Briggs Road to La Crosse Tap (Q-1D South) 161 kV Transmission Line Rebuild Project

La Crosse County, Wisconsin

RUS Project Number 1060

Environmental Assessment

Prepared for Rural Utilities Service

United States Department of Agriculture

Submitted by:

Dairyland Power Cooperative

May 2016

Contents

Page

1.0 Project Description 1-1

1.1 Proposed Project 1-1
1.2 Project History 1-2
1.3 Schedule 1-2
1.4 Project Location 1-3
1.5 Project Design and Construction 1-3
1.5.1 Access Routes and Material Staging 1-3
1.5.2 Transmission Structures 1-4

2.0 Purpose and Need for the Project 2-1

2.1 Purpose and Need for DPC's Action 2-1
2.1.1 Existing Facilities and Reliability History 2-2
2.1.2 Contingency Analysis 2-2
2.1.3 Recommended Plan 2-3
2.2 Purpose and Need for RUS's Action 2-4

3.0 Alternatives to the Proposed Project 3-1

3.1 Proposed Action 3-1
3.2 Regional Alternatives 3-1
3.3 Alternative Designs and Construction Methods 3-2
3.4 Alternative Routes Considered 3-2
3.4.1 Xcel Energy's Briggs Road - Mayfair 161 kV Transmission Line Route 3-2
3.4.2 DPC's 69 kV Transmission Line Route Alternatives 3-3
3.4.3 Underground Alternative 3-9
3.5 No Action Alternative 3-11

4.0 Affected Environment 4-1

4.1 Land Use 4-1
4.1.1 General Land Use 4-1
4.1.2 Important Farmland, Prime Forest Land, and Prime Rangeland 4-5
4.1.3 Formally Classified Land 4-6
4.2 Vegetation 4-6
4.3 Wetlands 4-7
4.4 Threatened and Endangered Species 4-8
4.5 Fish and Wildlife Resources 4-13
4.6 Floodplains 4-13
4.7 Water Quality 4-14
4.8 Coastal Areas 4-15
4.9 Air Quality 4-15
4.10 Cultural Resources 4-15
4.11 Aesthetics 4-15

4.12 Socioeconomics and Community Resources 4-16
4.13 Environmental Justice 4-16
4.14 Transportation 4-18
4.15 Human Health and Safety 4-19
4.15.1 Electrical Characteristics 4-19
4.16 Corona, Audible Noise, Radio and Television Interference 4-20
4.16.1 Corona 4-20
4.16.2 Audible Noise 4-20
4.16.3 Radio and Television Interference 4-21

5.0 Environmental Effects 5-1

5.1 Land Use 5-1
5.1.1 General Land Use 5-1
5.1.2 Important Farmland, Prime Forest Land, and Prime Rangeland 5-2
5.1.3 Formally Classified Land 5-3
5.1.4 Mitigation and Monitoring 5-3
5.2 Vegetation 5-3
5.2.1 Mitigation and Monitoring 5-4
5.3 Wetlands 5-4
5.3.1 Mitigation and Monitoring 5-5
5.4 Threatened and Endangered Species 5-5
5.4.1 Mitigation and Monitoring 5-7
5.5 Fish and Wildlife Resources 5-9
5.5.1 Mitigation and Monitoring 5-9
5.6 Floodplains 5-9
5.6.1 Mitigation and Monitoring 5-9
5.7 Water Quality 5-10
5.7.1 Mitigation and Monitoring 5-10
5.8 Coastal Areas 5-10
5.9 Air Quality 5-11
5.9.1 Mitigation and Monitoring 5-11
5.10 Cultural Resources 5-11
5.10.1 Mitigation and Monitoring 5-12
5.11 Aesthetics 5-12
5.11.1 Mitigation and Monitoring 5-14
5.12 Socioeconomic and Community Resources 5-14
5.12.1 Mitigation and Monitoring 5-14
5.13 Environmental Justice 5-14
5.13.1 Mitigation and Monitoring 5-15
5.14 Transportation 5-15
5.14.1 Mitigation and Monitoring 5-16
5.15 Human Health and Safety 5-17
5.15.1 Electrical Characteristics 5-17
5.15.2 Mitigation and Monitoring 5-19
5.16 Corona, Audible Noise, Radio, and Television Interference 5-19

5.16.1 Mitigation and Monitoring 5-21
6.0 Agencies Consulted and Permitting Requirements 6-1
7.0 Public Notice and Comments 7-1
8.0 Conclusion 8-1
9.0 References 9-1

Appendices

Appendix A: Q-1D South Rebuild Project Mapbook
Appendix B: Constraint Examples
Appendix C: Agency and Tribal Letters
Appendix D: Wetland, Stream, and Habitat Report
Appendix E: Cultural Report
Appendix F: Newspaper Advertisement
Appendix G: EMF Calculations
Appendix H: Public Comments and Responses

Tables

Table 1-1: DPC Wisconsin Q-1 161 kV Line Segments and Status 1-2
Table 1-2: Project Location 1-3
Table 3-1: Alternative Comparison Summary 3-4
Table 3-2: Alternative 1 and 2 ROW Expansion Constraints 3-9
Table 4-1: Land Cover Types Crossed by Project ROW 4-7
Table 4-2: Analysis of Habitat Suitability for Federally Protected Species along Project ROW 4-8
Table 4-3: Analysis of Habitat Suitability for State Listed Species along Project ROW 4-10
Table 4-4: 100-year Floodplains Crossed by Project 4-13
Table 4-5: Surface Waters Crossed by Project 4-14
Table 4-6: Census Data 4-17
Table 4-7: Roads Crossed by the Project and Associated Average Annual Daily Traffic Volumes 4-18
Table 4-8: Common Noise Sources and Levels 4-20
Table 5-1: State-Listed Species and Potential for Project Impacts 5-6
Table 5-2: Mitigation Measures for State Special Status Species 5-8
Table 5-3: Construction Equipment Noise Levels 5-20

Figures

Figure 1 Project Location Map
Figure 2 Typical TCSB Drawing
Figure 3 Structure Diagrams
Figure 4 Alternative Routes Considered Map
Figure 5 City of La Crosse Airport Overlay Map
Figure 6 Prime Farmland Map
Figure 7 Formally Classified Land Map
Figure 8 FEMA Floodplain Map

Graphics

Graphic 1: Vibratory Hammer 1-6
Graphic 2: Vibratory Hammer Installing Caisson 1-6
Graphic 3: Briggs Road – La Crosse Tap Area 2-1

Abbreviations and Acronyms

ACSR	Aluminum Core Steel Reinforced
ACSS	Aluminum Core Steel Supported
AM	Amplitude Modulated
AN	Audible Noise
AOZD	Airport Overlay Zoning District
ASNRI	Areas of Special Natural Resource Interest
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
BNHC	Bureau of Natural Heritage Conservation
CapX project	CapX2020 Hampton – Rochester - La Crosse 345 kV Transmission Improvement Project
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPCN	Certificate of Public Convenience and Necessity
CR	County Road
DATCP	Department of Agriculture, Trade and Consumer Protection (Wisconsin)
DPC	Dairyland Power Cooperative
dBA	A-weighted decibel
EA	Environmental Assessment
EF	Electric Field
EIS	Environmental Impact Statement
END	Endangered
EMF	Electric Magnetic Field
ER	Environmental Report
ERW	Exceptional Resource Waters
EXPN	Experimental Non-Essential Population
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FM	Frequency Modulated
HVTL	High Voltage Transmission Line
kV	Kilovolt
kV/m	Kilovolts/Meter
MBTA	Migratory Bird Treaty Act
MF	Magnetic Field
mG	MilliGauss
MISO	Midcontinent Independent System Operator
MRO	Midwest Reliability Organization
MRRPC	Mississippi River Regional Planning Council
MVA	Mega Volt Amperes
MVAC	Mississippi Valley Archaeological Center
NAAQS	National Ambient Air Quality Standards
NA	Not Applicable

NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NHPA	National Historic Preservation Act
NLCD	National Land Cover Database
NPC	Noise Pollution Clearing House
NRCS	Natural Resource Conservation Service
ORW	Outstanding Resource Waters
PEM	palustrine emergent wetland
PNW	Priority Navigable Waters
PRF	Public Rights Features
PSCW	Public Service Commission of Wisconsin
RE Act	Rural Electrified Act
RI/TVI	Radio Interference/Television Interference
ROD	Record of Decision
ROW	Right-of-Way
RUS	Rural Utilities Service
SC	Special Concern
SC/P	Special Concern/Fully Protected
SC/N	Special Concern/No Laws Regulating Use, Possession, or Harvesting
SC/H	Special Concern/Take Regulated by Establishment of Open Closed Seasons
SC/FL	Special Concern Federally Protected as Endangered or Threatened
SC/M	Special Concern/ Fully protected by federal and state laws under the Migratory Bird Act
STH	State Trunk Highway
THR	Threatened
USH	U.S. Highway
USACE	U.S. Army Corp of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WDNR	Wisconsin Department of Natural Resources
WGNHS	Wisconsin Geological and Natural History Survey

1.0 Project Description

1.1 Proposed Project

Dairyland Power Cooperative (DPC), a not-for-profit generation and transmission cooperative headquartered in La Crosse, Wisconsin, intends to seek financial assistance from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) to rebuild approximately nine miles of the south segment of the Q-1 161 kilovolt (kV) transmission line referred to as the Q-1D South Project or Project (**Figure 1**). This nine-mile-segment extends from just southeast of the Briggs Road Substation to the La Crosse Tap in La Crosse County, Wisconsin (RUS Project Number 1060). Constructed in the 1950s, the line is now in poor condition and reaching the end of its service life. The rebuild will occur along the existing 161 kV alignment within the existing right-of-way (ROW).

RUS approval of financial assistance for the Project is a federal action subject to review under the National Environmental Policy Act (NEPA) of 1969, the National Historic Preservation Act of 1966 (NHPA), and all applicable federal environmental laws and regulations. This Environmental Assessment (EA) has been prepared to analyze potential impacts to the natural and human environments associated with the Project and to determine if there are any extraordinary circumstances that would require additional review in accordance with 7 Code of Federal Regulations (CFR) Part 1970, RUS' Environmental Policies and Procedures, and 40 CFR Parts 1500-1508, the regulations promulgated by the Council on Environmental Quality for implementing the NEPA. This EA also addresses other laws, regulations, executive orders, and guidelines promulgated to protect and enhance environmental quality including, but not limited to, the Endangered Species Act (ESA), the Farmland Protection Policy Act (FPPA), the Clean Water Act (CWA), and executive orders governing floodplain management, protection of wetlands, and environmental justice.

The term "Project area" as referenced throughout this EA generally refers to the extent shown on **Figure 1**. Detailed sheet maps that show the Project are provided in **Appendix A**. DPC is committed to following its standard best management practices (BMPs) described in DPC's *Manual for Transmission Lines and Substation Construction and Maintenance Activities* for Project construction, operation, and maintenance as described in Section 5.0.

1.2 Project History

The Project reviewed under this EA is a nine mile section of DPC's approximately 70 mile long Q-1 161 kV transmission line. The Q-1 line was constructed in the 1950s and consists of four segments in Wisconsin as described in **Table 1-1**.

Table 1-1: DPC Wisconsin Q-1 161 kV Line Segments and Status

Segment Name	Mileage	Status of Environmental Review
Alma – Marshland	27	Reviewed under the federal and State of Wisconsin CapX2020 Hampton – Rochester – La Crosse 345 kV Transmission Improvement Project (CapX project) EISs and selected as the route. Q-1 line was co-located as a double circuit with the CapX project. RUS issued Record of Decision (ROD) in January 2013. Public Service Commission of Wisconsin issued the Final Decision in May 2012.
Marshland – North La Crosse Substation (Briggs Road Substation) Q-1D North	13	Reviewed under a separate Environmental Assessment (EA) dated March 16, 2015. The Q-1D North line needed to be rebuilt as soon as possible to avoid interruptions in service and ongoing maintenance issues. Due to the need for the Q-1 D North line to remain in service during construction of the CapX project in Wisconsin, DPC constructed the Q-1D North line from August to December 2015, which was the earliest timeframe that would avoid impacts to certain protected species, wetlands, and waterways.
North La Crosse Substation (Briggs Road Substation) – La Crosse Tap Q-1D South	9	This segment is the subject of this EA. It was separated from the other Q-1 projects because it was considered as a possible route for the Badger – Coulee project planned for construction in 2018. DPC plans to begin construction on the Q-1D South in early September 2016.
La Crosse – Genoa Tap	21	Reviewed under a separate Environmental Report (ER) approved by RUS in September 2012. The project was not part of the route options considered for the CapX project and proposed Badger – Coulee 345 kV lines and was therefore reviewed on its own. Construction was recently completed.

1.3 Schedule

Construction of the Project is scheduled to begin in early September 2016. DPC anticipates that the Project would be in service in June 2017.

DPC's Briggs Road to La Crosse Tap 161 kV construction outage has been submitted to the Midcontinent Independent System Operator (MISO) outage request queue for a five month outage beginning fall of 2016. Two primary factors limit flexibility in this schedule. The first is the need to avoid summer peak load periods as this line helps to serve the City of La Crosse, Wisconsin area load. This requires an outage to the line to occur during non-summer peak load periods. Additionally, upcoming construction outages for the joint Xcel and American Transmission Company (ATC) Badger-Coulee 345 kV project could cause conflicts. The Badger-Coulee 345 kV project is an approved project connecting La Crosse to Madison, Wisconsin. Construction is planned for 2016 through 2018. The Badger-Coulee outage schedule is currently in development with construction starting in the Madison area and finishing in the La Crosse area. The Badger-Coulee construction project will require transmission outages in the La Crosse, Wisconsin area to several 345 and 161 kV transmission lines for double circuit transmission construction and the new line termination at Briggs Road. Coordination between the two projects to avoid

overlapping outages could be difficult as both projects will target the non-summer peak load periods for transmission outages. The Badger-Coulee construction outages could provide conflicts in the future if the Briggs Road-La Crosse Tap project is rescheduled and a new five month construction window in the 2017 or 2018 timeframe is needed.

1.4 Project Location

The Project is located in La Crosse County, Wisconsin as shown in **Figure 1 and Appendix A**. **Table 1-2** presents the township, range, and section for all proposed construction areas of the Project.

Table 1-2: Project Location

State	County	Township	Range	Sections
Wisconsin	La Crosse	17N	8W	13
Wisconsin	La Crosse	17N	7W	18, 19, 29, 30, 32, 33
Wisconsin	La Crosse	16N	7W	3, 4, 10, 14, 15, 23

The north end of the Project begins about 0.3 mile southeast of the Briggs Road Substation, which is located southwest of the Village of Holmen, Wisconsin. The Project then traverses generally southeast to the La Crosse Tap located approximately 0.7 mile south and west of the City of La Crosse, Wisconsin (**Figure 1 and Appendix A**).

1.5 Project Design and Construction

The design and construction of the Project is described below.

1.5.1 Access Routes and Material Staging

Access Routes

Access routes for the Project have been identified; construction would primarily follow approximately 7.1 miles of existing maintenance routes used by DPC's maintenance crews since the early 1950's and temporary access (shown on sheet maps in **Appendix A**). The majority of the access routes do not require grading or vegetation clearing and construction equipment would be driven across low-lying vegetation, existing field roads, or existing trails. However, there are some areas where grading and vegetation clearing, or trimming would be necessary. The access routes have been color-coded on the sheet maps in **Appendix A** to show where grading or tree clearing would be needed.

Access routes would be between 12 and 16 feet wide. Damage to vegetation and crops and soil compaction is possible. DPC will compensate landowners for damage resulting from construction. Appropriate stormwater management and erosion control practices will be used along access routes that require temporary grading due to the existing topography. Following construction, access to the transmission line for routine maintenance would follow the access routes.

Temporary Clear Span Bridges

In some cases temporary clear span bridges (TCSBs) may be required to access pole locations on opposite sides of a stream or steep ditch. Two TCSBs would be required to access pole locations for construction. The locations of the TCSBs are provided in **Appendix A, Sheet Map 10**. Prior to construction, DPC will obtain the necessary permits from the Wisconsin Department of Natural Resources (WDNR). Installation and maintenance of the TCSBs will be in accordance with permit conditions. A diagram showing the typical characteristics associated with DPC's TCSB design is included as **Figure 2.**

Staging Areas

DPC would use two temporary staging areas during construction (**Appendix A, Sheet Maps 2 and 10**). The northern staging area is approximately six acres and the southern staging area is approximately 2.2 acres. Both staging areas are currently vacant land. The area within the fence at the North La Crosse Substation site may also be used for staging. At this time no additional staging areas have been identified. If it is determined that additional staging areas are required, those areas would not require clearing or grading; however, damage to vegetation or ruts in the ground may occur as a result of vehicular traffic in and out of the staging areas. Specific information regarding the staging areas would be addressed in the Erosion Control Plan prepared for the WDNR, and WDNR technical standards and DPC's BMPs would be implemented during construction. Following construction, the staging areas would be restored to pre-construction conditions.

1.5.2 Transmission Structures

Rebuilding the transmission line would consist of replacing the transmission structures and wires within the existing ROW. The Project has been designed to avoid resources such as wetlands, surface waters, sensitive habitats, protected species, and historic or cultural areas to the extent possible. Potential impacts to soil and surface water resources will be minimized or avoided by using erosion and sedimentation control BMPs and other monitoring and mitigation methods during construction (Section 5 and http://www.dairylandpower.com/power_delivery/field_guide.pdf).

DPC is proposing to replace the existing wooden H-frame transmission structures with an estimated:

- 54 single-pole steel transmission structures that would be 95 to 115 feet tall with an approximate 775 to 800 foot span between structures.
- Three H-frame steel dead-end structures that would be 50 feet tall with an average 375 foot span between structures.
- Four Y-frame steel transmission structures that would be 65 feet tall with an approximate 600 to 800 foot span between structures.

Typical design characteristics associated with the transmission structures are shown in **Figure 3**. The structures would use the existing 80 foot ROW (40 feet on each side of the transmission line).

For the reasons described in Section 3.3, DPC would use Y-frame steel structures for the 0.6 mile section that crosses the La Crosse River floodplain. Single-pole steel structures would be used for the remaining 8.4 miles of the Project, to allow DPC to double circuit with the N-222 69 kV line for approximately two miles and to meet Federal Aviation Administration (FAA) and Cities of La Crosse and Onalaska height limitations established by the Airport Overlay Zoning District (AOZD) near the La Crosse Regional Airport.

Exact structure locations within the corridor described within this EA would be selected based on engineering needs, landowner input, and environmental factors including soil conditions, slope, maximum span length between transmission structures, and terrain. Transmission structures are generally designed for installation at existing grades. Typically, transmission structure sites with a slope of five percent or less would not be graded or leveled. At sites with a slope of more than five percent, working areas would be graded level or fill would be brought in to create level work pads. In some cases, construction mats would be used to create a level work pad where grading is impractical. DPC prefers to leave the leveled areas and working pads in place for use on future maintenance activities if the landowner permits. If the landowner does not want to leave the leveled area in place, the area would be graded to its original condition to the extent feasible and all imported fill would be removed from the site.

Approximately seven miles of the Project would be constructed using 161 kV single circuit transmission structures and approximately two miles would be constructed using 161/69 kV double circuit structures. Permanent impacts to land associated with construction would be limited to the footprint of the transmission structures. The 54 single-pole steel structures would result in approximately 680.4 square feet (approximately 0.01 acres) of permanent land impacts (up to 12.6 square feet per structure). The three H-frame dead-end structures would result in approximately 75.6 square feet (approximately 0.001 acres) of permanent impacts (up to 25.2 square feet per structure). The four Y-frame structures would result in approximately 50.4 square feet of permanent impacts (up to 12.6 square feet per structure). The total permanent effects associated with construction of the transmission structures is approximately 806.4 square feet (0.02 acres).

Typical conventional construction equipment that would be used on the Project consists of cranes, backhoes, digger-derrick line trucks, drill rigs, dump trucks, front-end loaders, bucket trucks, bulldozers, flatbed tractor-trailers, flatbed trucks, pickup trucks, and various trailers.

ROW and Ground Preparation

DPC would prepare the Project ROW by removing brush from areas where the transmission structures would be installed. Tree trimming may be required to maintain a safe distance between tree branches and the transmission structures. All related construction activity would take place within the existing ROW. Once the trimming has been completed the survey crew would conduct a final structure siting survey for each pole along the transmission line route. Due to the construction occurring within an existing ROW that is relatively level, limited grading is expected to be required. Approximately 4.3 acres of grading would be required for temporary access routes and construction pads. Following construction, the graded areas would be restored to pre-construction conditions.

Structure Installation

Construction would start with the crews transporting poles, insulators, and insulator hardware from the staging areas to the individual structure sites utilizing local roads, field roads, and private driveways

Upland Areas

In upland areas, physical construction of the Project would begin with the auguring of a hole for the structure. Structures would be assembled on the ground prior to placement with a mobile crane. Approximately 80 percent of the structures would be placed in augered holes. Depending on soil conditions, culvert pipes may be used as a permanent casing to hold the hole open. The excess excavated material and/or crushed stone and clean fill would be used to fill excess space in the hole or culvert pipe. Nine angle or tangent structures would require the use of concrete foundations to provide added strength. Excess spoil materials not used as backfill around replacement or new structures may be removed from the site and disposed of at an existing landfill upon completion of construction. If excess spoil removal from the site is not practicable, other measures would be used to stabilize the material disposal sites including seeding and mulch combined with silt fence or fiber roll perimeter control.

La Crosse River Floodplain

Within the La Crosse River floodplain, access to the structures would be via existing access routes and trails and may require temporary matting depending on temperatures. DPC would use specialized construction methods to minimize environmental impacts. The following construction methods eliminate the need for concrete foundations, avoid the need for dewatering, do not generate waste soil material, and would not require placing gravel or other fill for construction access.

Once a structure has been assembled on the ground, a mobile crane would use a vibratory hammer (**Graphics 1 and 2**) to vibrate the caisson to the required foundation depth at each structure location. Once the caisson is correctly installed, the crane would lift the Y-frame steel structure or the H-frame steel deadend structure in sections and attach the structure section to the foundation or previously-set lower section. The structures would be directly embedded in soil. Temporary construction matting would be required for an approximately 25-foot by 25-foot area at the base of Structures Locations123 through 125 within La Crosse River floodplain (**Appendix A, Sheet Maps 9 and 10)**.

Graphic 1: Vibratory Hammer

Graphic 2: Vibratory Hammer Installing Caisson

Wire (Conductor) Stringing

Following structure installation, several reels of wire would be placed in the wire-stringing cradles and the wire would be run through a series of sheaves that support and apply tension to the wire while it is being pulled into place by a winch. The wires would then be properly "sagged" to maintain pre-determined wire tension that meets National Electric Safety Code (NESC) standards.

Conductor and Structure Stabilization

The final construction operation is to "clip-in" the conductor. This step involves removing the stringing sheaves and replacing them with clamps, which attach and secure the conductors to the insulator strings. The construction operation would be essentially complete once the wire has been clipped in.

Reclamation

Areas of disturbance will be re-contoured, re-vegetated, and returned to pre-existing conditions after construction. In non-agricultural land, disturbed areas around the newly installed structures will be seeded and mulched per landowners' requests. Stabilization of the structure locations will be considered to be achieved when a uniform perennial vegetation cover has been established with a density of at least 70 percent cover.

Decommissioning

To prevent service disruption for the portion of the Project to be rebuilt, the existing transmission lines would not be decommissioned and removed from their current locations until construction of the Project is complete and the transmission lines are in-service. DPC would completely remove the existing wood poles and conductors in uplands by pulling them with a crane or similar equipment. Existing wood poles located within wetlands and the La Crosse River floodplain would be cut off at the base so that the surrounding soil or vegetation would not be impacted. DPC will re-contour and re-vegetate the disturbed areas to pre-existing conditions.

Page Intentionally Blank

.

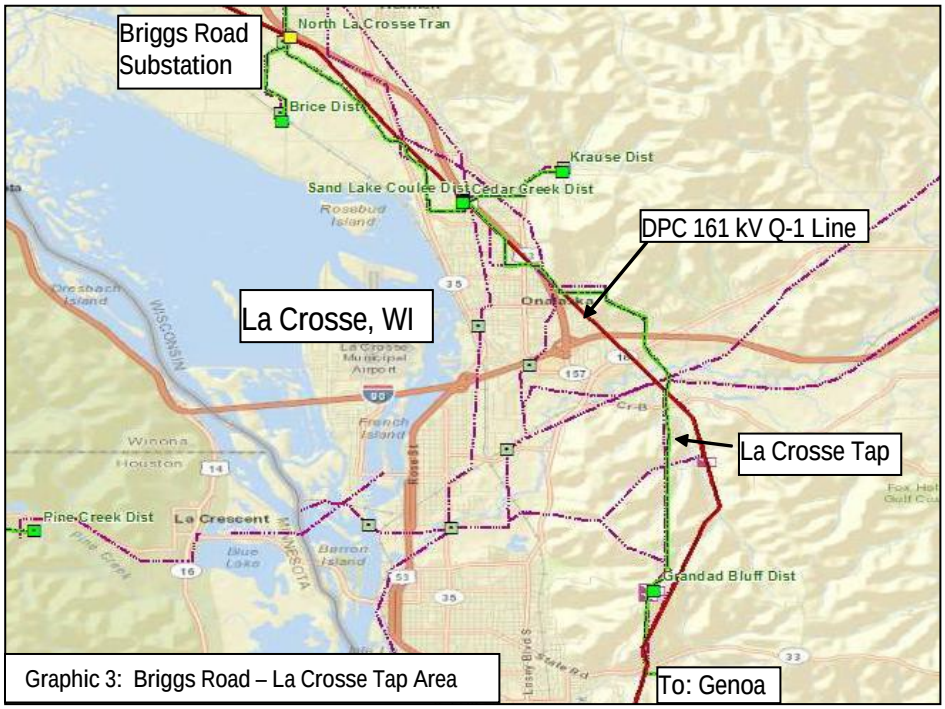
2.0 Purpose and Need for the Project

2.1 Purpose and Need for DPC's Action

DPC provides wholesale electricity to 25 member cooperatives and 16 municipal utilities via 3,100 miles of transmission line and 285 substations within their service area. DPC's service area encompasses 62 counties across Wisconsin, Minnesota, Iowa, and Illinois. DPC's generation resources include coal, natural gas, hydroelectric, solar, wind, bio-mass, and landfill gas. DPC is obligated to ensure reliable electricity service to its cooperative members and their customers in order to maintain compliance with North American Electric Reliability Corporation's (NERC) transmission planning standards.

DPC's Q-1 transmission line was originally constructed in 1951 connecting what is now Xcel Energy's (Xcel's) Marshland Substation to the La Crosse substation where the Q-1D South line continued on to the La Crosse Tap and then to DPC's Genoa Substation (**Graphic 3**). The Xcel Briggs Road Substation was recently constructed as part of the CapX2020 Hampton – Rochester - La Crosse (CapX) project, and the Q-1D South line now terminates at the Briggs Road Substation instead of the La Crosse Substation north of La Crosse near Holmen, Wisconsin. When the Briggs Road substation was constructed, the Q-1D line became the Briggs Road - La Crosse Tap - Genoa 161 kV line.

In April 2013, DPC completed the "Briggs Road – La Crosse Tap 161 kV Rebuild Study" recommending replacement of the Marshland - Briggs Road Q-1D North 161 kV line due to age and condition since the majority of the route was not going to be utilized by the CapX project. It also determined that the Briggs Road - La Crosse Tap Q-1D South line needed to be replaced due to age, condition, and line loading concerns. The two high voltage projects in the area, the CapX project and the joint Xcel and ATC Badger Coulee 345 kV project will not be utilizing the Briggs Road-La Crosse Tap 161 kV ROW, allowing DPC to proceed with the Q-1D South rebuild Project.



Graphic 3: Briggs Road – La Crosse Tap Area

2.1.1 Existing Facilities and Reliability History

The existing Q-1D South line consists of 9.1 miles of H-frame wood pole construction with 336 aluminum core steel reinforced (ACSR) conductor. There is also a short 0.59 mile section of 795 ACSS conductor in the line due to past changes where the transmission line crosses Highway 53. In 1988, this line was uprated from 120 to 212 degree Fahrenheit design temperature primarily by raising cross arms and installing extensions for the static wires. The summer rating for this line is 162 mega volt amperes (MVA) and the winter rating is 211 MVA. Both ratings are the full rating of the existing 336 ACSR conductor. The Q-1D South line has been in service for 62 years and is in poor condition. In recent years there has been an increase in the amount of maintenance required on the transmission line.

The Q-1D South line has had some recent history of condition-related reliability issues. The ROW is typically not along road ROW, making some structure locations difficult to access during an outage. Several structure failures have occurred on the Q-1D North section that is of the same vintage as the Q-1D South section. The Q-1D North section had structure failures in 2002 and 2012. **Table 2-1** below is a recent reliability history of the Q-1 161 kV line from Genoa to La Crosse Tap and on to Marshland.

Table 2-1: Reliability History

Outages 2009-14	2009	2010	2011	2012	2013	2014*	5 year Average
Marshland-LAC Tap-Genoa Momentary Outages	0	0	1	0	1	3	0.4
Marshland-LAC Tap-Genoa Sustained Outages	0	1	0	0	0	1	0.2

*Note: 2014 Data is through August 3, 2014

2.1.2 Contingency Analysis

The La Crosse area load is primarily served from the north and south due to the geography of the Mississippi River to the west. The Q-1D line is one of the high voltage lines that delivers power to the La Crosse area load from the new 345 kV source at Briggs Road Substation that was constructed as part of the CapX project. The Briggs Road 345/161/69 kV transmission substation was in service in late 2015. The substation connects to DPC's Q-1D 161 kV line and Xcel's Tremval - Briggs Road - Mayfair 161 kV line. At the 69 kV level, the substation connects to DPC's North La Crosse 69 kV switching station.

A 2019 Summer Peak case from the 2014 Midwest Reliability (MRO) Model Series was used to review potential line loading on the Q-1D line. The line loading can increase during scenarios when a generation on the south side of La Crosse (Genoa #3 or Lansing #4) is off-line, either forced or for market reasons, in addition to a line outage. The scenario of one of these generators not being online and loss of Xcel's Briggs Road - Mayfair line section was studied. The resulting power flows are summarized in **Table 2- 2**.

Table 2-2: Project Contingency Analysis

Facility	Contingency	Line Loading
Briggs Road - La Crosse Tap 161 kV (Q-1D South)	Base Case	27% (44 MVA)
Briggs Road - Mayfair 161		48% (95 MVA)
Briggs Road - La Crosse Tap 161 kV (Q-1D South)	Genoa #3	68% (111 MVA)
Briggs Road - Mayfair 161		72% (144.6 MVA)
Briggs Road - La Crosse Tap 161 kV (Q-1D South	Genoa #3 and Briggs Road – Mayfair - La Crosse 161 kV	115% (189 MVA)
Briggs Road - Mayfair 161 kV		Off-line
Briggs Road - La Crosse Tap 161 kV (Q-1D South	Lansing #4	53% (86 MVA)
Briggs Road - Mayfair 161		63% (127 MVA)
Briggs Road - La Crosse Tap 161 kV (Q-1D South	Lansing #4 and Briggs Road – Mayfair - La Crosse 161 kV	92% (152 MVA)
Briggs Road - Mayfair 161 kV		Off-line
Briggs Road - La Crosse Tap 161 kV (Q-1D South	Lansing #4 and Briggs Road - Mayfair 161 kV	106% (174 MVA)
Briggs Road - Mayfair 161 kV		Off-line

During scenarios where Genoa #3 is off-line and the contingency of Xcel's Briggs Road – Mayfair - La Crosse 161 kV line occurs, the Q-1D line could overload to 189 MVA, 115 percent of its summer normal rating. The same scenario with Lansing #4 off-line instead of Genoa #3 does not result in an overload, but if Xcel were to restore the Mayfair load from their La Crosse Substation, the Q-1D line would overload to 174 MVA, 106 percent of its summer normal rating.

2.1.3 Recommended Plan

The Q-1D South line is the oldest 161 kV line on the DPC system. The Badger Coulee 345 kV Certificate of Public Convenience and Necessity (CPCN) application has been approved by the Public Service Commission of Wisconsin (PSCW) and the approved route will not follow DPC's ROW through the City of Onalaska, allowing DPC to proceed with the Project to replace the Q-1D South line. Recent reliability issues on other sections of the Q-1 line support the decision that this line is in poor condition and is in need of replacement.

This line is one of the primary outlets for power in the area with the new Briggs Road 345/161/69 kV substation in-service. The Q-1D South transmission line could become overloaded when a local generator is off-line and the Briggs Road – Mayfair-La Crosse line is out-of-service. A 656 ACCR conductor would mitigate any overload concerns for this line section and increase the existing rating from 162 MVA to 400 MVA in the summer.

The 2013 planning study recommends replacing the Q-1D South on the existing ROW. An approximately two-mile section of this line would be double circuited with DPC's adjacent 69 kV line to consolidate ROWs. Once the Project is completed, all of the sections of DPC 161 kV line between Alma and Genoa will have been replaced. Rebuilding Q-1D South with new structures and a 656 ACCR conductor will address the condition issue and ensure reliable service into the future. The new conductor will also provide enough capacity for future load growth and power flows across the transmission system.

Based on the current schedule, DPC is proposing to start construction in the fall of 2016 (**Table 2-3**).

Table 2-3: 2013 Q-1D South Project Recommended Plan

Facilities	Conductor Size	Miles	Year Installed	Cost
Briggs Road-La Crosse Tap	656 ACCR	8.8	2016	$11,908,000

2.2 Purpose and Need for RUS's Action

Under the Rural Electrification Act, as amended (RE Act), the U.S. Secretary of Agriculture is authorized and empowered to make loans for rural electrification to nonprofit cooperatives and others "for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines or systems for the furnishing and improving of electric service to persons in rural areas." A primary function or mission of RUS is to carry out this electric loan program.

3.0 Alternatives to the Proposed Project

3.1 Proposed Action

DPC's proposed action is to rebuild approximately nine miles of existing single-circuit 161 kV transmission line with 656 ACCR conductors. A summary of the transmission line route is provided below and is shown on **Figure 1** and **Appendix A.**

161 kV Transmission Line Route (north to south)

- The Project originates approximately 0.3 miles southeast of the Briggs Road Substation located in the Town of Onalaska, southwest of the Village of Holmen, Wisconsin. Beginning as a single circuit line, the Project runs southwest through a wooded area adjacent to U.S. Highway (USH) 53/ Great River Road for approximately 1,000 feet before angling further south. This section of line crosses Halfway Creek, Filler Court, Meadow PIace, Evergreen Way, Scott Drive, Kimberly Street, Gregory Street, and Ulman Street, before shifting slightly westward and crossing State Trunk Highway (STH) 35.
- The next section of the line runs adjacent to Terri Circle Drive followed by crossing County Road (CR) OT, Industrial Boulevard, Commerce Road, then crosses Cloverdale Road, Strawberry Road, Holley Drive, LB White Road, and East Avenue N.
- After crossing East Avenue N, the Project changes from single circuit to double circuit (161/69 kV) at Structure Location 151 **(Appendix A, Sheet Map 5)**. This section begins by running parallel to USH 53/ Great River Road and north of a residential area of the City of Onalaska for approximately 7,500 feet. It crosses Riders Club Road, USH 53/Sand Lake Road ramps, and Sand Lake Road.
- Just west of the Shepherd of the Hill Lutheran Church, the Project proceeds west across USH 53. It angles back southwest across a forested area, changing from double circuit to a single circuit at Structure Location136 (**Appendix A, Sheet Map 7**). The Project crosses Green Coulee Road, Grand View Boulevard, Main Street E, Heritage Lane, Interstate (I)-90, crosses the commercial area associated with Valley View Mall, Rudy Street, Lester Avenue, Theater Road, CR PH, and STH 16. It then enters the La Crosse River floodplain and crosses the La Crosse River and the La Crosse River State Trail. Upon exiting the floodplain the Project crosses CR B, Sablewood Drive, Evergreens Trail, Keil Coulee Road, and ending at the La Crosse Tap, approximately 0.7 miles south and west of the City of La Crosse, Wisconsin.

3.2 Regional Alternatives

The Project is a local load-serving facility and is not intended to be regional in nature. As such, regional studies were not performed for the Project.

3.3 Alternative Designs and Construction Methods

DPC considered alternative transmission structure types, such as steel monopoles, Y-frame steel structures, H-frame wood structures, and H-frame steel structures for the Project.

DPC would use vibratory caissons along with Y-frame steel structures and one H-frame steel deadend structure for the 0.6 mile section that crosses the La Crosse River floodplain to:

- Limit transmission line height to an average of 65 feet to remain at or below the average tree height to reduce the potential for bird strikes.
- Eliminate the need for concrete foundations.
- Avoid the need for dewatering.
- Eliminate the generation of waste soil material.
- Reduce the number of structures needed in the La Crosse River floodplain from three H-frame structures (six poles) to three single Y-frame structures and one H-frame steel dead-end structure (five poles). The shorter H-frame steel deadend structure is needed to allow the Project to be rebuilt under an existing 161 kV transmission line and the three-pole design is to maintain sufficient height above a stream crossing.

Single-pole steel structures would be used for the remainder of the Project to allow DPC to double circuit with the N-222 69 kV line for approximately two miles and to meet FAA and Cities of La Crosse and Onalaska AOZD height restrictions near the La Crosse Regional Airport. The color and scale of the new structures would not substantially adversely impact vistas, damage scenic resources, or degrade the existing visual character or quality of the corridor and its surroundings.

3.4 Alternative Routes Considered

Two alternative routes were evaluated before making the decision to stay on DPC's existing Q-1D South ROW. One alternative was to double circuit with Xcel Energy's Briggs Road – Mayfair 161 kV transmission line as described in Section 3.4.1. The second alternative followed DPC's N-222 69 kV transmission line ROW as described in Section 3.4.2.

3.4.1 Xcel Energy's Briggs Road - Mayfair 161 kV Transmission Line Route

DPC evaluated the alternative of double circuiting the Q-1D South rebuild with Xcel's Briggs Road – Mayfair 161 kV transmission line (**Figure 4**). This alternative was eliminated from further consideration due to reliability concerns, construction constraints, easement acquisition, and timing.

Redundancy is built into the transmission system to provide electric companies with alternative power paths in emergencies and to efficiently access electricity, even from other power suppliers, to provide customer service. Xcel's Briggs Road – Mayfair line provides redundancy to the Q-1D South line. Rebuilding the Q-1D South line as a double circuit with Xcel Energy's Briggs Road – Mayfair line would eliminate this redundancy creating additional reliability risk and increasing the chance of customer outages if a major weather event or other emergency caused simultaneous outages of the two lines on the same transmission poles.

DPC currently has all of the easements along the existing Q-1D South ROW. Moving to Xcel's ROW would require DPC to acquire new easements with the possibility of condemnation. Rerouting the Q-1D South Project to Xcel's ROW would also require going through the PSCW's CPCN process, which DPC would not have to do if the line is rebuilt within the existing Q-1D South ROW. This process would delay the rebuild process by up to five years and add cost.

Finally, DPC identified several physical constraints to using the Xcel 161 kV ROW. One of the identified constraints is property adjacent to Xcel's ROW that is owned by Mayo Clinic, who is proposing to build a new hospital on the site (**Appendix B**). Hospitals are considered to be "sensitive sites" in PSCW regulations and are to be avoided if possible. Also, Xcel's line currently goes over several homes, which under PSCW rules may need to be purchased. In Wisconsin, public utilities may be prohibited from building transmission lines over certain structures. Wis. Admin. Code Ch. 114, which does not apply to DPC because they are a cooperative, adopts and incorporates the NESC as the general standards for constructing and maintaining transmission lines by public utilities. In addition, when it adopted the NESC, the PSCW added Wis. Admin. Code § PSCW 114.234(a)(4) in Ch. 114, prohibiting construction of lines designed to operate in excess of 35 kV over dwellings. This provision likely applies to Xcel as a public utility but not DPC as a cooperative. **Appendix B** provides representative photographs of these constraints. Xcel has also indicated that their line is not projected to be rebuilt for more than five years, which would result in increased reliability issues and repair and maintenance requirements due to the age and condition of the existing line.

Based on these considerations this alternative was eliminated as an option going forward.

3.4.2 DPC's 69 kV Transmission Line Route Alternatives

A second alternative evaluated by DPC was to build a double circuit 161/69 kV line following DPC's 69 kV (N-222) ROW. As part of the evaluation process, DPC identified two possible alternative routes using DPC's 69 kV (N-222) ROW (**Figure 4**).

- Alternative 1 – Rebuild along DPC 69 kV (N-222) transmission line
- Alternative 2 – Rebuild along DPC 69 kV Route (N-222) transmission line with minor re-routes to:
    - Follow an existing distribution line (along CR XX and USH 35) to avoid residences.
    - Use new ROW near East Main Street to avoid a hotel.
    - Follow a short section of Q-1D near Green Coulee Road to avoid the need to acquire wider ROW in a residential area.

Based on the analysis conducted, and presented below, it was determined that rebuilding along DPC existing Q-1D South ROW was the least impactful alternative.

Impact Comparison Summary

Alternatives 1 and 2 were evaluated in terms of technical feasibility, environmental issues, and cost-effectiveness. Also, as directed by the policy of the state of Wisconsin (Wis. Stat. §1.12 (6)), the sharing of existing utility corridors, highway and railroad corridors, and recreational trails, in that order, were considered.

In comparison to rebuilding along the existing Q1-D South alignment (**Table 3-1),** Alternatives 1 and 2 would:

- Create new impacts to residences, apartments, and businesses.
- Increase the length of the transmission line rebuild by approximately 1.9 miles and the amount of double circuited transmission line by approximately 1.3 miles.
- Require approximately 26 acres (Alternative 1) to 30 acres (Alternative 2) of additional ROW.
- Be substantially costlier due to the longer overall length, longer length of double circuited line, and the need for additional dead end structures and large running angles.
- Provide the same level of sharing of existing utility corridor with Alternative 1 (100 percent),and less with Alternative 2 (75 percent).
- Moving to a new route would require DPC to go through the PSCW's CPCN process, which would delay the Project by up to five years and add cost.

Table 3-1: Alternative Comparison Summary

Resource Category	Existing Q-1D South Route (Project)	Alternative 1	Alternative 2
Length (miles)	8.8	10.7	10.7
Existing ROW (feet)	80	60	60
Proposed ROW (feet)	80	80	80
New transmission line ROW required (acres)	0	25.9	30.0
General Characteristics			
Length utilizing existing transmission corridor (miles)	8.8	10.7	8.0
% of route utilizing existing transmission corridor	100%	100%	75%
Length utilizing existing transportation corridor (miles)	0.0	0.0	2.1
% of route utilizing existing transportation corridor	0%	0%	20%
Length utilizing existing transmission corridor and/or transportation corridor (miles)	8.8	10.7	10.2
% of route utilizing existing transmission corridor and/or transportation corridor	100%	100%	95%
Length not utilizing linear features (miles)	0.0	0.0	0.5
% of route not following linear infrastructure	0%	0%	5%

Resource Category	Existing Q-1D South Route (Project)	Alternative 1	Alternative 2
Natural Resources			
Length crossing wetlands (miles)	0.6	0.6	0.6
Length crossing floodplains (miles)	0.6	0.9	0.6
Waterway crossings	8	8	8
Cost	$11,669,000	$24,570,000	$24,630,000
Residences			
Existing residences 0-30 feet	13	1	2
Existing residences 31-40 feet	11	1	2
Existing apartments 0-30 feet	0	1*	1*
Existing apartments 31-40 feet	0	6*	6*
Existing businesses 0-30 feet	2	9	5
Existing businesses 31-40 feet	0	4	2
Total existing residences, apartments, and businesses 0-40 feet	26	24	18
NEWLY impacted residences 0-30 feet	0	0	0
NEWLY impacted residences 31-40 feet	0	1	2
NEWLY impacted apartments 0-30 feet	0	0	0
NEWLY impacted apartments 31-40 feet	0	6*	6*
NEWLY impacted businesses 0-30 feet	0	0	0
NEWLY impacted businesses 31-40 feet	0	4	2
Total NEWLY impacted residences, apartments, and businesses 0-40 feet	0	11	10
State and Federal Lands			
State lands crossed (miles)	0.02	0.02	0.02
Federal lands crossed (miles)	0	0	0

* Apartments contain multiple tenants.

FAA and Cities of La Crosse and Onalaska Airport Overlay Zoning

The existing Q-1D South route and Alternatives 1 and 2 are in relatively close proximity to the La Crosse Regional Airport. DPC has notified the Administrator of the FAA of the proposed construction as required by CFR Title 14 Part 77.9 that requires a sponsor proposing any type of construction or alteration of a structure that may affect the National Airspace System to notify the FAA by completing the Notice of Proposed Construction or Alteration form (FAA Form 7460-1). FAA obstruction marking and lighting requirements are described in Advisory Circular 70/746-1K (2/1/2007). In general, any temporary or permanent structure, including all appurtenances, that exceeds an overall height of 200 feet (61m) above ground level (AGL) or exceeds any obstruction standard contained in 14 CFR part 77, would normally be marked and/or lighted, unless an FAA aeronautical study reveals that the absence of marking and/or lighting will not impair aviation safety. Conversely, an object may present such an extraordinary hazard potential the higher standard may be recommended for increased conspicuity to ensure safety to air navigation.

Wisc. Admin. Code Ch. 56, Erection of Tall Structures, prescribes procedures for the permitting of tall structures or other objects affecting airspace in Wisconsin. A permit is required from the Secretary for any structure that exceeds the limitations in §114.135 (7) Wis. Stats. The Cities of La Crosse and Onalaska zoning ordinances institute height limitations though the AOZD and also references marking and lighting requirements as established in Advisory Circular 70/746-1K (2/1/2007). The city's compliance with the ordinance affects their ability to get public funding.

Utilizing Alternatives 1 or 2 would move portions of the line approximately 0.5 mile closer to the airport than rebuilding along existing Q1-D South route as proposed. As a result, more structures would exceed by height restrictions. During early engineering when typical structure heights and spans were assumed for the Project, the existing Q-1D South route was projected to result in 24 structures that exceeded height restrictions. Using the same assumptions, Alternatives 1 and 2 were projected to result in 39 structures that exceeded height restrictions.

Ongoing engineering for the Q-1D South route eventually reduced the number of structures that would exceed FAA and AOZD height restrictions to three and these will be required to be lit. The existing Q-1D South structures at two of the three locations already exceeded height restrictions and the remaining structure in exceedance would only be 4.5 feet taller than the existing structure.

DPC engineers estimate that ongoing engineering for Alternatives 1 and 2 could potentially reduce the number of structures in violation of height restrictions to approximately 20. Lighting these structures may satisfy FAA restrictions, but would be objectionable to the neighborhoods involved, and cost $5,000-$10,000 per structure. More significantly, it is doubtful that the Cities would approve these additional variances to the AOZD restrictions.

Reliability

The North American Electric Reliability Corporation (NERC) establishes mandatory reliability standards that apply to all electric utilities in the United States. Two of the NERC criteria address situations when multiple transmission lines are placed in close proximity to each other. These criteria are the minimum reliability criteria utilized by utilities in North America.

- NERC TPL standards relate to reliability considerations of placing multiple transmission lines in close proximity. It is also considered good utility practice to locate transmission lines that serve similar purposes distant from each other. This geographic diversity reduces the risk that multiple lines will lose service due to the same event, i.e. weather.

- NERC Category P7 (NERC Standard TPL-001-4) applies to multiple transmission circuits attached to common poles or structures, commonly referred to as double circuits. Under Category P7 requirements, transmission planners must assume that both circuits of a double circuit are outaged simultaneously. When this double outage occurs the remaining transmission system must be able to perform without cascading outages or reducing system stability. The two existing 161 kV lines connecting Briggs Road and the La Crosse area load should not be built as a double circuit. This would be DPC's Q-1D South 161 kV line in combination with Xcel's Briggs Road – Mayfair 161 kV line. Loss of both 161 kV lines under a single event would sever the 345 kV source at Briggs Road from the load center of La Crosse, Wisconsin.

Separating these two 161 kV lines by a few feet and placing them on separate but immediately adjacent sets of structures would allow for technical compliance with Category P7, but the risk of a simultaneous outage of both circuits due to a single event remains. NERC acknowledges this risk as an Extreme Event, simultaneous loss of multiple circuits on adjacent ROWs. NERC does not prohibit this scenario, but requires utilities to understand and prepare for this situation. Good utility practice is to avoid creating an Extreme Event situation. Creating a scenario under which both DPC's Q1-D South 161 kV line and Xcel's Briggs Road-Mayfair 161 kV line could go out-of-service under a single event would result in a higher probability of loss of customer load in the La Crosse area and the situation should be avoided.

When evaluating potential placement for new transmission lines, planning engineers not only apply the NERC category P7 and Extreme Event standards, but also consider how geographically close the proposed facilities would be to existing facilities. Even when NERC criteria are satisfied locating lines near each other results in reduced reliability, particularly when two lines serve a common purpose such as the 161 kV lines feeding La Crosse. The more common corridors are propagated, particularly involving high voltage facilities, the more likely it becomes that an outage involving multiple facilities could occur. Routes that are more geographically distant from existing transmission facilities provide the most reliability benefit.

ROW Acquisition

Alternatives 1 and 2 would require DPC to acquire additional ROW from the YMCA (including a daycare), and Van Riper and School Parks in Onalaska, both of which received Land and Water Conservation Fund (LWCF) grants. The National Park Service administers the LWCF Act, which, in turn has delegated some roles and responsibilities to the WDNR. Section 6(f) of the Act requires that all properties "acquired or developed, either partially or wholly, with LWCF funds" must be maintained as such in perpetuity. Section 6(f)(3) states that those properties acquired or developed with LWCF funds shall not be converted to a use other than public outdoor recreation without the approval of the Secretary of the Department of the Interior, acting through the National Park Service and at the request of the state delegate/State Liaison Officer. Among other criteria for allowing for a conversion, all practical alternatives must have been evaluated and justification that there are no reasonable or prudent alternatives must be provided. As explained in the document, rebuilding the Q-1D South within its existing ROW is a reasonable and prudent alternative to acquiring ROW from these parks.

The easements obtained by DPC to allow for the construction and operation of the 69 kV lines do not allow DPC the right to construct and operate a 161 kV electrical transmission line system in the same corridor. Therefore, DPC would be required to secure separate easement documents to construct and operate the 161 kV in this same corridor, and would require DPC to secure additional lands to widen the corridor to facilitate the existing the 161/69 kV double circuit system. The estimated acquisition budget would equal approximately $5,400,000 for either Alternative 1 or 2. Further engineering analysis would need to be done to determine which properties and buildings would be physically impacted by the new double circuited transmission line system and the increased lands needed for the ROW.

The proposed route for the Project is to use DPC's existing Q-1D South ROW that has the required 80-foot-wide ROW. Both Alternatives 1 and 2 follow 69 kV transmission line ROWs that would need to be widened from 60 feet to 80 feet. A review of the alternative corridors identified constraints that would make the design and construction of the 161 kV line by expanding the 69 kV ROWs difficult (**Table 3-2**). The table presents conflicts based on the presence of homes, parks, preschools, or other facilities.. The PSCW considers daycare centers, schools, hospital, and cemeteries sensitive sites that should be avoided if at all possible. These are noted in the **Table 3-2**. Visual examples of these constraints are included in **Appendix B**.

Table 3-2: Alternative 1 and 2 Design and Construction Constraints

Constraint Number	Alternative 1	Alternative 2
1	2 houses in expanded ROW near CR OT	2 houses in expanded ROW near CR OT
2	House in expanded ROW near CR OT	House in expanded ROW near CR OT
3	4 houses in expanded ROW along Circle Drive E	House in ROW near STH 35
4	House in expanded ROW	
5	Edgewater Motel in expanded ROW	
6	2 houses in expanded ROW	
7		House in expanded ROW
8	*YMCA property, with daycare facility, and Van Riper and School Parks (LWCF Lands)	*YMCA property, with daycare facility, and Van Riper and School Parks (LWCF Lands)
9	Approx. 6 houses and 2 apartment buildings near10th Ave N	Approx. 6 houses and 2 apartment buildings near10th Ave N
10	Approx. 6 residential units near Commercial Ct	Approx. 6 residential units near Commercial Ct
11	*Shepard's Flock Church and Pre-School	*Shepard's Flock Church and Pre-School
12		House in expanded ROW near Green Coulee Rd
13	Approx. 1 house in expanded ROW near Putter Ct	Approx. 3 houses in expanded ROW near Green Coulee Rd
14	*Eagle Bluff School property	*Eagle Bluff School property
15	House in expanded ROW	House in expanded ROW
16	Hampton Inn in expanded ROW	
17	Residential unit near CR B in Expanded ROW	Residential unit near CR B in Expanded ROW
18	House in expanded ROW near Timber Creek Trail	House in expanded ROW near Timber Creek Trail
19	3 homes in expanded ROW near Evergreens Trail	3 homes in expanded ROW near Evergreens Trail

*PSCW sensitive sites

3.4.3 Underground Alternative

The existing Q-1D South line is primarily located in an urban area. Although rebuilding in the existing ROW is the least impactful alternative for an overhead line, it presents numerous obstacles to underground construction. These obstacles not only combine to make underground construction prohibitively expensive, but would require at least two miles of reroutes that would delay the Project by up to five years by triggering the PSCW CPCN process. DPC has already delayed for the Project for a year due to outages required for the CapX project. An additional five year delay would result in increased reliability issues and repair and maintenance requirements due to the age and condition of the existing line.

Obstacles to underground construction include:

1. Twenty-eight two-lane road or street crossings.
2. One three-lane state highway crossing.
3. Four four-lane highway crossings, including two limited access highways, one of which is I-90.
4. One main line, double-track railroad crossing.

5. Ten or more drive crossings.
6. Two bicycle/hiking trail crossings.
7. La Crosse River crossing, including 230 feet of wetland.
8. Two golf courses, including 1175 feet of fairway.
9. Three large commercial parking lots, including 1150 feet of pavement.
10. Two 125 to150-foot tall rock bluffs.
11. Two underground water reservoirs.
12. One sewage treatment plant.
13. One mobile home park.
14. Two large sand and gravel operations (about 2000 feet. total).
15. Numerous residential yards, totaling approximately 9000 feet.
16. Five single family homes (not including mobile home park).
17. Five commercial buildings.

An underground 161 kV line would require the installation trench of about six feet wide by six-feet deep if shoring were used, which is a costly construction method. Without shoring, the trench walls would have to be sloped making the trench much wider. Directional boring would be required under major roads, railroads, and the La Crosse River. Underground transmission cables have much more extensive requirements than underground distribution lines. Underground transmission cables are several inches in diameter and must be encased within 10 inch diameter or larger pipers. Open trench construction techniques place the cables relatively close to the ground surface and the conductors/pipes must be encased in concrete to protect them from dig-ins and rodents. Underground vaults are required approximately every 0.5 mile to contain the conductor splices. The vaults are typically ten feet wide by 20 feet long by ten feet high, and are buried at a depth of three feet.

There are other issues associated with underground construction. Higher operations and maintenance costs for underground transmission offset the ROW maintenance costs associated with overhead transmission. Also, in an urban setting, transmission lines often have to be modified to accommodate infrastructure and development projects. Modifying an underground cable is a much more arduous and expensive undertaking than modifying an overhead line. Visual inspections of underground lines are not possible. Unscheduled underground outages typically last three weeks or more compared to overhead outages, which can usually be resolved in a couple of days. DPC does not currently have any 161 kV underground lines and there would be costs associated with training and equipment to maintain an underground facility.

Rebuilding the 8.8-mile-long, 161 kV line as an overhead transmission line is estimated to cost $11,669,000. Rebuilding the 161 kV line underground, with at least two miles of reroutes required to avoid obstacles to underground construction, would be expected to cost more than $100,000,000. This is based on recent underground construction costs of approximately $10,000,000 per mile.

3.5 No Action Alternative

Under the No Action Alternative, RUS would not provide financing for the Project. DPC would likely rebuild the Project without RUS financing in order to continue to provide their customers with reliable service. If the existing transmission line were to remain in service, its 1950s-era transmission structures would continue to deteriorate. Failure to rebuild the Project would result in continued growing strain on the transmission system in the area, which in turn could result in more frequent system overloads. DPC is obligated to ensure reliable electricity to its customers, and if this lack of reliable service were not addressed, DPC would be in violation of the NERC Transmission Planning Standards. The aging transmission structures also present the potential for outages to the fiber optic line they carry.

The No Action Alternative would have impacts on natural and human resources similar to the Project because operation and maintenance activities would continue to occur along the existing ROW, including removing small trees and brush to allow vehicle and equipment access for repairs. The operation and maintenance activities would generate, in particular, temporary effects to vegetation, potential short-term displacement of wildlife, and construction noise. The No Action Alternative would potentially avoid new construction-related activities that include up to three days of intermittent construction at each transmission structure; removal and replacement of new transmission structures in wetlands; and utilization of temporary access routes. Depending on the location of transmission structure failure on the existing transmission line, however, these effects may not be avoided in the future.

Page Intentionally Blank

4.0 Affected Environment

The following sections describe the existing human and natural environment in the area surrounding the Project.

4.1 Land Use

4.1.1 General Land Use

Beginning 0.3 mile southeast of the Briggs Road Substation the Project crosses through the Town of Onalaska, Village of Holmen, Cities of Onalaska and La Crosse, and Town of Medary in La Crosse County, Wisconsin. The Project utilizes DPC's existing 161 kV transmission line ROW intersecting rural, residential, and commercial areas. Potential for conflict exists near the developed areas of cities and villages, such as the Holmen, La Crosse, and Onalaska areas, where residential and commercial development, existing and planned, becomes more common. Existing land use can be viewed on the aerial photographs that serve as the base for the sheet maps in **Appendix A**.

Starting near the Briggs Road substation, in the Town of Onalaska, the Project ROW crosses agricultural land, wooded land, and sand and gravel mining operations. In the Village of Holmen it crosses a portion of the wastewater treatment plant before re-entering the Town of Onalaska and crossing agricultural land, residential land, and sand and gravel mining areas. As the Project re-enters the Village of Holman it crosses residential areas, including a mobile home park. As it re-enters the Town of Onalaska it crosses industrial/commercial and residential areas. In the City of Onalaska the Project ROW parallels STH 53/Great River Road through residential land, road ROW, and church property before crossing Coulee Golf Course and residential land, including the Coachlite Greens Park that was acquired through the provisions of the City's Subdivision Ordinance in 1987. In the Town of Medary the Project crosses residential land before re-entering the City of Onalaska and crossing a commercial/industrial area including Valley View Mall, and the La Crosse River and associated floodplain. In the City of La Crosse the Project crosses La Crosse River floodplain, the Walsh Golf Center, and residential land uses. The Project then re-enters the Town of Medary where it crosses residential and agricultural land.

Following the construction of the line in the 1950s, several landowners built structures underneath the transmission line. The Project would rebuild and replace the line over up to 14 of these structures. The NESC does not prohibit constructing transmission lines over structures so long as the applicable line clearances are maintained. In Wisconsin, however, public utilities may be prohibited from building transmission lines over certain structures. Wis. Admin. Code § PSCW 114 adopts and incorporates the NESC as the general standards for constructing and maintaining transmission lines by public utilities. When it adopted the NESC, the PSCW added Wis. Admin. Code § PSCW 114.234(a)(4) prohibiting construction of lines designed to operate in excess of 35 kV over dwellings.

The existence of the PSCW's rules would not hinder DPC's ability to rebuild an existing line that members of the public have chosen to construct structures underneath. The rules adopted by the PSCW modifying the NESC do not apply to DPC per Wis. Stat. § 196.74, Wis. Stat. 196.01(5)(b)1, and Wis. Admin. Code § PSCW 114.02(2)(a). The PSCW also permits public utilities to seek waivers of any rule expanding

upon NESC requirements, including the rule prohibiting transmission line construction over a dwelling (Wis. Admin. Code § PSCW 114.005(1)).

Further, a survey of other states' laws on transmission construction indicates that the NESC's un-amended rule is an appropriate industry standard. The other states in which DPC operates do not prohibit transmission line construction over a dwelling. Minnesota adopts the NESC without modification (Minn. Stat. 326B.35 & Minn. R. 7826.0300, Subpart 1). The Iowa Utilities Board modifications a variety of provisions of the NESC, but declined to prohibit transmission line construction over a dwelling (199 IAC 59). Rather, Iowa statutes specifically permit transmission line within 100 feet of a dwelling with the owner's consent (Iowa Code § 478.20). Illinois requires transmission construction to be compliant with the NESC. Illinois does permit local governments to impose additional requirements on construction, but there is no statewide prohibition on the construction of a transmission line over a dwelling (220 ILCS 5/21-1001(3) & 220 ILCS 70/10).

La Crosse County

La Crosse County falls within the Mississippi River Regional Planning Council (MRRPC) planning area, a Commission of nine counties located along the Mississippi River in Western Wisconsin that was organized in 1964 under Wisconsin State Statutes to plan for the physical, social, and economic development of the Region. The area was identified as having development potential due to the rural nature of the region and proximity to two larger area employers and major employment centers. Residential development is described as being characterized by rural residential and denser clusters near villages and cities. The MRRPC noted that people live in rural areas and commute to jobs in La Crosse, Eau Claire, and Winona.

The La Crosse County Comprehensive Plan (March 2008) describes the County as encompassing a variety of land uses including cities, towns, and villages, along with agriculture and recreation. The land use in rural La Crosse County is typified by agricultural land with widely scattered rural farmsteads, open space, and the Black River floodplain that includes federally and state-owned tracts. The rural residential development is described as mostly concentrated starting at the Village of Holmen and running southeast along the Mississippi though the City of La Crosse.

The Comprehensive Plan recognizes the Wisconsin's Citizen Utility Board assessment that the electrical system in western Wisconsin is congested and not as robust as in other parts of the state and the importance of considering energy needs over this planning horizon and the coordination of transmission planning with Minnesota. The county's code of ordinances exempts transmission poles and lines from height requirements.

The Environmental Features Map (Map 6.2, La Crosse County Comprehensive Plan) maps environmentally sensitive areas such as slopes, erosion prone areas, floodplains, and water resources. This map is also referenced by towns, villages, and cities that have developed their own comprehensive plans. Steep slopes and erosion prone areas are found throughout La Crosse County. The County identifies these areas as environmentally sensitive from a water quality perspective because increased erosion and stormwater runoff occurs when steep slopes are developed. To protect the area's rivers, lakes, and streams from excessive stormwater runoff, the County Land Conservation Department and

Committee enforce a construction site erosion control ordinance that calls for approval of an erosion control plan prior to construction activity taking place. The Project within DPC's existing ROW also crosses the La Crosse River floodplain identified as an environmentally sensitive area on the map.

According to the La Crosse County Comprehensive Plan future land use mapping shows that the Project crosses Residential, Non Residential, Public-Institutional (wastewater treatment plant, golf courses, cemeteries, and similar uses), and Environmental (floodplains and slopes or erosion-prone areas).

The La Crosse County Zoning Map shows that the area crossed by the transmission line is zoned as Incorporated, consisting of the Village of Holmen and Cities of Onalaska and La Crosse (59 percent), with the remaining areas zoned as Agricultural (9.3 percent), Commercial (7.0 percent), Residential (8.9 percent), Industrial (5.8 percent), Right of Way (3.8 percent), Transitional Agriculture (3.5 percent), and Exclusive Agricultural (2.3 percent). Transmission lines are specifically permitted in Agricultural District and Exclusive Agriculture District as well as between the setback lines and the highway. They are not addressed in the other zoning districts crossed.

Towns, Villages, and Cities

Town of Onalaska

The Town of Onalaska Comprehensive Plan, adopted in May of 2005, established as one of its goals to ensure Town residents and businesses are adequately served by desired public utilities and facilities in a cost effective way and in a manner that promotes a high quality of life. The Plan specified that environmentally sensitive areas and visual resources should be protected when extending and constructing new utilities and community facilities. An element of this is to consult the Environmental Features Map (Map 6.2 in La Crosse County Comprehensive Plan) and relevant agencies before making decisions regarding new utilities or community facilities and encourage development and redevelopment practices that will maintain or improve the natural environment (May 2005). The Town of Onalaska has adopted the La Crosse County Code of Ordinances (July 2013), which exempts transmission poles and lines from height requirements.

Village of Holmen

The Village of Holmen established a comprehensive plan in 2004 that expresses the goal of providing services and facilities necessary to improve the quality of life for residents, property owners, businesses, and visitors. It also outlines the need to coordinate the location of public utilities with projected growth and development patterns as well as ensuring affordable utilities in Holmen. Environmentally sensitive areas are to be avoided when extending and constructing utilities by discouraging development of electric lines above 900 feet in elevation, prohibiting development on slopes greater than 12 percent, encouraging preservation of the maximum amount of native vegetation in construction areas, and discouraging development below 700 feet in elevation (the floodplain area) (December 2004). The Village of Holman has adopted its own zoning ordinance. The Project crosses land zoned as A Agricultural District and R-5 Multiple-Family Residential.

Town of Medary

The Town of Medary comprehensive plan states that since the Town does not own, operate, or provide electrical service, the expansion of these services will need to be determined and provided by other municipalities and either Xcel Energy or DPC. The Town of Medary has adopted the La Crosse County Code of Ordinances, which exempts transmission poles and lines from height requirements.

City of Onalaska

The City of Onalaska adopted a comprehensive plan in 2005 and has a zoning and land division ordinance, as well as many other ordinances and plans that inform community decisions (Updated June 2009). The City proposes to coordinate the location of public facilities with projected growth and development patterns as well as provide efficient and cost-effective utilities. Environmentally sensitive areas are to be avoided when extending and constructing utilities by prohibiting development that would require public water lines on land above 900 feet in elevation, prohibiting development on slopes greater than 30 percent, and consulting the Environmental Features Map before making decisions regarding location of new utilities. The Project is adjacent to USH 53/Great River Road along much of its route through the City. Future land uses crossed by the Project include Commercial Industrial, Mixed Density Residential, Conservation Cluster Development that would preserve open space, Environmental Corridor (an area east of 53 and the La Crosse River Floodplain) and Park and Recreation (golf course).

The City of Onalaska has adopted its own zoning ordinance in 2009. The Project ROW crosses land zoned as M2 Industrial, TC Transitional Commercial, R2 Single Family and Duplex Residential District, R160 Single Family Residential District, A1 Agricultural District, P1 Public and Semi-Public District (Coachlite Greens Park and golf course), R4 Multi-Family Residential District, M1 Light Industrial District, and Flood Hazard Zones along the La Crosse River. Coachlite Greens Park was acquired through the provisions of the City's Subdivision Ordinance in 1987. It has been developed and improved by the City as a playground site. Features of the site include trees and plantings, sidewalk access along Grandview Boulevard, playground equipment, a basketball court, and open play space.

Except for areas affected by the City of La Crosse Airport Zoning Overlay Regulations, the City of Onalaska zoning code exempts transmission poles and lines from height requirements of zoning districts. The Project falls within the Airport Zoning Overlay in both the City of Onalaska and the City of La Crosse (**Figure 5**). The City has assumed jurisdiction to administer the City of La Crosse's Airport Zoning Overlay Regulations for those areas affected by the Airport Zoning Overlay District that fall within the City of Onalaska corporate limits that establishes the height limitations for structures within the Airport Zoning Overlay.

City of La Crosse

The City of La Crosse comprehensive plan dated December 2002 identifies that the siting of utility lines and towers should, to the extent possible, accentuate and not obstruct important views. The plan states that major roadways and adjacent development appears visually cluttered due to excessive and haphazard signage, utility poles, inadequate landscaping and screening of large surface parking lots, and little consistency in building design or materials. The plan identifies the La Crosse River as an important natural resource and a critical river. The City will continue to pursue developing establishing

environmental corridors and parkland along rivers. Development in environmentally sensitive areas such as steep slopes and river corridors are to consider BMPs such as avoiding steep slopes, maintaining vegetative buffers, and minimizing the removal of vegetation.

Future land uses crossed by the Project include High Intensity Retail, Office, or Housing; Wetland; Parks and Conservancy; and Fringe Residential Housing. Environmentally sensitive areas are to be avoided when extending and constructing utilities by prohibiting development that would require public water lines on land above 900 feet in elevation, prohibiting development on slopes greater than 30 percent,

The City of La Crosse issued a draft Zoning Ordinance in October 2013. The La Crosse Municipal Airport Land Use Plan (adopted January 2011) was developed to be used with Comprehensive Plan and to assist local planning and zoning administrators with the implementation and enforcement of the Airport Zoning Overlay. The Project falls within the AOZD Ordinance of the La Crosse Municipal Airport. It also crosses Commercial, Right-of-Way, Agricultural, Single Family and Multiple Dwelling zoning districts.

The City of La Crosse AOZD imposes land use controls, in addition to underlying zoning classifications, to maintain a compatible relationship between airport operations and existing and future land uses within the three mile jurisdictional boundary as define in Section (A) (6) (a). The boundaries of each district are shown on the "*La Crosse Municipal Airport Overlay Zoning District Map, La Crosse, Wisconsin*" dated December 9, 2010 or as amended, and the height restrictions are established on the *"Height Limitations Zoning Map, La Crosse Municipal Airport, La Crosse, Wisconsin."* The elevation numbers shown on the height limitations map are the maximum permissible height above mean sea level (msl) that buildings, structures, objects, or vegetation in that cell shall not exceed. **Figure 5** identifies this area in relation to the Project*.*

4.1.2 Important Farmland, Prime Forest Land, and Prime Rangeland

The Project ROW and access routes cross prime farmland and farmland of statewide importance (**Figure 6**). The Project ROW crosses approximately 0.7 miles (6.7 acres) of prime farmland. Proposed access routes would cross approximately 1.0 miles (2.0 acres) of prime farmland. Farmland of statewide importance is designated along approximately 0.4 miles (3.0 acres) of the Project ROW. The proposed access routes would cross approximately 0.1 miles (0.2 acres) of farmland of statewide importance. The Project and access routes would not cross any potential prime farmland, if drained (USDA, NRCS 2014). Prime farmland and farmland of statewide importance are shown on **Figure 6**. A consultation letter was sent to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) on January 16, 2015 (**Appendix C**). No response has been received.

DPC would not acquire any new easements for ROW and temporary staging areas, if required, would be leased and revert back to agricultural use. As a result, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) will not require the preparation of an Agricultural Impact Statement. The consultation letter from the DATCP addressing this is included in **Appendix C**.

No prime forest land or prime rangeland was identified within the Project area (**Appendix C**).

4.1.3 Formally Classified Land

Formally classified lands are shown on **Figure 7**. Within DPC's existing ROW, the Project crosses the La Crosse River State Trail (**Appendix A, Sheet Map 10**), a 21.5 mile walking and bicycling path between Sparta and La Crosse managed by WDNR. It is a connection trail between the Great River State Trail and the Elroy-Sparta State Trail, opening up approximately 117 miles of continuous trail between Reedsburg and Perrot State Park near Trempealeau. Prairie remnants, farmlands, trout streams, hardwood forests, and wetlands are intersected by the trail. During winter months, the trail is used for winter activities such as snowmobiling and skiing. (http://www.lacrosseriverstatetrail.org/)

The Great River State Trail, managed by the WDNR, is 0.20 miles from the Project centerline. It consists of 24 miles of trail running through prairies, wetlands, hardwood forests, oak savannas, and backwaters of the upper Mississippi River valley. It is utilized year round for both summer and winter activities. (http://dnr.wi.gov/topic/parks/name/greatriver/)

The Upper Mississippi River National Wildlife and Fish Refuge (Refuge) is 0.20 miles from the Project and is managed by the U.S. Fish and Wildlife Service (USFWS). The Refuge covers over 240,000 acres between Minnesota, Wisconsin, Iowa, and Illinois, consisting of one of the largest segments of floodplain habitat in the lower 48 states. The Refuge offers fish and wildlife habitat and has been designated as a Wetland of International Importance and a Globally Important Bird Area. (http://www.fws.gov/refuge/Upper_Mississippi_River/about.html)

Part of Coachlite Greens Park in the City of Onalaska (**Appendix A, Sheet Map 8**) appears to include some plantings within the Project ROW. The Park was acquired through the provisions of the City's Subdivision Ordinance in 1987 as described in the land use section of this document. It has been developed and improved by the City as a playground site.

4.2 Vegetation

The Project is located within the Western Coulee and Ridges ecological landscape (WDNR 2013). The Western Coulee and Ridges ecological landscape is a topographically diverse area that developed as a result of erosive forces down-cutting previously uplifted bedrock (WGNHS 1984). This region is characterized by forested land (mostly oak-hickory and bottomland hardwoods), agricultural land, grassland, and wetlands (WDNR 2013).

The Project area occurs in a region that is also referred to as the Driftless Area ecoregion. The Driftless Area ecoregion is characterized by pasture and cropland on the more level upland areas and woodlands and forest on steeper slopes and ravines. Livestock and dairy farming are major land uses and have had a major impact on stream quality. Corn, soybeans, feed grains, and hay are principal crops (Omernik 1988).

The vegetation of the Driftless Area is transitional between the mixed forests of North Central Wisconsin and the oak savannas of Iowa. Upland hardwood forests consist primarily of red oak, white oak, bitternut hickory, shellbark hickory, sugar maple, and wild cherry. Low areas support forests dominated by elm, cottonwood, river birch, ash, silver maple, and willow. Savanna communities of bur oak and bluestem grasses grow in some areas, particularly on sandy soils; however, the grasslands have largely been

converted for cropland or invaded by forests (Omernik 1988). Based on the National Land Cover Database (NLCD), the Project crosses barren land, cultivated crops, deciduous forest, developed land (multiple types), evergreen forest, hay/pasture, and shrub/scrub land. A summary of the distribution of land cover types crossed by the Project is provided in **Table 4-1**.

Table 4-1: Land Cover Types Crossed by Project ROW

NLCD Land Cover Type	161 kV Transmission Line ROW
Barren Land	1%
Cultivated Crops	18%
Deciduous Forest	13%
Developed – Low Intensity	23%
Developed – Medium Intensity	11%
Developed – High Intensity	2%
Developed – Open Space	24%
Evergreen Forest	1%
Hay/Pasture	6%
Shrub/Scrub Land	1%
Total	100%

*Note that a portion of developed land consists of areas identified by NLCD as the ROW along the roads that parallel the Project

The Project ROW will utilize an existing transmission corridor and is located within a portion of La Crosse County that includes cities, towns, and villages, along with agriculture and recreation uses. As confirmed with site visits and wetland delineations in May 2013, vegetation observed included species associated with disturbed areas along roadways, residential yards, field edges, recreational land, and riparian wetlands (associated with the La Crosse River). The Project ROW consists of herbaceous vegetation because woody vegetation within the ROW has been mowed or removed to meet federal regulatory guidelines and facilitate maintenance access. Due to this mowing and maintenance that has occurred since the Project was constructed, woody vegetation has been almost entirely eliminated from within the existing ROW.

4.3 Wetlands

DPC's environmental consultant, AECOM, conducted wetland and waterway mapping as part of the biological work conducted for the Project. Wetlands within the Project area were identified using on-site identification and delineation methodologies outlined in the U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010).

The Project is located within a region that is highly developed and generally well drained, so most wetlands within the Project area are located adjacent to waterways or within linear drainage ways that lack sufficient flow to develop a bed and bank. The wetland delineation conducted in May 2013 identified five wetlands within the Project area (**Appendix A, Sheet Maps 9 and 10**). Of the five identified wetlands, two are classified as palustrine emergent (PEM) wetlands and three wetlands are stormwater basins associated with residential communities and commercial development. These three areas are

called out as wetland for the purpose of the land use survey, but are not jurisdictional. Three structures would be placed in wetlands. The *Wetland Delineation, Stream Survey, and Natural Heritage Inventory Habitat Survey Report* for the Project is included as **Appendix D.**

4.4 Threatened and Endangered Species

The USFWS and the WDNR Bureau of Natural Heritage Conservation (BNHC) were contacted to investigate the potential for federal and/or state-listed threatened and endangered species to occur along the Project ROW. Habitats along the existing ROW were identified and characterized through aerial photograph interpretation, direct contact with agencies, review of available internet resources, and by conducting on-site observations in May 2013.

No areas of USFWS-mapped critical habitat occur along the Project ROW. Two federally listed mussel species have been recorded by the USFWS for La Crosse County, Wisconsin (**Table 4-2**). The Higgens eye pearly mussel (*Lampsilis higginsii*) and the Sheepnose mussel (*Plethobasus cyphyus*) are both listed as endangered.

Table 4-2: Analysis of Habitat Suitability for Federally Protected Species along Project ROW

Species	Federal Status[1]	Preferred Habitat	Recommended Conservation Actions[2]
Higgens Eye Pearly Mussel (*Lampsilis higginsii*)	LE	Found in large rivers in the western part of the state in flowing waters with various stable substrate types, but seems to prefer stable sand. Several common fish species have been recorded as its host, including drum, large and small mouth bass, walleye, and sauger.	Project will have "No Effect" on the listed species or their habitats as it will not affect any large streams/rivers within the Project ROW (Halfway Creek or La Crosse River). Strict erosion control measures will be implemented to avoid indirect impacts. If needed, temporary clear span bridges will be used to cross small streams for access along the ROW.
Sheepnose Mussel (*Plethobasus cyphyus*)	LE	Found in clean water of large rivers in the Western part of the state. It prefers a stable sand substrate, but has been found in mixed sand and gravel. It is always rare where found. Sauger is the only known fish host reported.	
Eastern Massasauga (*Sistrurus catenatus*)	Candidate	Found in open to forested wetlands and adjacent uplands.	NA
Northern long-eared bat (*Myotis septentrionalis*)	LE	Hibernates in caves and mines, swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during summer.	NA
Whooping Crane (*Grus americanus*)	Non-essential experimental population (EXPN)	Found in open wetlands and lakeshores.	NA

NOTES:

1 LE = Listed Endangered

Candidate Species: A species under consideration for official listing for which there is sufficient information to support listing. Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA.

EXPN = Experimental non-essential population. Experimental, nonessential populations of endangered species (e.g., whooping crane) are treated as threatened species on public land, for consultation purposes, and as species proposed for listing on private land.

2 NA = Not applicable

The Bald eagle (*Haliaeetus leucocephalus*) is no longer federally listed, but is protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). Bald eagles are known to occur in La Crosse County. While there are no known nests in the Project area, there is suitable habitat for the eagle to nest south of I-90. If bald eagles and/or nests are observed within the Project area, WDNR and USFWS will be contacted for further information.

A Certified Endangered Resources review (ER Log #14-634_uttn) was completed on September 8, 2014 and approved by the WDNR-BNHC on September 12, 2014. This review was updated on January 27, 2015. An endangered resources search is performed as part of all Endangered Resources reviews. The Project area includes both the specific Project site and a buffer area surrounding the site. The size of the buffer varies depending on the ecological and land use characteristics of the site and surrounding area. A one-mile buffer is considered for terrestrial species and a two-mile buffer is considered for aquatic species.

Table 4-3 summarizes the species known to occur within the one to two-mile buffer of the Project ROW. Recommended conservation actions for the species are also indicated. There were no actions that are required to comply with state and/or federal endangered species laws. Actions listed are recommendations to help conserve Wisconsin's endangered resources. Although these actions are not required by state or federal endangered species laws, they may be required by other laws, permits, granting programs, or policies of the WDNR or other regulatory agencies. Examples include the federal MBTA, BGEPA, State Natural Areas law, WDNR Chapter 30 Wetland and Waterway Permits, WDNR Stormwater Permits, and Forest Certification.

Table 4-3: Analysis of Habitat Suitability for State Listed Species along Project ROW

Species	State Status[1]	Preferred Habitat	Required or Recommended Conservation Actions
BIRDS			
Bell's Vireo (*Vireo bellii*)	THR	Prefers dense shrubby areas within an open prairie landscape.	Project work is scheduled for early September – December 2016, which falls outside of Bell's vireo nesting period from May 25-August 15. Bell's vireo could be present in suitable habitat areas of the Project area. The birds, their nests, and eggs are protected under the federal MBTA. To avoid impacts to this listed species the Project is required to follow one of two options: Option 1: Assume birds are present within Project area, and avoid all disturbances from May 25 – August 15. If Project can avoid disturbing areas of suitable habitat for these species during this time period, there would not be any further Project restrictions related to this species. If Project cannot completely avoid all areas of suitable habitat or take of the species, DPC will coordinate with WDNR BNHC regarding the possibility of applying for an ITP. Option 2: Not assume birds are present within Project area and have a qualified biologist conduct surveys of suitable habitat to determine if present. Survey protocols must be sent to the Review Program for approval prior to the initiation of surveys and results submitted to the Endangered Resources Review Program. If Bell's vireo is not found within the Project area as a result of the surveys, there would not be any Project restrictions related to this species. If surveys are conducted and this bird is recorded, Option 1 must be followed.
Bald Eagle (*Haliaeetus leucocephalus*)	SC/P	Prefers large lakes and rivers with nearby tall pine trees are for nesting.	While the Bald eagle was removed from the Federal Endangered Species list in August 2007, it is still federally protected by the BGEPA and the MBTA. Project work is scheduled to occur outside of the Bald eagle's nesting season of January 15 – July 30. If this schedule changes to occur within the nesting season, while there are no known nests in the area, there is suitable habitat for the eagle to nest south of I-90. If bald eagles and/or nests are observed within the Project area, WDNR and USFWS will be contacted for further information.
FISH			
River Redhorse (*Moxostoma carinatum*)	THR	Prefers moderate to swift currents in large rivers systems, including impoundments and pools. With clean gravel river bottoms. Spawning occurs from mid May - June when water temperatures reach 68 to 74 degrees Fahrenheit.	No work in waterways will be conducted. Waterways will be spanned, erosion and runoff prevention measures will be implemented during the course of the Project to avoid take of the eight fish species listed.
Paddlefish (*Polyodon spathula*)	THR	Prefers large rivers and their lakes. Species spawns over mud or gravel in from early May - early June during high flows.	
Blue Sucker (*Cycleptus elongatus*)	THR	Prefers large, deep rivers with moderate to strong currents over substrates of gravel or cobble. Spawning occurs from late April - early May.	
Mud Darter (*Etheostoma asprigene*)	SC/N	Prefers moderate currents in sloughs, overflow areas, riffles, and pools of large, low-gradient rivers over bottoms of mud, sand, gravel, clay, or bedrock. Spawning occurs from mid-May - June.	

Table 4-3: Analysis of Habitat Suitability for State Listed Species along Project ROW

Species	State Status[1]	Preferred Habitat	Required or Recommended Conservation Actions
Pugnose Minnow (*Opsopoeodus emiliae*)	SC/N	Prefers quiet, weedy lakes, sloughs, and low-gradient rivers over bottoms of mud, sand, rubble, silt, or clay. Spawning occurs from mid-June- mid-July.	
American Eel (*Anguilla rostrata*)	SC/N	Prefers large streams, rivers and lakes with muddy bottoms and still waters. Spawning occurs in the Sargasso Sea.	
Pirate Perch (*Aphredoderus sayanus*)	SC/N	Prefers the quiet waters of oxbows, overflow ponds, sloughs, marshes, ditches, and the pools of medium to large rivers. Spawning occurs during May.	
Silver Chub (*Macrhybopsis storeriana*)	SC/N	Prefers large, low gradient rivers. Species is found in moderate to strong currents, riffles, pools and sloughs with or without vegetation over substrates of sand, mud, slay or gravel. Spawning occurs in June and July.	
AMPHIBIANS			
Blanchard's Cricket Frog (*Acris blanchardi*)	END	Prefer ponds, lakes, and a variety of habitats along and adjacent to streams and rivers including marshes, fens, sedge meadows, low prairies, and exposed mud flats. Cricket frogs are active from late-March through November. Breeding occurs from mid-May through mid-August, with some larvae not transforming until late September.	Because of the Northern cricket frog's decline over the past several decades throughout most of Wisconsin, per the *Northern Cricket Frog Species Guidance Document (Screening Procedures)*, the WDNR does not believe cricket frogs are still present in this area (last observation was 1988). Project does not need to be altered to avoid impacts to this species. However, if Northern cricket frogs would be observed during the course of the Project, the Endangered Resources Review Program should be contacted.
PLANTS			
Hill's Thistle (*Cirsium hillii*)	THR	Found in dry prairies and oak barrens; in neighboring states it is found in pine barrens. Blooming occurs mid-June through early August; fruiting occurs late July through late August. Optimal identification period for this species is mid-June - late August.	Suitable habitats for the eight identified plant species have been recorded within the vicinity and may be impacted by the Project. Although not required because plants are not protected on private lands, it is recommended that DPC avoid or minimize take of the identified species.
Prairie Milkweed (*Asclepias sullivantii*)	THR	Found in moist prairies. Blooming occurs early June through early July; fruiting occurs throughout July. The optimal identification period for this species is early June - early July.	
Oregon Woodsia (*Woodsia oregana ssp. cathcartiana*)	SC	Found on moist, shaded (occasionally exposed) basaltic or, less commonly, dolomite cliffs. The optimal identification period for this species is late May - late September.	
Small-flowered Woolly Bean (*Strophostyles leiosperma*)	SC	Found in dry, sandy soil, as well as margins of upland woods, dunes and shores. Blooming occurs from August through September. The optimal identification period for this species is late July - late August.	
Silky Prairie-clover (*Dalea villosa var. villosa*)	SC	Found on dry sandy river terraces and hillside prairies (often being invaded by red cedar) near the St. Croix and Mississippi Rivers. Blooming occurs late July through early September; fruiting occurs throughout September. The optimal identification period for this species is early August - late September.	
Clustered Poppy-mallow (*Callirhoe triangulata*)	SC	Is found in sand terrace prairies. Blooming occurs early July through late September; fruiting occurs early August through late September. The optimal identification period for this species is early July - late September.	

Table 4-3: Analysis of Habitat Suitability for State Listed Species along Project ROW

Species	State Status[1]	Preferred Habitat	Required or Recommended Conservation Actions
Wild Licorice (*Glycyrrhiza lepidota*)	SC	Found in dry to moist prairies and other grasslands, stream banks, and lake shores. It has been found naturalized on cinders of railroads and in other disturbed areas. Blooming occurs throughout July; fruiting occurs early August through late October. The optimal identification period for this species is early August - late October.	
REPTILES			
Gophersnake (Pituophis catenifer)	SC/P	Prefers sand prairies, bluff prairies, oak savannas, and pine and oak barrens. Overwintering can occur in sand prairies, where they often den singly by using mammal burrows or other structures to get below the frost line or they may den communally using deep rock fissures on southerly exposed bluff prairies. Species is active from late March - early October, breeds mid-April - May and lays its eggs in sand cavities they create or under large flat rocks in late June - early July. The eggs hatch in late August - early September.	The Gophersnake may be active from late March to the end of Project construction. Species overwinters in mammal burrows and rock crevices. Therefore, it is recommended that when possible, mammal burrows and rock crevices be avoided from the beginning of Project construction through the end of March.
Timber Rattlesnake (Crotalus horridus)	SC/P	Adult males and non-gravid adult females prefer deciduous forests and woodland edges in an agricultural setting during summer. Gravid females and juvenile timbers prefer to remain in open-canopy bluff prairies during summer because of higher preferred body temperatures, but avoid overheating by taking advantage of various structures to provide shade, such as brush, trees, or rock shelves. Timbers emerge from hibernation as early as mid-April, but may continue to emerge well into June. They remain active until as late as mid-October, with the females that give birth in a given year remaining active longer than other individuals. Timbers primarily breed in August and females give birth the following mid-August or mid-September. Individual females in Wisconsin usually produce young only once every three to four years.	The Timber rattlesnake may be active from mid-April through the end of Project construction. The species overwinters in rock crevices. Therefore, it is recommended that when possible, rocky areas be avoided from the beginning of Project construction through late April.
COMMUNITY TYPES			
Dry Prairie Sand Prairie Dry-Mesic Prairie Riverine Lake/Pond Northern Wet Forest Shrub-Carr Emergent Marsh Alder Thicket	NA	NA	Project consists of construction of a transmission line within an already disturbed corridor (existing transmission line ROW and adjacent to road ROW. It is recommend minimizing impacts to and/or incorporating buffers along edges of these community types if found within Project area.

NOTES:

[1] NA = Not applicable (this is assigned to all natural community records in the database)

END = Endangered (legally protected)

THR = Threatened (legally protected)

SC = Special Concern

SC/P = Fully protected
SC/N = No laws regulating use, possession, or harvesting
SC/H = Take regulated by establishment of open closed seasons
SC/FL = Federally protected as endangered or threatened, but not so designated by WDNR
SC/M = Fully protected by federal and state laws under the Migratory Bird Act

4.5 Fish and Wildlife Resources

Based on the habitat present along the Project ROW, fisheries and wildlife resources include a range of species groupings (birds, mammals, fish, reptiles, amphibians, and insects), both resident and migratory. Habitat is likely used by one or more of these species groupings in almost every life-cycle stage (e.g. forage, shelter, breeding, rearing, migration, etc.). The Project would be built within the existing ROW within predominantly disturbed habitats. However, some species, including small mammals, such as voles, shrews, mice, squirrels, and rabbits; larger mammals, such as coyote, raccoon, fox, white tailed deer; and birds, including migratory waterfowl and songbirds, will continue to use the developed areas and cultivated croplands found along the Project ROW. In the limited natural habitats, more species, including fish, reptiles, and amphibians, such as snakes, turtles, toads and frogs, would likely be found near the wetlands and waterway crossings along the Project ROW.

4.6 Floodplains

Floodplain data were obtained from the Federal Emergency Management Agency (FEMA). The Project crosses three 100-year floodplains. **Table 4-4** shows the waterbodies associated with the floodplains as well as the approximate width that the Project crosses. Floodplains are shown on **Figure 8**.

Table 4-4: 100-year Floodplains Crossed by Project

Waterway ID	City, Township, or Village	Section	Stream Name	Approximate Width (feet)
S-3	City of La Crosse	14	Unnamed Tributary (UNT) to the La Crosse River	6
S-4	City of Onalaska	14	La Crosse River	50
S-5	City of Onalaska	10	Unnamed Tributary (UNT) to the La Crosse River	9
S-9	Village of Holmen	19	Unnamed	8

4.7 Water Quality

Waterways crossed by the Project were identified using the U.S. Geological Survey National Hydrography Dataset and field observation. Review of these resources identified three perennial, four not classified, and two intermittent tributary crossings located along the Project (**Appendix A**). **Table 4-5** lists the nine named and unnamed waterbodies crossed by the Project.

Table 4-5: Surface Waters Crossed by Project

County	Township/Range	Section	Waterbody	Flow	Trout Streams	Endangered, Threatened or Special Concern Habitat Streams	Outstanding / Exceptional Resource Waters
La Crosse	16N 7W	23	Unnamed	Intermittent	No	No	No
	16N 7W	14	Unnamed	Not Classified	No	No	No
	16N 7W	14	Unnamed	Perennial	No	No	No
	16N 7W	14	La Crosse River	Perennial	No	Yes	No
	16N 7W	10	Unnamed	Not Classified	No	No	No
	16N 7W	10	Unnamed	Not Classified	No	No	No
	17N 7W	18	Halfway Creek	Perennial	No	No	No
	16N 7W	4	Unnamed	Not classified	No	No	No
	17N 7W	19	Unnamed	Intermittent	No	Yes	No

The Project crosses the La Crosse River which is identified as impaired water on the Section 303(d) list of impaired waters. The La Crosse River is impaired for total phosphorus.

The WDNR Surface Water Data Viewer was reviewed to identify any Areas of Special Natural Resource Interest (ASNRI), Public Rights Features (PRF), or Priority Navigable Waters (PNW) that may be present within the Project area (WDNR 2015). ASNRI waters include several classes of designated waters including trout streams, outstanding resource waters (ORW) or exceptional resource waters (ERW) and waters or portions thereof that may be inhabited by endangered, threatened, or special concern species or unique ecological communities identified in the Natural Heritage Inventory. ASNRI waters and PRF waters are also considered PNW waters.

There are no waterways crossed by the Project that are designated trout streams by the WDNR.

Two unnamed waterways crossed by the Project are classified as being potential habitat for endangered, threatened, or special concern species by WDNR. Endangered, threatened, and special concern species that may occur within the Project area are described in Section 4.4.

No waterways crossed by the Project are classified as an ERW/ORW by WDNR. ORWs and ERWs are surface waters that provide outstanding recreational opportunities, support valuable fisheries and wildlife habitat, have good water quality, and are not significantly impacted by human activities. ORWs typically do not have any point source discharges of pollutants, while ERWs may have point source pollutant discharges but both are protected from the effects of pollution.

Groundwater resources are plentiful in La Crosse County and it is the sole source of residential water supply for county residents. A sandstone and dolomite aquifer coupled with the soil types in the area allow for rapid groundwater recharge, which supplies a constant supply of water. Groundwater in the area is generally considered to be of good quality.

Groundwater in La Crosse County is characterized as having moderate to high susceptibility to contamination. This characterization is based on five factors: depth to bedrock, bedrock type, soil permeability, depth to water table, and surficial deposits. Depth to groundwater in the Project area can range from 0 feet to over 50 feet in depth (USGS 2007).

4.8 Coastal Areas

The Project is not located within any coastal zones or Coastal Barrier Resources System Units.

4.9 Air Quality

La Crosse County is in attainment with Wisconsin and National Ambient Air Quality Standards (NAAQS) for all criteria pollutants (ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead). The only areas in Wisconsin currently not meeting NAAQS are in the eastern part of the state, along Lake Michigan, where several counties are designated as “nonattainment” with respect to the NAAQS for 8-hour average ozone (USEPA 2014).

4.10 Cultural Resources

In April, May, and June 2015, Mississippi Valley Archaeology Center (MVAC) performed a Phase I archaeological survey for the Project (**Appendix E**). Structure locations were staked prior to the survey. These structure locations were surveyed along with any new access roads where ground disturbance is proposed. The Project passes through several previously recorded sites including two sites that are uncatalogued burial sites and are also currently on the National Register of Historic Places (NRHPs), the Tremaine site (47LC95/BLC71) and the Midway Village Complex (47LC19/BLC1).

4.11 Aesthetics

Visual or aesthetic resources are naturally-occurring or manmade visible physical features (e.g., land, water, vegetation, structures, etc.) that occur along a landscape. Landscape character includes the distinctive qualities and arrangement of these features. The Project would be located within DPC’s existing ROW through a variety of land uses. These uses include agricultural land and residential development that is mostly concentrated starting at the Village of Holmen and running southeast along the Mississippi though the Cities of Onalaska and La Crosse. Developed areas include commercial/industrial uses such as sand and gravel operations and the Valley View Mall. The Project ROW also crosses the La Crosse River floodplain and recreational land such as golf courses, the La Crosse River Trail, and a neighborhood Coachlite Greens Park.

Riparian vegetation is also present in the Project area and is associated with the La Crosse River, Halfway Creek, and seven unnamed streams that traverse the landscape.

Man-made modifications that have locally modified the Project area include dispersed rural residences associated with agricultural lands and associated ancillary structures (e.g., barns, maintenance sheds, fences, etc.) and residential development in the Village of Holmen and Cities of Onalaska and La Crosse. Local infrastructure modifications within the area include I-90, USH 53, STH 35, STH 16, county roads, and local paved and unpaved roads; one communication tower; one railroad corridor; substations; and electrical distribution lines and the existing transmission lines.

The Project falls within the La Crosse Regional Airport Zoning Overlay as described in the land use section of this document. The closest heliport to the Project is a hospital heliport located 4.3 miles southwest of the Project in La Crosse. The closest private airport to the Project is the Parkway Farm Strip Airport, located approximately 3.9 miles north of the Project in the Town of Holland.

Potential visually sensitive areas would be limited to the areas around residences and recreational users associated with community parks, the La Crosse River floodplain, trails, and golf courses. Given the rolling terrain and the largely uniform vegetation coverage of the existing landscape, views of the Project from areas not directly adjacent to it would generally be screened (either partially or completely) by topography and/or vegetation. Residences located within or immediately adjacent to the Project ROW would typically have unobstructed views of the transmission structures. Vegetation associated with residential landscaping or naturally occurring vegetation around residential structures not located within or directly adjacent to the Project ROW may provide complete or partial screening of the Project.

4.12 Socioeconomics and Community Resources

According to the U.S. Census Bureau, in 2012 La Crosse County had a total population of 116,461. This is an increase of 1.6 percent for La Crosse County since the 2010 census. U.S. Census demographics from 2012 for La Crosse County show a 48.9 percent male and 51.1 percent female distribution of the predominantly (92.2 percent) white population. Per capita income in La Crosse County is $25,680 approximately 5.5 percent lower than the statewide average of $27,192 (U.S. Census Bureau 2014).

July 2014 unemployment in La Crosse County was 4.7 percent, according to the U.S. Department of Labor: Bureau of Labor Statistics (Federal Reserve Economic Data 2014 a, b). The August 2013 statewide average for unemployment was 5.8 percent (U.S. Bureau of Labor Statistics 2013).

4.13 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, states that “each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations.” The analysis pursuant to this executive order follows guidelines from the Council on Environmental Quality (CEQ), Environmental Justice Guidance under the National Environmental Policy Act (CEQ 1997).

The CEQ guidelines state that minority populations should be identified where "… (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis" (CEQ 1997).

In compliance with the CEQ guidelines, the minority and economic aspects of the Project were evaluated on a regional basis. Minority and low-income data were evaluated; comparing data for the census block groups in the Project to the average data for La Crosse County and the state of Wisconsin. Minority and low-income data were analyzed for each census tract that the Project would cross. It should be noted that the census tracts that were analyzed encompass a much larger area than the Project, so the actual population located adjacent to the Project is smaller than what is shown for the census tract. The socioeconomic trends shown by the census tract are expected to be representative of the population located in proximity to the Project. **Table 4-6** shows the census data for the state, for the county crossed by the Project, and for the census tracts crossed by the Project (U.S. Census 2010).

Data for 2010 were available for Wisconsin and La Crosse County, including census tracts that would be crossed by the Project. Use of these datasets represents the most recent available data and provides an appropriate comparison given the low incidence of minority populations across datasets. According to the 2010 data, minority populations are less than 6.3 percent of the populations in La Crosse County. Minority populations within the county census tracts that would be crossed by Project range from approximately 2.9 percent to 8.4 percent, which is lower than the state-level data. Per capita income in La Crosse County and the census tracts crossed by the Project range from $23,695 up to $39,515. Poverty level in La Crosse County is higher than what is reported for the state of Wisconsin, but lower in the census tracts crossed by the Project.

Table 4-6: Census Data

Location	Population	Race Percentages		Per Capita Income	Population Below Poverty Level
		Caucasian	Minority		
State of Wisconsin	5,686,986	86.2%	12.0%	$26,624	11.6%
La Crosse County	114,638	92.1%	6.3%	$24,917	13.5%
Census Tract 102.01	9,503	91.7%	7.0%	$26,211	5.5%
Census Tract 102.02	6,688	93.8%	5.4%	$23,695	7.7%
Census Tract 104.01	9,730	93.6%	5.3%	$39,515	3.1%
Census Tract 104.02	5,214	89.6%	8.4%	$27,129	9.9%
Census Tract 105.00	5,761	92.0%	6.4%	$27,885	5.4%
Census Tract 106.00	3,266	96.4%	2.9%	$35,328	8.4%

Source: U.S. Census (2010)

4.14 Transportation

Transportation corridors in proximity to the Project consist of residential roads, county roads, two-lane Wisconsin state highways, and an interstate highway. The Project crosses four county roads, three STHs, one USH, one interstate highway, and 27 local road crossings (36 total road crossings). Since the Project follows the existing transmission corridor, the number of crossings would not change. **Table 4-7** shows traffic counts available from WisDOT on roads crossed by the Project.

Table 4-7: Roads Crossed by the Project and Associated Average Annual Daily Traffic Volumes

County	Road	Traffic Count[1]	Traffic Year[1]	Traffic Count Point Location[1]
La Crosse County	County Highway OT (Filler Ct)	2,900	2011	North of CTH ZN
	State Highway 35	11,200	2014	S of USH 53 & CTH OT
	County Highway OT	7,200	2014	CTH OT East of STH 35
	East Avenue North	3,900	2011	North of Riders Club Rd
	Riders Club Road	4,300	2011	East of East Ave
	State Highway S (Sand Lake Road)	9,400	2014	CTH S South of South
	US Highway 53	34,900	2014	South of CTH S
	County Highway OS (Main Street)	17,300	2014	CTH OS SE of Green Coulee Rd
	Interstate Highway 90	33,400	2011	West of Theater Rd
	County Highway PH	1,500	2011	CTH PH West of STH 16
	State Highway 16	26,600	2014	Between CTH PH and Kinney Coulee Rd
	County Highway B	4,700	2014	1.15 mi E of STH 16

[1] Traffic counts were not available for nine of the road crossings.

Code of Federal Regulations (CFR) Title 14 Part 77.9 states that any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the Federal Aviation Administration (FAA):

- Any construction or alteration exceeding 200 feet above ground level
- Any construction or alteration
  - Within 20,000 feet of a public use or military airport that exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet
  - Within 10,000 feet of a public use or military airport that exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet
  - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above-noted standards
- When requested by the FAA
- Any construction or alteration located on a public use airport or heliport regardless of height or location

The closest public airport to the Project is the La Crosse Regional Airport located immediately west of the Project on the northwestern quadrant of I-90 and STH 35, which is approximately 4.3 miles south of the Briggs Road Substation. The Project falls within the La Crosse Regional Airport Zoning Overlay as described in the land use section of this document (**Figure 5**). The closest heliport to the Project is a hospital heliport located 4.3 miles southwest of the Project in La Crosse. The closest private airport to the Project is the Parkway Farm Strip Airport, located approximately 3.9 miles north of the Project in the Town of Holland.

Holmen cell communication tower located north of Schilling Road, 1.3 northeast of the Project ROW. No communication towers are located within the Project ROW.

The Project would cross the Chicago Milwaukee St Paul and Pacific Railroad which is located east of STH 16 and south of the La Crosse River.

4.15 Human Health and Safety

The Project consists of rebuilding approximately nine miles of an existing transmission line within the existing ROW. All DPC facilities are designed, constructed, operated, and maintained to meet or exceed applicable standards of design and performance set forth in the NESC. Specific health and safety measures associated with overhead transmission lines are discussed in Section 5.15.

4.15.1 Electrical Characteristics

Electrical characteristics associated with transmission lines are those associated with electric and magnetic fields (EMF), corona, audible noise, and radio and television interference. Corona, audible noise, and radio and television interference are discussed in Section 4.16. Electric and magnetic fields are described below.

Voltage on any wire (conductor) produces an electric field. The intensity of the electric field is proportional to the voltage of the transmission line. The flow of electrical current on a wire produces a magnetic field. The intensity of the magnetic field is proportional to the current flow through the conductors. EMF extends outward from the conductor and decreases rapidly with distance from the conductor.

Electric and magnetic fields arise from the flow of electricity, are dependent on the voltage and current carried by a transmission line, and are measured in kilovolts per meter (kV/m) and milliGauss (mG), respectively. The intensity of the electric field (EF) is proportional to the voltage of the line, and the intensity of the magnetic field (MF) is proportional to the flow of current through the conductors.

Transmission lines operate at a power frequency of 60 hertz (cycles per second). Current passing through any conductor produces an MF in the area surrounding the wire. The MF associated with a high voltage transmission line (HVTL) surrounds the conductor and decreases rapidly with increasing distance from the conductor. The MF associated with a transmission line is expressed in units of magnetic flux density, or mG.

There is no federal or Wisconsin state standard for transmission line EMF. Considerable research has been conducted throughout the past three decades to determine whether exposure to power-frequency (60 Hertz) MFs cause biological responses and health effects.

Additional information can be found in the Wisconsin Public Service Commission brochure on EMF. This brochure is available online at <http://psc.wi.gov/theLibrary/publications/electric/electric12.pdf>.

4.16 Corona, Audible Noise, Radio and Television Interference

4.16.1 Corona

Corona is the electrical breakdown of the air near high voltage conductors into charged particles. Corona consists of audible noise and radio and television interference from electromagnetic interference, both of which are described below.

4.16.2 Audible Noise

Audible noise (AN) may consist of a variety of sounds of different intensities across the entire frequency spectrum. AN is measured in units of decibels on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight." The A-weighted decibel (dBA) scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in A-weighted decibels (dBA). **Table 4-8** shows noise levels associated with common everyday sources.

Table 4-8: Common Noise Sources and Levels

Sound Pressure Level (dBA)	Typical Sources
100–105	Leaf blower
100–104	Circular Saw
84–89	Vacuum Cleaner
76–83	Garbage disposal
68–73	Inside car, windows closed, 30 MPH
55–65	Normal conversation
50	Background music
40	Living room
28–33	Quiet Room

Source: NPC (2011)

The primary land uses in proximity to the Project are urban residential, commercial, and light industrial. Current average background noise levels in these areas are typically in the range of 50 to 60 dBA. Ambient noise in urban residential, commercial, and light industrial areas are commonly caused by traffic on nearby roadways, human activity in urban areas, and commercial and industrial properties (MPCA 2013).

Sources of AN in proximity to the Project include the equipment noise from agricultural operations, and residential activities, and noise generated by cars and trucks on local, county, state, U.S. highways, and interstate highways.

4.16.3 Radio and Television Interference

Corona on transmission line conductors can generate noise at the frequencies at which radio and television signals are transmitted. This noise can interfere with receiving signals and is called radio and television interference (RI/TVI). Radio reception in the AM (amplitude modulated) broadcast band (535 to 1605 kilohertz) is most often affected with what is commonly referred to as static. Frequency modulated reception, or FM (frequency modulated) radio reception, is rarely affected. Only radio receivers very near to transmission lines have the potential to be affected by radio interference. Corona can affect the reception of the video (picture) portion of a television signal. Television interference caused by corona appears as three bands of "snow" on the television screen. Television interference at the edge of the ROW due to corona primarily occurs during rain or snow.

Page Intentionally Blank

5.0 Environmental Effects

This section describes potential environmental effects associated with the construction, operation, and maintenance of the Project, and associated mitigation measures. DPC is also committed to following mitigation guidelines in the *U.S. Department of Agriculture/U.S. Department of the Interior "Environmental Criteria for Electric Transmission System* to the extent applicable and practicable (USDI 1970). DPC would also, as appropriate, implement BMPs outlined in its *Manual for Transmission Lines and Substation Construction and Maintenance Activities* http://www.dairylandpower.com/power_delivery/field_guide.pdf).

5.1 Land Use

5.1.1 General Land Use

Impacts to land use resulting from construction, operation, and maintenance of the Project are expected to be less than significant. Temporary impacts within the existing transmission line ROW would be limited to those occurring during construction and are not anticipated to be significant. Landowners may be restricted from accessing the ROW during construction activities (vegetation clearing, transmission structure installation, conductor stringing, and conductor tensioning) at each transmission structure location. DPC would utilize existing local roads, existing maintenance roads, and field edges for construction of the Project. Access routes for the Project have been identified; construction would primarily follow approximately 7.1-miles of existing maintenance routes used by DPC's maintenance crews since the early 1950's and temporary access (shown on sheet maps in **Appendix A**). Access routes through active agricultural fields may require that agricultural operations be suspended for a short period of time while the construction crews are hauling equipment to the transmission structure locations. Temporary impacts would be minimal and would be limited to the disturbance around the foundation of each structure. Areas of temporary disturbance will be re-vegetated and returned to pre-existing conditions after construction.

Since the Q-1D South line was constructed in the 1950's, development has occurred within the Project ROW. There are 42 residences and four businesses located within the 80-foot ROW. Landowners owning property that is crossed by the Project would be permitted to continue using their land in the same manner that they currently do, although height restrictions concerning the use of tall equipment under the new transmission line would apply. Land owners would also need to use caution when working around structures with guy wires.

In the City of Onalaska, a portion of Coachlite Greens Park that was acquired through the provisions of the City's Subdivision Ordinance in 1987, uses some of the transmission ROW. Plantings have been installed within the Project ROW. Areas of temporary disturbance will be re-vegetated and returned to pre-existing conditions after construction.

Permanent impacts are also expected to be less than significant. The permanent area of disturbance for the Project would be limited to the approximately 12.6-square-foot footprint of each transmission structure. It is anticipated that approximately 61 transmission structures would be placed along the route, resulting in up to 769 square feet of permanent disturbance.

The Project is not expected to have an impact on any of the goals, policies, existing or future land use plans as outlined in the La Crosse County, Towns of Onalaska and Medary, Village of Holmen, and Cities of Onalaska and La Crosse Comprehensive Plans. The Project consists of rebuilding nine miles of existing transmission line within an existing ROW. The existing ROW would not be widened and would not result in a change in land classification. In areas where the Project would cross shoreland, floodplain, and/or AOZDs, DPC would work with La Crosse County and local municipalities to obtain the appropriate permits. Replacing H-frame structures with single pole structures would reduce the visual impact of the transmission line. DPC's BMP's will minimize erosion, impacts on water quality, and vegetation.

No impacts on schools or daycares are anticipated as the closest school to the Project, Shepherd's Flock Pre-School/Daycare is located approximately 104 feet from the Project centerline. The International School is located 258 feet from the Project centerline.

Construction and operation of the Project is not anticipated to have significant effects on land use because activities would be permitted to take place in the manner that they currently do and the majority of the length of the Project consists of rebuilding an existing electric transmission line in the same ROW that it currently occupies. Any impacts resulting from the Project would be further reduced by implementing the mitigation measures described in Section 5.1.4.

5.1.2 Important Farmland, Prime Forest Land, and Prime Rangeland

All disturbed areas surrounding structures would be re-vegetated following construction of the Project. Construction and operation of the transmission line would not interfere with continued use of the surrounding areas for agricultural uses. Temporary impacts to prime farmland and farmland of statewide importance would be minimal and would be limited to the disturbance around the foundation of each structure. As with the existing transmission line, access through agricultural areas would continue to be required for maintenance purposes. However, access routes in agricultural areas almost entirely follow the existing ROW or field edges, so that farming activities can continue, and do not result in a change from existing conditions.

The Project will not impact prime forest land or rangeland because there is no prime forestland or rangeland within La Crosse County, Wisconsin.

Permanent impacts to prime farmland and farmland of statewide importance are also expected to be minimal and would be limited to the footprint of the structure foundations because the Project would be located within an existing transmission line ROW. Similar to the existing transmission line, an estimated six single pole steel structures and two H-frame steel deadend structures in prime farmland would result in approximately 0.002 acres (126 square feet) of permanent impacts to prime farmland. One single-pole steel structure would result in approximately 12.6 square feet of permanent impacts to farmland of statewide importance.

The Project ROW and access routes cross prime farmland and farmland of statewide importance (**Figure 6**). The Project ROW crosses approximately 0.7 miles (6.7 acres) of prime farmland. Proposed access routes would cross approximately 1.0 mile (2.0 acres) of prime farmland. Farmland of statewide importance is designated along approximately 0.4 miles (3.0 acres) of the Project ROW. The proposed

access routes would cross approximately 0.1 miles (0.2 acres) of farmland of statewide importance. The Project and access routes would not cross any potential prime farmland, if drained (USDA, NRCS 2014).

Temporary and permanent impacts as described above would be minimized by implementing the mitigation measures listed in Section 5.1.4 and in **Appendix A**.

5.1.3 Formally Classified Land

Temporary and permanent impacts to the portion La Crosse River State Trail and Coachlite Greens Park that will be crossed by the Project are expected to be less than significant. The impacts would be similar to impacts from the existing transmission line that crosses the trail and park. It is not anticipated that Project would impact recreation opportunities along the trail or within the park. Tree clearing is not anticipated near the trail or within the park because the existing ROW has been maintained by DPC since the early 1950s. However, minor vegetation clearing may be required around structure locations. Disturbed areas will be re-vegetated following the completion of construction.

The Project is located approximately 0.2 miles from the Great River State Trail and the Upper Mississippi River National Wildlife and Fish Refuge. Therefore, no impacts are anticipated.

5.1.4 Mitigation and Monitoring

In addition to implementing the BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following mitigation measures will be employed to reduce potential impacts to land use:

- The removal of landscaping will be avoided whenever possible.
- Access to all residences and businesses will be maintained during construction.
- Landowners will be notified of construction activities prior to the start of construction.
- Disturbed areas will be reseeded according to landowner requests.

5.2 Vegetation

Proposed construction activities would involve excavation and grading in limited areas around each proposed transmission structure that would temporarily disturb herbaceous vegetative cover. Equipment access also has the potential to disturb vegetation. The long-term effects of these actions are not expected to result in measurable losses; rather, short-term effects (during construction) would result in areas of bare ground. Permanent impacts to vegetation would be limited to the footprint of each structure.

The Project would continue to have the same effect on limited natural vegetation within the ROW as the existing transmission line. Along access routes that traverse forested areas with overhanging or overgrown woody vegetation, some trimming would be necessary to permit passage within a cross-sectional area measuring approximately 15 feet in height and width. The long-term effects of these actions are not expected to result in measurable losses, but short-term effects (during construction) would result in areas of bare ground.

The northern staging area (**Appendix A, Sheet Map 2**) is a portion of an existing gravel mine and the southern staging area (**Appendix A, Sheet Map 10**) is non-agricultural vacant land. Activities within the staging areas would temporarily disturb herbaceous vegetative cover. If it is determined that additional staging areas are required, those areas would not require clearing or grading; however, damage to vegetation or ruts in the ground may occur as a result of vehicular traffic in and out of the staging areas. Upon completion of construction DPC will re-vegetate the disturbed areas to pre-construction conditions.

Overall, impacts to vegetation are anticipated to be less than significant because the Project would be located within an existing ROW that is currently maintained for operation of a transmission line. Permanent impacts would be primarily limited to the footprint of transmission structures. There would be no permanent access roads and no permanent impacts as a result of the construction of the staging areas, because these areas would be re-vegetated to pre-construction conditions after construction.

5.2.1 Mitigation and Monitoring

In addition to implementing the BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following mitigation measures would be employed to reduce potential impacts to vegetation:

- DPC will use methods such as installing silt fence or using matting to protect existing vegetative cover where necessary and practicable to avoid erosion or sedimentation.
- On non-agricultural land, disturbed areas will be restored by re-grading, seeding, and/or mulching as necessary per landowners' preferences.
- On non-agricultural land, vegetation monitoring will take place until 70 percent (or greater if requested by the landowner) of the original cover is attained or applicable permit conditions are otherwise satisfied.

5.3 Wetlands

The Project is expected to result in minimal impacts to wetlands given the avoidance efforts taken in design of the Project and planned for construction and operation. The current engineered design of the Project would result in three structures permanently placed in delineated wetlands and 0.6 miles of access routes would cross wetlands.

The area of wetland that would be permanently impacted by each of the two Y-frame steel transmission structures is approximately 12.6 square feet and the wetland permanently impacted by the one H-frame steel deadend is approximately 25.2 square feet. Total permanent wetland impacts resulting from the Project are estimated to be approximately 50.4 square feet. Temporary impacts to wetlands would be limited to a 625-square-foot (25 feet by 25 feet) work pad around each Y-frame steel structure. Wetlands impacted by the Project are shown on the sheet maps in **Appendix A**. The remaining delineated wetlands within the Project area would be spanned by the Project.

While some of the routes to be utilized to access the Project ROW for construction cross wetlands, they were selected because they have historically been used for maintenance of the existing Q-1D South transmission line, or because they are seasonally dry or otherwise passable during some times of the year. In this way, use of these routes minimizes wetland impacts. Depending on temperatures some of

the existing access routes and trails within the La Crosse River floodplain may require temporary matting. A worst case temporary matting scenario was calculated using a 16-foot wide access route for approximately 0.7 miles, all the access routes within the La Crosse River floodplain. Temporary impacts to wetlands from access route matting are approximately 1.4 acres.

The Project is expected to fall under WDNR General Permit for Utilities to place Structures on the Bed or to place Temporary Bridges across Waterways, or to place Fill in Wetlands (WDNR-GP3-2013) and USACE Regional General Permit GP-002 WI. Two temporary clear span bridges (TCSBs) would be needed for equipment, vehicles, and personnel to cross a waterway and a deep ditch. Construction-related liquids (e.g., equipment lubricants) would be managed to avoid spills on the ground surface. Vehicle fueling will occur off site. Mitigation measures described below will help minimize impacts on quality of surface water run-off. After construction, no impact on surface water quality is anticipated to result from operations and maintenance of the transmission line.

Upon completion of construction, the existing transmission structures would be cut off at ground level and removed from their current location within wetlands. Disturbed areas would be re-vegetated and graded to pre-construction conditions.

5.3.1 Mitigation and Monitoring

Wetland impacts have been avoided to the extent practicable through preliminary design and the identification of off-ROW access to minimize the need for wetland crossings with heavy construction equipment. In addition to implementing the BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following mitigation measures would be employed to reduce potential impacts to wetlands:

- Crews will take advantage of periods of dry and frozen ground conditions, to the extent possible during the construction period.
- During periods that the ground is not dry or frozen, or in wetland locations with low stability conditions, temporary construction matting may be used to minimize impacts if access into wetlands cannot be rescheduled or relocated.
- Erosion control measures will be installed and maintained upslope of wetlands wherever erosion potential exists as a result of upland ground disturbance.
- DPC will monitor construction activities to promote the use of impact avoidance measures and appropriate impact minimization practices (e.g., erosion control, low ground pressure equipment, matting).
- DPC will obtain all permits listed in Section 6 of this EA.

5.4 Threatened and Endangered Species

The Project ROW crosses a complex landscape of varying ecological regions (Section 4.2). Given the diversity and uniqueness of microhabitats known to occur within these landscapes, a number of species that are adapted to these microhabitats are likely to be present.

The USFWS Section 7 technical assistance website (http://www.fws.gov/midwest/Endangered/section7/index.html) was reviewed for federally listed

threatened and endangered species and any critical habitat. The following species are listed that may be present in La Crosse County, Wisconsin; Northern long-eared bat (endangered), Whooping crane (non-essential experimental population), Eastern massasauga (Candidate species), Higgins eye pearly mussel (endangered), and the Sheepnose mussel (endangered). No critical habitat is listed for La Crosse County.

No long-term impacts to existing habitat for threatened or endangered species are expected to result because the Project consists of rebuild of a transmission line within an already disturbed corridor (existing transmission line ROW and adjacent to road ROW) and because impacts to surface waters would be avoided and/or mitigated as described in this section. Based on a review of the USFWS species list it has been determined that the Project will have "no effect" on federally threatened or endangered species or critical habitat in accordance with Section 7 of ESA.

Potential exists for impacts related to construction, operation, and maintenance activities to occur to certain state listed species that are assumed or known to occur in the area surrounding the Project ROW (Section 4.4). **Table 5-1** describes the potential for impacts to the resources of concern to WDNR-BNHC state listed species.

Table 5-1: State-Listed Species and Potential for Project Impacts

Species	State Status[1]	Impact Probability Comments
BIRDS		
Bell's Vireo	THR	Potential: The Project work is being completed from early September - December 2016 outside of the nesting period for Bell's vireo (May 25 - August 15). Avoidance of habitat during the nesting period, bird surveys, or application for an ITP are required.
Bald Eagle	SC/P	Low: While there are no known nests in the area, there is suitable habitat for the eagle to nest south of I-90. DPC will patrol the construction areas for nests and avoid construction during the breeding and nesting period if any nests are identified.
FISH		
River Redhorse	THR	Low: No work in waterways will be conducted. Waterways will be spanned, erosion and runoff prevention measures will be implemented during the course of the Project to avoid take of the eight fish species listed.
Paddlefish	THR	
Blue Sucker	THR	
Mud Darter	SC/N	
Pugnose Minnow	SC/N	
American Eel	SC/N	
Pirate Perch	SC/N	
Silver Chub	SC/N	
AMPHIBIANS		
Blanchard's Cricket Frog (*Acris blanchardi*)	END	Negligible: Project does not need to be altered to avoid impacts to this species. . However, if Northern cricket frogs would be observed during the course of the Project, the Endangered Resources Review Program should be contacted.

Table 5-1: State-Listed Species and Potential for Project Impacts

Species	State Status[1]	Impact Probability Comments
PLANTS		
Hill's Thistle	THR	Negligible: Protective measures would be applied as needed in coordination with the WDNR.
Prairie Milkweed	THR	
Oregon Woodsia	SC	.
Small-flowered Woolly Bean	SC	
Silky Prairie-clover	SC	
Clustered Poppy-mallow	SC	
Wild Licorice	SC	
REPTILES		
Gophersnake	SC/P	Low: These snake species may be active from late March to the end of Project construction. Species overwinters in mammal burrows and rock crevices. Therefore, it is recommended that when possible, mammal burrows and rock crevices be avoided from the beginning of Project construction- late April.
Timber Rattlesnake	SC/P	
COMMUNITY TYPES		
Dry Prairie Sand Prairie Dry-Mesic Prairie Riverine Lake/Pond Northern Wet Forest Shrub-Carr Emergent Marsh Alder Thicket	NA	Negligible: Project consists of construction of a transmission line within an already disturbed corridor (existing transmission line ROW and adjacent to road ROW. It is recommend minimizing impacts to and/or incorporating buffers along edges of these community types if found within Project area.

NOTES:

[1] NA = Not applicable (this is assigned to all natural community records in the database)
END = endangered (legally protected)
THR = threatened (legally protected)
SC = Special Concern
SC/P = fully protected
SC/N = no laws regulating use, possession or harvesting
SC/H = take regulated by establishment of open closed seasons
SC/FL = federally protected as endangered or threatened, but not so designated by WDNR
SC/M = fully protected by federal and state laws under the Migratory Bird Act

5.4.1 Mitigation and Monitoring

DPC will incorporate the protective measures recommended by WDNR for avoiding and minimizing impacts to state special status species as listed in **Table 5-2**, during facility design, access planning, and development of construction sequencing plans. DPC will coordinate in advance with WDNR to determine alternative protective measures if the measures in **Table 5-2** are deemed impracticable because of unavoidable scheduling and/or construction sequencing requirements. Impacts to natural communities are not anticipated as the Project would be constructed within a corridor with previously-disturbed vegetation. Monitoring will occur during construction activities, per agency agreements and permit conditions.

Table 5-2: Mitigation Measures for State Special Status Species

Affected Species	Proposed Mitigation
Bell's Vireo	Project work is scheduled for early September - December 2016, which falls outside of Bell's vireo nesting period from May 25-August 15. Bell's vireo could be present in suitable habitat areas of the Project area. The birds, their nests, and eggs are protected under the federal MBTA. To avoid impacts to this listed species the Project is required to follow one of two options: Option 1: Assume birds are present within Project area, and avoid all disturbances from May 25 – August 15. If Project can avoid disturbing areas of suitable habitat for these species during this time period, there would not be any further Project restrictions related to this species. If Project cannot completely avoid all areas of suitable habitat or take of the species, DPC will coordinate with WDNR BNHC regarding the possibility of applying for an ITP. Option 2: Not assume birds are present within Project area and have a qualified biologist conduct surveys of suitable habitat to determine if present. Survey protocols must be sent to the Review Program for approval prior to the initiation of surveys and results submitted to the Endangered Resources Review Program. If Bell's vireo is not found within the Project area as a result of the surveys, there would not be any Project restrictions related to this species. If surveys are conducted and this bird is recorded, Option 1 must be followed.
Bald Eagle	DPC will conduct nest surveys in construction areas and avoid construction during the breeding and nesting period if any nests are identified.
River Redhorse	DPC will not drive on the bed of waterways and will install two TCSBs. DPC does not propose installation of culverts or permanent bridges during construction. Erosion control and runoff prevention measures will be implemented and maintained per WDNR protocols.
Paddlefish	
Blue Sucker	
Mud Darter	
Pugnose Minnow	
American Eel	
Pirate Perch	
Silver Chub	
Blanchard's Cricket Frog	None: Species is not expected to be present.
Hill's Thistle	Erosion control and runoff prevention measures will be implemented and maintained per WDNR protocols.
Prairie Milkweed	
Oregon Woodsia	
Small-flowered Woolly Bean	
Silky Prairie-clover	
Clustered Poppy-mallow	
Wild Licorice	
Gophersnake	These snake species may be active from late March to the end of Project construction. Species overwinters in mammal burrows and rock crevices. Therefore, it is recommended that when possible, mammal burrows and rock crevices be avoided from the beginning of Project construction- late April.
Timber Rattlesnake	

5.5 Fish and Wildlife Resources

There is minimal potential for long-term displacement of wildlife and loss of habitat from the Project because it would be rebuilt along an existing transmission ROW. Wildlife could be temporarily displaced within the immediate area of construction activity.

5.5.1 Mitigation and Monitoring

Coordination with the WDNR and USFWS has not identified any additional concerns beyond those related to special status species, therefore, mitigation measures beyond those associated with erosion and sediment control measures to prevent impacts to water bodies are not proposed.

5.6 Floodplains

The Project would result in up to four transmission structures being placed in 100-year floodplains. Disturbance in floodplains would be limited to the area needed for the new structures and would result in up to 63 total square feet of permanent disturbance in the floodplain associated with the La Crosse River (approximately 12.6 square feet at each of the three Y-frame structure locations and approximately 25.2 square feet at the one H-frame deadend structure location). During construction, ground cover and soils would be temporarily disturbed. Effects resulting from the removal of groundcover and soils in floodplains would be temporary in nature and the area not occupied by the transmission structures would be reclaimed and re-vegetated to pre-construction conditions. Potential floodwater displacement could occur where structures are placed in floodplains. Based on the low volume of potential floodwater displacement, impacts on flooding are not anticipated.

Upon completion of construction, the existing transmission structures within the La Crosse River floodplain would be cut off at ground level and removed from their current location within the floodplain. The disturbed area associated with the removal of the existing structures would be re-vegetated and graded to pre-construction conditions so that water flow is not impeded during flooding events.

With implementation of the mitigation measures described below, it is not anticipated that construction or operation would have significant effects on floodplains.

5.6.1 Mitigation and Monitoring

In addition to implementing the BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following mitigation measures would be employed to reduce potential impacts to floodplains:

- DPC will coordinate with the USACE, WDNR, and local authorities for approval of structure locations.
- DPC will follow all floodway development requirements as outlined in Title 13, Chapter 2, Part 2 of the City of Onalaska Code of Ordinances and Title 15, Chapter 15.13 of the City of La Crosse Unified Development Ordinance.
- DPC will obtain all required permits listed in Section 6 of this EA.
- DPC will preserve existing natural vegetation to the extent practicable.
- DPC will restore temporary ground disturbance within 100-year floodplains caused by construction activities by re-vegetating the area impacted to pre-construction conditions.

5.7 Water Quality

Although nine waterways would be crossed by the Project ROW, none of the waterways intersected by the ROW would be crossed with construction vehicles or equipment. Two temporary clear span bridges (TCSBs) would be needed for equipment, vehicles, and personnel to cross a waterway in the La Crosse River floodplain area and a deep ditch south of the La Crosse River floodplain area (**Appendix A, Sheet Map 10**). Ground-disturbing construction activities and operation of construction vehicles adjacent to waterways involves some risk to water quality, such as sediments reaching surface waters during construction if ground disturbance results from excavation, grading, and construction traffic. Impacts are unlikely provided the Project-specific mitigation measures provided in this EA and in the Erosion Control Plan (to be completed prior to construction) are properly installed and maintained.

After construction, impacts to surface water quality are not anticipated. Impacts resulting from structure placement would not occur because all surface waters crossed by the Project would be spanned.

It is not anticipated that construction, operations, and maintenance of the Project would result in significant impacts to surface or groundwater quality if the mitigation measures described below are implemented.

5.7.1 Mitigation and Monitoring

During construction, the most effective way to avoid impacts is to avoid wet areas, streams, and rivers. Equipment fueling and lubricating would not occur on site. In addition to implementing the BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following construction practices would help prevent and/or contain accidental spills, soil erosion, and sedimentation:

- DPC will thoroughly plan, install, and maintain erosion control measures and re-vegetate and stabilize disturbed soil adjacent to waterways.
- Spill prevention, control, and countermeasures will be implemented as detailed in the Erosion Control Plan developed for the Project.
- All waterbodies will be spanned.
- No fuel storage or refueling will take place on site.
- Once construction has been completed, construction areas, laydown areas, and access routes will be cleared of debris and disturbed ground cover and soils will be returned to pre-construction conditions so that sedimentation will not occur.
- Construction activity will not be permitted below the ordinary high water line of any water body.
- DPC will obtain permits listed in Section 6 of this EA.

5.8 Coastal Areas

There are no coastal areas that would be impacted by the Project.

5.9 Air Quality

Construction of the Project would result in relatively small amounts of construction equipment exhaust emissions, and if soil along access routes is loose and dry, there would be some potential for fugitive dust emissions.

Wisc. Admin. Code Ch. NR415.04 states that no person shall allow materials to be transported without taking precautions to prevent the particulate matter from becoming airborne. Temporary impacts from fugitive dust would be minimized or avoided by using mitigation measures as described below.

Emissions resulting from corona-related ozone and nitrogen during operation of the transmission line are discussed in Section 5.16.

5.9.1 Mitigation and Monitoring

In addition to implementing the BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following mitigation measures would be employed to reduce potential impacts to air quality:

- Water will be applied to alleviate dust nuisance generated by construction activities.
- If water proves to be ineffective as a dust suppressant, soil binders will be used.

5.10 Cultural Resources

At the Tremaine site (47LC95/BLC71), four new structures would be placed in the uncatalogued burial portion of the site. Originally a proposed access road and pad around one structure were proposed near the Village of Holmen wastewater treatment plant. However, since artifacts were discovered within the proposed pad location, construction plans were altered and ground disturbance for the proposed access road and pad have been eliminated to avoid an adverse effect to the site. Matting will be used to access the structure location and to build a pad around this structure during non-frozen and frozen ground conditions. The other three structures within the Tremaine site boundary would be located in two adjacent plowed fields. DPC plans to construct during frozen ground conditions, so driving heavy equipment over these plowed fields should not have an adverse effect to the site. However, if construction plans change and the structures would be placed during non-frozen ground conditions, mats will be placed on the fields' surface for heavy equipment to drive on. Since this site is a burial site, Wisc. Stat. 157.70 requires monitoring of the structure placements in this site take place during construction. MVAC has already mitigated the structure locations at the Tremaine site through shovel testing, therefore placing the structures in the same locations should not have an adverse effect to the site.

At the Midway Village Complex (47LC19/BLC1), one new structure would be placed within the site boundaries. Shovel testing did not locate any cultural material or human remains at this structure location. An existing access route that is partially disturbed would be used to access the structure location for construction. DPC plans to place this structure during frozen ground conditions, so that heavy equipment driving over the undisturbed portion of the access route that overlaps the site boundaries should not have an adverse effect on the site. If construction plans change and the structure location needs to be accessed during non-frozen ground conditions, DPC will place matting on the ground surface within the site area in the undisturbed portion of the access route to drive heavy equipment on. Since this

site is a burial site, Wisc. Stat. 157.70 requires monitoring of the structure placements in this site take place during construction. MVAC has already mitigated the structure location at the Midway site; therefore placing the structure in the same location should not have an adverse effect to the site. A disturbed portion of the site would be used for the base of operations for the Project and laydown yard for structures and heavy equipment. However, since this area has been confirmed to be completely disturbed and there is no potential for intact cultural deposits or burials, this should not have an adverse effect on the site.

Two structure locations would be located within uncatalogued burial site BLC142, called Woodlawn North Cemetery. The location of BLC142 is an open lot that has been recorded as a cemetery, however it is currently an open field and no headstones or other grave markers are apparent. MVAC confirmed with the Catholic Diocese of La Crosse, who owns this property, that there have been no burials in this site area to date and it is currently recorded as a cemetery for tax exempt purposes, but at some point in the future it will be used as a cemetery (there is an existing cemetery immediately adjacent to it). Based on this information, no monitoring of structure placements or matting under heavy equipment is recommended within the BLC142 site boundary since no human remains have been interred. However, prior to construction, MVAC will field check the conditions of this area to make sure that the "cemetery" has not been utilized for interment and will confirm this with the landowner. If at that time the "cemetery" location has been used for burials, then monitoring during construction is recommended as is matting under heavy equipment during non-frozen ground conditions (in frozen ground conditions no matting will be necessary). However, if no burials have been placed in the "cemetery" location, then no further work is recommended.

RUS has submitted the surveys to Indian Tribes for review and comment. A copy of the letters that were sent to Indian Tribes and the responses that were received are provided in **Appendix C**.

5.10.1 Mitigation and Monitoring

In addition to implementing the BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following mitigation measures would be employed to reduce potential impacts to cultural resources:

- Supervisory construction personnel will be instructed on the protection of cultural resources, with reference to relevant laws and penalties and the need to cease work in the location if cultural resource items are discovered.
- If human bone or cultural resources are discovered during construction, work will be immediately suspended and DPC would contact RUS and Wisconsin Historical Society Burial Sites Preservation Office.

5.11 Aesthetics

The proposed transmission structure locations would be offset from the existing structure locations within the existing ROW to allow the existing transmission line to remain in service during construction of the new transmission line. Reconstruction of the existing transmission line would create direct short-term effects to visual resources by introducing vehicles, equipment, materials, and a workforce during the construction period. Viewers would see transmission line structure assembly and erection and conductor

stringing activities. Visual effects from construction activities would not be significant because of the short-term duration of the construction timeframe, anticipated to be an intermittent 4 to 5 days at each structure.

The Project would change visual resources in the long-term because the new single-pole transmission structures would be taller and made of different materials than the existing wood H-frame structures to be replaced. The new Y-frame steel structures would be approximately five to 10 feet taller than the existing wood H-frame structures that would be replaced in the La Crosse River floodplain. The ROW would remain at 80 feet (40 feet on either side). The ROW would continue to be cleared on a regular basis, so changes to the casual observer would be less than significant due to the clearing that has occurred previously on a regular basis in the existing ROW. In addition, the Project would not be out of character with the aesthetic character of the existing landscape because man-made features (e.g., high-voltage transmission lines, substations, and communication towers) are common within the area. Given the presence of existing man-made features including the existing transmission line, the landscape has a higher visual absorption capacity for the new elements compared with landscapes that are less modified by man-made structures, because similar vertical elements had previously been introduced into the landscape setting. The high degree of existing modification to the landscape, and the visual variability in the landscape (including a mosaic of agricultural lands, forested areas, farms, transmission lines, residences, buildings, and other man-made structures) would allow the rebuilt transmission line to blend with the existing landscape.

Local community plans specified that environmentally sensitive areas and visual resources should be protected when extending and constructing new utilities and community facilities. Rebuilding the transmission line within the existing ROW in the La Crosse River floodplain is consistent with these goals.

Sensitive viewsheds include the views from local residences. Residences within or adjacent to the Project ROW have views that range from unobstructed to partially or intermittently screened by vegetation located between the residential building and the existing ROW. The Project would not have a significant effect on these sensitive viewers because it would be rebuilt within the existing ROW. Although the new transmission structures would be taller than the existing structures (five to 10 feet in the La Crosse River floodplain and 40 to 55 feet taller in the remainder of the Project), the number of poles would be reduced by replacing the existing two-pole H-frame wood structures with single-pole steel structures. Residences located farther away would have a less prominent view of the Project and modifications would not be discernible to the casual observer. Sensitive viewers would also include recreational users of and visitors to the La Crosse River floodplain and recreational land such as golf courses, the La Crosse River Trail, and the neighborhood Coachlite Greens Park. Views of the Project by recreational users associated with these areas would be screened by existing vegetation and/or by the rolling topography, with the exception of river, creek, and trail users who would pass beneath the power lines and could view the lines and some structures. The rebuilt transmission line would not have a significant impact on viewers because the structures would be placed within the existing disturbed ROW. Viewers positioned directly adjacent to or within the Project ROW would have unobstructed views of the rebuilt transmission line; however, even though the transmission structures would be taller than the existing structures there would be fewer poles. The rebuilt line would be visible where it parallels and crosses roadways. Again, the rebuilt transmission line would not have a significant impact on viewers because the structures would be placed within the

existing disturbed ROW and although the new structures would be taller than the existing structures, there would be fewer poles.

Overall, effects to the aesthetic environment are anticipated to be less than significant because vertical elements similar to the rebuilt 161 kV transmission line already exist in the landscape, so the Project would not be out of character with the existing landscape. Furthermore, many sensitive views would be partially to completely screened by existing vegetation and/or topography.

After construction, the Project would not be out-of-character with the aesthetic character of the existing landscape. The transmission line is already present in the landscape.

5.11.1 Mitigation and Monitoring

The Project design reduces aesthetic and visual impacts to a level that is less than significant by locating the Project within an already disturbed corridor. In addition, to further minimize potential visual effects, existing undisturbed trees, shrubs, and native vegetation will be preserved to the extent possible to maintain visual contrast in the landscape.

5.12 Socioeconomic and Community Resources

Any impacts to social and economic resources would generally be of a short-term nature. DPC anticipates that one crew of 15 to 20 construction workers would be needed for construction of the Project. The construction contractors would not likely be local. Revenue, therefore, would likely increase for some local businesses, such as restaurants, gas stations, grocery stores, and hotels, because of an increase in the number of out-of-town workers in the area. Other local businesses, such as gravel suppliers, hardware stores, welding and machine shops, and heavy equipment repair and maintenance service providers, would also likely benefit from construction of the Project. The existing businesses and social services would be adequate to support the Project because of the small size of the construction crew and the short-term nature of the construction activities. The increased availability of reliable power in the area would have a positive effect on local businesses and the quality of service provided to the general public.

Since the Project has existed in its current location for approximately 62 years and it would be rebuilt within its existing ROW, its impact on property values are expected to less than discernable.

Given the relatively small size of the construction crew needed for construction of the Project, no impacts to emergency health care facilities or law enforcement services are anticipated.

5.12.1 Mitigation and Monitoring

Negative effects resulting from construction of the Project are not anticipated, so no mitigation is necessary.

5.13 Environmental Justice

The percentages of minority populations in the census tracts that cross the Project range from 2.9 to 8.4. Two of the census tracts crossed by the Project have lower minority populations than La Crosse County and three of the census tracts crossed by the Project have higher minority populations that La Crosse

County (**Table 4.6**). La Crosse County and all of the census tracts crossed by the Project have lower minority populations that the state of Wisconsin. Although low income populations would be crossed, the Project is a rebuild of the existing Q-1D South transmission line, so it is anticipated that the Project would have no disproportionate environmental effects to minority and low-income populations within La Crosse County. Further, no new easements would be required for the Project.

5.13.1 Mitigation and Monitoring

Construction of the Project would not have disproportionate impacts on minority and low-income populations, so no mitigation is necessary.

5.14 Transportation

Effects to transportation resulting in construction of the Project are not expected to be significant and would be temporary in nature. Construction crews would use the identified access routes, roadways, farm roads, and trails to access structure locations and to string conductor along the Project. A small construction crew consisting of approximately 15 to 20 people for the transmission line would be required. It is not anticipated that construction equipment or labor transportation would have a significant impact on traffic volumes or flow on local roadways or state/county highways. Any increases in traffic would be short-term in nature and would be limited to the construction time period near individual transmission structures.

Transportation corridors in proximity to the Project consist of residential roads, county roads, two-lane STHs, and an interstate highway. Since the Project follows the existing corridor, the number of crossings would not change. It would be necessary to cross four county roads, three STHs, one USH, one interstate highway, and twenty-seven local roads (36 total road crossings) while stringing the conductor, and traffic would temporarily be delayed for the time that it would take to string the conductor across the road. Conductor stringing at these locations is estimated to require only a few hours per crossing. If lane closures are necessary while conductor stringing takes place, at least one lane would remain open to traffic at all times. Temporary guard or clearance poles would also be installed to ensure that conductors do not obstruct traffic during stringing. Once the installation of new conductor has been completed, the temporary guard poles would be removed.

No impacts to airports or heliports during construction of operation of the Project are anticipated. The closest public airport to the Project is the La Crosse Regional Airport located immediately west of the Project on the northwestern corner of I-90 and USH 53, which is approximately 4.3 mile south of the Briggs Road Substation (**Figure 5**). DPC is working with the FAA regarding marking and lighting and the Cities of La Crosse and Onalaska regarding AOZD ordinance requirements as described in Sections 3.4.2 and 4.14. The closest heliport to the Project is a hospital heliport located 4.3 miles southwest of the Project in La Crosse. The closest private airport to the Project is the Parkway Farm Strip Airport, located approximately 3.9 miles north of the Project in the Town of Holland. DPC will continue to coordinate with local governmental units with jurisdiction over airports in the vicinity of the Project to determine if permits are required.

The Holmen cell communication tower is located north of Schilling Road, approximately 1.3 miles northeast of the Project ROW. No communication towers are located within the Project ROW.

The Project would cross the Chicago Milwaukee St Paul and Pacific Railroad which is located east of STH 16 and south of the La Crosse River.

Construction, operation, and maintenance of the Project would have no significant effects on transportation or access in the Project area. The minor effects that would take place during construction would be minimized by utilizing the mitigation measures described below.

5.14.1 Mitigation and Monitoring

In addition to implementing those BMPs described in *DPC's Manual for Transmission Lines and Substation Construction and Maintenance Activities*, the following mitigation measures will be employed to reduce potential impacts to transportation:

- Roadway crossings will be maintained in a condition that will prevent tracking of sediment onto the roadway.
- Mud tracked onto paved roadways will be shoveled or swept off the road daily.
- Road crossings resulting from stringing operations will be discussed with the appropriate transportation organization and, if required, personnel will be enlisted to assist with public safety and to ensure minimal disruption to traffic flow.
- The contractor will not utilize state or county road/highway ROW for parking.
- The contractor will be required to make necessary provisions for conformance with federal, state, and local traffic safety standards using traffic control, signage, and hazard cones as necessary to minimize the obstruction and to provide for the smooth flow of traffic around or through the construction area.
- Temporary guard or clearance poles may be installed to ensure that conductors do not obstruct traffic during stringing.

5.15 Human Health and Safety

5.15.1 Electrical Characteristics

No health impacts would result from the construction and operation of the Project either through the effect on air quality or because of the electromagnetic or electrostatic characteristics are nonexistent. Sources of EMF in the proximity to the Project include 161 and 69 kV transmission lines, several distribution lines, and four substations. The Project would consist of rebuilding an existing 161 kV transmission line and would not introduce a new source of EMF in this portion of the Project area. Many studies of EMF have been conducted but none has identified a mechanism by which EMF can cause disease. Considerable research has been devoted to this subject over the past 30 years. More information and questions and answers can be found on the website for The National Institute of Environmental Health Sciences at http://www.niehs.nih.gov/health/ topics/agents/emf/.

Epidemiological and toxicological studies have shown no statistically significant association or weak associations between EMF exposure and health risks.

The possible impact of exposure to EMFs upon human health has been investigated by public health professionals for the past several decades. While the general consensus is that EFs pose no risk to humans, the question of whether exposure to MFs can cause biological responses or health effects continues to be debated.

The most recent reviews of research regarding health effects from power-frequency MFs conclude that the evidence of health risk is weak. The National Institute of Environmental Health Sciences (NIEHS) issued its final report on June 15, 1999, following six years of investigation. NIEHS concluded that there is little scientific evidence linking extra low frequency MF exposures with health risk.

In 2007, the World Health Organization (WHO) concluded a review of the health implications of EMFs. In this report, the WHO stated:

> *Uncertainties in the hazard assessment [of epidemiological studies] include the role that control selection bias and exposure misclassification might have on the observed relationship between magnetic fields and childhood leukemia. In addition, virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status. Thus, on balance, the evidence is not strong enough to be considered causal, but sufficiently strong to remain a concern. (Environmental Health Criteria Volume N°238 on Extremely Low Frequency Fields at p.12, WHO [2007]).*

Also, regarding disease outcomes, aside from childhood leukemia, the WHO stated that:

> *A number of other diseases have been investigated for possible association with ELF magnetic field exposure. These include cancers in both children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications and neurological disease. The scientific evidence supporting a linkage between ELF magnetic fields and any of these diseases is much weaker than for childhood leukemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease.*

(Id. at p.12.)

Furthermore, in their "Summary and Recommendations for Further Study," WHO emphasized that:

> *the limit values in [EMF] exposure guidelines [not] be reduced to some arbitrary level in the name of precaution. Such practice undermines the scientific foundation on which the limits are based and is likely to be an expensive and not necessarily effective way of providing protection.*
>
> *(Id. at p. 12).*

WHO concluded that:

> *given both the weakness of the evidence for a link between exposure to ELF magnetic fields and childhood leukemia, and the limited impact on public health if there is a link, the benefits of exposure reduction on health are unclear. Thus, the costs of precautionary measures should be very low.*
>
> *(Id. at p.13).*

Wisconsin, Minnesota and California have all conducted literature reviews or research to examine this issue. Since 1989, PSCW has periodically reviewed the science on EMF, and has held hearings to consider the topic of EMF and human health effects. The most recent hearings on EMF were held in July 1998. In January 2008, the PSCW published a fact sheet (https://psc.wi.gov/thelibrary/publications/electric/Electric12.pdf) regarding EMF. In it, PSCW noted that:

> *Many scientists believe the potential for health risks for exposure to EMF is very small. This is supported, in part, by weak epidemiological evidence and the lack of a plausible biological mechanism that explains how exposure to EMF could cause disease. The magnetic fields produced by electricity are weak and do not have enough energy to break chemical bonds or to cause mutations in DNA. Without a mechanism, scientists have no idea what kind of exposure, if any, might be harmful. I in addition, whole animal studies investigating long-term exposure to power-frequency EMF have shown no connection between exposure and cancer of any kind.*

In a March 2013 CPCN Order, the PSCW affirmed the conclusions in the fact sheet, noting that "A 'perception of harm' from EMF emanating from overhead transmission lines is not rationally founded and cannot be the basis of a Commission decision that must be based upon fact." Western Milwaukee County Electric Reliability Project, Final Decision at 32, PSCW Docket No. 5-CE-139 (March 20, 2013; as modified March 27, 2013).

DPC recognizes its responsibility to provide wholesale electric service at the lowest possible cost in a manner that is safe, reliable and environmentally sound. This responsibility includes carefully designing and locating our facilities in accordance with the National Electric Safety Code and all applicable federal, state and local regulations. Despite the lack of clear evidence from reliable studies of any adverse effect EMF may have on human health, DPC will continue to construct and operate our facilities in a manner that minimizes, to the extent prudent and practical, the amount of EMF that is created. The new design for the 161kV line will have lower EMF reading than the existing transmission line.

Since there are still unanswered questions and opposing theories, DPC agrees that limited research should continue in a credible and objective manner even though the federal government has ceased funding all such research studies. Accordingly, DPC will continue to be a sponsor of the EMF research program of the Electric Power Research Institute (EPRI), of which we are a member. DPC will continue to closely monitor the results of these and other scientific studies as they are completed.

A summary of the existing and proposed EMF calculations for the proposed Project is provided in **Appendix G**. Structure type drawings for the proposed Project are also provided along with an overview map showing the location where the structure types may be used.

EF and MF calculation tables presented in **Appendix G** were obtained from ENVIRO, a software program, licensed by EPRI. All information under this section (phase angles, pole design diagrams and height of lowest conductors at mid-span) are shown in **Appendix G**.

The potential for injuries or mortality from a variety of accidental causes involving transmission lines is a valid consideration with any high voltage facility. DPC's transmission line design is in accordance with the NESC and Wisconsin State Electric Code-Part 2 and designed to minimize the possibility of injury from either inadvertent causes or ill-advised tampering by the public. There exists a possibility of human hazards despite all attempts to educate the public and design tamper-proof facilities. However, this hazard would be no greater for the Project than presently exists from existing similar facilities in the area.

5.15.2 Mitigation and Monitoring

DPC will continue to communicate with landowners adjacent to the Project ROW on the safe operation of equipment near a transmission line. Because no additional impacts to human health and safety are anticipated, no mitigation measures are proposed.

5.16 Corona, Audible Noise, Radio, and Television Interference

Corona from transmission lines can create buzzing, humming, or crackling. Measures such as carefully handling the conductor during construction to avoid nicking or scraping or otherwise damaging the surface and using hardware with no sharp edges or points are typically adequate to control corona. Corona effects are expected to be low enough that no objectionable audible noise would result outside the Project ROW. Corona-related ozone and nitrogen oxide emissions are the primary air quality concerns related to transmission line operation. The concentration of ozone caused by corona is a few parts per million near the conductor and is not measurable at any distance from the conductor.

The construction of the Project would result in AN from the transmission line and temporary short-term noise increases in areas where construction and staging are taking place. Indirect effects from post construction activities, which would include the AN effects from the transmission line and inspection and maintenance activities, would be insignificant because of their short duration and infrequency. The AN generated during construction would be caused by foundation construction, assembly and erection of the transmission line structures, and noise generated by construction equipment such as auguring machines, cranes, heavy machinery, and trucks.

Typical equipment associated with transmission line construction and the associated noise levels at full power are shown in **Table 5-3**. Shaded areas indicate reference noise levels.

Under peak conditions during construction, with the noisiest construction equipment operating simultaneously, the highest average expected noise level is estimated to be 89 dBA-equivalent sound level (referred to as Leq) at a reference distance of 50 feet (DOE 2002). This noise level is approximately equivalent to noise experienced on a sidewalk next to a busy urban street. Noise decreases with distance at a rate of approximately six dBA per doubling of distance from the noise source. Based on this attenuation rate, at distances above 0.25 mile, peak construction noise would be approximately 61 dBA, or equivalent to normal conversation at 6 feet.

Noise from heavy machinery during construction of the Project may create a short-term nuisance to nearby residents. DPC would mitigate the nuisance by ensuring that construction vehicles and equipment are maintained in proper operating condition and equipped with manufacturer's standard noise control devices or better (e.g., mufflers or engine enclosures).

Table 5-3: Construction Equipment Noise Levels

Equipment	Typical Noise Levels 50 feet from Source (dBA)[1]
Rural area during daytime[1]	40
Residential area during daytime	50
Normal conversation at 6 feet	55–65
Trucks	75
Air compressor	81
City traffic	80
Backhoe	80
Concrete mixer	85
Mobile crane	83
Bulldozer	85
Grader	85
Rotary drilling rig[2]	87
Peak combined equipment[3]	89
Lawn mower	90

Note: Shaded areas indicate reference noise levels.

1 Source: DOT (2006) except as noted.

2 Yantak (2007)

3 DOE (2002)

Landowners in proximity to electric transmission lines are often concerned that new transmission lines would affect their radio or television reception. This is a legitimate concern, not only related to transmission lines, but for distribution and communications lines as well. It is DPC's general experience that when the radio or television receiver is located outside the ROW, very few problems with radio or television reception are encountered.

Corona associated with the Project is expected to be low enough so that no radio or television interference is anticipated outside of the ROW, consistent with the operation of the existing transmission line. However, DPC is committed to taking all reasonable steps to assure area landowners that the Project would not interfere with radio or television reception. In cases where there is a demonstrable effect from the transmission line on reception, very often simple corrective steps, such as checking line

hardware for loose or defective hardware and repairing or replacing defective items is sufficient to solve the problems. In a very limited number of cases, it has been necessary to take more extensive corrective steps such as relocating individual television or radio antenna systems or installing systems where none previously existed. In most cases, however, it is possible to entirely avoid radio and television interference by appropriate routing steps and by post-construction adjustments of line hardware.

5.16.1 Mitigation and Monitoring

The Project intersects rural residential, residential, industrial, recreational, and commercial areas. Significant impacts resulting from construction noise are not anticipated. Impacts associated with the generation of corona are not anticipated and there would be no impact to radio and television interference; therefore, no mitigation measures are proposed.

Page Intentionally Blank

6.0 Agencies Consulted and Permitting Requirements

DPC consulted with agencies to solicit comments regarding potential impacts associated with the Project. DPC sent consultation letters to the following resource management agencies:

- USFWS concerning federally listed threatened or endangered species and wetlands
- WDNR concerning state-listed threatened and endangered species
- Wisconsin State Historic Preservation Office (SHPO) concerning cultural and historic resources
- Tribal Consultation
- NRCS concerning prime farmland

Copies of the consultation letters sent to resource management agencies and responses received to date are provided in **Appendix C**.

At the time this EA was submitted to RUS, response from the DATCP had been received. No concerns were raised by the DATCP and no AIS will be required for the Project. DPC submitted a form requesting SHPO Comment and Consultation on a Federal Undertaking in July 2015. DPC indicated that no historic properties would be affected by the Project. A concurrence letter from SHPO was received on August 6, 2015 and is provided in **Appendix C**.

DPC also sent a Notification of Undertaking Subject to Section 106 of the National Historic Preservation Act to nine Indian Tribes to inform them of the Project and to request review of potential impacts to cultural and historic properties. DPC has received responses from two of the Indian Tribes consulted. Both asked to be notified if any burial, sites, archaeological, or traditional properties were found. A copy of the letters and responses are provided in **Appendix C**.

In addition to those consultations listed above, DPC will also be consulting with the following resource management agencies or state and local jurisdictions when the following permits are applied for:

- WDNR General Permit for Wetland Discharges
- Notification to USACE that a Permit for Wetland Discharges will be filed with WDNR
- WDNR General Permit to Discharge Under the Wisconsin Pollutant Discharge Elimination System
- Permits to cross county and state roads/highways
- Permits to perform work in county and state roads/highways
- Permits potentially required by La Crosse County
    - Special Exception Permit – Airport Height Restrictions
    - County Stormwater Permit

DPC anticipates applying for all necessary federal, state, and county permits for the Project in late 2015 and would provide RUS with acquired permits as they are received.

Page Intentionally Blank

7.0 Public Notice and Comments

In conformance with 7 CFR 1794.32, DPC was required to notify the public about proposals that impact important land resources, which are defined in USDA Departmental Regulation 9500-3, Land Use Policy, as important farmland, prime forestland, prime rangeland, wetlands, and floodplains. Given the anticipated permanent impacts to important farmland, floodplains, and wetlands associated with the Project, DPC placed an advertisement in the La Crosse Tribune on August 31, 2015 to inform the public of the proposed construction. A copy of the newspaper advertisement is included in **Appendix F**.

The public notice asked that the public to submit comments within 30-days. In response to public comments received during the initial 30-day comment period, DPC published a second public notice in the La Crosse Tribune on October 3, 2015 extending the comment period by 10 days. A total of 45 written comments were received. **Appendix H, Table 1** provides list of comments. Comments received are also available on the DPC's website at http://www.dairynet.com/power_delivery/project_updates.php and are available for public examination locally, at DPC's office, 3200 East Avenue South, La Crosse, Wisconsin 54602. The responses to comments in **Appendix H** have been organized by topic following the order that the topics are discussed in this EA

Under the NEPA process and in conformance with 7 CFR 1970.102, DPC is required to notify the public of the availability of the Draft EA and solicit comments on the Project. The public will be afforded 30 days to comment on the Draft EA (this document), which will be available on RUS and DPC websites and in hard copy at DPC offices in La Crosse, Wisconsin and public libraries in Holmen and Onalaska, Wisconsin. Publication of a newspaper advertisement and legal notice in local newspapers initiates the comment period. A copy of the newspaper advertisement and legal notice is provided in **Appendix F**. Upon the completion of the comment period, RUS will determine the significance of the Project's effects on the quality of the human environment and make a Finding of No Significant Impact (FONSI) or prepare an Environmental impact Statement (EIS). Upon making a determination, a second newspaper advertisement and legal notice will be published in local newspapers.

Page Intentionally Blank

8.0 Conclusion

The Project is not expected to result in unmitigated impacts to environmental, social, cultural, or historical resources. The final transmission line design would be engineered to comply with the NESC, and protected species habitat and surface waters would be spanned by the transmission line. Construction of the Project would require that structures be placed in wetlands and DPC would coordinate with the appropriate agencies to determine the best ways to minimize and mitigate impacts and would obtain the necessary permits to construct. Potential impacts to soils and surface water resources would be minimized and avoided by using erosion and sedimentation control BMPs during construction.

Page Intentionally Blank

9.0 References

City of Onalaska. 2004. *City of Onalaska Comprehensive Plan.* http://www.cityofonalaska.com/index.asp?Type=B_BASIC&SEC=%7bBDF014C2-AD19-467A-9DD5-2B24C9960398%7d. Accessed December 2014.

2009.Onalaska Zoning Code. http://www.cityofonalaska.com/index.asp?Type=B_BASIC&SEC={5B461A66-6FD3-43D7-BDDB-CCCC8415D1AB}&DE={6C5F1637-D4C1-4197-8EB4-85811E7CB032}. Accessed December 2014.

2011. *La Crosse Municipal Airport Zoning Overlay District Ordinance.* http://www.cityofonalaska.com/vertical/sites/%7BE2D95124-B506-4063-A7E4-C086F6654A75%7D/uploads/%7B9C601B51-E646-48CE-A6E2-0932E2D1C619%7D.PDF. Accessed December 2014.

City of La Crosse. 2002. *City of La Crosse Comprehensive Plan.* http://www.cityoflacrosse.org/index.aspx?NID=285. Accessed December 2014.

Council on Environmental Quality (CEQ). 1997. *Considering Cumulative Effects under the National Environmental Policy Act.* Washington: Council of Environmental Quality, 64 pp.

County of La Crosse, Wisconsin. 2009. *La Crosse County Comprehensive Plan.* http://www.co.la-crosse.wi.us/comprehensiveplan/docs/Plans/3-20-08/default.htm. Accessed December 2014.

2013. *La Crosse County Zoning Ordinance.* http://www.co.la-crosse.wi.us/zoning/zoning/docs/Chapter17ZoningCode.pdf. Accessed December 2014.

Federal Reserve Economic Data (FRED) 2013a. (Source: U.S. Bureau of Labor Statistics). *Unemployment Rate in La Crosse County, Wisconsin.* http://research.stlouisfed.org/fred2/series/WILACR3URN?cid=30464 Accessed September 2014.

2013b. Unemployment Rate in Wisconsin. http://research.stlouisfed.org/fred2/series/WIUR?cid=27333 Accessed September 2014.

La Crosse River State Trail, Inc. 2014. *La Crosse River State Trail*. http://www.lacrosseriverstatetrail.org/ Accessed November 2014.

Mississippi River Regional Planning Commission (MRRPC). 2014a. *Economic Base Analysis Report*. Economic Modelling Specialists International. http://www.mrrpc.com/Misc_pdfs/EMSI_LaCrosse_County_Summary_Report.pdf. Accessed November 2014.

2014b. *MRRPC Comprehensive Plan 2014 - 2034* – Chapter 4: Utilities, Community Facilities, and Energy. http://www.mrrpc.com/Misc_pdfs/MRRPC_COVER_TBL_CNTS_INTRO.pdf. Accessed December 2014.

Minnesota Pollution Control Agency (MPCA). 2013. *Noise Program Website.* http://www.pca.state.mn.us/index.php/air/air-monitoring-and-reporting/air-emissions-modeling-and-monitoring/noise-program.html?menuid=. Accessed September 2014.

Mississippi Valley Archaeology Center, University of Wisconsin – La Crosse (MVAC). August 2013. *Archival Literature Review for Proposed Changes to Approximately Nine Miles of the Q-1 Transmission Line, Briggs Road Substation to North La Crosse Tap, La Crosse County, Wisconsin.* Report of Investigations 964.

Noise Pollution Clearing House (NPC). 2011. *Typical Noise Levels.* http://www.nonoise.org/library/household/index.htm. Accessed September 2013.

Town of Medary. 2009. *Town of Medary Comprehensive Plan*. http://www.co.la-crosse.wi.us/townofmedary/Comprensive%20Plan/TMedary.htm. Accessed December 2014.

Town of Onalaska. 2005. *Town of Onalaska Comprehensive Plan*. http://www.co.la-crosse.wi.us/townofonalaska/ComprehensivePlan/Default.htm. Accessed December 2014.

Pending. Town of Onalaska Zoning Ordinance. http://www.co.la-crosse.wi.us/townofonalaska/Docs/Code/CodeIndex.htm. Accessed December 2014.

U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1, USACE Waterways Experiment Station.* Vicksburg, MS.

2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region,* ed. J.S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-27. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Census Bureau. 2010. *American FactFinder.* http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t. Accessed September 2014.

U.S. Department of Agriculture/U.S. Department of Interior (USDI). 1970. *Environmental Criteria for Electric Transmission System.*

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), 2014. http://datagateway.nrcs.usda.gov/ Accessed September 2014.

U.S. Environmental Protection Agency (USEPA), *Current Nonattainment Counties for All Criteria Pollutants,* July 02, 2014. http://www.epa.gov/oaqps001/greenbk/ancl.html. Accessed September 2014.

USGS Earthstar Geographics, 2014 Microsoft Corporation and 2014 Nokia (Source: Microsoft Bing Maps, ArcGIS Online). http://www.microsoft.com/maps/. Accessed September 2014.

United States Fish and Wildlife Service (USFWS). 2014. http://www.fws.gov/refuge/Upper_Mississippi_River/about.html. Accessed October 2014.

Wisconsin Department of Natural Resources (WDNR). 2012. *Ecological Landscapes – Western Coulee and Ridges Fact Sheet*. http://dnr.wi.gov/topic/landscapes/index.asp?mode=detail&Landscape=4. Accessed October 14, 2013.

2014. Great River State Trail. http://dnr.wi.gov/topic/parks/name/greatriver/. Accessed November 2014.

Wisconsin Department of Transportation (WisDOT). *Travel Information Interactive Traffic Count Map*. https://trust.dot.state.wi.us/roadrunner/. Accessed September 2014.

Wisconsin Geological and Natural History Survey (WGNHS). 1984. *Short History of the Ice Age in Wisconsin*. http://wisconsingeologicalsurvey.org/pdfs/pgszpdf/ice_age_deposits.pdf. Accessed September 2013.

Village of Holmen. 2004. *Village of Holmen Comprehensive Plan.* http://www.holmenwi.com/index.asp?SEC=FF89B248-A09E-4D67-BADA-CDE0831D959C&DE=4DF92F22-570C-4988-95F7-4E8FC32489F9&Type=B_BASIC. Accessed December 2014.

Yantak, David S.; David K. Ingram, and R.J. Matetic. 2007. *In-Cab Noise Reduction on an Air-Rotary Drill Rig.* Journal of Noise Control Engineering, May–June 2007; 55(3): pp. 294-310.

Page Intentionally Blank