

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger  
David C. Boyd  
J. Dennis O'Brien  
Phyllis A. Reha  
Betsy Wergin

Chair  
Commissioner  
Commissioner  
Commissioner  
Commissioner

Tom Hillstrom  
Xcel Energy  
414 Nicollet Mall, MP-8A  
Minneapolis, MN 55401

SERVICE DATE: September 12, 2012

DOCKET NO. E-002/TL-11-800

In the Matter of the Route Permit Application for the North Rochester to Chester 161 kV Transmission Line Project in the Goodhue, Olmsted, and Wabasha Counties

The above entitled matter has been considered by the Commission and the following disposition made:

**Determined that the environmental assessment (EA) and record developed address the issues identified in the EA scoping decision.**

**Approved and adopt the proposed findings of fact and conclusions for the North Rochester to Chester 161 Kilovolt Transmission Line Project in Olmsted County, Minnesota, as amended by the Minnesota Department of Natural Resources (DNR) and the Energy Facility Permitting (EFP) unit of the Minnesota Department of Commerce (the Department).**

**Designated the route as described by the Department's EFP staff, including all associated facilities.**

**Issued a high voltage transmission line route permit, with appropriate conditions as amended by the Department's EFP staff and the DNR, to Northern States Power Company d/b/a Xcel Energy.**

The Commission agrees with and adopts the recommendations of the Department. The Commission attaches and hereby incorporates into the Order the following documents:

1. The Department's comments (June 29, 2012), excluding attachments
2. The Department's reply comments (August 1, 2012)
3. Findings of Fact, Conclusions of Law, and Order Issuing a Route Permit to Northern States Power Company for a 161 Kilovolt Transmission Line and Associated Facilities
4. Exhibits List
5. Route Permit, including --
  - A. Compliance Filing Procedures for High Voltage Transmission Lines
  - B. Permit Compliance Filings
  - C. Complaint Handling Procedures for High Voltage Transmission Lines
  - D. Route Maps
  - E. Statement Regarding use of Loose Net Plastic Mesh in Erosion Control Products
  - F. Statement Regarding Blanding's Turtles

BY ORDER OF THE COMMISSION



Burl W. Haar  
Executive Secretary

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**BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION**

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

**DOCKET No. E002/TL-11-800**

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

**In the Matter of the Route Permit Application by Northern States Power Company for the North Rochester to Chester 161 kV Transmission Line Project in Goodhue, Olmsted, and Wabasha counties, 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=32260> and on eDockets <https://www.edockets.state.mn.us/EFiling/search.jsp> (11-800).

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 September 19, 2011, the Northern States Power Company (applicant) applied for a high-voltage transmission line route permit to construct a new 161 kilovolt (kV) transmission line in Goodhue, Olmsted, and Wabasha counties, Minnesota, and make modifications to the existing Chester Substation in Olmsted County (project).

***Project Description***

The project is an approximately 29-30 mile 161 kV transmission line in Goodhue, Wabasha, and Olmsted counties. The project involves a 13 to 19-mile east-west segment in which the Applicant proposes to place the Chester Line on the same poles as the Hampton – Rochester – La Crosse 345 kV Transmission Project (345 kV Project.) The east-west segment originates at the North Rochester substation in Pine Island township, Goodhue County, Minnesota, and turns south towards the Chester substation at one of three tap points in Wabasha or Olmsted County, depending on which route is permitted in the CapX Hampton-Rochester-La Crosse 345kV transmission line route proceeding. From the tap point, a north-south segment would run 11 to 17 miles to the existing Chester substation in Marion township, Olmsted County, Minnesota. The north-south segment would consist of portions with single circuit 161 kV construction and portions with 161/69 kV double circuit construction.

The project will also include modifications to the existing Chester substation, on existing Rochester Public Utilities property, to include an additional 161 kV circuit breaker and associated switches, bus work and controls

The applicant requests the same route width along the east-west segment of the project as the route width requested for the 345 kV project (1000 feet), and requests a route width of 600 feet along the north-south segment of the project.

For the east-west segment, the applicant proposes to place the proposed Chester Line on double circuit structures with the 345 kV Project. Double circuit structures vary from 130 to 175 feet tall. Spans between structures can vary from 600 to 1,000 feet.

For the north-south segment, the applicant proposes to use a combination of single-pole, self-weathering steel, single-circuit and double-circuit structures. The 161 kV single circuit structures are typically 70 to 105 feet tall and the double circuit 161/69 kV structures are typically 85 to 120 feet tall. Both would be spaced approximately 400 to 700 feet apart.

A route segment alternative (Route Segment Alternative A) was suggested by the public during the environmental assessment scoping process. Route Segment Alternative A was included in the EA scoping decision, evaluated in the EA, and brought to the public hearing. The route width requested for Route Segment Alternative A is 600 feet. The transmission line and modifications at the Chester substation would cost between \$23.8 and \$25.3 million in 2011 dollars depending on which route is selected for the 345 kV Project. Typical annual operating and maintenance costs for 161 kV transmission lines across the applicant's Upper Midwest system area are approximately \$300 to \$500 per mile of transmission ROW.

Construction on the west-east portion of the Project is expected to begin in Spring of 2013. Construction on the north-south segment is expected to begin in late 2014. The estimated in-service date of the Project is Spring 2015.

## **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 29 miles of new 161 kV transmission line and therefore requires a route permit from the Commission.

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

On September 19, 2011, Northern States Power Company (applicant) applied for a high-voltage transmission line route permit under the alternative permitting process to construct a new 161 kV transmission line in Goodhue, Olmsted, and Wabasha counties, Minnesota, and make modifications to the existing Chester Substation in Olmsted County (project.) The Applicant has made a route permit application for a transmission line project on behalf of itself and anticipated co-owners of the Project, Dairyland Power Cooperative, Rochester Public Utilities, Southern Minnesota Municipal Power Agency, and WPPI Energy.<sup>1</sup> On October 24, 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>2</sup>

### ***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 examines 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 a public information and EA scoping meeting on November 29, 2011, at the Oronoco Community Center in Oronoco, Minn. Approximately 30 members of the public attended the meetings, and four persons took the opportunity to make comments or ask questions. A court reporter was present at the public meeting and transcribed comments made by the public, as well as responses from EFP staff and the applicant. Topics and issues raised by the public at the meeting included: project effect on property values, right-of-way requirements, land use, and post-construction restoration. One person spoke in favor of the proposed route. No alternate routes were proposed at the meeting

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<sup>1</sup> Application to the Minnesota Public Utilities Commission for a Route Permit, North Rochester to Chester 161 kV Project, Great River Energy, September 19, 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](#).

A comment period following the meeting ended on December 8, 2011. Seventeen comment letters were received during this comment period. Issues raised by the public for inclusion in the scope of the environmental assessment include transmission line effects on public health and safety, land use, property values, erosion, and historic resources. The public also requested the EA examine potential interference with electronic equipment used in farming operations, the transmission line right-of-way and route width, existing road and utility rights-of-way, and the potential for undergrounding sections of the transmission line. Several commenters questioned the need for the project. Five commenters advocated for the proposed route. Two alternative route segments were identified in comment letters provided by the public during the comment period.

Route Segment Alternative A – Three commenters suggested this route segment alternative be included in the scope of the EA. This route segment alternative is in Section 9 of Farmington Township, Olmsted County. This alternative would continue east from the point (NW ¼ of the NW ¼) that the CapX Hampton to La Crosse Modified Preferred Route turns north towards 125<sup>th</sup> Street NE, and Tap 3. The route segment alternate joins the applicant's proposed route at 50<sup>th</sup> Ave NE. Route Segment Alternative A was included in the scope of the environmental assessment.

Route Segment Alternative B – One commenter suggested this route segment alternative be included in the scope of the EA. This route segment alternative is in Section 30 of Hyde Park Township, Wabasha County, near Tap 1. This alternative follows a route alternative under consideration in the CapX Hampton to La Crosse docket (Route 3A-004), from the Alternative North Route, to the Zumbro Dam Route Option, to Tap 1.

The Mazeppa Township Board sent a comment letter indicating it had voted unanimously in favor of the applicant's preferred route stemming from Tap 3, utilizing the Modified Preferred route from the CapX Hampton-La Crosse 345kV transmission line project.

The Minnesota Department of Natural Resources (DNR) requested that information be provided in the EA on post-construction vegetative restoration activities, construction staging areas, erosion control techniques, wetland and waterbody effects, and the proposed alignment relative to the existing 69kV transmission line right-of-way. The DNR also indicated the occurrence of the Blanding's Turtle (a state-listed Threatened species) in the project area. The DNR supplied EFP and the applicant with a species fact sheet and recommendations for avoiding or minimizing the potential for impacts to this species. The DNR also advocated for the applicant's proposed route stemming from Tap 3, utilizing the Modified Preferred route from the CapX Hampton-La Crosse 345kV transmission line project

The Minnesota Department of Transportation requested information for transmission line crossings of Trunk Highways 247, 63, and 52, and stated the need for a utility crossing license for these crossings

### ***Scoping Decision***

The scoping decision for the EA was issued by the deputy commissioner of the Department of Commerce on December 21, 2011, and made available to the public as provided in Minnesota Rule 7850.3700, subpart 3, on December 29, 2011.<sup>3</sup>

Route Segment Alternative A was included in the scope of the environmental assessment.

Route Segment Alternative B is outside the scope of the EA. Whichever route is permitted north and west of Tap 1 will be double-circuited with the CapX Hampton to La Crosse 345 kV transmission line because it results in fewer impacts than constructing two separate transmission lines in the area. Route Segment Alternative B is the same as a route already under consideration in the CapX Hampton to La Crosse 345 kV docket, which has undergone extensive environmental review. The Minnesota Public Utilities Commission will decide on this route as part of the Hampton to La Crosse docket. Including Route Segment Alternative B in the scope of this EA would ultimately have had no bearing on the permitting decision of the 161kV transmission line.

### ***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 15, 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 March 29, 2012, at the Oronoco Community Center in Oronoco, Minn. Judge Richard Luis presided over the hearing. A comment period following the hearing ended on April 12, 2012. Eight persons made comments and asked questions at the public hearing; ten 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 29, 2012.<sup>5</sup>

Many of the comments received at the public hearing, and through written comments letters, related to the commenters' preferences of route for the CapX Hampton-Rochester-La Crosse 345 kV transmission line project (Docket E002/TL-09-1448). Comments and questions received during the hearing related specifically to the North Rochester-Chester 161kV transmission line (Docket E002/TL-11-800) addressed: (1) land use impacts associated with Route Segment Alternative A; (2) the Benike Family Barn in Farmington Township of Olmsted County, which is listed on the National Register of Historic Places; (3) spanning a Site of Moderate Biodiversity Significance; and, (4) Minnesota Pollution Control Agency (PCA) permitting requirements.

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<sup>3</sup> Environmental Assessment Scoping Decision, PUC Docket No. E002/TL-11-800, Minnesota Department of Commerce, December 28, 2011, eDockets Number [20121-70073-01](#).

<sup>4</sup> Environmental Assessment, North Rochester to Chester 161kV Transmission Line Project, Minnesota Department of Commerce, March 29, 2012, eDockets Number [20123-73085-01](#); [20123-73085-02](#).

<sup>5</sup> Summary of Testimony at Public Hearing and Summary of Written Comments, May 29, 2012, eDockets Number [20125-75013-011](#).

## 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.

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 161 kV transmission line, including potential impacts to public health and safety, electronic communications, cultural resources, soils, and fauna. However, considering the Commission's permit decision on the CapX Hampton-Rochester-La Crosse 345kV transmission line project, there are some minor differences in the Chester routing scenarios in potential impacts with route length, cost, distance to one residence, and surface water crossings.<sup>10</sup>

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<sup>6</sup> Proposed Findings of Fact 27-75.

<sup>7</sup> Proposed Findings of Fact 78-169.

<sup>8</sup> Id.

<sup>9</sup> Id..

<sup>10</sup> Proposed Finding of Fact 170.

Evaluation of project impacts between the two routing scenarios depends primarily on the permit decision made in the 345kV line project. A request to reconsider the Commission's permit decision has been filed by a party to the 345 kV line proceeding on June 19, 2012.<sup>11</sup>

There are not major differences between the proposed route and a proposed route that incorporates Route Segment Alternative A. The Route Segment A routing scenario is 0.5 miles shorter than the proposed route, and therefore less expensive. The shorter route follows a field division line instead of a roadway. One house along 50<sup>th</sup> Avenue NE, Farmington Township, Olmsted County would be affected by either routing scenario. Route segment A would be 165 feet from the house, while the applicant's proposed route would be 120 feet away, and on the other side of 50<sup>th</sup> Avenue.<sup>12</sup>

The routing scenario incorporating Route Segment Alternative A would make one less stream crossing than the proposed route.<sup>13</sup>

Both the route proposed by the applicant, as well as a route incorporating Route Segment Alternative - 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.<sup>14</sup>

Of the two routing scenarios evaluated in the EA and public hearing, and given the Commission's permitted route in the CapX Hampton-Rochester-La Crosse 345 kV transmission line project, the applicant's preferred route, incorporating Route Segment Alternative A, best satisfies 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 length, project costs, and increases the distance from one residence. Should the Commission deem that another route should be permitted during the permit decision reconsideration process for the 345 kV line project, EFP staff will submit revised findings of fact, conclusions of law, and order reflecting that permitting decision.

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. The special conditions are included in the permit based on MnDNR recommendations during the environmental review and public hearing process.

### Section 5.1 Blanding's Turtle

As part of the plan and profile submission, the Permittee shall describe actions taken to follow the fact sheet of recommendations for avoiding and minimizing impacts for Blanding's turtles. The summary of recommendations attached to the permit for avoiding and minimizing impacts to these populations, including the colored photocopies of the Blanding's turtles, shall be made available to all contractors and its employees.

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<sup>11</sup> Proposed Finding of Fact 171.

<sup>12</sup> Proposed Finding of Fact 172.

<sup>13</sup> Proposed Finding of Fact 173.

<sup>14</sup> Conclusion 8.

### Section 5.2 Wildlife-friendly Erosion Control Matting

As part of the plan and profile submission, the Permittee shall describe actions taken to use wildlife-friendly erosion control matting in areas known to be inhabited by reptile and amphibian species.

### **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 CapX North Rochester to Chester 161kV 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 incorporating Route Segment Alternative A as the route for the construction of the North Rochester to Chester 161kV transmission line project, including all associated facilities; and
  - c. Issues a high voltage transmission line route permit, with appropriate conditions, to Northern States Power Company.



**Energy Facility Permitting**  
85 7th Place East, Suite 500  
St. Paul, Minnesota 55101-2198  
ph 651.296.4026 | fx 651.297.7891  
<http://mn.gov/commerce/energyfacilities>

August 1, 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: North Rochester to Chester 161 kV Transmission Line Project in Goodhue, Olmsted, and Wabasha Counties, Minn.  
*Comments and Recommendations, Proposed Findings of Fact and Proposed Route Permit*  
[PUC Docket Number: E002/TL-11-800]  
Department of Commerce, Energy Facility Permitting Unit Reply Comments

Dear Dr. Haar,

On July 20, 2012 the Minnesota Department of Natural Resources (MnDNR) and Northern States Power Company (Xcel Energy) each submitted initial comments on the proposed permit for the North Rochester-Chester 161 kV transmission line project in Goodhue, Olmsted and Wabasha counties, Minnesota. The Department of Commerce Energy Facilities Permitting Unit (EFP) provides the following replies to those initial comments and suggests changes to the proposed permit to clarify requirements.

Minnesota Department of Natural Resources initial comments

In its letter, MnDNR noted that the environmental assessment (EA) and proposed findings of fact include statements that the applicant will work with MnDNR to identify the best locations for bird flight diverters along the line, and to span rare plant communities and areas with listed species to the extent practicable. While acknowledging that Permit Condition 4.2 requires the Permittee to follow practices and specifications described in the EA and findings, MnDNR suggests that it may be clearer to include these impact reduction strategies as a condition of the permit.

**EFP Response:** EFP concurs with MnDNR that including a specific permit condition to address locating bird flight diverters and spanning high quality habitat is prudent, and that the permittee should coordinate with MnDNR on how best to reduce the potential for impacts. EFP suggests including an additional special condition:

**5.3 Bird Flight Diverters, Rare Plant Communities, and Listed Species Habitat**

In coordination with MnDNR, the Permittee shall identify appropriate locations for bird flight diverters along the transmission line route and, to extent practicable, span rare plant communities and areas supporting listed species. The permittee shall describe actions taken and mitigative measures developed regarding implementation of this permit condition in its plan and profile submission.

### Xcel Energy initial comments

In its letter, Xcel Energy offers one suggested addition to the Draft Route Permit at the end of Section 3.1: Route Width and Alignment. Xcel Energy proposed, and EFP recommends that the Minnesota Public Utilities Commission authorize construction of the 17-miles of the east-west segment of the Chester Project be co-located with the Hampton-Rochester-La Crosse 345 kV Project ("La Crosse 345 kV Project"). Section 3.1 provides a process for modifying the route and the anticipated alignment for the Chester Project. There may be route or alignment changes that are made pursuant to the Route Permit granted for the La Crosse 345 kV Project on the co-located segment. Xcel Energy requests that the following provision be added to the Draft Route Permit so that any proposed changes to the La Crosse 345 kV Project would apply to the Chester Project:

"If the Commission approves a modification of a portion of the east-west segment of the La Crosse 345 kV Project route that is co-located with the Chester Project, the approval will apply to the Chester Project and no further Permittee or Commission action will be required."

**EFP Response:** EFP concurs with the approach suggested by Xcel Energy for the separately permitted, but co-located, segments of the La Crosse 345 kV and Chester 161kV projects. By adding this language, Condition 3.1 would state:

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

The designated route width for the new 161 kV transmission line shall be 600 feet in the north-south segment. The designated route width for the double-circuited east-west segment will be the same route width as the CapX Hampton-Rochester-La Crosse 345 kV transmission line (1000 feet).

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.

If the Commission approves a modification of a portion of the east-west segment of the La Crosse 345 kV Project route that is co-located with the Chester Project, the approval will apply to the Chester Project and no further Permittee or Commission action will be required.

Thank you for the opportunity to provide reply comments. Should you have any questions, please feel free to contact our office.

Sincerely,

A handwritten signature in black ink, appearing to read "Matt Langan", with a stylized flourish at the end.

Matthew A. Langan  
DOC EFP Staff

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

The designated route width for the new 161 kV transmission line shall be 600 feet in the north-south segment. The designated route width for the double-circuited east-west segment will be the same route width as the CapX Hampton-Rochester-La Crosse 345 kV transmission line (1000 feet).

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.

If the Commission approves a modification of a portion of the east-west segment of the La Crosse 345 kV Project route that is co-located with the Chester Project, the approval will apply to the Chester Project and no further Permittee or Commission action will be required.

## 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.

### **5.3 Bird Flight Diverters, Rare Plant Communities, and Listed Species Habitat**

In coordination with MnDNR, the Permittee shall identify appropriate locations for bird flight diverters along the transmission line route and, to extent practicable, span rare plant communities and areas supporting listed species. The permittee shall describe these actions taken and mitigative measures developed in its plan and profile submission.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger	Chair
David C. Boyd	Commissioner
J. Dennis O'Brien	Commissioner
Phyllis A. Reha	Commissioner
Betsy Wergin	Commissioner

In the Matter of the Route Permit  
Application for the North Rochester to  
Chester 161 kV Transmission Line Project in  
Goodhue, Olmsted and Wabasha Counties,  
Minnesota.

ISSUE DATE: September 12, 2012

DOCKET NO. E002/TL-11-800

FINDINGS OF FACT,  
CONCLUSIONS OF LAW, AND  
ORDER ISSUING A ROUTE PERMIT TO  
NORTHERN STATES POWER  
COMPANY FOR A 161 KILOVOLT  
TRANSMISSION LINE AND  
ASSOCIATED FACILITIES

The above matter came before the Minnesota Public Utilities Commission (Commission) acting on an application by Northern States Power Company for a route permit to construct a new, approximately 29 to 30-mile long, 161 kV overhead transmission line in Goodhue, Olmsted and Wabasha counties, Minnesota.

A public hearing was held on March 29, 2012, at Oronoco Community Center in Oronoco, 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 12, 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 North Rochester to Chester 161 kV Transmission Line project?

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

## **FINDINGS OF FACT**

### **I. Applicant**

1. Northern States Power Company (Applicant), a Minnesota Corporation, is based in Minneapolis, Minnesota. The Applicant has made a route permit application for a transmission line project on behalf of itself and anticipated co-owners of the Project, Dairyland Power Cooperative, Rochester Public Utilities, Southern Minnesota Municipal Power Agency, and WPPI Energy.<sup>1</sup>
2. On September 19, 2011, the Applicant applied for a high-voltage transmission line route permit to construct a new 161 kV transmission line in Goodhue, Olmsted, and Wabasha counties, Minnesota, and make modifications to the existing Chester Substation in Olmsted County (project, or Chester line).<sup>2</sup>

### **II. Project Description**

3. The project consists of the following components:<sup>3</sup>
4. A 13 to 19-mile east-west segment in which the Applicant proposes to place the Chester Line on the same poles as the Hampton – Rochester – La Crosse 345 kV Transmission Project (345 kV Project), originating at the North Rochester substation in Pine Island township, Goodhue County, Minnesota, and turning south towards the Chester substation at one of three tap points in Wabasha or Olmsted County, depending on which route is permitted in the CapX Hampton-Rochester-La Crosse 345kV transmission line route proceeding.
5. An 11 to 17-mile north-south segment in which the Applicant proposes a new route consisting of portions with single circuit 161 kV construction and portions with 161/69 kV double circuit construction, which terminates at the existing Chester substation in Marion township, Olmsted County, Minnesota.
6. Modifying the existing Chester substation, on existing Rochester Public Utilities property, to include an additional 161 kV circuit breaker and associated switches, bus work and controls.

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

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

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

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

7. The applicant has identified and proposed one route for the north-south segment of the project. The applicant has stated that whichever route is permitted by the Commission in the CapX Hampton-Rochester-La Crosse 345 kV transmission line proceeding will be the applicant's preferred east-west route for the Chester 161 kV project.<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 along the east-west segment of the project equal to the route width requested for the 345 kV project (1000 feet), and requests a route width of 600 feet along the north-south segment of the project.<sup>6</sup>
10. The route segment included in the scope of the environmental assessment (Route Segment Alternative A) is 600 feet in width.<sup>7</sup>

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

11. The applicant states the typical right-of-way (ROW) for the double-circuited east-west segment of the project will be 150 feet (75 feet on each side of the transmission line). The typical ROW for the north-south segment will be 80 feet, or 40 feet on either side of the transmission line.<sup>8</sup>
12. The applicant has provided an anticipated alignment for the project within the proposed route.<sup>9</sup>

### **C. Structures and Conductors**

13. For the east-west segment, the applicant proposes to place the proposed Chester Line on double circuit structures with the 345 kV Project. Double circuit structures vary from 130 to 175 feet tall. Spans between structures can vary from 600 to 1,000 feet.<sup>10</sup>
14. For the north-south segment, the applicant proposes to use a combination of single-pole, self-weathering steel, single-circuit and double-circuit structures. The

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

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

<sup>6</sup> Ex. 2 at p. 4-3 (RPA).

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

<sup>8</sup> Ex. 2 at p. 5-9 (RPA).

<sup>9</sup> Id..

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

161 kV single circuit structures are typically 70 to 105 feet tall and the double circuit 161/69 kV structures are typically 85 to 120 feet tall. Both would be spaced approximately 400 to 700 feet apart <sup>11</sup>

15. For the east-west segment (on 345 kV poles), the applicant proposes to install 345 kV conductor and insulators energized at 161 kV to support a future double-circuit capable design. This includes two 954 kcmil 54/7 Aluminum Core Steel Supported (“ACSS”) conductors or conductors of comparable capacity. This design does not increase the capacity of the 345 kV circuit. The second circuit will be installed contemporaneously with the first 345 kV circuit.<sup>12</sup>
16. For the north-south segment, the applicant proposes to install 795 kcmil 26/7 ACSS circuit and 477 kcmil or conductors of comparable capacity for portions double circuited with the Peoples Cooperative 69 kV circuit. One or two shield wires will be used to protect the conductors from lightening strikes. One of these shield wires will incorporate fiber optic to facilitate relay control communications between substations and between substations, utility offices such as control centers. Fiber optics will be used only for utility purposes<sup>13</sup>

#### **D. Substations**

17. The project involves modifications to the existing Chester substation, on Rochester Public Utility-owned land, including an additional 161 kV circuit breaker and associated switches, bus work and controls.<sup>14</sup>
18. The North Rochester Substation is being permitted in the 345 kV Project. Equipment specifically assigned in the 345 kV Project include one 161 kV circuit breaker and associated switches, bus work and controls necessary for the Chester Line interconnection.<sup>15</sup>

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

19. Construction on the west-east portion of the Project is expected to begin in Spring of 2013. Construction on the north-south segment is expected to begin in late 2014. The estimated in-service date of the Project is Spring 2015.<sup>16</sup>

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<sup>11</sup> Id.

<sup>12</sup> Ex. 2 at p. 5-9 (RPA).

<sup>13</sup> Id.

<sup>14</sup> Ex. 2 at p. 4-11 (RPA).

<sup>15</sup> Id.

<sup>16</sup> Ex. 10 at p. 6 (Environmental Assessment, hereafter referred to as EA).

## F. Project Costs

20. The transmission line and modifications at the Chester substation would cost between \$23.8 and \$25.3 million in 2011 dollars depending on which route is selected for the 345 kV Project. Typical annual operating and maintenance costs for 161 kV transmission lines across the applicant's Upper Midwest system area are approximately \$300 to \$500 per mile of transmission ROW.<sup>17</sup>

## G. Construction

21. The acquisition of utility easement on private land consists of a multi-step process that includes examining titles, contacting owners, surveying, preparing documents and purchasing the ROW. The first step in the ROW process is to complete a public records search of all land involved in the Project. A title report is then developed for each parcel to determine the legal description of the property and the owner(s) of record and to gather information about easements, liens, restrictions, encumbrances and other conditions of record.<sup>18</sup>
22. Owners of private land located within the desired ROW easement would be contacted by a ROW agent acting on behalf of the Applicant to discuss the land use needs specific to their parcel and any site-specific concerns of the land owner. Contact with private land owners would occur following the issuance of the Route Permit. The ROW agent would request permission to access the property to conduct a land survey and soil borings. The purpose of the survey is to identify natural features, man-made features, and elevations needed for detailed engineering design of the transmission line.<sup>19</sup>
23. In locations where the transmission line structures can be placed adjacent to an existing roadway or utility, the Project would partially share the existing ROW. This would allow for a lesser width of ROW to be acquired from private landowners.<sup>20</sup>
24. After ROW is acquired, the ROW agent would contact all land owners to discuss the construction schedule. If personal property must be moved temporarily for the construction of the Project (e.g., property fences), the ROW agent would discuss this with the land owner.<sup>21</sup>
25. The HVTL route permit will require the Applicant to restore the ROW following construction. This may include the replacement of personal property removed or damaged during construction, re-grading areas where fill material was used, and

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<sup>17</sup> Ex.10 at p.12 (EA)

<sup>18</sup> Ex. 10 at pp. 13-14 (RPA).

<sup>19</sup> Id.

<sup>20</sup> Id..

<sup>21</sup> Id.

assisting in the reestablishment of vegetation. It is anticipated that portions of vegetation that are disturbed or removed during construction, specifically resilient species of grasses and shrubs, would naturally reestablish to pre-disturbance conditions. Areas with significant soil compaction and disturbance from construction activities would require assistance in reestablishing the vegetation stratum and controlling soil erosion.<sup>22</sup>

26. Following construction of the Project, the ROW agent would contact private land owners to inquire whether any damage occurred to the property during construction and what repairs may be needed. The Applicant would be responsible for restoring all areas to their original condition to the maximum extent possible. If non-repairable damage occurs to a property, the Applicant would reimburse the landowner for such damages.<sup>23</sup>
27. The overhead transmission lines would be designed to operate indefinitely with minimal routine maintenance requirements. Transmission infrastructure has very few mechanical elements and is built to withstand weather extremes that are normally encountered, such that transmission lines rarely fail except in the case of severe weather. If a fault is sensed on the transmission system, the transmission line would automatically be taken out of service with use of protective relaying equipment.<sup>24</sup>

### **III. Procedural Summary**

28. On July 26, 2011, in accordance with Minn. R. 7850.2800, subpart 2, the applicant filed a letter with the Commission noticing their intent to submit a route permit application under the alternative permitting process set forth in Minnesota Statutes 216E.04 and Minn. R. 7850.2800 to 7850.3900.<sup>25</sup>
29. On September 19, 2011, the applicant filed a route permit application with the Commission for the project.<sup>26</sup>
30. On September 19, 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 Minn. R. 7850.3300.<sup>27</sup>

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<sup>22</sup> Ex. 10 at p. 21 (EA).

<sup>23</sup> Id.

<sup>24</sup> Id.

<sup>25</sup> Ex. 1 (Notice of Intent).

<sup>26</sup> Ex. 2 (RPA).

<sup>27</sup> Ex. 3 (Notice of Route Permit Application)

31. The applicant published notice of their route permit application submittal in the *Rochester Post Bulletin* and the *Zumbrota News Record* newspapers (September 28, 2011) in compliance with Minn. R. 7850.3300.<sup>28</sup>
32. 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 Minn. R. 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>29</sup>
33. On October 24, 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 Minn. R. 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>30</sup>
34. On November 11, 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 Minn. R. 7850.3500, subpart 1.<sup>31</sup>
35. Notice of the public information and scoping meeting was published in the *Rochester Post Bulletin* and the *Zumbrota News Record* newspapers (November 16, 2011) in compliance with Minn. R. 7850.3500, subpart 1.<sup>32</sup>

#### **A. Public Information and Scoping Meeting**

36. 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>33</sup> During the scoping process, alternative routes may be suggested for evaluation in the EA.<sup>34</sup>
37. In accordance with Minn. R. 7850.3500, subpart 1, EFP staff held a public information and scoping meeting on November 29, 2011, at the Oronoco Community Center in Oronoco, Minnesota.<sup>35</sup>

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<sup>28</sup> Id.

<sup>29</sup> Ex. 4 (EFP staff comments and recommendations to the Commission on application acceptance).

<sup>30</sup> Ex. 5 (Commission Order of Application Acceptance).

<sup>31</sup> Ex. 6 (Notice of Public Information and EA Scoping Meetings).

<sup>32</sup> Ex. 7 (Published Notice of Public Information and Scoping Meeting).

<sup>33</sup> Minn. R. 7850.3700, subpart 2.

<sup>34</sup> Minn. R. 7850.3700, subpart 2B.

<sup>35</sup> Ex. 9 (Scoping Decision).

38. Four persons provided oral comments and asked questions about the proposed project at the public meetings. Topics and issues raised by the public at the meeting included: project effect on property values, right-of-way requirements, land use, and post-construction restoration. One person spoke in favor of the proposed route. No alternate routes were proposed at the meeting.<sup>36</sup>
39. The public comment period on the scope of EA closed on December 8, 2011. EFP staff received 17 comment letters during the scoping comment period. EFP received letters from the Mazeppa Township Board, the Minnesota Department of Natural Resources, the Minnesota Department of Transportation, and 14 citizens who own land or live in the project area.<sup>37</sup>
40. Issues raised by the public for inclusion in the scope of the environmental assessment include transmission line effects on public health and safety, land use, property values, erosion, and historic resources. The public also requested the EA examine potential interference with electronic equipment used in farming operations, the transmission line right-of-way and route width, existing road and utility rights-of-way, and the potential for undergrounding sections of the transmission line. Several commenters questioned the need for the project. Five commenters advocated for the proposed route. Two alternative route segments were identified in comment letters provided by the public during the comment period<sup>38</sup>
41. Route Segment Alternative A – Three commenters suggested this route segment alternative be included in the scope of the EA. This route segment alternative is in Section 9 of Farmington Township, Olmsted County. As is represented in the attached Figure 2, this alternative would continue east from the point (NW ¼ of the NW ¼) that the CapX Hampton to La Crosse Modified Preferred Route turns north towards 125<sup>th</sup> Street NE, and Tap 3. The route segment alternate joins the applicant's proposed route at 50<sup>th</sup> Ave NE. Route Segment Alternative A was included in the scope of the environmental assessment<sup>39</sup>
42. Route Segment Alternative B – One commenter suggested this route segment alternative be included in the scope of the EA. This route segment alternative is in Section 30 of Hyde Park Township, Wabasha County, near Tap 1 (See Figure 1). This alternative follows a route alternative under consideration in the CapX Hampton to La Crosse docket (Route 3A-004), from the Alternative North Route, to the Zumbro Dam Route Option, to Tap 1.<sup>40</sup>

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<sup>36</sup> Ex. 8 (Transcribed and Written Oral Comments from Public Information and Scoping Meeting).

<sup>37</sup> Ex.9 (Scoping Decision)

<sup>38</sup> Id.

<sup>39</sup> Id.

<sup>40</sup> Id.

43. Route Segment Alternative B is outside the scope of the EA. Whichever route is permitted north and west of Tap 1 will be double-circuited with the CapX Hampton to La Crosse 345 kV transmission line because it results in fewer impacts than constructing two separate transmission lines in the area. Route Segment Alternative B is the same as a route already under consideration in the CapX Hampton to La Crosse 345 kV docket, which has undergone extensive environmental review. The Minnesota Public Utilities Commission will decide on this route as part of the Hampton to La Crosse docket. Including Route Segment Alternative B in the scope of this EA would ultimately have no bearing on the permitting decision of the 161kV transmission line.<sup>41</sup>
44. The Mazeppa Township Board sent a comment letter indicating it had voted unanimously in favor of the applicant's preferred route stemming from Tap 3, utilizing the Modified Preferred route from the CapX Hampton-La Crosse 345kV transmission line project.<sup>42</sup>
45. The Minnesota Department of Natural Resources (DNR) requested that information be provided in the EA on post-construction vegetative restoration activities, construction staging areas, erosion control techniques, wetland and waterbody effects, and the proposed alignment relative to the existing 69kV transmission line right-of-way. The DNR also indicated the occurrence of the Blanding's Turtle (a state-listed Threatened species) in the project area. The DNR supplied EFP and the applicant with a species fact sheet, and recommendations for avoiding or minimizing the potential for impacts to this species. The DNR also advocated for the applicant's proposed route stemming from Tap 3, utilizing the Modified Preferred route from the CapX Hampton-La Crosse 345kV transmission line project.<sup>43</sup>
46. The Minnesota Department of Transportation requested information for transmission line crossings of Trunk Highways 247, 63, and 52, and stated the need for a utility crossing license for these crossings.<sup>44</sup>
47. The scoping decision for the EA was signed by the deputy commissioner of the Department of Commerce on December 21, 2011, and made available to the public as provided in Minn. R. 7850.3700, subpart 3, on December 29, 2011.<sup>45</sup>

## **B. Environmental Assessment**

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<sup>41</sup> Id.

<sup>42</sup> Id.

<sup>43</sup> Id.

<sup>44</sup> Id.

<sup>45</sup> Id.

48. On March 15, 2012, EFP staff issued the environmental assessment (EA) for the project.<sup>46</sup>
49. On March 15, 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 Minn. R. 7850.3700, subpart 6.<sup>47</sup>
50. On March 15, 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 Minn. R. 7850.3700, subpart 6.<sup>48</sup>
51. On April 2, 2012, notice of the availability of the EA was published in the *EQB Monitor*.<sup>49</sup>

### C. Public Hearing

52. On March 15, 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>50</sup>
53. A notice of public hearing and availability of EA was published in the *Rochester Post Bulletin* and *Zumbrota News Record* newspapers (March 21, 2012).<sup>51</sup>
54. Administrative Law Judge (ALJ) Richard C. Luis presided over the public hearing conducted on March 29, 2012, at the Oronoco Community Center in Oronoco, Minnesota.<sup>52</sup>
55. During the hearing, testimony was heard from the applicant and members of the public. The hearing record closed on April 12, 2012.<sup>53</sup>
56. Pursuant to Minn. R. 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>54</sup>

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<sup>46</sup> Ex. 10 (EA), Ex. 11 (Notice of Public Hearing and Availability of EA).

<sup>47</sup> Ex. 11 (Notice of Public Hearing and Availability of EA).

<sup>48</sup> Ex. 11 (Notice of Public Hearing and Availability of EA).

<sup>49</sup> Ex. 12 (Notice in EQB Monitor).

<sup>50</sup> Ex. 13 (Certified Mail Notice of Public Hearing and Availability of EA).

<sup>51</sup> Ex. 14 (Published Notice of Public Hearing and Availability of EA).

<sup>52</sup> Ex. 19 (Administrative Law Judge Summary of Public Testimony [hereafter ALJ Summary]).

<sup>53</sup> Id.

<sup>54</sup> Id.

57. Lisa Agrimonti and Tom Hillstrom appeared at the hearing on behalf of the applicant.<sup>55</sup>
58. A transcript of the public hearing was filed by the Office of Administrative Hearings' designated court reporter on April 30, 2012.<sup>56</sup>
59. On May 29, 2012, Judge Luis filed a summary of testimony from the public hearing and a summary of written comments.<sup>57</sup>
60. During the public hearing, eight members of the public presented their views regarding the proposed route for the project.<sup>58</sup> The ALJ received ten written comments by the close of the hearing record on April 30, 2012.<sup>59</sup>

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

61. Dan and Kristi Pesch oppose Route Segment Alternative A (the White Bridge Road alignment). Alternative A runs east to west across their north property line. Mr. Pesch noted that during the scoping proceedings, he had proposed the line originally to intercept at Tap 3 and follow a side road east to west and then start southward, based on the fact that the land is largely unoccupied and follows a previously accepted right-of-way (roads and pre-existing power lines). Mr. Pesch noted that the first version of the 345kV line crisscrossed his property without recognition of the fact that the two 40-acre segments involved were all one piece of land, so the proposal was changed to travel on the road dividing his property. Mr. Pesch noted that Segment Alternative A travels diagonally across his property.<sup>60</sup>
62. Anna Mae, Merl and Elgin Norman are all founders and remain involved in an entity known as Woodland Camp. Their camp property lies adjacent to the proposed alternative favored by the ALJ in the CapX2020 proceeding, east of the Zumbro Dam, within the Richard J. Dorer Memorial Hardwood State Forest.<sup>61</sup>
63. Gary Hayden owns property on which he has developed Camp Victory. He expressed the same concerns as the Normans regarding the impact of the wooded area east of the Zumbro Dam, which is also located within the State Forest.<sup>62</sup>
64. Val Lowe raised an issue regarding the difference between route width and right-of-way. Mr. Langan explained that "route width" defines the boundary within

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<sup>55</sup> Id.

<sup>56</sup> Ex. 17 (Public Hearing Transcript).

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

<sup>58</sup> Id.

<sup>59</sup> Id.

<sup>60</sup> Ex. 19 at pp. 4-5 (ALJ Summary).

<sup>61</sup> Id.

<sup>62</sup> Id.

which a utility is granted permission to purchase/acquire its right-of-way, which is generally acquired by easement negotiated with landowners and is much more narrow than the route width. Route widths generally are wider to give the utility company flexibility in precise location of its poles. This flexibility can be exercised to avoid existing structures and other important features that lie within or outside the route.<sup>63</sup>

65. John Markham farms property along the White Bridge Road segment that now has been approved by the PUC for the 345kV line. Mr. Markham is a dairy farmer who is concerned because the white blood cell count in the milk produced by his cows is high. He is concerned that stray voltage would ruin his dairy operation. Mr. Markham notes also that he has rare wildlife on his property, such as owls, horned owls, screech owls, sparrow owls and sparrow hawks. Mr. Markham is bordered by other power lines, and believes the stray voltage from them has thrown off the white blood cell count in his cows' milk.<sup>64</sup>

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

66. Stephen Hackman noted that he supported, in general, routing the lines so that the Tap 3 location was used. He was in favor of that choice because its location would utilize an existing 69kV line and road right-of-way. The Tap 3 location also involves use of the southernmost route, which creates the shortest, most direct route to the Chester Substation. Mr. Hackman noted that Tap 3 is located at a road on relatively flat ground, which will provide access to the location during the construction phase of the project, and minimize the impact of construction activities and recurring maintenance. Mr. Hackman noted also that Route Segment Alternative A would not present a situation where a practical, neat and orderly expansion of the system at any or all electrical power levels (69kV, 161 kV and 345kV) could occur, should future expansion be required.<sup>65</sup>
67. Suzanne Rohlfing has been involved in the proceedings in the 345kV docket mentioned earlier. She favors use of Tap 3 along the White Bridge Road, and points out that the modified preferred route enables use of the Chester Line Alternative A segment, in a shorter Chester line. She notes also that the White Bridge Road crossing was preferred by the Minnesota DNR for crossing the Zumbro River. She made a similar point about future expansion to that made by Mr. Hackman, and Ms. Rohlfing emphasized that using the southern route would keep the 345kV line outside the R.J. Dorer Memorial Hardwood State Forest. Ms. Rohlfing notes also that use of Tap 3 and the modified preferred route would use the only corridor that crosses the Zumbro River that already has a road, bridge and electric lines. She notes that the Tap 3 and modified preferred (White Bridge

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<sup>63</sup> Id.

<sup>64</sup> Id.

<sup>65</sup> Ex. 19 at pp.6-8 (ALJ Summary).

Road) route is the most compliant when Minnesota Transmission Line Siting Criteria and Non-Proliferation Policy are taken into consideration.<sup>66</sup>

68. Betty Seidlitz presented a letter at the Hearing from the Minnesota Historical Society noting the presence on her property of the Benike Family Barn in Farmington Township of Olmsted County, which is listed on the National Register of Historic Places.<sup>67</sup>
69. Also received at the Hearing was a written submission from John Tiedeman, owner-operator of a dairy in Oronoco Township. Mr. Tiedeman presented data he contends supports the argument that stray voltage from power lines is harmful to dairy cattle.<sup>68</sup>
70. Lisa Joyal of the Minnesota Department of Natural Resources (DNR) reviewed the Environmental Assessment by the Department of Commerce and noted that the Assessment should indicate that all federally listed species, except for the Canada lynx, and all state-listed species, except for the gray wolf, are tracked in the Natural Heritage Information System. Also Ms. Joyal noted that paragraph two on page 57 of the EA omits a reptile species documented within one mile of the proposed line (the timber rattlesnake). Ms. Joyal also recommended spanning of an area to help identify the presence of another type of rattlesnake in a Dry Bedrock Bluff Prairie inside a Site of Moderate Biodiversity Significance.<sup>69</sup>
71. In a letter to Mr. Langan regarding preparation of the E.A., Jamie Schrenzel, Principal Planner with the Environmental Review Unit of the DNR noted that the DNR recommends utilizing the White Bridge Road crossing, rather than the other two alternatives for connection to the Chester Line.<sup>70</sup>
72. A comment filed by Craig Affeldt, Supervisor of the Environmental Review Unit of the Minnesota Pollution Control Agency (PCA) notes that if the total project disturbs one acre or more of land, a National Pollution Discharge Elimination System/State Disposal System Construction Storm Water Permit would be required from the MPCA.<sup>71</sup>
73. Jay and Margaret Janssen of Zumbrota wrote in opposition to the substation siting area proposed for the new (North Rochester) substation between Pine Island and Zumbrota. The Janssens note that their house falls directly within the zone of the Substation siting area and that power lines currently run near their home. The Janssens note also that the livestock on their small farm have their health and

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<sup>66</sup> Id.

<sup>67</sup> Id.

<sup>68</sup> Id..

<sup>69</sup> Id..

<sup>70</sup> Id.

<sup>71</sup> Id.

behavior affected by the "humming" and "snapping" from existing power lines, and that the lines affect electronics in their home and interfere with wireless devices to the point of making them unusable. They argue that the additional voltage related to substation development likely would increase their problems and add to adverse effects on the livestock. As a result, their property value would be diminished and the aesthetics in the Zumbro Watershed Area would be compromised.<sup>72</sup>

74. Sara Anderson of Mazeppa wrote in opposition to CapX2020. In that connection, she opposes the Zumbro Dam route. Ms. Anderson's concerns relate to the effect that stress has on her husband's blood sugar control, adding that his stress would increase if the 161 kV line were nearby. Ms. Anderson recommends adoption of the County Road 12 Route (White Bridge Road), and the Commission has voted that way.<sup>73</sup>
75. Richard and Shirley Sonsalla have filed a Comment relating to recommendation of the Administrative Law Judge in CapX2020 proceeding, which would route the 345kV line to be co-located with the part of the 161 kV line proposed in this proceeding. The ALJ recommended routing the line off Douglas Trail at 70<sup>th</sup> Avenue West, then heading due south to 65th Street Northwest and turning due east to rejoin Douglas Trail at 60th Avenue Northwest, before continuing to the Northern Hills Power Station in Rochester. That configuration was recommended by the ALJ (according to the Sonsallas) in order to avoid a stand of trees. The Sonsallas emphasize that the trees to be avoided are box elders, which they maintain are undesirable. Their proposal is to leave the 161kV power line in place, following Douglas Trail to 60th Avenue Northwest directly without making the departure south to 65th Street Northwest, then east to 60<sup>th</sup> Northwest.<sup>74</sup>
76. Vladimir and Bonnie Sokolov of Rochester submitted a letter questioning the actual need for the 161 kV line under consideration in this proceeding. They ask why that new line, together with the rest of the CapX2020 Project, is being proposed at all. They are skeptical as to whether there is an actual need for an energy upgrade in the vicinity of the line. The Sokolovs note that if there is a need for the Projects, the professed need is in conflict with Xcel's current reassessment of its plan to boost power at its Red Wing Nuclear Plant (Prairie Island), because circumstances have changed. They cite a recent article in the *Minneapolis Star Tribune* to the effect that Xcel believes its power uprate at Prairie Island may not be as advantageous as envisioned. The additional power may not be urgently needed in light of forecasts for lower demand growth. The Sokolovs maintain the need for the Chester Line Project has not been made sufficiently clear in this proceeding. They request consideration of their arguments by the PUC as it decides whether the extra energy upgrade related to

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<sup>72</sup> Id.

<sup>73</sup> Id.

<sup>74</sup> Id.

CapX2020, including the Pine Island-to-Chester 161 kV line, really is necessary..<sup>75</sup>

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

77. 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>76</sup>
78. The stated need of the Project is to improve regional reliability of the transmission system, to improve community reliability of the transmission system in specified communities and to increase generator outlet. The Project is part of the Hampton – Rochester – La Crosse 345 kV Transmission Project. The Commission granted a Certificate of Need (CON) in May 2009 approving construction of the Hampton – Rochester – La Crosse 345 kV Transmission Project, including the North Rochester – Chester 161 kV Line. As part of the CON order, the Commission directed that the 345 kV structures in Minnesota be constructed as “double circuit capable” to accommodate a future 345 kV line when conditions warrant.<sup>77</sup>

#### **V. Routing Criteria**

79. 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>78</sup>
80. 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>79</sup>
81. The Commission is also guided by Minn. R. 7850.4100 which establishes factors to be considered in determining whether to issue a route permit. These factors are as follows:<sup>80</sup>

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<sup>75</sup> Id.

<sup>76</sup> Minnesota Statute 216B.2421.

<sup>77</sup> Ex. 10 at p. 6 (EA).

<sup>78</sup> Minnesota Statute 216E.02.

<sup>79</sup> Minnesota Statute 216E.03.

<sup>80</sup> Minn. R. 7850.4100.

- 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;
- 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**

82. **Socioeconomics.** During construction, it is expected there will be a small positive impact on the community due to the expenditures by the construction crews in the local community such as increased spending for lodging, meals and other consumer goods and services. It is not anticipated that the Project will create new permanent jobs. Socioeconomic effects are generally positive because of their

impacts on the local tax base. Long-term beneficial impacts from the new transmission lines, include an increase to the tax base of local governmental units resulting with incremental increase in revenue from utility property taxes. Indirect impacts may occur through the increased capability of the electric system to supply energy to commercial and industrial users, which will contribute to the economic growth of the region.<sup>81</sup>

83. Minorities and persons living in poverty in the Project Area are less than the state as a whole. The Project is not expected to displace low-income or minority populations as the Study Area does not contain disproportionately high minority populations or low-income populations.<sup>82</sup>
84. **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 80 feet for the north-south segment of the new 161 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>83</sup>
85. For either routing scenario (applicant's proposed or a route incorporating Route Segment Alternative A), there are no homes within the maximum ROW required (80 feet, or 40 on either side of the transmission line centerline.) The Applicant has stated that no residential displacement will need to occur in order to construct and operate the transmission line.<sup>84</sup>
86. **Noise.** All noises produced by the project must be within Minnesota noise standards. These standards limit A-weighted decibel levels (dBA) for specific 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>85</sup>
87. 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>86</sup>
88. Noise from operation of the new 161 kV is estimated to be less than 32 dBA and within Minnesota noise standards for all receptors.<sup>87</sup>

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<sup>81</sup> Ex. 10 at p. 58 (EA).

<sup>82</sup> Ex. 10 at p.52 (EA)

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

<sup>84</sup> Id.

<sup>85</sup> Minn. R. 7030; Ex. 10 at p. 26 (EA).

<sup>86</sup> Ex. 13 at p. 30 (EA)

<sup>87</sup> Id.

89. **Aesthetics.** The project area consists primarily of agricultural land with areas of limited residential development. Topography in the Study Area is relatively flat with some gently rolling hills. The visual landscape consists primarily of agricultural fields, farmsteads, shelterbelts (wooded wind breaks) and State and County roadways. Neither of the route options parallels or crosses any designated National Scenic Byways. The transmission line structures will contribute to changing the views throughout the project area. The area also is crossed by transportation and utility corridors. Although these corridors have already created a visual impact, the Project's transmission lines and structures would contrast with the existing landscape creating an additional, incremental visual impact.<sup>88</sup>
90. Although the line will be a contrast to some surrounding land uses, the Applicant has stated it designed the route to utilize existing corridors and avoid homes to the extent possible, although the transmission lines would be visible to residents located near the Project ROW. To further mitigate visual impacts, the Applicant could place the transmission poles and wires in a manner to minimize direct impacts (e.g. avoid placing transmission structures directly in front of a building). Where feasible, the location of pole structures, ROW, and other disturbed areas could be determined by considering input from property owners to minimize visual impacts. The Applicant has stated it will work with landowners to identify and address concerns related to the transmission line pole types and location and/or substation aesthetics.<sup>89</sup>
91. To minimize impacts to trees, removal could be limited to only those trees located within the ROW that would affect the safe operation of the transmission line.<sup>90</sup>
92. Landscaping also could be used to diffuse the effects of the power lines within and adjacent to the ROW in order to help screen the lines from residences. Screening can enhance the overall quality of a ROW by creating the perception that the poles and wires have receded into the distance. Low growing vegetation could be placed within the ROW along with larger vegetative species near the edges.<sup>91</sup>
93. **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

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<sup>88</sup> Ex. 10 at pp. 27-28 (EA).

<sup>89</sup> Id.

<sup>90</sup> Id.

<sup>91</sup> Id.

may include the type and size of power lines, the distance to the power lines, and amenities offered by the property.<sup>92</sup>

94. Property values impacts can be reduced overall by selecting a route that follows existing utility and roadway corridors, and can be mitigated during the easement negotiation process.<sup>93</sup>
95. **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>94</sup>
96. 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>95</sup>
97. 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>96</sup>
98. 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 of a television signal. Impacts due to obstruction can be mitigated by moving the satellite dish.<sup>97</sup>
99. 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>98</sup>
100. 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>99</sup>

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<sup>92</sup> Ex. 10 at p. 59-61 (EA).

<sup>93</sup> Id.

<sup>94</sup> Ex. 13 at pp. 31-3428-31 (EA).

<sup>95</sup> Id.

<sup>96</sup> Id.

<sup>97</sup> Id.

<sup>98</sup> Id.

<sup>99</sup> Id.

## B. Public Health and Safety

101. **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>100</sup>
102. *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>101</sup>
103. 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>102</sup>
104. The estimated maximum electric field for this project is 1.83 kV/m. This maximum occurs on the transmission line centerline. The estimated maximum electric field at the edge of the transmission line ROW is 0.8 kV/m.<sup>103</sup>
105. 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>104</sup>
106. *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>105</sup>
107. 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>106</sup>

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<sup>100</sup> Ex. 10 at pp. 36-41 (EA).

<sup>101</sup> Id.

<sup>102</sup> Id.

<sup>103</sup> Ex. 10 at p. 41 (EA).

<sup>104</sup> Ex. 10 at p. 41 (EA).

<sup>105</sup> Ex. 10 at p.39 (EA)

<sup>106</sup> Id.

108. 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>107</sup>
109. 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>108</sup>
110. The estimated maximum magnetic field for this project, under normal operating conditions, is 8.42 mG. This maximum occurs on the transmission line centerline. The estimated maximum magnetic field at the edge of the transmission line ROW is 4.05 mG. The estimated maximum magnetic fields for the project, under emergency conditions (temporary, high current conditions), are 14.03 mG and 6.76 mG at the centerline and edge of the ROW respectively.<sup>109</sup>
111. 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>110</sup>
112. **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>111</sup>
113. 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>112</sup>
114. 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.

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<sup>107</sup> Id.

<sup>108</sup> Id.

<sup>109</sup> Id.

<sup>110</sup> Id.

<sup>111</sup> Ex. 10 at p. 44 (EA).

<sup>112</sup> Ex. 10 at p.42 (EA)

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>113</sup>

115. The estimated maximum electric field for the project is 1.83 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>114</sup>
116. **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>115</sup>
117. 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>116</sup>
118. 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 in compliance with Route Permit Condition 4.7.1. 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>117</sup>
119. **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>118</sup>

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<sup>113</sup> Id.

<sup>114</sup> Id.

<sup>115</sup> Ex. 10 at p. 43 (EA).

<sup>116</sup> Id.

<sup>117</sup> Id.

<sup>118</sup> Id.

120. 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>119</sup>
121. 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>120</sup>
122. **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>121</sup>
123. **Public Safety.** The new 161 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 Chester substation would be fenced and access limited to authorized personnel.<sup>122</sup>
124. **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>123</sup>
125. The project area is accessible by a system of local, collector, and arterial roads. County highways and local roads could be crossed multiple times by the Project transmission line to avoid residential homes. The number and locations of highway crossings would vary depending on the final alignment of the transmission line ROW within the route.<sup>124</sup>
126. The route width would allow flexibility in the alignment of the transmission line such that roadways could be crossed in order to avoid certain sensitive resources.

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<sup>119</sup> Id.

<sup>120</sup> Id.

<sup>121</sup> Ex. 10 at pp. 45-46 (EA).

<sup>122</sup> Ex. 10 at p. 24 (EA).

<sup>123</sup> Ex. 10 at pp. 66-68 (EA).

<sup>124</sup> Id.

The transmission line would be designed in accordance with National Electrical Safety Code (NESC) standards, which establish clearances required between transmission lines and transportation structures. These clearances are designed to accommodate a relative vehicle height of 14 feet, such that vehicle use could safely occur beneath the transmission line.<sup>125</sup>

127. Emergency services available in the vicinity of the Study Area include emergency transportation via the Mayo One helicopter service. There are four Mayo One aircraft, three helicopters and one plane, which service a 150-mile radius extending from Rochester, Minnesota; Mankato, Minnesota; and Eau Claire, Wisconsin (Mayo Clinic, 2010). Medical helicopters utilize temporary landing zones during responses to medical emergencies. The helicopter may land in fields and roadways to get as close as safely possible to patients (Zhuikov, 2010). According to an Omniflight Helicopters, Inc. representative, Mayo One can land in a variety of areas, as long as the landing area and the approach surface are clear of obstructions. Typically, first responders to an emergency via ground vehicles would identify a suitable landing zone for Mayo One aircraft. Safety of the landing zone would be confirmed through use of aircraft equipment (Mayo One, 2008). Safety features installed on the helicopter include a wire strike kit that enables the helicopter to cut through power lines in case of accidental contact (Mayo Clinic, 2010).<sup>126</sup>
128. Although specific landing information for Mayo One was not available, the same helicopter model is used by various other organizations located throughout the country. For example, the Wyoming Life Flight utilizes EC145 helicopter and, following the National EMS Pilots Association guidelines, requires the touchdown area to be 75 feet by 75 feet during daytime and 125 feet by 125 feet during nighttime. The landing area must be clear of people, vehicles, trees, poles, wires, posts, stumps, and debris that could blow into the rotor (WMC, 2010). The approach and departure area must also be clear of overhead obstructions, such as wires, trees, and light posts. The presence of high voltage transmission lines near other types of obstructions, such as trees, light poles, and residences, would not add significantly to the landing restrictions already present.<sup>127</sup>
129. The Federal Aviation Administration (FAA) regulates the use of lighting and markers for transmission lines above certain heights. The FAA requires a Notice of Proposed Construction or Alteration for transmission line projects within specified distances to airports and heliports to evaluate potential interference with air traffic and instrumentation.<sup>128</sup>

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<sup>125</sup> Id.

<sup>126</sup> Id..

<sup>127</sup> Id..

<sup>128</sup> Id..

130. Construction of the Project could result in temporary construction-related detours and road closures. Road or lane closures would occur where the alternatives cross and (to some degree) parallel roads. Closures and detours would typically be necessary to string transmission lines across roads, or to allow for the movement of construction vehicles and the delivery of construction materials. Due to the traffic volumes on local roads, it is not expected that lane closures would significantly delay travel times.<sup>129</sup>

### C. Land-Based Economies

131. Land-based economies in Goodhue, Olmsted and Wabasha counties include agriculture (i.e., farming, livestock, and agri-business and tourism), mining, and forestry-based economies. No impacts are anticipated for mining or forestry operations as a result of this Project, therefore no mitigation measures are proposed.<sup>130</sup>
132. Gravel pits, quarries, and commercial aggregate sources are located within Goodhue, Olmsted, and Wabasha counties. Aggregate (sand, gravel and crushed stone) operations occur in the vicinity of the proposed Project. The route options do not cross active aggregate mining operations. One documented aggregate mine exists approximately 1,200 feet from the edge of the route corridor south of Viola Road NE. The mine is not active. High potential for aggregate material exists in two locations along the route corridor. The total area of high potential aggregate is approximately 163 acres. The location of the aggregate is approximately 0.3 miles from the centerline of the proposed corridor. There are no other high potential areas for aggregate along the corridor.<sup>131</sup>
133. Due to the abundance of farmland in the Study Area, there are few wooded areas located along the route options and minimal impacts are anticipated. There are no significant lumber mills (>2,000 cords annual production) located in the Study Area, which are an important factor in determining markets for wood. There are no acres of forestry stand within the 600-foot route width of either route option. Therefore, the Project would not result in forestry-related economic impacts.<sup>132</sup>
134. The U.S. Department of Agriculture (“USDA”) 2007 Census of Agriculture found that Goodhue, Olmstead and Wabasha Counties have 81.9 percent, 70.8 percent and 78.4 percent of land area in farms, respectively. The predominant acreage in cultivation was corn, soybean and forage. Cattle and hogs are the predominant livestock operations. Although the majority of lands the proposed route crosses consist of agricultural lands, agricultural land will be minimally impacted because the proposed route is located within or adjacent to existing utility, roadway or

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<sup>129</sup> Id..

<sup>130</sup> Ex. 10 at pp. 61-65 (EA).

<sup>131</sup> Id.

<sup>132</sup> Id.

other public ROW, minimizing the impacts to agricultural operations. Agricultural impacts would be limited to the footprint of poles located within agricultural areas.<sup>133</sup>

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

135. Protection is afforded to historic properties by the Minnesota Historic Sites Act (Statute 138.661 – 138.6691). The State of Minnesota maintains a state register of historic places in order to preserve the historical values of the state. Historic properties selected for inclusion in the state register of historic places are based on the same criteria as historic properties selected for inclusion on the National Register of Historic Places (NRHP).<sup>134</sup>
136. A review of the SHPO database revealed one archaeological site within one-mile of the project, and ten historic/architectural sites. One of the historic/architectural sites is listed on the NRHP. None of these cultural resources is anticipated to be impacted by the project..<sup>135</sup>
137. The applicant has stated that if an artifact is discovered during construction, consultation would be conducted with the SHPO to determine whether or not the resource would be eligible for listing in the NRHP. The Applicant has proposed to conduct Phase I or Phase II surveys if a potentially eligible artifact is discovered and cannot be spanned.<sup>136</sup>
138. Per Route Permit Condition 4.9, any archaeological sites identified by investigation or during Project construction could be avoided through flexibility in siting of the Project structures and ROW. If sites are not avoidable, they should be evaluated for significance and potential listing, in consultation with SHPO, and subsequent mitigation performed as needed. Potential visual impacts to the viewshed to/from historic sites could be reduced through coordinating pole placement with the land owner(s) and other interested parties.<sup>137</sup>

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<sup>133</sup> Id.

<sup>134</sup> Ex. 10 at pp. 34-36 (EA).

<sup>135</sup> Id.

<sup>136</sup> Id.

<sup>137</sup> Id.

## E. Natural Environment

139. **Water Resources.** Several perennial and intermittent streams and ditches are crossed by the Chester 161 kV Route. One stream, Silver Creek is designated as a Public Water and listed in the Public Water Inventory (PWI) by the State of Minnesota and is under the regulatory jurisdiction of the MnDNR. Wetlands within the palustrine system were the only ones identified within the Chester 161 kV Route. Palustrine refers to smaller (less than 20 acres), shallow (less than 6.5 feet) wetlands. Silver Creek and several unnamed tributaries to Silver Creek are listed as impaired waters by the MPCA. There are no FEMA 100-year floodplains crossed by the Route or segment alternative. There are no USFWS Waterfowl Production Areas within the corridor. The closest Waterfowl Production Area, Steele County Waterfowl Production Area, is approximately 33 miles to the west in Steele County. No lakes would be crossed by the Route or segment alternative, although wetlands are found throughout the Route.<sup>138</sup>
140. During construction there is a possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading and construction traffic. Silver Creek and its tributaries are already impaired by sediment and turbidity, so any sediment reaching these streams has the potential to compound adverse water quality in these impaired waters. A National Pollutant Discharge Elimination System (NPDES) permit from the MPCA is required for stormwater discharges associated with ground-disturbing construction activities equal to or greater than one acre. A requirement of the permit is to develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which includes implementation of construction Best Management Practices (BMPs) intended to establish sediment and erosion control and minimize discharge of pollutants.<sup>139</sup>
141. To avoid direct impacts, the Applicant has stated that construction will incorporate spacing of structures to span wetlands and streams. Temporary impacts to wetlands may occur if the wetlands need to be crossed during construction of the transmission line. Staging or stringing setup areas would be placed outside of water resources wherever possible. The Applicant would avoid major disturbance of individual wetlands and drainage systems during construction by spanning wetlands and drainage systems, where possible. The Applicant has stated wetland vegetation would be restored following construction.<sup>140</sup>
142. In order to minimize wetland impacts, the Applicant has stated that construction will be scheduled during the winter months when the ground is frozen, as feasible. The Applicant has stated that crews will attempt to access a wetland using the shortest possible route resulting in the least amount of physical impact to the

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<sup>138</sup> Ex. 10 at pp. 49-52 (EA).

<sup>139</sup> Id.

<sup>140</sup> Id.

wetland. As feasible, the Applicant has stated that structures will be assembled on upland areas before they are brought to the site for installation and when construction during winter is not possible, construction mats will be used to minimize wetland impacts. Additionally, the Applicant has access to an all-terrain construction vehicle, which is designed to minimize soil compaction and damage in damp areas. Temporarily impacted wetlands will be restored as required by the USACE, the MnDNR, and the BWSR.<sup>141</sup>

143. **Soil Resources.** The Study Area is characterized by rolling till plains transitioning to the dissected landscape of the adjoining Blufflands Subsection. It has a well-developed branched drainage system with few lakes. Prior to settlement, the landscape was characterized by tall grass prairie and burr oak savanna. The surface elevation varies between 1,100 feet mean sea level (MSL) to 1,300 feet MSL in rolling topography. Surface water in the project area generally flows into intermittent tributaries to the Zumbro River from where it then flows north and east toward the Mississippi River<sup>142</sup>
144. Due to the surficial nature of the Project, no changes to topography or geology are expected. Potential direct effects to soils include the movement/disturbance and displacement of soil. During construction, surface soils in the 80-foot wide ROW would be temporarily disturbed. Disturbed soils can be subject to erosion caused by site clearing and earthmoving.<sup>143</sup>
145. Long-term displacement of soils would result from the placement of Project structures. Assuming a maximum foundation diameter of 8 feet, each Project structure would displace up to approximately 50 square feet of soil.<sup>144</sup>
146. The Applicant has stated it 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. In areas where soils have been compacted, the Applicant could use techniques such as ripping to reduce compaction and avoid future impacts to agricultural crops.<sup>145</sup>
147. The applicant would be 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

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<sup>141</sup> Id.

<sup>142</sup> Ex. 10 at pp. 46-47 (EA).

<sup>143</sup> Id.

<sup>144</sup> Id.

<sup>145</sup> Id.

construction. The plan is required to outline the BMPs that would be used during construction, especially focusing upon erosion and sediment control.<sup>146</sup>

148. **Flora.** The majority of the land adjacent to the Project is in row crops, pasture, and hay lands. Row crops in the area include corn and soybeans. Scattered areas of shrub lands and fragmented deciduous forests are located throughout or adjacent to the Route corridor. According to the MnDNR Ecological Classification System (ECS), ecological land classifications are used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. The Chester 161 kV Route is located entirely in the Rochester Plateau Subsection of the Paleozoic Plateau Section.<sup>147</sup>
149. Surrogate grasslands are common in this region of Minnesota. According to Minnesota Comprehensive Wildlife Conservation Strategy, these are grasslands that have developed as a result of human activities since settlement dominated by non-native, cool-season grasses. Surrogate grasslands include old fields, hayfields, pastures, and roadside grasslands.<sup>148</sup>
150. There are six Conservation Reserve Program (CRP) properties located in the Route ROW currently depicted within the Route corridor. CRP is a federal program administered by the NRCS that converts highly erodible or marginal farmland to native grassland habitats. Easements last 10 to 15 years and are intended to reduce erosion and improve water quality.<sup>149</sup>
151. The total area of forested upland (deciduous and evergreen) within the route corridor is approximately 42.4 acres (1,846,944 ft<sup>2</sup>). The area of forested upland (deciduous and evergreen) that will be impacted by the ROW is approximately 5.99 acres (260,924 ft<sup>2</sup>). A width of 40 feet will be cleared on either side of the centerline for the 161 kV transmission line ROW in areas where trees are present. Forested wetlands are not anticipated to be impacted by construction.<sup>150</sup>
152. The HVTL permit would include restoration conditions that would require the Applicant to restore the ROW to its original vegetative state to the extent possible. Restoration conditions would be applied to the Project ROWs, lay down areas, access roads, and temporary work spaces.<sup>151</sup>
153. To minimize impacts to trees in the Study Area, removal could be limited to only those trees located within the ROW that would affect the safe operation of the transmission line. The Applicant has stated a commitment to place the

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<sup>146</sup> Id.

<sup>147</sup> Ex. 10 at p. 52-54 (EA).

<sup>148</sup> Id.

<sup>149</sup> Id.

<sup>150</sup> Id.

<sup>151</sup> Id.

transmission line on the opposite side of the road from residences where possible, which would reduce the number of residential shade and wind control trees removed from the Project:<sup>152</sup>

154. The Applicant would wash or manually remove material from construction vehicles prior to the start of construction if equipment has traveled from an area contaminated by noxious weeds. Cover crop or other stabilizing vegetation could be planted in non-agricultural areas following construction in order to prevent disturbed areas from becoming available to weed species:<sup>153</sup>
155. The Applicant has stated it will work with the MnDNR and the USFWS to minimize and avoid impacts to sensitive flora along the route. The Applicant will attempt to avoid, minimize, and/or mitigate impacts to any areas known to support native vegetation or special status species, as practicable. When native vegetation communities cannot feasibly be spanned, the Applicant will work to minimize the number of structures within these communities:<sup>154</sup>

The applicant would comply with Minnesota noxious weed laws as described in the Minn. R. ch. 1505 and would observe county weed lists, where appropriate. The Applicant would provide for weed control associated with substation and switch locations in a manner that would reduce the spread of weeds onto adjacent agricultural land during operation of the transmission line:<sup>155</sup>

156. **Fauna.** The Project would be located primarily along existing road ROWs in a cultivated agricultural environment with patches of natural areas present. These natural areas include habitat such as grasslands, upland and lowland deciduous forests, emergent wetlands, and riparian woodlands.<sup>156</sup>
157. Areas temporarily disturbed by construction activities may be restored to pre-construction contours and allowed to re-vegetate naturally, subject to landowner approval. 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>157</sup>
158. 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>158</sup>

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<sup>152</sup> Id.

<sup>153</sup> Id.

<sup>154</sup> Id.

<sup>155</sup> Id.

<sup>156</sup> Ex. 10 at pp. 54-56 (EA).

<sup>157</sup> Id.

<sup>158</sup> Id.

## F. Rare and Unique Natural Resources

159. 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 at Minn. R. 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>159</sup>
160. The MnDNR NHIS was consulted for known occurrences of sensitive species and other rare or unique natural resources with the potential to occur near the proposed route and segment alternative. Two special concern plant species, White Wild Indigo (*Baptisia alba*) and Rattlesnake-master (*Eryngium yuccifolium*), and two threatened reptile species, Blanding's Turtle (*Emydoidea blandingii*), and Timber Rattlesnake were documented within 1-mile of the Route centerline. Three occurrences were recorded for Blanding's Turtle.<sup>160</sup>
161. A sedge meadow was also identified within one-mile of the proposed route centerline. This wetland community was identified as a large meadow dominated mostly by *Carex lacustris* and *Calamagrostis Canadensis* with areas dominated by *Carex stricta* and *Typha* species. This community was identified as having a moderate species diversity with associate species of various *Carex*, *Polygonum*, *Lathyrus*, *Eleocharis*, *Erythronium*, and *Galium* species.<sup>161</sup>
162. The majority of the land use surrounding both route options is cultivated cropland and pasture and impacts to rare species are unlikely. To reduce and minimize impacts to rare and unique natural resources the Applicant would, to the maximum extent practicable, span areas of potential habitat for these species. If construction activities are proposed to disturb known endangered or threatened species habitat, surveys would be conducted to determine species presence, as well as to plan avoidance and mitigation strategies, per MnDNR permit requirements. Adjustments to structure configuration and careful pole siting would be used to minimize impacts in sensitive areas. The Applicant would be required to maintain sound water and soil conservation practices during construction of the Project to protect topsoil and adjacent water resources and minimize soil erosion and sedimentation. The MnDNR encourages wildlife

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<sup>159</sup> Ex. 10 at pp. 56-58 (EA).

<sup>160</sup> Id.

<sup>161</sup> Id.

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. 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 mitigation measures. As the Study Area is known to provide habitat for the Blanding's turtle, the MnDNR has provided the Applicant with information sheets on recommended BMPs to reduce the potential or avoid for impacts to this species. 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>162</sup>

## **G. Design Options**

163. For the east-west segment, the Applicant proposes to place the proposed Chester Line on double circuit structures with the Hampton-Rochester-La Crosse 345 kV Project. Double circuit structures vary from 130 to 175 feet tall. Spans between structures can vary from 600 to 1,000 feet with a ROW of 150 feet<sup>163</sup>
164. For north-south segment, the Applicant proposes to use a combination of single-pole, self-weathering steel, single-circuit and double-circuit structures. The Applicant proposes to use single-pole self-weathering steel, double-circuit structures for the 0.5 miles from Tap 3 along 125<sup>th</sup> Street NE to 50<sup>th</sup> Avenue NE, Single-pole self-weathering steel, single-circuit structures for approximately 5 miles south along 50<sup>th</sup> Avenue NE from 125<sup>th</sup> Street NE to 75<sup>th</sup> Street NE, and Single-pole self-weathering steel, double-circuit structures for the remaining 6.4 miles of the to the Chester substation<sup>164</sup>
165. The 161 kV single circuit structures are typically 70 to 105 feet tall and the double circuit 161/69 kV structures are typically 85 to 120 feet tall, both would be spaced approximately 400 to 700 feet apart with a ROW of 80 feet. Portions of the route would require existing Peoples Cooperative distribution to be attached in an underbuilt position. In this situation a mid-span pole would be required to support the distribution circuit.<sup>165</sup>

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

166. The majority of the proposed route for the project parallels existing road and/or utility corridors. This paralleling minimizes aesthetic impacts, the extent of the

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<sup>162</sup> Id..

<sup>163</sup> Ex. 10 at p. 15 (EA).

<sup>164</sup> Id..

<sup>165</sup> Id.

ROW (easement) required from private landowners, and the proliferation of infrastructure corridors.<sup>166</sup>

167. The applicant indicates that its preference is to place the new 161 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>167</sup>

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

168. The stated need of the Project is to improve regional reliability of the transmission system, to improve community reliability of the transmission system in specified communities and to increase generator outlet. The Project is part of the Hampton – Rochester – La Crosse 345 kV Transmission Project. The Commission granted a Certificate of Need (CON) in May 2009 approving construction of the Hampton – Rochester – La Crosse 345 kV Transmission Project, including the North Rochester – Chester 161 kV Line. As part of the CON order, the Commission directed that the 345 kV structures in Minnesota be constructed as “double circuit capable” to accommodate a future 345 kV line when conditions warrant.<sup>168</sup>

#### **J. Costs**

169. The transmission line and modifications at the Chester substation would cost between \$23.8 and \$25.3 million in 2011 dollars depending on which route is selected for the 345 kV line. Operating and maintenance costs for the Project would be minimal for several years, since the line would be new and minimal vegetation management would be required. Typical annual operating and maintenance costs for 161 kV transmission lines across the Applicant’s Upper Midwest system area are approximately \$300 to \$500 per mile of transmission ROW. The principal operating and maintenance cost would include inspections, which are usually done by fixed-wing aircraft and by helicopter on a regular basis. The Applicant performs periodic inspections of substations and equipment. The type and frequency of inspection varies depending on the type of equipment. Typical inspection intervals are semiannual or annual. Maintenance and repair are performed on an as-needed basis and therefore the cost varies from substation to substation.<sup>169</sup>

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

170. All routes and alignments analyzed for the project have human and environmental impacts, some of which are unavoidable. The project will require few irreversible

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<sup>166</sup> Ex. 10 at p.15 (EA).

<sup>167</sup> Id.

<sup>168</sup> Ex. 10 at p. 6 (EA).

<sup>169</sup> Ex. 10 at p. 12 (EA).

and irretrievable commitments of resources. These resources are limited to construction resources, e.g., concrete, steel, hydrocarbon fuels.

#### **L. Summary of Human and Environmental Impacts**

171. 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 161 kV transmission line, including potential impacts to public health and safety, electronic communications, cultural resources, soils, and fauna. However, considering the Commission's permit decision on the CapX Hampton-Rochester-La Crosse 345kV transmission line project, there are differences in the Chester routing scenarios in potential impacts with route length, cost, distance to one residence, and surface water crossings.<sup>170</sup>
172. Evaluation of project impacts between the two routing scenarios depends primarily on the permit decision made in the 345kV line project. A request to reconsider the Commission's permit decision has been filed by a party to the 345 kV line proceeding on June 19, 2012.
173. There are not major differences between the proposed route, and a proposed route that incorporates route segment alternative A. The Route Segment A routing scenario is 0.5 miles shorter than the proposed route, and therefore less expensive. The shorter route follows a field division line instead of a roadway. One house along 50<sup>th</sup> Avenue NE, Farmington township, Olmsted County would be affected by either routing scenario. Route segment A would be 165 feet from the house, while the applicant's proposed route would be 120 feet away, and on the other side of 50<sup>th</sup> Avenue.<sup>171</sup>
174. The routing scenario incorporating route segment alternative A would make one less stream crossing than the proposed route.<sup>172</sup>

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<sup>170</sup> Ex. 10 at pp. 73-74 (EA).

<sup>171</sup> Id.

<sup>172</sup> Id..

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 Minn. R. 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 Minn. R. 7850.3700.
6. In accordance with Minn. R. 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 Minn. R. 7850.4100.
9. Of the two routing scenarios evaluated in the EA and public hearing, and given the Commission's permitted route in the CapX Hampton-Rochester-La Crosse 345 kV transmission line project, the applicant's preferred route, incorporating Route Segment Alternative A best satisfies the routing criteria of Minnesota Statute 216E.03, subdivisions 7(a) and (b) and Minn. R. 7850.4100, as it results in fewer impacts to project length, project costs, and increases the distance from one residence.

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, incorporating Route Segment Alternative A, is hereby issued to Northern States Power Company to construct approximately 29 miles of new 161 kV overhead transmission line in Goodhue

and Olmsted counties, Minnesota, and to expand and modify the Chester substation, as indicated on permit maps.

- 2. The route width for the new 161 kV line is 1000 feet for the east-west segment, and 600 feet for the north-south segment, as indicated on the permit maps.
- 3. The route permit shall be issued in the form attached hereto, with maps showing the approved route and anticipated alignment.

Approved and adopted this 12th day of September, 2012.

BY ORDER OF THE COMMISSION



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Burl W. Haar,  
Executive Secretary

**In the Matter of the Route Permit Application for the North Rochester to Chester 161 kV Transmission Line Project in Goodhue, Olmsted, and Wabasha counties, Minnesota**

Exhibits List  
 OAH Docket: **7-2500-22655-2**  
 PUC Docket E002/TL-11-800

<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 (dated July 26, 2011)	October 12, 2011	<a href="#">201110-67265-01</a>
2	Applicant	HVTL Route Permit Application	September 19, 2011	<a href="#">20119-66484-02</a> ; <a href="#">20119-66484-09</a> ; <a href="#">20119-66484-08</a> ; <a href="#">20119-66484-01</a> ; <a href="#">20119-66484-03</a> ; <a href="#">20119-66484-05</a> ; <a href="#">20119-66484-06</a> ; <a href="#">20119-66484-04</a> ; <a href="#">20119-66484-07</a> ;
3	Applicant	Notice of Filing of Application (dated September 19, 2011 with Affidavits of Mailing and Publication)	October 10, 2011	<a href="#">201110-67265-01</a>
4	EFP	EFP staff comments and recommendations to the Commission on application acceptance	October 12, 2011	<a href="#">201110-67247-01</a>
5	Commission	Order of Application Acceptance (with Certificate of Service and Service List)	October 24, 2011	<a href="#">201110-67626-01</a> ; <a href="#">201110-67626-02</a>
6	EFP	Notice of Public Information and Environmental Assessment Scoping Meeting (with Affidavit of Service)	November 11, 2011	<a href="#">201111-68223-01</a>
7	Applicant	Notice of Public Scoping Meeting (with Affidavits of Publication on November 16, 2011)	December 14, 2011	<a href="#">201112-69224-01</a>
8	EFP	Public Comments (oral and written) made at the information/scoping meeting November 29, 2011	December 22, 2011	<a href="#">201112-69527-01</a>
9	DOC	DOC Deputy Director's Scoping Decision (with Notice and Certificate of Service)	December 22 and 28, 2011	<a href="#">201112-69528-01</a> ; <a href="#">201112-69705-01</a>

<b>EFP Item No.</b>	<b>Author</b>	<b>Record Item</b>	<b>Received Date</b>	<b>eDocket Document Number</b>
10	EFP	Environmental Assessment	March 15, 2012	<a href="#">20123-72648-01</a>
11	EFP	Notice of Public Hearing and Availability of EA (with Certificate of Service)	March 15, 2012	<a href="#">20123-72621-01</a>
12	EFP	Notice of Availability of EA in the <i>EQB Monitor</i> (March 19, 2012)	March 19, 2012	<a href="#">20123-72684-01</a>
13	EFP	Notice of Public Hearing (dated March 15, 2012, with certified letters to Local Governments)	March 26, 2012	<a href="#">20123-72930-01</a>
14	Applicant	Notice of Public Hearing (with Affidavit of Publication)	To be filed by Applicant once received	
		Hearing Transcript		
		Hearing Comments		
		ALJ Summary Report		

**STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION**

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

**IN GOODHUE AND OLMSTED COUNTIES**

**ISSUED TO  
NORTHERN STATES POWER COMPANY**

**PUC DOCKET NO. E-002/TL-11-800**

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

**NORTHERN STATES POWER COMPANY**

Northern States Power Company is authorized by this route permit to construct approximately 29 miles of new 161 kV transmission line between the North Rochester Substation in Goodhue County and the Chester Substation in Olmsted County, Minnesota, and to expand and modify the Chester substation to accommodate the new 161 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 12th day of September, 2012

BY ORDER OF THE COMMISSION

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Burl W. Haar,  
Executive Secretary



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**ATTACHMENTS**

Compliance Filing Procedures for High Voltage Transmission Lines

Permit Compliance Filings

Complaint Handling Procedures for High Voltage Transmission Lines

Blanding's Turtle Fact Sheet

Route Maps

## **1 ROUTE PERMIT**

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to Northern States Power Company (Permittee) pursuant to Minnesota Statute 216E.03 and Minnesota Rules 7850. This permit authorizes the Permittee to construct approximately 29 miles of new 161 kV transmission line (Chester line) and associated facilities in Goodhue and Olmsted counties, 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 161 kV transmission line and associated facilities, described as follows:

- Construction of an east-west segment, approximately 17 miles in length, of 161 kV transmission line to be double-circuited with the Hampton-Rochester-La Crosse 345 kV transmission line from the North Rochester Substation in Pine Island Township, Goodhue County, Minn. to a point in Section 9 of Farmington Township, Olmsted County, Minn., as represented on the attached permit maps;
- Construction of a north-south segment, approximately 12 miles in length, of portions with single circuit 161 kV construction and portions with 161/69 kV double circuit construction, from the point the 161kV line de-couples with the 345 kV transmission line in Farmington township to the existing Chester substation in Marion township, Olmsted County, Minn.; and,
- Modifying the existing Chester substation, on existing Rochester Public Utilities property, to include an additional 161 kV circuit breaker and associated switches, bus work and controls.

### **2.1 Project Location**

The project is located in Goodhue County, Minn., in Pine Island township, and in Olmsted County, Minn., in Oronoco, Farmington, Haverhill, and Marion townships.

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

The project will modify the existing Chester substation, on existing Rochester Public Utilities property, to include an additional 161 kV circuit breaker and associated switches, bus work and controls

### **2.3 Structures and Conductors**

For the east-west segment, the applicant proposes to place the proposed Chester Line on double circuit structures with the 345 kV Project. Double circuit structures vary from 130 to 175 feet tall. Spans between structures can vary from 600 to 1,000 feet.

For the north-south segment, the applicant proposes to use a combination of single-pole, self-weathering steel, single-circuit and double-circuit structures. The 161 kV single circuit structures

are typically 70 to 105 feet tall and the double circuit 161/69 kV structures are typically 85 to 120 feet tall. Both would be spaced approximately 400 to 700 feet apart.

For the east-west segment (on 345 kV poles), the applicant proposes to install 345 kV conductor and insulators energized at 161 kV to support a future double-circuit capable design. This includes two 954 kcmil 54/7 Aluminum Core Steel Supported (“ACSS”) conductors or conductors of comparable capacity. This design does not increase the capacity of the 345 kV circuit. The second circuit will be installed contemporaneously with the first 345 kV circuit.

For the north-south segment, the applicant proposes to install 795 kcmil 26/7 ACSS circuit and 477 kcmil or conductors of comparable capacity for portions double circuited with the Peoples Cooperative 69 kV circuit. One or two shield wires will be used to protect the conductors from lightning strikes. One of these shield wires will incorporate fiber optic to facilitate relay control communications between substations and between substations, utility offices such as control centers. Fiber optics will be used only for utility purposes.

The transmission line shall be equipped with protective devices to safeguard the public if an accident occurs, such as breakers and switches located within connecting substations that de-energize the transmission line.

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 161 kV transmission line shall be 600 feet in the north-south segment. The designated route width for the double-circuited east-west segment will be the same route width as the CapX Hampton-Rochester-La Crosse 345 kV transmission line (1000 feet).

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.

If the Commission approves a modification of a portion of the east-west segment of the La Crosse 345 kV Project route that is co-located with the Chester Project, the approval will apply to the Chester Project and no further Permittee or Commission action will be required.

### **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 161 kV transmission line will be built primarily with single pole structures, which will require an 80-foot right-of-way for the north-south segment (40 feet on each side of the transmission line centerline), and a 150-foot right-of-way along the double-circuited east-west segment.

## **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 intends 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 Northern States Power Company's route permit application to the Commission, dated September 19, 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 local 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 will be removed.

In many cases certain low and slow growing species that do not exceed a mature height of 15 feet can be planted 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.

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 Blanding's Turtle**

As part of the plan and profile submission, the Permittee shall describe actions taken to follow the fact sheet of recommendations for avoiding and minimizing impacts for Blanding's turtles. The summary of recommendations attached to the permit for avoiding and minimizing impacts to these populations, including the colored photocopies of the Blanding's turtles, shall be made available to all contractors and its employees.

### **5.2 Wildlife-friendly Erosion Control Matting**

As part of the plan and profile submission, the Permittee shall describe actions taken to use wildlife-friendly erosion control matting in areas known to be inhabited by reptile and amphibian species.

### **5.3 Bird Flight Diverters, Rare Plant Communities, and Listed Species Habitat**

In coordination with MnDNR, the Permittee shall identify appropriate locations for bird flight diverters along the transmission line route and, to extent practicable, span rare plant communities and areas supporting listed species. The permittee shall describe actions taken and mitigative measures developed regarding implementation of this permit condition in its plan and profile submission.

## **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):** Northern States Power Company  
**PERMIT TYPE:** HVTL Route Permit  
**PROJECT LOCATION:** Goodhue and Olmsted counties  
**PUC DOCKET NUMBER:** E002/TL-11-800

<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:**

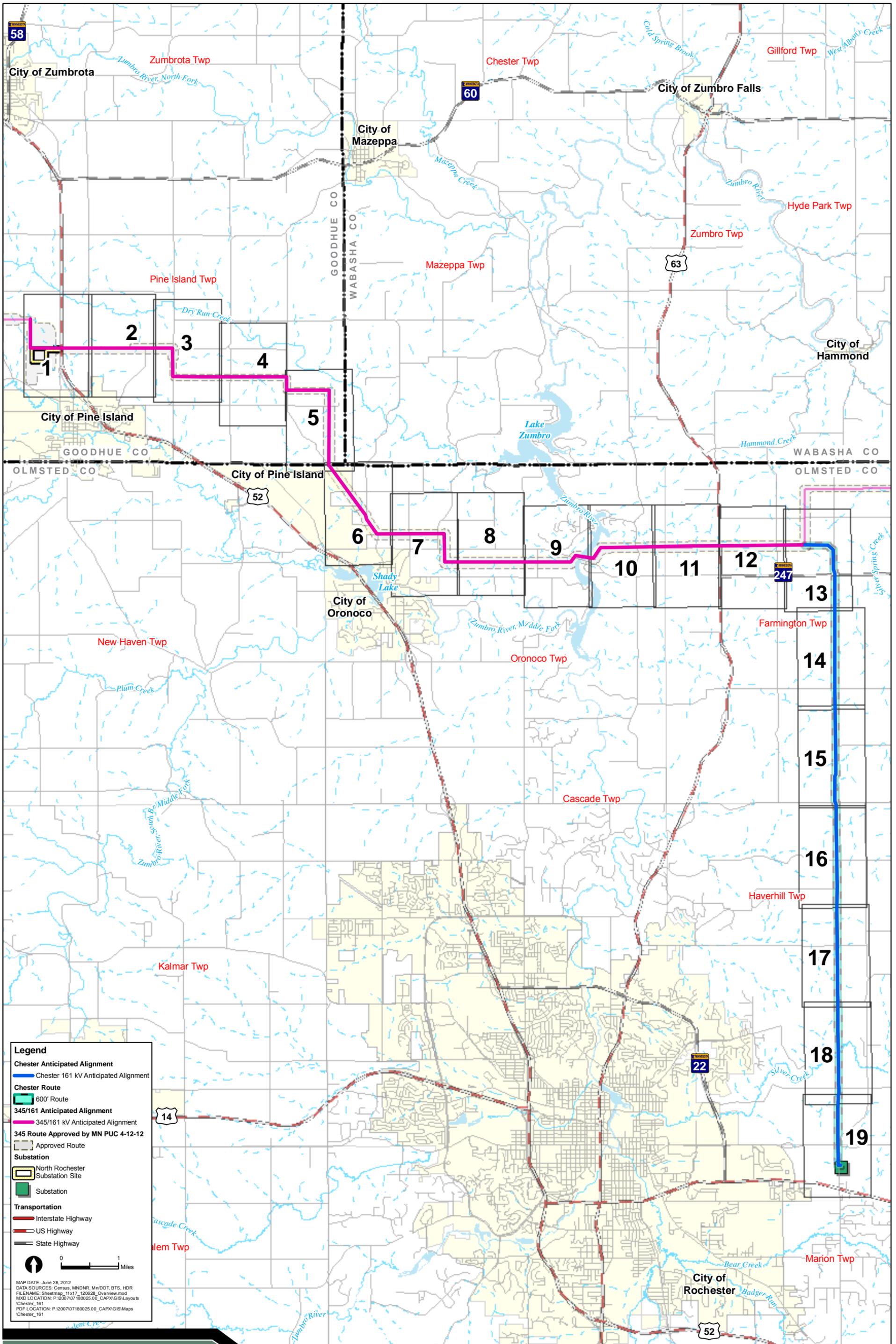
Commission staff shall perform an initial evaluation of unresolved complaints submitted to the Commission. Complaints raising substantial transmission line route permit issues shall be processed and resolved by the Commission. Staff shall notify the permittee and appropriate person(s) if it determines 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**



**Legend**

- Chester Anticipated Alignment**
  - Chester 161 kV Anticipated Alignment
- Chester Route**
  - 600' Route
- 345/161 Anticipated Alignment**
  - 345/161 kV Anticipated Alignment
- 345 Route Approved by MN PUC 4-12-12**
  - Approved Route
- Substation**
  - North Rochester Substation Site
  - Substation
- Transportation**
  - Interstate Highway
  - US Highway
  - State Highway

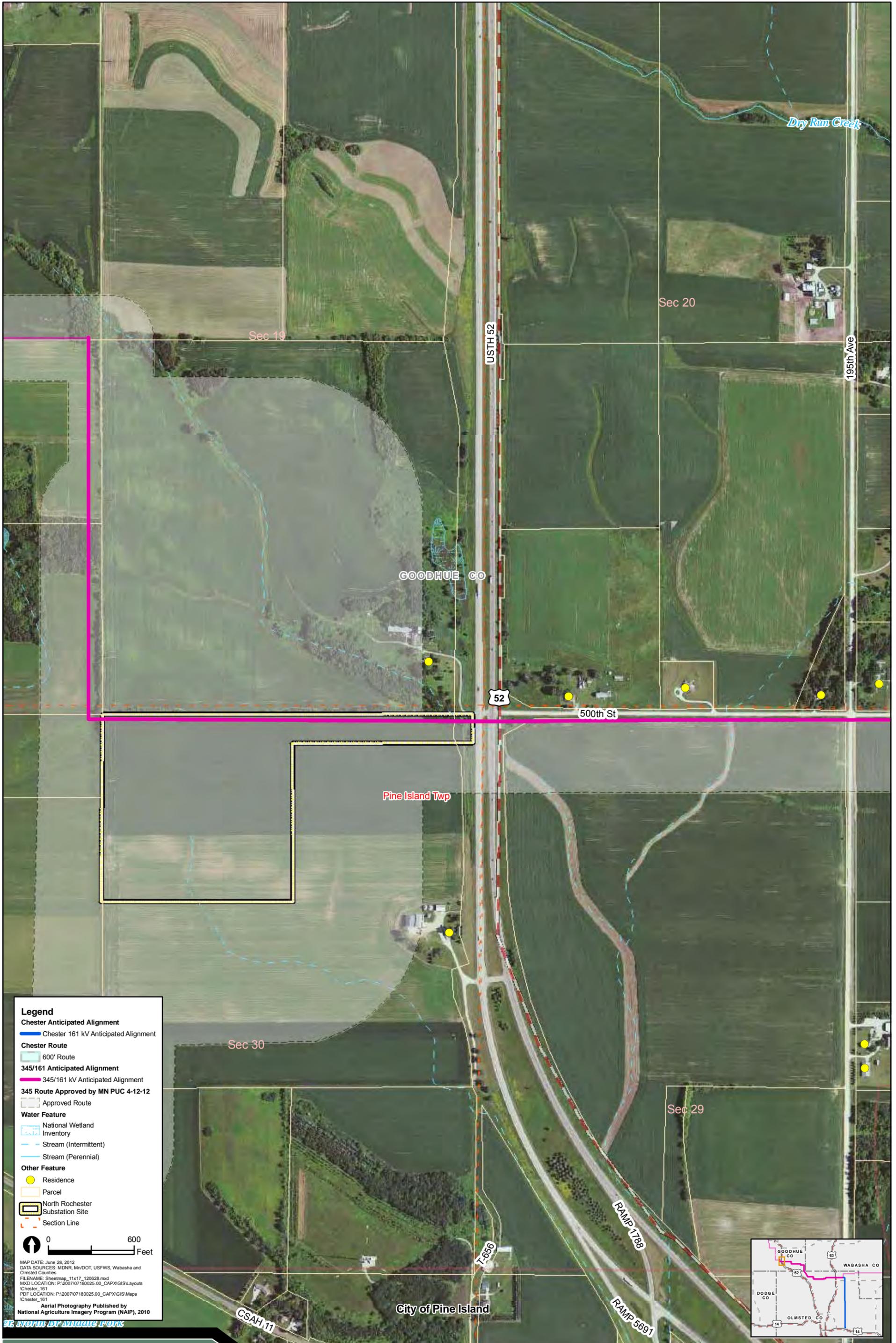
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**PUC Docket #**  
**E002/TL-11-800**

**North Rochester - Chester Transmission Project**

**Sheet Map Key**

June 2012



**Legend**

**Chester Anticipated Alignment**

- Chester 161 kV Anticipated Alignment

**Chester Route**

- 600' Route

**345/161 Anticipated Alignment**

- 345/161 kV Anticipated Alignment

**345 Route Approved by MN PUC 4-12-12**

- Approved Route

**Water Feature**

- National Wetland Inventory
- Stream (Intermittent)
- Stream (Perennial)

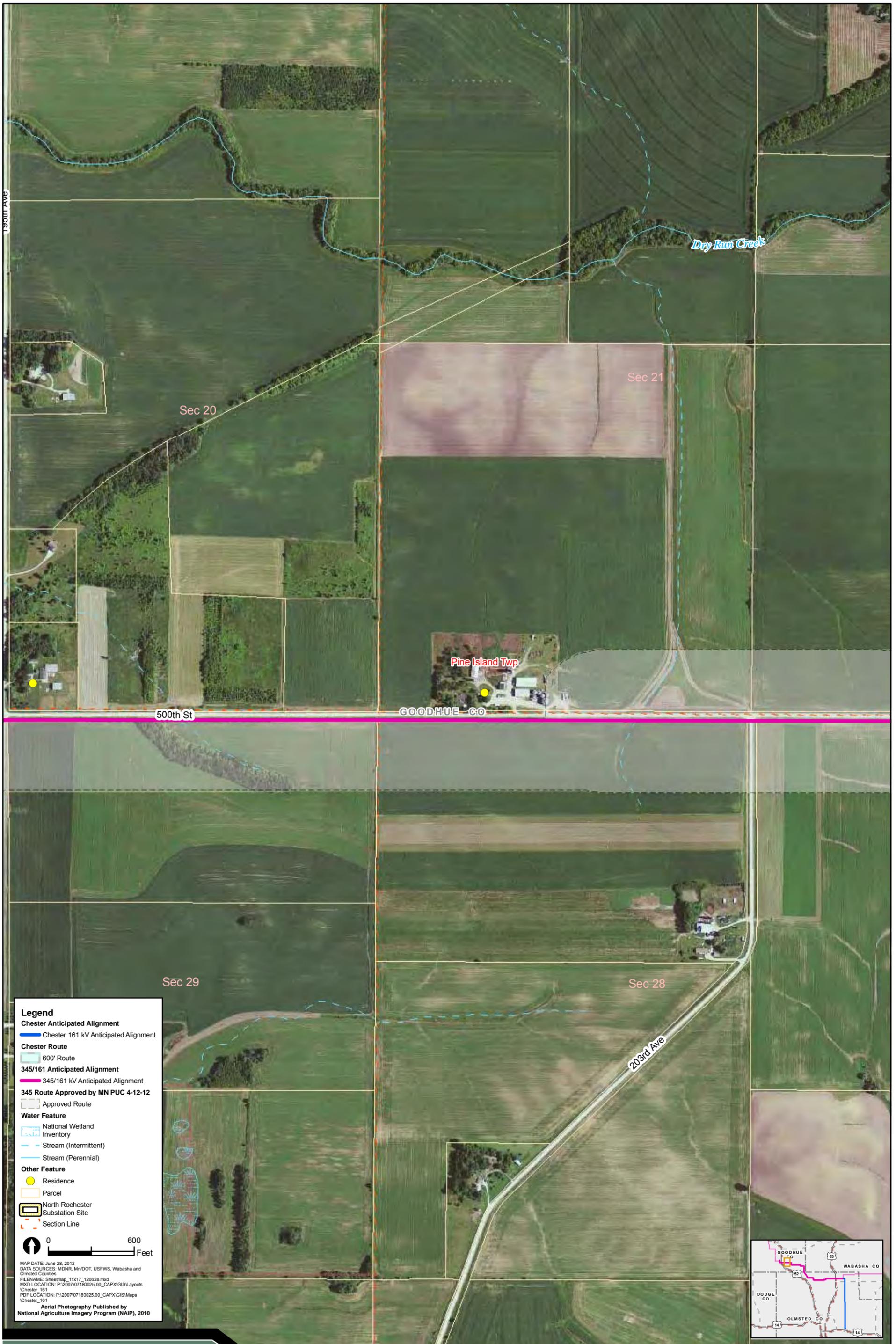
**Other Feature**

- Residence
- Parcel
- North Rochester Substation Site
- Section Line

0 600 Feet

MAP DATE: June 28, 2012  
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 Aerial Photography Published by National Agriculture Imagery Program (NAIP), 2010





**Legend**

**Chester Anticipated Alignment**  
 — Chester 161 kV Anticipated Alignment

**Chester Route**  
 — 600' Route

**345/161 Anticipated Alignment**  
 — 345/161 kV Anticipated Alignment

**345 Route Approved by MN PUC 4-12-12**  
 — Approved Route

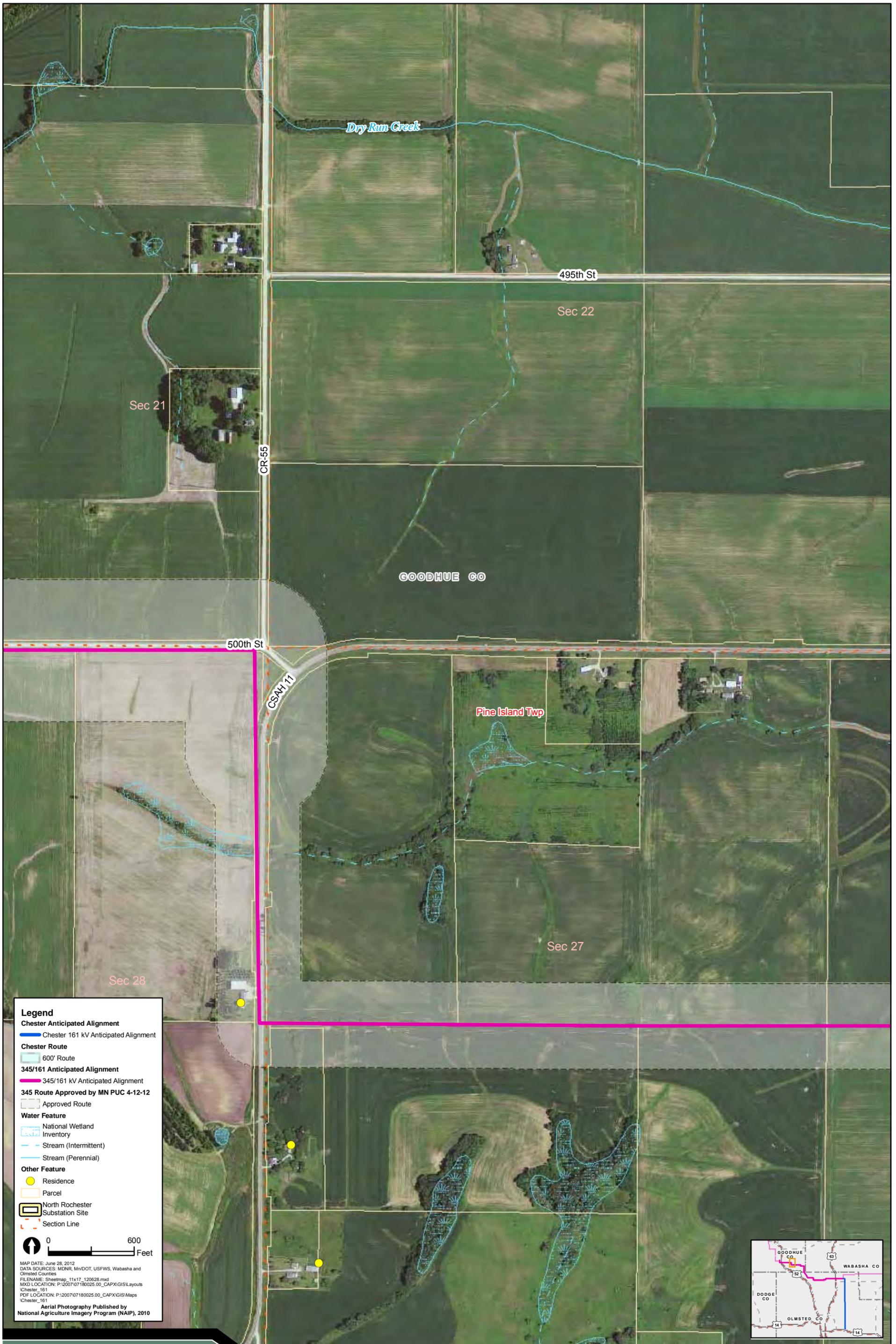
**Water Feature**  
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**Other Feature**  
 ● Residence  
 □ Parcel  
 □ North Rochester Substation Site  
 - - Section Line

0 600 Feet

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**Legend**

**Chester Anticipated Alignment**

- Chester 161 kV Anticipated Alignment

**Chester Route**

- 600' Route

**345/161 Anticipated Alignment**

- 345/161 kV Anticipated Alignment

**345 Route Approved by MN PUC 4-12-12**

- Approved Route

**Water Feature**

- National Wetland Inventory
- Stream (Intermittent)
- Stream (Perennial)

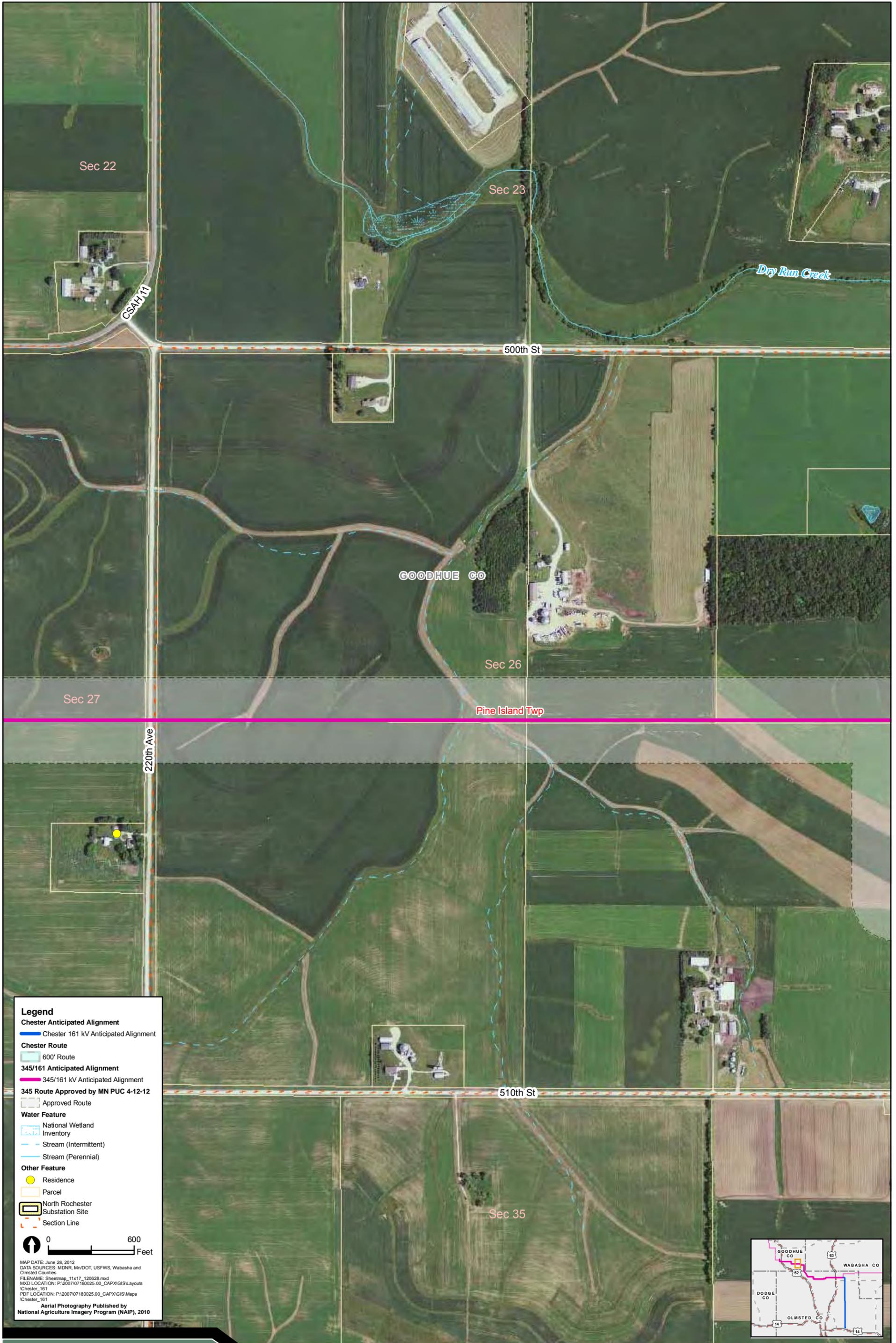
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- North Rochester Substation Site
- Section Line

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**Legend**

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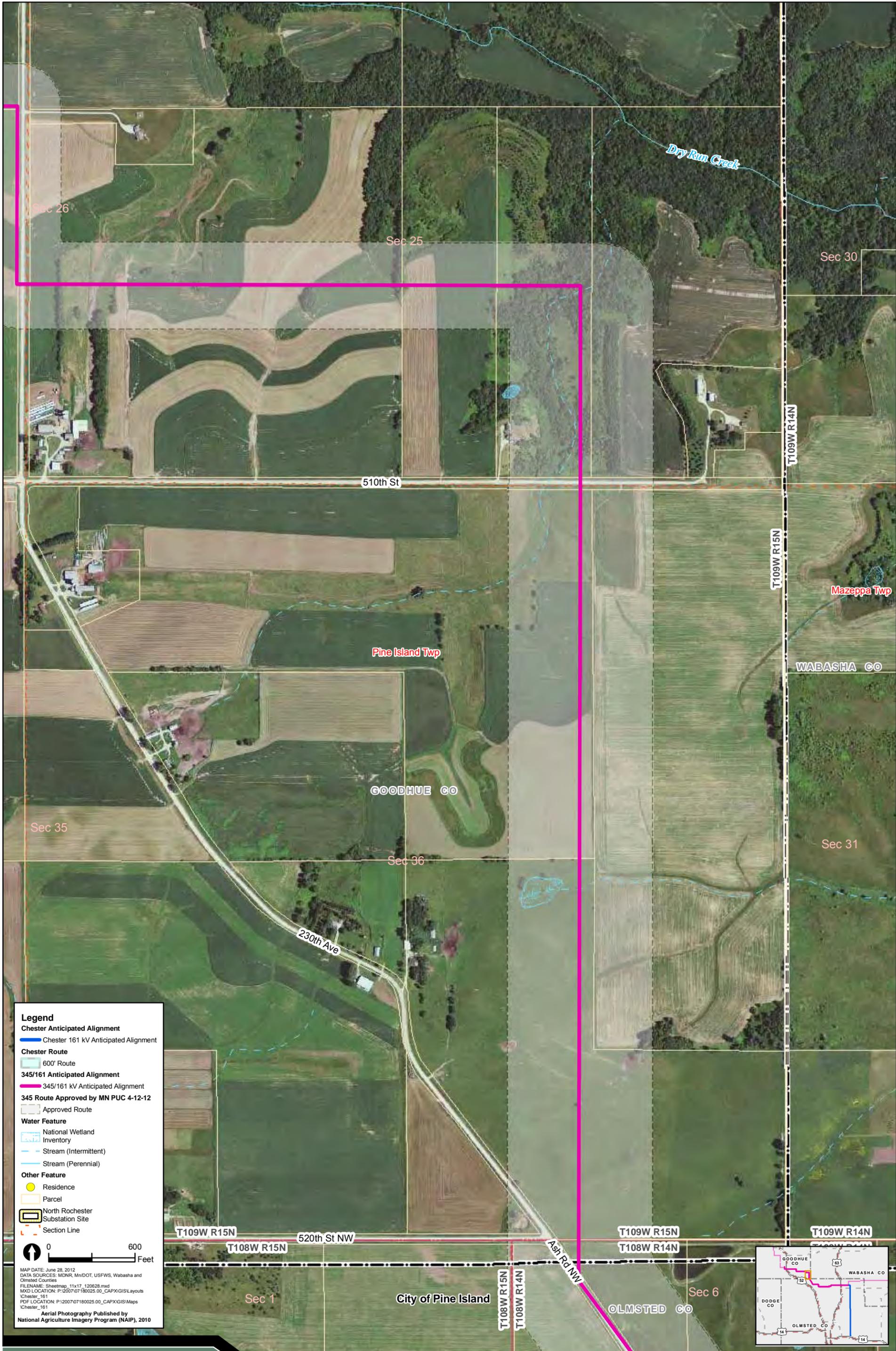
**Other Feature**

- Residence
- Parcel
- North Rochester Substation Site
- Section Line

0 600 Feet

MAP DATE: June 28, 2012  
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**Legend**

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 Chester 161 kV Anticipated Alignment

**Chester Route**  
 600' Route

**345/161 Anticipated Alignment**  
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**345 Route Approved by MN PUC 4-12-12**  
 Approved Route

**Water Feature**  
 National Wetland Inventory  
 Stream (Intermittent)  
 Stream (Perennial)

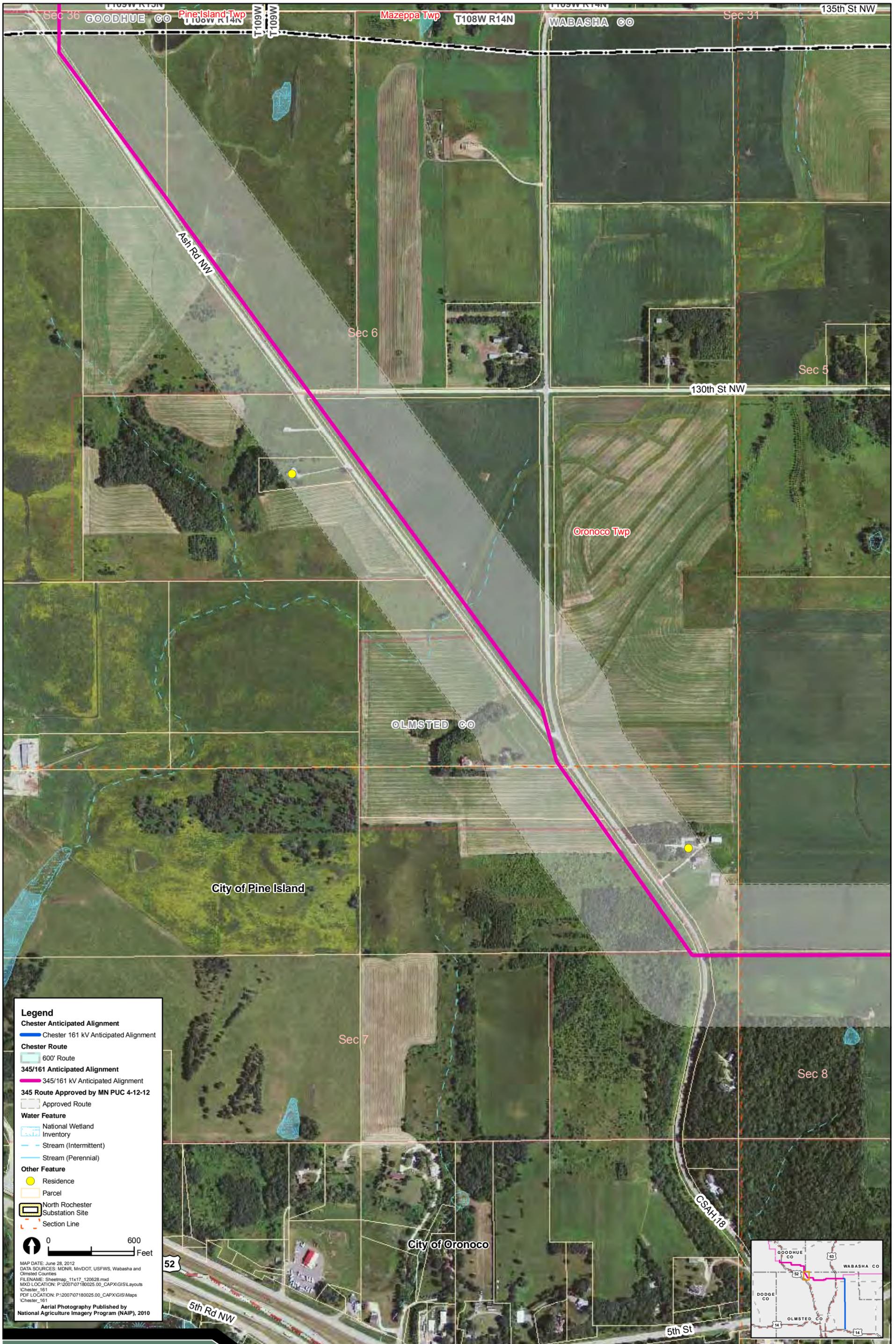
**Other Feature**  
 Residence  
 Parcel  
 North Rochester Substation Site  
 Section Line

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**PUC Docket #  
E002/TL-11-800**

**North Rochester - Chester Transmission Project**

**Sheet Map 5 of 19**



**Legend**

**Chester Anticipated Alignment**

- Chester 161 kV Anticipated Alignment

**Chester Route**

- 600' Route

**345/161 Anticipated Alignment**

- 345/161 kV Anticipated Alignment

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- Approved Route

**Water Feature**

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- Stream (Intermittent)
- Stream (Perennial)

**Other Feature**

- Residence
- Parcel
- North Rochester Substation Site
- Section Line

0 600 Feet

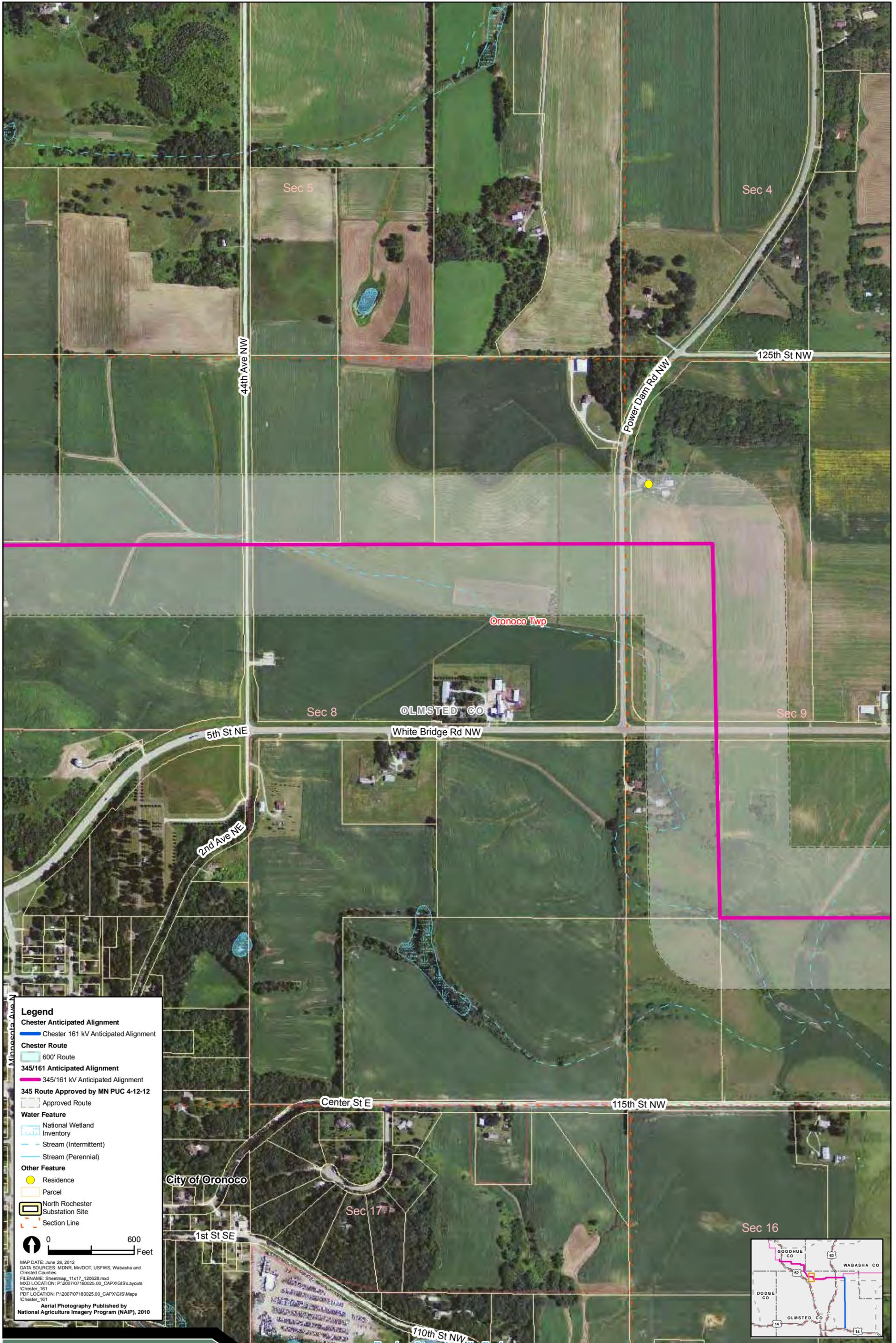
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**North Rochester - Chester Transmission Project**

**Sheet Map 6 of 19**

Xcel Energy • Dairyland Power Cooperative • Rochester Public Utilities • WPPI Energy • Southern Minnesota Municipal Power Agency



**Legend**

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**Chester Route**

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**PUC Docket #  
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**North Rochester - Chester Transmission Project**

**Sheet Map 7 of 19**

Sec 4

Sec 3

125th St NW

25th Ave NW

OLMSTED CO

Oronoco Twp

White Bridge Rd NW

Sec 9

Sec 10

115th St NW

Sec 16

Sec 15

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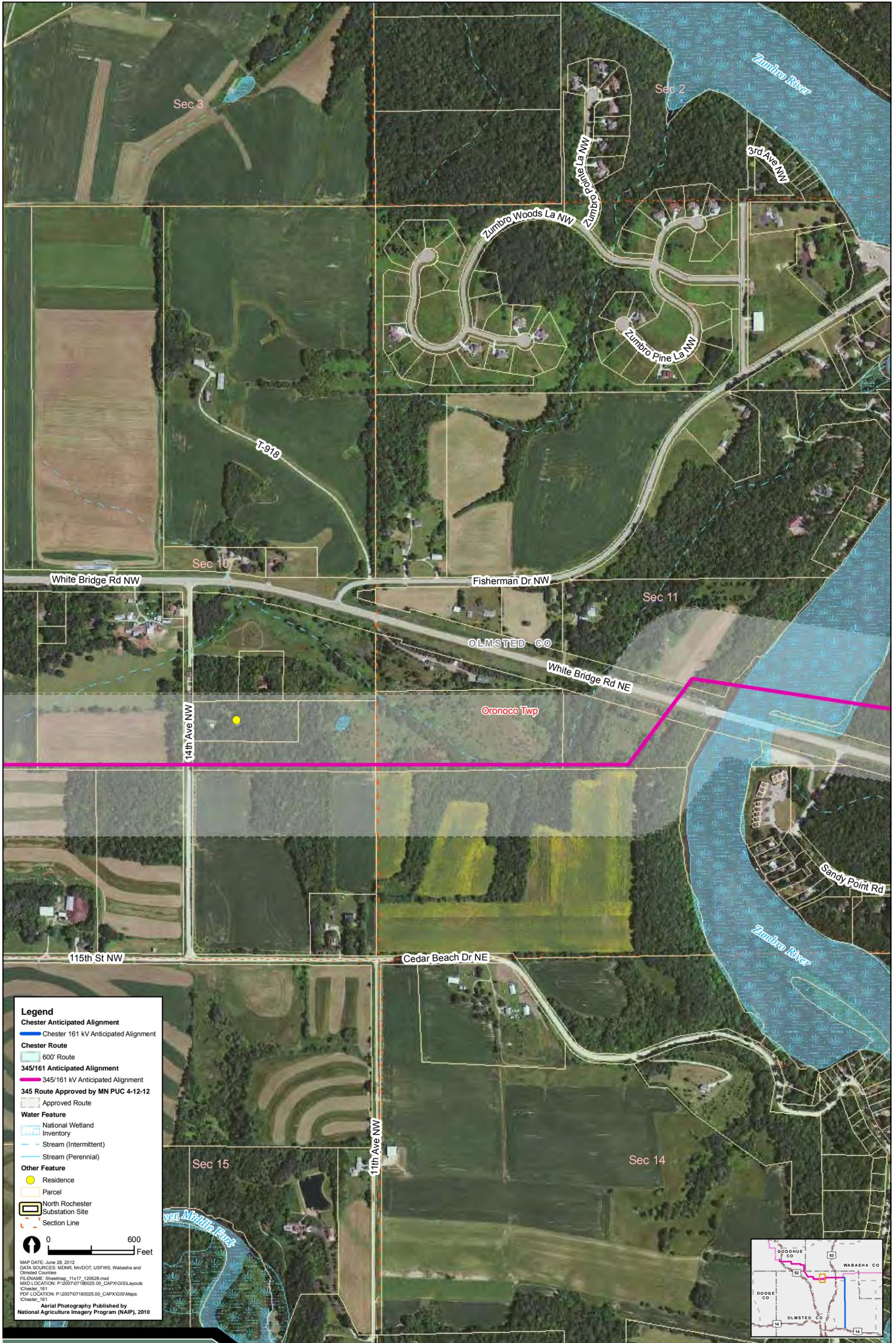
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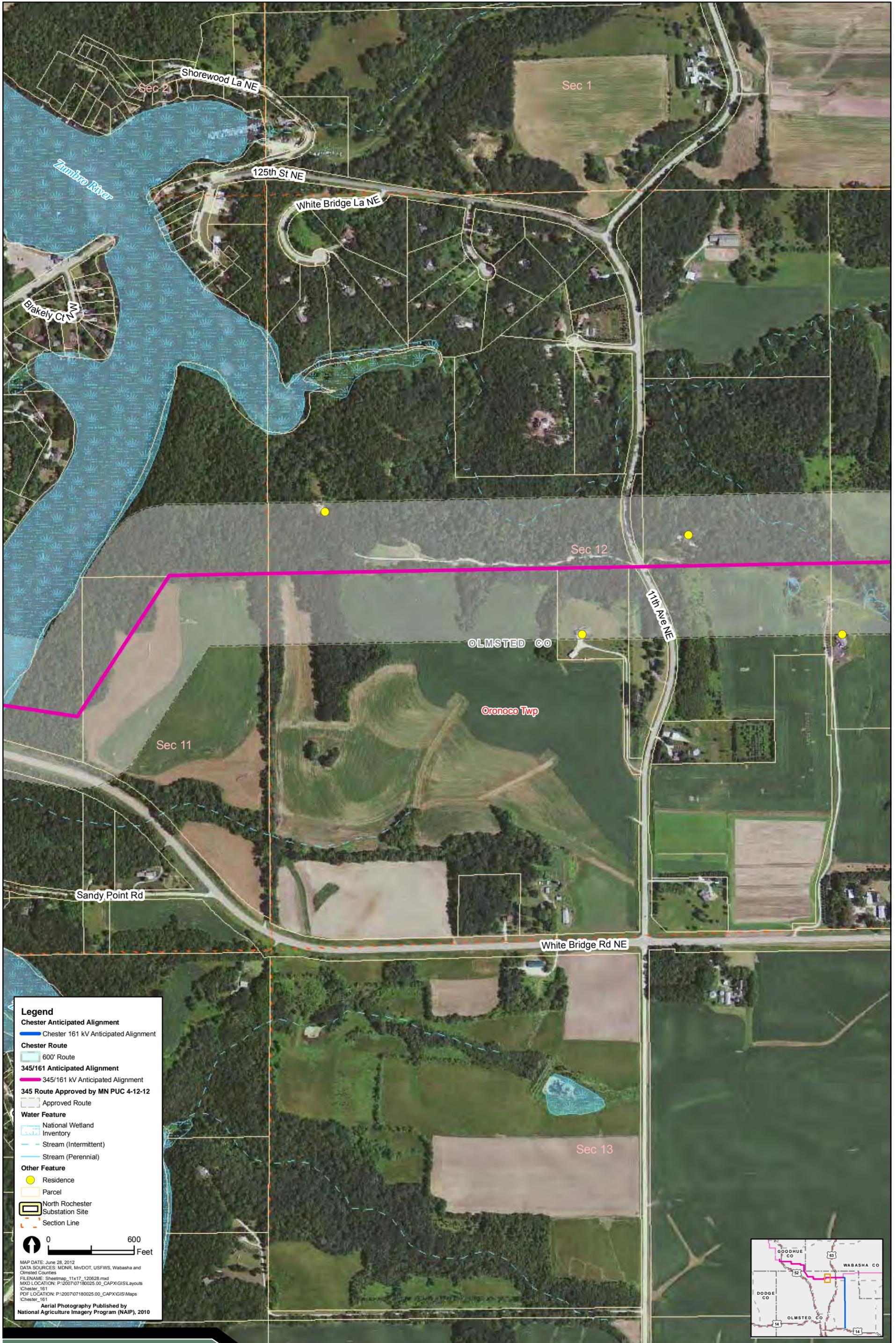
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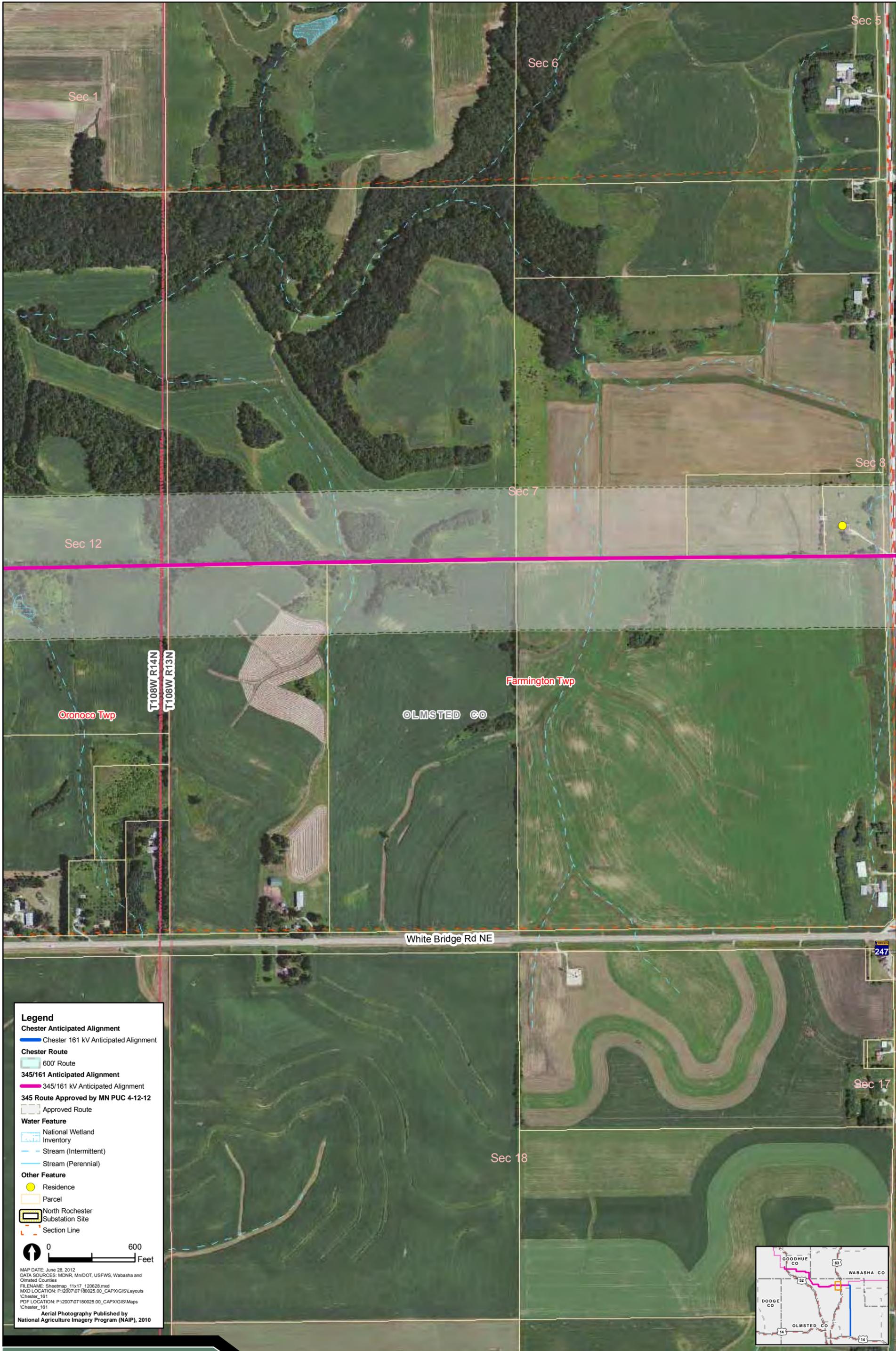
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**PUC Docket #  
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**North Rochester - Chester Transmission Project**

**Sheet Map 10 of 19**



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**Chester Route**

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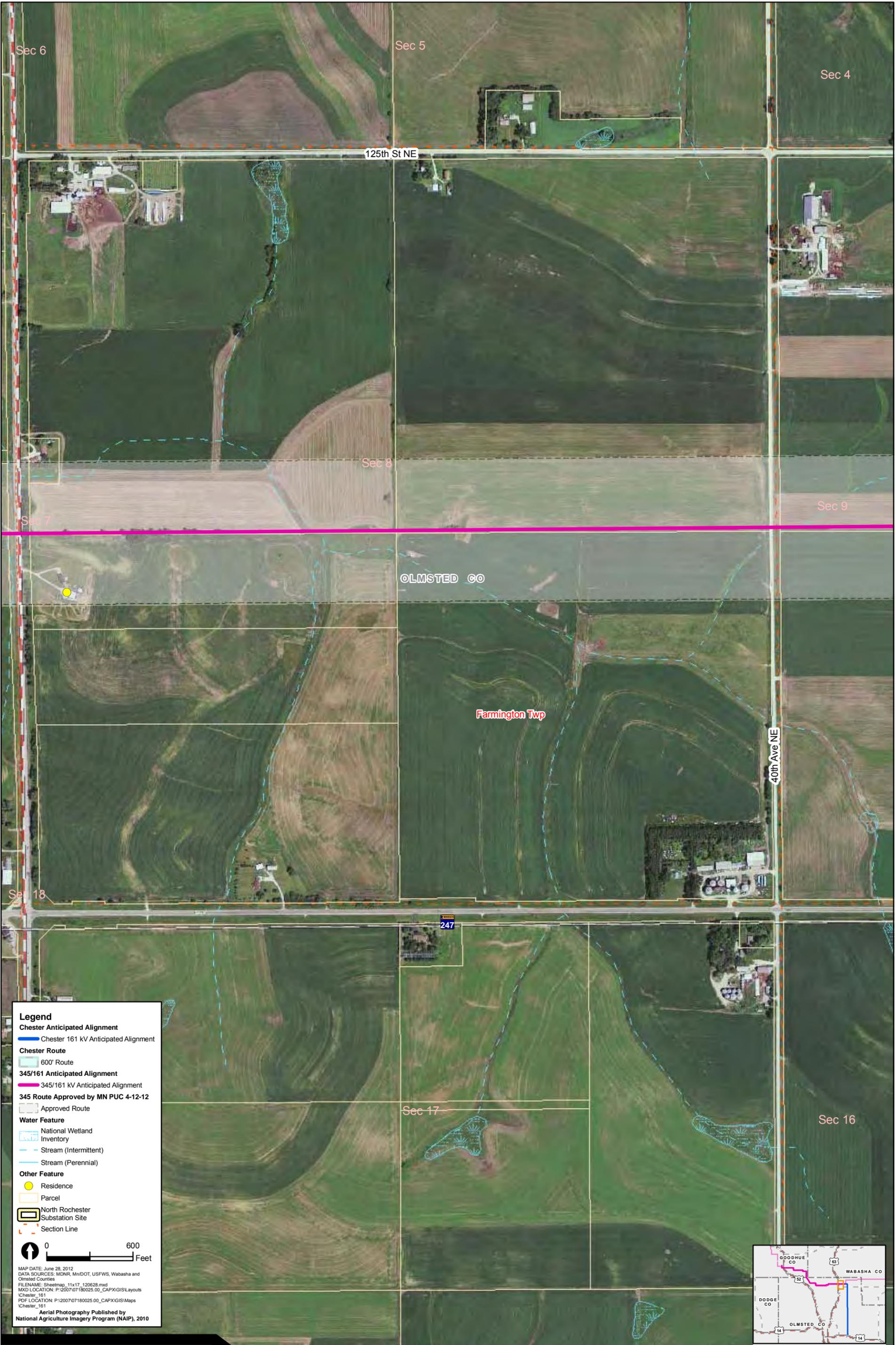
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0 600 Feet

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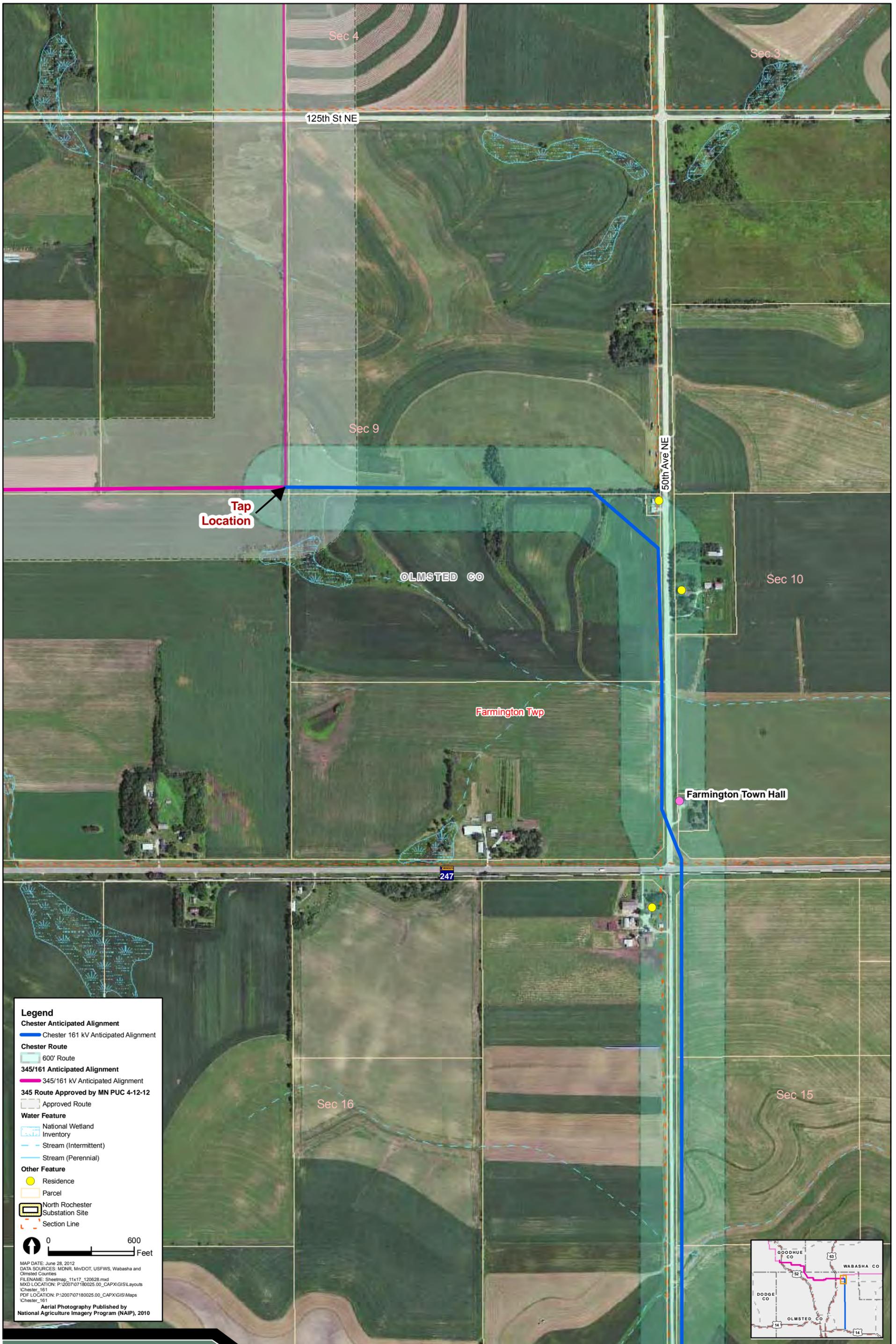
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    - Chester 161 kV Anticipated Alignment
  - Chester Route**
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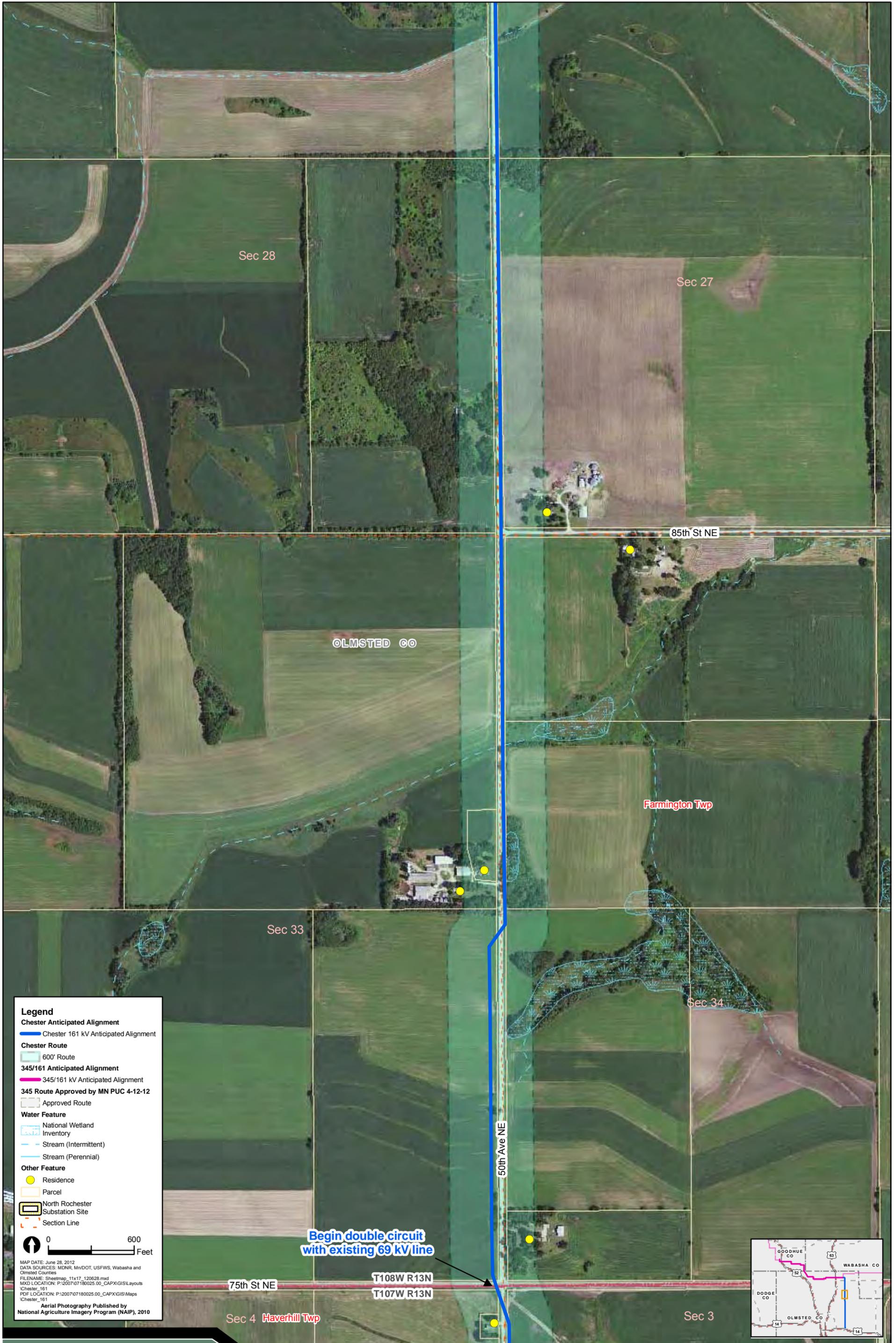
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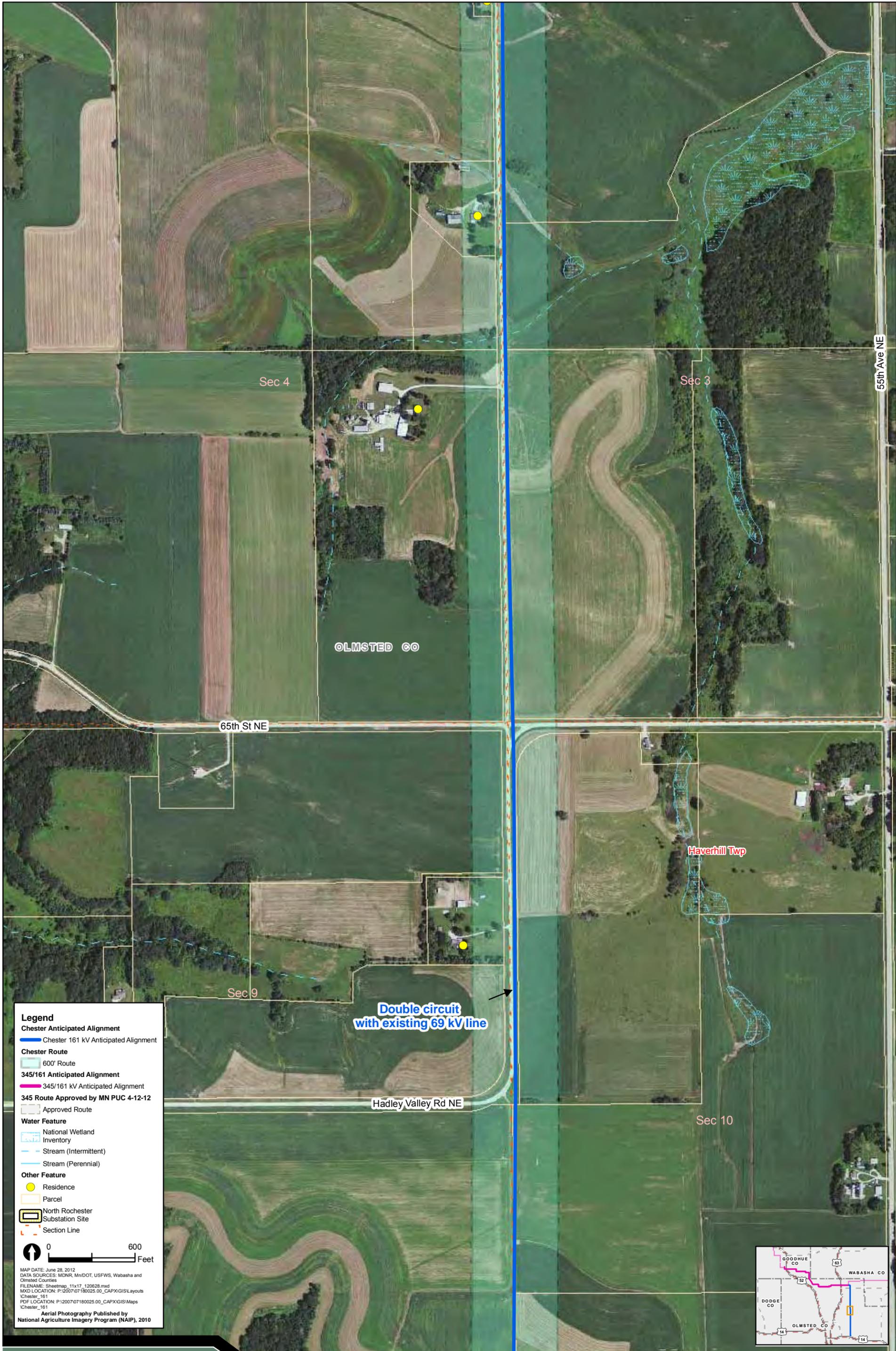
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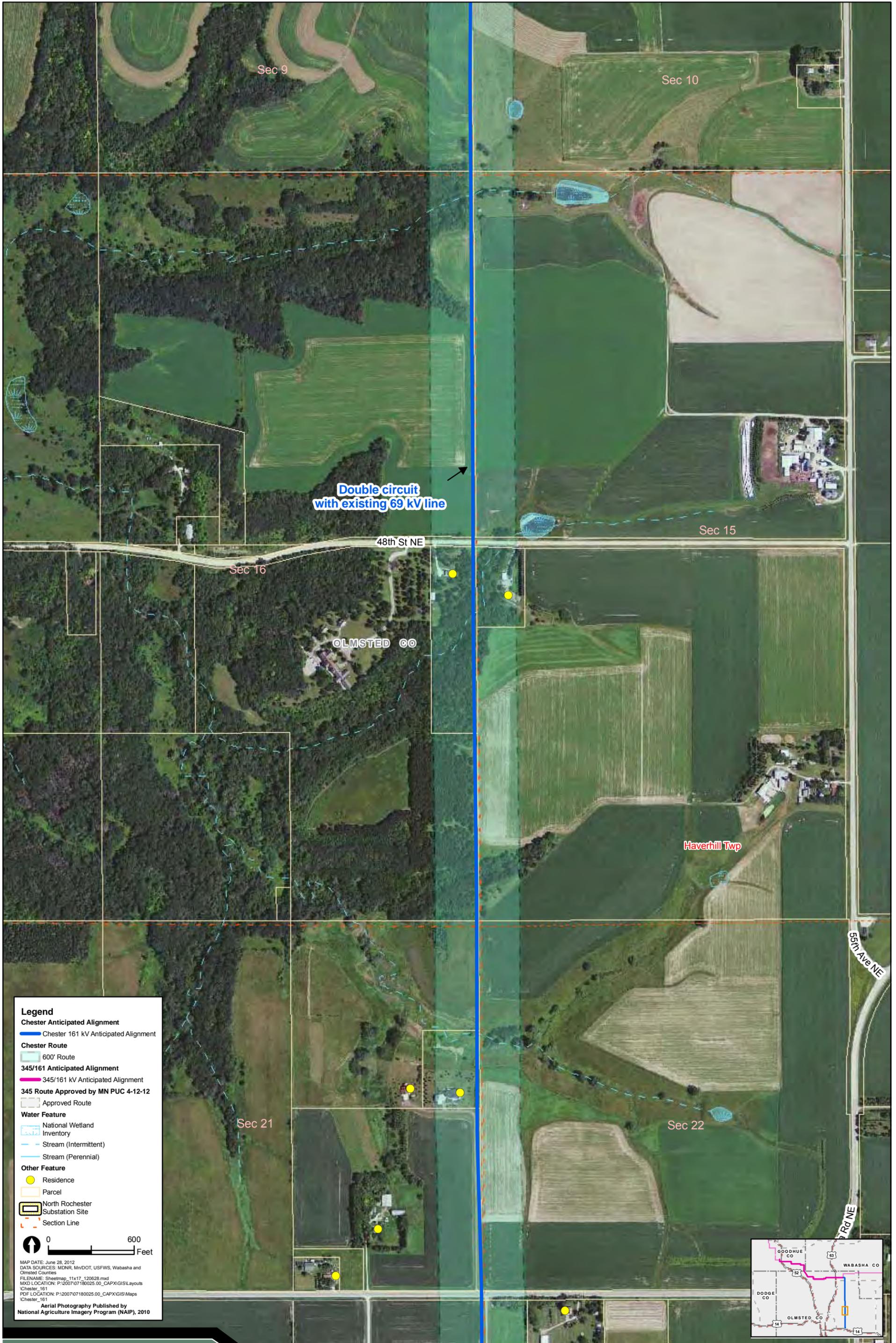
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Double circuit  
with existing 69 kV line

48th St NE

OLMSTED CO

Haverhill Twp

59th Ave NE

**Legend**

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**Chester Route**

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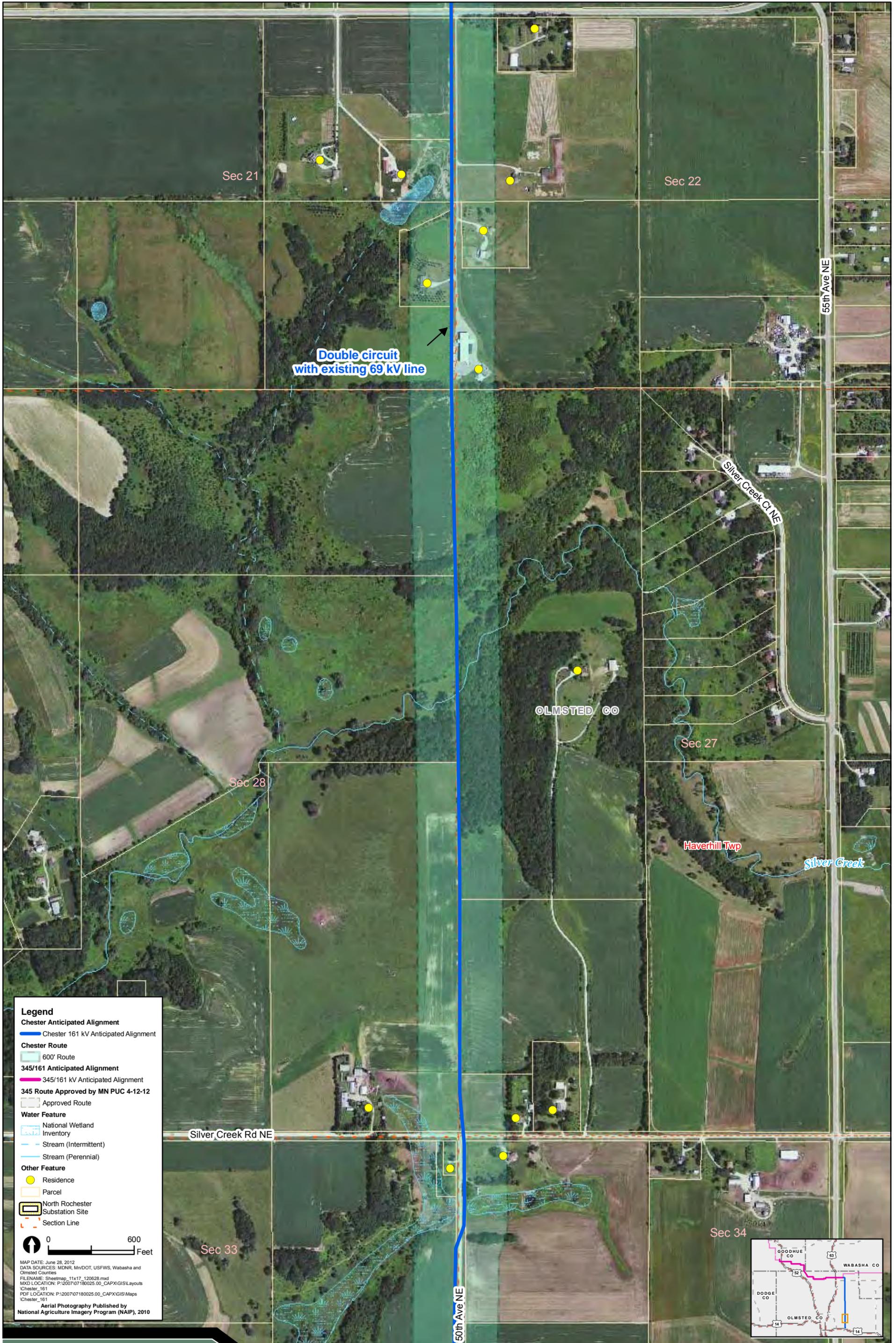
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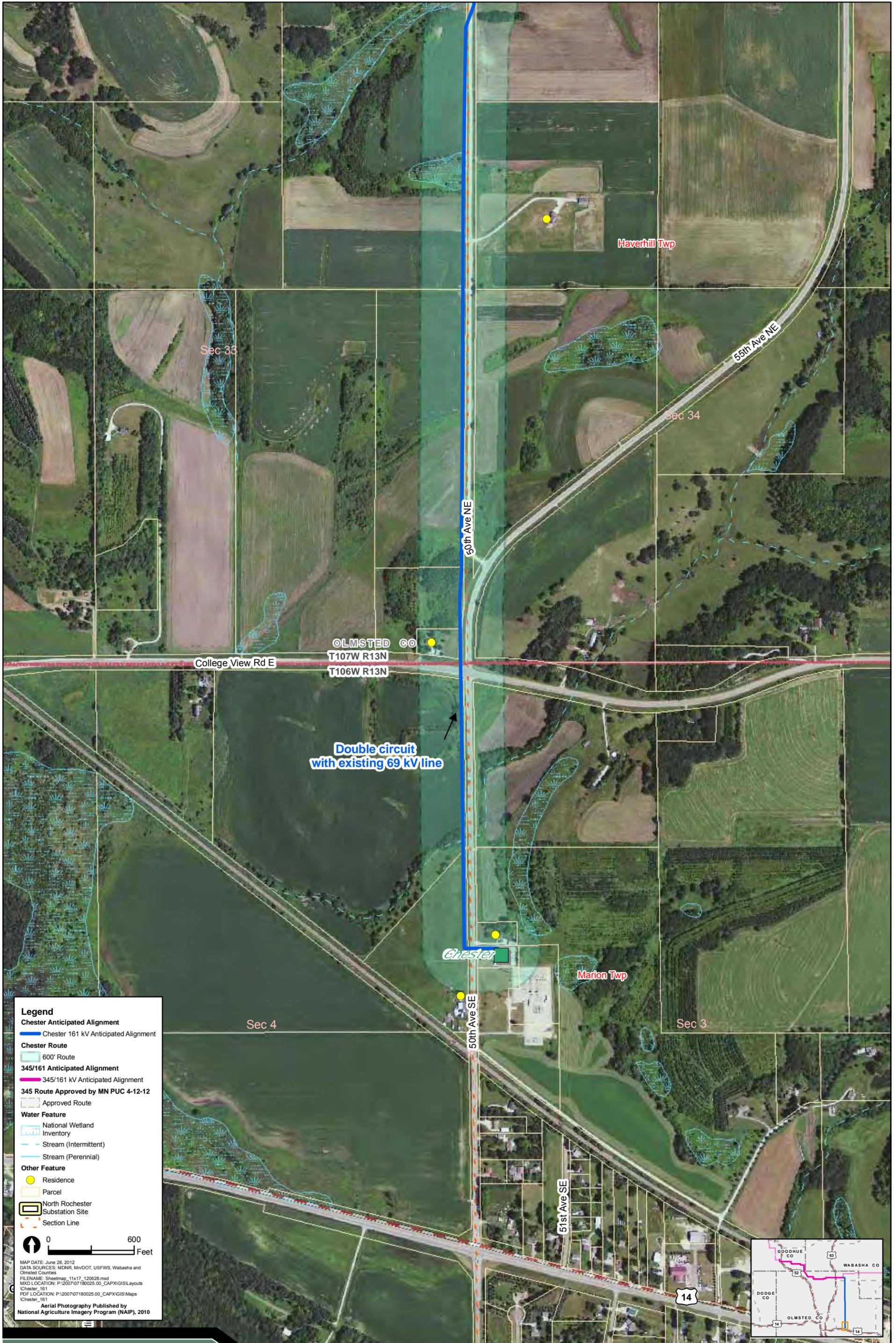
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**PUC Docket #  
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**North Rochester - Chester Transmission Project**

**Sheet Map 19 of 19**

# 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!

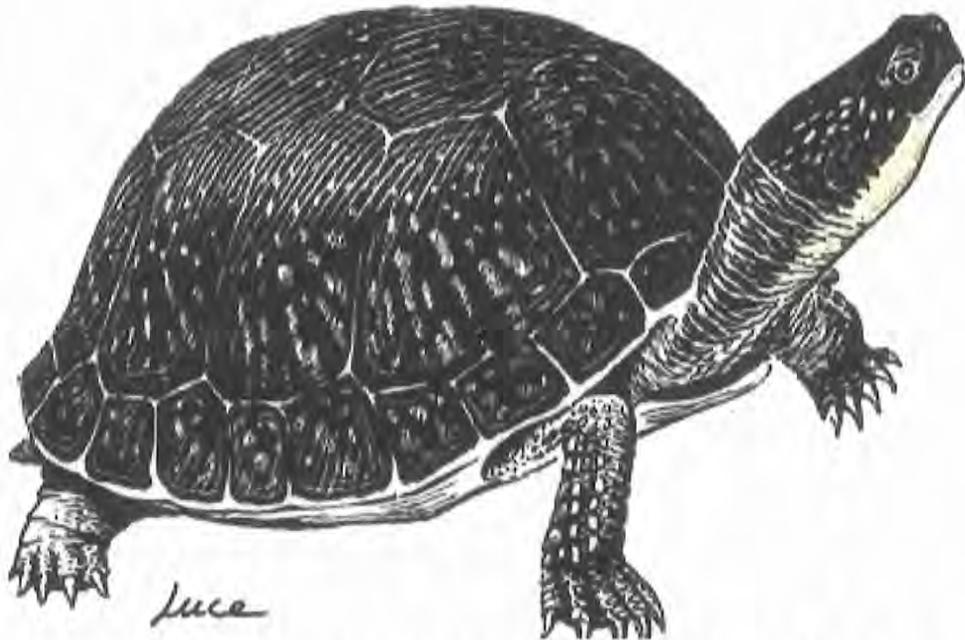
#### REFERENCES

- <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).
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# 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>).