be owned by Minnesota Municipal Power Agency and Anoka Municipal Utility. Anoka Municipal Utility will own all common substation facilities (land, fence, etc.) and will operate the low voltage distribution facilities).<sup>15</sup>

#### **E. Project Schedule**

19. The applicant anticipates construction of the project will begin in May, 2013, with an anticipated in-service date of October 2013.<sup>16</sup>

#### **F. Project Costs**

20. The applicant estimates the total costs for construction of the project to be \$11.71 million dollars. The total cost of the project, if Route Segment Alternative A is incorporated, is \$12.16 million. Annual operations and maintenance costs are

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<sup>12</sup> Ex. 2 at p. 5-2 (RPA).

<sup>13</sup> Id.

<sup>14</sup> Ex. 2 at p. 5-3 (RPA).

<sup>15</sup> Ex. 2 at pp. 5-3 to 5-4 (RPA).

<sup>16</sup> Ex. 10 at p. 8 (Environmental Assessment, hereafter referred to as EA).

anticipated to be in the range of \$1,100 - \$1,350 dollars per mile of 115 kV transmission line.<sup>17</sup>

### **G. Construction**

21. Upon issuance of a route permit, the applicant will conduct a design survey. Landowners along the route will be notified of the survey work. Upon completion of the design survey, the applicant will begin acquiring easements from applicable landowners.<sup>18</sup>
22. After easements have been secured, the applicant will begin construction. Landowners will be notified in advance of construction schedules, ingress and egress for the project, tree and vegetation removal, and other construction activities.<sup>19</sup>
23. The 115 kV transmission line structures will be constructed at the existing grade; thus, grading and filling will be minimal. No pole locations would require grading, unless it is necessary to provide a level area for construction access and activities.<sup>20</sup>
24. Wooden structures for the new 115 kV line will require a hole 10-15 feet deep and 3-4 feet in diameter for each structure. Poles will be backfilled with soils, crushed rock, or concrete depending on design requirements. Specialty poles may require a concrete foundation.<sup>21</sup>
25. Modification of the Crooked Lake and Enterprise Park substations will require grading of less than one acre.<sup>22</sup>
26. Upon completion of construction, the project area will be restored, including removing debris, employing erosion control measures, and reseeding disturbed soils. Landowners will be contacted to determine whether they believe there is any construction damage to their property (damage beyond or remaining after restoration measures). Areas that have been damaged by construction will be restored to their pre-construction condition to the extent possible.<sup>23</sup>

### **III. Procedural Summary**

27. On September 7, 2011, in accordance with Minnesota Rule 7850.2800, subpart 2, the applicant filed a letter with the Commission noticing its intent to submit a

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<sup>17</sup> Ex.2 at p.12 (EA)

<sup>18</sup> Ex. 2 at p. 6-2 (RPA).

<sup>19</sup> Id.

<sup>20</sup> Ex. 2 at p. 7-1 (RPA).

<sup>21</sup> Id.

<sup>22</sup> Ex. 2 at p. 7-3 (RPA).

<sup>23</sup> Id.

route permit application under the alternative permitting process set forth in Minnesota Statutes 216E.04 and Minnesota Rules 7850.2800 to 7850.3900.<sup>24</sup>

28. On October 4, 2011, the applicant filed a route permit application with the Commission for the project.<sup>25</sup>
29. On October 4, 2011, the applicant mailed notice of their route permit application submittal to those persons whose names are on the general contact list maintained by the Commission for this purpose, local and regional officials, and property owners in compliance with Minnesota Rule 7850.3300.<sup>26</sup>
30. The applicant published notice of their route permit application submittal in the *Anoka County Union* Newspaper (October 14, 2011) in compliance with Minnesota Rule 7850.3300.<sup>27</sup>
31. In its comments and recommendations to the Commission, Department of Commerce Energy Facility Permitting (EFP) staff recommended that the Commission accept the applicant's route permit application for the project as complete, authorize EFP staff to process the application under the alternative permitting process pursuant to Minnesota Rules 7850.2800 to 7850.3900, authorize EFP staff to name a public advisor, and determine that based on the available information an advisory task force is not necessary at this time.<sup>28</sup>
32. On November 4, 2011, the Commission accepted the application as complete and determined that the project is eligible for the alternative permitting process of the Power Plant Siting Act, Minnesota Statute 216E.04 and Minnesota Rules 7850.2800 to 7850.3900, authorized EFP staff to name a public advisor, and determined that an advisory task force was not necessary at this time.<sup>29</sup>
33. On November 14, 2011, EFP staff issued and mailed a notice of public information and scoping meetings to those persons whose names are on the project list maintained by the Commission for this purpose in compliance with Minnesota Rule 7850.3500, subpart 1.<sup>30</sup>
34. Notice of the public information and scoping meeting was published in the *Anoka County Union* newspaper (November 18, 2011) in compliance with Minnesota Rule 7850.3500, subpart 1.<sup>31</sup>

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<sup>24</sup> Ex. 1 (Notice of Intent).

<sup>25</sup> Ex. 2 (RPA).

<sup>26</sup> Ex. 3 (Notice of Route Permit Application)

<sup>27</sup> Id.

<sup>28</sup> Ex. 4 (EFP staff comments and recommendations to the Commission on application acceptance).

<sup>29</sup> Ex. 5 (Commission Order of Application Acceptance).

<sup>30</sup> Ex. 6 (Notice of Public Information and EA Scoping Meetings).

<sup>31</sup> Ex. 7 (Published Notice of Public Information and Scoping Meeting).

## A. Public Information and Scoping Meeting

35. The scoping process is the first step in developing an environmental assessment (EA). The Department of Commerce (Department) “shall provide the public with an opportunity to participate in the development of the scope of the EA by holding a public meeting and by soliciting public comments.”<sup>32</sup> During the scoping process, alternative routes may be suggested for evaluation in the EA.<sup>33</sup>
36. In accordance with Minnesota Rule 7850.3500, subpart 1, EFP staff held public information and scoping meetings on December 1, 2011, at Anoka City Hall in the city of Anoka, Minnesota.<sup>34</sup>
37. Six persons provided oral comments and/or asked questions about the proposed project at the public meetings. Topics and issues raised by the public at the meeting included: transmission line structure construction and engineering, preferred route, regulatory framework, noise, tree removal, and parks. One route segment alternative was proposed at the meeting..<sup>35</sup>
38. The route segment alternative is in the city of Anoka, and would depart from the applicant's preferred route at 6<sup>th</sup> Avenue where it crosses railroad tracks, and instead parallel the railroad right-of-way to the northwest, then turn north along 4<sup>th</sup> Avenue, then turn east to join up with the applicant's preferred route at Garfield Avenue.<sup>36</sup>
39. The public comment period on the scope of EA closed on December 19, 2011. EFP staff received four comment letters during the scoping comment period EFP staff received four comment letters by the close of the comment period from the Minnesota Department of Natural Resources (MnDNR), the Minnesota Department of Transportation (MnDOT), and two citizens who own land or live in the project area. No alternative routes were proposed in the written comments received.<sup>37</sup>
40. Issues raised by the public for inclusion in the scope of the environmental assessment include transmission line routing near athletic fields, and possible noise mitigation strategies between a MnDOT garage and residential area once existing trees are removed for the transmission line right-of-way.<sup>38</sup>
41. MnDNR requested that information be provided in the EA on vegetation removal minimization techniques, including at the Rum River crossing, a state-designated

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<sup>32</sup> Minnesota Rule 7850.3700, subpart 2.

<sup>33</sup> Minnesota Rule 7850.3700, subpart 2B.

<sup>34</sup> Ex. 11 (Scoping Decision).

<sup>35</sup> Ex. 8 (Transcribed and Written Oral Comments from Public Information and Scoping Meeting).

<sup>36</sup> Id.

<sup>37</sup> Id., Ex. 11 Scoping Decision.

<sup>38</sup> Id.

Wild and Scenic River. MnDNR also requested information on placement of bird flight diverters in the Rum River area. MnDNR also sought clarification of the administrator of a parcel of land along the route owned by the State of Minnesota. MnDNR sent a follow-up email clarifying that the land is administered by the Department of Administration. MnDNR attached to its letter fact sheets on wildlife-friendly erosion control matting, and the Blanding's turtle, a state-listed threatened species, along with a flyer on best management practices for reducing the potential for impacts to the species.<sup>39</sup>

42. MnDOT requested information on transmission line impacts to Trunk Highway 10 interchanges at 7<sup>th</sup> Avenue and Thurston Avenue.<sup>40</sup>
43. The scoping decision for the EA was signed by the deputy commissioner of the Department of Commerce on January 5, 2012, and made available to the public as provided in Minnesota Rule 7850.3700, subpart 3, on January 9, 2012.<sup>41</sup>

## **B. Environmental Assessment**

44. On March 29, 2012, EFP staff issued the environmental assessment (EA) for the project.<sup>42</sup>
45. On March 29, 2012, EFP staff mailed a combined notice of public hearing and availability of EA to those persons whose names are on the project contact list as provided for by Minnesota Rule 7850.3700, subpart 6.<sup>43</sup>
46. On March 29, 2012, the EA was provided to public agencies with authority to permit or approve the project and was posted to the Department's energy facility permitting website in accordance with Minnesota Rule 7850.3700, subpart 6.<sup>44</sup>
47. On April 2, 2012, notice of the availability of the EA was published in the *EQB Monitor*.<sup>45</sup>

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<sup>39</sup> Id.

<sup>40</sup> Id.

<sup>41</sup> Ex. 9 (EA Scoping Decision with Notice).

<sup>42</sup> Ex. 10 (EA).

<sup>43</sup> Ex. 11 (Notice of Public Hearing and Availability of EA).

<sup>44</sup> Ex. 11 (Notice of Public Hearing and Availability of EA).

<sup>45</sup> Ex. 12 (Notice in EQB Monitor).

### C. Public Hearing

48. On March 29, 2012, EFP staff sent via certified mail a notice of public hearing and availability of EA to chief executives of the regional development commissions, counties, organized towns, townships, and incorporated municipalities in accordance with Minnesota Statute 216E.03, subdivision 6.<sup>46</sup>
49. A notice of public hearing and availability of EA was published in the *Anoka County Union* newspaper (April 6, 2012).<sup>47</sup>
50. Administrative Law Judge (ALJ) Richard C. Luis presided over the public hearing conducted on April 16, 2012, at Anoka City Hall in the city of Anoka, Minnesota.<sup>48</sup>
51. During the hearing, testimony was heard from the applicant and members of the public. The hearing record closed on April 30, 2012.<sup>49</sup>
52. Pursuant to Minnesota Rule 7850.3800, subpart 3A, EFP state permit manager Matthew Langan participated in the public hearing, described the permitting process, and introduced the EA and procedural documents into the record.<sup>50</sup>
53. Mark Strohfus, Environmental Project Lead, appeared at the hearing on behalf of the applicant.<sup>51</sup>
54. A transcript of the public hearing was filed by the Office of Administrative Hearings' designated court reporter on May 1, 2012.<sup>52</sup>
55. On May 25, 2012, Judge Luis filed a summary of testimony from the public hearing and a summary of written comments.<sup>53</sup>
56. During the public hearing, four members of the public presented their views regarding the proposed route and alignment for the project.<sup>54</sup> The ALJ received four written comments by the close of the hearing record on April 30, 2012.<sup>55</sup>

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<sup>46</sup> Ex. 13 (Certified Mail Notice of Public Hearing and Availability of EA).

<sup>47</sup> Ex. 14 (Published Notice of Public Hearing and Availability of EA).

<sup>48</sup> Ex. 19 (Administrative Law Judge Summary of Public Testimony [hereafter ALJ Summary]).

<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> Ex. 17 (Public Hearing Transcript).

<sup>53</sup> Ex. 19 (ALJ Summary).

<sup>54</sup> *Id.*

<sup>55</sup> *Id.*

#### **D. Summary of Oral Hearing Comments**

57. Tom Raddohl lives at the corner of Sixth and Grant Streets in Anoka, Minnesota, and the applicant's proposed route will go on two sides of his property, south and west, because of the proposed half-block turn to the west at that corner. Route Segment Alternative A was proposed by Mr. Raddohl during the public EA scoping period. Mr. Raddohl stated that, if the preferred route is adopted, the value of his currently-unexercised option to buy property lying to the west of his yard would be greatly diminished.<sup>56</sup>
58. Ms. Lois Witte is a neighbor of Mr. Raddohl. Her house lies on Sixth Avenue south of its intersection with Grant (between Grant and Johnson). The proposed route would run across the street from her property. Ms. Witte proposed that the line run straight west along Johnson Street from Sixth Avenue to Fourth Avenue. This proposal, which would keep the transmission line away from her house, was made for the first time at the public hearing, and was not accompanied by information on potential social and environmental impacts or mitigation strategies.<sup>57</sup>
59. Anoka City Council Member Steve Schmidt testified about the progress of a senior housing/assisted living center that is under construction and would be impacted if Route Segment Alternative A is adopted. Mr. Schmidt noted that the building's footings are virtually complete and two or three walls are up. The owners (Volunteers of America) have an option to purchase an additional eight acres in the area lying west of the preferred line and traversed by Route Segment Alternative A.<sup>58</sup>
60. Joseph Anderla is on the Anoka Park and Recreation Board. He is concerned that the soccer fields near the high school in the vicinity of Seventh and Bunker Lake Road will be impacted by the 115kV power poles. Mr. Anderla wonders if the fields might be rendered unusable. Mr. Anderla also pointed out, as had Mr. Strohfus earlier in the hearing, that the situation is complicated further by Anoka County's plans to widen the intersection to accommodate additional lanes.<sup>59</sup>

#### **E. Summary of Written Hearing Comments**

61. Craig Affeldt, Supervisor of the Environmental Review Unit at the Minnesota Pollution Control Agency (MPCA) noted that the Rum River enjoys Scenic River Status Designation at the point where the Company proposes to cross the Rum with its 115kV line. The Scenic River Designation necessitates increased storm water treatment and protection in that area of the route. These matters will be

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<sup>56</sup> Ex. 19 at pp. 2-3 (ALJ Summary).

<sup>57</sup> Ex. 19 at p.4 (ALJ Summary).

<sup>58</sup> Ex. 19 at p.3 (ALJ Summary).

<sup>59</sup> Ex. 19 at p. 4 (ALJ Summary).

addressed in a Permit issued by the MPCA. Mr. Affeldt notes that a Clean Water Act (CWA) Section 404 Permit from the U.S. Army Corps of Engineers may be necessary because of impacts on wetlands resulting from the project. Mr. Affeldt wrote that it is not uncommon for public utility projects to encounter contamination, especially soil contaminated by storage tanks or prior spills. He mentioned a website where a map of such areas is available to alert the applicant regarding the placement of the line.<sup>60</sup>

62. Ms. Jamie Schrenzel a Principal Planner with the Department of Natural Resources, wrote that the EA includes discussion of utilizing wildlife-friendly erosion control matting and discussed the MnDNR's recommendations for avoiding impacts to the Blanding's turtle, a protected species that lives in the area impacted by the power line. Ms. Schrenzel noted also that comments had been submitted earlier regarding the impact of the transmission line's possible interference with the Rum River, which is designated as "Wild and Scenic" at the location of the crossing. Ms. Schrenzel notes that the MnDNR still wishes to provide input regarding avian flight diverter locations, and may require the placement of diverters at the Rum River crossing. The MnDNR recommends also that measures be taken to reduce deforestation and other vegetation impacts, particularly in the vicinity of the Rum River.<sup>61</sup>
63. Carolyn Braun, Planning Director for the City of Anoka, filed a Comment regarding Route Segment Alternative A. The city is opposed to adopting Alternative A. The city's letter notes that there is very little room to locate power lines along the north or south side of the railroad tracks because of planned station platforms. The city will build waiting platforms for the Anoka Station on North Star Line, and any other rail lines in that location. Ms. Braun writes also that locating the line along the south side of the tracks in the area of the planned railroad station would impact construction of a multi-level parking facility and pedestrian overpass over the railroad tracks. The city plans to locate the ramp immediately adjacent to the south side of the station platforms and connect the platforms with a pedestrian overpass. Construction is slated to begin in the spring of 2013. If the line is located along the north side of the tracks, another possibility under Alternative A, the 115kV project would impact two buildings that abut the right-of-way of the Burlington Northern Santa Fe (BNSF) Railroad. An easement would be required from BNSF to locate the line in that area, or the line would have to be constructed over the buildings. The affected buildings are just east of the north railroad station platform. Ms. Braun notes generally that the area along the north side of the track between Fourth Avenue and Sixth Avenue is planned for commercial and high-density residential development. The city's comment points out that the Volunteers of America just began construction of a senior continuum of care campus on property north of Grant Street and east of Fourth Avenue. The alternative route would place the 115kV line along the front

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<sup>60</sup> Ex. 19 at p.5 (ALJ Summary); Ex. 18 (Hearing Comments).

<sup>61</sup> Ex. 19 at p.5 (ALJ Summary); Ex. 18 (Hearing Comments).

of that development, which is called "The Homestead." The Homestead is under construction, and is scheduled to open in the spring of 2013.<sup>62</sup>

64. Ms. Braun also stated in her letter that Route Segment Alternative A cuts through the middle of county property, on which Anoka County plans to add an office facility in the future. Ms. Braun wrote also that placement of the line as proposed by the applicant would place the 115kV alignment along the backyards of affected property owners and residents –depending on the final alignment - whereas placement of the line along Route Segment Alternative A along Fourth Avenue, puts the line in residential front yards. Ms. Braun emphasizes that the city and the applicant worked jointly and held meetings over a two-year period to get input on a preferred route, and the route proposed originally by the applicant is favored by a majority of those who participated in the process. The route proposed in the applicant's application has been approved by the Anoka City Council as being in the best interests of the city as a whole.<sup>63</sup>
65. Tim and Teresa Hentges own a home and property located along the applicant's preferred route on Polk Street in Anoka, Minnesota. The Hentges' state they are opposed to the applicant's preferred route on the basis of negative effects on property value, required easement access, noise and public health effects. The Hentges' state the transmission line should be placed at least 200 feet from their home.<sup>64</sup>

#### **IV. Certificate of Need Criteria**

66. Pursuant to Minnesota Statute 216B.243, subdivision 2, "No large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need by the Commission." In the case of a high-voltage transmission line, a large energy facility is defined as (1) any high-voltage transmission line with a capacity of 200 kV or more and greater than 1,500 feet in length, or (2) any high-voltage transmission line with a capacity of 100 kV or more with more than ten miles of its length in Minnesota or that crosses a state line.<sup>65</sup>
67. A certificate of need is not required for this project as the transmission line capacity is less than 200 kV and the proposed route is less than 10 miles in length.<sup>66</sup>

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<sup>62</sup> Ex. 19 at pp.5-6 (ALJ SUMMARY); Ex. 18 (Hearing Comments).

<sup>63</sup> Ex. 19 at pp.5-6 (ALJ Summary); Ex. 18 (Hearing Comments).

<sup>64</sup> Ex. 18 (Hearing Comments).

<sup>65</sup> Minnesota Statute 216B.2421.

<sup>66</sup> Ex. 10 at p. 6 (EA).

## V. Routing Criteria

68. The Power Plant Siting Act requires the Commission to locate transmission lines “in an orderly manner compatible with environmental preservation and the efficient use of resources” and in a way that minimizes “adverse human and environmental impact while insuring” electric power reliability.<sup>67</sup>
69. Minnesota Statute 216E.03, subdivision 7(b) identifies 12 considerations to guide Commission route designations, including the evaluation and minimization of adverse environmental impacts, impacts to public health and welfare, and adverse economic impacts.<sup>68</sup>
70. The Commission is also guided by Minnesota Rule 7850.4100 which establishes factors to be considered in determining whether to issue a route permit. These factors are as follows:<sup>69</sup>
  - A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;
  - B. effects on public health and safety;
  - C. effects on land-based economies, including, but not limited to agriculture, forestry, tourism, and mining;
  - D. effects on archaeological and historic resources;
  - E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;
  - F. effects on rare and unique natural resources;
  - G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;
  - H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;
  - I. use of existing large electric power generating plant sites;
  - J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

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<sup>67</sup> Minnesota Statute 216E.02.

<sup>68</sup> Minnesota Statute 216E.03.

<sup>69</sup> Minnesota Rule 7850.4100.

- K. electrical system reliability;
- L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;
- M. adverse human and natural environmental effects which cannot be avoided; and
- N. irreversible and irretrievable commitments of resources.

## VI. Application of Routing Criteria

### A. Effects on Human Settlement

- 71. **Socioeconomics.** Socioeconomic impacts are anticipated to be positive due to expenditures at local businesses during construction of the project. Indirect positive impacts will result from the increased capacity of the electrical system to reliably serve the project area.<sup>70</sup>
- 72. Anoka County is generally as racially and ethnically diverse as the state of Minnesota (Table 5.10). Neither racial nor ethnic minorities will be disproportionately affected by the project.<sup>71</sup>
- 73. **Displacement.** National Electric Safety Code (NESC) and the applicant's company standards require certain clearances between transmission lines and buildings for safe operation of the line. The applicant has requested a right-of-way (ROW) of 50-75 feet for the new 115 kV line. In general, no structures are allowed within a transmission line ROW. Displacement would occur where any occupied structure is located within the transmission line ROW.<sup>72</sup>
- 74. For either routing scenario (applicant's proposed or a route incorporating Route Segment Alternative A), there are 17 homes within the maximum ROW required (70 feet, or 35 on either side of the transmission line centerline, depending on the final alignment.) The applicant has stated that no residential displacement will need to occur in order to construct and operate the transmission line. The applicant has stated this is possible by reducing the ROW required to 50 feet in the conceptual alignment, and sharing existing ROW with road corridors.<sup>73</sup>
- 75. **Noise.** All noises produced by the project must be within Minnesota noise standards. These standards limit A-weighted decibel levels (dBA) for specific

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<sup>70</sup> Ex. 10 at pp. 53-54 (EA).

<sup>71</sup> Ex. 10 at p.52 (EA)

<sup>72</sup> Ex. 10 at p. 22 (EA).

<sup>73</sup> Id.

receptor environments and times of day. The primary noise receptors near the project area are residences. Minnesota noise standards for these residences are 60 dBA L<sub>50</sub> during the daytime and 50 dBA L<sub>50</sub> during the nighttime.<sup>74</sup>

76. Any exceedances of daytime noise standards due to construction are anticipated to be intermittent and temporary in nature. Construction activities will be limited to daytime working hours; thus, no exceedances of nighttime noise standards are anticipated.<sup>75</sup>
77. Noise from operation of the new 115 kV is estimated to be less than 19 dBA and within Minnesota noise standards for all receptors.<sup>76</sup>
78. Noise from operation of the new 115 kV transformer within the expanded Enterprise Park substation is estimated to be 50 dBA at 51 feet from the transformer and 31 dBA at the nearest noise receptor (approximately 450 feet from the transformer). These levels are within Minnesota noise standards.<sup>77</sup>
79. Modifications at the Crooked Lake Substation will not include the installation of a new transformer.<sup>78</sup>
80. **Aesthetics.** The project would be routed through a highly developed suburban city. The viewshed is congested with manmade structures and is relatively short, both of which makes the transmission line less apparent to the casual observer. The transmission line will nevertheless be visible along the roads that it parallels. The applicant has stated that, in areas where the new transmission line overtakes the existing distribution line, the existing distribution line will be removed and either attached to the new poles, or buried underground. Homes within 500 feet of the Proposed Route alignment will be the most likely to have their viewshed affected by the construction of a transmission line.<sup>79</sup>
81. The majority of the 115-kV single circuit line will be constructed using single pole wood structures with horizontal post insulators. The average height will be between 60 and 85 feet, with an average span of 250 to 400 feet. The transmission line will generally be designed with a narrow profile that is less intrusive than other types of structures.<sup>80</sup>
82. Minimal direct and indirect impacts are anticipated in the locations of the Enterprise Park and Crooked Lake substations. Activities associated with the

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<sup>74</sup> Minnesota Rule 7030; Ex. 10 at p. 26 (EA).

<sup>75</sup> Ex. 13 at p. 28 (EA)

<sup>76</sup> Ex. 10 at p. 27 (EA).

<sup>77</sup> Ex. 10 at p. 28 (EA).

<sup>78</sup> Ex. 10 at p. 27 (EA).

<sup>79</sup> Ex. 10 at p. 24 (EA).

<sup>80</sup> Id.

modifications would be consistent with the overall industrial atmosphere in these two locations.<sup>81</sup>

83. More long-term impacts would be associated with the placement of the poles and the potential loss of trees. In areas where trees would be removed, the transmission lines and poles would be visible to residents and other viewers.<sup>82</sup>
84. Mitigation will include locating structures and ROW of the route and conceptual alignment within previously disturbed areas after considering input from landowners or land management agencies to minimize visual impacts, preserving the natural landscape by constructing and operating the line to prevent any unnecessary destruction of the natural surroundings, paralleling or sharing existing transmission lines and other rights-of-way, wherever such actions do not violate sound engineering principles or system reliability criteria, and compensating landowners for removal of any mature yard trees.<sup>83</sup>
85. **Property Values.** Property values generally are determined by a combination of individual property characteristics and local market trends. These characteristics may include, but are not limited to, size, age, condition, and amenities. These characteristics are associated with both residential and non-residential properties. Effects of transmission lines on property values are difficult to quantify as numerous variables may influence the final value of a property. These variables may include the type and size of power lines, the distance to the power lines, and amenities offered by the property.<sup>84</sup>
86. Property values impacts can be reduced overall by selecting an alignment within the route that follows existing utility and roadway corridors, and can be mitigated during the easement negotiation process.<sup>85</sup>
87. **Electronic Interference.** Corona from transmission line conductors can generate electromagnetic noise in the radio frequency range. This noise may cause interference at the same frequencies that communication and media signals are transmitted. This interference may inhibit or affect the reception of these signals depending on the frequency and strength of the signal.<sup>86</sup>
88. Analog and digital television, FM radio, two-way radios, wireless internet, and cellular phones all operate at frequencies greater than corona-generated noise and are not expected to be impacted by the project.<sup>87</sup>

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<sup>81</sup> Id.

<sup>82</sup> Ex. 13 at pp. 19-20, pp. 47-52, pp. 55-57.

<sup>83</sup> Ex. 10 at p. 25 (EA).

<sup>84</sup> Ex. 10 at p. 54 (EA).

<sup>85</sup> Id.

<sup>86</sup> Ex. 13 at pp. 28-31 (EA).

<sup>87</sup> Id.

89. AM radio frequency interference typically occurs immediately under a transmission line and dissipates rapidly to either side. If radio interference from transmission line corona does occur, satisfactory reception from AM radio stations can be restored by appropriate modification of the receiving antenna system.<sup>88</sup>
90. Satellite television is not anticipated to be impacted by corona-generated noise, but can be impacted by line-of-sight obstruction, e.g., a transmission line pole directly in the path a television signal. Impacts due to obstruction can be mitigated by moving the satellite dish.<sup>89</sup>
91. Global positioning systems (GPS) are not expected to be impacted by corona-generated noise, but can be impacted by line-of-sight obstruction. GPS systems utilize multiple satellite signals; obstruction of any one signal is not anticipated to cause inaccurate navigation. Additionally, any obstruction would be resolved by the movement of the GPS receiver; thus impacts are expected to be minimal and temporary.<sup>90</sup>
92. The applicant indicates that it will inspect and repair its facilities to ensure a minimum of corona-generated noise and will take all measures necessary to mitigate impacts to radio and television reception in project area.<sup>91</sup>

## B. Public Health and Safety

93. **Electric and Magnetic Fields (EMF).** Electric and magnetic fields (EMF) are invisible regions of forces resulting from the presence of electricity. EMF are characterized by their frequencies, i.e., the rate at which fields change direction each second. Electrical lines in the United States have a frequency of 60 cycles per second, or 60 Hertz (Hz).<sup>92</sup>
94. *Electric Fields.* Electric fields are created by the electric charge (voltage) on a transmission line. Electric field strength is measure in kilovolts per meter (kV/m). The strength of an electric field decreases rapidly as the distance from the source increases. Electric fields are easily shielded or weakened by most objects and materials, e.g., trees and buildings.<sup>93</sup>
95. The Commission has established a standard of 8 kV/m for the maximum electrical field associated with a transmission line (measured at the transmission line centerline, one meter above the ground).<sup>94</sup>

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<sup>88</sup> Id.

<sup>89</sup> Id.

<sup>90</sup> Id.

<sup>91</sup> Id.

<sup>92</sup> Ex. 10 at pp. 32-33 (EA).

<sup>93</sup> Id.

<sup>94</sup> Id.

96. The estimated maximum electric field for this project is 1.39 kV/m. This maximum occurs on the transmission line centerline. The estimated maximum electric field at the edge of the transmission line ROW is 0.67 kV/m.<sup>95</sup>
97. The estimated electric fields for this project are well below the standard established by the Commission. No adverse health impacts from electric fields are anticipated for persons living or working near the project.<sup>96</sup>
98. *Magnetic Fields.* Magnetic fields are created by the electric current moving through a transmission line. Magnetic field strength is typically measured in milliGauss (mG). The strength of a magnetic field decreases rapidly as the distance from the source increases. Unlike electric fields, magnetic fields are not easily shielded or weakened by objects or materials.<sup>97</sup>
99. There are no State of Minnesota or federal standards for exposure to magnetic fields from transmission lines. Florida, Massachusetts, and New York have established standards for magnetic field exposure at the edge of transmission line rights-of-way. These standards are 150 mG, 85 mG, and 200 mG respectively.<sup>98</sup>
100. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has developed standards for magnetic field exposure. The ICNIRP standard for magnetic field exposure for the general public is 2,000 mG.<sup>99</sup>
101. Epidemiological studies have shown an association between magnetic field exposure and health risks for children. Epidemiological studies, clinical studies, and cellular studies have shown no association between magnetic field exposure and health risks for adults. No studies have established a causal relationship between magnetic field exposure and adverse health impacts.<sup>100</sup>
102. The estimated maximum magnetic field for this project, under normal operating conditions, is 13.62 mG. This maximum occurs on the transmission line centerline. The estimated maximum magnetic field at the edge of the transmission line ROW is 8.24 mG. The estimated maximum magnetic fields for the project, under emergency conditions (temporary, high current conditions), are 87.35 mG and 53.42 mG at the centerline and edge of the ROW respectively.<sup>101</sup>

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<sup>95</sup> Ex. 10 at p. 37 (EA).

<sup>96</sup> Ex. 10 at p. 41 (EA).

<sup>97</sup> Ex. 10 at p.33 (EA)

<sup>98</sup> Id.

<sup>99</sup> Ex. 10 at p. 34 (EA).

<sup>100</sup> Ex. 10 at pp. 34-36, 39 (EA).

<sup>101</sup> Ex. 10 at p. 38 (EA).

103. The estimated magnetic fields for the project are below all standards adopted by other states and below international standards. No adverse health impacts from magnetic fields are anticipated for persons living or working near the project.<sup>102</sup>
104. **Implantable Medical Devices.** Implantable medical devices such as pacemakers, defibrillators, neurostimulators, and insulin pumps are electromechanical devices and as such may be subject to interference from electric and magnetic fields. Most of the research on electromagnetic interference and medical devices is related to pacemakers. Pacemakers have been shown to be more sensitive to electric fields than to magnetic fields. In laboratory tests, the earliest interference from magnetic fields in pacemakers was observed at 1,000 mG, a field strength far greater than that associated with high voltage transmission lines.<sup>103</sup>
105. Electric fields may interfere with a pacemaker's ability to sense normal electrical activity in the heart. If a pacemaker is impacted by an electric field, the effects is typically asynchronous pacing (fixed rated pacing), with the pacemaker returning to normal operation when the person moves away from the source of the electric field.<sup>104</sup>
106. Medtronic and Guidant, manufacturers of pacemakers and implantable cardioverter/defibrillators, have indicated that electric fields below 6 kV/m are unlikely to cause interactions affecting operation of modern bipolar devices. Older unipolar designs, however, are more susceptible to interference from electric fields with research suggesting that the earliest evidence of interference occurred in electric fields ranging from 1.2 to 1.7 kV/m.<sup>105</sup>
107. The estimated maximum electric field for the project is 1.39 kV/m, on the transmission line centerline. This field strength is below the 6 kV/m interaction level for modern, bipolar pacemakers, and at the low end of the range of interaction for older, unipolar pacemakers. Accordingly, no adverse impacts on implantable medical devices and persons using them are anticipated as a result of the project.<sup>106</sup>
108. **Stray Voltage.** Stray voltage is an extraneous voltage that appears on metal surfaces in building, barns, and other structures which are grounded to earth. This voltage is typically due to inadequate grounding. Factors that determine whether an object is adequately grounded include wire size and length, wire connections, the number and resistance of ground rods, and the current being grounded.<sup>107</sup>

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<sup>102</sup> Ex. 10 at p. 41 (EA).

<sup>103</sup> Ex. 10 at pp. 39-40 (EA).

<sup>104</sup> Id.

<sup>105</sup> Id.

<sup>106</sup> Id.

<sup>107</sup> Ex. 10 at pp. 40-41 (EA).

109. Stray voltage is primarily associated with distribution lines and electrical service at a residence or business. Transmission lines do not, by themselves, create stray voltage as they do not connect directly to businesses, residences, or farms. However, transmission lines may, when they parallel distribution lines, induce currents in these lines in the immediate area of the paralleling.<sup>108</sup>
110. Significant impacts from stray voltage are not anticipated from the Project. However, the applicant would address stray voltage issues on a case-by-case basis. The three primary methods to reduce or eliminate stray voltage are cancellation, separation, and enhanced grounding. The specific techniques used to address stray voltage would depend on whether existing distribution lines are buried underground, located on the opposite side of the street as the Project structures, or re-located to the project structures as under-built lines. To ensure the safety of persons in the proximity of high voltage transmission lines, the NESC requires that any discharge be less than five (5) milliAmperes (mA).<sup>109</sup>
111. **Induced Voltage.** The electric field from a transmission line can reach nearby conductive (metal) objects which are in close proximity to the line. The electric field may induce a voltage on these objects. If these objects are insulated from the ground and a person touches them, then a small current would pass through the person's body to the ground, causing a mild shock.<sup>110</sup>
112. The Commission's electric field standard of 8 kV/m is designed to prevent serious hazard from shocks due to induced voltages near transmission lines. Additionally, the National Electric Safety Code (NESC) requires that transmission lines be designed with clearances such that potential discharges due to induced voltages are less than 5 milliAmperes (mA).<sup>111</sup>
113. No impacts due to induced voltages are anticipated from the project. The project will be constructed and operated to meet NESC standards, and the Commission's electric field standard.<sup>112</sup>
114. **Air Quality.** Impacts to air quality in the project area could occur due to ozone and nitrous oxide emissions from operation of the line and dust caused by construction activities. Estimates of ozone emissions for the project are below state and federal standards. Impacts due to construction dust are anticipated to be minor and temporary. Thus, no significant impacts to air quality are expected as a result of the project.<sup>113</sup>

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<sup>108</sup> Id.

<sup>109</sup> Id.

<sup>110</sup> Id.

<sup>111</sup> Id.

<sup>112</sup> Id.

<sup>113</sup> Ex. 10 at pp. 42-43 (EA).

115. **Public Safety.** The new 115 kV line would have protective devices to safeguard the public from the line if an accident occurred and a structure or conductor fell to the ground. These protective devices are breakers and switches located within connecting substations. The protective devices would de-energize the transmission line should an accident occur. Additionally, the Enterprise Park and Crooked Lake substations would be fenced and access limited to authorized personnel.<sup>114</sup>
116. **Public Services.** Public services are generally defined as services provided by governmental or quasi-governmental entities and include fire and police protection, schools, and emergency medical services. These services require functional infrastructure for their delivery in the project area, e.g., roads, communications, water supplies, energy supplies.<sup>115</sup>
117. Approximately 4.2 miles of the 5.8-mile proposed route and conceptual alignment would parallel public road and railroad rights-of-way (approximately 0.65 miles adjacent to Trunk Highway 10, 2.7 miles along Anoka County Roads 7,14 and 116, 0.35 miles adjacent to the BNSF railroad; and 0.54 miles along Anoka city streets). This parallel alignment adjacent to public road and railroad rights-of-way represents approximately 72 percent of the total Route length of 5.8 miles. A portion of the project ROW could overlap existing roadway ROW.<sup>116</sup>
118. Construction will require traffic on Hwy 10 and 7<sup>th</sup> Ave just south of Hwy 10 to be stopped for a short period of time (approximately five minutes) to allow the conductor lead rope to be carried across each roads. Alternatively, the Highway Patrol may set up a low speed rolling road block on Hwy 10. The 7<sup>th</sup> Avenue crossing can likely be coordinated with a signal light cycle or with local law enforcement personnel present. The applicant will consult with the city of Anoka, MnDOT and the Highway Patrol to determine the best means and schedule for the crossings.<sup>117</sup>
119. NESC standards and State of Minnesota transmission line route permits require the Permittee to comply with MnDOT and all applicable road authorities' management standards and policies during construction. The permits also direct the permittee to provide written notice of construction to MnDOT and applicable city, township, and county road authorities.<sup>118</sup>

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<sup>114</sup> Ex. 10 at p. 24 (EA).

<sup>115</sup> Ex. 10 at p. 57 (EA).

<sup>116</sup> Id.

<sup>117</sup> Ex. 10 at pp.58-59 (EA).

<sup>118</sup> Ex. 10 at p.58 (EA).

### **C. Land-Based Economies**

120. Land-based economies in the project area consist primarily of tourism. There are no agricultural lands along the project route or conceptual alignment, no mineable resources within the project route or conceptual alignment, and no forested lands used to harvest forest resources along the project route or conceptual alignment. No impacts are anticipated for agricultural, mining or forestry operations as a result of this project, therefore no mitigation measures are proposed.<sup>119</sup>
121. Tourism in the Anoka County consists primarily of antique shopping, golfing, fishing, boating, and participating in local festivals. The proposed transmission line route is dominated by industrial and commercial facilities with some adjacent residential properties. The transmission line will cross the Rum River at River Bend Park in the city of Ramsey, which is primarily used by the local population for short-term recreational activities.<sup>120</sup>

### **D. Archaeological and Historic Resources**

122. One recorded historical site was identified within the Proposed Route. Although additional sites have been recorded within one mile of the Proposed Route, the Project will have negligible impacts on these sites, and then only from a visual perspective. The Minnesota Historical Society (MHS) was contacted requesting information on the possible effects of the proposed Project on historic properties in the Project area. MHS indicated that the proposed Project was reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.<sup>121</sup>
123. The previously recorded site within the Proposed Route is located in the vicinity of River Bend Park. The site was identified in 1989 during a survey of the entire island on which the park is established. The site was deemed to be non-eligible for registration on the National Register of Historic Properties, and it was subsequently filled over during construction of the County Road 116 bridge over the Rum River. Despite the 1989 survey, portions of the island remain undisturbed and there is potential for cultural sites to exist based on the site's proximity to the Mississippi and Rum Rivers.<sup>122</sup>
124. Due to this potential for cultural resources, a Phase I Archaeological Reconnaissance Survey was recommended by MHS should construction plans involve ground disturbance of previously undisturbed areas.<sup>123</sup>

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<sup>119</sup> Ex. 10 at p. 56 (EA).

<sup>120</sup> Id.

<sup>121</sup> Ex. 10 at pp. 31-32 (EA).

<sup>122</sup> Id.

<sup>123</sup> Id.

## E. Natural Environment

125. **Water Resources.** The Project area lies within the Rum River to Mille Lacs Watershed Planning Unit of the Upper Mississippi River Basin. The Project crosses the Rum River and its associated riparian ecosystem. Consistent with the MnDNR definition of shoreland zones, the riparian area extends 300 feet from each bank of the Rum River.<sup>124</sup>
126. The Rum River is a Minnesota Wild and Scenic River, as defined in Minnesota Rules Chapter 6105. At the proposed crossing of the Rum River, a Type 7 wetland (Wooded swamp) lies to the north of the Bunker Lake Blvd/CSAH 116 bridge and road crossing. Tree clearing in this area would result in impacts to this wetland.<sup>125</sup>
127. The Project also crosses the Rum River floodplain. The Project will require a United States Army Corps of Engineers (Corps) permit under Section 10 of the Rivers and Harbors Act because the transmission line will cross the Rum River, a navigable water of the United States.<sup>126</sup>
128. The Rum River is listed as impaired for mercury in the MPCA's draft 2010 list of impaired waters. Section 303(D) of the Federal Clean Water Act requires states to publish, every two years, a list of streams and lakes that are not meeting their designated uses because of excess pollutants (impaired waters). The list, known as the 303(d) list, is based on violations of water quality standards. In Minnesota, the MPCA has jurisdiction over determining 303(d) waters.<sup>127</sup>
129. The Proposed Route and conceptual alignment of the transmission line avoids wetlands except for those near the Rum River. The applicant will be required to apply to MnDNR for a license to cross the Rum River and to the Corps for a Section 10 permit once sufficient design details are available. These licenses/permits will include conditions to minimize erosion and other impacts.<sup>128</sup>
130. **Soil Resources.** The topography of Anoka County is the result of glacial deposition. The area is characterized as level to gently rolling. The elevation ranges from approximately 829 to 899 feet mean sea level. The topography of the Proposed Route is nearly level except for some elevated road crossings and the floodplain of the Rum River.<sup>129</sup>

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<sup>124</sup> Ex. 10 at p. 44 (EA).

<sup>125</sup> Id.

<sup>126</sup> Id.

<sup>127</sup> Id.

<sup>128</sup> Ex. 10 at p.46 (EA)

<sup>129</sup> Ex. 10 at pp. 43-44 (EA).

131. The applicant will restore areas disturbed during construction to their original condition to the extent practicable and to limit ground disturbance wherever possible. Where disturbance and excavation cannot be avoided, it could be minimized using Best Management Practices (BMPs). These may include reseeded of vegetation and use of erosion control blankets and/or silt fence. MnDNR recommends wildlife-friendly erosion control blankets where suitable habitat exists for listed species of amphibians and reptiles.<sup>130</sup>
132. The applicant is required to obtain coverage under the state general permit for storm water discharges associated with construction activities, and to develop a Storm Water Pollution Prevention Plan (SWPPP) prior to the start of construction. The plan is required to outline the BMPs that would be used during construction, especially focusing upon erosion and sediment control.<sup>131</sup>
133. **Flora.** The project is located in a highly developed suburban area. Most of the project area has been planted with turf grasses. Voluntary grasses and noxious plants have become established in some of the lesser developed areas. Property owners have planted non-native vegetation, gardens, and trees as part of their individual landscaping efforts. Little to no native vegetation remains. There are some forested areas around River Bend Park. The Project follows a bridge and road to River Bend Park and would impact minimal amount of vegetation.<sup>132</sup>
134. No impacts to native vegetation are anticipated. The applicant has stated it will replace or compensate landowners for any impacts to landscaping (lawn, gardens, trees, etc.) through negotiations with each individual landowner. The applicant is working with the city of Ramsey park staff on avoiding, minimizing, or mitigating the impacts of any tree clearing in River Bend Park through its final alignment.<sup>133</sup>
135. In accordance with MnDNR guidance on invasive species control, the applicant has stated it will incorporate the following BMPs during construction and operation of the transmission line:<sup>134</sup>
- Before arriving at a work site, the applicant will inspect for and remove all visible plants, seeds, mud, soil, and animals from construction/maintenance equipment.
  - Before leaving a work site, the applicant will inspect for and remove all visible plants, seeds, mud, soil and animals from construction/maintenance equipment.

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<sup>130</sup> Id.

<sup>131</sup> Id.

<sup>132</sup> Ex. 10 at p. 48 (EA).

<sup>133</sup> Ex. 10 at p. 48 (EA).

<sup>134</sup> Ex. 10 at pp. 49 (EA).

- Before leaving an aquatic work site, the applicant will drain water from any equipment, tanks, or water-retaining components of construction /maintenance equipment.
  - After working on infested waters or waters known to harbor pathogens of concern, the applicant will clean and dry equipment prior to using in locations not known to be infested with species or pathogens present at the last location visited.
136. **Fauna.** The project would be located primarily along existing road ROWs in a developed, suburban environment. In general, wildlife near the project consists of birds, mammals, fish, reptiles, amphibians, and insects, typical of a suburban developed area. No State Wildlife Management Areas are within the project area. Based on the availability and suitability of other unaffected and similar habitat within and near the project area, the potential temporary impacts to wildlife are not expected to cause a change in listing status or a detectable change in local populations.<sup>135</sup>
137. Areas temporarily disturbed by construction activities will be restored to pre-construction contours and re-vegetated per Condition 4.2.9 of the Commission's route permit. The MnDNR encourages wildlife friendly erosion control mesh to be used during and following construction activities. Plastic mesh, particularly when placed where there are known locations of reptiles or amphibians, may be detrimental or even fatal to wildlife.<sup>136</sup>
138. The transmission structure designs used for this project are consistent with the recommendations of the Avian Power Line Interaction Committee in that they provide adequate clearance from energized conductors to grounded surfaces and to other conductors. The potential risk of avian electrocution is minimal.<sup>137</sup>
139. The Route crosses the Rum River, a potential avian use area. Avian collisions with new transmission lines are possible, and risk is assessed through an analysis of line span locations relative to surrounding habitats and bird movement. MnDNR and USFWS recommend the use of avian flight diverters along the transmission line segment that crosses the Rum River. MnDNR recommends that flight diverters should be placed on the shield wire not only where the Project crosses the river, but where the Project crosses the riparian area as well.<sup>138</sup>

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<sup>135</sup> Ex. 10 at pp. 49-51 (EA).

<sup>136</sup> Id.

<sup>137</sup> Id.

<sup>138</sup> Id.

## F. Rare and Unique Natural Resources

140. Threatened and endangered species in Minnesota are protected from death, harm, and harassment under the Federal Endangered Species Act (ESA), as amended (16 U.S.C. §§ 1531 – 1544) and the Minnesota Endangered Species Statute (*Minnesota Statutes*, section 84.0895). Minnesota's Endangered Species Statute requires the MnDNR to adopt rules designating species meeting the statutory definitions of endangered, threatened, or species of concern. The Endangered Species Statute also authorizes the MnDNR to adopt rules that regulate treatment of species designated as endangered and threatened. These regulations are codified as *Minnesota Rules*, parts 6212.1800 to 6212.2300 and impose a variety of restrictions, a permit program, and several exemptions pertaining to the taking of species designated as endangered or threatened.<sup>139</sup>
141. Based on the MnDNR public database, it was determined that the Blanding's turtle and creek heelsplitter are both found in the vicinity of the Project. The Blanding's turtle has a Minnesota status of "threatened" and the creek heelsplitter has a Minnesota status of "special concern." Neither species are indicated as having a federal status. MnDNR has provided the applicant with construction BMPs that reduce the potential to impact the Blanding's turtle. No federally-listed species were found in the Project area.<sup>140</sup>
142. The applicant has stated that construction team members and contractors will be instructed on the potential to encounter Blanding's turtles and will be provided copies of the MnDNR's guidelines on minimizing impacts to the turtle's population.<sup>141</sup>
143. The creek heelsplitter is a mussel species of special concern, and is sensitive to degradations to water quality. The applicant will be required by the MPCA NPDES permit erosion control plan to maintain sound erosion control practices in all areas, including areas of likely mussel habitat.<sup>142</sup>
144. The MnDNR encourages wildlife friendly erosion control mesh to be used during and following construction activities. Plastic mesh, particularly when placed where there are known locations of reptiles or amphibians, may be detrimental or even fatal to wildlife.<sup>143</sup>
145. Upon receipt of a permitted route the applicant will coordinate with the appropriate agencies (e.g., USFWS, USACE, and MnDNR) to determine species-specific survey and wetland delineation needs, as well as additional avoidance and

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<sup>139</sup> Ex. 10 at pp. 51-52 (EA).

<sup>140</sup> Ex. 10 at p. 54 (EA).

<sup>141</sup> Id..

<sup>142</sup> Id..

<sup>143</sup> Id..

mitigation measures. Surveys for state listed endangered and threatened species would be conducted in suitable habitat within the permitted route corridor as directed by the agencies.<sup>144</sup>

## **G. Design Options**

146. Single pole wood structures with horizontal post insulators will be the primary structure used for the project. In some instances the topography may require longer spans beyond the capability of the horizontal post insulators, in which case a braced post design will be utilized to accommodate the increased loadings. Angles in the line will require guying (the use of anchors and support cables) or specialty structures. Where guying is not practicable, direct embedded laminated wood poles or steel poles on drilled concrete pillar foundations will be utilized<sup>145</sup>
147. Single pole with underbuild design will be used in areas where the new transmission line overtakes one of the various distribution providers along the proposed route. This design uses less right-of-way than two separate parallel lines. However, these structures will be taller because the higher voltage circuit is stacked on top of the lower voltage circuit, resulting in a pole that averages 75 to 85 feet in height above ground. Span lengths will average 250 to 300 feet. There are several locations along the proposed route where the distribution may be buried underground due to physical constraints or for aesthetic reasons.<sup>146</sup>
148. H-Frame design structures may be used in areas where longer spans are required to avoid or minimize impacts to wetlands or waterways. Span lengths average 600 to 700 feet, with 1,000-foot spans possible with certain topography. H-Frame structure heights range from 60 to 80 feet with taller structures required for exceptionally long spans and in circumstances requiring additional vertical clearance exceeding National Electrical Safety Code (NESC) and other agency requirements. Figure 3 illustrates the various structure types that will be used for the Project.<sup>147</sup>

## **H. Use or Paralleling of Existing Right-of-Way**

149. The majority of the proposed route and conceptual alignment for the project parallels existing road and/or utility rights-of-way. Locating the transmission line in this manner minimizes aesthetic impacts, the extent of the ROW (easement) required from private landowners, and the proliferation of infrastructure corridors.<sup>148</sup>

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<sup>144</sup> Id.

<sup>145</sup> Ex. 10 at p. 17 (EA).

<sup>146</sup> Id..

<sup>147</sup> Id.

<sup>148</sup> Id..

150. The applicant indicates that its preference is to place the new 115 kV line approximately five feet outside the existing road ROW. This placement allows the line to share ROW, thereby reducing the ROW (easement) required from private landowners.<sup>149</sup>

#### **I. Electrical System Reliability**

151. The stated need of the project is to address conductor overload concerns to consumers in the Highway 10 corridor from Anoka to Elk River, create a redundant transmission source to the Enterprise Park Substation, providing a more reliable energy source to the industrial loads in the area, support local economic development efforts by the cities of Anoka and Ramsey, provide a transmission line for a future Anoka Municipal Utility substation in the vicinity of 7<sup>th</sup> Avenue and County Road 116, and to facilitate longer-term opportunities to further strengthen the power supply service to the area.<sup>150</sup>

#### **J. Costs**

152. The total estimated cost of the Project, as proposed by the applicant, is approximately \$11.71 million (2010 dollars.) The total estimated cost of the project, incorporating Route Segment Alternative A, is approximately \$12.16 million. Cost estimates for the proposed transmission line and substations include expenditures for permitting, surveying (land and cultural resources), right-of-way acquisition, right-of-way clearing and right-of-way restoration, materials, relocation or underbuild for distribution facilities, and construction for both the transmission line and substation modifications.<sup>151</sup>
153. The applicant indicates that annual operation and maintenance costs for a 115 kV line are in the range of \$1,100 - \$1,350 dollars per mile.<sup>152</sup>

#### **K. Irreversible and Irretrievable Commitments of Resources**

154. All routes and alignments analyzed for the project have human and environmental impacts, some of which are unavoidable if the project is permitted and built. The project will require few irreversible and irretrievable commitments of resources. These resources are limited to construction resources, e.g., concrete, steel, hydrocarbon fuels.

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<sup>149</sup> Id.

<sup>150</sup> Ex. 10 at p. 8 (EA).

<sup>151</sup> Ex. 10 at p. 12 (EA).

<sup>152</sup> Id.

## L. Summary of Human and Environmental Impacts

155. There are two routing scenarios described in this record, previously described as 1) the applicant's proposed route, and 2) the applicant's proposed route incorporating Route Segment Alternative A. For many categories of impacts, the potential impacts of the project are anticipated to be minimal and independent of the routing or alignment of the new 115 kV transmission line, including potential impacts to public health and safety, electronic communications, water resources, cultural resources, soils, and fauna. However, there are differences in potential impacts with residences located near the line, cost, transportation, and land use<sup>153</sup>
156. Route Segment Alternative A follows a route that would reduce the number of homes within 36 to 135 feet of the line. The proposed route has 20 more homes within this distance of the transmission line than does the segment alternative, whereas Route Segment Alternative A would be located within the same distance from the Volunteers of America, multi-family assisted living center currently under construction. Neither route alternative would cause displacement of residences as a result of constructing and operating the Project.<sup>154</sup>
157. Route Segment Alternative A would be 0.3 miles longer than the applicant's proposed route. This would result in an increase to project costs of \$450,000, or a 3.8 percent increase.<sup>155</sup>
158. Route Segment Alternative A would parallel a portion of the railroad ROW where insufficient ROW may exist for the placement of a transmission line. The BNSF railroad ROW in the project area is 125 feet in width. The communities within the project area have developed around this railroad alignment, leaving minimal space between the railroad ROW and local businesses, industrial buildings, and communications towers. The applicant's proposed route, instead of paralleling the railroad ROW in this area, makes a perpendicular crossing at 6<sup>th</sup> Avenue.<sup>156</sup>
159. Route Segment Alternative A crosses or parallels land owned by the city of Anoka and Anoka County. These lands have development occurring or planned. Volunteers of America has begun construction of a senior continuum of care campus on the property located east of 4<sup>th</sup> Avenue and north of Grant Street. There is a monopole cell tower located in the city's Public Services equipment yard that is close to the BNSF right-of-way and would likely be impacted by the proposed route segment alternative. These current and future development plans would not be affected by the applicant's proposed route.<sup>157</sup>

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<sup>153</sup> Ex. 10 at pp. 62-63 (EA).

<sup>154</sup> Id.

<sup>155</sup> Id..

<sup>156</sup> Id..

<sup>157</sup> Id.

160. Route Segment Alternative A may also impact the rail station which abuts both sides of the tracks. If the segment alternative were to be located on the south side of the tracks, it would impact the planned construction of a multi-level parking facility and pedestrian overpass as well as other commercial development. Locating the line along the north side of the tracks would impact the buildings at 2804 5<sup>th</sup> Avenue and 2707 6<sup>th</sup> Avenue which abut the BNSF right-of-way. These current and future development plans would not be affected by the applicant's proposed route.<sup>158</sup>

Based on the Findings of Fact the Commission makes the following:

### **CONCLUSIONS OF LAW**

1. Any of the foregoing Findings more properly designated as Conclusions are hereby adopted as such.
2. The Public Utilities Commission has jurisdiction over the subject matter of this proceeding pursuant to Minnesota Statute 216E.03, subdivision 2.
3. The project qualifies for review under the alternative permitting process of Minnesota Statute 216E.04 and Minnesota Rule 7850.2800.
4. The applicant, the Department of Commerce, and the Public Utilities Commission have complied with all procedural requirements required by law.
5. The Department of Commerce has completed an EA for this project as required by Minnesota Statute 216E.04, subdivision 5, and Minnesota Rule 7850.3700.
6. In accordance with Minnesota Rule 7850.3900, the EA and record created at the public hearing address the issues identified in the EA scoping decision.
7. The conditions included in the route permit are reasonable and appropriate.
8. Both the route proposed by the applicant, as well as a route incorporating Route Segment Alternative A, as evaluated in the EA, and the subject of the public hearing are permissible per the criteria of Minnesota Statute 216E.03, subdivisions 7(a) and (b) and Minnesota Rule 7850.4100.
9. Of the two routing scenarios evaluated in the EA and public hearing, the applicant's preferred route and anticipated alignment best satisfy the routing criteria of Minnesota Statute 216E.03, subdivisions 7(a) and (b) and Minnesota Rule 7850.4100, as it results in fewer impacts to project costs, existing and future land use, and transportation.

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<sup>158</sup> Id.

Based on the Findings of Fact and Conclusions of Law contained herein, and the entire record of this proceeding, the Commission hereby makes the following:

**ORDER**

1. A route permit for the proposed route, as requested in the route permit application, is hereby issued to Great River Energy (GRE) to construct approximately 5.8 miles of new 115 kV overhead transmission line, expand and modify the Enterprise Park and Crooked Lake substations, in Anoka County, Minnesota, as indicated on permit map.
2. The route width for the new 115 kV line is between 100 – 400 feet, except in the area near Anoka High School, where the route is 800 feet in width, as indicated on the attached permit map.
3. The route permit shall be issued in the form attached hereto, with a map showing the approved route and anticipated alignment.

Approved and adopted this \_\_\_\_\_ day of \_\_\_\_\_ 2012.

BY ORDER OF THE COMMISSION

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Burl W. Haar,  
Executive Secretary

**Exhibit List**

**In the Matter of the Route Permit Application for the Enterprise  
Park to Crooked Lake 115 kV Transmission Line Project in  
Anoka County, Minnesota**

OAH Docket: **7-2500-22654-2**  
PUC Docket E002/TL-11-915

<b>EFP Item No.</b>	<b>Author</b>	<b>Record Item</b>	<b>Received Date</b>	<b>eDocket Document Number</b>
1	Applicant	Notification of intent to file pursuant to alternative process	September 7, 2011	<a href="#">20119-66040-01</a>
2	Applicant	HVTL Route Permit Application	October 4, 2011	<a href="#">201110-66943-04</a> ; <a href="#">201110-66943-01</a> ; <a href="#">201110-66943-03</a> ; <a href="#">201110-66943-05</a> ; <a href="#">201110-66943-07</a> ; <a href="#">201110-66943-02</a> ; <a href="#">201110-66943-08</a> ; <a href="#">201110-66943-06</a> ; <a href="#">201110-66943-09</a>
3	Applicant	Notice of Filing of Application with Affidavits of Mailing and Publication	October 4, 2011	<a href="#">201110-66943-10</a> ; <a href="#">201111-67960-01</a> ; <a href="#">201111-67960-02</a> ; <a href="#">201111-67960-03</a> ; <a href="#">201111-67960-04</a>
4	EFP	EFP staff comments and recommendations to the Commission on application acceptance	October 21, 2011	<a href="#">201110-67581-01</a> ; <a href="#">201110-67579-01</a>
5	Commission	Order of Application Acceptance (with Certificate of Service and Service List)	November 4, 2011	<a href="#">201111-68101-01</a> ; <a href="#">201111-68101-02</a>
6	EFP	Notice of Public Information and Environmental Assessment Scoping Meeting (with Affidavit of Service)	November 14, 2011	<a href="#">201111-68334-01</a>
7	Applicant	Notice of Public Scoping Meeting (with Affidavits of Publication on November 18, 2011)	Received November 18, 2011 eFiled April 12, 2012	<a href="#">20124-73557-01</a>
8	EFP	Public Comments (oral and written) made at the information/scoping meeting December 1, 2011, and	Received January 9, 2012	<a href="#">20124-73618-01</a>

<b>EFP Item No.</b>	<b>Author</b>	<b>Record Item</b>	<b>Received Date</b>	<b>eDocket Document Number</b>
		during the written comment period December 19, 2011.	eFiled April 12 2012	
9	DOC	DOC Deputy Director's Scoping Decision (with Notice and Certificate of Service)	January 9, 2012	<a href="#">20121-70073-01</a>
10	EFP	Environmental Assessment	March 29, 2012	<a href="#">20123-73085-01</a> ; <a href="#">20123-73085-02</a>
11	EFP	Notice of Public Hearing and Availability of EA (with Certificate of Service)	March 29, 2012	<a href="#">20123-73092-01</a>
12	EFP	Notice of Availability of EA in the <i>EQB Monitor</i> (April 2, 2012)	Received April 2, 2012 eFiled April 12, 2012	<a href="#">20124-73621-01</a>
13	EFP	Notice of Public Hearing (dated March 29, 2012, with certified letters to Local Governments)	April 5, 2012	<a href="#">20124-73367-01</a>
14	Applicant	Notice of Public Hearing (with Affidavit of Publication)	Received April 6, 2012 eFiled May 14, 2012	<a href="#">20124-73367-01</a>
15	Court Reporter	Project map	May 1, 2012	<a href="#">20125-74315-01</a>
16	Court Reporter	Regional Transmission map	May 1, 2012	<a href="#">20125-74315-02</a>
17	Court Reporter	Hearing Transcript	May 1, 2012	<a href="#">20125-74316-01</a>
18	OAH	Hearing Comments	May 24 & 30, 2012	<a href="#">20125-74976-01</a> ; <a href="#">20125-75130-01</a>
19	OAH	ALJ Summary Report	May 29, 2012	<a href="#">20125-75013-01</a>

**STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION**

**ROUTE PERMIT FOR CONSTRUCTION OF A HIGH-VOLTAGE TRANSMISSION  
LINE AND ASSOCIATED FACILITIES**

**IN ANOKA COUNTY**

**ISSUED TO  
GREAT RIVER ENERGY**

**PUC DOCKET NO. ET2/TL-11-915**

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850, this route permit is hereby issued to:

**GREAT RIVER ENERGY**

Great River Energy is authorized by this route permit to construct approximately 5.8 miles of new 115 kV transmission line between the Enterprise Park and Crooked Lake substations in Anoka County, Minnesota, and to expand and modify the Enterprise Park and Crooked Lake substations to accommodate the new 115 kV transmission line.

The transmission line and associated facilities shall be built within the route identified in this permit, as portrayed on the official route maps, and in compliance with all other conditions specified in this permit.

Approved and adopted this \_\_\_\_\_ day of \_\_\_\_\_ 2012

BY ORDER OF THE COMMISSION

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Burl W. Haar,  
Executive Secretary

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**ATTACHMENTS**

Complaint Handling Procedures for High Voltage Transmission Lines

Permit Compliance Filings

Compliance Filing Procedures for High Voltage Transmission Lines

Route Maps

Wildlife-friendly Erosion Control Matting Fact Sheet (MnDNR)

Blanding's Turtle Fact Sheet and Construction Best Management Practices (MnDNR)

## **1 ROUTE PERMIT**

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to Great River Energy, a Minnesota cooperative corporation (Permittee) pursuant to Minnesota Statute 216E.03 and Minnesota Rules 7850. This permit authorizes the Permittee to construct approximately 5.8 miles of new 115 kV transmission line and associated facilities in Anoka County, Minnesota, as identified in the attached route permit maps, hereby incorporated into this document.

## **2 PROJECT DESCRIPTION**

The Permittee is authorized to construct a new 115 kV transmission line and associated facilities, described as follows:

- Construction of a new 115 kV transmission line from the Enterprise Park substation in Coon Rapids, Minn., to the Crooked Lake substation in Anoka, Minn. (approximately 5.8 miles);
- Removing, rebuilding and attaching Anoka Municipal Utility's existing overhead distribution (12.5 kV) lines to the new transmission line where the proposed new overhead 115-kV transmission line overtakes the existing distribution. Alternatively, Anoka Municipal Utility may choose to bury some of the distribution lines that are overtaken by the new high voltage line; and,
- Modifying the Xcel Energy Crooked Lake Substation and the Anoka Municipal Utility Enterprise Park Substation to accommodate Great River Energy's new transmission line. Work within the Crooked Lake Substation will include the reconstruction of the 115-kV side to a more reliable ring bus and breaker additions. Work within the Enterprise Park Substation will include the addition of a new 115-kV/12.5-kV step down transformer and associated switch gear.

### **2.1 Project Location**

The project is located in Anoka County, Minnesota, in the cities of Anoka, Coon Rapids, and Ramsey.

### **2.2 Associated Facilities and Substations**

The project will modify the Xcel Energy Crooked Lake Substation and the Anoka Municipal Utility Enterprise Park Substation to accommodate the new transmission line. Work within the Crooked Lake Substation will include the reconstruction of the 115-kV side to a more reliable ring bus and breaker additions. Work within the Enterprise Park Substation will include the addition of a new 115-kV/12.5-kV step down transformer and associated switch gear.

### **2.3 Structures and Conductors**

The Permittee shall use single pole wooden structures as the primary structure type for the project. Poles with horizontal post insulators will be the primary structure for project; braced

post insulators will be used if longer spans are required. Structures would range in height from 60 to 85 feet with an average span of 300 to 400 feet between structures.

Specialty structures (e.g., laminate wood poles, steel poles, taller poles) may be used in certain areas along the route. Guying may be used to minimize structure deflections.

Single pole with underbuild design may be used in areas where the new transmission line overtakes Anoka Municipal Utility's 12.5 kV overhead distribution line. These structures may be taller to allow the higher voltage circuit to be stacked on top of the lower voltage circuit, resulting in a pole that averages 75 to 85 feet in height above ground. Span lengths shall average 250 to 300 feet.

The single circuit structures shall have three single-conductor phase wires (not bundled) and one shield wire. The phase wires will be 795 ACSS 26/7 (Aluminum Conductor Steel Supported with 7 steel core strands and 26 outer aluminum strands). The shield wire will be 0.528 optical ground wire (OPGW.)

The transmission line shall be equipped with protective devices to safeguard the public if an accident occurs.

The transmission line shall be designed to meet or exceed local and state codes, the National Electric Safety Code (NESC), and North American Electric Reliability Corporation (NERC) requirements. This includes standards relating to clearance to ground, clearance to crossing utilities, clearance to buildings, clearance to vegetation, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

### **3 DESIGNATED ROUTE**

The approved route and anticipated alignment are shown on the route maps attached to this permit and further designated as follows:

#### **3.1 Route Width and Alignment**

The designated route width for the new 115 kV transmission line shall be 100-400 feet, except in the area near Anoka High School where the route width will be 800 feet, as indicated on the attached route maps.

The route width noted above provides the Permittee with flexibility for minor adjustments of the specific alignment or right-of-way to accommodate landowner requests and unforeseen conditions. The final alignment (i.e., permanent and maintained rights-of-way) will be located within this designated route unless otherwise authorized below.

The designated route identifies an alignment that minimizes the overall potential impacts to the factors identified in Minnesota Rule 7850.4100 and which was evaluated in the environmental review and permitting process. Consequently, this permit anticipates that the actual right-of-way will generally conform to the alignment shown in the attached maps, unless changes are requested by individual landowners, unforeseen conditions are encountered, or are otherwise provided for by this permit.

Any alignment modifications within this designated route shall be located so as to have comparable overall impacts relative to the factors in Minnesota Rule 7850.4100 as does the alignment identified in this permit, and shall be specifically identified, documented, and approved as part of the plan and profile submitted pursuant to Section 4.1 of this permit.

Route width variations outside the designated route may be allowed for the Permittee to overcome potential site specific constraints. These constraints may arise from any of the following:

- 1) Unforeseen circumstances encountered during the detailed engineering and design process.
- 2) Federal or state agency requirements.
- 3) Existing infrastructure within the transmission line route, including but not limited to roadways, railroads, natural gas and liquid pipelines, high voltage electric transmission lines, or sewer and water lines.
- 4) Planned infrastructure improvements identified by state agencies and local government units (LGUs) and made part of the record for this permit.

Any alignment modifications arising from these site specific constraints that would result in right-of-way placement outside the designated route shall be located so as to have comparable overall impacts relative to the factors in Minnesota Rule 7850.4100 as does the alignment identified in this permit and shall also be specifically identified, documented, and approved as part of the plan and profile submitted pursuant to Section 4.1 of this permit.

### **3.2 Right-of-Way Placement**

Where the transmission line route parallels existing highway and other road rights-of-way, the transmission line right-of-way shall occupy and utilize the existing right-of-way to the maximum extent possible, consistent with the criteria in Minnesota Rule 7850.4100, the other requirements of this permit, and for highways under the jurisdiction of the Minnesota Department of Transportation (MnDOT), MnDOT rules, policies, and procedures for accommodating utilities in trunk highway rights-of-way.

### **3.3 Right-of-Way Width**

The new 115 kV transmission line will be built primarily with single pole structures, which will require a 50 to 70-foot right-of-way, 25-35 feet on each side of the transmission line centerline. Additional right-of-way may be required from landowners to accommodate guy wires and anchors.

## **4 GENERAL CONDITIONS**

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

#### **4.1 Plan and Profile**

At least thirty (30) days before right-of-way preparation for construction begins on any segment or portion of the project, the Permittee shall provide the Commission with a plan and profile of the right-of-way and the specifications and drawings for right-of-way preparation, construction, transmission structure specifications and locations, and restoration for the transmission line. The documentation shall include maps depicting the plan and profile including the right-of-way, alignment, and structures in relation to the route and alignment approved per the permit.

The Permittee may not commence construction until the thirty (30) days has expired or until the Commission 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 the plan and profile or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission at least five (5) days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

#### **4.2 Construction Practices**

The Permittee shall follow those specific construction practices and material specifications described in Great River Energy's route permit application to the Commission, dated October 4, 2011, and as described in the environmental assessment and Findings of Fact, unless this permit establishes a different requirement, in which case this permit shall prevail.

##### **4.2.1 Field Representative**

At least fourteen (14) days prior to commencing construction, the Permittee shall advise the Commission 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.

The field representative's address, phone number, email, and emergency phone number shall be provided to the Commission and shall be made available to affected landowners, residents, public officials and other interested persons. The Permittee may change the field representative at any time upon written notice to the Commission.

##### **4.2.2 Local Governments**

During construction, the permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services occur, these would be temporary and the permittee will work to restore service promptly.

Where any impacts to utilities have the potential to occur, permittee will work with both landowners and local agencies to determine the most appropriate transmission structure placement.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction.

#### 4.2.3 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.

#### 4.2.4 Noise

Construction and routine maintenance activities shall be limited to daytime working hours, as defined in Minnesota Rule 7030.0200, to ensure nighttime noise level standards will not be exceeded.

#### 4.2.5 Vegetation Removal in the Right-of-Way

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

Tall tree species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission facility shall be removed.

In many cases certain low and slow growing species that do not exceed a mature height of 15 feet can be planted, or left, in the right-of-way to blend the difference between the right-of-way and adjacent wooded areas, to the extent that the low-growing vegetation will not pose a threat to the transmission facility or impede construction.

#### 4.2.6 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. Care shall be used to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the project during construction and maintenance. Structures shall be placed at the reasonable distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highway, or trail crossings and could cross roads to minimize or avoid impacts.

#### 4.2.7 Erosion Control

The Permittee shall follow standard erosion control measures outlined in Minnesota Pollution Control Agency (MPCA) guidance and best management practices regarding sediment control practice during construction include protecting storm drain inlets, use of silt fences, protecting exposed soil, immediately stabilizing restored soil, controlling temporary soil stockpiles, and controlling vehicle tracking.

The Permittee shall implement reasonable measures to minimize runoff during construction and shall promptly plant or seed, erect sediment control fences (e.g. biorolls, sandbags, and silt fences), apply mulch (e.g. hay or straw) on exposed soils, and/or use erosion control blankets and turf reinforcement mats to provide structural stability to bare surfaces and slopes.

When utilizing seed to establish temporary and permanent vegetative cover on exposed soil, the Permittee shall select specific site characteristic seed, certified to be free of noxious weeds.

Contours shall be graded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation, provide for proper drainage, and prevent erosion. All areas disturbed during construction of the facilities shall be returned to their pre-construction condition.

Where larger areas of one acre or more are disturbed or in other areas designated by the MPCA, the Permittee shall prepare the required Stormwater Pollution Prevention Plan (SWPPP) and obtain a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) construction stormwater permit from the MPCA.

#### 4.2.8 Wetlands and Water Resources

Structures shall be located to span watercourses, wetlands, and floodplains to the extent practicable and consistent with sound engineering principles. Minimal grading of areas around pole locations may be required to accommodate construction vehicles and equipment.

Construction of Public Water crossings shall be consistent with construction methods identified in Minn. Rule 6135.1300, as required by the Minnesota Department of Natural Resources in the License to Cross Public Lands and Waters. Permittee shall minimize disturbance to natural streambed and shoreline vegetation and restrict clearance of banks, shorelines and adjacent lands to the minimum necessary for equipment to complete the installation to the extent that such actions do not violate sound engineering principles or system reliability criteria

The Permittee shall endeavor to access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts wherever possible.

Construction in wetlands and riparian areas shall be scheduled during frozen ground conditions, when practicable. When construction during winter is not possible, construction mats (wooden mats or a composite mat system) shall be used to protect wetland vegetation. All-terrain construction vehicles designed to minimize soil impact in damp areas may also be used.

No staging or stringing set up areas shall be placed within or adjacent to wetlands or water resources, as practicable. The structures shall be assembled on upland areas before they are brought to the site for installation.

Soil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area. The Permittee shall also utilize erosion control methods identified in Section 4.2.7 (Erosion Control), as warranted. Areas disturbed by construction activities shall be restored to pre-construction conditions (soil horizons, contours, vegetation, etc.).

#### 4.2.9 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 right-of-way. Space shall be selected to limit the removal and impacts to vegetation.

Temporary lay down areas outside of the authorized transmission line right-of-way will be obtained from affected landowners through rental agreements and are not provided for in this permit.

Temporary driveways may be constructed between the roadway and the structures to minimize impact by using the shortest route possible. Construction mats may also be used to minimize impacts on access paths and construction areas.

#### 4.2.10 Restoration

The Permittee shall restore the right-of-way, temporary work spaces, access roads, abandoned right-of-way, and other public or private lands affected by construction of the transmission line. Practices to restore areas impacted by construction and maintenance activities are also described in Section 4.2.7 of this permit.

Restoration within the right-of-way must be compatible with the safe operation, maintenance, and inspection of the transmission line.

Within 60 days after completion of all restoration activities, the Permittee shall advise the Commission in writing of the completion of such activities. The Permittee shall compensate landowners for any yard/landscape, crop, soil compaction, drain tile, or other damages that may occur during construction.

#### 4.2.11 Notice of Permit

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

### **4.3 Periodic Status Reports**

The Permittee shall report to the Commission on progress regarding finalization of the route, design of structures, and construction of the transmission line. The Permittee need not report more frequently than monthly.

#### **4.4 Complaint Procedures**

Prior to the start of construction, the Permittee shall submit to the Commission the procedures that will 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.

#### **4.5 Notification to Landowners**

The Permittee shall provide all affected landowners with a copy of this permit and the complaint procedures at the time of the first contact with the landowners after issuance of this permit. At the time of first contact, the Permittee shall also provide all affected landowners with a copy of the *Rights-of-Way and Easements for Energy Facility Construction and Operation* fact sheet provided by the Department of Commerce.

The Permittee shall contact landowners prior to entering the property or conducting maintenance along the route. The Permittee shall avoid construction and maintenance practices, specifically the use of herbicides or other pesticides, which are inconsistent with the landowner's or tenant's use of the land (See also, Section 4.2.5).

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

#### **4.6 Completion of Construction**

##### **4.6.1 Notification to Commission**

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

##### **4.6.2 As-Builts**

Within 60 days after completion of construction, the Permittee shall submit copies of all the final as-built plans and specifications developed during the project.

##### **4.6.3 GPS Data**

Within 60 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (ArcGIS compatible map files, GPS coordinates, associated database of characteristics, etc.) for all structures associated with the transmission line, each switch, and each substation connected.

## **4.7 Electrical Performance Standards**

### **4.7.1 Grounding**

The Permittee shall design, construct, and operate the transmission line in a manner that the maximum induced steady-state short-circuit current shall be limited to five milliamperes (mA), root mean square (rms) alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one mA rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the NESC. The Permittee shall address and rectify any induced current problems that arise during transmission line operation.

### **4.7.2 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.

### **4.7.3 Interference with Communication Devices**

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems, or other communication devices is caused by the presence or operation of the transmission 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.

## **4.8 Other Requirements**

### **4.8.1 Applicable Codes**

The Permittee shall comply with applicable requirements of the NESC including clearances to ground, clearance to crossing utilities, clearance to buildings, right-of-way widths, erecting power poles, and stringing of transmission line conductors. The transmission line facility shall also meet the NERC reliability standards.

### **4.8.2 Other Permits**

The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required local, state and federal permits for the project and comply with the conditions of these permits. A list of the required permits is included in the route permit application and the environmental assessment. The Permittee shall submit a copy of such permits to the Commission upon request.

#### 4.8.3 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.

#### 4.8.4 Delay in Construction

If the Permittee have not commenced construction or improvement of the route within four years after the date of issuance of this permit, the Commission shall consider suspension of the permit in accordance with Minnesota Rule 7850.4700.

### **4.9 Archeological and Historic Resources**

If any previously unrecorded archaeological sites are discovered during construction of the project, the Permittee shall immediately stop work at the site and shall mark and preserve the site(s) and notify the Commission and the State Historic Preservation Office (SHPO) of the discovery. The Commission and the SHPO shall have three (3) working days from the time the agency is notified to conduct an inspection of the site if either agency chooses to do so. On the fourth day after notification, the Permittee may begin work on the site unless the SHPO has directed that work shall cease. In such event, work shall not continue until the SHPO determines that construction can proceed.

If human remains are encountered during construction, the Permittee shall immediately halt construction at that location and promptly notify local law enforcement authorities and the State Archaeologist. Construction at the human remains location shall not proceed until authorized by local law enforcement authorities or the State Archaeologist.

If any federal funding, permit, or license is involved or required, the Permittee shall notify the SHPO as soon as possible in the planning process to coordinate section 106 (36 C.F.R. part 800) review.

Prior to construction, construction workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction.

### **4.10 Avian Mitigation**

The Permittee's standard transmission design shall incorporate adequate spacing of conductor(s) and grounding devices in accordance with Avian Power Line Interaction Committee standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices.

## **5 SPECIAL CONDITIONS**

Special conditions shall take precedence over any of the other conditions of this Permit if there should be a conflict between the two.

## **5.1 Rum River and River Bend Park Crossing**

As part of the plan and profile submission, the Permittee shall describe the actions taken and mitigative measures developed regarding the Rum River and River Bend Park crossing including, but not limited to minimization of vegetative clearing, installation of bird flight diverters, use of wildlife-friendly erosion control matting, and best management practices used to avoid or minimize impacts to Blanding's Turtles and Creek Heelsplitters. MnDNR recommendations for construction Best Management Practices in Blanding's Turtle habitat, and erosion control matting are attached to this permit.

## **6 PERMIT AMENDMENT**

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

## **7 TRANSFER OF PERMIT**

The Permittee may request at any time that the Commission 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 Commission with such information as the Commission shall require to determine whether the new permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new permittee, and interested persons such process as is required.

## **8 REVOCATION OR SUSPENSION OF THE PERMIT**

The Commission may initiate action to revoke or suspend this permit at any time. The Commission shall act in accordance with the requirements of Minnesota Rule 7850.5100 to revoke or suspend the permit.

**MINNESOTA PUBLIC UTILITIES COMMISSION  
COMPLIANCE FILING PROCEDURE  
FOR PERMITTED ENERGY FACILITIES**

**1. Purpose**

To establish a uniform and timely method of submitting information required by Commission energy facility permits.

**2. Scope and Applicability**

This procedure encompasses all compliance filings required by permit.

**3. Definitions**

Compliance Filing – A sending (filing) of information to the Commission, where the information is required by a Commission site or route permit.

**4. Responsibilities**

A) The permittee shall eFile all compliance filings with Dr. Burl Haar, Executive Secretary, Public Utilities Commission, through the Commission’s electronic filing system (eDockets). The system is hosted by the Department of Commerce at: <https://www.edockets.state.mn.us/EFiling/home.jsp>

General instructions are provided on the website. To eFile a document a permittee must be registered and obtain a user ID and password.

B) All filings must have a cover sheet that includes:

1. Date
2. Name of submitter / permittee
3. Type of permit (site or route)
4. Project location
5. Project docket number
6. Permit section under which the filing is made
7. Short description of the filing

C) Filings that are graphic intensive (e.g., maps, plan and profile) must, in addition to being eFiled, be submitted as paper copies and on CD. Copies and CDs should be sent to: (1) Dr. Burl W. Haar, Executive Secretary, Minnesota Public Utilities Commission, 121 7<sup>th</sup> Place East, Suite 350, St. Paul, MN, 55101-2147, and (2) Department of Commerce, Energy Facility Permitting, 85 7<sup>th</sup> Place East, Suite 500, St. Paul, MN, 55101-2198. Additionally, the Commission may request a paper copy of any eFiled document.

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## PERMIT COMPLIANCE FILINGS<sup>1</sup>

**PERMITTEE(S):** Great River Energy  
**PERMIT TYPE:** HVTL Route Permit  
**PROJECT LOCATION:** Anoka County  
**PUC DOCKET NUMBER:** ET2/TL-11-915

<b>Filing Number</b>	<b>Permit Section</b>	<b>Description</b>	<b>Due Date</b>
<b>1</b>	4.1	Plan and profile of right-of-way (ROW)	30 days before ROW preparation for construction
<b>2</b>	4.2.1	Contact information for field representative	14 days prior to construction
<b>3</b>	4.2.10	Restoration complete	60 days after completion of all restoration activities
<b>4</b>	4.3	Periodic status reports	Monthly
<b>5</b>	4.4	Complaint procedures	Prior to start of construction
<b>6</b>	Complaint Handling Procedures	Complaint reports	By the 15 <sup>th</sup> of each month
<b>7</b>	4.5	Notification to landowners	First contact with landowners after permit issuance
<b>8</b>	4.6.1	Notice of completion and date of placement in service	Three days prior to energizing
<b>9</b>	4.6.2	Provide as-built plans and specifications	Within 60 days after completion of construction
<b>10</b>	4.6.3	GPS data	Within 60 days after completion of construction
<b>11</b>	4.9	Notification of previously unrecorded archaeological sites	Upon discovery

<sup>1</sup> This compilation of permit compliance filings is provided for the convenience of the permittee(s) and the Commission. However, it is not a substitute for the permit; the language of the permit controls.

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**MINNESOTA PUBLIC UTILITIES COMMISSION  
COMPLAINT HANDLING PROCEDURES  
FOR  
HIGH VOLTAGE TRANSMISSION LINES**

**1. Purpose:**

To establish a uniform and timely method of reporting complaints received by the permittee concerning permit conditions for site preparation, construction, cleanup and restoration, operation, and resolution of such complaints.

**2. Scope:**

This document describes complaint reporting procedures and frequency.

**3. Applicability:**

The procedures shall be used for all complaints received by the permittee and all complaints received by the Commission under Minn. Rule 7829.1500 or 7829.1700 relevant to this permit.

**4. Definitions:**

Complaint: A verbal or written statement presented to the permittee by a person expressing dissatisfaction or concern regarding site preparation, cleanup, restoration, or other transmission line route permit conditions. Complaints do not include requests, inquiries, questions, or general comments.

Substantial Complaint: A written complaint alleging a violation of a specific route permit condition that, if substantiated, could result in permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A complaint which, despite the good faith efforts of the permittee and a person(s), remains to both or one of the parties unresolved or unsatisfactorily resolved.

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. Complaint Documentation and Processing:**

- A) The permittee shall designate an individual to summarize complaints for submission to the Commission. This person's name, phone number and e-mail address shall accompany all complaint submittals.
- B) A person presenting a complaint should to the extent possible, include the following information in their communications:
  - 1. Name of complainant, address, phone number, and e-mail address.
  - 2. Date of complaint
  - 3. Tract or parcel number
  - 4. Whether the complaint relates to (1) a route permit matter, (2) a transmission line and associated facility issue, or (3) a compliance issue.
- C) The permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:
  - 1. Docket number and project name
  - 2. Name of complainant, address, phone number, and e-mail address
  - 3. Precise property description or parcel number
  - 4. Name of permittee representative receiving complaint and date of receipt.
  - 5. Nature of complaint and the applicable route permit conditions(s).
  - 6. Activities undertaken to resolve the complaint.
  - 7. Final disposition of the complaint.

**6. Reporting Requirements:**

The permittee shall report all complaints to the Commission according to the following schedule:

**Immediate Reports:** All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to the Commission's Consumer Affairs Office at 1-800-657-3782 or [consumer.puc@state.mn.us](mailto:consumer.puc@state.mn.us). Voice messages are acceptable. For email reporting, the email subject line should read "EFP Substantial Complaint" and include the appropriate project docket number.

**Monthly Reports:** By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be eFiled to Dr. Burl W. Haar, Executive Secretary, Public Utilities Commission, using the Minnesota Department of Commerce eDockets system (see eFiling instructions attached to this permit).

If no Complaints were received during the preceding month, the permittee shall submit (eFile) a summary indicating that no complaints were received.

The permittee shall commence and continue to file monthly reports from the time of permit issuance through the 12 months following the notice of project completion. Thereafter, the permittee shall file a complaint report with the Commission within 14 days of the receipt of a new complaint through the term of the permit.

**7. Complaints Received by the Commission or Department of Commerce:**

Complaints received directly by the Commission or Department from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation, and maintenance shall be promptly sent to the permittee.

**8. Commission Process for Unresolved Complaints:**

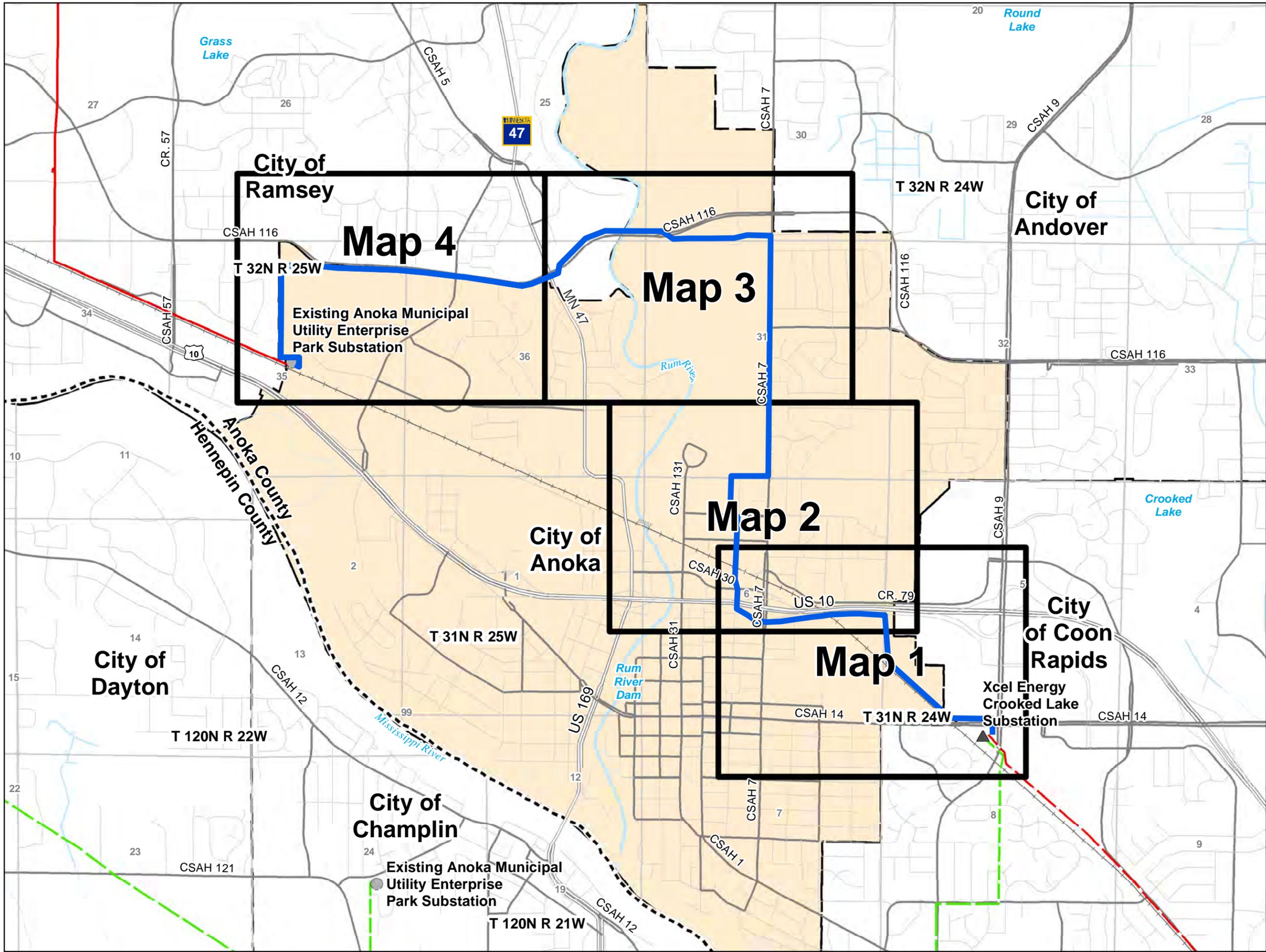
Commission staff shall perform an initial evaluation of unresolved complaints submitted to the Commission. Complaints raising substantial transmission line route permit issues shall be processed and resolved by the Commission. Staff shall notify the permittee and appropriate person(s) if it determines that the complaint is a substantial complaint. With respect to such complaints, each party shall submit a written summary of its position to the Commission no later than ten days after receipt of the staff notification. The complaint will be presented to the Commission for a decision as soon as practicable.

**9. Permittee Contact for Complaints and Complaint Reporting**

The permittee will eFile the permittee's contact person for complaints within 14 days of the order granting a route permit. The permittee will include the contact person and their associated contact information (mailing address, phone number, and email address) in the permit mailing to landowners and local governments.

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## **HVTL ROUTE MAPS**



PUC docket number: ET2/TL-11-915

- Conceptual Alignment
- Existing Anoka Municipal Utility (AMU)
- Distribution Substation
- Existing Xcel Energy (XE)
- ▲ Transmission Substation
- Existing Great River Energy (GRE)
- - - 115-kV AC Transmission
- 69-kV Transmission Line
- Existing Xcel Energy (XE)
- - - 115-kV Transmission Line



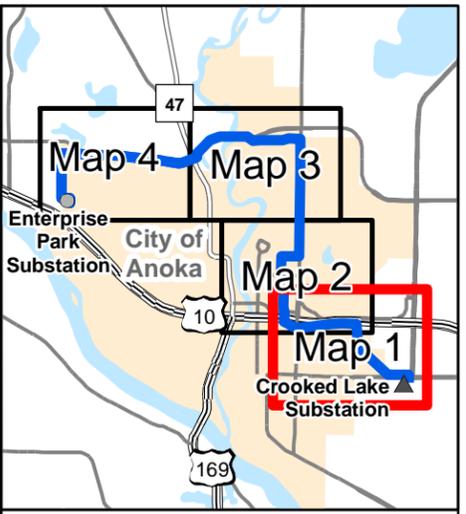
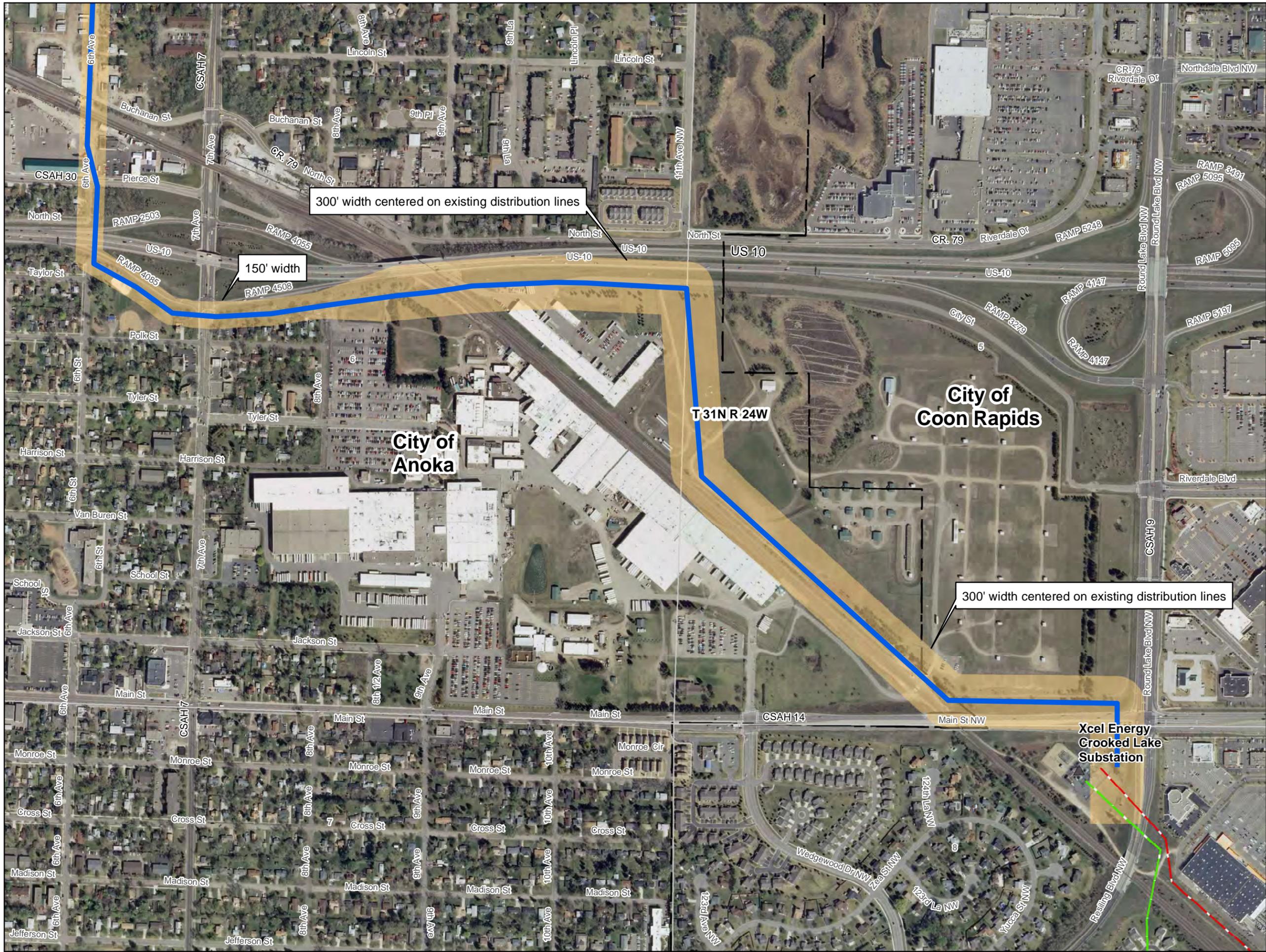
Data Sources Vary Between MNDOT, MNDNR, MNGEO and Great River Energy. 2010 Color Orthophotos from Farm Services Administration.

Map Projection: UTM, NAD83, Zone15, Meters

## Enterprise Park 115-kV Project

### Route Map Key

Updated: 6/25/2012



- PUC docket number: ET2/TL-11-915**
- Great River Energy
  - 115-kV Route
  - Conceptual Alignment
  - Existing Anoka Municipal Utility (AMU)
  - Distribution Substation
  - Existing Xcel Energy (XE)
  - Transmission Substation
  - Existing Great River Energy (GRE)
  - 115-kV AC Transmission
  - 69-kV Transmission Line
  - Existing Xcel Energy (XE)
  - 115-kV Transmission Line



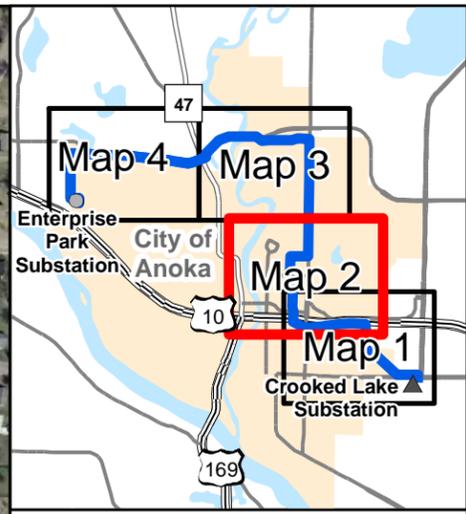
Data Sources Vary Between MNDOT, MNDNR, MNGEO and Great River Energy. 2010 Color Orthophotos from Farm Services Administration.

Map Projection: UTM, NAD83, Zone15, Meters

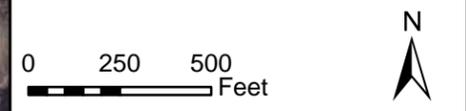
# Enterprise Park 115-kV Project

## Route Map 1

Updated: 6/25/2012



- PUC docket number: ET2/TL-11-915**
- Great River Energy
  - 115-kV Route
  - Conceptual Alignment
  - Existing Anoka Municipal Utility (AMU)
  - Distribution Substation
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  - Transmission Substation
  - Existing Great River Energy (GRE)
  - 115-kV AC Transmission
  - 69-kV Transmission Line
  - Existing Xcel Energy (XE)
  - 115-kV Transmission Line



Data Sources Vary Between MNDOT, MNDNR, MNGEO and Great River Energy. 2010 Color Orthophotos from Farm Services Administration.

Map Projection: UTM, NAD83, Zone15, Meters

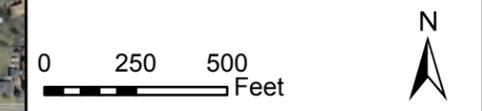
## Enterprise Park 115-kV Project

### Route Map 2

Updated: 6/25/2012



- PUC docket number: ET2/TL-11-915**
- Great River Energy
  - 115-kV Route
  - Conceptual Alignment
  - Existing Anoka Municipal Utility (AMU)
  - Distribution Substation
  - Existing Xcel Energy (XE)
  - Transmission Substation
  - Existing Great River Energy (GRE)
  - 115-kV AC Transmission
  - 69-kV Transmission Line
  - Existing Xcel Energy (XE)
  - 115-kV Transmission Line



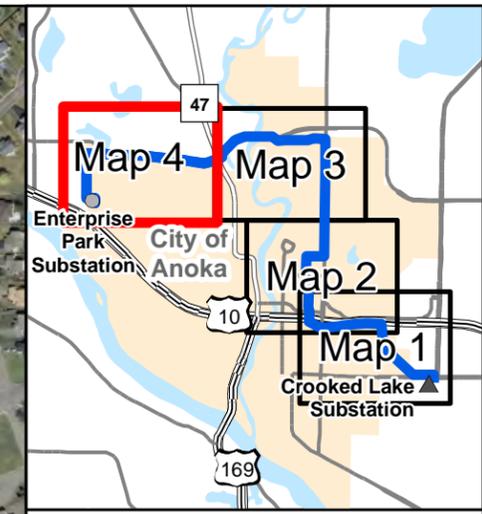
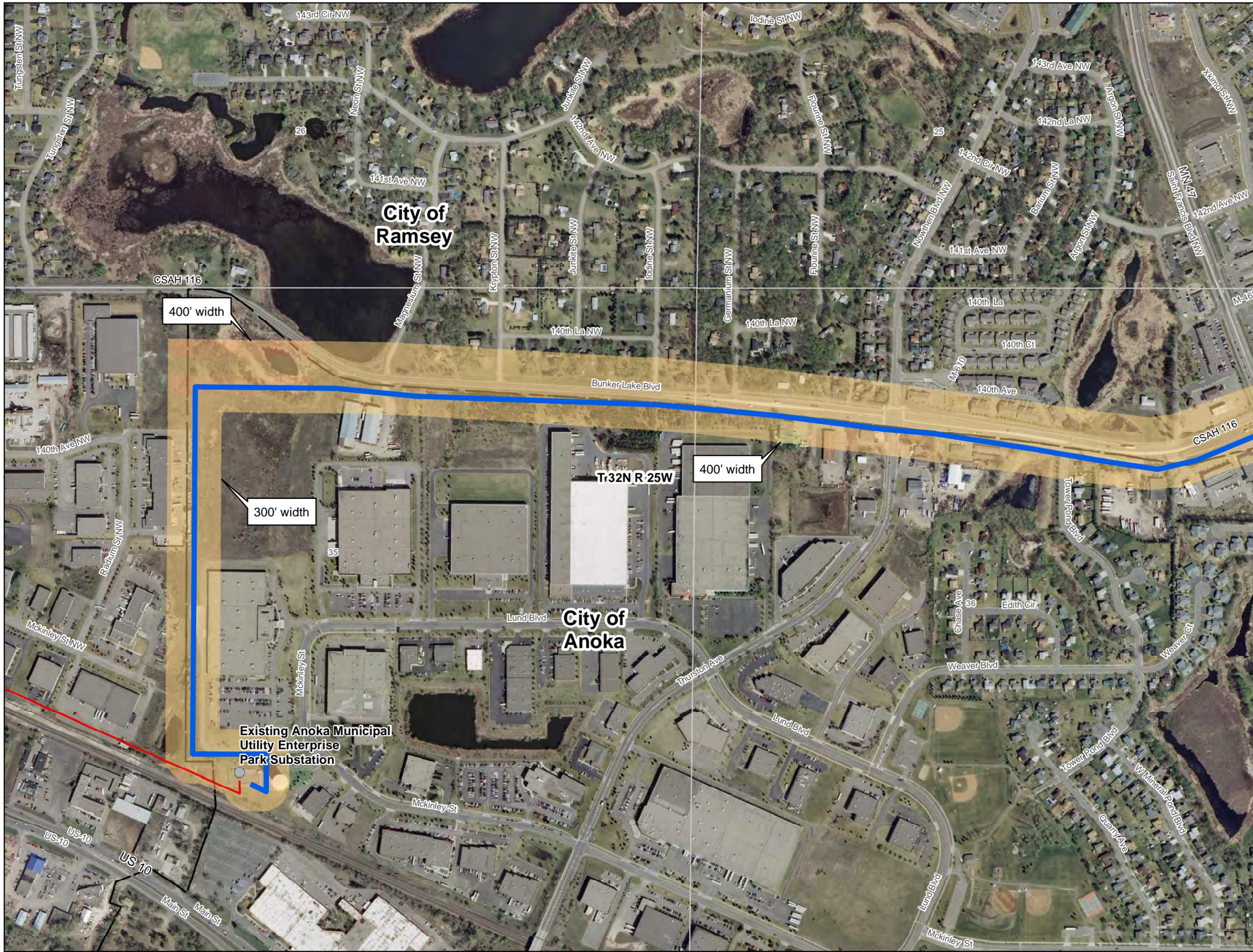
Data Sources Vary Between MNDOT, MNDNR, MNGEO and Great River Energy. 2010 Color Orthophotos from Farm Services Administration.

Map Projection: UTM, NAD83, Zone15, Meters

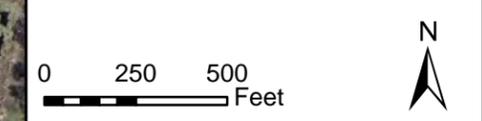
# Enterprise Park 115-kV Project

## Route Map 3

Updated: 6/25/2012



- PUC docket number: ET2/TL-11-915**
- Great River Energy
  - 115-kV Route
  - Conceptual Alignment
  - Existing Anoka Municipal Utility (AMU)
  - Distribution Substation
  - Existing Xcel Energy (XE)
  - Transmission Substation
  - Existing Great River Energy (GRE)
  - 115-kV AC Transmission
  - 69-kV Transmission Line
  - Existing Xcel Energy (XE)
  - 115-kV Transmission Line



Data Sources Vary Between MNDOT, MNDNR, MNGEO and Great River Energy. 2010 Color Orthophotos from Farm Services Administration.

Map Projection: UTM, NAD83, Zone15, Meters

## Enterprise Park 115-kV Project

### Route Map 4

Updated: 6/25/2012

# Looming Issue with Loose Net Plastic Mesh in Erosion Control Products

Plastic mesh netting is a common material in erosion control products. It is utilized to hold loose fibrous materials in place (EG straw) until vegetation is established. These products have been used extensively and are successful for reducing soil erosion, benefitting both soil health and water quality. Unfortunately there is a negative side of this component: It is increasingly being documented that it poses dangers to reptiles.

## Potential Problems:

- Plastic netting lays on the surface long after other components have decomposed.
- Plastic mesh netting can result in entanglement and death of a variety of reptiles (snakes, frogs, toads, and turtles). Ducklings have also been documented entangled in the netting.
- Road maintenance machinery can snag the plastic mesh and pull up long lengths into machinery, thus binding up machinery and causing damage and/or loss of time cleaning it out.

## Suggested Alternatives:

- Use biodegradable material in all components of erosion control blanket and biologs (fiber rolls) that are to be left on site as part of final stabilization. Areas with a 2:1 slope or flatter can be considered for this option.
- Smaller mesh size.
- Limit use where reptiles are likely (near wetlands, lakes or watercourses).



Areas near wetlands, lakes and watercourses are likely habitat for reptiles and may not be suitable for plastic mesh erosion control materials.



Snakes get caught in the plastic mesh

## Environmental Review Fact Sheet Series

### Endangered, Threatened, and Special Concern Species of Minnesota

## Blanding's Turtle (*Emydoidea blandingii*)

Minnesota Status: Threatened  
Federal Status: none

State Rank<sup>1</sup>: S2  
Global Rank<sup>1</sup>: G4

### HABITAT USE

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

### LIFE HISTORY

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

### IMPACTS / THREATS / CAUSES OF DECLINE

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade\* and road kills during seasonal movements
- increase in predator populations (skunks, racoons, etc.) which prey on nests and young

\*It is illegal to possess this threatened species.

## RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	List 2. Additional recommendations for areas known to be of state-wide importance to Blanding's turtles.
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is <u>critical</u> that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1 <sup>st</sup> and before June 1 <sup>st</sup> ).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

**Protecting Blanding's Turtle Nests:** Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is *very important* that the fencing be **removed before August 1<sup>st</sup>** so the young turtles can escape from the nest when they hatch!

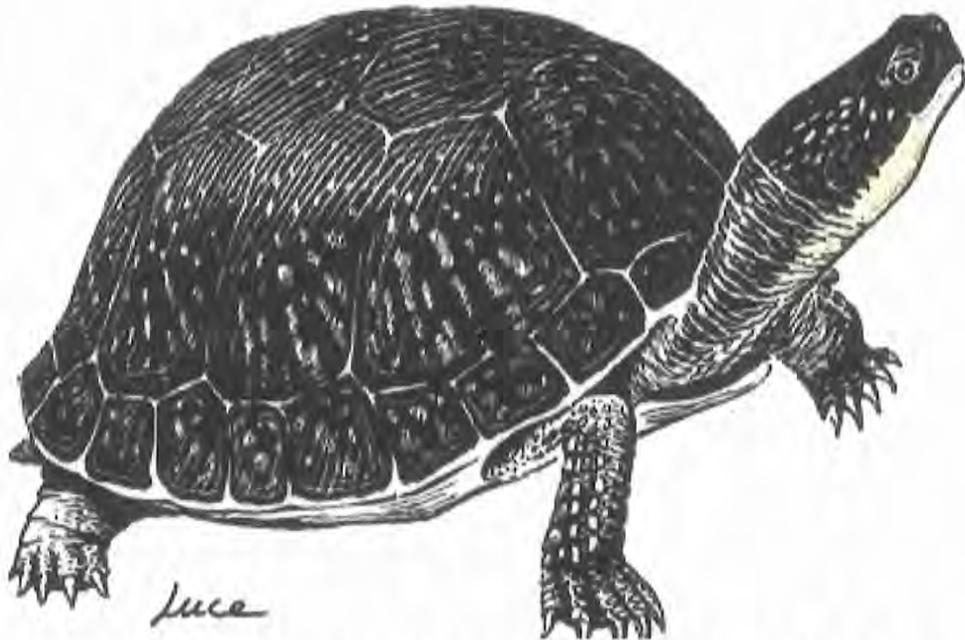
#### REFERENCES

- <sup>1</sup>Association for Biodiversity Information. "Heritage Status: Global, National, and Subnational Conservation Status Ranks." NatureServe. Version 1.3 (9 April 2001). <http://www.natureserve.org/ranking.htm> (15 April 2001).
- Coffin, B., and L. Pfannmuller. 1988. Minnesota's Endangered Flora and Fauna. University of Minnesota Press, Minneapolis, 473 pp.

**REFERENCES (cont.)**

- Moriarty, J. J., and M. Linck. 1994. Suggested guidelines for projects occurring in Blanding's turtle habitat. Unpublished report to the Minnesota DNR. 8 pp.
- Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.
- Sajwaj, T. D., and J. W. Lang. 2000. Thermal ecology of Blanding's turtle in central Minnesota. *Chelonian Conservation and Biology* 3(4):626-636.

# CAUTION



## BLANDING'S TURTLES MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are a State Threatened species and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2641); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-280-5070); or St. Paul (651-259-5764).

**DESCRIPTION:** The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

Illustration by Don Luce, from Turtles in Minnesota, Natural History Leaflet No. 9, June 1989, James Ford Bell Museum of Natural History

## SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS

*(see Environmental Review Fact Sheet Series for full recommendations)*

- A flyer with an illustration of an adult Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest, and do not allow pets near the nest.
- Blanding's turtles do not make good pets. It is illegal to keep this threatened species in captivity.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1<sup>st</sup> and before June 1<sup>st</sup>).