



December 14, 2007

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 Seventh Place East, Suite 350  
Saint Paul, MN 55101-2147

RE: Application to Public Utilities Commission for a Route Permit  
Rochester Northwest 161 kV Transmission Line and Westside Substation  
Alternative Permitting Process  
PUC Docket No. E299/TL-07-1366

Dear Dr. Haar:

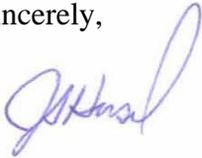
Rochester Public Utilities (RPU), a division of the City of Rochester, Minnesota, is electronically filing its request for a route permit for the Rochester Northwest 161 kV Transmission Line and Westside Substation Project. This application is made pursuant to Minnesota Rules Chapter 7849 and Minnesota Statutes Chapter 216E. We request that the application be considered under the alternative permitting process, as provided for in Minnesota Rules 7849.5500, Subpart 1.C.

The proposed project – located in the City of Rochester and in Cascade and Kalmar Townships in Olmsted County, Minnesota – includes a new 6.6-mile single circuit 161 kV transmission line connecting two existing electric substations with a proposed new distribution substation – the Westside Substation. Approximately 2.2 miles of this new line would be installed on and share existing power poles. A Certificate Of Need is not required for the Proposed Project, since the proposed 161 kV transmission line is less than 10 miles long; and therefore, it is not classified as a 'large energy facility' as defined in Minn Statutes Section 216B.2421, subd. 2(3).

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The application filing accompanying this letter of transmittal consists of the application document plus accompanying Figures 1 through 6 and Appendices A through D. The application fee is being sent to the Department of Commerce under separate cover. Please contact me by phone (507-280-1556) or email (jhensel@rpu.org) if you have any questions about this filing or the project.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Hensel", is positioned below the word "Sincerely,".

ROCHESTER PUBLIC UTILITIES  
Joseph S. Hensel  
Director of Field Services

Enclosures

c: Adam Sokolski, MN DOC (6 paper copies and one electronic copy on CD)  
Jennie Ross, Wenck Associates

# **Application to the Public Utilities Commission for a Route Permit**

## **Rochester Public Utilities Rochester Northwest 161 kV Transmission Line and Westside Substation Project**

Alternative Permitting Process  
PUC Docket No. E299/TL-07-1366



**December 14, 2007**

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## **1.0 Summary of Proposed Project**

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Rochester Public Utilities (the Applicant) is submitting this application for a Route Permit to the Minnesota Public Utilities Commission (PUC) as required by Minnesota Rules (Minn Rules) Chapter 7849 and Minnesota Statutes (Minnesota Statutes) Chapter 216E. The proposed facilities (Proposed Project) for which a permit is being requested include:

- A new 6.6-mile single circuit 161 kV transmission line connecting two existing electric substation with a proposed new distribution substation – the Westside Substation. Approximately 2.2 miles of this new line would be installed on and share existing power poles; and
- The new Westside distribution substation.

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## 2.0 Permit Application Process Requirements

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### 2.1 ALTERNATIVE PERMITTING PROCESS – PROJECT ELIGIBILITY

The proposed Rochester Northwest 161 kV Transmission Line and Westside Substation project meets the qualifications for alternative permitting defined in Minn. Rules 7849.5500, subp.1.C, since it includes a high voltage transmission line (HVTL) between 100 and 200 kV. Therefore, this permit application has been prepared in conformance with PUC alternative permit application requirements (see Section 2.2).

### 2.2 ALTERNATIVE PERMITTING PROCESS SUBMISSION REQUIREMENTS CHECKLIST

Table 2.1 lists the PUC permit requirements for the alternative permitting process, and the locations in this permit application where the required information can be found.

**Table 2.1  
Alternative Permitting Process Submission Requirements Checklist**

Rule/Statute	Information Required	Location in Permit Application
Minn. R. 7849.5500, Subp. 1(C)	Subpart 1. <b>Eligible Projects.</b> An applicant for a site permit or a route permit for one of the following projects may elect to follow the procedures of parts 7849.5500 to 7849.5720 instead of the full permitting procedures in parts 7849.5200 to 7849.5340: high voltage transmission lines of between 100 and 200 kilovolts	Section 2.1
Minn. R. 7849.5500, Subp. 2.	Subpart 2. <b>Notice to COMMISSION.</b> An applicant for a permit for one of the qualifying projects in subpart 1, who intends to follow the procedures of parts 7849.5500 to 7849.5700, shall notify the Commission of such intent, in writing, at least 10 days before submitting an application for the project.	Section 2.4 and Appendix D

<b>Rule/Statute</b>	<b>Information Required</b>	<b>Location in Permit Application</b>
Minn. R. 7849.5530	<b>Contents of Application</b> (alternative permitting process) The applicant shall include in the application the same information required in part 7849.5220, except the applicant need not propose any alternative sites or routes to the preferred site or route. If the applicant has rejected alternative sites or routes, the applicant shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them	Section 4.0; also see Minn. Rules 7849.5220, Subp.2 entry in this table
Minn. R. 7849.5220, subp. 2 (applicable per Minn. R. 7849.5530)	<b>Route Permit for HVTL</b> (a) a statement of proposed ownership of the facility at the time of filing the application and after commercial operation	Section 3.1
	(b) the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated	Section 3.2
	(c) at least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference	Not applicable (Minn. Rules 7849.5530)
	(d) a description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line	Sections 3.4 and 4.0
	(e) the environmental information required under 7849.5220, Subp. 3	See Minn. Rules 7849.5220, Subp.3 (a) – (h) entry in this table
	(f) identification of land uses and environmental conditions along the proposed routes	Section 6.0
	(g) the names of each owner whose property is within any of the proposed routes for the high voltage transmission line	Appendix A
	(h) United States Geological Survey topographical maps or other maps acceptable to the chair showing the entire length of the high voltage transmission line on all proposed routes	Figure 1
	(i) identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share right-of-way with the proposed line	Sections 4.1 and 5.2

<b>Rule/Statute</b>	<b>Information Required</b>	<b>Location in Permit Application</b>
	(j) the engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line	Sections 5.1 through 5.5
	(k) cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route	Section 5.6
	(l) a description of possible design options to accommodate expansion of the high voltage transmission line in the future	Section 4.4
	(m) the procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line	Sections 5.3 and 5.4
	(n) a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line	Section 5.7
	(o) a copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required	Section 2.3
Minn. R. 7849.5220, subp. 3	<b>Environmental Information</b> (a) a description of the environmental setting for each site or route	Section 6.1
	(b) a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services	Section 6.2
	(c) a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	Section 6.3
	(d) a description of the effects of the facility on archaeological and historic resources	Section 6.4
	(e) a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna	Section 6.5
	(f) a description of the effects of the facility on rare and unique natural resources	Section 6.6

<b>Rule/Statute</b>	<b>Information Required</b>	<b>Location in Permit Application</b>
	(g) identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route	Section 6.7
	(h) a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items (a) to (g) and the estimated costs of such mitigative measures	Section 6.2 through 6.6
Minn. R. (7849.5240, subp. 2 (applicable per Minn. R. 7849.5550))	<b>Notice of Project</b> Notification to persons on Commission's general list, to local officials, and to property owners	Will be mailed to required recipients within 15 days of application submission
Minn. R. 7849.5240, subp. 4	Publication of notice in a legal newspaper of general circulation in each county in which the route is proposed to be located.	Will be published within 15 days of application submission
Minn. R. 7849.5240, subp. 5	Confirmation of notice by affidavits of mailing and publication with copies of the notices	Will be submitted within 30 days of notice mailing/ publication
Minn. R. 7849.5910	<b>Factors to be Considered in Permitting a HVTL</b>	
	(a) effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services	Section 8.1
	(b) effects on public health and safety	Section 8.2
	(c) effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	Section 8.3
	(d) effects on archaeological and historic resources	Section 8.4
	(e) effects on the natural environment, including effects on air and water quality resources and flora and fauna	Section 8.5
	(f) effects on rare and unique natural resources	Section 8.6
	(g) application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity	Section 8.7
	(h) use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries	Section 8.8
	(i) use of existing large electric power generating plant sites	Section 8.9

Rule/Statute	Information Required	Location in Permit Application
	(j) use of existing transportation, pipeline, and electrical transmission systems or rights-of-way	Section 8.10
	(k) electrical system reliability	Section 8.11
	(l) costs of constructing, operating, and maintaining the facility which are dependent on design and route	Section 8.12
	(m) adverse human and natural environmental effects which cannot be avoided	Section 8.13
	(n) irreversible and irretrievable commitments of resources	Section 8.14
Minn. R. 7849.5930, subps. 1 and 2	Prohibited Routes <b>Wilderness areas.</b> No high voltage transmission line may be routed through state or national wilderness areas <b>Parks and natural areas.</b> No high voltage transmission line may be routed through state or national parks or state scientific and natural areas unless the transmission line would not materially damage or impair the purpose for which the area was designated and no feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line	Not applicable – No impacts, see Section 6.2.7
Minn. Stat. §216E.03 subd. 7(b) (applicable per Minn. Stat. §216E.04, subd. 8)	<b>Considerations in designating sites and routes (1)</b> Evaluation of research and investigations relating to the effects on land, water and air resources of large electric power, generating plants and high voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment	Sections 6.5.2, 5.5, 6.5.1, 6.2.1, 6.5.3, 6.6, and 6.2.4,
	(2) Environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state	Sections 4.4 and 8.7
	(3) Evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants transmission -designed to minimize adverse environmental effects	Not required for/ applicable to transmission projects

<b>Rule/Statute</b>	<b>Information Required</b>	<b>Location in Permit Application</b>
	(4) Evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants	Not required for/ applicable to transmission projects
	(5) Analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired	Sections 6.2.5 and 6.3
	(6) Evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted	Sections 6.0; 6.7; 8.1 through 8.6 and 8.13
	(7) Evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2	Not required for alternative process
	(8) Evaluation of potential routes that would use or parallel existing railroad and highway rights-of way	Sections 5.2 and 8.8
	(9) Evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations	Section 6.3.1
	(10) Evaluation of the future needs for additional high voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications	Sections 4.4 and 8.7
	(11) Evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved	Section 8.14
	(12) When appropriate, consideration of problems raised by other state and federal agencies and local entities	Section 7.1

### **2.3 CERTIFICATE OF NEED – PROJECT EXEMPTION**

A Certificate of Need (CON) for a ‘large energy facility’ (see Minn Statutes Section 216B.243, subd. 2) must be issued by the PUC prior to project construction. The proposed 161kV transmission line is less than 10 miles long; and therefore, it is not classified as a ‘large energy facility’ as defined in Minn Statutes Section 216B.2421, subd. 2(3). Therefore no CON is required for the Proposed Project.

## **2.4 NOTICE TO THE COMMISSION**

Rochester Public Utilities notified the PUC of its intent to utilize the Alternative Permitting Process for the Proposed Project. The notification letter (see Appendix D), dated October 17, 2007, complies with the requirement for applicants to notify the PUC at least 10 days prior to submission of an application.

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## **3.0 Project Information**

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### **3.1 OWNERSHIP**

Rochester Public Utilities (RPU), a division of the City of Rochester, Minnesota, is the largest municipal utility in the state of Minnesota. For over 110 years, RPU has provided Rochester with quality power and water service. RPU currently serves over 47,000 electric customers and over 36,000 water customers, and has revenues of over \$128 million annually. In 2006, \$8.3 million was returned to the City in the form of "in lieu of tax payments."

RPU will construct, own, operate and maintain the 161 kV single circuit transmission line and associated Westside substation that are the subjects of this permit application.

### **3.2 PERMITTEE/CONTACT INFORMATION**

The permittee for the project will be:

**Permittee:** Rochester Public Utilities  
4000 East River Road NE  
Rochester, MN 55906

**Contact:** Joseph S. Hensel, Director of Field Services  
**Address:** same as above

**Phone:** (507) 280-1556  
**Fax:** (507) 280-1542  
**E-mail:** JHensel@rpu.org

### **3.3 PROJECT LOCATION**

The Proposed Project is located in the City of Rochester and in Cascade and Kalmar Townships in Olmsted County, Minnesota (see Figure 1). The township, range and section locations within the proposed project area are summarized in Table 3.1.

**Table 3.1  
Project Location**

<b>Township</b>	<b>Range</b>	<b>Sections</b>
T107N	R14W	7, 8, 18, 19, 20, 29, 30
T107N	R15W	12, 13, 24, 25

### **3.4 PROPOSED PROJECT**

The proposed Rochester northwest 161 kV transmission line and substation (Proposed Project) are components of planned future system improvements identified in the Rochester Public Utilities Electric System Long-Range Planning (LRP) Study as being needed to meet forecast future local distribution system demands. The LRP Study forecast the annual growth rate for the City of Rochester to be greater than 8 percent, with approximately 57 percent of that growth occurring within the northwest quadrant, where the Proposed Project is located. The LRP Study identified planned future substation locations (including the proposed Westside substation), based on anticipated growth areas and distribution needs (see Figure 2).

The proposed project would meet short-term and long-term local distribution infrastructure needs within the northwest quadrant – and installation of the facilities are planned for two phases, consistent with anticipated short and long term needs. Phase 1 would include construction of the Westside substation and the eastern segment of new 161 kV transmission line that would provide a radial feed to the Westside substation from the existing IBM substation. There is an immediate need for installation of the Phase 1 transmission line and substation (by 2010) to meet local distribution demands.

The proposed Westside substation would occupy approximately 3 acres of a 49-acre parcel recently acquired by RPU in anticipation of future facility needs. Approximately 0.7 acre of this parcel is currently occupied by a natural gas pipeline substation (operated by Northern Natural Gas). The remainder of the parcel would be available for potential future uses such as expansion of power production facilities, community education and/or potential wetland mitigation area and/or other natural features, if needed.

Phase 2 of the Proposed Project would include the new 161 kV transmission line from the Westside substation, north along the 60<sup>th</sup> Avenue NW/C.R. 104 corridor, then southeast parallel to the Douglas Trail to the existing Northern Hills substation. This segment would complete a transmission loop that forms the backbone transmission network to reliably meet long-term growth within Rochester. Installation of this segment is designated as occurring after Phase 1, since Section 2A of this segment would be located within the R-O-W of the planned Olmsted County C.R. 104/60<sup>th</sup> Avenue NW roadway improvements (see discussion in Section 7.1.2); and roadway design and R-O-W acquisition by Olmsted County will not be completed in time for implementation of the Phase 2 with the Phase 1 segment (i.e., in service by 2010).

The proposed transmission line corridors utilize routes that share or parallel existing utility, roadway or other existing corridors (see Section 4.1), consistent with PUC routing recommendations for corridor-sharing with utility corridors, roadways or other infrastructure.

It should be noted that the Rochester northwest 161 kV transmission line and substation project that is the subject of this application is proposed to meet local distribution needs, and is not the same project as the two 161 kV lines described in the CapX 2020 project Certificate of Need (CON) Application (PUC Docket ET-2, E-002/CN-06-1115). The 161 kV lines described in the CapX CON are proposed to connect the proposed (regional) 345 kV line to the City of Rochester transmission network. The precise locations of the CapX transmission lines, interconnections and substation have not as yet been defined by CapX.

### **3.5 SCHEDULE**

Proposed schedule for transmission line and substation construction:

- Completion of routing permit process – 2008
- Right-of-way (R-O-W) acquisition for Phase 1 of the transmission line – 2008
- Westside Substation grading – to begin late 2008 or early 2009
- Start construction of Phase 1 of the transmission line – 2009 or early 2010
- Energize substation and transmission line Phase 1 – mid-2010

Construction of Phase 2 of the transmission line to commence following C.R. 104 R-O-W acquisition by Olmsted County or possibly earlier if RPU elects to procure R-O-W in coordination with Olmsted County Public Works (see Section 3.4 and 7.1.2).

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## **4.0 Detailed Facility Description and Route Development Process**

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### **4.1 PROPOSED TRANSMISSION LINE ROUTE DESCRIPTION**

As noted in Section 3.4 above, installation of the Proposed Project is planned for two phases, consistent with anticipated short and long term needs. Phase 1 would include construction of the new Westside substation and the eastern segment of a new 161 kV transmission line that provides a radial feed to/from the new substation (see Figure 3).

There is an existing 161 kV transmission line from the Northern Hills substation running south for approximately 1.7 miles along 50<sup>th</sup> Avenue NW to Valleyhigh Road (C.R. 4). This line currently turns east at Valleyhigh Road/C.R. 4, connecting to the IBM substation (see Figure 2). Phase 1 of the Proposed Project would install the proposed 161 kV transmission line on a route that connects to the existing 161kV line at the Valleyhigh Road/C.R. 4 intersection with 50<sup>th</sup> Avenue NW, running due south to 19<sup>th</sup> Street NW, and then west to the proposed Westside substation.

The first one-mile section (Segment 1A in Figure 3) of the new line south of Valleyhigh Road/C.R. 4 would be installed on existing power poles (owned by Rochester Public Utilities but presently supporting a 12.47 kV distribution line owned by Peoples Cooperative Services). These poles are located within the 50<sup>th</sup> Avenue NW road R-O-W on the east side of the road, and continue due south on an abandoned local roadway corridor through the City of Rochester's Flood Control District parcel to 19<sup>th</sup> Street NW. Shared use of the power poles by both the Peoples Cooperative Services distribution lines as well as the proposed 161 kV line in Segment 1A minimizes R-O-W acquisition and visual impacts to the landscape. A 25-foot wide R-O-W strip will need to be acquired east of the existing power poles (located near the east edge of the roadway R-O-W), to allow adequate room for vegetation management. See Section 5.4 for a discussion of vegetation management.

Segment 1B (see Figure 3) of the proposed 161 kV line from the Flood Control District/19<sup>th</sup> Street to the Westside substation would be installed on new poles on the south side of 19<sup>th</sup> Street NW for approximately one mile, connecting to the Westside substation at 60<sup>th</sup> Avenue NW (C.R. 104). Reconstruction of 19<sup>th</sup> Street is planned for the near future, so power pole locations and elevations will be coordinated with the City of Rochester Public Works Department's roadway reconstruction plans to avoid the need for relocating poles during roadway construction. Based on the information currently available, the new transmission line 50-foot wide R-O-W

would likely be located on the south side of the 19<sup>th</sup> Street NW R-O-W and there would be approximately 15 feet of overlap between the transmission line R-O-W and the street R-O-W. The line location would also be coordinated with the existing Minnesota Energy Resources Corporation natural gas pipeline, also located south of the 19<sup>th</sup> Street NW R-O-W east of the natural gas substation. Construction of Phase 1 of the 161 kV transmission line is slated to begin in 2009. The installation of the transmission line will likely occur prior to the reconstruction of 19<sup>th</sup> Street NW. However, RPU will coordinate with Rochester Public Works and, if feasible, establish a joint roadway/utility R-O-W corridor when the roadway is reconstructed.

Phase 2 of the Proposed Project would include installation of new 161 kV transmission poles and line from the Westside substation north approximately 3.4 miles, sharing the 60<sup>th</sup> Avenue NW/C.R. 104 R-O-W, to just south of 65<sup>th</sup> Street NW where the Douglas Trail intersects with 60<sup>th</sup> Avenue (Segment 2A in Figure 3). The 161 kV line would then be installed on approximately 1.3 miles of existing power poles located on a 25-foot easement just south of the Douglas Trail corridor to complete a loop connection to the Northern Hills substation (Segment 2B in Figure 3). Completion of Phase 2 of the project is planned to begin approximately 3 to 5 years after Phase 1

Location of the poles within the future, expanded 60<sup>th</sup> Avenue NW/C.R. 104 R-O-W is being coordinated with Olmsted County's planned improvements to the roadway corridor (see discussion in Section 7.1.2). Preliminary plans for the roadway reconstruction indicate that there is adequate room within the typical 250-foot wide roadway R-O-W cross-section to accommodate the 161 kV transmission line poles. Current concept plans for the section of the proposed roadway upgrade where the transmission line would be located within the corridor indicate that the 250-foot wide R-O-W would be centered on the existing roadway alignment. However, the pole locations (east vs. west of the roadway) have not been finally determined, since roadway plans and phasing are not finalized. It is likely that the ultimate route for the transmission line would vary from the east side to the west side of the roadway over the length of this segment, as needed, to avoid or minimize impacts. Since Olmsted County has determined that the transmission poles can be located within the road corridor there would be no separate or additional environmental or human impacts from the transmission line located within the corridor, beyond those that would result from the roadway construction. [Note: If the Segment 2A transmission line is needed to meet RPU system demands prior to the time that the C.R. 104 /60<sup>th</sup> Avenue NW roadway improvements are implemented, RPU would acquire the R-O-W needed for the transmission corridor – consistent with the location of the transmission corridor identified in the future roadway plans. This R-O-W would eventually be incorporated into the roadway corridor, when it is implemented.]

Table 5.2 in Section 5.2 summarizes the R-O-W requirements for each of the Phase 1 and 2 transmission line segments, including a summary of proposed use of existing poles and/or shared corridors. The proposed transmission line route parallels or is within existing roadway, transmission or other existing corridors, consistent with PUC routing recommendations for corridor-sharing with roadways or other infrastructure. Corridor sharing is also good public

policy, since it minimizes R-O-W acquisition and maintenance costs, as well as visual impacts to the landscape. Section 7.1.2 describes coordination efforts between RPU and Olmsted County Highway Department for shared uses in the C.R. 104/60<sup>th</sup> Avenue NW roadway corridor. RPU will continue to coordinate with Olmsted County (C.R. 104) and Rochester Public Works (19<sup>th</sup> Street NW), to implement shared roadway/transportation corridors, where feasible.

## **4.2 PROPOSED SUBSTATION DESCRIPTION**

The proposed Westside Substation would occupy approximately 3 acres of a 49-acre parcel recently acquired by RPU in anticipation of future facility needs. Approximately 0.7 acre of this parcel is currently occupied by a natural gas pipeline substation (operated by Northern Natural Gas). The remainder of the parcel would be available for potential future uses such as expansion of power production facilities, community education and/or potential wetland mitigation area and/or other natural features, if appropriate.

The substation will be designed to accommodate the proposed 161 kV lines in and out of the station. The substation will include the following design components:

- A 161 kV 4-position breaker-and-a-half bus
- Two 161 kV/13.8 kV 37 MVA transformers
- Six 161 kV breakers
- Construction of a control house for the substation control, relaying and communications equipment
- Concrete foundations will be installed as needed, to support the control house and electrical equipment
- Crushed rock will be used as surfacing on the portions of the approximately 3-acre substation site that are not occupied by equipment or structures
- Fencing around the entire substation facility, to restrict public access
- Space to accommodate expansion of the substation facility

## **4.3 ROUTE AND SUBSTATION SITE LOCATION RATIONALE**

### **4.3.1 Route Locations**

The proposed transmission line corridors utilize routes that share or parallel existing roadway, utility or other existing corridors, consistent with PUC routing recommendations for corridor-sharing with roadways or other infrastructure.

### **4.3.2 Substation Site Selection**

The proposed Westside Substation location was chosen due to its location within the developing area of northwest Rochester, and the relationship of the site to other existing and planned substations in the LRP Study system plan (see Section 3.4 and Figure 2). Use of this parcel also combines the proposed Westside electrical substation with the existing location of the Northern Natural Gas pipeline substation (see Section 4.2).

## **4.4 DESIGN OPTIONS TO ACCOMMODATE FUTURE EXPANSION**

The proposed transmission line and substation are being designed to support anticipated growth within the northwest quadrant of Rochester, as well as potential additional future system expansions that may be needed. Section 5.0 describes the proposed transmission structures, which will be installed as 161 kV single circuit lines. However, the structures would allow for upgrading to a double-circuit, if needed in the future. For example, the section of the route along the Douglas Trail may need to be upgraded to a double circuit in the future, if a 161 kV connection is needed to the north from the Northern Hills and/or Westside substation(s).

As noted previously (Section 4.2), the parcel of land acquired for the substation is large enough to support a future generation facility. The decision and schedule for development of the site as a power generation facility will be based on system growth and reliability needs. Regional transmission, and its impact on RPU system reliability, and the Midwest Independent Transmission System Operator (MISO) market will be considered in the decision to add generation capacity. If the need is identified in the future, the generation facility would be subject to permitting and environmental review consistent with PUC requirements in effect at that time.

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## 5.0 Engineering Design, Construction and Right-of-Way Acquisition

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### 5.1 TRANSMISSION STRUCTURES

The proposed transmission line is being designed to support load growth within the northwest quadrant of the Rochester metropolitan area and provide transmission connection to the new Westside substation. As described in Section 4.1, the new 161 kV line is proposed to be constructed in two phases. Both phases of the line will be built single circuit. The proposed structures for the straight sections of this line will be wood poles with steel poles used at the corners to provide additional structural strength, thus eliminating the need for anchors and their associated impact to land use. Figure 4 shows typical 161kV single circuit horizontal post construction. The (wood) tangent structures will be used on sections of the line which are essentially straight. The (steel) Dead End/Corner structures will be used when the line changes directions severely, such as at 60<sup>th</sup> Ave NW and Douglas Trail.

Table 5.1 shows the Design Summary for the route – sub-divided by Phase 1 and Phase 2. The Design Summary shows the voltage, structure type, pole type, conductor and average pole height for the design sections. As described in Section 4.1, the 161 kV conductor for Segments 1A and 1B will be installed on existing power poles.

**Table 5.1  
Design Summary**

<b>Design Sections</b>	<b>Line Voltage</b>	<b>Structure Type</b>	<b>Pole Type</b>	<b>Conductor</b>	<b>Foundation</b>	<b>Double Circuit/Single Circuit</b>	<b>Average Height (feet)</b>
<b>Phase 1</b>							
Segment 1A – Intersection of 50 <sup>th</sup> and Valleyhigh to 19 <sup>th</sup> Street NW	161kV	Horizontal Post (existing poles)	Wood	954 kcmil 45/7 ACSR	Direct Imbed	Single	90

Design Sections	Line Voltage	Structure Type	Pole Type	Conductor	Foundation	Double Circuit/Single Circuit	Average Height (feet)
Segment 1B –East-west segment along 19 <sup>th</sup> Street to Westside Substation (1)	161kV	Horizontal Post	Wood, with Steel at corners	954 kcmil 45/7 ACSR	Direct Imbed (wood) or Concrete (steel)	Single	90
<b>Phase 2</b>							
Segment 2A – Westside Substation to 60th Ave NW and Douglas Trail	161kV	Horizontal Post	Wood, with Steel at corners	954 kcmil 45/7 ACSR	Direct Imbed (wood) or Concrete (steel)	Single	90
Segment 2B –60th Ave NW and Douglas Trail to Northern Hills Substation (2)	161kV	Horizontal Post (existing poles)	Wood, with steel at corners (existing)	954 kcmil 45/7 ACSR	Direct Imbed (wood) or Concrete (steel)	Single (3)	90

- (1) Power poles are already in place south of Valleyhigh Road (C.R. 4) to 19<sup>th</sup> Street that will accommodate the proposed 161 kV conductors in addition to the existing Peoples Cooperative Services distribution feeder.
- (2) Power poles are already in place south of the Douglas Trail that will accommodate the proposed 161 kV conductors in addition to the existing RPU distribution feeder.
- (3) The design allows for conversion to a double-circuit in future, if needed for future connection to the north.

## 5.2 EXISTING AND PROPOSED UTILITY AND OTHER PUBLIC RIGHTS-OF-WAY

Table 5.2 shows the R-O-W summary for the route. The two construction phases are subdivided into sub-sections. The R-O-W summary shows the section length, average span length, whether R-O-W acquisition is needed or if existing poles and/or shared roadway R-O-W can be used for the new line. [Section 4.1 provides a more detailed description of the proposed route and R-O-W needs.]

This table shows that approximately 1.2 miles of the new line will be installed within existing R-O-W on existing poles (Segment 2B); one mile will be installed on existing poles, but will require acquisition of a 25-foot strip of additional R-O-W (Segment 1A); 3.4 miles will be shared with future roadway R-O-W (Segment 2A within the C.R. 104/60<sup>th</sup> Avenue NW corridor); and one mile will require additional R-O-W acquisition for the line – parallel to a roadway corridor

(Segment 1B along 19<sup>th</sup> Street NW). The entire transmission route will be located within or parallel to existing roadway, utility or other public corridors.

**Table 5.2  
Right-of-Way Summary**

<b>Route Line Sections</b>	<b>Line Voltage</b>	<b>Structure Type</b>	<b>Length (miles)</b>	<b>Average Span Length (feet)</b>	<b>Share Existing Poles?</b>	<b>Right-of-Way Width Acquisition Required (feet)</b>
<b>Phase 1</b>						
Segment 1A – North-south segment from the intersection of 50 <sup>th</sup> Avenue and Valleyhigh Road to 19 <sup>th</sup> Street NW	161kV	Horizontal Post	1.0	250	Yes	25 (overhang – blowout only)
Segment 1B – East-west segment along 19 <sup>th</sup> Street to Westside Substation (1)	161kV	Horizontal Post	1.0	275	No	50 (possible joint R-O-W with Rochester Public Works, as discussed in Section 4.1)

Phase 2						
Segment 2A – Proposed Westside Substation to Jct. of 60th Ave and Douglas Trail	161kV	Horizontal Post	3.4	275	No	Included in the 250' (average) R-O-W for the Olmsted County C.R. 104 project (3)
Segment 2B – Jct. of 60th Ave NW and Douglas Trail to existing Northern Hills Substation (2)	161kV	Horizontal Post	1.2	270	Yes	No additional R-O-W required – will use existing power poles

(1) Power poles are already in place south of Valleyhigh Road (C.R. 4) to 19<sup>th</sup> Street that will accommodate the proposed 161 kV conductors in addition to the existing Peoples Cooperative Services distribution feeder.

(2) Power poles are already in place south of the Douglas Trail that will accommodate the proposed 161 kV conductors in addition to the existing RPU distribution feeder.

(3) If the Segment 2A transmission line is needed to meet RPU system demands prior to the time that the C.R. 104 /60<sup>th</sup> Avenue NW roadway improvements are implemented, RPU will acquire the R-O-W needed for the transmission corridor – consistent with the location of the transmission corridor identified in the future roadway plans. This R-O-W would eventually be incorporated into the C.R. 104 roadway corridor, when it is implemented. [Current concept plans for the section of the future roadway corridor where the transmission line would be located within the corridor indicate that the 250-foot wide R-O-W would be centered on the existing roadway alignment.]

### 5.3 RIGHT-OF-WAY ACQUISITION

The proposed Westside substation parcel is already owned by RPU, so no acquisition is required for construction of the substation. Table 5.2 provides a summary of the R-O-W acquisition requirements for the proposed transmission line route: one mile will be installed on existing poles, but will require acquisition of a 25-foot strip of additional R-O-W (Segment 1A); 3.4 miles of the route will be shared with future roadway R-O-W (Segment 2A within the C.R. 104/60<sup>th</sup> Avenue NW corridor); and one mile of the route will require R-O-W acquisition for the line – parallel to a roadway corridor (Segment 1B along 19<sup>th</sup> Street NW). The remaining 1.2 miles of the proposed 161 kV route would utilize existing power poles/utility corridor, and would not require additional R-O-W acquisition.

Upon permit approval to construct the line, RPU will initiate contact with landowners along the Phase 1 route, Segment 1B – 50 feet south of and parallel to the ultimate 19<sup>th</sup> Street NW R-O-W.

This is to enable RPU to conduct any necessary surveys and soil investigations. As the design of the line is further developed, contacts will continue and the negotiation and acquisition will begin. Landowners adjacent to Segment 1A will also be contacted regarding R-O-W acquisition for the 25-foot wide strip east of the existing poles. As part of the acquisition/coordination process, affected property owners will be notified of the construction schedule, site access requirements and vegetation clearing (and maintenance) requirements for construction and maintenance of the line.

For the Phase 2 section of the route that will be located within the Olmsted County C.R. 104/60<sup>th</sup> Avenue NW corridor R-O-W (Segment 2A), RPU will continue to collaborate with the County and coordinate its construction schedule with the County's roadway improvement R-O-W acquisition and construction (as described in greater detail in Sections 4.2 and 7.1.2). Right-of-way acquisition at residential parcels along Segment 2A will be minimized by narrowing the R-O-W from the typical 250-foot cross section down to 225 feet in the vicinity of the existing Pebble Creek subdivision [located just south of 55<sup>th</sup> Street NW].

Appendix A provides a list of all property owners adjacent to the proposed route. These property owners will be notified of the proposed route, as required by Minn Rules 7849.5220, subp.2 (g) and Minn. Rules 7849.5240, subp.2.C. However, not all of these property owners would be affected to the same degree by acquisition of new R-O-W. The list in Appendix A is subdivided by route segment, to allow for differentiation between potential R-O-W acquisition requirements.

#### **5.4 CONSTRUCTION, RESTORATION AND MAINTENANCE METHODS**

Prior to initiating construction, RPU will advise affected property owners of the construction schedule, needed access to the site, and any vegetation clearing required for the Project. The R-O-W will be cleared of the amount of vegetation necessary to construct, operate and maintain the proposed transmission route, consistent with RPU's vegetation management guidelines. Generally, these guidelines require removal of existing vegetation with a mature height of greater than 25 feet from within the area 25 feet either side of the centerline of transmission poles.

Efforts will be made to stage construction within the R-O-W areas and in previously-disturbed areas, to the extent possible. If additional areas are needed temporarily for construction, temporary easements would be obtained from affected landowners.

Construction methods and practices utilized during line installation will be consistent with local, state, NESC and RPU standards for line construction, setbacks, erosion control, etc. During construction, efforts will be made to limit vegetation removal and ground disturbance, to minimize erosion and runoff.

Restoration of the route corridor following construction will include restoration of vegetative cover and installation of permanent erosion control measures, if needed. Revegetation guidelines

developed by RPU include a list of landscaping plants that could be utilized in revegetation, to provide woody vegetation that would not impede line maintenance. Current land use along each of the propose line route segments are rural or agricultural in nature. Therefore woody vegetation for landscaping will not be needed. Revegetation along agricultural segments will be performed by the farmer(landowner or renter) as part of seasonal field tillage and crop planting. Line construction will be scheduled to avoid conflicts with seasonal tillage, planting, and harvesting of agricultural crops. Construction debris will be removed, and all temporary construction facilities will be removed.

Maintenance of the line will be performed by RPU, including line inspection, equipment maintenance, and repairs. Vegetation growth will be monitored approximately every 5 years. If undesirable vegetation has become established that would affect the safe operation or maintenance of the line, the vegetation would be removed.

## 5.5 ELECTRIC AND MAGNETIC FIELDS

The flow of electricity and the voltage of transmission lines generate electric and magnetic fields. The intensity of the electric field is related to the voltage of the line. The intensity of the magnetic field is related to the current flow through the conductors (wires). Transmission lines operate at a relatively low frequency – 60 hertz (cycles per second).

### 5.5.1 Electric Fields

Voltage on any conductor produces an electric field in the area surrounding the conductor. The electric field gets weaker as it moves away from the line. The field extends from the energized wires to other nearby objects such as the ground, towers, vegetation, buildings, and vehicles, decreasing the strength of the electric field.

The intensity of electric fields is measured in kilovolts per meter (kV/m), i.e., the difference in voltage between two points (usually 1 meter). Table 5.3 provides the electric fields at maximum conductor voltage for the proposed 161 kV transmission line. Maximum conductor voltage is defined as the nominal voltage plus five percent.

**Table 5.3**  
**Calculated Electric Fields (kV/m) for Proposed 161kV Transmission Line**  
**(3.28 feet above ground)**

Distance from Centerline (feet)	300	200	100	50	0	50	100	200	300
Electric Field (kV/m)*	0.01	0.02	0.09	0.28	0.71	0.29	0.09	0.02	0.01

\* Calculated electric fields are based on a maximum conductor voltage equal to the nominal voltage plus 5% (i.e., 169 kV for this analysis).

The modeling performed to estimate the electric field generation from the proposed transmission lines indicated that the maximum electric field generated by the proposed 161 kV transmission line would be approximately 0.76 kV/m, at a location of 10 feet from the centerline, one meter above ground. This is significantly less than the maximum limit of 8 kV/m that has been a permit condition imposed by the State of Minnesota in other high voltage transmission line (HVTL) applications. This standard was developed by the Minnesota Environmental Quality Board in the 1970s to prevent serious shock hazards from occurring as a result of humans and animals touching large objects (e.g., tractors) parked under extra high voltage transmission lines of 500 kV or greater.

### **5.5.2 Magnetic Fields**

Current passing through any conductor of electricity, including a wire, produces a magnetic field in the area immediately surrounding the conductor. High voltage transmission lines produce a magnetic field that surrounds the wire and decreases rapidly with increasing distance from the wire. The magnetic field is expressed in units of magnetic flux density, expressed as gauss (G) or milligauss (mG).

There is presently no Minnesota statute or rule that pertains to magnetic field exposure primarily because, despite decades of research, there have not been any conclusive findings that exposure to power-frequency (60 hertz) magnetic fields can cause biological responses or health effects. A review of studies of the health effects from power-frequency fields leads to the conclusion that the evidence of health risk is weak. In 1999, the National Institute of Environmental Health Sciences (NIEHS) issued its final report, "NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields". This six-year study concluded there is little scientific evidence correlating electric and magnetic field (EMF) exposures with health risk.

The Minnesota State Interagency Working Group on EMF Issues also conducted research related to EMF, which resulted in similar findings to the NIEHS report. The conclusions of their 2002 study: "A White Paper on EMF Policy and Mitigation Options" found:

Research on the health effects of EMF has been carried out since the 1970s. Epidemiological studies have mixed results. Some have shown no statistically significant association between exposure to EMF and health effects, and some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a, biological mechanism for how magnetic fields may cause cancer.

And:

The Minnesota Department of Health (MDH) concludes that the current body of evidence is insufficient to establish a cause-and-effect relationship between EMF and adverse health effects: However, as with many other environmental health issues, the possibility of health risk from EMF cannot be dismissed.

The conclusions of the Minnesota State Interagency Working Group are similar to those reached by the Minnesota Department of Health in 2000.

Although most researchers agree that electric fields pose no risk to humans, the question of whether exposure to magnetic fields could potentially cause biological responses or health effects continues to be researched and debated. For those concerned about this issue, RPU provides information to the public, interested customers and employees to allow them to make an informed decision about EMF. Upon request, RPU will provide EMF measurements for landowners, customers, and employees.

In designing and siting its facilities, RPU has followed the "prudent avoidance" guidance suggested by most public agencies. Measures incorporated by RPU into its facilities include system designs that minimize magnetic field levels and, when feasible, siting facilities in locations with the fewest number of people living nearby. The proposed 161kV transmission line conductors will be arranged in a delta configuration, which results in a lower magnetic field in the vicinity of the line. The analyses described below reflect the estimated field generation assuming the delta design configuration.

Table 5.4 provides the calculated peak magnetic fields, in milligauss, based on the proposed line and structure design, using the anticipated summer peak current (500 amps). These peak values represent the exposure level that would occur during the summer when people are outside near the line. [The average magnetic field would be lower than these peak values.] The table shows the magnetic field (flux density) at various distances from the centerline of the line.

**Table 5.4**  
**Calculated Magnetic Flux Density (milliGauss) for**  
**Proposed 161Kv Transmission Lines at 3.28 Feet Above Ground.**  
**(Based on Summer Peak Current of 500 Amps)**

Distance from centerline (feet)	300	200	100	50	0	50	100	200	300
Magnetic Field (milliGauss)	0.5	1	3.4	9.2	22.3	11	4.1	1.1	0.5

The modeling performed to estimate the magnetic field generation from the proposed transmission lines indicated that the maximum magnetic field for the proposed 161 kV transmission line would be approximately 22.4 milliGauss, at a location of 5 feet from the centerline, one meter above ground, based on a typical summer peak current of 500 amps.

## **5.6 ESTIMATED PROJECT COSTS**

Rochester Public Utilities has prepared a preliminary cost estimate for the Proposed Project 161 kV transmission line and Westside substation construction. The transmission line construction cost is estimated to be approximately \$ 5 million, and the Westside Substation construction cost is estimated to be approximately \$ 6 million.

## **5.7 LIST OF PERMITS**

Table 5.5 summarizes the federal, state and local permits that may need to be obtained prior to construction of the proposed transmission line and substation facilities.

### **5.7.1 State Permits**

#### **Route Permit (Alternative Process) – Minnesota Public Utilities Commission**

As described in Sections 1.0 and 2.0, Minn Rules Chapter 7849 requires a Route Permit from the PUC for construction of high voltage transmission lines (HVTL). The Proposed Project is eligible for the Alternative Permit Process, as defined in Minn. Rules 7849.5500, subp.1.C.

#### **National Pollutant Discharge Elimination System (NPDES) – Minnesota Pollution Control Agency**

Construction projects that disturb greater than one acre of land surface require an NPDES Storm Water Permit for construction activities. The Proposed Project would qualify for a General Permit under this program. Permit application submittals include submittal of a Storm Water Pollution Prevention Plan (SWPPP) that incorporates Best Management Practices (BMPs) to minimize discharge of pollutants from areas disturbed by construction.

### **5.7.2 Local Permits**

The following local permits may be required prior to beginning construction of the Proposed Project:

#### **Road Crossing and/or Road-Right-of-Way Permits**

Road Crossing Permits may be required from Olmsted County, the City of Rochester and/or the townships to cross or occupy roadway rights-of-way.

#### **Driveway Access Permit**

A permit may be required from Olmsted County, the City of Rochester and/or the townships to construct access roads and/or the substation driveway adjacent to county, city and/or local roadways.

**Over-width Load Permit**

Permits may be required to move over-sized loads on county, city and/or township roads.

**Special Use Permit**

Local zoning regulations may require utility facilities to obtain a conditional use or special use permit prior to construction.

**Table 5.5  
List of Potential Required Permits**

<b>Permit Description</b>	<b>Jurisdiction</b>
Route Permit (Alternative Process)	Minnesota Public Utilities Commission
NPDES Storm Water Permit for Construction	Minnesota Pollution Control Agency
Road Crossing Permit	City, Township, County
Road Right-of-Way Use Permit	City, Township, County
Driveway Access Permits	City, Township, County
Over-width Road Permit	City, Township, County
Special Use Permits (to be determined)	City, Township, County

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## **6.0 Environmental Information**

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### **6.1 ENVIRONMENTAL SETTING**

The proposed northwest Rochester transmission line corridor and Westside substation facility are located at the northwest corner of the Rochester metropolitan area, including portions of the City of Rochester and adjacent township areas within Kalmar and Cascade Townships (see Figures 1 and 3). The area is currently primarily in rural residential/agricultural land uses. The Douglas Trail state recreational trail is located on an abandoned railroad corridor between 60<sup>th</sup> and 50<sup>th</sup> Avenues NW, at the north end of the study area (see Figure 5). Suburban density residential developments are also present at the northern portions of the project area, especially south of 55<sup>th</sup> Street NW and also north/east of the Douglas Trail. A Flood Control District parcel for the City of Rochester is located at the south end of the study area (see Figure 3).

### **6.2 HUMAN SETTLEMENT IMPACTS**

#### **6.2.1 Public Health and Safety**

##### **Public Health and Safety**

The proposed project will conform to all applicable federal, state, local and RPU design standards, construction practices and maintenance procedures to protect public health and safety. The transmission line design includes devices to protect the public in the event of an accident, including breakers and relays to the substation connection that de-energize the line in the event of an accident. The substation facility will be fenced to keep out trespassers and posted with signage warning the public of the risks associated with the equipment in the substation facility. Public health and safety concerns related to electrical transmission line electric and magnetic fields (EMF) are described in Section 5.5.

##### **Airport Flight Safety**

The proposed transmission line poles are located a minimum of nine miles north of the Rochester Municipal Airport, and the maximum proposed pole height is 90 feet. Therefore, there would be no potential airspace hazards or effects on flight safety zones at the airport.

## **Mitigation**

Measures to avoid and minimize potential impacts to human health and safety are incorporated into the proposed facility design and are considered to be part of the base design cost. No additional mitigation measures are needed or proposed.

### **6.2.2 Land Use, Right-of-Way Acquisition and Landowner Displacement**

Proposed R-O-W impacts are described in detail in Sections 5.2 and 5.3. The parcel where the proposed Westside substation would be located is already owned by RPU, so no acquisition is required for construction of the substation. Table 5.2 provides a summary of the R-O-W acquisition requirements for the proposed transmission line route: one mile will be installed on existing poles, but will require acquisition of a 25-foot strip of additional R-O-W (Segment 1A); 3.4 miles of the route will be shared with future roadway R-O-W (Segment 2A within the C.R. 104/60<sup>th</sup> Avenue NW corridor); and 1 mile of the route will require R-O-W acquisition for the line – parallel to a roadway corridor (Segment 1B along 19<sup>th</sup> Street NW). The remaining 1.2 miles of the proposed 161 kV route would utilize existing power poles/utility corridor, and would not require additional R-O-W acquisition.

The proposed route corridors are located in or adjacent to existing/proposed public utility, roadway or trail corridor areas, resulting in minimal strip R-O-W impacts that would not affect existing or future use of adjacent parcels. No residential or business displacements would result from the Proposed Project. Specifically, an approximately one mile long and 25-foot wide strip of R-O-W will need to be acquired east of the existing power poles along Segment 1A and an approximately one mile long and 50 foot wide strip of R-O-W will need to be acquired just south of the 19<sup>th</sup> Street NW roadway R-O-W for the 161 kV line along Segment 1B. The R-O-W for the 3.4 mile long Segment 2A would be part of the planned C.R. 104/60<sup>th</sup> Avenue NW R-O-W acquisition.

## **Mitigation**

Measures to avoid and minimize R-O-W impacts are incorporated into the proposed project route locations. No additional mitigation measures are needed or proposed.

### **6.2.3 Noise**

Noise is generally defined as unwanted sound. Noises can vary in volume (loudness) and frequency spectrum (pitch). Noise generation is generally measured and regulated based on volume, measured in units of A-weighted decibels (dBA), a logarithmic scale that corresponds to the sensitivity range for human hearing. On this scale, a 3dBA increase is essentially imperceptible to most humans; a 5dBA increase in noise is perceptible; and a 10 dBA increase is perceived as a doubling in loudness. Table 6.1 shows noise levels associated with common sources.

**Table 6.1  
Common Noise Levels**

<b>Sound Level db(A)</b>	<b>Environmental Condition</b>
134	Threshold of pain
114	Loud automobile horn
80-90	Inside motor bus
74	Average traffic on street corner
60-70	Conversational speech
54	Typical business office
40-50	Living room, suburban area
34	Library
20-30	Bedroom at night
14	Broadcast studio
0-10	Threshold of hearing

Source: Electric Power Research Institute (EPRI), 1982.

The Minnesota Pollution Control Agency (MPCA) has assigned regulatory standards for allowable noise levels in Minnesota, defined in Minnesota Rules 7030.0050. These regulatory standards are based on land use classifications, grouped according to noise sensitivity, or Noise Area Classifications (NAC). The most sensitive group of receptors is NAC 1 – applicable to residences, hospitals, churches and campgrounds. These standards also vary between daytime and nighttime allowable limits. Table 6.2 summarizes the MPCA’s noise standards grouped by NAC. The standards are expressed in terms of L<sub>50</sub> (the dBA that may be exceeded 50 percent of the time within an hour) and L<sub>10</sub> (the dBA that may be exceeded 10 percent of the time within an hour).

**Table 6.2  
Rule 7030.0040 Noise Area Classifications  
Day (0700-2200) Night (2200-0700)**

<b>NAC</b>	<b>L50</b>	<b>L10</b>	<b>L50</b>	<b>L10</b>
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

There will be two potential sources of noise generation from the proposed project: transmission conductors and the substation transformers. The level of noise generated is dependent on equipment conditions, voltage levels and weather conditions. Under foggy, damp or rainy conditions, transmission conductors can create a crackling sound as the electricity ionizes the moist air near the wires (a ‘corona’ condition). During dry weather, noise from electrical transmission facilities is faintly audible or inaudible. Noise levels directly adjacent to 161kV transmission lines and substation transformers would generally be below the 20-30 dBA level, i.e., well below the noise levels MPCA noise regulatory action levels listed in Table 6.2.

### **Mitigation**

No mitigation is necessary, since there will be minimal or no noise impacts resulting from the proposed project.

### **6.2.4 Aesthetics**

The proposed substation is located in an undeveloped area, so there are no adjacent residences that would perceive the substation as a visual intrusion in their neighborhood. The most visible components of the proposed transmission lines and substation are the transmission poles. Figure 4 shows the size and profile of the proposed poles. These poles have a relatively narrow profile, to make them less intrusive in the landscape. The poles would be located primarily along existing roadway corridors, where they would not be perceived as being out of context (vs. poles/lines that run across open areas). Also, as described in Section 4.1, at two segments of the proposed new 161 kV transmission line (i.e., approximately one third of the total length of the new line), the lines are proposed to be installed on existing poles that accommodate both local distribution lines and the 161kV lines, decreasing the total number of utility poles in the landscape. Therefore, although the proposed transmission lines and substation bring new visual elements to the landscape, the overall aesthetic impacts of the proposed project are minimal.

### **Mitigation**

Measures to avoid and minimize potential visual impacts are incorporated into the proposed project. No additional mitigation measures are warranted or proposed.

### **6.2.5 Socioeconomic Impacts**

Population characteristics and economic data (based on U.S. Census data) for the study area vicinity are summarized in Table 6.3. The population of Olmsted County increased 16.7 percent from 1990 to 2000 – this is higher than the statewide population growth rate of 12.4 percent for the same period. The continued growth in the Rochester area is the primary reason for the proposed project, since growth in population and commerce increases electric power demands.

The Proposed Project will not require acquisition of residential properties or loss of business use of properties. Strip acquisition of R-O-W would include compensation for affected property owners. Therefore, the Proposed Project would not result in economic losses to adjacent property owners. Also, the project would not displace or economically affect low-income or minority populations.

### **Mitigation**

No mitigation is necessary, since no potential negative socioeconomic impacts were identified related to the proposed project.

**Table 6.3  
Population and Economic Characteristics**

<b>Location</b>	<b>Population 1990</b>	<b>Population 2000</b>	<b>Change 1990- 2000</b>	<b>Minority Population (%)</b>	<b>Caucasian Population (%)</b>	<b>Per Capita Income</b>	<b>Percentage of Population Below Poverty Level</b>
State of Minnesota	4,375,099	4,919,479	12.4%	10.6%	89.4%	\$31,935	7.9%
Olmsted County	106,470	124,277	16.7%	9.7%	90.3%	\$24,939	6.4%
Total of all tracts for City of Rochester	70,720	85,806	21.3%	12.5%	87.5%	\$24,811	7.8%
Cascade Twp (excluding City of Rochester Census tracts)	3,128	3,183	1.80%	8.5%	91.5%	31,099	2.1%
Kalmar Twp	1,271	1,196	-5.90%	1.5%	98.5%	24,860	4.5%

### **6.2.6 Cultural Values**

The Olmsted County General Land Use Plan (updated in June, 2006) identified key community values as the starting point for defining community land use goals. The key community values indicated that residents expect their community to be: beautiful, efficient, accessible, competitive, habitable, equitable, and sustainable. The resulting planning principles included goals that emphasize wise use of resources, by concentrating urban and suburban development and by creating an orderly pattern of development.

All of Cascade Township within the Proposed Project area is identified in the Land Use Plan as being part of the planned 25-year urban service area. As noted previously, the need for the Proposed Project is based on the need to meet increasing electric demands in the growth areas at the northwest portion of the Rochester metropolitan service area. The Proposed Project is located primarily within the City of Rochester and Cascade Township, with the western-most transmission line corridor located within the C.R. 104/60<sup>th</sup> Avenue NW roadway corridor at the Cascade/Kalmar Township border.

The Resource Protection Area Policies section of the Olmsted County Land Use Plan includes a policy related to communication towers and utilities that states:

‘The location of communication towers, high voltage power transmission lines, petroleum/natural gas pipelines, and other similar special uses should be controlled to the extent allowable to minimize potential aesthetic and other public health or welfare impacts including property impacts. Where available, communications facilities should share towers in order to minimize the need for scattered locations and resulting impacts.’

The Proposed Project is consistent with this policy since it minimizes property impacts by locating transmission lines within or directly adjacent to existing utility, roadway or other public corridors; and it includes power pole sharing with local distribution lines for approximately one-third of the route (see Section 4.1). Therefore, no substantive cultural value impacts are anticipated to result from the Proposed Project.

### **Mitigation**

No mitigation is necessary, since the Proposed Project concept includes planning and design features that are consistent with local cultural values.

### **6.2.7 Recreation**

Recreational opportunities near the Proposed Project include the Northern Hills Golf Course and the Douglas State Trail (see Figure 5). Northern Hills is an 18-hole municipal course. The western-most perimeter of the golf course is located along 50<sup>th</sup> Avenue NW, adjacent to a portion of the existing 161kV transmission line (see Figure 2). Users of the golf course would not observe any aesthetic changes as a result of the proposed new 161kV line south of Valleyhigh Road.

The Douglas State Trail is a 12.5-mile long multiple-use trail developed on an abandoned railroad grade that runs northwest/southeast. A segment of the Douglas Trail is located at the northern-most portion of the project area. The trail has two treadways: an asphalt surface for bicyclists, hikers and skiers and a natural surface for horseback riders and snowmobilers. This trail was developed and is owned and maintained by the Minnesota Department of Natural Resources (MnDNR). Segment 2B of the Proposed Project (approximately 1.2 miles long) would share power poles with an existing RPU-owned and operated distribution line located on a 25 foot wide utility corridor R-O-W south of and parallel to the trail R-O-W, thereby eliminating the need for a second parallel power line. No trail R-O-W would need to be utilized for the proposed transmission line; and the line would not cross the trail corridor so no crossing permit for MnDNR lands would be needed for construction of the Proposed Project.

Mounting the proposed 161 kV line on the existing power poles minimizes construction disturbance. Existing vegetation, although not of high quality, does provide significant screening and softens the visual impact of the transmission line and distribution underbuild. Since the

existing poles would be used for the new transmission line, there would be minimal disturbance of vegetation required for line construction, therefore, there would be little if any visual impact to trail users as a result of the proposed transmission line.

The Proposed Project planning includes sharing power poles with local distribution lines, thereby minimizing visual impacts to adjacent recreational resources. Therefore, no substantive impacts to existing recreational resources in the project vicinity would result from the Proposed Project.

### **Mitigation**

No mitigation is proposed, since no substantive recreational impacts would result from the Proposed Project.

## **6.2.8 Public Services**

Public services provided by local municipal governments, including police and fire protection, water and sewer utility, etc. will not be affected by the Proposed Project. The Proposed Project will facilitate provision of electrical service to Rochester Public Utilities customers in northwest Rochester.

### **Mitigation**

No mitigation is proposed, since no public service provision impacts would result from the Proposed Project.

## **6.3 LAND-BASED ECONOMIC IMPACTS**

### **6.3.1 Agriculture**

The proposed Westside substation is located on a 49 acre parcel that is currently leased by RPU to a local farmer for agricultural use (except for the existing natural gas pipeline substation area). Approximately 3 acres at the northwest corner of this parcel would be needed for construction of the substation. The remainder of the parcel could continue to be leased for agricultural production or a portion of the site could be converted to a prairie area or wetland environment.

The proposed 161 kV transmission line route passes through agricultural land in portions of the route. However, as described in Section 4.1, the proposed route is located within or directly adjacent to existing public utility, roadway or other corridors and/or along fence rows of agricultural land, minimizing potential impacts to farming operations. No farm fields would be bisected by the proposed transmission corridors.

Farmland impacts within the new transmission corridor R-O-W would be limited to pole placement within field production areas; and the impact area would be limited to the footprint of the poles. Therefore, there would be minimal impact to farm operations.

**Mitigation**

No mitigation is necessary, since the Proposed Project concept minimizes agricultural impacts. Construction of the proposed 161 kV transmission line will be scheduled to avoid conflicts with seasonal tillage, planting, and harvesting of agricultural crops wherever possible. Maintenance activity of the transmission line will be conducted in such a way as to minimize impacts to agricultural crops.

**6.3.2 Forestry**

There are few wooded areas located along the Proposed Project impact areas, and none of those areas are economically significant forest production areas. Therefore, the Proposed Project would not result in forestry-related economic impacts.

**Mitigation**

No mitigation is necessary, since the Proposed Project would not affect forest production resources.

**6.3.3 Tourism**

With the exception of the two recreational facilities described in Section 6.2.7 above, the Proposed Project is not located near any tourist attractions. The discussion in Section 6.2.7 above concluded that no substantive impacts to either of the recreational resources in the project vicinity would result from the Proposed Project; therefore, no tourism impacts would result.

**Mitigation**

No mitigation is proposed, since no tourism impacts would result from the Proposed Project.

**6.3.4 Mining**

There are no mined areas or identified potential mineral resources located along the Proposed Project impact areas. Therefore, the Proposed Project would not result in mining impacts.

**Mitigation**

No mitigation is necessary, since the Proposed Project would not affect any mining operations.

## **6.4 ARCHAEOLOGICAL AND HISTORIC RESOURCES**

Information on locations of known cultural (archaeological and historic) resources within the Proposed Project area was obtained from two sources. First, the Minnesota State Historic Preservation Office (SHPO) was contacted to request a search of SHPO file data for the project area. A copy of the e-mail response from SHPO is included in Appendix B.

In addition, a Phase I cultural resources survey performed for the Olmsted County Road 104/60<sup>th</sup> Avenue NW Corridor Preservation Study was reviewed, since Segment 2A of the transmission corridor is proposed to be located within the roadway corridor. The Phase I report provides more detailed information on that section of the project impact area than the SHPO file search does. The information obtained from these two sources is summarized below.

### **6.4.1 Archaeological Resource Impacts**

No archaeological sites were identified in SHPO's search of the Minnesota Archaeological Inventory. The 60<sup>th</sup> Avenue NW Phase I Cultural Resources Survey identified two potential locations of archaeological resources within the survey area that coincide with the proposed transmission line corridor location. The first location is a terrace area south of the drainage that parallels the Douglas Trail that was identified by MnDOT Cultural Resources Unit as a location that should be investigated for potential pre-contact archaeology. The second location is a farmstead (identified as 'Farmstead D' in the survey) located west of 60<sup>th</sup> Avenue NW at the northeast corner of Section 13 in Kalmar Township. The Phase I investigators were unable to obtain landowner permission to survey either of these areas.

These two areas would likely be investigated sometime in the future as part of the 60<sup>th</sup> Avenue NW project, which would require extensive grading for roadway construction when it is implemented. Compared to the roadway project, the potential for impacts to any buried archaeological resources from the transmission poles is relatively small, since the impact area is limited to the footprint of the individual poles. Installation of the transmission poles within the 60<sup>th</sup> Avenue NW corridor will be coordinated between RPU and Olmsted County, so any updated findings of the 60<sup>th</sup> Avenue NW cultural resources investigations for the Olmsted County project will be shared with RPU and, if necessary, RPU can modify transmission pole locations to avoid archaeological resource impacts.

### **Mitigation**

No potential archaeological resource impacts have been identified based on the information currently available. The potential for impacts to any buried archaeological resources from the transmission poles is relatively small, since the potential impact area is limited to the footprint of the individual poles.

Installation of the transmission poles within the 60<sup>th</sup> Avenue NW corridor will be coordinated between RPU and Olmsted County, so any updated findings of the 60<sup>th</sup> Avenue NW cultural

resources investigations for the Olmsted County project will be shared with RPU and, if necessary, RPU may modify transmission pole locations to avoid archaeological resource impacts and/or provide documentation of archaeological resources through data recovery.

#### **6.4.2 Historical Resource Impacts**

No historic structures were identified in SHPO's search of the Minnesota Historic Structures Inventory. There were no architectural history properties identified in the Phase I Survey within the 60<sup>th</sup> Avenue NW project area that coincides with the proposed transmission corridor/substation impact areas. Therefore, potential impacts to historic structures are not anticipated to result from the Proposed Project.

#### **Mitigation**

No potential historic resource impacts were identified, so no mitigation is necessary.

### **6.5 NATURAL ENVIRONMENT**

#### **6.5.1 Air Quality**

Temporary air quality impacts resulting from installation of the proposed transmission lines and construction of the substation would be limited to emissions from construction vehicles and fugitive dust from R-O-W clearing activities. These impacts would be minimal and temporary.

During operation of the transmission lines and substation, the only potential air emissions would be those occurring as a result of corona, i.e., the breakdown of air – producing ozone and oxides of nitrogen – when the electrical field intensity exceeds the breakdown strength of the air. This can occur at transmission line conductors where imperfections occur and/or under humid/wet climatic conditions. These emissions generally occur at rates that cannot be measured and ozone is relatively short-lived, since it combines readily with other compounds in the atmosphere.

#### **Mitigation**

Air quality impacts are anticipated to be non-substantive, therefore, no mitigation is proposed.

#### **6.5.2 Water Quality**

The Proposed Project area is located in the Zumbro River watershed, with a number of drainageways located within the project area, including a branch of the North Run of the South Fork of Cascade Creek, designated as a Public Water (See Figure 6). This stream runs through the 49 acre parcel owned by RPU and is located south of the 3-acre substation site. The stream would not be impacted by the Proposed Project; therefore, no Public Waters permit would be

required for construction of the Project. These drainage ways are all narrow enough to be spanned by the transmission lines and are not affected by the substation, therefore no direct impacts to these watercourses would result from the Proposed Project.

Temporary water quality impacts resulting from installation of the proposed transmission lines and construction of the substation would be limited to potential sediment conveyance by surface water runoff from construction areas, due to soil exposure during clearing, excavation and grading activities. These impacts would be minimal and temporary. Since the construction impact area will be greater than one acre, a Construction Storm Water NPDES permit would be required from the MPCA, including submittal of a storm water pollution prevention plan (SWPPP). All areas disturbed by construction would be re-vegetated, so no permanent water quality impacts are anticipated to result from the Proposed Project.

Temporary wetland impacts may result during transmission line pole installation, although wetland impacts will be avoided to the greatest extent practicable. National Wetland Inventory (NWI) mapping (see Figure 6) indicates two small Type 3 (shallow marsh) wetlands adjacent to the C.R. 104/60<sup>th</sup> Avenue NW corridor just south of 55<sup>th</sup> Street NW, in the vicinity of the existing residential developments. The NWI mapping does not show any other wetlands located within the Proposed Project transmission route or substation site. Prior to construction, field reconnaissance would be performed to verify the location of any wetlands within the transmission line corridor Segment 2A, within the C.R. 104/60<sup>th</sup> Avenue NW R-O-W. The Segment 1A R-O-W (parallel to the existing north-south power poles) and Segment 1B R-O-W (parallel to 19<sup>th</sup> Street NW) would also be field checked to confirm if any wetlands (not mapped by NWI) are present. If wetlands are found, measures to avoid impacts would be considered. Unavoidable impacts would be likely minimal and/or temporary, generally limited to the locations of individual poles.

No permanent impacts to wetlands or other water bodies are anticipated to result from the Proposed Project.

### **Mitigation**

No mitigation is proposed, since the Proposed Project is not anticipated to permanently impact water bodies or wetlands.

### **6.5.3 Flora and Fauna**

As described in Section 6.1, the areas adjacent to the proposed northwest Rochester transmission line route and Westside substation facility are currently primarily in rural residential/agricultural land uses. Suburban density residential development is present south of 55<sup>th</sup> Street NW, between 50<sup>th</sup> and 60<sup>th</sup> Avenues NW.

The proposed substation site is located on land currently in agricultural production, so no native vegetation that would be useful for wildlife habitat would be affected. The proposed

transmission line route is located within or directly adjacent to existing public utility, roadway or other corridors and/or along fence rows of agricultural land (see Figure 3). Descriptions of specific vegetation characteristics and potential impacts for each segment of the route are provided in Table 6.4.

**Table 6.4  
Vegetative Characteristics and Potential Impacts**

<b>Transmission Line Route Segment</b>	<b>Vegetation Characteristics</b>	<b>Right-of-way Width Required</b>	<b>Potential Impacts</b>
Segment 1A – North-south segment from the intersection of 50 <sup>th</sup> Avenue and Valleyhigh Road to 19 <sup>th</sup> Street NW (1 mile segment)	North 0.5 mile – Roadway corridor with adjacent land in agriculture with some trees/shrubs in fence rows. South 0.5 mile – Abandoned roadway corridor within Flood Control District area – adjacent vegetation is mixed grassland, shrubs and trees.	25 (overhang – blowout only)	May need to clear 25 foot width of fence row trees/shrubs from approximately 400’ length of R-O-W on the south side of the roadway corridor.
Segment 1B – East-west segment along 19 <sup>th</sup> Street to Westside Substation (1 mile segment)	Roadway corridor with adjacent land in agriculture with some trees/shrubs in fence rows.	50 (possible joint R-O-W with Rochester Public Works, as discussed in Section 4.1)	May need to clear 50 foot width of fence row trees/shrubs from approximately 100-150’ length of R-O-W on the south side of the roadway corridor.
Segment 2A – Proposed Westside Substation to Jct. of 60 <sup>th</sup> Ave and Douglas Trail (3.4 mile segment)	Roadway corridor with adjacent land in varied vegetation – suburban landscaping, vacant land in mixed grass/shrub vegetation, and agriculture with some trees/shrubs in fence rows.	N.A. – Line will be within C.R. 104/60 <sup>th</sup> Avenue 250’ average width R-O-W	Transmission line route is planned to be located within the drainage ditch areas of reconstructed 60 <sup>th</sup> Avenue R-O-W – resulting in no direct vegetation impacts from the transmission line. However, roadway construction could result in strip impacts to isolated farmstead woodlots and fence row trees/shrubs from the road R-O-W areas.

<b>Transmission Line Route Segment</b>	<b>Vegetation Characteristics</b>	<b>Right-of-way Width Required</b>	<b>Potential Impacts</b>
Segment 2B – Jct. of 60th Ave NW and Douglas Trail to existing Northern Hills Substation (1.2 mile segment)	Trail corridor with adjacent land in agriculture – some trees/shrubs in fence rows.	N.A. – Existing utility corridor R-O-W	None - 161 kV transmission line will share existing power poles and woody vegetation within the corridor will be maintained based on standard maintenance practices.

There would be some loss of wildlife habitat in the areas where existing farmstead or fence row trees/shrubs would need to be cleared or reduced for the transmission line route. However, the total habitat area lost due to transmission line installation would be relatively small since 1) most of the land within the portions of the transmission line corridor that would be disturbed by the new pole installations is in agricultural use and not unique vegetation of special wildlife habitat and 2) the majority of potential vegetation impacts would occur within Segment 2A, where the transmission line would be located within the reconstructed C.R. 104/60<sup>th</sup> Avenue NW roadway corridor.

Wildlife that inhabits non-agricultural areas affected by R-O-W clearing would likely relocate to adjacent undisturbed fence row areas. Grass, shrub and low-growing (less than 25 feet tall) vegetation would be able to re-populate the rights-of-way following initial clearing, as described in Section 5.4. Overall, project impacts to wildlife habitat would be minimal.

The potential for avian collisions with transmission lines can exist if the lines are in proximity to wetlands and open water adjacent to agricultural areas that can be used for feeding and/or if the lines are located within a major migratory bird flyway or resting spot. As shown on Figure 6, there are no wetlands or open water areas in the vicinity of the proposed transmission line route, so this area is not a likely resting spot for migratory birds or a feeding area for resident bird populations. Therefore, there is not a substantial risk of avian collisions with the proposed transmission lines.

**Mitigation**

No mitigation is proposed, since the Proposed Project impacts to vegetation/habitat and wildlife in the project area are anticipated to be minimal and temporary. No substantive impacts to wildlife populations are anticipated.

## **6.6 RARE AND UNIQUE RESOURCES**

To determine if known rare and unique resources are present within the project area, a request was submitted to the Minnesota Department of Natural Resources (DNR) for a search of the Minnesota Natural Heritage database for the project vicinity (NHNRP Contact #: ERDB 20080208). The DNR's search area included a one-mile radius around the proposed project area. The database search identified one occurrence of a rare species in the area searched – a 1998 observation of *Eryngium yuccifolium* (Rattlesnake-master) in a disturbed prairie area within one mile of the project area (see DNR letter in Appendix C). No species of concern were identified within the project impact area. The DNR letter concluded that they did 'not believe the project will negatively affect any known occurrences of rare features.'

### **Mitigation**

No mitigation is proposed, since the Proposed Project is not anticipated to impact rare or unique features.

## **6.7 SUMMARY OF AVOIDABLE HUMAN AND NATURAL ENVIRONMENTAL EFFECTS**

Impacts to the human and natural environment have been avoided and minimized, to the extent feasible, in project siting (including the use of shared corridors) and design. The unavoidable adverse human and environmental impacts identified as potentially resulting from the Proposed Project are minimal. Construction would result in short-term, temporary impacts, primarily related to soil disturbance and woody vegetation cutting. Longer-term impacts that cannot be avoided include acquisition and conversion of land from existing rural agricultural and residential uses to substation and transmission line corridor uses. Also, visual impacts – transmission line and substation visibility in the landscape – would be long-term, although these have been minimized to the extent practicable by sharing pole use with local distribution lines and by locating the route primarily along existing roadway corridors.

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## **7.0 Agency and Public Contacts**

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### **7.1 AGENCY CONTACTS**

#### **7.1.1 Minnesota Department of Natural Resources**

The Minnesota DNR Natural Heritage and Nongame Research Program were contacted to request their review of the Minnesota Natural Heritage database for listings located within the project area. In the DNR's September 13, 2007 response letter (see Appendix C), the agency determined that the project would not negatively affect any known occurrences of rare features.

The DNR's regional Trails and Waterways staff was also contacted to provide input on potential impacts to Douglas Trail users from the proposed transmission line segment that parallels the trail for 1.2 miles. As noted in Section 6.2.7, the proposed transmission line in this segment would share power poles with an existing RPU-owned and operated distribution line. During September 2007, DNR Trails staff reviewed and commented on the draft findings of Section 6.2.7, and the final wording of this section of the application reflects their review comments; i.e., DNR staff concurred that no substantive impacts to Douglas Trail use would result from the proposed transmission line.

#### **7.1.2 Olmsted County**

Early coordination discussions were held between RPU and the Olmsted County Highway Department regarding potential shared use of the C.R. 104/60<sup>th</sup> Avenue NW corridor. Olmsted County included the RPU on its Project Steering Committee formed as part of the planning process for future capacity improvements for C.R. 104. [The C.R. 104/60<sup>th</sup> Avenue NW Steering Committee also included the Federal Highway Administration, Minnesota Department of Transportation, Rochester-Olmsted Council of Governments, City of Rochester, Kalmar Township and Cascade Township, in addition to the RPU and Olmsted County Highway Department.] The roadway concept development process determined that the proposed north-south segment of the transmission line could be accommodated within the planned future roadway corridor, and that separate R-O-W would not be needed for the transmission line. Current concept plans for the section of the future roadway corridor where the transmission line would be located within the corridor indicate that the 250-foot wide R-O-W would be centered on the existing roadway alignment.

A state/federal Environmental Assessment Worksheet/Environmental Assessment (EAW/EA) is being prepared for the preferred alternative for the proposed roadway improvements, which are not currently funded and, therefore, do not have a scheduled date for construction. Since the C.R. 104/60<sup>th</sup> Avenue NW roadway improvements are not slated to occur in the near future, the proposed RPU transmission line project has been sub-divided into Phase 1 and Phase 2 sub-sections (see Figure 3 and Section 3.4). Phase 2 includes the transmission line segment within the C.R. 104/60<sup>th</sup> Avenue NW corridor. Coordination regarding scheduling of the roadway improvement construction and location of the Phase 2 RPU 161 kV transmission poles within the future roadway R-O-W will continue between RPU and Olmsted County Highway Department as both project plans are finalized.

### **7.1.3 Minnesota State Historic Preservation Office (SHPO)**

A letter was sent to SHPO requesting their review of the Minnesota Archaeological Inventory and Historic Structures Inventory database for the project area for previously-known resources that could potentially be impacted by the Proposed Project. Their response to this request was received via e-mail on September 4, 2007 (see Appendix B). Their search revealed no previously-known resources within the project search area.

### **7.1.4 Additional Cultural Resources Coordination**

Approximately 3.4 miles of the proposed new 161 kV transmission line route is located within the C.R. 104/60<sup>th</sup> Avenue NW corridor. As noted in Section 7.1.2 above, Olmsted County is proposing to reconstruct this roadway, and is conducting environmental analyses as part of their EAW/EA document preparation. A Phase I Cultural Resources Study was conducted for the corridor. The findings of this study were made available to RPU by Olmsted County and used to determine the potential for cultural resources impacts from the transmission line corridor, as discussed in Section 6.4.

### **7.1.5 City of Rochester – Public Works**

Early coordination discussions were held between RPU and Rochester Public Works staff regarding potential shared use of the 19<sup>th</sup> Street NW corridor. During these discussions, Public Works staff noted that planning for future capacity and safety improvements to 19<sup>th</sup> Street NW was in progress. No date for implementing the planned roadway improvements has been established, but the concept for the future roadway is anticipated to be finalized in time to identify the roadway R-O-W requirements in time for coordination with the proposed transmission line, so that the transmission line R-O-W can be acquired to the south of the future roadway R-O-W. The installation of the transmission line will likely occur prior to the reconstruction of 19<sup>th</sup> Street NW. However, RPU will coordinate with Rochester Public Works and, if feasible, establish a joint roadway/utility R-O-W corridor when the roadway is

reconstructed. Coordination regarding scheduling of the roadway improvement construction and location of the transmission R-O-W will continue as both project plans are finalized.

## **7.2 ADJACENT LANDOWNERS**

Appendix A includes a list of all landowners located along the proposed transmission line route defined in this permit application. The list of landowners has been subdivided by route segment. Landowners on both sides of the C.R. 104/60<sup>th</sup> Avenue NW roadway corridors are included in this list, since a final determination has not been made in all locations regarding which side of the roadways the line will run.

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## **8.0 Factors to Be Considered by the Commission**

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Minnesota Rules 7849.5910 established 14 factors to be considered by the PUC when determining whether a permit should be granted for a proposed high voltage transmission line. This section discusses these factors as they relate to the Proposed Project.

### **8.1 EFFECTS ON HUMAN SETTLEMENT, INCLUDING, BUT NOT LIMITED TO, DISPLACEMENT, NOISE, AESTHETICS, CULTURAL VALUES, RECREATION, AND PUBLIC SERVICES**

The Proposed Project would not result in displacement of existing residences or businesses (see Section 6.2.2). It is consistent with cultural values for the area (see Section 6.2.6). Impacts related to noise (see Section 6.2.3), aesthetics (see Section 6.2.4) and recreation (see Section 6.2.7) would not be substantial. The project would not result in an increased need for public services (see Section 6.2.8).

### **8.2 EFFECTS ON PUBLIC HEALTH AND SAFETY**

No public health or safety effects are anticipated to result from the Proposed Project. The proposed 161 kV transmission line would generate a maximum electric field of approximately 0.76 kV/m at a location of ten feet from the centerline, one meter off the ground. This is substantially less than the 8 kV/m standard defined by the PUC. With respect to electromagnetic fields, no scientific studies to date have found a statistically significant line between electromagnetic field generation and health effects.

### **8.3 EFFECTS ON LAND-BASED ECONOMIES, INCLUDING, BUT NOT LIMITED TO, AGRICULTURE, FORESTRY, TOURISM, AND MINING**

As described in Sections 6.3.2 through 6.3.4, the Proposed Project would result in no impacts to forestry, tourism or mining. Agricultural impacts for transmission line R-O-W would be limited to strip acquisition of R-O-W totaling up to approximately 3.5 acres of agricultural land directly adjacent to the 19<sup>th</sup> Street NW roadway corridor and approximately 1.5 acres of agricultural land along 50<sup>th</sup> Avenue NW. Agricultural land impacts would result from the planned Olmsted County C.R. 104/60<sup>th</sup> Avenue NW roadway improvements R-O-W. However, since the transmission line can be located within the roadway R-O-W, no estimate of transmission line impacts to agricultural land within this corridor segment was made.

Agricultural impacts will be minimized by locating poles as close as possible to adjacent roadway corridors, and by allowing farming operations to continue between the poles on R-O-W land. No agricultural fields would be bisected by the proposed transmission line routes. The proposed Westside substation is located on a 49 acre parcel that is currently leased by RPU to a local farmer for agricultural use (except for the existing natural gas pipeline substation area). Only 3 acres of this parcel would be needed for construction of the substation. The remainder of the parcel could continue to be leased for agricultural production or converted to prairie area or wetland environment.

#### **8.4 EFFECTS ON ARCHAEOLOGICAL AND HISTORIC RESOURCES**

The Proposed Project is not anticipated to impact any archaeological or historic resources. No potential historic resource impacts were identified.

No potential archaeological resource impacts have been identified based on the information currently available. The potential for impacts to any buried archaeological resources from the transmission poles is relatively small, since the potential impact area is limited to the footprint of the individual poles.

Installation of the transmission poles within the 60<sup>th</sup> Avenue NW corridor will be coordinated between RPU and Olmsted County, so any updated findings of the 60<sup>th</sup> Avenue NW cultural resources investigations for the Olmsted County project will be shared with RPU and, if necessary, RPU may modify transmission pole locations to avoid archaeological resource impacts and/or provide documentation of archaeological resources through data recovery.

#### **8.5 EFFECTS ON THE NATURAL ENVIRONMENT, INCLUDING EFFECTS ON AIR AND WATER QUALITY RESOURCES AND FLORA AND FAUNA**

As discussed in Section 6.5, no substantive effects on the natural environment are anticipated to result from the Proposed Project. Air quality impacts would be non-substantive. Potential water quality impacts would be limited to temporary water quality impacts from erosion during construction. Preparation and implementation of a SWPPP, as required by NPDES permitting, would be part of the project regulatory requirements. Therefore water quality impacts would be minimal and temporary.

Minor wetland impacts may occur during transmission pole installation. Avoidance measures will be used. Any unavoidable impacts are anticipated to be minimal and temporary.

Flora and fauna impacts are anticipated to be minimal, since impact areas are primarily located in agricultural production areas. Also, not all vegetation encountered within the transmission line R-O-W would have to be removed – only trees and shrubs that would interfere with line access, safe operation, and maintenance would be removed. Following transmission line installation, vegetation would be allowed to become re-established, in conformance with RPU vegetation management standards (as described in Section 5.3).

## **8.6 EFFECTS ON RARE AND UNIQUE NATURAL RESOURCES**

No species of concern were identified within the project impact area. The DNR Natural Heritage letter concluded that they did ‘not believe the project will negatively affect any known occurrences of rare features.’

## **8.7 APPLICATION OF DESIGN OPTIONS THAT MAXIMIZE ENERGY EFFICIENCIES, MITIGATE ADVERSE ENVIRONMENTAL EFFECTS, AND COULD ACCOMMODATE EXPANSION OF TRANSMISSION OR GENERATING CAPACITY**

The entire transmission route will be located entirely within or parallel to existing roadway, utility or other public corridors, helping to minimize adverse environmental effects, resulting in minimal need to provide mitigation.

As discussed in Section 4.4, the proposed transmission line and substation are being designed to support anticipated growth within the northwest quadrant of Rochester, as well as potential additional future system expansions that may be needed. The proposed transmission structures will be installed as 161 kV single circuit lines. However, the design of the structures would allow for upgrading to a double-circuit, if needed in the future. For example, the section of the route along the Douglas Trail may need to be upgraded to a double circuit in the future, is a 161 kV connection is needed to the north from the Northern Hills and/or Westside substation(s).

As described in Section 4.2, the parcel of land acquired for the substation is large enough to support a future generation facility. The decision and schedule for development of the site as a power generation facility will be based on system growth and reliability needs. Regional transmission, and its impact on RPU system reliability, and the Midwest Independent Transmission System Operator (MISO) market will be considered in the decision to add generation capacity. If the need is identified in the future, the generation facility would be subject to permitting and environmental review consistent with PUC requirements in effect at that time.

## **8.8 USE OR PARALLELING OF EXISTING RIGHTS-OF-WAY, SURVEY LINES, NATURAL DIVISION LINES, AND AGRICULTURAL FIELD BOUNDARIES**

The transmission route will be located entirely within or parallel to existing roadway, utility or other public corridors. Approximately 1.2 miles of the new line will be installed within existing R-O-W on existing poles (Segment 2B); one mile will be installed on existing poles, but will require acquisition of a 25-foot strip of additional R-O-W (Segment 1A); 3.4 miles will be shared with future roadway R-O-W (Segment 2A within the C.R. 104/60<sup>th</sup> Avenue NW corridor); and 1 mile will require additional R-O-W acquisition for the line – parallel to a roadway corridor (Segment 1B along 19<sup>th</sup> Street NW).

## **8.9 USE OF EXISTING LARGE ELECTRIC POWER GENERATING PLANT SITES**

Existing large power generation facilities are located at RPU's Silver Lake Plant (425 West Silver Lake Drive NE) and the Cascade Creek Combustion Turbine facility (1814 7<sup>th</sup> Street NW). These facilities will continue to be used to serve customers in the project area. Since the purpose of the Proposed Project is to increase the transmission area and system reliability (by constructing a looped circuit) in the northwest quadrant of the Rochester metropolitan area, use of the existing power generation sites or existing transmission facilities for this project is not feasible.

## **8.10 USE OF EXISTING TRANSPORTATION, PIPELINE, AND ELECTRICAL TRANSMISSION SYSTEMS OR RIGHTS-OF-WAY**

The transmission route will be located entirely within or parallel to existing roadway, utility or other public corridors. Approximately 1.2 miles of the new line will be installed within existing R-O-W on existing poles (Segment 2B); one mile will be installed on existing poles, but will require acquisition of a 25-foot strip of additional R-O-W (Segment 1A); 3.4 miles will be shared with future roadway R-O-W (Segment 2A within the C.R. 104/60<sup>th</sup> Avenue NW corridor); and 1 mile will require additional R-O-W acquisition for the line – parallel to a roadway corridor (Segment 1B along 19<sup>th</sup> Street NW).

## **8.11 ELECTRICAL SYSTEM RELIABILITY**

The proposed Rochester northwest quadrant 161 kV transmission line and new substation are components of planned future system improvements identified in the Rochester Public Utilities Electric System Long-Range Planning (LRP) Study as being needed to meet forecast future system demands. The LRP Study forecast the annual growth rate for the City of Rochester to be greater than 8 percent, with approximately 57 percent of that growth occurring within the northwest quadrant, where the Proposed Project is located. The LRP Study identified planned future substation locations (including the proposed Westside substation), based on anticipated growth areas and distribution needs (see Figure 2).

The proposed transmission route would meet short-term and long-term infrastructure needs within the northwest quadrant – and installation of the Proposed Project is planned for two phases, consistent with anticipated short and long term needs. Phase 1 would include construction of the Westside substation and the eastern segment of new 161 kV transmission line that would provide a radial feed to/from the Westside substation.

Phase 2 of the Proposed Project would include the new 161 kV transmission line from the Westside substation, north along the 60<sup>th</sup> Avenue NW/C.R. 104 corridor, then east parallel to the Douglas Trail, and then south at 50<sup>th</sup> Avenue NW to the Northern Hills substation. This segment would complete a transmission loop that forms the backbone transmission network to reliably meet long-term growth within Rochester.

## **8.12 COSTS OF CONSTRUCTING, OPERATING, AND MAINTAINING THE FACILITY WHICH ARE DEPENDENT ON DESIGN AND ROUTE**

The proposed routing and system design reflect design decisions made to minimize construction, operation and maintenance costs, to the extent practicable, including:

- Route locations that minimize the length of transmission line required, thereby minimizing installation and maintenance costs.
- Use of roadway R-O-W, corridors parallel to roadways, and/or sharing of poles to minimize R-O-W acquisition and system maintenance costs.
- Designing the installation to allow for potential future double-circuit installations, if needed – to minimize future costs.
- Use of standard pole types requiring standard construction and maintenance techniques.

## **8.13 ADVERSE HUMAN AND NATURAL ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED**

Impacts to the human and natural environment have been avoided and minimized, to the extent feasible, in project siting (including the use of shared corridors) and design. The unavoidable adverse human and environmental impacts identified as potentially resulting from the Proposed Project are minimal. Construction would result in short-term, temporary impacts, primarily related to soil disturbance and woody vegetation cutting. Longer-term impacts that cannot be avoided include acquisition and conversion of land from existing rural agricultural and residential uses to substation and transmission line corridor uses. Also, visual impacts – transmission line and substation visibility in the landscape – would be long-term, although these have been minimized to the extent practicable by sharing pole use with local distribution lines and by locating the route primarily along existing roadway corridors.

## **8.14 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES**

Irreversible effects apply to those resources affected by the project that cannot be replaced within a reasonable timeframe. Irretrievable commitment of resources relates to resources affected/used that cannot be restored. Irreversible and irretrievable effects resulting from implementation of the Proposed Project would be primarily related to construction. The transmission lines and substation are created from non-renewable materials that, for the foreseeable future, would be irreversibly committed to the project (e.g., wood/steel for poles; metals and other materials in the transmission lines, conductors and construction of the substation; concrete and crushed rock used at the substation). Fuel consumed during project construction and maintenance would also be irreversibly and irretrievable committed to the project. Land occupied by the substation and by the transmission poles would be irreversibly committed to use for the project for the foreseeable future. Although materials and the land used for the project could be ‘retrieved’ in the future (i.e., recycled materials and converting the land back to former uses), it is not likely to occur, since the Proposed Project would likely need to remain in service for the foreseeable future.

The commitment of these resources is based on the concept that the beneficiaries of the electrical system (i.e., the ratepayers) would benefit from the expansion and improved reliability of service that would result from construction of the Proposed Project. These benefits would outweigh the 'losses' resulting from commitment of these resources.

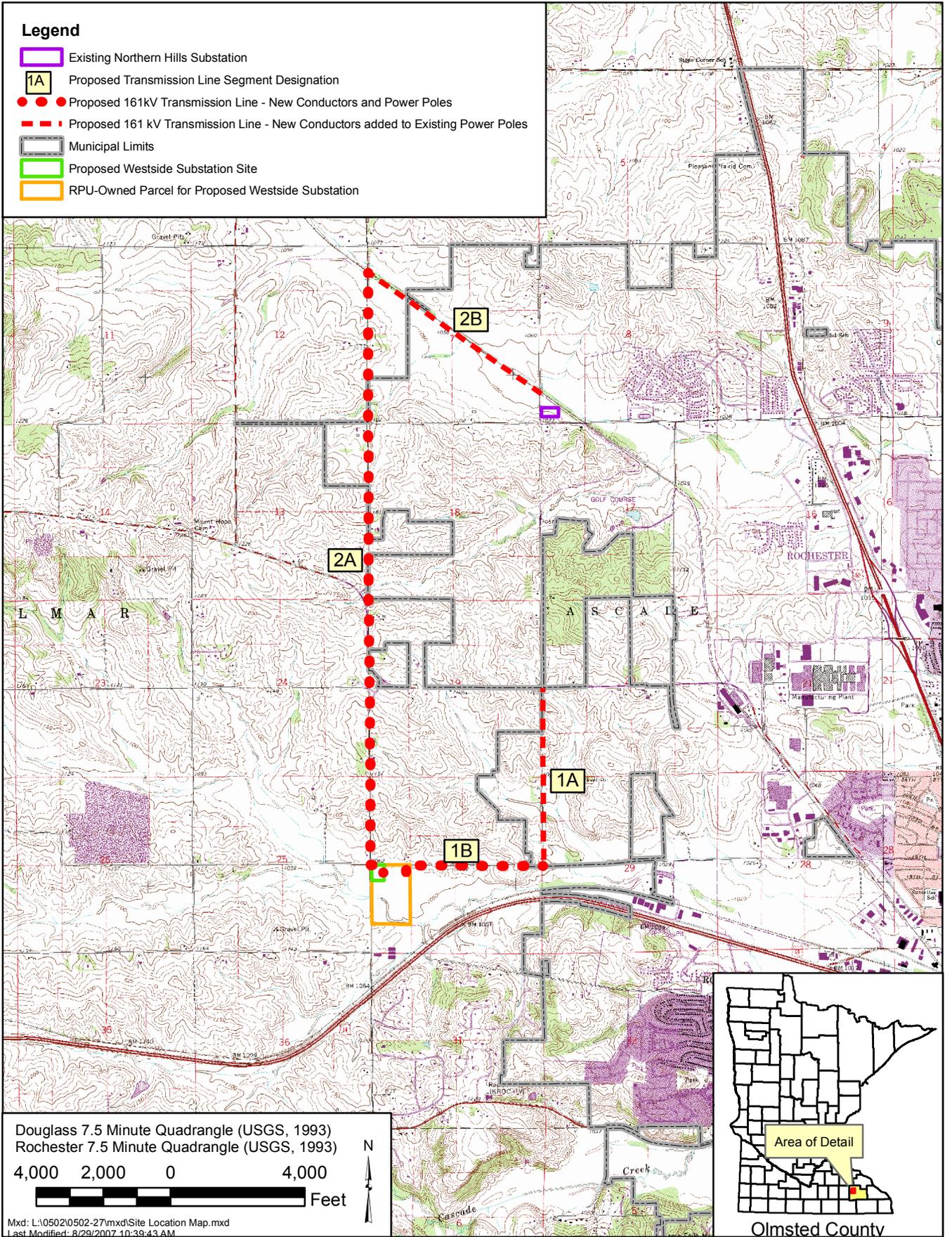
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## Figures

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**Legend**

-  Existing Northern Hills Substation
-  Proposed Transmission Line Segment Designation
-  Proposed 161kV Transmission Line - New Conductors and Power Poles
-  Proposed 161 kV Transmission Line - New Conductors added to Existing Power Poles
-  Municipal Limits
-  Proposed Westside Substation Site
-  RPU-Owned Parcel for Proposed Westside Substation



Douglass 7.5 Minute Quadrangle (USGS, 1993)  
 Rochester 7.5 Minute Quadrangle (USGS, 1993)  
 4,000 2,000 0 4,000  
 Feet

Mxd: L:\0502\0502-27\mxd\Site Location Map.mxd  
 Last Modified: 8/29/2007 10:39:43 AM

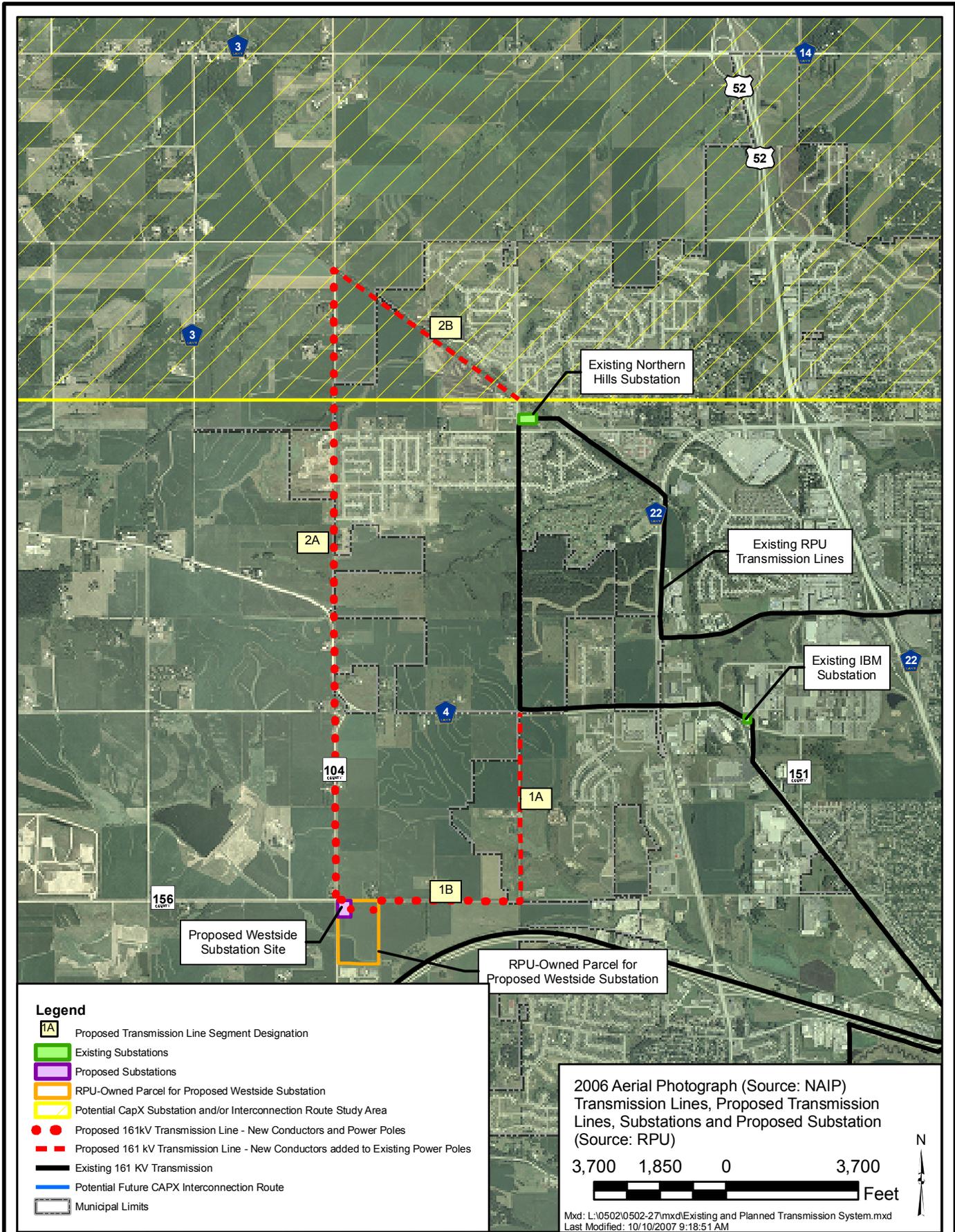
**ROCHESTER PUBLIC UTILITIES - NORTHWEST  
 TRANSMISSION LINE ROUTE PERMIT APPLICATION**

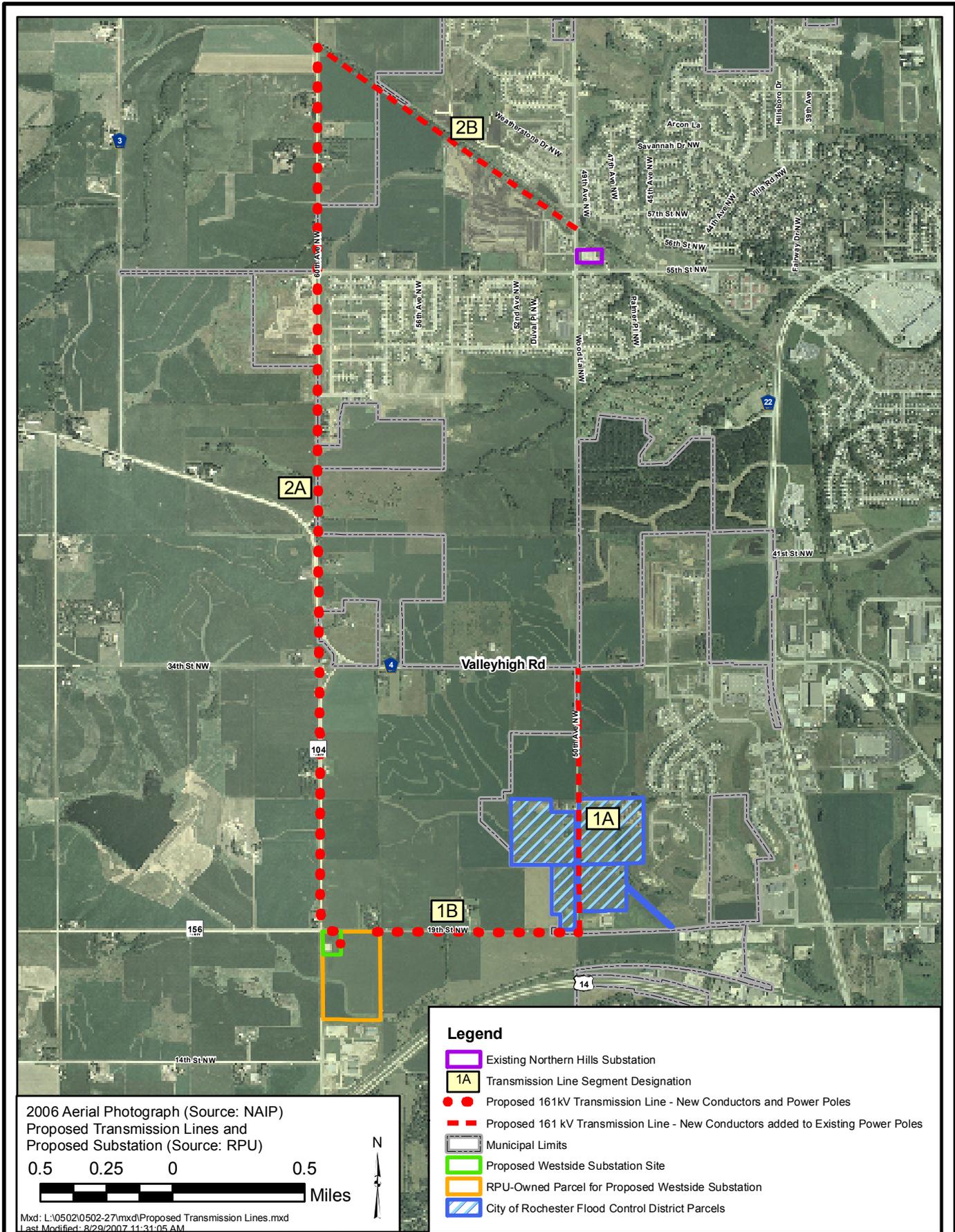
**Project Location**

**Wenck**  
 Wenck Associates, Inc. 1800 Pioneer Creek Center  
 Environmental Engineers Maple Plain, MN 55359-0429

DEC 2007

Figure 1



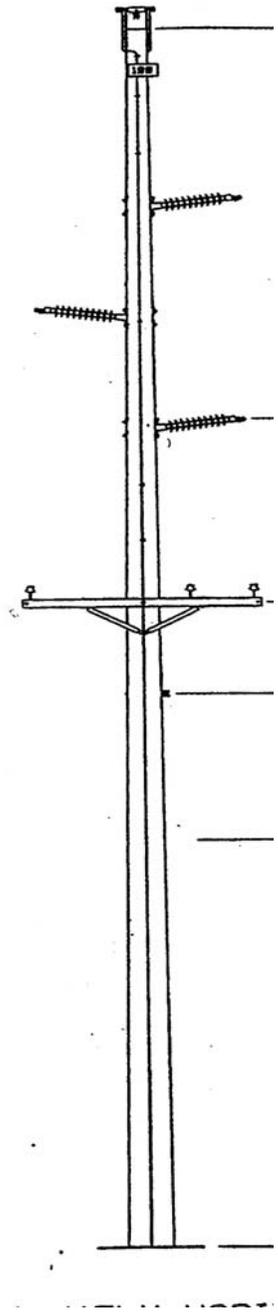




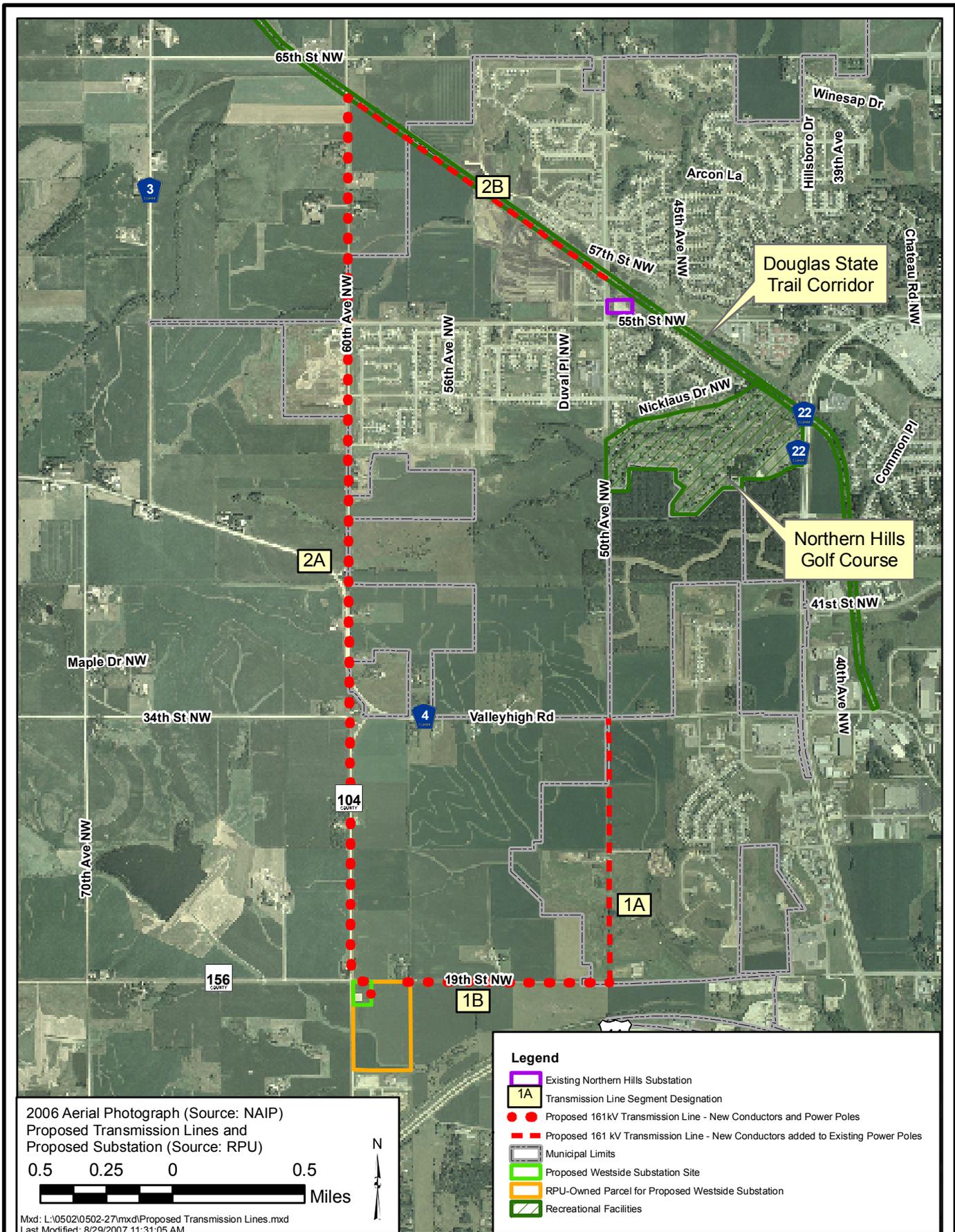
**Tangent Structure**

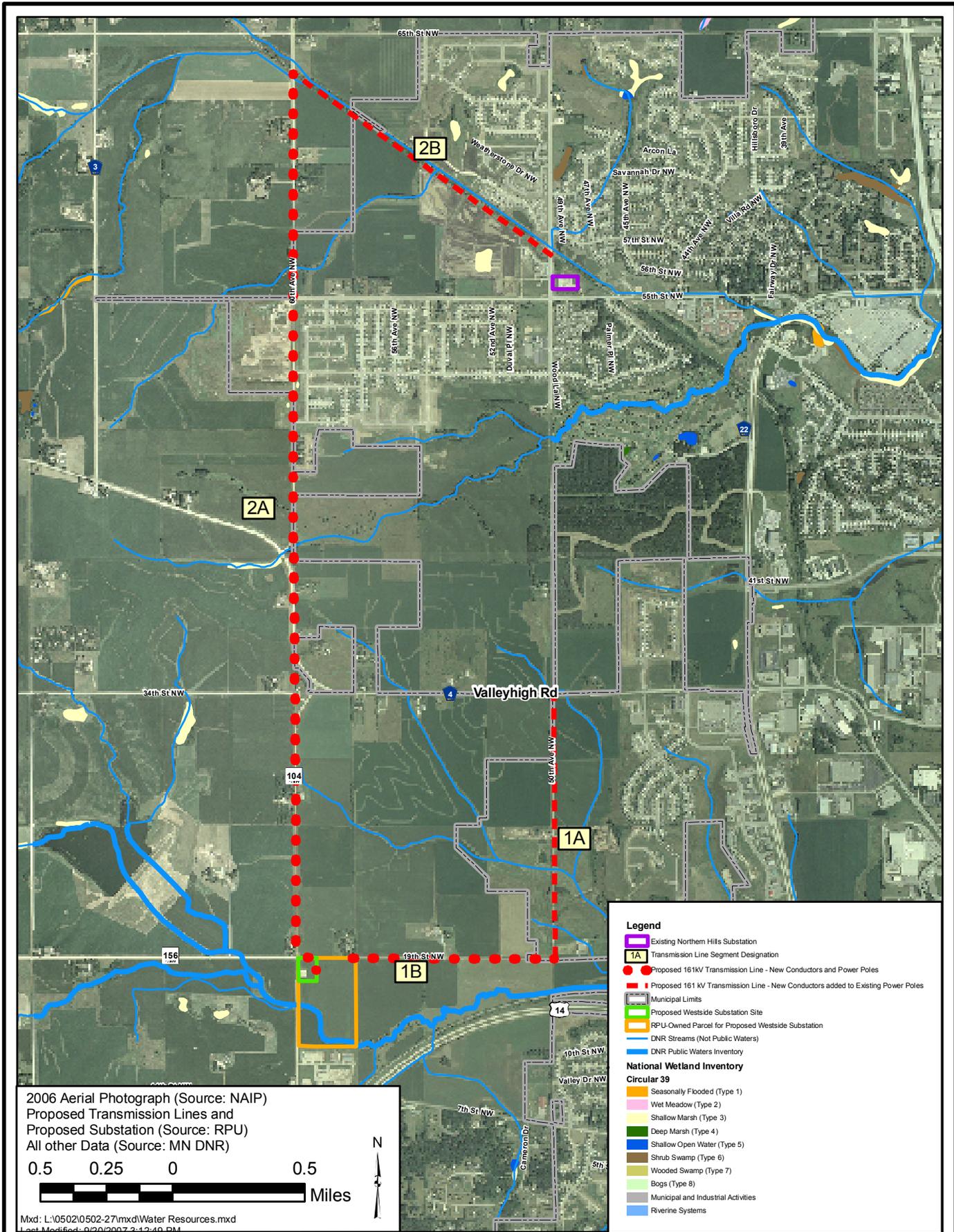


**Dead End/Corner Structure**



**Diagram**





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## **Appendix A**

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### **List of Adjacent Landowners**

# Transmission Line Segment 1A

BADGER DEVELOPMENT II LLC  
4057 28 ST NW SUITE 200  
ROCHESTER, MN 55901-

BADGER FARMS LP  
6004 VALLEYHIGH DR NW  
ROCHESTER, MN 55901-

RICHARD BADGER  
ELIZABETH BADGER  
6004 VALLEYHIGH DR NW  
ROCHESTER, MN 55901-

CITY OF ROCHESTER  
201 4TH ST SE  
ROCHESTER, MN 55904-

RICHARD A CORDIE  
REBECCA A CORDIE  
15 BLAKELYS CT NW  
ORONOCO, MN 55960-

GLORIA DEI LUTHERAN CHURCH  
1212 12TH AVE NW  
ROCHESTER, MN 55901-1721

GULFSTREAM HOLDINGS LLC  
2343 TIMBERIDGE LN SE  
ROCHESTER, MN 55904-

KUEHL LLC  
8192 CO RD 5  
PINE ISLAND, MN 55963-

RJ ENTERPRISES OF  
ROCHESTER, INC  
2530 58 ST NW  
ROCHESTER, MN 55901-

CITY OF ROCHESTER  
201 4TH ST SE  
ROCHESTER, MN 55904-

T & R DEVELOPMENT OF  
ROCHESTER  
1211 ASHLEY LN SW  
ROCHESTER, MN 55902-

# **Transmission Line Segment 1B**

CITY OF ROCHESTER  
201 4TH ST SE  
ROCHESTER, MN 55904-

GRAHAM PROPERTIES LTD  
PARTNERS  
ATTN: CAL SLATTERLY  
20 2 AVE SW RM 219  
ROCHESTER, MN 55902-

## Transmission Line Segment 2A

GRAHAM PROPERTIES LTD  
PARTNERS  
ATTN: CAL SLATTERLY  
20 2 AVE SW RM 219  
ROCHESTER, MN 55902-

JAMES J HUERTER  
KARINA HUERTER  
5329 CASTLEVIEW DR NW  
ROCHESTER, MN 55901-

JOEL BIGELOW AND SONS  
ENTERPRISES  
3428 LAKERIDGE PL NW STE A  
ROCHESTER, MN 55901-6572

JOEL BIGELOW AND SONS  
ENTERPRISES  
3428 LAKERIDE PL NW STE 200  
ROCHESTER, MN 55901-

LANCE G JOHNSON  
JANET M JOHNSON  
5928 60TH AVE NW  
ORONOCO, MN 55960-

LLOYD R KINGSBURY  
4640 60TH AVE NW  
ROCHESTER, MN 55901-

LARRY E KIRKLAND TRUSTEE  
LORI A KIRKLAND TRUSTEE  
1527 20 ST NE  
BYRON, MN 55920-6019

JAMES L LEQVE  
LAVERNE LEQVE  
3922 60TH AVE NW  
ROCHESTER, MN 55901-

CAMERON W LINN  
MELODY A LINN  
5343 CASTLEVIEW DR NW  
ROCHESTER, MN 55901-

FRANKLIN C & KATHRYN M  
MATHEWS  
6861 60TH AVE NW  
ORONOCO, MN 55960-

MOEHNKE KOEHLER  
PROPERTIES LLC  
ATTN MARILYNN C KOEHLER O  
BLOOMINGTON, MN 55438-

CRAIG J MUENKEL  
5968 BELFRY LN NW  
ROCHESTER, MN 55901-

MAGGIE M NEUMAN  
5351 CASTLEVIEW DR NW  
ROCHESTER, MN 55901-

GENE A & MARLYS L OHNSTAD  
6040 60 AVE NW  
ORONOCO, MN 55960-

FLOYD C OTT  
LAUREEN M OTT  
7350 80 ST S  
COTTAGE GROVE, MN 55016-

PEBBLE CREEK OF ROCHESTER  
LLC  
604 11 AVE NW #100  
ROCHESTER, MN 55901-

ROCHESTER CROSS LLC  
275 3 ST ST STE 302  
STILLWATER, MN 55082-

CYRIL G & DARLENE V  
VEERKAMP  
5931 34TH ST NW  
ROCHESTER, MN 55901-8508

## Transmission Line Segment 2A

LLOYD R KINGSBURY  
4640 60TH AVE NW  
ROCHESTER, MN 55901-

LARRY E KIRKLAND TRUSTEE  
LORI A KIRKLAND TRUSTEE  
1527 20 ST NE  
BYRON, MN 55920-6019

JAMES L LEQVE  
LAVERNE LEQVE  
3922 60TH AVE NW  
ROCHESTER, MN 55901-

CAMERON W LINN  
MELODY A LINN  
5343 CASTLEVIEW DR NW  
ROCHESTER, MN 55901-

FRANKLIN C & KATHRYN M  
MATHEWS  
6861 60TH AVE NW  
ORONOCO, MN 55960-

MOEHNKE KOEHLER  
PROPERTIES LLC  
ATTN MARILYNN C KOEHLER O  
BLOOMINGTON, MN 55438-

CRAIG J MUENKEL  
5968 BELFRY LN NW  
ROCHESTER, MN 55901-

MAGGIE M NEUMAN  
5351 CASTLEVIEW DR NW  
ROCHESTER, MN 55901-

GENE A & MARLYS L OHNSTAD  
6040 60 AVE NW  
ORONOCO, MN 55960-

FLOYD C OTT  
LAUREEN M OTT  
7350 80 ST S  
COTTAGE GROVE, MN 55016-

PEBBLE CREEK OF ROCHESTER  
LLC  
604 11 AVE NW #100  
ROCHESTER, MN 55901-

ROCHESTER CROSS LLC  
275 3 ST ST STE 302  
STILLWATER, MN 55082-

CYRIL G & DARLENE V  
VEERKAMP  
5931 34TH ST NW  
ROCHESTER, MN 55901-8508

RICKY D WING  
ANNE E WING  
5959 VALLEYHIGH DR NW  
ROCHESTER, MN 55901-

# Transmission Line Segment 2B

CITY OF ROCHESTER  
201 4TH ST SE  
ROCHESTER, MN 55904

GENE A & MARLYS L OHNSTAD  
6040 60 AVE NW  
ORONOCO, MN 55960

THE MEADOWS OF  
HARVESTVIEW  
3428 LAKERIDGE PL NW STE A  
ROCHESTER, MN 55901

MN DEPT OF NAT. RESOURCES  
TRAILS & WATERWAYS  
2300 SILVER CREEK RD. NE  
ROCHESTER, MN 55906

# Substation

RALPH H & SANDRA H  
ANDERSON  
1921 60 AV NW  
ROCHESTER, MN 55901

WILLARD A ANDERSON  
DONNA M ANDERSON  
1408 KINGS RUN DR NW  
ROCHESTER, MN 55901

GRAHAM PROPERTIES LTD  
PARTNERS  
ATTN: CAL SLATTERLY  
20 2 AVE SW RM 219  
ROCHESTER, MN 55902

GRAND LUX STORAGE LLC  
5867 15 ST NW  
ROCHESTER, MN 55901

LESMEISTER SERVICE CENTER  
INC  
5867 15 ST NW  
ROCHESTER, MN 55901

TERRANCE L & KAREN L MARTIN  
5811 19TH ST NW  
ROCHESTER, MN 55901

NEIL T & JOYCE A MELQUIST  
6241 14 ST NW  
BYRON, MN 55920

DANIEL L PENZ  
5937 15 ST NW  
ROCHESTER, MN 55901

PROPERTIES OF D & D LLC  
5937 15TH ST NW  
ROCHESTER, MN 55901

---

## **Appendix B**

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### **SHPO Correspondence**

**THIS EMAIL IS NOT A PROJECT CLEARANCE.**

**This message simply reports the results of the cultural resources database search you requested. The database search produced results for only previously known archaeological sites and historic properties. Please read the note below carefully.**

**For further information contact Kelly Gragg-Johnson by phone at 651-259-3455 or email at [kelly.gragg-johnson@mnhs.org](mailto:kelly.gragg-johnson@mnhs.org).**

No archaeological sites or historic structures were identified in a search of the Minnesota Archaeological Inventory and Historic Structures Inventory for the search area requested.

The result of this database search provides a listing of recorded archaeological sites and historic architectural properties that are included in the current SHPO databases. Because the majority of archaeological sites in the state and many historic architectural properties have not been recorded, important sites or structures may exist within the search area and may be affected by development projects within that area. Additional research, including field survey, may be necessary to adequately assess the area's potential to contain historic properties.

With regard to Environmental Assessment Worksheets (EAW), a negative known site/structure response from the SHPO databases is not necessarily appropriate information on which to base a "No" response to EAW Question 25a. It is the Responsible Governmental Unit's (RGU) obligation to verify the accuracy of the information contained within the EAW. A "No" response to Question 25a without written justification should be carefully considered.

If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic architectural properties, you may need to hire a qualified archaeologist and/or historian. Please contact the SHPO by phone at 651-259-3450 or by email at [mnshpo@mnhs.org](mailto:mnshpo@mnhs.org) for current lists of professional consultants in these fields.

The Minnesota SHPO Survey Manuals and Database Metadata can be found at <http://www.mnhs.org/shpo/survey/inventories.htm>

*Tom Cinadr*

Survey and Information Management Coordinator  
Minnesota State Historic Preservation Office  
Minnesota Historical Society  
345 Kellogg Blvd. West  
St. Paul, MN 55102

651-259-3453 (voice)  
651-282-2374 (fax)

-----Original Message-----

**From:** Jennie J. Ross [mailto:[jross@wenck.com](mailto:jross@wenck.com)]  
**Sent:** Wednesday, August 29, 2007 3:40 PM  
**To:** Cinadr, Thomas  
**Cc:** Joe Hensel  
**Subject:** SHPO file data request

Tom-

Please see the attached letter requesting information from the Natural Heritage Database. I will send the Figures and GIS shape files in 2 separate e-mails following this one. Call me if you have any questions.  
Thank you.  
Jennie

Jennie Ross

Wenck Associates, Inc.  
1800 Pioneer Creek Center  
Maple Plain, MN 55359

763/479-4227  
fax 763/479-4242  
[jross@wenck.com](mailto:jross@wenck.com)

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## **Appendix C**

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### **DNR Natural Heritage Correspondence**



## Minnesota Department of Natural Resources

Natural Heritage and Nongame Research Program, Box 25  
500 Lafayette Road

St. Paul, Minnesota 55155-40\_\_

Phone: (651) 259-5107 Fax: (651) 296-1811 E-mail: krista.larson@dnr.state.mn.us

September 13, 2007

Ms. Jennie Ross  
Wenck Associates, Inc.  
1800 Pioneer Creek Center  
Maple Plain, MN 55359

RECEIVED BY

SEP 17 2007

WENCK ASSOCIATES, INC.

Re: Request for Natural Heritage information for vicinity of proposed Rochester Public Utilities Transmission Line and Westside Substation, T107N R14W Sections 7, 8, 17-20, 29, & 30 and T107N R15W Sections 12, 13, 24, and 25, Olmsted County  
NHNRP Contact #: ERDB 20080208

Dear Ms. Ross,

The Minnesota Natural Heritage database has been reviewed to determine if any rare plant or animal species or other significant natural features are known to occur within an approximate one-mile radius of the area indicated on the map enclosed with your information request. Based on this review, there is 1 known occurrence of a rare species or native plant community in the area searched (for details, please see the enclosed database printouts and the explanation of selected fields). However, based on the nature and location of the proposed project, I do not believe the project will negatively affect any known occurrences of rare features.

The Natural Heritage database is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Resources, Department of Natural Resources. It is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. Its purpose is to foster better understanding and protection of these features.

Because our information is not based on a comprehensive inventory, there may be rare or otherwise significant natural features in the state that are not represented in the database. A county-by-county survey of rare natural features is now underway, and has been completed for Olmsted County. Our information about native plant communities is, therefore, quite thorough for that county. However, because survey work for rare plants and animals is less exhaustive, and because there has not been an on-site survey of all areas of the county, ecologically significant features for which we have no records may exist on the project area.

The enclosed results of the database search are provided in two formats: short record report and long record report. To control the release of locational information, which might result in the damage or destruction of a rare element, both printout formats are copyrighted.

The short record report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an Environmental Assessment Worksheet, municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the short record report for any other purpose, please contact me to request written permission. **The long record report includes more detailed locational information, and is for your personal use only. If you wish to reprint the long record report for any purpose, please contact me to request written permission.**

Please be aware that review by the Natural Heritage and Nongame Research Program focuses only on *rare natural features*. It does not constitute review or approval by the Department of Natural Resources as a

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whole. If you require further information on the environmental review process for other natural resource-related issues, you may contact your Regional Environmental Assessment Ecologist, Wayne Barstad, at (651) 772-7940.

An invoice in the amount of \$76.61 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for the database search and printouts, and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Krista A. Larson  
Endangered Species Environmental Review Technician

encl: Database search results  
Rare Feature Database Print-Outs: An Explanation of Fields

Minnesota Natural Heritage & Nongame Research Program  
 Short Record Report of Element Occurrences within 1 mile radius of:  
 Rochester Public Utilities Transmission Line and Westside Substation  
 T107N R14W Sections 7, 8, 17-20, 29, & 30 and T107N R15W Sections 12, 13, 24, & 25  
 Olmsted County

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
<i>Eryngium yuccifolium</i> (Rattlesnake-master) #80 Location Description: T107N R15W S36		SPC	S3	G5	1998-07-14	23906

Olmsted County, MN

*Eryngium yuccifolium* (Rattlesnake-master) #80  
 Location Description: T107N R15W S36

Records Printed = 1

The Natural Heritage & Nongame Research Program recently adopted a new database system called Biotics. As a result of this change, the layout and contents of the database reports have been revised. Many of the fields included in the new reports are the same or similar to the previous report fields, however there are several new fields and some of the field definitions have been slightly modified. We recommend that you familiarize yourself with the latest field explanations.

## **Rare Features Database Reports: An Explanation of Fields**

The Rare Features database (Biotics) is part of the Natural Heritage Information System, and is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Resources, Minnesota Department of Natural Resources (DNR).

*\*\*Please note that the print-outs are copyrighted and may not be reproduced without permission\*\**

**Field Name:** [Full (non-abbreviated) field name, if different]. Further explanation of field.

**-E-**

**Element Name and Occ #:** [Element Name and Occurrence Number]. The Element is the name of the rare feature. For plant and animal species records, this field holds the scientific name followed by the common name in parentheses; for all other elements (such as native plant communities, which have no scientific name) it is solely the element name. Native plant community names correspond to Minnesota's Native Plant Community Classification (Version 2.0). The Occurrence Number, in combination with the Element Name, uniquely identifies each record.

**EO Data:** [Element Occurrence Data]. For species elements, this field contains data collected on the biology of the Element Occurrence\* (EO), including the number of individuals, vigor, habitat, soils, associated species, peculiar characteristics, etc. For native plant community elements, this field is a summary text description of the vegetation of the EO, including structure (strata) and composition (dominant/characteristic species), heterogeneity, successional stage/dynamics, any unique aspects of the community or additional noteworthy species (including animals). Note that this is a new field and it has not been filled out for many of the records that were collected prior to conversion to the new database system. Some of the information meeting the field definition may be found in the General Description field.

**EO ID#:** [Element Occurrence Identification Number]. Unique identifier for each Element Occurrence record.

**EO Rank:** [Element Occurrence Rank]. An evaluation of the quality and condition of an Element Occurrence (EO) from A (highest) to D (lowest). Represents a comparative evaluation of: 1) quality as determined by representativeness of the occurrence especially as compared to EO specifications and including maturity, size, numbers, etc. 2) condition (how much has the site and the EO itself been damaged or altered from its optimal condition and character). 3) viability (the long-term prospects for continued existence of this occurrence - used in ranking species only). EO Ranks are assigned based on recent fieldwork by knowledgeable individuals.

**Extent Known?:** A value that indicates whether the full extent of the Element is known (i.e., it has been determined through field survey) at that location. If null, the value has not been determined.

**-F-**

**Federal Status:** Status of species under the U.S. Endangered Species Act: LE = endangered; LT = threatened; LE,LT = listed endangered in part of its range, listed threatened in another part of its range; LT,PDL = listed threatened, proposed for delisting; C = candidate for listing. If null or "No Status" the species has no federal status.

**First Observed Date:** Date that the Element Occurrence was first reported at the site in format YYYY-MM-DD. A year followed by "Pre" indicates that the observed date was sometime prior to the date listed, but the exact date is unknown.

**-G-**

**General Description:** General description or word picture of the area where the Element Occurrence (EO) is located (i.e., the physical setting/context surrounding the EO), including a list of adjacent communities. When available, information on surrounding land use may be included. Note that the information tracked in this field is now more narrowly defined than it was in the old database system, and some of the information still in this field more accurately meets the definition of the new EO Data field. We are working to clean up the records so that the information in the two fields corresponds to the current field explanations described herein. Also note that the use of uppercase in sentences in this field is not significant but rather an artifact of transferring data from the old database system to the new system.

**Global Rank:** The global (i.e., range-wide) assessment of the relative rarity or imperilment of the species or community. Ranges from G1 (critically imperiled due to extreme rarity on a world-wide basis) to G5 (demonstrably secure, though perhaps rare in parts of its range). Global ranks are determined by NatureServe, an international network of natural heritage programs and conservation data centers.

**-L-**

**Last Observed Date:** Date that the Element Occurrence was last observed to be extant at the site in format YYYY-MM-DD.

**Last Survey Date:** Date of the most recent field survey for the Element Occurrence, regardless of whether it was found during the visit. If the field is blank, assume the date is the same as the Last Observed Date.

**Location Description:** County or Counties in which the Element Occurrence was documented followed by Township, Range, and Section information (not listed in any particular order). Each unique Township, Range, and Section combination is separated by a comma. In some cases, there are too many Township, Range, and Section combinations to list in the field, in which case, the information will be replaced with, "Legal description is too lengthy to fit in allotted space".

-M-

**Managed Area(s):** Name of the federally, state, locally, or privately managed park, forest, refuge, preserve, etc., containing the occurrence, if any. If this field is blank, the element probably occurs on private land. If "(Statutory Boundary)" occurs after the name of a managed area, the location may be a private inholding within the statutory boundary of a state forest or park.

**MN Status:** [Minnesota Status]. Legal status of plant and animal species under the Minnesota Endangered Species Law: END = endangered; THR = threatened; SPC = special concern; NON = tracked, but no legal status. Native plant communities, geological features, and colonial waterbird nesting sites do not have any legal status under the Endangered Species Law and are represented by a N/A.

-N-

**NPC Classification (v1.5):** Native plant community name in Minnesota's Native Vegetation: A Key to Natural Communities (Version 1.5). This earlier classification has been replaced by Minnesota's Native Plant Community Classification (Version 2.0).

-O-

**Observed Area:** The total area of the Element Occurrence, in acres, which is measured or estimated during fieldwork. If null, the value has not been determined.

**Ownership Type:** Indicates whether the land on which the Element Occurrence was located was publicly or privately owned; for publicly owned land, the agency with management responsibility is listed, if known.

-S-

**Site Name:** The name of the site(s) where the Element Occurrence is located. Sites are natural areas of land with boundaries determined and mapped according to biological and ecological considerations.

**Survey Site #/Name:** The name of the survey site, if applicable, where the Element Occurrence is located. Survey sites are sites that provide a geographic framework for recording and storing data, but their boundaries are not based on biological and ecological considerations. Minnesota County Biological Survey site numbers, if applicable, are also listed in this field.

**Survey Type:** Information on the type of survey used to collect information on the Element Occurrence.

**Surveyor(s):** Name(s) of the person(s) that collected survey information on the Element Occurrence.

**State Rank:** Rank that best characterizes the relative rarity or endangerment of the taxon or plant community in Minnesota. The ranks do not represent a legal status. They are used by the Minnesota Department of Natural Resources to set priorities for research, inventory and conservation planning. The state ranks are updated as inventory information becomes available. S1 = Critically imperiled in Minnesota because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. S2 = Imperiled in Minnesota because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. S3 = Vulnerable in Minnesota either because rare or uncommon, or found in a restricted range, or because of other factors making it vulnerable to extirpation. S4 = Apparently secure in Minnesota, usually widespread. S5 = Demonstrably secure in Minnesota, essentially ineradicable under present conditions. SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, but suspected to be still extant. An element would become SH without the 20-year delay if the only known occurrences in the state were destroyed or if it had been extensively and unsuccessfully looked for. SNR = Rank not yet assessed. SU = Unable to rank. SX = Presumed extinct in Minnesota. SNA = Rank not applicable. S#S# = Range Rank: a numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the element. S#B, S#N = Used only for migratory animals, whereby B refers to the breeding population of the element in Minnesota and N refers to the non-breeding population of the element in Minnesota.

-V-

**Vegetation Plot:** Code(s) for any vegetation plot data that have been collected within this Element Occurrence (i.e., either Releve Number or the word "RELEVE" indicates that a releve has been collected).

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\* Element Occurrence – an area of land and/or water in which an Element (i.e., a rare species or community) is, or was, present, and which has practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. Specifications for each species determine whether multiple observations should be considered 1 Element Occurrence or 2, based on minimum separation distance and barriers to movement.

## Data Security

Locations of some rare features must be treated as sensitive information because widespread knowledge of these locations could result in harm to the rare features. For example, wildflowers such as orchids and economically valuable plants such as ginseng are vulnerable to exploitation by collectors; other species, such as bald eagles, are sensitive to disturbance by observers. For this reason, we prefer that publications not identify the precise locations of vulnerable species. We suggest describing the location only to the nearest section. If this is not acceptable for your purposes, please call and discuss this issue with the Endangered Species Environmental Review Coordinator for the Natural Heritage and Nongame Research Program at (651) 259-5109.

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## **Appendix D**

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### **Notice to the Commissioner**



October 17, 2007

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 Seventh Place East, Suite 350  
Saint Paul, MN 55101-2147

RE: Notification of Pending Application under Minnesota Rules 7849.5500 Subpart 2  
Alternative Permitting Process for Rochester Northwest 161 kV Transmission Line and  
Westside Substation

Dear Dr. Haar:

As required by Minnesota Rules 7849.5500 Subpart 2, Rochester Public Utilities is hereby notifying the Public Utilities Commission (PUC) of our intent to submit a route permit application for the above-referenced project under the alternative permitting provisions as provided for in Minnesota Rules 7849.5500 to 7849.5720.

The Rochester Northwest 161 kV Transmission Line and Westside Substation project is eligible for the alternative permitting process, as defined in Minnesota Rules 7849.5500, Subpart 1.C. ('high voltage transmission lines of between 100 and 200 kilovolts').

Rochester Public Utilities anticipates submittal of the route permit application on or after November 1, 2007.

Please contact me by phone (507/280-1556) or email ([jhensel@rpu.org](mailto:jhensel@rpu.org)) if you have any questions about the project.

Sincerely,

ROCHESTER PUBLIC UTILITIES

Joseph S. Hensel  
Director of Field Services

c: Adam Sokolski, MN DOC  
Jennie Ross, Wenck Associates