

Macro-Corridor Study

Hampton - Rochester - La Crosse 345kV
Transmission System Improvement Project

Prepared For:



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EDAW | AECOM

May 2009

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Acronyms and Abbreviations

AES	Alternative Evaluation Study
C.F.R.	Code of Federal Regulations
CapX2020	CapX2020 Transmission Expansion Initiative
CEQ	Council on Environmental Quality
CON	Certificate of Need
Dairyland	Dairyland Power Cooperative
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
GP	General Permit
I-35	Interstate 35
I-90	Interstate 90
kV	Kilovolt
LOP	Letter of Permission
MAPP	Mid-Continent Area Power Pool
MISO	Midwest Independent Transmission System Operator, Inc.
MN DNR	Minnesota Department of Natural Resources
MN PUC	Minnesota Public Utilities Commission
Mn/DOT	Minnesota Department of Transportation
MN-56	Minnesota State Highway 56
MVA	Megavolt-Amperes
MW	Megawatt
MWEX	Minnesota-Wisconsin Export Interface
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NLCD	National Land Cover Dataset
NRHP	National Register of Historic Places
NSPM	Northern States Power Company, a Minnesota Corporation
NSPW	Northern States Power Company, a Wisconsin Corporation
OES	Minnesota Office of Energy Security
Proposal	Hampton–Rochester–La Crosse 345 kV Transmission System Improvement Project
PSCW	Public Service Commission of Wisconsin
RES	Renewable Energy Standard
RJD State Forest	Richard J. Dorer Memorial Hardwood Forest
RPS	Renewable Portfolio Standard
RPU	Rochester Public Utilities

RUS	Rural Utilities Service
SMMPA	Southern Minnesota Municipal Power Agency
U.S.C.	United States Code
US-14	U.S. Highway 14
US-52	U.S. Highway 52
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Utilities	Dairyland; Xcel Energy Inc. operating companies Northern States Power Company, a Minnesota corporation, and Northern States Power Company, a Wisconsin Corporation (collectively, Xcel Energy); Southern Minnesota Municipal Power Agency; Rochester Public Utilities; and WPPI Energy, Inc.
WI-93	Wisconsin State Highway
WDNR	Wisconsin Department of Natural Resources
WisDOT	Wisconsin Department of Transportation
WPPI	WPPI Energy, Inc.

1.0 Introduction

1.1 Environmental Review Requirements

Dairyland Power Cooperative (Dairyland or DPC), Northern States Power Company, a Minnesota corporation (NSPM), and Northern States Power Company, a Wisconsin Corporation (NSPW) (collectively, Xcel Energy), Southern Minnesota Municipal Power Agency (SMMPA), Rochester Public Utilities (RPU) and WPPI Energy, Inc. (WPPI) (collectively, Utilities) propose to construct a 345 kilovolt (kV) line project between Hampton, Minnesota (southeast of the Twin Cities) and La Crosse, Wisconsin. The CapX2020 Hampton-Rochester-La Crosse 345 kV Transmission System Improvement Project (Proposal) is needed to maintain reliable community service, improve regional electrical system reliability and support generation development.

This Macro-Corridor Study (MCS) was prepared by Dairyland and its consultant, EDAW | AECOM. Dairyland has requested financial assistance from the Rural Utilities Service (RUS), an agency which administers the U.S. Department of Agriculture's Rural Utilities Programs, for its anticipated 11 percent ownership interest in the Proposal. RUS has determined that its funding of Dairyland's ownership interest in the Proposal would be a federal action and therefore subject to National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, review. See 7 C.F.R. § 1794.3.

The MCS and Alternative Evaluation Study (AES) are the two preliminary documents that RUS requires when conducting an environmental review for proposed transmission lines. This MCS was developed in accordance with the requirements of 7 C.F.R. § 1794.51 and RUS Bulletin 1794A-603, *Scoping Guide for RUS Funded Projects Requiring Environmental Assessments with Scoping and Environmental Impact Statements* (Feb. 2002).

Dairyland also anticipates that RUS financing will be used to rebuild its Genoa–Alma 161 kV line (Q-1) which is located in the Proposal area. If the new 345 kV line can be co-located with a portion of the Q-1 on the existing route, the costs of rebuilding the Q-1 will be included in the Proposal costs. If the facilities are not co-located, Dairyland will seek additional RUS financing for the Q-1 rebuild in 2012.

This document would also support preparation of an Environmental Impact Statement (EIS) required for the construction of the transmission facilities pursuant to 7 C.F.R. § 1794. According to RUS guidance § 1794.24(b)(1) the Proposal requires an Environmental Assessment with scoping. However, due to the potential for significant impacts, RUS is requiring that an EIS for this Proposal be prepared prior to granting Dairyland's request for ownership interest funding.

The environmental analysis document for the Proposal will be developed to comply with NEPA, Council on Environmental Quality Regulations (40 C.F.R. §§ 1500–1508), and RUS's Environmental Policies and Procedures for Electric and Telephone Borrowers (7 C.F.R. § 1794). Agency and public input will be accepted throughout the process. RUS and the other federal agencies involved in the NEPA review will jointly prepare the EIS. Then each federal agency will independently develop its own decision document. Each step in this process provides an opportunity for public review and comment. The Utilities will develop documents for the RUS environmental review considering the application requirements for state transmission facilities permits in Minnesota and Wisconsin.

1.2 The Utilities

Dairyland is a generation and transmission cooperative headquartered in La Crosse, Wisconsin, that provides the wholesale electrical requirements and other services for 25 electric distribution cooperatives and 19 municipal utilities in the Upper Midwest. In turn, these cooperatives and municipals deliver the electricity to consumers—meeting the energy needs of more than 500,000 people. Today, Dairyland’s generating stations (coal, hydro, natural gas, landfill gas, and animal waste-to-energy) have more than 1,100 MW of capacity. Dairyland delivers electricity via more than 3,100 miles of transmission lines and nearly 300 substations located throughout the system’s 44,500-square-mile service area. The Dairyland service area encompasses 62 counties in Wisconsin, Minnesota, Iowa, and Illinois.

NSPM provides electricity services to approximately 1.2 million customers and natural gas services to 425,000 residential, commercial, and industrial customers in the state of Minnesota. NSPW provides electricity services to approximately 246,000 customers and natural gas services to 102,000 residential, commercial, and industrial customers in the state of Wisconsin.

RPU, a division of the city of Rochester, is Minnesota’s largest municipal utility. RPU serves more than 45,000 electric customers and more than 34,000 water customers and has revenues nearing \$100 million annually. Power production stations include a coal-fired generation plant, a hydro station, and two combustion turbines fired by natural gas or fuel oil.

SMMPA was created by its members as a joint-action agency in 1977. SMMPA generates and sells reliable wholesale electricity to its 18 non-profit, municipally owned member utilities and develops innovative products and services to help them deliver value to its customers. Though SMMPA member utilities are located throughout the state, most are in southern Minnesota. SMMPA members serve more than 93,000 residential customers and more than 11,000 commercial and industrial customers. SMMPA’s main source of electricity is its 41 percent share of the 884 MW Sherco 3 coal-fired generator near Becker, Minnesota. SMMPA also relies on an array of other generation sources, including biodiesel-fueled engines and its own wind turbines located at member communities.

WPPI is a regional power company serving 49 customer-owned electric utilities. Through WPPI, these public power utilities share resources and own generation facilities to provide reliable, affordable electricity to more than 190,000 homes and businesses in Wisconsin, Upper Michigan, and Iowa.

Table 1-1 lists the potential ownership portions for the Utilities in the Hampton–Rochester–La Crosse Proposal.

Table 1-1:

Hampton–Rochester–La Crosse Proposal Potential/Non-Binding Ownership Breakdown¹

Utility	Potential/Non-Binding Ownership Percentage
Dairyland Power Cooperative	11%
Rochester Public Utilities	9%
Southern Minnesota Municipal Power Agency	13%
WPPI Energy	3%
Xcel Energy	64%

1.3 The Environmental Review Process

Prior to making a decision about whether to loan funds, guarantee a loan, or award a grant for a proposed project, RUS is required to conduct an environmental review under the National Environmental Policy Act (NEPA) 42 United States Code (U.S.C.) § 4321, pursuant to Council on Environmental Quality (CEQ) regulations found in 40 Code of Federal Regulations (C.F.R.) §§1500–1508. As the lead federal agency RUS will conduct the review in accordance with RUS regulations outlined in 7 C.F.R. § 1794 *et seq.* The RUS NEPA process will consider a broad range of environmental issues as well as potential impacts to farmland, threatened and endangered species, wetlands, and cultural and historic resources. It will also consider socioeconomic and environmental justice issues.

The U.S. Fish and Wildlife Service (USFWS) will also participate as a cooperating agency in the NEPA review for this Proposal. The transmission line will cross a national wildlife refuge, and a Special Use Permit from USFWS may be required (50 C.F.R. 25 *et seq.*). In addition, USFWS will also consider potential impacts of the Proposal under Section 7 of the Endangered Species Act (16 U.S.C. § 1531 *et seq.*), the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–712 and 50 C.F.R. 25 *et seq.*), and Bald and Golden Eagle Protection Act of 1972 (16 U.S.C. § 668). Permits will also be required from the U.S. Army Corps of Engineers (USACE) under Sections 401 and 404 of the Clean Water Act (33 U.S.C. § 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403). In addition, impact of the Proposal on prehistoric and historic properties must be considered under the National Historic Preservation Act of 1966 (16 U.S.C. § 470 *et seq.* and 36 C.F.R. § 800).

The USACE regulatory authority would apply under Section 404 of the Clean Water Act, which requires a permit for the discharge of dredged or fill material into waters of the U.S. Early in 2000, the St. Paul District replaced all Section 404 nationwide permits across Minnesota and Wisconsin with a combination of statewide regional general permits (GPs) and letter-of-permission (LOP) evaluation procedures (initially referred to as GP/LOP-98).

¹ Once all critical permits are obtained for the Proposal, the final ownership percentages will be determined by agreement.

Figure 1-1 illustrates the steps in the RUS NEPA process for developing an EIS. The scoping process includes a notice in the Federal Register, public scoping meetings and agency consultation. In preparation for scoping, RUS requires borrowers (Dairyland) to prepare an AES and a MCS. The AES identifies the electrical problem and identifies and evaluates the best solutions for meeting the electrical need. The MCS identifies corridor alternatives for routing the Proposal. It provides information on environmental, social, and cultural resources for the alternatives within the study area. Based on information included in these studies, and input that RUS receives from the public scoping process, RUS will determine the scope for the EIS.

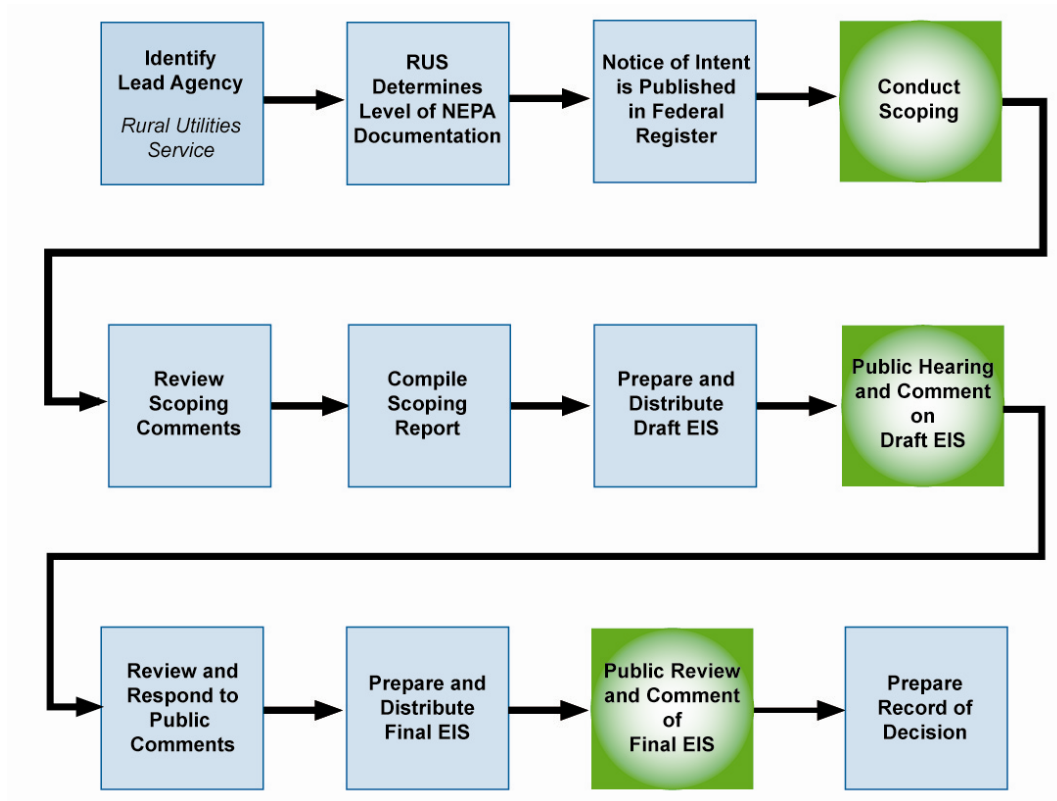


Figure 1-1: RUS NEPA Process

1.4 Proposal Description

The Utilities propose to construct the following facilities:

- A 345 kV transmission line from a new Hampton Substation near Hampton, Minnesota (southeast of the Twin Cities) to a new North Rochester Substation near Rochester, Minnesota, and a 345 kV transmission line from the new North Rochester Substation to a substation in the area of La Crosse, Wisconsin (this transmission line will of necessity include crossing the Mississippi River). The 345 kV line would be approximately 120 to 140 circuit miles depending on where it is routed;
- Two 161 kV transmission lines, one between the new North Rochester Substation and the Northern Hills Substation, and one between the new North Rochester Substation and the Chester Substation.

- The North Rochester–Northern Hills 161 kV line would be approximately 10 to 15 circuit miles long and the North Rochester–Chester 161 kV line would be approximately 20 to 30 circuit miles in length;
- Modifications to the Hampton Substation to accommodate connection of the Twin Cities–Rochester–La Crosse 345 kV transmission line.² This work will be limited to the addition of one circuit breaker, two switches and associated bus and the addition of relaying in the control building. No additional grading will be required;
 - Improvements at the Northern Hills Substation to accommodate the new 161 kV line. These improvements include: an expansion of the existing graded yard by approximately 30 ft, and the addition of 161 kV equipment including one circuit breaker and associated line termination switches and associated controls;
 - Improvements at the Chester Substation including expansion of the existing graded yard and the addition of 161 kV equipment such as one steel line terminal structure, one circuit breaker, three voltage transformers, three current transformers, two disconnect switches, and all with associated foundations. Other work may include the installation of 2 relaying, communications and control panels inside the existing control building, plus other miscellaneous upgrades;
 - Construction of a new North Rochester Substation north of Rochester. This new substation would be approximately 5 acres in size and include six 345 kV circuit breakers, a 345/161 kV transformer, three 161 kV breakers, a control house and associated line termination structures, switches, buswork, controls and associated equipment. The Utilities propose to acquire a parcel of approximately 40 acres to accommodate the fenced area, a buffer and line connections; and depending on the eastern termination, potential improvements at either the La Crosse or North La Crosse substations in Wisconsin to accommodate a termination of the proposed 345 kV transmission line, or construction of a new substation near La Crosse, Holmen, or Galesville Wisconsin. Potential modifications to the existing La Crosse or North La Crosse substations may include one 345 kV breaker, a 345/161 kV power transformer, ten 161 kV breakers, a control house, associated line termination structures, switches, buswork, controls and associated equipment. If a new substation is required, the Utilities propose to acquire a parcel of approximately 40 acres to accommodate the fenced area, a buffer and line connections, and include those items described above.

The Proposal, including associated facilities, is illustrated in Figure 1-2. The proposed 345 kV transmission line would be routed from the Hampton area southeast of the Twin Cities to one of three alternative locations for crossing the Mississippi River, with a termination in the La Crosse area. The three potential crossings are near (1) Alma, Wisconsin, (2) Winona, Minnesota, and (3) the La Crosse/La Crescent area. At each of these locations, there is an existing high-voltage transmission line crossing the river.

² The new Hampton Substation will be constructed as part of another CapX2020 345 kV Project, the Brookings County–Hampton 345 kV Project, and will include a graded and fenced area approximately four acres in size. The Brookings County–Hampton 345 kV Project is designed to enhance regional reliability, maintain local community reliability and to increase generation outlet capability in southwestern Minnesota and southeastern South Dakota. The Hampton Substation will be constructed as an integral part of the Brookings County–Hampton 345 kV Project which is needed and planned to be constructed regardless of whether the Proposal is built. The substation is expected to be completed in December 2012. The Twin Cities–Rochester–La Crosse 345 kV transmission line, expected to be completed in 2015, will terminate at the Hampton Substation.

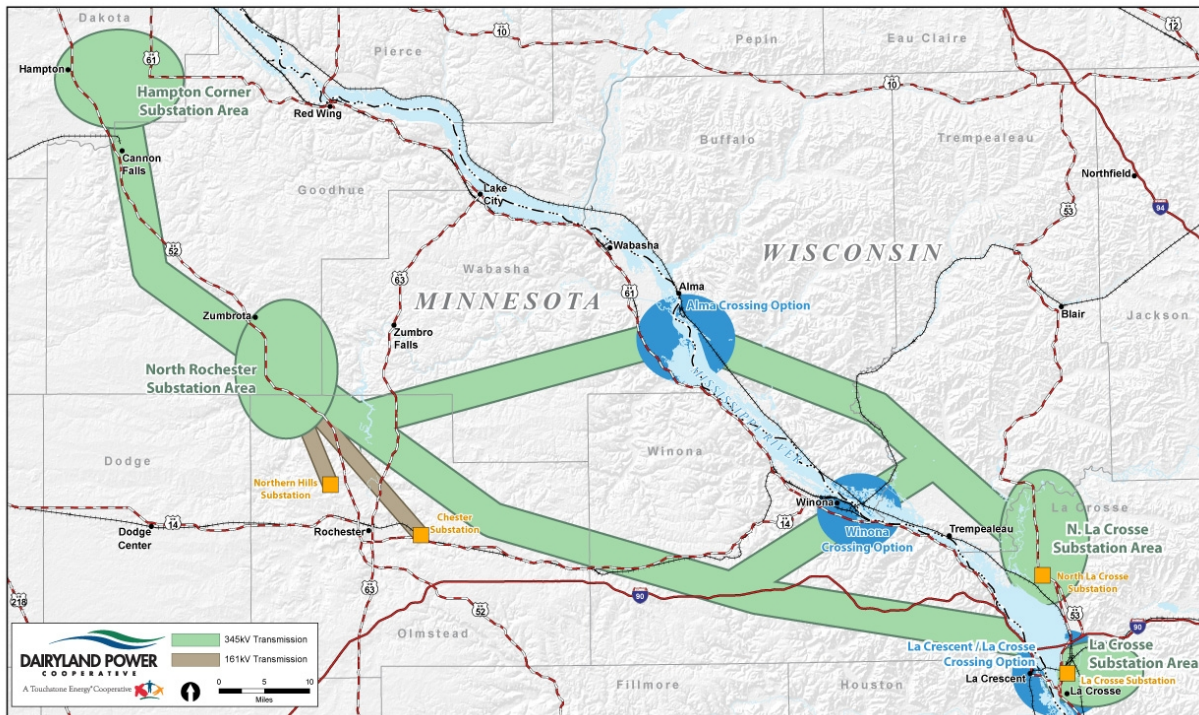


Figure 1-2: Proposal Facilities

The Mississippi River crossing location will determine the Proposal's termination point. If the proposed transmission line crosses the Mississippi River at the La Crosse/La Crescent Crossing Option, it would terminate at the La Crosse Substation, located on the eastern side of Wisconsin State Highway 35 where it crosses the La Crosse River, or at a new substation in the area of the La Crosse Substation. If the proposed transmission line crosses the Mississippi River at either the Alma or Winona crossing options, three substation sites would be considered for the Proposal's termination. The first option would be the existing North La Crosse Substation, located adjacent to Briggs Road near its intersection with U.S. Highway 53/Wisconsin State Highway 35 and north of La Crosse County Road XX. The second option would be a new substation near Holmen. The third option would be a new substation east of the city of Galesville just north of U.S. Highway 53/Wisconsin State Highway 93. If a new substation were constructed, a new 161 kV transmission line would connect the new substation to the existing North La Crosse Substation. In addition, the existing Tremvel-La Crosse tap 161 kV transmission line would be routed to the end point substation.

Table 1-2 describes characteristics of typical transmission line structures for 345 kV/345 kV and 345 kV/161 kV double-circuit structures, and 345 kV and 161 kV single-circuit structures.³

Table 1-2:
Typical 345 kV and 161 kV Transmission Line Characteristics

345 kV Transmission Lines (includes 345 kV/345 kV and 345 kV/161 kV Double-Circuit, and 345 kV Single-Circuit Structures)	Details
Voltage (kV)	345 kV
Right-of-Way Width (feet)	150
Span (feet)	750 to 1,100
Typical Span (feet)	900
Typical Range of Structure Heights (feet)	105 to 150 (single-circuit) 130 to 175 (double-circuit)
Typical Number of Structures per mile	5 to 7
Minimum Ground Clearance Beneath Conductor (feet)	34 ¹
Maximum Height of Machinery that can be Operated Safely Under Line (feet)	18 ²
161 kV Transmission Lines	Details
Voltage (kV)	161 kV
Right-of-Way Width (feet)	80
Span (feet)	400 to 600
Typical Span (feet)	600
Typical Range of Structure Heights (feet)	70 to 105
Average No. of Structures (per mile)	8 to 13
Minimum Ground Clearance Beneath Conductor (feet)	26 ³
Maximum Height of Machinery that can be Operated Safely Under Line (feet)	18 ⁴

- 1 The minimum ground clearance stated above is for design purposes for the conductor at its maximum operating temperature. National Electric Safety Code (NESC) minimum vertical clearance for 345 kV is 24.75 feet.
- 2 The NESC minimum ground clearance requirement assumes a maximum vehicle height of 14 feet. Using the design clearance of 34 feet, the maximum vehicle height under a 345 kV transmission line is increased to 18 feet. Machinery is assumed to be some type of agricultural vehicle that is not permanently stationed underneath the line.
- 3 The minimum ground clearance as shown is for design purposes for the conductor at its maximum operating temperature. NESC minimum vertical clearance for 161 kV is 21.0 feet.
- 4 The NESC minimum ground clearance requirement assumes a maximum vehicle height of 14 feet. Using the design clearance of 26 feet, the maximum vehicle height under a 161 kV line is increased to 18 feet. Machinery is assumed to be some type of agricultural vehicle that is not permanently stationed underneath the line.

³ Final routes for the Project may include different structure configurations.

1.5 Purpose and Need

The Proposal is designed to meet three identified needs: regional reliability, community reliability, and generation outlet capability. Each is fully described in the AES submitted to the RUS with this study. A summary of the AES is provided in the following sections.

The Proposal is one of four transmission projects (collectively, Group 1 Projects) proposed by the CapX2020 Transmission Expansion Initiative (CapX2020). CapX2020 is a joint initiative (CapX2020 Initiative) of 11 transmission-owning utilities in Minnesota, Wisconsin and the surrounding region whose goal is to study, develop, permit and construct transmission infrastructure needed to implement long-term and cost-effective solutions for customers to meet growing energy demands to the year 2020. The 11 utilities include Utilities, Great River Energy, Minnesota Power, Minnkota Power Cooperative, Missouri River Energy Services, Central Minnesota Municipal Power Agency and Otter Tail Power Company.

Each of the three other projects was developed to address specific identified needs. The first of the projects is the Brookings County–Hampton 345 kV Project which was designed to enhance regional reliability, improve local community service and increase generation outlet capability in southwestern Minnesota and southeastern South Dakota. The second project is the Fargo–Monticello 345 kV Project. The Fargo–Monticello 345 kV Project was developed to address load serving needs in the southern Red River Valley, including Alexandria, and St. Cloud, to enhance regional reliability and provide generation outlet support in northwestern Minnesota and southeastern North Dakota. The third project, the Bemidji–Grand Rapids 230 kV Project, will meet community load serving needs in the Bemidji area, improve regional transmission reliability of the larger northwestern Minnesota and eastern North Dakota region, and assist in the potential development of wind-energy resources in portions of the Red River Valley and eastern North Dakota.

All four transmission projects were analyzed individually and each is supported by a separate engineering report: Southeastern Minnesota–Southwestern Wisconsin Reliability Enhancement Study (March 13, 2006); Southwest Minnesota–Twin Cities EHV Development Electric Transmission Study, Volume 1 (November 9, 2005), Appendix A.2; Red River Valley–Northwest Minnesota Load-Serving Transmission Study (TIPS Update) (February 13, 2006); and Bemidji, Minnesota Area Electric Transmission System Study (January 2007). Each of the four proposals is proposed to be constructed independent of whether the other proposals are built.

This section describes the initial CapX2020 study effort, Technical Update: Identifying Minnesota’s Electric Transmission Infrastructure Needs (May 2005) (updated October 2005) (Vision Plan) and the system-wide reliability need. This section also details the local reliability needs and the timing of those needs. This section further describes the growing demand for additional generation outlet capability in southeastern Minnesota where these facilities will be constructed.

1.5.1 Regional Reliability Need

It has been nearly three decades since the electrical network serving Minnesota and the surrounding area including eastern Wisconsin has been expanded to any large degree. At the same time, the demand for power has continued to grow. Beginning in 2004, a study effort was undertaken to examine the regional electrical system transmission needs that would be necessary to meet the power requirements of customers anticipated by the year 2020.

1.5.1.1 The CapX2020 Vision Plan

The initial CapX2020 study effort, *Technical Update: Identifying Minnesota's Electric Transmission Infrastructure Needs (CapX2020 2005)* ("Vision Plan"), identified the high voltage transmission facilities needed to support this growth in demand and ensure that load in the region could be served reliably under different generation scenarios. This study was intended to be a high level and provide a blue-print for future transmission development. The region selected for the Vision Plan was primarily based on the geographic boundaries of the service territories of utilities with customers in Minnesota ("planning region"). Those systems include all of Minnesota and portions of North Dakota, South Dakota, Iowa, Wisconsin, and upper Michigan. Figure 1-3 illustrates the CapX2020 Study Area.

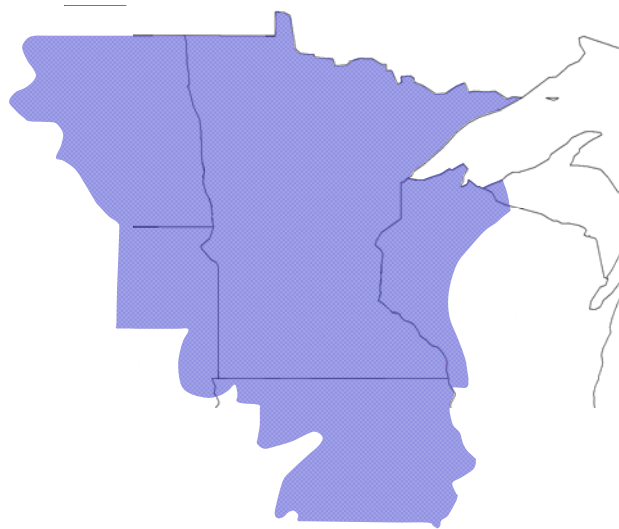


Figure 1-3: CapX2020 Study Area

While the planning region was the primary area of focus, transmission is regional in nature, and, as a result, the CapX2020 Initiative planning engineers included modeling of a region somewhat larger than the primary study area.

To assess the long-term need, planning engineers developed a load forecast and analyzed three different generation scenarios. Planning engineers contacted energy forecasters (from state and other electric power agencies and groups) for information about the anticipated growth in the demand for electricity. Generation developers and utilities were canvassed for information about where power plants might be

located to meet growing electricity demand, and relied on forecasts of the growth in electrical demand from generation planners and from Resource Planning proceedings before the Minnesota Public Utilities Commission (MN PUC). Copies of those documents and the associated data are available online at www.CapX2020.com.

Given the uncertainty of where generation will develop, planning engineers created and studied three generation scenarios. These three generation scenarios reflect potential generation development that might influence electric power flows on the regional grid and thus indicate the size and location of new transmission infrastructure needed to deliver this new generation to customers. These three generation scenarios were then compared to determine what transmission facilities were needed under each scenario. The Proposal was one of the facilities needed under each of the scenarios studied.

Since the Vision Plan was published in 2005, further analyses of the integrated resource plan and other system planning data (Mid-Continent Area Power Pool (MAPP) Load and Capability) have confirmed that the greater Minnesota area will experience significant load growth of several thousand MW by the year 2020.⁴

1.5.1.2 Renewable Energy

The need for new high voltage transmission facilities in the region is also driven by the need for significant infrastructure to support renewable energy generation development.

One of the many drivers for increased reliance on renewable energy is the Renewable Energy Standard (RES) passed by the Minnesota Legislature in 2007. The renewable standard⁵ called by some legislators as, "the most aggressive renewable energy law in the United States," imposes standards on public utilities providing electric service, generation and transmission cooperative electric associations, municipal power agencies, and power districts to generate or buy sufficient renewable energy. Each electric utility serving Minnesota retail customers must meet the following standards for the percentage of its retail sales that must derive from renewable energy sources: (1) 12 percent by 2012, (2) 17 percent by 2016, (3) 20 percent by 2020⁶; and (4) 25 percent by 2025.

The law also specifically sets higher standards for NSPM which must provide 30% of energy to retail customers from renewable-based generation by the year 2020. To satisfy Minnesota's renewable requirements, it is currently estimated that the CapX2020 utilities will need to procure in the range of 5,000 MW of additional installed wind generation along with lesser amounts of biomass and solar generation. Renewable Energy Standards Report 2007 at 34, MN PUC Docket No. E999/M-07-1028 (November 1, 2007) (RES Report).

Wisconsin has similarly implemented renewable energy legislation. Wisconsin's renewable legislation requires Wisconsin utilities to meet a gradually increasing percentage of their retail sales with renewable

⁴ MAPP creates the Load and Capability Report on an annual basis for the purpose of projecting the future resource (generation) and load of each MAPP member in the reserve sharing pool.

⁵ Minn. Stat. § 216B.1691 (as amended 2007).

resources. Wisconsin set a goal that by 2015, 10 percent of the electric energy consumed in the state must be produced by renewable resources (Wisconsin Statute § 196.378(2)(a)).

In April 2007, Wisconsin Governor Jim Doyle signed Executive Order 191, which created a Task Force on Global Warming. In July 2008, the Task Force voted to finalize its report, Wisconsin's Strategy for Reducing Global Warming. In its report, the Task Force recommends extensive revisions to Wisconsin's renewable standard. Specifically, the Task Force recommended that the following percentages of electric power sold by Wisconsin utilities must come from renewable resources:

1. 10 percent by 2013
2. 20 percent by 2020, not less than 6 percent of total sales being from Wisconsin-based resources
3. 25 percent by 2025, not less than 10 percent of total sales being from Wisconsin-based resources

The Group 1 Projects, including the Proposal, are a necessary first step toward meeting Wisconsin and Minnesota's renewable energy policy goals.

1.5.2 Community Reliability Needs

The need to maintain electric reliability in the Rochester and Winona/La Crosse communities is a driving need for the Proposal. The Rochester and La Crosse areas are both facing electric reliability issues due to increasing growth in the demand for power. Without transmission system improvements, these communities are at risk for loss of service under certain critical contingency conditions.

1.5.2.1 Rochester Area

The Rochester area sees its greatest use of electricity during the summer months. Dairyland and its member, Peoples Cooperative Services, serve rural customers around the city of Rochester. RPU is the municipal electric utility serving the city of Rochester. As described in detail in the AES, power is transmitted to the Rochester area by three 161 kV transmission lines; one from the west (the Byron–Maple Lake 161 kV transmission line that connects Rochester to the Prairie Island–Bryon 345 kV transmission line), one from the northeast (the Alma Substation), and one from the south (the Adams Substation).

Utilities use the term contingency to describe how the system will work when one or more of the existing transmission lines are out of service. If the Byron–Maple Leaf 161 kV transmission line is out of service, the remaining transmission system can only reliably deliver 181 MW of power to area substations. Under this contingency, there are only two 161 kV ties remaining to serve customers of RPU and Peoples Cooperative Services. The two remaining Dairyland 161 kV lines provide the 181 MW import capability. Due to this limitation, RPU must run local generation when RPU's demand exceeds 145 MW to ensure reliable service to customers should the Byron–Maple Leaf 161 kV line lose service. In 2005, the demand for power on the RPU system exceeded 145 MW for about 5,400 hours. The system peak occurred in 2006 and reached 330 MW.

The historical data and forecast demonstrate that demand in the Rochester area currently exceeds the level at which the electrical system can reliably serve customers during periods of peak demand. As a result, system operators must cut service to customers in the event of a critical outage to maintain the

stability of the electrical system during peak times. The risk of service interruptions currently exist in the event of a Byron–Maple Leaf 161 kV transmission line outage unless all internal generation is running. As the system is currently configured, the risk for interruptions is expected to be reached even if all internal generation is running as early as 2014.

To reliably serve the Rochester area demand, new power sources are needed. The proposed Northern Hills–North Rochester and Northern Hills–Chester 161 kV lines will provide significant load serving capability to the system.

In addition, there are two other recent transmission proposals that could further enhance the transmission system’s capabilities. These two projects are not related to the Proposal, but are being proposed for the same geographic area as the two 161 kV lines that are part of the Proposal. These projects do not change the need for the Proposal but may affect the specific timing of when the Northern Hills–North Rochester and Northern Hills–Chester 161 kV lines are constructed. The two transmission proposals are as follows:

- **The Pleasant Valley 161 kV lines:** The Pleasant Valley 161 kV lines are a group of three 161 kV transmission lines needed to enable two new wind farms to reliably deliver power and to increase generation outlet capability in the area. One of the 161 kV lines, a proposed connection between Pleasant Valley Substation and Willow Creek Substation, will also provide additional import capability for the Rochester area. The two other lines proposed by NSPM and RPU are: 1) a 161 kV line from Pleasant Valley Substation to Byron Substation; and 2) a 161 kV transmission line connecting the Byron Substation to an RPU planned West Side Substation. A Certificate of Need (CON) from the MN PUC is required for the first two lines. As of the date of this MCS, no Certificate of Need application has been filed.
- **Reconductor of the Rochester–Adams 161 kV Transmission Line.** The reconductor project, currently planned by Dairyland, will increase the capacity of the line and the capability of the system and is anticipated to be undertaken in 2009. The current proposal is to reconductor the line to 380 million volt-amp (MVA). No RUS funds will be required for this reconductor proposal.

As explained above, planning engineers have determined that the Rochester area needs a 345 kV connection to the Twin Cities and two new 161 kV sources to maintain reliable community service through the 2020s. The addition of three 161 kV sources into the area would meet load serving needs past mid-century. Assuming construction of the 345 kV line from the Twin Cities to La Crosse, if the Northern Hills–North Rochester 161 kV line or the Pleasant Valley–Willow Creek 161 kV line and the Rochester–Adams 161 kV line is reconducted at 380 MVA, the transmission system would have approximately 468 MW of capacity. This level of capacity could potentially meet local Rochester area needs until approximately 2025, if the current forecast growth rates are realized. If the higher growth rates that the rapidly expanding Rochester area has experienced historically return in the near term, the area load could exceed the improved transmission system’s capacity by approximately 2019. To meet demand beyond this time, a second 161 kV source must be added to the system.

The Utilities propose to meet the immediate Rochester needs by constructing the North Rochester–Northern Hills 161 kV transmission line first with the objective of having it in service in 2011. The Utilities

also propose to construct the North Rochester–Chester 161 kV line with the 345 kV line by 2015, which would increase the capability of the system to 707 MW and meet area needs until approximately 2050. If the Pleasant Valley–Willow Creek 161 kV line is constructed as part of the Pleasant Valley projects it would provide further robustness to the electrical system serving the Rochester area and could potentially affect the construction dates of the North Rochester–Chester 161 kV line.

1.5.2.2 La Crosse/Winona Area

The La Crosse/Winona area, which has its highest electricity demand during the summer, is also facing reliability issues as a result of population growth and the resulting increase in demand for electricity. The area includes the cities of La Crosse, Onalaska, and Holmen, Wisconsin; extends east to include Sparta, Wisconsin; northeast to include Arcadia, Wisconsin; northwest to include the area of Winona/Goodview, Minnesota; and southwest to include La Crescent, Houston and Caledonia, Minnesota.

Xcel Energy and Dairyland distribution cooperatives Vernon Electric Cooperative, Tri-County Electric Cooperative, Oakdale Electric Cooperative, and Riverland Energy Cooperative, serve the La Crosse/Winona area. Power to the area is provided by four 161 kV transmission lines: the Alma–Marshland–La Crosse 161 kV transmission line, the Alma–Tremval–La Crosse 161 kV transmission line, the Genoa–Coulee 161 kV transmission line, and the Genoa–La Crosse 161 kV transmission line.

The Alma-Marshland-La Crosse 161 kV portion of the transmission line referred to as the Q-1 transmission line is identified in Dairyland's 2008-2010 work plan (RUS 1071) for rebuild due to age and condition. One of the routes being considered for the 345 kV line if the Proposal crosses at either the Alma or the Winona river crossings is the Q-1 route. If this route is selected and co-locating the new 345 kV transmission with the existing Q-1 transmission line is determined to be the appropriate configuration, the cost of the Q-1 rebuild will be part of the Proposal costs. If the two lines are not co-located, Dairyland anticipates it will seek additional RUS funds for the Q-1 rebuild project in 2012.

The ability of the transmission system to reliably serve the area depends on the status of major power plants in the area. If the Genoa and Alma generation plants are in operation and a transmission source fails, 470 MW of power demand can be met. Transmission support to the area can drop to as low as 330 MW if Alma and/or Genoa generation are not operating. Local generation at French Island in La Crosse totaling 70 MW must be run any time demand exceeds these critical load levels. Peak demand reached 447 MW in 2006.

Forecast information based on substation load data show that the La Crosse/Winona area will begin exceeding the ability of the transmission system alone to provide power in the event of critical transmission line failure beginning in approximately 2009-2010. In 2015, demand will exceed the system's capability by 45 MW (470 MW of capacity versus 515 MW of demand). This means that in 2015, approximately 45 MW of load would be at risk of service interruption. New high voltage transmission facilities are needed in this area to provide transmission support that will alleviate these contingencies.

1.5.3 Generation Outlet/Renewable Energy Support

The Proposal is also designed to provide generation support. The southeastern Minnesota area is experiencing considerable growth in generation development, including wind generation. In Mower

County, just southwest of Rochester, as of January 2009, there were 1,397 MW of generation projects listed in the MISO Generation Interconnection Queue. For this same time period, there are more than 12,000 MW of generation projects in the MISO Generation Interconnection Queue for the counties of Mower, Olmstead, Fillmore, Howard (Iowa), Mitchell (Iowa), and Worth.

In southeastern Minnesota, the ability of the electrical system to transmit this new generation is limited because the area transmission system has a deficiency during off-peak, high-transfer conditions. Specifically, in the event of a Byron–Adams 345 kV line outage, there would be congestion on the Byron–Maple Leaf 161 kV line that would limit the flow on the Prairie Island–Byron–Adams 345 kV line and the North-South transfer between Minnesota and Iowa. The deficiency is significant enough that it has resulted in a documented operating guide that SMMPA has filed with MISO entitled *Byron–Maple Leaf 161 kV Operating Guide, Revision 1*. This operating guide limits the amount of power that can flow south on the Prairie Island–Byron 345 kV line to 766 MW when temperatures are greater than 45 degrees Fahrenheit (April, May, June, July, August, September, and October) and 835 MW when temperatures are less than 45 degrees Fahrenheit (November, December, January, February, and March) to plan for a fault and subsequent outage along the Byron–Pleasant Valley–Adams 345 kV line. The limit is in place so that if this system condition were to occur, the Byron–Maple Leaf 161 kV line would not become overloaded and potentially trip off-line. The Proposal would address this constraint.

In Wisconsin, the transmission grid in the western portion of the state, along with interface loading levels across Minnesota–Wisconsin border, limit the ability to interconnect new generation in Minnesota as well as generation from points further west. While preliminary stability analysis shows that the proposed 345 kV line has no impact on the Minnesota-Wisconsin Export Interface (MWEX), it will provide the foundation for future power transfers between Minnesota and Wisconsin. The need for and configuration of additional transmission facilities to the east is being addressed in a study currently underway by Xcel Energy and the American Transmission Company.

1.6 Required Permits/Approvals

The Utilities will be required to obtain approvals from a variety of federal and state agencies prior to constructing the Proposal. During development of the Macro-Corridor Study, permitting and regulatory requirements were reviewed to identify jurisdictional authority at the federal and state level.

Agencies with primary permitting authority include RUS, MN PUC, and the Public Service Commission of Wisconsin (PSCW). Tables 1-3, 1-4, and 1-5 identify the permits and other approvals that may be required by federal agencies, the state of Minnesota, and the state of Wisconsin, respectively. This preliminary listing of regulatory requirements is subject to change as the Proposal proceeds.

**Table 1-3:
Federal Approvals That May Be Required for Proposal**

Agency	Permit, Regulatory Compliance, or other Coordination
RUS	Alternative Evaluation Study and Macro-Corridor Study NEPA Compliance
U.S. Army Corps of Engineers (USACE)	Section 10 Permit of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) for crossing the Mississippi River
USACE and U.S. Environmental Protection Agency Region 5	Nationwide permit or individual permit under Section 404 of the Clean Water Act of 1977
U.S. Department of Agriculture's Natural Resource Conservation Service	Farmland Conversion Impact Rating (Form AD-1006)
U.S. Fish and Wildlife Service (USFWS)	Use authorization if right-of-way required on National Wildlife Refuge or Wetland Management District lands (Standard Form 299) and Special Use Permit if crossing National Wildlife Refuge Section 7 of the Endangered Species Act 1973 (16 U.S.C. 1531–1544; 50 C.F.R. 22 consultation Bald and Golden Eagle Protection Act (16 U.S.C. 668; 50 C.F.R. 22) Migratory Bird Treaty Act (16 U.S.C. 701–712)
Federal Aviation Administration (FAA)	Form 7460–1 Objects Affecting Navigable Airspace
National Park Service	Consultation: Section 7 of the Wild and Scenic Rivers Act 1968 (if Proposal affects federally designated areas)

**Table 1-4:
State of Minnesota Permits and Other Compliance That May Be Required for Proposal**

Agency	Permit, Regulatory Compliance, or other Coordination
Minnesota Public Utilities Commission (MN PUC)	Certificate of Need (CON)
	Route Permit (includes state environmental impact statement requirement)
Minnesota Department of Transportation (Mn/DOT)	Utility Permit on Trunk Highway Right of Way (Long Form No.2525) Access Driveway Permit Drainage Permit
Minnesota Department of Natural Resources (MN DNR)	Protected water crossings permits Application for a License to cross Public Lands and Waters Wetland Conservation Act requirements Public Waters Work Permit Program Minnesota Wild and Scenic Rivers Program State Canoe Routes and Trails Minnesota State Forests Endangered Species Statues—Permits and Coordination
Minnesota Pollution Control Agency	Air Quality and Noise Standards and Requirements National Pollutant Discharge Elimination System Stormwater Permits (construction, operation) Section 401 Water Quality Certification (if a 404 permit is required by USACE)
Minnesota Historical Society/Minnesota State Preservation Office	National Historic Preservation Act—Section 106 compliance
Minnesota Department of Agriculture	Agricultural Mitigation Plan (if required)

**Table 1-5:
State of Wisconsin Permits and Other Compliance That May Be Required for Proposal**

Agency	Permit, Regulatory Compliance, or Other Coordination
Public Service Commission of Wisconsin (PSCW)	Certificate of Public Convenience and Necessity (CPCN)
Wisconsin Department of Natural Resources (WDNR)	Utility Permit State EIS Joint state-federal application for impacts to waterways and wetlands Indication of Endangered/Threatened Species Incidental Take Authorization Construction Site Erosion Control and Stormwater Discharge Permit General Utility Crossings Permit Section 401 Water Quality Certification (if 404 permit is required by USACE)
Wisconsin Department of Transportation (WisDOT)	Application to Construct and Operate Utility Facilities on Highways Rights-of-way (Form DT1553) Access Driveway Permit (may be required) Drainage Permit (may be required)
Wisconsin Historical Society/Office of Preservation Planning	National Historic Preservation Act, Section 106 consultation
Wisconsin Department of Agriculture, Trade, and Consumer Protection	Agricultural Impact Statement

1.7 Community Outreach and Public Involvement Process

To implement an open and comprehensive community outreach program throughout the siting and permitting process, a variety of tools and techniques have been employed by the Utilities. Early notification, accessible information, and opportunities to provide input are vital for a successful public involvement effort, particularly with those stakeholders potentially affected by the Proposal.

Community outreach efforts were built upon existing relationships and interactions between the Utilities and the public. The public participation tools and techniques described were used to provide relevant information to the various stakeholders and to receive input on corridors at each step in the process. These tools have been updated or modified as necessary during the course of the Proposal and include the following: a website describing the Proposal and related information, stakeholder notification, news releases and display advertisements, voluntary public meetings and route working groups (collectively, public meetings), and required public hearings.

Between August 2007 and December 2008, the five rounds of public meetings were held to engage stakeholders in the Proposal. The Utilities held three rounds of public open house meetings, and one round of small-group route working group meetings. The Minnesota Department of Commerce held one round of Environmental Report scoping meetings, in an open-house format. The 21 public open house meetings (including the Environmental Report scoping meetings) have drawn over 1,000 attendees to date. The five route working group meetings included 43 participants, including landowners and representatives from local, state, and Federal government agencies.

The CapX2020 Utilities held six meetings in southeastern Minnesota during September 2007 following the CON application submittal to MN PUC for the three 345 kV Group 1 Projects. The open house format featured large informational displays, aerial maps, and handouts that were made available for the public to review. Utility representatives were present to answer questions and engage the public in discussion. The CON process will determine the need for the projects as well as characteristics such as substation and endpoint locations in Minnesota. The Minnesota Department of Commerce held Environmental Report scoping meetings in December 2007 to support the preparation of the Environmental Report for the CON proceedings. The CON meetings were also held in an open house format. MN PUC conducted public hearings and formal testimony as part of the CON process in early 2009. The CON was approved in April 2009.

Route working group meetings were held during March 2008 and May 2008 in five locations in the study area. Route working groups utilized a workshop format in which small groups discuss the importance and implications of the routing criteria used for the Proposal. Federal, state, regional, county, and city officials and representatives and members of the general public who requested to be included were invited to participate in the Route Working Groups. These individuals were asked to provide comments, data, and input representing their organizations or communities. Some participants were appointed or selected by their respective agency. Members of the general public were invited to participate through the December 2007 CapX2020 update newsletter. Interested individuals could sign up to participate in the Route Working Groups at the December 2007 CON meetings.

Five public meetings, not related to specific permitting documents and procedures, were also held in May 2008 to provide new information to the public in the study area and gather input on the siting process and preliminary macro-corridors. Another round of seven public meetings was conducted in December 2008 to provide information on routing progress, and to present route options or segments within the preliminary macro-corridors.

More than 300 recorded comments have been collected to date from all public meetings (Appendix A). Those comments were used to refine Proposal features as appropriate given the purpose and need of the outlined by the Utilities. The details of how stakeholder comments were used to refine the corridors are described in subsequent sections of this Macro-Corridor Study.

Appendix B includes the project fact sheets provided at the public meetings.

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2.0 Macro-Corridor Study Requirements and Methodology

RUS provides the following guidance for developing a Macro-Corridor Study (RUS 2002):

A Macro-Corridor Study should define the project study area and show the end points on a linear project (e.g., electric transmission line or natural gas pipeline). Within this project study area alternative corridor routes should be developed based on environmental, engineering, economic, land use, and permitting constraints. Corridors may vary in width from a few hundred feet up to a mile.⁷ The use of existing rights-of-way or double circuiting of existing electric transmission lines should be addressed as appropriate.

The Utilities applied a three-step methodology to corridor development that meets federal and state requirements for routing transmission facilities as well as addressing landowner concerns. The steps included study area definition, data acquisition and mapping, and stakeholder input/public involvement creating a phased approach to macro-corridor development. A summary of each step is described below

During the initial steps of investigation, a study area was identified in where macro-corridors would be located. The study area was based on the identified end points for the Proposal from the Minnesota CON application that included a new substation in the Hampton area southeast of the Twin Cities, Minnesota, and either a substation expansion or a new substation in the La Crosse area in Wisconsin. Boundaries of the study area were set according to purpose and need as well as the required interconnections to increase reliability in certain communities, enhance regional reliability, and support generator outlet capability. Prominent geographic features or lands with special designation also influenced the study area boundary.

The Utilities gathered data from landowners, including tribes; local, state, and federal agencies; and published resources to help identify potential opportunities and constraints for routing the proposed transmission line. Data collected were related to permitting requirements and environmental, engineering, economic, and land use issues identified within the study area. Existing linear features, such as transmission and transportation corridors were identified as potential opportunities for transmission line routing and incorporated into a Geographic Information System (GIS) database.

As shown in Figure 2-1, a phased approach was used for corridor development with a series of corridor refinements from the CON Corridors to preliminary macro-corridors and then to final macro-corridors. Each phase had a public involvement component and stakeholder input from the public, non-profit organizations and government agencies, along with field reconnaissance, to refine the macro-corridors. The Utilities, along with environmental, permitting, and engineering team members, reviewed data collected at each phase to analyze potential opportunities or constraints for corridors.

⁷ RUS guidance regarding corridor width is a flexible parameter that may vary from project-to-project. This Macro-Corridor Study identifies corridors that are wider than one mile. RUS has approved the use of corridors over one mile for the purpose of this Project.

The Utilities focused on several overarching objectives to identify preliminary macro-corridors, including:

- Compliance with Minnesota and Wisconsin statutes and rules regarding the routing of transmission lines. This includes maximizing opportunities to use existing transmission and transportation rights-of-way, and property, field, and survey lines, and ensuring appropriate consideration of regulated areas.
- Compliance with North American Electric Reliability Corporation (NERC) electrical system planning standards.
- Minimize environmental and land use impacts, including impacts associated with crossing the Mississippi, Zumbro, Cannon, and Black rivers.

The preliminary macro-corridors varied in width throughout the study area, to allow for identification and consideration of various routes that may meet these objectives.

Before finalizing the macro-corridors, the Utilities identified opportunities and constraints for potential route options or segments within the preliminary macro-corridors. A resource review provided information about land use and environmental resources that provide a compatible land use or that might constrain the construction of a new transmission line.

After additional data collection including field reconnaissance and stakeholder input, route options between the same endpoints were compared and kept for further analysis or eliminated based on a number of factors related to the objectives described above. The preliminary macro-corridors were then modified into final macro-corridors.

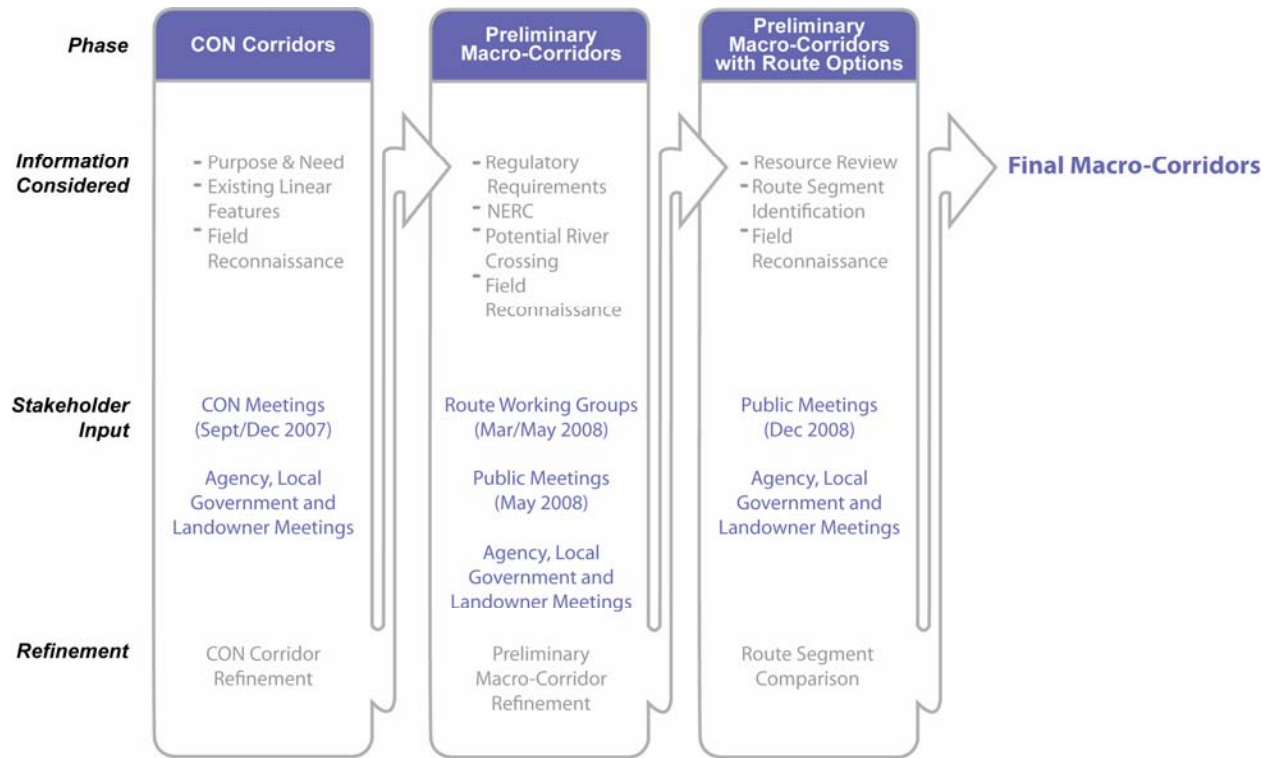


Figure 2-1: Approach to Macro-Corridor Identification

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3.0 Study Area Definition and Data Acquisition

The study area includes the southeastern Twin Cities region, the cities of Rochester, Winona, and La Crescent in Minnesota, and Alma, Arcadia, and Blair areas and the La Crosse area in western Wisconsin, including Galesville and Holmen. The northern end point in the Southeast Twin Cities area will be the proposed Hampton Substation, and the southern end point will be a substation in the greater La Crosse area in western Wisconsin.

Study area boundaries were set to allow consideration of multiple options for routing the proposed 345 kV and 161 kV transmission lines, including several options where the proposed 345 kV transmission line may cross the Mississippi River. The study area is sufficiently large to allow for mitigation of sensitive natural resources, such as floodplains and wetlands, and for consideration of lands designated for conservation and recreation purposes, which are common in the Mississippi River Valley.

The study area was expanded after the December 2008 public meetings to include two additional alternative corridors from the Alma River crossing. One alternative is from Alma to Arcadia, Wisconsin, and then south into the North La Crosse area along existing transmission line corridors. The other alternative corridor is from Alma to Blair, Wisconsin, through Galesville into the North La Crosse area.

Figure 3-1 identifies the study area, which includes portions of Dakota, Goodhue, Rice, Wabasha, Dodge, Olmsted, Winona and Houston counties in Minnesota, and Buffalo, Trempealeau, and La Crosse counties in Wisconsin. Figure 3-1 also shows the federal and state agencies that manage lands in the study area, as well as other land managers.

Federal agencies managing lands in the study area include USFWS and the National Park Service. USFWS manages the Upper Mississippi River National Wildlife and Fish Refuge, which includes lands along the Mississippi River from near Reads Landing, Minnesota, to the north and to the south of La Crosse, Wisconsin. USFWS also operates the Trempealeau National Wildlife Refuge, northwest of Trempealeau, Wisconsin, in the study area. Additional lands owned by the Ho-Chunk Sovereign Nation (formerly known as the Wisconsin Winnebago Tribe) are located in Houston County Minnesota, in the southernmost part of the study area along the Mississippi River.

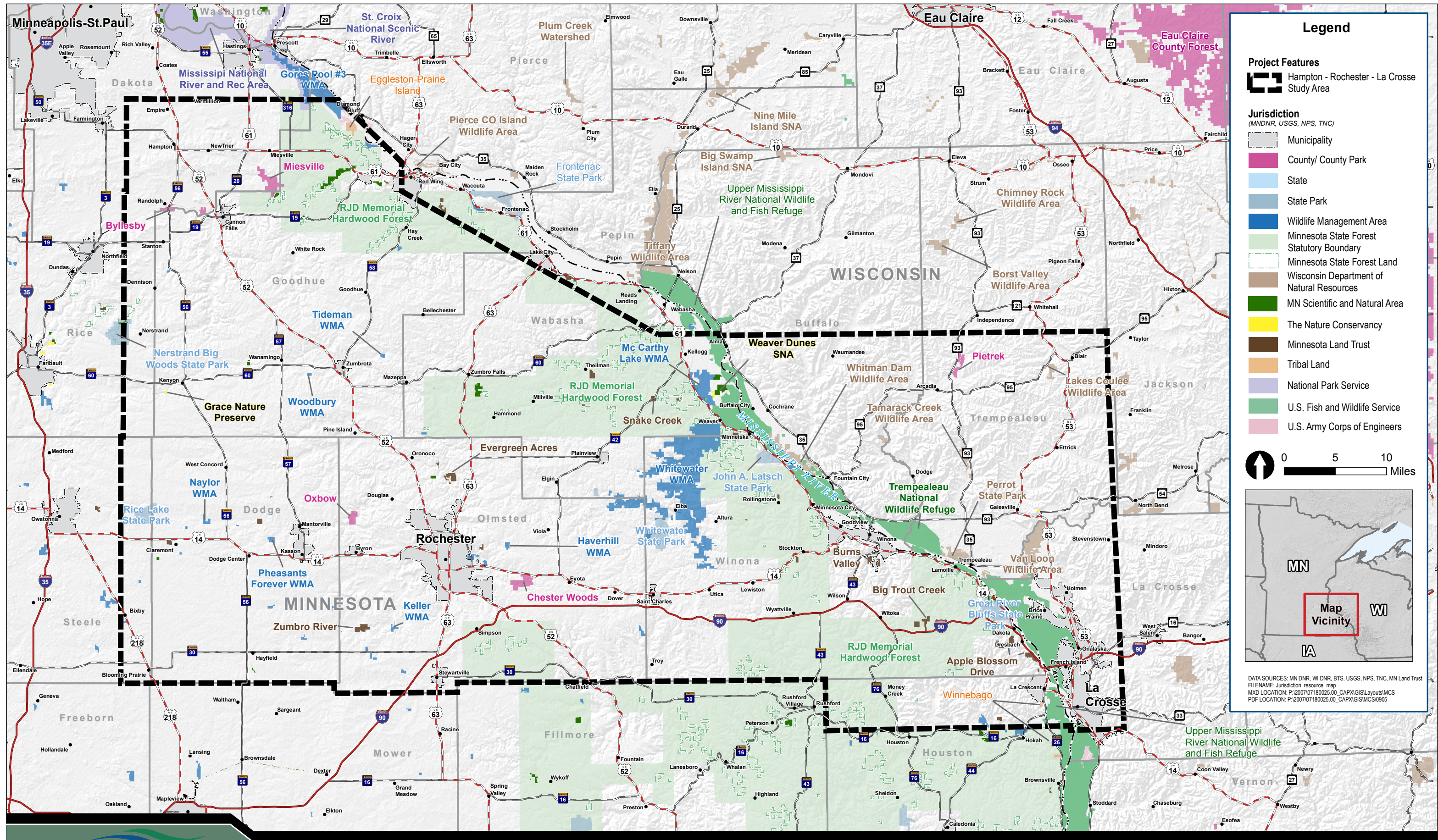
State agencies that manage lands in the study area include Minnesota Department of Natural Resources (MN DNR) and the Wisconsin Department of Natural Resources (WDNR). In the Minnesota portion of the study area, MN DNR manages the Richard J. Dorer Memorial Hardwood Forest (RJD State Forest), Minnesota State Parks, and Minnesota Wildlife Management Areas. Also in Minnesota, two non-profit organizations, The Nature Conservancy and the Minnesota Land Trust, manage lands in the Minnesota portion of the study area. In Wisconsin, WDNR manages wildlife areas and Wisconsin State Parks in the study area.

The Utilities reviewed digital, hard-copy, and Internet-based data regarding land use and natural resources in the study area from a variety of state, federal, and local contacts, including those listed below:

- Bureau of Transportation Services
- Federal Communications Commission
- Federal Emergency Management Agency (FEMA)
- Minnesota Department of Transportation (MnDOT)
- Minnesota Department of Natural Resources (MN DNR)
- Minnesota Land Management Information Center
- Minnesota Land Trust
- Minnesota Public Utilities Commission (MN PUC)
- National Register of Historic Places (NRHP)
- The Nature Conservancy
- Public Service Commission of Wisconsin (PSCW)
- U.S. Census Bureau
- U.S. Geological Survey (USGS)
- Wisconsin Department of Natural Resources (WDNR)
- Wisconsin Department of Transportation (WisDOT)

Data collected included information related to the natural environment (such as water, geology and soils, vegetation, and wildlife habitat), and the human environment (such as land use, infrastructure, and listed cultural resources). The Utilities also collected data on economic indicators, electrical reliability factors, engineering feasibility, cost, and comments from stakeholders, including individuals and agencies.

The data were compiled in a GIS database and used in the resource review phase of macro-corridor refinements.



Legend

Project Features

- Hampton - Rochester - La Crosse Study Area

Jurisdiction
(MNDNR, USGS, NPS, TNC)

- Municipality
- County/ County Park
- State
- State Park
- Wildlife Management Area
- Minnesota State Forest
- Statutory Boundary
- Minnesota State Forest Land
- Wisconsin Department of Natural Resources
- MN Scientific and Natural Area
- The Nature Conservancy
- Minnesota Land Trust
- Tribal Land
- National Park Service
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers

0 5 10 Miles

Map Vicinity

DATA SOURCES: MN DNR, WI DNR, BTS, USGS, NPS, TNC, MN Land Trust
 FILENAME: Jurisdiction_resource_map
 MXD LOCATION: P:\2007\07180025.00_CAP\GIS\Layouts\MCS
 PDF LOCATION: P:\2007\07180025.00_CAP\GIS\MCS\0905

Figure 3-1: Study Area and Land Management

4.0 Minnesota Certificate of Need Corridors

On August 16, 2007, CapX 2020 Utilities submitted a CON application to the MN PUC for the three 345 kV projects that comprise the Group 1 Projects. The MN CON permitting process requires project information public meetings to be held in the project study area. To meet these requirements, a notice plan was developed for the purpose of identifying occupants and owners of land who could reasonably be affected by the proposed project based on identified end points and preliminary opportunities for routing the transmission line. The CON Corridors, or notice corridors, illustrated in Figure 4-1, provided a starting point for the identification of macro-corridors. Since the CON filing, the Utilities have undertaken additional field studies of the CON Corridors as well as collected stakeholder input during the two rounds of CON meetings to identify areas where the CON Corridors should be expanded or reduced. The process by which CON Corridors were initially developed then refined to preliminary macro-corridors is described in the following sections.

4.1 Development of CON Corridors

For the CON process, the Utilities established a broad corridor based on the Proposal's origin southeast of the Twin Cities in the Hampton area, through northern Rochester, and into the La Crosse area of Wisconsin. The CON Corridors were set to encompass opportunities for routing the proposed transmission lines identified early in the CON process, such as existing transmission lines and major transportation corridors. Between the Twin Cities and Rochester, opportunities were identified along several 69 kV, 115 kV, and 161 kV transmission line corridors, and along the Prairie Island-Byron and Prairie Island-Twin Cities 345 kV transmission lines. Opportunities identified along transportation corridors followed portions of Minnesota State Highway 56 (MN-56), U.S. Highway 52 (US-52), U.S. Highway 14 (US-14), and Minnesota State Highway 58 (MN-58). Major roads between the Pine Island substation and Rochester were considered opportunities for routing the proposed 161 kV transmission lines in the Rochester area.

The CON Corridors included potential crossing sites at the Mississippi River that used existing transmission corridors: a 161 kV/ 69 kV double circuit transmission line near Alma, Wisconsin; a 69 kV transmission line built to 161 kV specifications near Winona; and a 69 kV transmission line between La Crescent, Minnesota and La Crosse, Wisconsin. A fourth crossing option was identified near Trempealeau, at a narrow point in the Mississippi River where several islands were thought to be able to support transmission line structures. The Trempealeau crossing option was eliminated from further consideration because it did not follow an existing high-voltage transmission line through the USFWS refuge.⁸ A 161 kV transmission corridor was identified as an opportunity connecting Rochester and the Alma crossing option. The Interstate 90 (I-90) corridor was identified as the major opportunity connecting Rochester with the Winona, Trempealeau, and La Crescent/La Crosse crossing options. A wide corridor was identified between Winona and La Crescent around the bluffs west of the Mississippi River to allow consideration of different approaches to the remaining river crossings.

⁸ The Mississippi River crossing is discussed in detail in Section 5.2.1, River Crossings.

In Wisconsin, the primary opportunities followed the Dairyland Q-1 transmission corridor, an existing 161 kV line between the Alma generating plant and the North La Crosse Substation. This transmission line was identified as an opportunity because it requires a complete rebuild within five years of the CON application submittal (2007), and the proposed 345 kV transmission line could be placed on the same structures. Additional opportunities in Wisconsin included other 69 kV transmission lines that cross the area, railroads, and major roadways (Wisconsin Highway 35).

4.2 Stakeholder Input

CON Corridors were presented to stakeholders during two rounds of meetings held in 2007 that focused on the CON proceedings: MN CON Project Information public meetings, and MN CON Environmental Report scoping meetings. Significant stakeholder outreach was undertaken as part of the CON process in Minnesota. Although the CON proceedings were a Minnesota state process, the Utilities also sent meeting notices to Wisconsin landowners about the Proposal, inviting them to provide comments.

4.2.1 CON Project Information Public Meetings

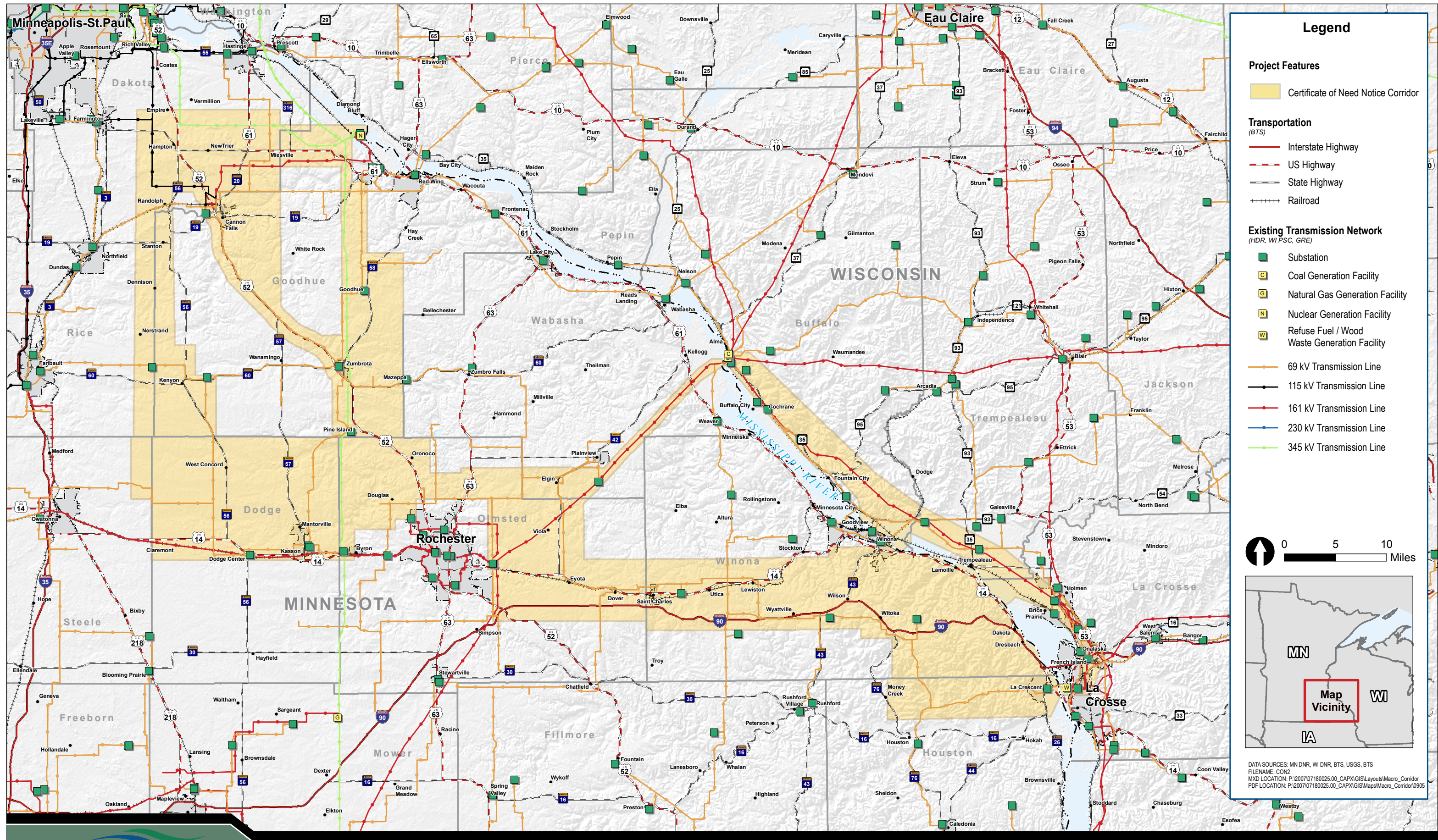
The CapX2020 Utilities held a series of open houses in September 2007 focused on the three CapX2020 345 kV Group 1 Projects. Table 4-1 lists the six public meetings held in the study area over a two-week period, which were timed to maximize public participation.

Table 4-1:

MN CON Project Information Public Meetings Held in Study Area in September 2007

Locations	Dates	Time
Winona, MN	September 11, 2007	3:00 p.m. to 7:00 p.m.
Rochester, MN	September 12, 2007	9:00 a.m. to 12:00 p.m. and 3:00 p.m. to 7:00 p.m.
Wabasha, MN	September 13, 2007	3:00 p.m. to 7:00 p.m.
Redwing, MN	September 25, 2007	3:00 p.m. to 7:00 p.m.
Northfield, MN	September 26, 2007	9:00 a.m. to 12:00 p.m. and 3:00 p.m. to 7:00 p.m.
Lakeville, MN	September 27, 2007	3:00 p.m. to 7:00 p.m.

The purpose of the initial public meetings was to introduce and describe the Proposal, communicate the need for the Proposal, identify potential issues, obtain input, and develop a Project mailing list. The public meetings were held in an open house format with large informational displays, aerial maps, and take-home handouts. Project representatives were on hand to answer questions and engage the public in discussion. Large sheet maps based on aerial photography illustrated the CON Corridors. Comment forms were made available for participants to submit formal comments. Sign-in sheets allowed participants to provide additional contact information that was added to the mailing list. Appendix A-1 provides a summary of comments received at the CON Project Information public meetings.



Legend

Project Features

- Certificate of Need Notice Corridor

Transportation (BTS)

- Interstate Highway
- US Highway
- State Highway
- Railroad

Existing Transmission Network (HDR, WI PSC, GRE)

- Substation
- Coal Generation Facility
- Natural Gas Generation Facility
- Nuclear Generation Facility
- Refuse Fuel / Wood Waste Generation Facility
- 69 kV Transmission Line
- 115 kV Transmission Line
- 161 kV Transmission Line
- 230 kV Transmission Line
- 345 kV Transmission Line

0 5 10 Miles

MN WI IA
Map Vicinity

DATA SOURCES: MN DNR, WI DNR, BTS, USGS, BTS
 FILENAME: CON2
 MXD LOCATION: P:\2007\07180025.00_CAPX\GIS\Layouts\Macro_Corridor
 PDF LOCATION: P:\2007\07180025.00_CAPX\GIS\Maps\Macro_Corridor\0905

Figure 4-1: CON Corridors

4.2.2 CON Environmental Report Scoping Meetings

The Minnesota Department of Commerce Office of Energy Security (OES) Energy Permitting Staff is responsible for preparing an Environmental Report for CON proceedings (MN Rules 7849.7010-7110). The OES hosted 10 scoping meetings in December 2007 for the CON Environmental Report process, which covered the three CapX2020 345 kV Group 1 Projects. Three of these meetings, listed in Table 4-2, were held to review information specific to the Project within the study area.

Table 4-2:
CON Environmental Report Scoping Meetings by December 2007

Locations	Dates	Time
Winona, MN	December 13, 2007	9:00 a.m. to 12:00 p.m.
Rochester, MN	December 13, 2007	5:00 p.m. to 8:00 p.m.
Cannon Falls, MN	December 17, 2007	5:00 p.m. to 8:00 p.m.

The purpose of the CON Environmental Report scoping meetings was to inform the public of the CON process and collect comments on the purpose and need and potential environmental issues associated with the Proposal. OES completed its CON Environmental Report on March 31, 2008, which is available online (<https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=5046228>).

4.3 CON Corridor Refinement

In response to agency and public comments (Appendix A), additional data collection and field reconnaissance, the Utilities refined the initial CON Corridors submitted in the CON in August 2007. Corridor refinement included expanding and reducing or eliminating areas of the CON Corridors to develop macro-corridors.

The Prairie Island-Byron 345 kV transmission line corridor was eliminated because the Proposal is needed to provide redundancy for the Prairie Island-Byron transmission line. These transmission lines cannot be collocated to reduce the risk of both lines being out of service in the event of a storm or other disaster. Other areas eliminated included the bluff areas between Winona and La Crescent, Minnesota, and the area south of Kenyon and west of the Pine Island- Byron 345 kV transmission line due to constraints in routing.

Corridors were expanded where additional opportunities were identified, or where additional area was needed to assess a wider array of alternatives. These areas included the MN-56 and MN-60 corridors between Hampton and Pine Island, Minnesota, and the northern Zumbro River crossing area between Pine Island and Alma, Wisconsin. Additional corridors were identified between Trempealeau and the North La Crosse Substation and east of the Dairyland Q-1 corridor to allow for alternatives to the Black River crossing.

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