

Cardinal-Hickory Creek 345-kV Transmission Line Project

Responsible Federal Agency (Lead): U.S. Department of Agriculture, Rural Utilities Service

Cooperating Agencies: U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency

Title: Cardinal-Hickory Creek 345-kV Transmission Line Project Record of Decision

Location: Eastern Iowa, southwestern and south-central Wisconsin

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ACRONYMS AND ABBREVIATIONS

ACA	Alternative Crossings Analysis
AES	Alternatives Evaluation Study
ATC	American Transmission Company LLC
ATCP	Agriculture, Trade, and Consumer Protection
BMP	best management practice
Burns and McDonnell	Burns and McDonnell Engineering Company
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
C-HC Project	Cardinal-Hickory Creek Project
CPCN	certificate of public convenience and necessity
CWA	Clean Water Act
Dairyland	Dairyland Power Cooperative
DATCP	Wisconsin Department of Agriculture, Trade, and Consumer Protection
DEIS	draft environmental impact statement
DOT	Department of Transportation
EC	Engineering Circular
EIS	environmental impact statement
EMF	electric and magnetic fields
EO	executive order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEIS	final environmental impact statement
FERC	Federal Energy Regulatory Commission
IDNR	Iowa Department of Natural Resources
Iowa DOT	Iowa Department of Transportation
ITC Midwest	ITC Midwest LLC
IUB	Iowa Utilities Board
kV	kilovolt
L&D	Lock and Dam
LWCF	Land and Water Conservation Fund
MCS	Macro-Corridor Study
MISO	Midcontinent Independent System Operator, Inc.
MRO	Midwest Reliability Organization
MTEP	MISO Transmission Expansion Plan
MVP	multi-value project

MWh	megawatt hours
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHPA	National Historic Preservation Act
NOA	notice of availability
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NR	Natural Resources
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OHWM	ordinary high-water mark
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
project	Cardinal-Hickory Creek Project
PSC	Public Service Commission
PSCW	Public Service Commission of Wisconsin
Refuge	Upper Mississippi River National Wildlife and Fish Refuge
ROD	record of decision
ROW	right-of-way
RUS	Rural Utilities Service
SHPO	State Historic Preservation Office
SWPPP	Stormwater Pollution Prevention Plan
TCSB	temporary clear span bridge
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
the Utilities	Dairyland Power Cooperative, American Transmission Company LLC, and ITC Midwest LLC
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WisDOT	Wisconsin Department of Transportation
WUS	waters of the U.S.

1 INTRODUCTION

1.1 Background/Project Description

Dairyland Power Cooperative (Dairyland), American Transmission Company LLC (ATC), and ITC Midwest LLC (ITC Midwest), together referred to as “the Utilities,” propose to construct and own a new 345-kilovolt (kV) transmission line between Dane County, Wisconsin, and Dubuque County, Iowa.

The approximately 100-mile 345-kV proposed transmission line project includes the following facilities:

- **At the existing Cardinal Substation in Dane County, Wisconsin:** a new 345-kV terminal within the substation;
- **At the proposed Hill Valley Substation near the village of Montfort, Wisconsin:** an approximately 22-acre facility with five 345-kV circuit breakers, one 345-kV shunt reactor, one 345-/138-kV autotransformer, and three 138-kV circuit breakers;
- **At the existing Eden Substation near the village of Montfort, Wisconsin:** transmission line protective relaying upgrades to be compatible with the new protective relays installed at the new Hill Valley Substation and replacement of conductors and switches to meet Utilities’ operating limits;
- **Between the existing Eden Substation and the proposed Hill Valley Substation near the village of Montfort, Wisconsin:** a rebuild of approximately 1 mile of the Hill Valley to Eden 138-kV transmission line;
- **At the existing Wyoming Valley Substation near Wyoming, Wisconsin:** installation of nine 16-foot ground rods to mitigate potential fault current contributions from the proposed project;
- **Between the existing Cardinal Substation and the proposed Hill Valley Substation:** a new 53-mile 345-kV transmission line;
- **Between the proposed Hill Valley Substation and existing Hickory Creek Substation:** a new 49-mile 345-kV transmission line;
- **At the Mississippi River in Cassville, Wisconsin:** a relocation of the existing Mississippi River transmission line crossing to accommodate the new 345-kV transmission line and Dairyland’s 161-kV transmission line, which would be capable of operating at 345-/345-kV but would initially be operated at 345-/161-kV;
 - a new 161-kV terminal and transmission line protective relaying upgrades within the existing Nelson Dewey Substation in Cassville, Wisconsin;
 - replacement or reinforcement of an existing transmission line structure within the Stoneman Substation in Cassville, Wisconsin;
- Multiple, partial, or complete rebuilds of existing 69-kV, 138-kV, and 161-kV transmission lines in Wisconsin that would be collocated with the new 345-kV line;
- **At the existing Turkey River Substation in Clayton County, Iowa:** one new 161-/69-kV transformer, three new 161-kV circuit breakers, and four new 69-kV circuit breakers; and
- **At the existing Hickory Creek Substation in Dubuque County, Iowa:** a new 345-kV terminal within the existing Hickory Creek Substation.

These upgrades and new construction projects are together referred to as the “Cardinal-Hickory Creek Project” (or the “C-HC Project”). Due to the scope and potential impact of the C-HC Project and the

involvement and actions of certain Federal agencies, an environmental impact statement (EIS) was prepared to fulfill obligations specified under the National Environmental Policy Act (NEPA).

Dairyland intends to request financial assistance from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) to fund its anticipated 9% ownership interest in the C-HC Project. RUS administers programs that provide much-needed infrastructure or infrastructure improvements to rural communities. RUS's evaluation to potentially finance the Dairyland portion of the C-HC Project constitutes a Federal action, requiring it to perform an environmental review within the context of NEPA. To comply with NEPA, RUS has prepared this final EIS (FEIS) to provide information to make the determination of whether RUS funds should be obligated to finance Dairyland's ownership portion of the project.

RUS is serving as the lead Federal agency for the NEPA environmental review of the C-HC Project. The U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and U.S. Environmental Protection Agency (USEPA) are cooperating agencies for the FEIS. The National Park Service is serving as a participating agency. Regardless of the potential financial assistance from RUS to fund Dairyland's ownership interest in the C-HC Project, a NEPA environmental review would still be required as part of the permitting actions by USACE, USFWS, and potentially other Federal agencies.

1.2 Project Purpose and Need

In many areas of the Midwest, the electricity transmission backbone system primarily consists of 345-kV lines. There are limited connection points to the existing regional grid and 345-kV transmission lines in the area from northeast Iowa and southwestern and south-central Wisconsin. The Utilities propose to construct and own the C-HC Project 345-kV transmission line and interconnecting 345-kV network facilities in northwest Iowa and south-central Wisconsin. The C-HC Project is the southern portion of the Midcontinent Independent System Operator, Inc. (MISO), multi-value project (MVP) #5 project. The proposal includes a new intermediate substation near Montfort, Wisconsin, which would provide connectivity to the regional 345-kV network.

The C-HC Project would increase the capacity of the regional transmission system to meet the following needs:

- Address reliability issues on the regional bulk transmission system and ensure a stable and continuous supply of electricity is available to be delivered where it is needed, even when facilities (e.g., transmission lines or generation resources) are out of service;
- Alleviate congestion that occurs in certain parts of the transmission system and thereby remove constraints that limit the delivery of power from where it is generated to where it is needed to satisfy end-user demand;
- Expand the access of the transmission system to additional resources, including 1) lower-cost generation from a larger and more competitive market that would reduce the overall cost of delivering electricity, and 2) renewable energy generation needed to meet state renewable portfolio standards and support the nation's changing electricity mix;
- Increase the transfer capability of the electrical system between Iowa and Wisconsin;
- Reduce the losses in transferring power and increase the efficiency of the transmission system and thereby allow electricity to be moved across the grid and delivered to end-users more cost-effectively; and

- Respond to public policy objectives aimed at enhancing the nation’s transmission system and to support the changing generation mix by gaining access to additional resources such as renewable energy or natural gas-fired generation facilities.

Additional information about electric system reliability and planning associated with the C-HC Project is provided in FEIS Section 1.3, and additional information about the project’s purpose and need is provided in FEIS Section 1.4.

2 FEDERAL DECISIONS/AUTHORITIES

Three Federal agencies have signed this record of decision (ROD) to approve various components of the proposed C-HC Project (Table 1). RUS, the lead Federal agency, has approved the C-HC Project to proceed to the RUS loan review and engineering review processes.

As a cooperating agency, the USFWS agrees that the NEPA process is complete and the FEIS adequately describes impacts to the human environment. Once this ROD is signed, the USFWS will consider a right-of-way (ROW) permit application they have received from ITC Midwest and Dairyland for crossing the Upper Mississippi River National Wildlife and Fish Refuge (Refuge). The FEIS will be used to inform USFWS decision makers on the impacts of allowing a transmission line ROW across the Refuge.

The USACE approves the ROW request and will issue a permit required by Section 10 and Section 408 of the Rivers and Harbors Act and Section 404 of the Clean Water Act (CWA). The following sections describe the authorities under which the three Federal agencies can make decisions, and the decisions made in this ROD.

Table 1. Summary of Decisions Made by the Federal Agencies

Agency	Decision
RUS	RUS has determined that the NEPA review is complete and meets its environmental requirements for financing assistance for Dairyland. RUS will continue to review Dairyland’s financial and engineering considerations prior to making the final determination as to approving financial assistance for the C-HC Project.
USFWS	The USFWS has determined that the NEPA review is complete and the FEIS adequately evaluates and describes impacts on the human environment. The USFWS agrees that the preferred alternative most effectively avoids, minimizes, and mitigates impacts to the Refuge. The USFWS also agrees that consultation under the Endangered Species Act is complete. The USFWS has found the transmission line route which crosses the Refuge as described in the preferred alternative to be compatible. The USFWS will continue to review a ROW permit application from ITC Midwest and Dairyland and will make a decision on granting a ROW permit within 270 days of signature of the ROD. Subsequent special use permits authorizing construction of the transmission line would be evaluated and issued after the ROW permit is approved.
USACE	The USACE approves the ROW request for crossing the Refuge, subject to further coordination with the USACE Real Estate Division. The USACE has issued permits required by Section 10 and Section 408 of the Rivers and Harbors Act and Section 404 of the CWA (see Appendix C of this ROD).

2.1 Rural Utilities Service

The Rural Electrification Act of 1936, as amended (7 United States Code [U.S.C.] 901 et seq.) generally authorizes the Secretary of Agriculture to make rural electrification and telecommunication loans, and specifies eligible borrowers, references, purposes, terms and conditions, and security requirements. RUS

is authorized to make loans and loan guarantees to finance the construction of electric distribution, transmission, and generation facilities including system improvements and replacements required to furnish and improve electric service in rural areas, as well as demand-side management, electricity conservation programs, and on- and off-grid renewable electricity systems.

It is anticipated that Dairyland will be requesting financing assistance from RUS for its participation as a partial owner of the C-HC Project. Dairyland would be the sole owner of the 161-kV transmission line that would be rebuilt as part of the 345-kV Mississippi River crossing and any equipment replaced in the Stoneman Substation. Dairyland also would be a partial owner of the Turkey River Substation. RUS's proposed Federal action is to decide whether to provide financial assistance for Dairyland's participation as a partial owner of the C-HC Project.

As part of its review, RUS is required to complete the NEPA process, along with other technical and financial considerations of the C-HC Project. RUS has determined that the NEPA review is complete and meets its environmental requirements for financing assistance for Dairyland.

RUS will review Dairyland's financial and engineering considerations prior to making a final determination as to approving financial assistance for the C-HC Project, following the requirements of 7 Code of Federal Regulations (CFR) 1710. Other RUS agency actions include the following:

- Provide engineering reviews of the purpose and need, engineering feasibility, and cost of the proposed project, as defined in 7 CFR parts 1710.100-152 and 1710.250.
- Ensure that the proposed project meets the borrower's requirements and prudent utility practices.
- Evaluate the financial ability of the borrower to repay its potential financial obligations to RUS, as defined in 7 CFR 1710.112.
- Review the alternatives to improve transmission reliability.
- Ensure that adequate transmission service and capacity are available to meet the proposed project needs.
- Ensure that NEPA and other environmental laws and requirements and RUS environmental policies and procedures are satisfied prior to taking a Federal action, as defined in 7 CFR 1970.

2.2 U.S. Fish and Wildlife Service

The USFWS would need to issue a Special Use Permit for construction of project features on Refuge-managed/owned lands and would need to authorize additional ROW for crossing the Refuge. The USFWS is authorized to approve permits and issue easements for utilities under 16 U.S.C. 668dd(d)(1)(b). The Refuge is part of the National Wildlife Refuge System. The mission of the National Wildlife Refuge System is defined in the National Wildlife Refuge System Improvement Act of 1997 as:

to administer a national network of lands and waters for the conservation, management and where appropriate, restoration of fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

The Upper Mississippi River Wildlife and Fish Refuge Act of 1924 sets forth the following purposes for the Refuge:

...as a refuge and breeding place for migratory birds included in the terms of the convention between the United States and Great Britain for the protection of migratory birds, concluded August 16, 1916, and

to such extent as the Secretary of the Interior may by regulations prescribe, as a refuge and breeding place for other wild birds, game animals, fur-bearing animals, and for the conservation of wild flowers and aquatic plants, and

to such extent as the Secretary of the Interior may by regulations prescribe as a refuge and breeding place for fish and other aquatic animal life.

The USFWS also has authority and trust responsibility under the Endangered Species Act (ESA), the Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act.

The USFWS would need to grant an easement to cross its lands within the Refuge for the C-HC Project. The Utilities have submitted a ROW application for crossing the Refuge. The Refuge Manager has completed a written compatibility determination for the proposed C-HC Project. The signed compatibility determination is provided as Appendix A of this ROD. Compatible use is defined in 50 CFR 25.12(a) as “a proposed or existing wildlife-dependent recreational use or any other use of national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the national wildlife refuge.” The compatibility determination identifies stipulations under which the proposed activity is found to be compatible. These stipulations would be identified in any subsequent ROW easement and/or permit.

A Special Use Permit would be needed from the Refuge prior to construction of the project on Refuge-managed/owned lands after a ROW is issued. The Special Use Permit to construct the project would identify restrictions and stipulations to ensure protection of Refuge resources. Under NEPA and the National Wildlife Refuge System Improvement Act of 1997, major actions affecting the quality of the human environment require full consideration of potential impacts, public involvement, and an interdisciplinary approach to decision-making that considers a reasonable range of alternatives.

The USFWS has received an application package from ITC Midwest and Dairyland for a ROW permit to cross the Refuge. The USFWS is obligated to review the right-of-way application package, complete an associated NEPA process, identify a Preferred Alternative, and decide whether or not to issue a ROW permit. Before a ROW permit can be issued, the USFWS must determine that the proposed use (a transmission line across the Refuge) is compatible with the purpose for which the Refuge was established. The USFWS has found the proposed transmission line ROW across the Refuge to be compatible. As a cooperating agency, the USFWS agrees that the NEPA process is complete and the FEIS adequately describes impacts to the human environment. The FEIS will be used to inform USFWS decision makers on the impacts of allowing a transmission line ROW across the Refuge.

2.3 U.S. Army Corps of Engineers

The USACE has either issued or will issue the following authorizations and permits to allow the C-HC Project to be constructed:

- A permit under Section 10 of the Rivers and Harbors Act, for the crossing of the Mississippi River (see Appendix C of this ROD).
- Permission under Section 14 of the Rivers and Harbors Act (commonly referred to as “Section 408”), for the crossing of the Mississippi River (see Appendix C of this ROD).

- A permit under Section 404 of the CWA, for activities that discharge fill into waters of the U.S. (WUS), including wetlands (see Appendix C of this ROD).
- A right-of-way authorization to issue an easement across USACE- managed/owned lands (to be issued within 270 days of issuance of this ROD).

Section 10 of the Rivers and Harbors Act of 1899 is administered by the USACE. Under Section 10, a permit is required to construct certain structures or to work in or affect “navigable waters of the U.S.” Navigable WUS are defined by the USACE as:

those waters of the United States subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity (33 CFR Part 329).

Section 10 requires a minimum clearance over the navigable channel for an aerial electric transmission line crossing navigable WUS. Within the C-HC Project area, the Mississippi River is considered to be navigable WUS.

Section 14 of the Rivers and Harbors Act of 1899, as amended, and codified in 33 U.S.C. 408 (Section 408), provides that the Secretary of the Army may, upon the recommendation of the Chief of Engineers, grant permission to other entities for the permanent or temporary alteration or use of any USACE Civil Works project. Permission under Section 14 of the River and Harbors Act applies to USACE real estate, such as USACE-managed/owned lands, that are found within the Refuge. The USACE Engineer Circular (EC) 1165-2-216, *Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408*, provides the requirements and procedures for an overall review process that can be tailored to the scope, scale, and complexity of individual proposed alterations, and provides infrastructure-specific considerations for dams, levees, floodwalls, flood risk management channels, and navigation projects. Per EC 1165-2-216, the decision made by the USACE pursuant to a Rivers and Harbors Act Section 10 permit or CWA Section 404 permit cannot be issued prior to the decision on the Section 408 permit.

Section 404 of the CWA establishes a permit program for the discharge of dredged or fill material into WUS, including wetlands. This permit program is jointly administered by the USACE and the USEPA. The immediate regulatory decision regarding which activities fall under Section 404 of the CWA lies with the USACE Rock Island District in Illinois, and the USACE St. Paul District in Wisconsin.

The USACE’s evaluation of a Section 10 permit and Section 14 permission under the Rivers and Harbors Act and a Section 404 permit under the CWA involves multiple analyses, including: 1) evaluating the C-HC Project’s impacts in accordance with NEPA, 2) determining whether the C-HC Project is contrary (Section 10 and possibly Section 14) to the public interest, and 3) in the case of the Section 404 permit, determining whether the C-HC Project complies with the requirements of the CWA.

The issuance of a ROW easement requires an application to the USACE Real Estate branch demonstrating the project has no viable alternative to use of public lands and has a demonstrated need. The USACE reviewed the C-HC Project and determined it is consistent with Mississippi River Project purposes, consistent with the 1989 Land Use Allocations Plan for the Mississippi River Project, and meets applicable laws/guidance. An approved mitigation plan for statutory and non-statutory mitigation is also required before easement issuance. The Federal Mitigation Plan is provided in Appendix B.

2.4 Federal and State Permits and Approvals Summary

Table 2 identifies the primary permits and other approvals that will be required by Federal and state agencies for the C-HC Project under the selected alternative.

Table 2. Federal and State Permits or Approvals for the C-HC Project

Agency	Permits or Other Approvals
Federal Agencies	
U.S. Department of Agriculture Rural Utilities Service	NEPA compliance as lead agency, including National Historic Preservation Act, Section 106 tribal consultation and ESA Section 7 consultation would occur between RUS and USFWS.
U.S. Fish and Wildlife Service	<ul style="list-style-type: none"> • Use authorization because ROW is required on National Wildlife Refuge lands • Special Use Permit because it crosses the Upper Mississippi River National Wildlife and Fish Refuge • ESA Section 7 consultation would occur between RUS and USFWS. The C-HC Project may require Incidental Take or Non-Purposeful Take Permit under Section 7 of ESA if impacts on endangered/threatened species cannot be avoided. • Ensure compliance with the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act
U.S. Army Corps of Engineers	<ul style="list-style-type: none"> • Section 10 of the Rivers and Harbors Act of 1899 permit (see Appendix C) • Nationwide Permits and Regional General Permits under Section 404 of the CWA (see Appendix C). • The USACE will issue an easement permit under Section 14 of the Rivers and Harbors Act of 1899, codified in 33 U.S.C. 408 (“Section 408”).
National Park Service	Land and Water Conservation Fund (LWCF) approval may be required if LWCF-funded lands are crossed.
U.S. Coast Guard	Authorization for Structures or Work in or Affecting Navigable Waters of the United States
Federal Aviation Administration (FAA)	Form 7460-1 Objects Affecting Navigable Airspace
Federal Highway Administration	Permit required to cross Federal highways and interstate highways (usually coordinated through state department of transportation)
U.S. Environmental Protection Agency	A spill prevention, control, and countermeasures plan for the proposed Hill Valley Substation and the existing substations to be improved by the proposed project
Natural Resources Conservation Service (NRCS)	Easement on property encumbered by NRCS obtained/managed conservation easement
State Agencies	
State of Wisconsin	
Public Service Commission of Wisconsin	Certificate of Public Convenience and Necessity

Agency	Permits or Other Approvals
Wisconsin Department of Natural Resources	<ul style="list-style-type: none"> • Endangered Resource Review, which may result in Incidental Take Authorization if impacts to endangered/threatened species cannot be avoided • Construction Site Erosion Control and Stormwater Discharge Permit • CWA Section 401 Water Quality Certification (if CWA Section 404 permit is required by USACE) • Chapter 30 permit to place temporary bridges in or adjacent to navigable waters, pursuant to Wisconsin Statutes 30.123 and Wisconsin Administrative Code (WAC) Chapter 320 • Chapter 30 permit to place miscellaneous structures within navigable waterways, pursuant to Wisconsin Statutes 30.12 and WAC Chapter 329 (may be required) • Chapter 30 permit for grading on the bank of a navigable waterway, pursuant to Wisconsin Statutes 30.19 and WAC Chapter 341 (may be required) • Wetland Individual Permit, pursuant to Wisconsin Statutes 281.36 and WAC Chapters NR 103 and 299
Wisconsin Department of Transportation	<ul style="list-style-type: none"> • Application/Permit to Construct, Operate and Maintain Utility Facilities on Highway Right-of-Way (Form DT1553) • Access Driveway Permit (may be required) • Drainage Permit (may be required) • Road Crossing Authorization • Oversize Loads or Excessive Weights on Highways
Wisconsin Historical Society, Office of Preservation Planning	National Historic Preservation Act, Section 106 consultation
Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP)	Agricultural Impact Statement
State of Iowa	
Iowa Utility Board and Iowa municipality, if crossed	Electric Transmission Line Franchise
Iowa Department of Natural Resources	<ul style="list-style-type: none"> • CWA Section 401 Water Quality Certification (if CWA Section 404 permit is required by the USACE) • National Pollutant Discharge Elimination System (NPDES) Permit • Floodplain Development Permit • Sovereign Land Construction Permit
Iowa Department of Transportation	Utility Accommodation Permit; Work within Right-of-Way Permit
Iowa State Historic Preservation Office	National Historic Preservation Act, Section 106 consultation

2.4.1 **Certificate of Public Convenience and Necessity in Wisconsin**

In addition to compliance with all applicable Federal regulations, a certificate of public convenience and necessity (CPCN) must be granted by the State of Wisconsin. The Public Service Commission of Wisconsin (PSCW) is responsible for reviewing and approving applications for a transmission project that is either 1) 345 kV or greater, or 2) less than 345 kV but greater than or equal to 100 kV, over 1 mile in length, and needing a new ROW (PSCW 2017).

The PSCW is responsible for making the final decisions regarding proposed transmission lines in Wisconsin. The commissioners review the application, the case record, memoranda, briefs, and the environmental document prepared by staff. The PSCW discusses the issues raised in the hearing and makes its decision in an open meeting (PSCW 2017).

The Utilities' CPCN application for the C-HC Project was deemed completed by the PSCW on October 4, 2018. The PSCW issued their draft EIS (DEIS) for the C-HC Project on February 28, 2019, and the final EIS on May 8, 2019. Projects for which an EIS is prepared always require a public hearing in the project area (PSCW 2017). The PSCW held public hearings for the C-HC Project on June 25–27, 2019.

On September 26, 2019, the PSCW issued the written order for the selected route, which primarily follows the Utilities' preferred route submitted in their CPCN application. The selected route includes three minor route modifications at the following locations:

- East of Montfort, Wisconsin along U.S. Highway 18;
- West of Barneveld, Wisconsin along U.S. Highway 18; and
- South of Cross Plains, Wisconsin near the intersection of Stagecoach Road and County Road P.

For the C-HC Project, RUS has been coordinating closely with the PSCW to help ensure that if the C-HC Project is approved, the Federal and state processes result in the selection of a complete route that effectively connects the Cardinal Substation in Wisconsin with the Hickory Creek Substation in Iowa.

2.4.2 Electric Transmission Franchise in Iowa

In addition to complying with all applicable Federal regulations, the C-HC Project must have an electric transmission franchise granted by the State of Iowa. The Iowa Utilities Board (IUB) is responsible for reviewing and processing all petitions for electric transmission line franchises under Iowa Code Chapter 478 – Electric Transmission Lines, Chapter 11 of 199 Iowa Administrative Code – Electric Lines, and Chapter 25 of 199 Iowa Administrative Code – Iowa Electrical Safety Code. A franchise is the authorization of the IUB for the construction, erection, maintenance, and operation of an electric transmission line. The granting of a franchise requires a finding by the IUB that the project is necessary to serve a public use, represents a reasonable relationship to an overall plan of transmitting electricity in the public interest, and meets all other legal requirements (IUB 2017).

Any electric line which operates at 69 kV or more and is outside the boundaries of a city requires a franchise from the IUB (Iowa Code Section 478.1). A company seeking a franchise can also request that the IUB grant the right of eminent domain, or condemnation, to obtain the ROW needed for the project (IUB 2017).

The Utilities held two informational meetings for the C-HC Project on March 29, 2018. The Utilities submitted the petition to the IUB for the C-HC Project on May 11, 2018. The IUB public hearing was held on December 10–12, 2019.

Following the hearing, parties may file post-hearing briefs, and then the IUB issues its final decision. If the IUB approves the granting of the franchise, the company proposing the electric line may begin construction activities as defined by the final ruling of the IUB. The IUB has not issued its final decision for the C-HC Project as of the date of this signed ROD.

Once the IUB has decided the case, either initially or on appeal from a proposed decision, any party to the proceeding may file for rehearing within 20 calendar days under Iowa Code Sections 17A.16 and 478.32. Once a final decision has been made, any party may appeal to the District Court within 30 days under Iowa Code Sections 17A.19 and 478.32. A request for rehearing is not required prior to taking an appeal (IUB 2017).

2.5 Alternative Development

2.5.1 Alternatives Dismissed from Detailed Consideration

FEIS Section 2.2 describes the alternative transmission line corridors that were identified and investigated by the Utilities during the initial routing studies developed by the Utilities, the Alternatives Evaluation Study (AES) (Dairyland et al. 2016a), the Alternative Crossings Analysis (ACA) (Burns and McDonnell Engineering Company [Burns and McDonnell] 2016), and the Macro-Corridor Study (MCS) (Dairyland et al. 2016b). Between the Cardinal Substation and the Hill Valley Substation, there were five route corridors that were investigated and not carried forward for detailed analysis. Between the Hill Valley Substation and the Mississippi River crossing, there were seven routing opportunities that were investigated and not carried forward for detailed analysis.

FEIS Section 2.2 also describes the Mississippi River crossing alternatives that were investigated and determined to be not feasible. The five alternative corridors for crossing the Mississippi River are listed in Table 3 with rationale for not carrying these corridors forward for detailed analysis.

Table 3. Alternative Transmission Line Corridors Not Carried Forward for Detailed Analysis—Mississippi River Crossing

Corridor Description	Reasons Removed from Detailed Analysis
Lock and Dam No. 10 in Guttenberg, Iowa (L&D 10)	<ul style="list-style-type: none"> The City of Guttenberg, Iowa, has more than 350 recorded historic-aged resources including three National Register of Historic Places (NRHP) districts and several individually listed NRHP properties (including L&D 10 itself). This potential Mississippi River crossing alternative for L&D 10 includes the presence of 196 historic structures within 1,000 feet of the proposed route alignment, the highest among all Mississippi River crossing alternatives. No existing utility ROWs occur at or near the L&D 10 crossing or on the Wisconsin side of this crossing location; the Wisconsin side is primarily mature woodlands and agricultural fields. Alternative Mississippi River crossing options immediately upstream and downstream of L&D 10 are limited by proximity to a private airfield to the north of L&D 10 and Goetz Island, Swift Slough, and Guttenberg Ponds Sanctuary within the Refuge to the south. Safety and technical engineering considerations prohibit construction of transmission facilities on or near Lock and Dam No. 10, per USACE review. The L&D 10 alternative route is the longest (25.6 miles) compared to all other potential Mississippi River crossing alternatives.
Lock and Dam No. 11 in Dubuque, Iowa (L&D 11)	<ul style="list-style-type: none"> The crossing would require routing through urban residential development and downtown Dubuque. The potential Mississippi River crossing alternative would cross numerous residential properties (58 homes would be within 100 feet of centerline of transmission line corridor, nine of which would be within 25 feet). There are no existing overhead transmission corridors across the Mississippi River at or near L&D 11. The crossing presents technical challenges; it would require a 3,200-foot crossing of the Mississippi River with projected structure heights of 250 to 300 feet with permanent lighting. The C-HC Project would be visible from multiple viewpoint locations at Eagle Point Park. Lock and Dam No. 11 is a listed site on the NRHP; there are visual/scenic considerations related to the NRHP listing. Safety and technical engineering considerations prohibit construction of transmission facilities on or near L&D 11, per USACE review.
Highway 61/151 crossing in Dubuque, Iowa (Highway 151 Bridge)	<ul style="list-style-type: none"> The City of Dubuque passed a resolution stating that the transmission line route for the C-HC Project would not be permissible.

Corridor Description	Reasons Removed from Detailed Analysis
Julien Dubuque Bridge/Highway 20 crossing in Dubuque, Iowa (Julien Dubuque Bridge)	<ul style="list-style-type: none"> The potential Mississippi River crossing alternative requires routing through urban residential development and downtown Dubuque. The potential Mississippi River crossing alternative would cross numerous residential properties (58 homes would be within 100 feet of centerline of transmission line corridor, nine of which would be within 25 feet). Iowa Department of Transportation (Iowa DOT) would not be able to safely perform ongoing routine bridge maintenance while the transmission line is energized. As a result, the line would need to be de-energized during these maintenance activities, which would not allow for the reliable use of a transmission line at this location and would not meet the purpose of and need for the C-HC Project. Unresolvable engineering conflicts with bridge safety prohibit construction of transmission facilities on this bridge, per Iowa DOT review of the C-HC Project. At this location, the project would result in shutdown or disruption of traffic flow between Iowa and Wisconsin/Illinois during construction and maintenance of the transmission line. The bridge does not have existing overhead transmission lines.
Dubuque to Galena 161-kV Transmission Line crossing in Dubuque, Iowa (Galena 161-kV Transmission Line)	<ul style="list-style-type: none"> The City of Dubuque passed a resolution stating the transmission line route for the C-HC Project through Dubuque would not be permissible. The potential Mississippi River crossing alternative requires routing through urban residential development and downtown Dubuque. The corridor would cross numerous residential properties (61 homes would be within 100 feet of centerline of transmission line corridor, nine of which would be within 25 feet). Requires routing new 345-kV line through Schmitt Island and Riverview Park; the new line would cross recreational fields for which Federal funds were obtained, the use of which may limit or prohibit redevelopment of these areas.

Source: Burns and McDonnell (2016)

ALTERNATIVE ROUTES FOR CROSSING THE REFUGE

The Utilities began their route analysis for the C-HC Project by focusing on the crossing of the Mississippi River, as the location of this crossing would determine the potential C-HC Project routes in both Iowa and Wisconsin. The Utilities have been meeting with USFWS since April 2012 to discuss potential crossings, including crossings of the Refuge. If given a choice, the USFWS Refuge management would prefer a crossing not involving or affecting Refuge-managed lands, thus, at the request of the Refuge manager, the Utilities provided the ACA report to demonstrate that non-Refuge options were infeasible. In the ACA report, the Utilities provided data and analyses supporting that non-Refuge alternatives were not economically or technically feasible and would have greater overall environmental and human impacts, compared with the Refuge crossing locations (Burns and McDonnell 2016).

In coordination with the USFWS and other stakeholders, four segments were proposed for the alternative crossing the Refuge at the Nelson Dewey river crossing. Two of these segments have been dismissed from further consideration (Figure 1). The first segment crossed a private inholding within the Refuge. This segment would minimize the acres of federally managed lands crossed by the C-HC Project within the Refuge. However, after discussions with the private inholding landowner in 2018, it was determined the landowner would not agree to an easement crossing the landowner's land.

The other segment would avoid the private inholding by paralleling Oak Road to the northwest of the inholding and would continue to follow Oak Road across the Refuge southwest to the railroad corridor along the south boundary of the Refuge. This segment would then parallel the railroad corridor, adjacent to the railroad ROW in a southeast direction until it entered the existing 161-kV transmission line ROW to exit the Refuge. This segment was dismissed from further consideration because it is longer than other options considered, and more disturbance within the Refuge would be associated with this segment. Furthermore, the two tight right angles needed for the transmission line to move from along Oak Road to the railroad corridor would require larger structures to ensure the transmission line was structurally engineered. In September 2018, the USFWS agreed to dismiss the option from detailed analysis.

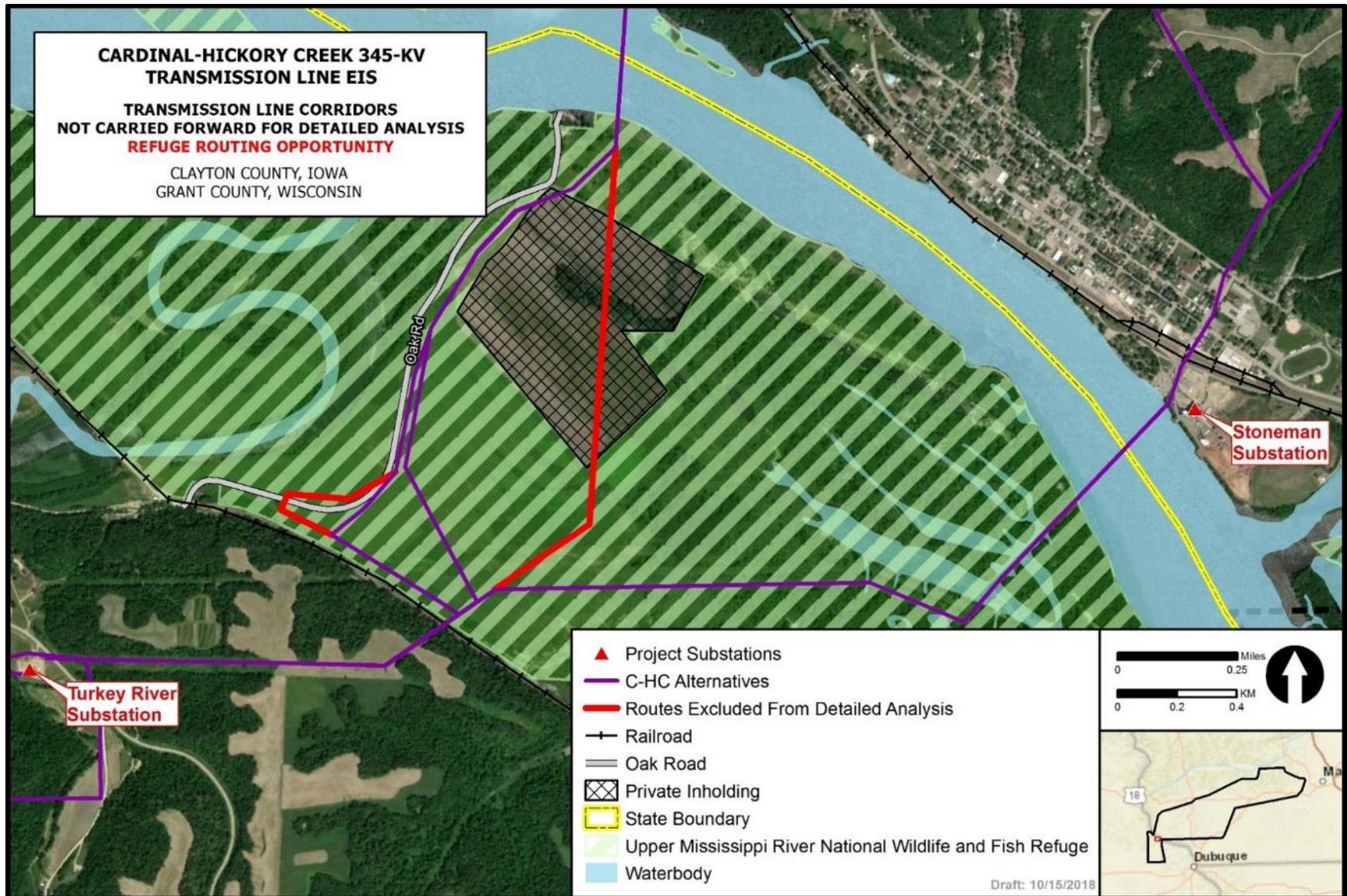


Figure 1. Refuge segments dismissed from detailed analysis.

2.5.2 Non-Transmission, Lower-Voltage, and Underground Alternatives

Non-transmission alternatives reviewed for the FEIS include regional or local renewable electricity generation (i.e., solar), energy storage, energy efficiency, and demand response. These electricity generation and management options are described in FEIS Section 2.2.2. In addition, RUS also considered two transmission line alternatives: a lower-voltage alternative and underground burial of the transmission line. These alternatives were not carried forward for detailed analysis.

The non-transmission, lower-voltage, and underground alternatives were evaluated based on the six-point need for the Proposed Action, described in Section 1.2 of this ROD. Table 4 summarizes how these alternatives may or may not address the six-point need as well as other considerations for not carrying these alternatives forward for detailed analysis. FEIS Sections 2.2.2.1 through 2.2.2.6 provide a detailed explanation that expands upon the information presented in Table 4.

Table 4. Comparison of the Non-Transmission, Lower-Voltage, and Underground Transmission Alternatives to the Need Described for the Proposed Action

Alternatives Considered but Not Evaluated in Detail	Does the alternative meet the following need as described in FEIS Chapter 1, Section 1.4?						Other Considerations	
	Address Reliability Issues	Alleviate Congestion	Expand Access of Transmission System	Increase Transfer Capability	Reduce Losses of Transferring Power	Respond to Transmission Public Policy Objectives	Economically Reasonable	Technically Feasible
Regional and Local Renewable Electricity Generation (see FEIS Section 2.2.2.1 for a more detailed explanation)	Possibly	Possibly	No	No	No	No	Yes	Not currently available on a large scale
Energy Storage (see FEIS Section 2.2.2.2 for a more detailed explanation)	No	No	No	No	No	No	No	Not currently available on a large scale
Energy Efficiency (see FEIS Section 2.2.2.3 for a more detailed explanation)	No	Yes	No	No	No	No	Yes	Possibly
Demand Response (see FEIS Section 2.2.2.4 for a more detailed explanation)	No	Yes	No	No	No	No	Unknown	Possibly
Lower-Voltage Transmission Line (see FEIS Section 2.2.2.5 for a more detailed explanation)	Yes*	Yes*	Yes*	Yes*	Yes*	No	Yes*	Yes
Underground Transmission Line (see FEIS Section 2.2.2.6 for a more detailed explanation)	Yes	Yes	Yes	Yes	Yes	Yes	No	No

* As discussed in FEIS Section 2.2.2.5, a lower-voltage transmission line would not provide the same level of benefits to the region as the C-HC Project.

2.5.3 Alternatives Evaluated in Detail

2.5.3.1 NO ACTION ALTERNATIVE

The No Action Alternative “provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives” (Council on Environmental Quality [CEQ] 1981:Question 3) (40 CFR 1502.14). The No Action Alternative provides the environmental baseline against which the other alternatives are compared (RUS regulation 7 CFR 1970.6 (a)).

Under the No Action Alternative, RUS would not provide funding for Dairyland’s portion of the C-HC Project, and the USFWS and USACE would not grant the ROWs or regulatory permits necessary for the C-HC Project to cross the Refuge. The project would not be built, and existing land uses and present activities in the analysis area would continue.

2.5.3.2 ALTERNATIVE TRANSMISSION LINE ROUTES

The C-HC Project area would begin at the Cardinal Substation in the town of Middleton, in Dane County, Wisconsin. The transmission line would cross Dane and Iowa Counties and connect to a new Hill Valley Substation near the village of Montfort, Wisconsin. The alternatives considered in the DEIS and FEIS included construction of a new substation in either Grant County or Iowa County, Wisconsin. The transmission line would then exit the substation, cross Grant County, and then cross the Mississippi River near Cassville, Wisconsin. There were two potential Mississippi River crossing alternatives near Cassville. The Mississippi River crossing would include two 345-kV double-circuited lines, one operated at 345 kV and the other at 161 kV. The 345-kV transmission line would terminate at the existing Hickory Creek Substation in northwest Dubuque County, Iowa. The line operated at 161-kV would connect to the Turkey River Substation in eastern Clayton County, Iowa.

RUS identified six alternatives for the C-HC Project. All six alternatives are described in FEIS Section 2.3.2. In brief, the six alternatives for the C-HC Project are:

- Alternative 1: North Corridor Baseline
- Alternative 2: North Corridor with Southern Variation
- Alternative 3: North–South Crossover Corridor
- Alternative 4: South Baseline Corridor
- Alternative 5: South Alternative Corridor
- Alternative 6: South–North Crossover Corridor

All action alternatives would cross the Refuge. There are three different options for crossing the Refuge, designated as segments B-IA1, B-IA2, and C-IA (Figure 2). Segments B-IA1 and B-IA2 are associated with the Nelson Dewey Mississippi River crossing, and segment C-IA is associated with the Stoneman Mississippi River crossing (Table 5.). The ROW width for all alternatives within the Refuge would be 260 feet, to accommodate low-profile H-frame structures.

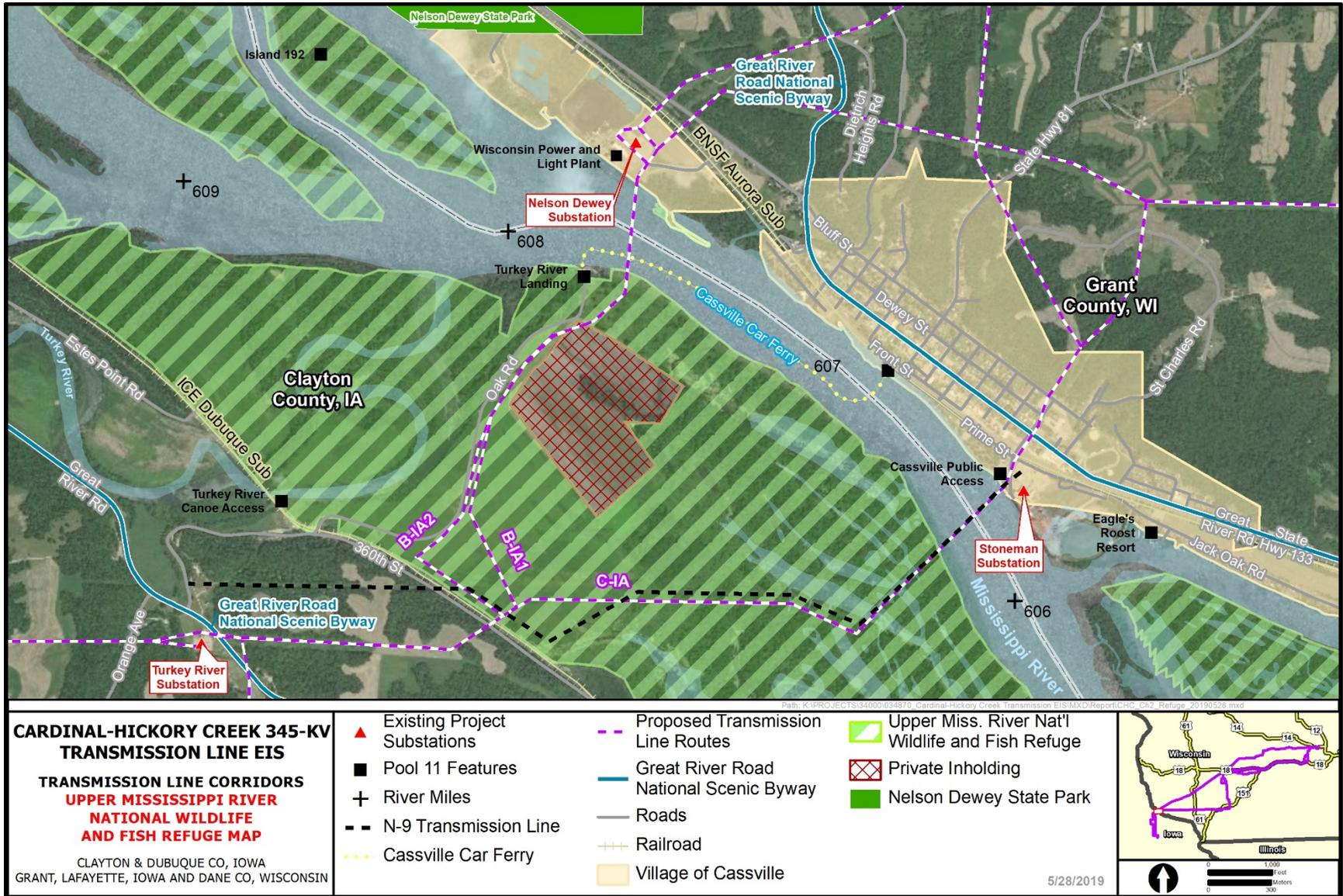


Figure 2. C-HC Project segments for crossing the Refuge.

Table 5. Summary of C-HC Project Segments for Crossing the Refuge

Segment	Length within Refuge (miles)	ROW within Refuge (acres)	Collocation with Other ROWs (acres)	Associated C-HC Project Action Alternative
B-IA1	1.2	39	2	1, 5, and 6
B-IA2	1.3	44	4	1, 5, and 6
C-IA	1.5	46	23	2, 3, and 4

2.6 Alternative Evaluation and Decision

RUS has made the following decisions:

- Based on review of the information and impact analyses presented in the FEIS, including the evaluation of all alternatives, and in consideration of the agency’s Environmental Policies and Procedures (7 CFR 1970), RUS finds the overall impact analysis and evaluation of reasonable alternatives consistent with NEPA. In the FEIS, RUS identified Alternative 6, as described in the FEIS with environmental commitments to minimize impacts, as its preferred alternative. In this ROD, RUS identifies the FEIS preferred alternative as its selected alternative (Alternative 6). This ROD concludes the RUS’s environmental review process in accordance with its Environmental Policies and Procedures.
- A review and analysis of the selected alternative’s justification, associated engineering studies, and preliminary financial information has led to RUS’s concurrence with the selected alternative’s purpose and need.

RUS hereby agrees to the above and, should Dairyland apply to RUS for financing assistance for the C-HC Project, the consideration of Dairyland’s loan application may proceed.

USFWS has made the following decisions:

- The USFWS has completed a written compatibility determination for the proposed Refuge crossing identified in Alternative 6. The signed compatibility determination is available in Appendix A. The USFWS has found the proposed crossing identified in Alternative 6 and described in the right-of-way application submitted by ITC Midwest and Dairyland to be compatible.
- Based on review of the information and impact analyses presented in the FEIS, including the evaluation of all alternatives, and in consideration of the agency’s Environmental Policies and Procedures (43 CFR 46.10-46.50 and 560 DM 8), USFWS finds the overall impact analysis and evaluation of reasonable alternatives consistent with NEPA. In the FEIS, the USFWS agreed that Alternative 6, as described in the FEIS with environmental commitments to minimize impacts, was the preferred alternative. In this ROD, USFWS identifies the FEIS preferred alternative as its selected alternative (Alternative 6). This ROD concludes the USFWS environmental review process in accordance with its Environmental Policies and Procedures.

USACE made the following decisions:

- To issue a permit for the C-HC Project under Section 10 of the Rivers and Harbors Act, for the crossing of the Mississippi River at the Nelson Dewey Mississippi River crossing location, as described below. The USACE Rock Island District issued the Section 10 permit

- on November 20, 2019, and the issuance of this permit is reaffirmed in this ROD (see Appendix C of this ROD).
- To grant permission under Section 14 of the Rivers and Harbors Act (commonly referred to as “Section 408”), for the crossing of the Mississippi River at the Nelson Dewey Mississippi River crossing location, as described below. The USACE Rock Island District issued the Section 14 permit on November 20, 2019, and the issuance of this permit is reaffirmed in this ROD (see Appendix C of this ROD).
 - To issue permits under Section 404 of the CWA, for activities that discharge fill into waters of the U.S., including wetlands. Appendix C of this ROD contains the Section 404 CWA permits issued by the USACE Rock Island District on November 20, 2019, and by the USACE St. Paul District on December 20, 2019. The issuance of these permits is reaffirmed in this ROD.
 - To grant a ROW authorization to issue an easement across USACE-managed/owned lands for the C-HC Project to follow segment B-IA2, as described below, subject to further coordination with the USACE Real Estate Division.

2.6.1 Selected Alternative and Agency Rationale

The C-HC Project has been independently modeled and verified by multiple entities, including MISO, which used a planning process approved by the Federal Energy Regulatory Commission (FERC). The C-HC Project is currently being evaluated by the IUB. The PSCW approved the portion of the C-HC Project in Wisconsin on September 26, 2019 (PSCW 2019). In the PSCW’s Final Decision, the Commission explained the following:

The Commission finds the project provides the highest amount of benefits to Wisconsin transmission customers across plausible futures, and provides a robust long-term solution for Wisconsin’s energy needs. The Commission finds no other alternatives evaluated by the applicants, Commission staff, or intervenors are feasible or provide the amount of benefits as the project...

For the purposes of this proceeding, the Commission deems reasonable the applicants’ consideration of transmission system alternatives. The Commission further finds that the applicants’ basis for choosing the project over other transmission system alternatives is reasonable and supported by substantial evidence. (PSCW 2019:34–35)

Furthermore, RUS regulations (7 CFR 1970.5 (b)(3)(iii)) require the Utilities to “develop and document reasonable alternatives that meet their purpose and need while improving environmental outcomes.” As part of the initial investigation of the proposed C-HC Project, the Utilities prepared three corridor-siting documents: the AES (Dairyland et al. 2016a), ACA (Burns and McDonnell 2016), and MCS (Dairyland et al. 2016b). RUS reviewed and accepted these documents as part of the alternatives development process for the C-HC Project EIS.

Alternative 6 is the selected alternative, and this selection was informed by the Federal agencies’ review of the following:

- Documentation that informed MISO’s portfolio of MVPs;
- The three corridor-siting documents provided by the Utilities: the AES (Dairyland et al. 2016a), ACA (Burns and McDonnell 2016), and MCS (Dairyland et al. 2016b);
- Public comments received through the NEPA process;

- The PSCW's Final Decision, issued on September 26, 2019 (PSCW 2019);
- Applications submitted to Federal agencies by the Utilities; and
- Information and environmental impact analysis presented in the FEIS, including the evaluation of all alternatives.

Alternative 6 will include approximately 101 miles of transmission line, with approximately 97 miles collocated with existing ROWs for transmission lines, railroads, and roadways. In places where the proposed transmission line is collocated with existing transmission lines, the lines will be installed with a double-circuit configuration on new transmission line structures, and the existing transmission line ROW will be used to accommodate the new structures. The typical ROW will be 150 feet wide in Wisconsin and 200 feet wide in Iowa, based on design standards used by the Utilities in each state. However, in exceptional circumstances, the ROW would differ from the typical widths. For example, one pinch-point location requires a 70-foot-wide ROW, whereas the Refuge would have a 260-foot-wide ROW. Approximately 4 miles of transmission line would occur in new ROW.

Alternative 6 will connect the Cardinal Substation with the Hickory Creek Substation as shown in Figure 3 and described in FEIS Section 2.3.2.6. From the Cardinal Substation, Alternative 6 will follow Segments Z, Y, and X. Just south of Cross Plains it would generally traverse south along Segments V and T until it passes just east of Mount Horeb. The alternative then turns southwest along U.S. Route 18 and along Segment S, until it passes on the north side of Dodgeville and traverses west on Segments Q and N into the new Hill Valley Substation.

Once leaving the Hill Valley Substation, the route will follow a portion of Segment L and then will follow Segments D and A to the Nelson Dewey Substation property, just northwest of Cassville, Wisconsin. The transmission line would not connect into, but would bypass, the Nelson Dewey Substation.

Segment B-IA2 for crossing the Refuge (Figure 4) is part of the selected alternative, Alternative 6. Segment B-IA2 is associated with the Nelson Dewey Mississippi River crossing. The required ROW width within the Refuge would be 260 feet to accommodate the low-profile H-frame structures. The USFWS has received an application from the Utilities for a ROW permit. The route proposed in the ROW permit application has been evaluated through a Refuge compatibility determination (see Appendix A). The USFWS has determined the proposed route in Alternative 6 and segment B-IA2 to be compatible.

Segment B-IA2 will generally follow Oak Road from the Turkey River landing for approximately 5,200 feet (1 mile), and then will head southwest before running parallel to the Canadian Pacific railroad tracks (see Figure 4). Along the railroad tracks, the C-HC Project will not overlap the railroad ROW due to safety requirements. The C-HC Project would overlap with the existing 69-kV transmission line ROW, also referred to as the N-9 transmission line, for approximately 200 feet. Then, the C-HC Project would head southwest to climb the bluff and cross the Canadian Pacific railroad and 360th Street along the southern boundary of the Refuge. Segment B-IA2 would continue west to the vicinity of the Turkey River Substation, as shown in Figure 4. In total, segment B-IA2 will be approximately 7,000 feet (1.3 miles) long, and the ROW would cover an estimated 44 acres.

Once the transmission line exits the Refuge, it will generally traverse south on Segment A-IA and terminate at the Hickory Creek Substation in Clayton County, Iowa.

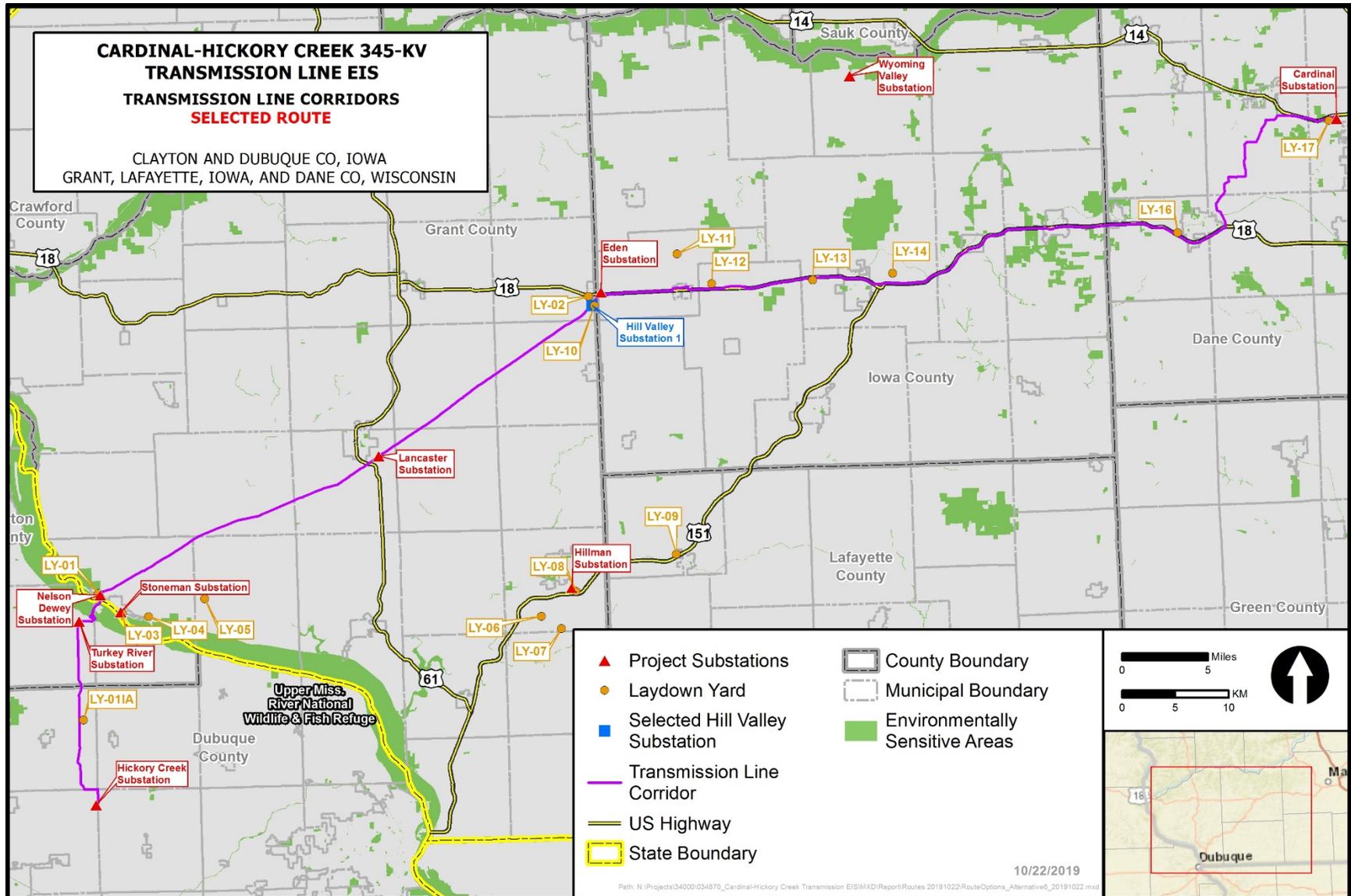


Figure 3. Selected alternative (Alternative 6) transmission line corridor map.

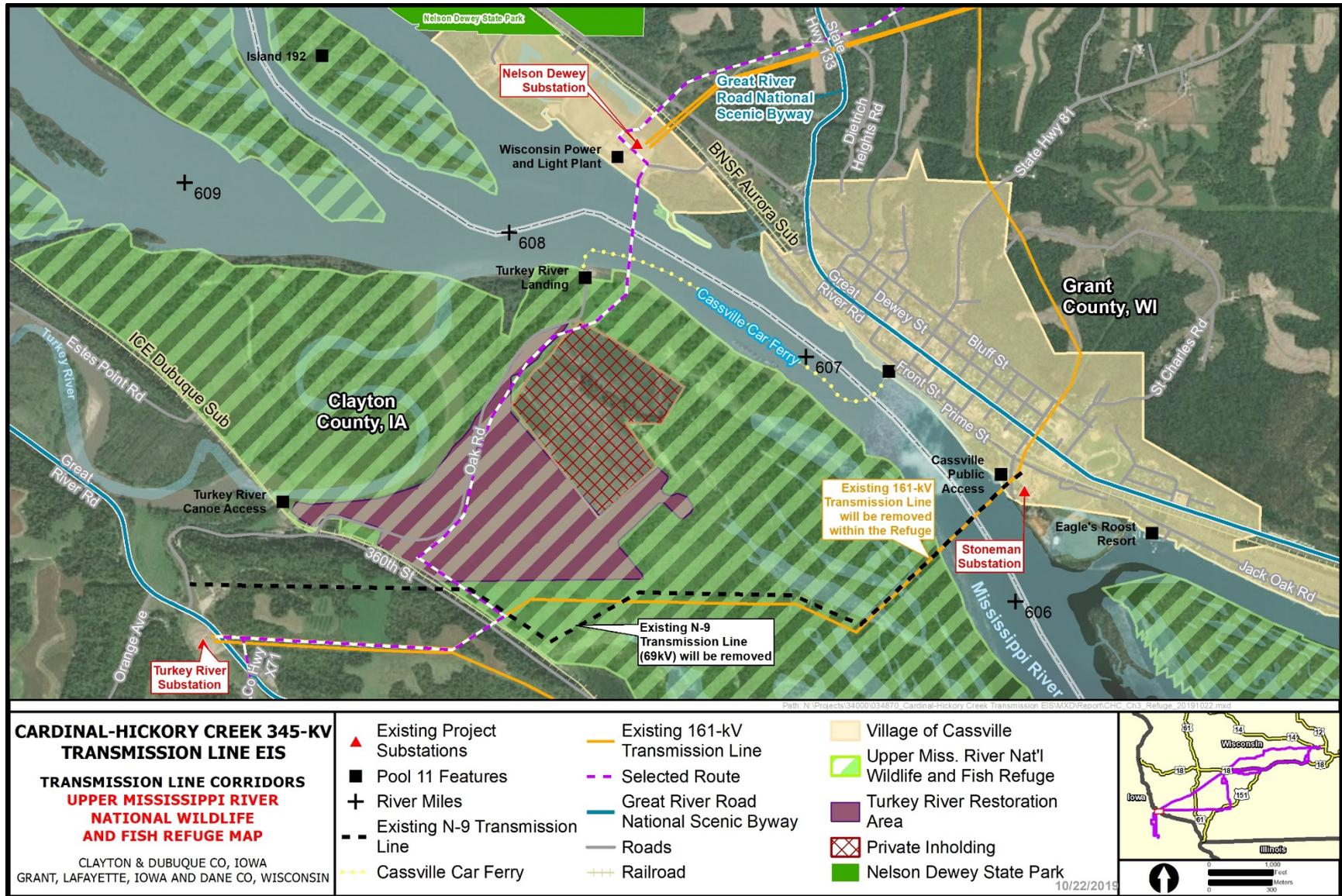


Figure 4. Selected alternative (segment B-IA2) for crossing the Refuge.

The existing 161-/69-kV double-circuit configuration at the existing Stoneman Substation Mississippi River crossing will be removed, which would also result in a modification of the physical structure of the Stoneman Substation. The existing ROW for the 161-kV line within the Refuge will be revegetated following the requirements of USFWS and USACE. The FEIS considers the environmental consequences to all known resources from the entire C-HC Project, including the removal of the 161/69-kV transmission lines.

Alternative 6 is the selected alternative because it will:

- use existing and proposed linear ROWs by paralleling existing and proposed infrastructure and transmission lines;
- over the long term, minimize and mitigate habitat fragmentation and resource impacts within the Refuge, when compared to other alternatives for crossing the Refuge;
- reduce impacts to resources that are regulated by other laws, including the Endangered Species Act, National Historic Preservation Act, Clean Air Act, Clean Water Act, Farmland Protection Policy Act, and Executive Order 11988: Floodplain Management;
- reduce impacts to resources that were raised by numerous comments from the public, such as potential impacts to forested areas, property values, and public health and safety; and
- align with the route ordered by the PSCW on September 26, 2019, as part of the decision to issue the CPCN for the C-HC Project in Wisconsin.

Alternative 6 strikes the balance between reducing impacts on resources while also maintaining consistency with the state regulatory process for reviewing and approving transmission projects and issuing CPCNs in Wisconsin. It is important to note that the state regulatory process for reviewing the C-HC Project in Iowa is not scheduled for conclusion until early 2020.

The identification of the selected alternative and other suitable alternatives is dependent on the Utilities implementing all mitigation measures outlined in FEIS Chapter 3, the Federal Mitigation Plan (see Appendix B), the ROW permit(s) from the USFWS and USACE for the portion of the C-HC Project that crosses the Refuge, and all other permit requirements.

2.6.2 Environmentally Preferable Alternative

The Environmentally Preferable Alternative is the alternative that will promote the national environmental policy as expressed in Section 101(B) of NEPA. This means that the Environmentally Preferable Alternative is the “alternative that causes the least damage to the biological and physical environment; it also means that alternative which best protects, preserves, and enhances historic, cultural, and natural resources” (CEQ 1981:Question 6a). To determine the Environmentally Preferable Alternative, RUS considered the results of the environmental analyses presented in FEIS Chapter 3. Each alternative was evaluated in terms of potential adverse environmental impacts.

While RUS is required to identify an Environmentally Preferable Alternative in the record of decision, the agency is not required to select the Environmentally Preferable Alternative in their decision. For the Environmentally Preferable Alternative, action alternatives were evaluated according to the nature and magnitude of their environmental consequences.

The Environmentally Preferable Alternative for the C-HC Project is Alternative 5. The potential impacts to resources resulting from Alternative 5 would be the least, when considering impacts to all resources analyzed in FEIS Chapter 3. Alternative 5 is described in detail in FEIS Section 2.3.2.5 and shown in Figure 2.3-10 and Figure 2.3-11.

The RUS opted not to select Alternative 5 in this ROD because there is a need to balance the tradeoffs between the alternative that would have the fewest impacts on historic, cultural, and natural resources and the alternative that would result in reduced impacts while also addressing other considerations. The other considerations include the following:

- Alternative 5 would have the greatest potential impacts on environmental justice communities of all action alternatives. Grant County Census Tract 9601 would experience potential negative property value impacts greater than those experienced by non-environmental justice communities overlapped by the C-HC Project because the Hill Valley Substation would introduce a new industrial use to the area. Dane County Census Tract 128 would experience greater impacts on visual resources and potentially greater property value impacts than non-environmental justice communities overlapped by the C-HC Project because of the addition of a transmission line segment along a small county road. Dane County Census Tract 128 and Grant County Census Tract 9609 would experience greater impacts from increased traffic than non-environmental justice communities during construction of the C-HC Project because proximity to traffic is already an identified issue in these two environmental justice communities (USEPA 2019). Because Dane County Census Tract 109.04 has one Superfund site and four hazardous waste facilities, the addition of another industrial use with the C-HC Project would result in potential greater negative impacts on property values.
- Alternative 5 is not consistent with the route ordered by the PSCW on September 26, 2019, as part of the decision to issue the CPCN for the C-HC Project in Wisconsin.
- Alternative 6, the selected alternative, has a similar level of environmental impacts compared to Alternative 5 and is consistent with the route ordered by the PSCW on September 26, 2019, as part of the decision to issue the CPCN for the C-HC Project in Wisconsin.

2.7 Summary of Environmental Consequences

The following resources were identified in the DEIS and FEIS as potentially being affected by the alternatives carried forward for detailed analysis:

- Geology and Soils (FEIS Section 3.2)
- Vegetation, including Wetlands and Special Status Plants (FEIS Section 3.3)
- Wildlife, including Special Status Species (FEIS Section 3.4)
- Water Resources and Quality (FEIS Section 3.5)
- Air Quality and Climate Change (FEIS Section 3.6)
- Noise (FEIS Section 3.7)
- Transportation (FEIS Section 3.8)
- Cultural and Historic Resources (FEIS Section 3.9)
- Land Use, including Agriculture and Recreation (FEIS Section 3.10)
- Visual Quality and Aesthetics (FEIS Section 3.11)
- Socioeconomics and Environmental Justice (FEIS Section 3.12)
- Public Health and Safety (FEIS Section 3.13)
- Upper Mississippi River National Wildlife and Fish Refuge (FEIS Section 3.14)

The Environmental Consequences section for each resource analyzed in the FEIS presents both beneficial and adverse impacts that would result from implementing any of the alternatives, as they are described in FEIS Chapter 2. NEPA requires agencies to assess the direct, indirect, and cumulative impacts of the alternatives carried forward for detailed analysis.

The environmental consequences analyzed and disclosed in the DEIS and FEIS were based on estimated ground disturbance that would be caused by the various components of the C-HC Project, including:

Structure foundation ground disturbance—An average area of 100×100 feet would be temporarily disturbed to install each structure foundation, with approximately 1,850 cubic yards of native cut-and-fill material per structure. An estimated permanent disturbance of 12 feet in diameter per structure installed was used to calculate potential ground disturbance and associated resource impacts.

Structure foundation depths—To install transmission line structures, holes averaging 60 feet deep will be constructed. An estimated volume of 3,000 cubic feet of ground material removed per structure was used to calculate potential ground disturbance and associated impacts.

Conductor pulling sites—Temporary conductor pulling/handling sites will be required. A typical conductor pulling/handling site will be approximately 40×300 feet and would be spaced approximately every 10,000 feet, depending on the type of conductor to be used.

Access roads—All construction materials, equipment, and labor will be brought to remote foundation sites over temporary access roads, using special matting, where required, to protect the underlying soils and vegetation. Some of the existing access roads might require modifications and improvements to allow for safe equipment movement to and from the C-HC Project ROW, and some new access roads and work platforms might have to be constructed. Access roadbeds will typically have to be 14 to 20 feet wide. Most of the access roads will be restored to pre-construction conditions after construction activities are complete. Depending on landowner negotiations and requirements, the improved access roads may be left in place. Some access roads may be required for long-term maintenance and safe operation of the transmission line.

Laydown yards—During construction, temporary staging/laydown areas, helicopter landing pads, and conductor pulling/handling sites would be required. These yards would be used to store job trailers, construction vehicles and equipment, transmission line structures, conductors, cables, and other related materials and equipment. A typical laydown yard would be about 10 acres, with a minimum of a 30-foot-wide driveway for ingress and egress. Approximately 213 acres of laydown yards would be used during construction.

Substation ground disturbance—The new Hill Valley Substation would be constructed near Montfort, Wisconsin and would be sited on approximately 80 acres. Approximately 22 acres of the site would be used for the substation, access drive, and stormwater drainage features. Additional area outside of the graded footprint would allow transmission lines to connect to the substation. The Hill Valley Substation would result in permanent impacts.

For more information on project components, refer to FEIS Section 2.4.1. For additional details about the assumptions used to calculate ground disturbance to inform environmental consequences, refer to FEIS Section 3.1.

The estimated ground disturbance associated with construction and operation of the C-HC Project, as described in DEIS and FEIS Chapter 2, was one element of potential impacts used to inform environmental consequences presented in DEIS and FEIS Chapter 3. Other types of impacts were

identified for specific resources, as described in each DEIS and FEIS Chapter 3 resource section titled, “Data Sources, Methods, and Analysis Assumptions.”

The context and intensity of potential impacts associated with the C-HC Project were described as either short-term (also described as temporary) or long-term (also described as permanent). Short-term impacts were defined as impacts occurring during the construction period through two growing seasons after construction is completed, 1 to 3 years. Long-term impacts were defined as occurring during the operational life of the C-HC Project, 3 to 60 years.

Impact intensity thresholds were defined as minor, moderate, or major impacts:

- Minor impacts are those that would occur, but resources would retain existing characteristics and overall baseline conditions.
- Moderate impacts are those that would occur, but resources would partially retain existing characteristics. Some baseline conditions would remain unchanged.
- Major impacts are those that would create a high degree of change within the existing resource characteristics and change overall conditions of the resource.

Table 6 presents a summary of potential impacts on resources analyzed in FEIS Chapter 3 for Alternative 6. For clarification and additional detailed discussion on how the impact analysis was conducted, the reader is referred to FEIS Chapter 3.

Table 6. Comparison Summary for Action Alternatives

Resource Group	Alternative 6
Geology and Soils	Moderate temporary and permanent impacts to 144 acres of shallow soils, 73 acres of wet soils, 82 acres of steep slope soils, and soils with severe erosion potential for 1,092 acres are estimated to occur from the construction of the C-HC Project. Minor permanent impacts to 70,000 cubic yards of displaced subsurface soils and approximately 24 acres impacts of sensitive soils are estimated to occur from construction of the transmission line structures under the selected alternative. More information about estimated soil impacts can be found in FEIS Section 3.2.
Vegetation	Moderate temporary and permanent impacts to 352 acres of grassland, 250 acres of forest, and 17 acres of shrubland are estimated to occur from the removal of vegetation associated with the construction of the C-HC Project. More information about estimated vegetation impacts can be found in FEIS Section 3.3.
Wetlands	Moderate temporary impacts are expected to 63 acres to wetlands in the ROW. Construction of the transmission line structures under the selected alternative would result in moderate permanent impacts to 7 acres. More information about estimated wetlands impacts can be found in FEIS Section 3.3.
Special Status Plants	Minor impacts are expected to occur to special status plants from the C-HC Project. More information about estimated special status plants impacts can be found in FEIS Section 3.3.
Wildlife	Minor temporary impacts to 352 acres of grassland habitat, 76 acres of wetlands, and 14 acres of open water are estimated to occur from the construction of the C-HC Project. Moderate permanent impacts to 250 acres of forest habitat are estimated to occur from the conversion of forested habitat to maintained ROW, as part of the C-HC Project. More information about estimated wildlife impacts can be found in FEIS Section 3.4.
Special Status Species	The C-HC Project may affect, but is not like to adversely affect the Iowa Pleistocene snail. Moderate temporary impacts to 87 acres of high-potential and 817 acres of low-potential rusty patched bumble bee habitat are estimated to occur from construction of the selected alternative. More information about special status species can be found in FEIS Section 3.4.
Water Resources	Minor temporary and minor permanent impacts to six impaired waterways, seven outstanding and exceptional waters, and 12 trout streams are estimated to occur from the selected alternative. More information about water resources can be found in FEIS Section 3.5.
Floodplains	Minor temporary impacts to 11 crossings > 1,000 feet, 35,091 linear feet of floodplains, and 9,091 linear feet of floodway are estimated to occur from the construction of the transmission line structures under the selected alternative. More information about estimated floodplains impacts can be found in FEIS Section 3.5.
Air Quality	Minor temporary impacts to air quality are estimated to occur from the construction of the transmission line structures under the selected alternative. More information about estimated air quality impacts can be found in FEIS Section 3.6.
Noise	Minor temporary impacts to eight sensitive noise receptors are estimated to occur from the construction of the transmission line structures under the selected alternative. More information about estimated noise impacts can be found in FEIS Section 3.7.
Transportation	Minor temporary impacts to 2,765 roadway segments and moderate temporary impacts to one major river and 20 railroad segments are estimated to occur from the construction of the C-HC Project; moderate permanent impacts to eight airport/heliport facilities could occur due to the proximity of the transmission line structures under the selected alternative. More information about estimated transportation impacts can be found in FEIS Section 3.8.

Resource Group	Alternative 6
Cultural and Historic Resources	Fourteen National Register of Historic Places (NRHP)-listed, determined eligible, or assumed eligible resources could be impacted from the construction of the transmission line structures under the selected alternative. A comprehensive cultural resources survey has not been conducted so there could be any number of currently unknown resources present within the area analyzed for potential physical impacts. Prior to construction, RUS would attempt to identify and evaluate additional resources within the area analyzed for potential physical impacts. To resolve the potential adverse effects of the C-HC Project on historic properties, a project-specific Programmatic Agreement (PA) was developed among the Section 106 Consulting Parties. The Final PA is provided in Appendix D of this ROD. More information about estimated cultural and historic resources impacts can be found in FEIS Section 3.9.
Land Use	See impacts to land cover classes under Vegetation, above. More information about estimated land use impacts can be found in FEIS Section 3.10.
Agriculture	Minor temporary impacts to 1,164 acres of agriculture land cover type, 644 acres of prime farmland, and 610 acres of farmland of statewide importance are estimated to occur from construction of the C-HC Project. Major permanent impacts to 11 acres of prime farmland and 11 acres of farmland of statewide importance are estimated to occur from construction of the transmission line structures under the selected alternative. More information about estimated agricultural land use impacts can be found in FEIS Section 3.10.
Recreation	Minor temporary impacts to two recreational areas and moderate temporary impacts to two recreational areas are estimated to occur from the construction of the C-HC Project. Minor permanent impacts to one recreational area and moderate permanent impacts to three recreational areas are estimated to occur from construction of the transmission line structures under the selected alternative. More information about estimated recreation impacts can be found in FEIS Section 3.10.
Visual Quality and Aesthetics	Minor permanent impacts at the overall project level and major permanent impacts to eight residences within the ROW in close proximity to the C-HC Project depending on existing visual obstructions between the residences and the C-HC Project. Major permanent impacts, as well as beneficial impacts to the Refuge, and minor permanent impacts to the Great River Road National Scenic Byway are estimated to occur from construction of the transmission line structures under the selected alternative. More information about estimated visual impacts can be found in FEIS Section 3.11.
Socioeconomics	Minor temporary positive impacts to employment and income with \$490,301,721 of temporary spending and \$844,933 annual spending are estimated to occur from the construction of the C-HC Project. Moderate temporary and minor permanent impacts to property values for eight residences are estimated to occur from construction of the transmission line structures under the selected alternative. More information about estimated socioeconomic impacts can be found in FEIS Section 3.12.
Environmental Justice Communities	Moderate temporary and moderate permanent impacts to three communities with potential environmental justice populations are estimated to occur from the construction of the C-HC Project. More information about estimated environmental justice impacts can be found in FEIS Section 3.12.
Public Health and Safety	Minor permanent exposure to electric and magnetic fields for eight residences is estimated to occur from the transmission line structures under the selected alternative. More information about estimated public health and safety impacts can be found in FEIS Section 3.13.
Upper Mississippi River National Wildlife and Fish Refuge	Construction of the C-HC Project would impact 44 acres of ROW within the Refuge. Permanent impacts are estimated to include 27 acres in the Turkey River restoration area, 1 acre of wetlands, and 1 acre of forest removal within ROW from the transmission line structures under the selected alternative, along with restoration of 14 acres of the existing 161-kV transmission line ROW. More information about estimated impacts to the Refuge can be found in Section 3.14.

2.7.1 **Cumulative Impacts**

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or nonfederal) or person undertake such other actions” (40 CFR 1508.7). CEQ interprets this regulation as referring only to the cumulative impact of the direct and indirect effects of a proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (CEQ 2005). FEIS Chapter 4 provides a detailed discussion of cumulative impacts to resources from the C-HC Project. The selected alternative is expected to contribute to cumulative adverse impacts to resources such as:

Vegetation, including Wetlands and Special Status Plants: Cumulative effects on vegetation would occur where vegetation is removed or disturbed, special status species are impacted, and invasive species are introduced. Any project that involves surface-disturbing activities would contribute to the cumulative adverse impacts that may occur as a result of vegetation removal, disturbance, and conversion of vegetation and plant communities, and the potential introduction of invasive species.

Wildlife, including Special Status Species: Any projects that remove, degrade, or fragment habitat would contribute to the cumulative adverse impacts that may occur by converting undeveloped areas to developed areas, changing forested and shrubland land cover types to grassland, and loss of area to structure and ancillary facilities. The transmission line and wind energy projects would pose a similar risk for avian collision as the C-HC Project. The availability of unfragmented forested blocks would decrease. Construction of each project poses a risk of degrading wetland, open water, and stream habitat through siltation and erosion. These cumulative impacts to wildlife would be long term and adverse.

Land Use, including Agriculture and Recreation: Any project that converts lands from one use to another—such as such as transportation improvement projects, new energy development, new or rebuilt transmission lines, and urban development projects—would contribute to the cumulative adverse impacts through modification of land cover in the area (i.e., by converting undeveloped areas to developed areas, changing forested and shrubland land cover types to grassland, and contributing to the loss of area to structure and ancillary facilities). There would be cumulative impacts to agricultural lands, and the increase in transmission line ROWs across these lands would impact operation and productivity of farmland. Recreational settings and experiences would be altered and recreational opportunities in undeveloped landscapes would become more limited as more transmission line ROWs are built within the area. Natural areas would also experience cumulative impacts because when more transmission line ROWs exist in the area, the areas available for conservation are smaller and more limited. Cumulative impacts to land use, including agriculture and recreation, would be long term and moderate.

Visual Quality and Aesthetics: Present and reasonably foreseeable future developments, when added to the direct effects of the proposed C-HC Project, would incrementally convert the scenic quality of the natural landscapes into a more developed and industrialized landscape that would adversely affect scenery, and sensitive viewers over time.

Socioeconomics: Adverse cumulative socioeconomics impacts could result from an increase in construction activities, surface disturbance, and infrastructure that would have a potential adverse impact on tourism and property values in the areas where these activities occur. Potential adverse cumulative impacts on tourism from present and reasonably foreseeable future projects would be site-specific to the projects, and would be minor, negative, and both short and long term for similar reasons to those discussed in FEIS Section 3.12.2. Potential adverse cumulative impacts to property values from the present and reasonably foreseeable future projects would be similar to impacts typically experienced by

property abutting industrial developments. These impacts would be similar to, and as variable as, the potential impacts to property values discussed in FEIS Section 3.12.2.

Environmental Justice: The seven census tracts with environmental justice communities would possibly experience adverse impacts from the proposed transmission line infrastructure projects and transportation projects identified in the cumulative action scenario. These adverse impacts would be associated with potential changes in visual quality and aesthetics, increased noise from construction and operations, and a potential increase in traffic. These adverse impacts would likely be long term.

Public Health and Safety: Adverse cumulative impacts to public health and safety could result from construction activities that would increase the potential for accidents affecting worker safety in construction areas. Present and reasonably foreseeable future electrical transmission projects would also have a potential adverse impact on public health and safety by increasing potential exposure to electric and magnetic fields (EMF), increasing the risk of fires, and increasing the generation of solid, hazardous, and toxic materials and waste. Additional sources of EMF in the analysis area would not combine to create greater levels of EMF, but would create additional, discrete locations of EMF. Because the levels of EMF created by the proposed project would be relatively low when compared to the recommended public and occupational exposure guidelines, the cumulative impact from EMF under all alternatives would be minor and long term.

2.7.2 Environmental Commitments and Mitigation Measures

Impact analysis for each resource also assumes successful implementation of the environmental commitments that are proposed as part of any action alternative (Table 7) and the Federal Mitigation Plan provided in Appendix B. Table 7 represents the most current list of environmental commitments to be implemented by the Utilities during the construction and operation of the C-HC Project. These environmental commitments are required by this ROD and will be included in, and thereby enforced by, applicable permits, authorizations, and orders issued by Federal and state agencies. These commitments may be revised as permits, authorizations, and orders actions are reviewed and issued, if deemed appropriate by the various decisionmakers. It should be noted that additional environmental commitments, mitigation measures, and/or best management practices (BMPs) may be required through other permits issued by State agencies, such as the Wisconsin Department of Natural Resources’ (WDNR’s) utility permit, issued on October 25, 2019, and the PSCW’s Final Decision, issued on September 26, 2019.

The Federal Mitigation Plan outlines all mitigation measures required by the RUS, USFWS, and USACE associated with each agency’s action described in Section 2 of this ROD.

Table 7. Environmental Commitments for the C-HC Project

Resource	Environmental Commitment
General	<ul style="list-style-type: none"> Regulatory agencies may require independent third-party environmental monitors related to permitted aspects of the C-HC Project. The Utilities use trained staff members or contractors as monitors for special resource conditions as a standard practice. The Utilities will hire environmental monitors who will be present during construction of the C-HC Project, and the environmental monitors will ensure the environmental commitments required by Federal and state agencies are followed.
Geology and Soils	<ul style="list-style-type: none"> An erosion control plan, coordinated with the Iowa Department of Natural Resources (IDNR) and WDNR, will be prepared once a route is approved, and BMPs will be employed near aquatic features (wetlands, streams, waterbodies) to minimize the potential for erosion and to prevent any sediments from entering aquatic features.

Resource	Environmental Commitment
Vegetation, including Wetlands and Special Status Plants	<ul style="list-style-type: none"> • Erosion controls will be regularly inspected and maintained throughout the construction phase of a project until exposed soil has been adequately stabilized. <p><u>General Vegetation</u></p> <ul style="list-style-type: none"> • During restoration, erosion and sediment control measures, including measures for stabilization of disturbed areas during and at the completion of construction, will be implemented as defined in the Stormwater Pollution Prevention Plan (SWPPP) developed for the C-HC Project. Areas where ground disturbance occurs will be monitored until 70% revegetation has been established. • In non-agricultural areas where ground disturbance occurs, the area will be monitored until ground cover is reestablished to at least 70% of the vegetation type, density, and distribution that was documented in the area prior to construction. • In areas that were previously forested, disturbed areas will be revegetated consistent with non-invasive herbaceous vegetation that occurs in the area. <p><u>Algific Talus Slopes</u></p> <ul style="list-style-type: none"> • Upon final route selection and after landowner permission is obtained, additional habitat assessments and algific talus slope surveys will be completed along the final route selected in Iowa. • Geotechnical surveys at the proposed pole locations will be completed along the final route selected in Iowa to determine whether caves or cavities exist in bedrock that could be connected to algific talus slopes within or adjacent to the action area. • Should any algific talus slopes be identified during habitat assessments, or any caves or cavities be detected in the bedrock during geotechnical surveys, they will be avoided by construction. • Pole locations and construction access roads will be adjusted to avoid algific talus slopes, if present. • If algific talus slopes are identified, vegetation removal on steep slopes will be minimized to only the amount necessary to maintain conductor clearances. • Broadcast spraying of herbicides will be avoided and careful spot spraying will be used in suitable algific talus slope habitat areas. <p><u>Woodlands</u></p> <ul style="list-style-type: none"> • To minimize the spread of oak wilt, the cutting or pruning of oak trees between April 15 and July 1 for maintenance will be conducted in accordance with Wisconsin Administrative Code (WAC) Public Service Commission (PSC) 113.051. • In Iowa, oak trees may be removed during maintenance activities but pruning oak trees will only occur during dormant periods. • Practices that minimize the spread of emerald ash borer will be employed, which include avoiding movement of ash wood products (logs, posts, pulpwood, bark and bark products, and slash and chipped wood from tree clearing) and hardwood firewood from emerald ash borer quarantine areas to nonquarantine areas (see, for example, WAC Agriculture, Trade, and Consumer Protection [ATCP] 21.17). Where ash wood products cannot be left on-site, alternative plans will be developed to meet the requirements. • Standard practices used in the quarantine area to avoid the spread of gypsy moth damage include inspections by trained staff and avoiding movement of wood products (logs, posts, pulpwood, bark and bark products, firewood, and slash and chipped wood from tree clearing) from gypsy moth quarantine areas to nonquarantine areas, according to WAC ATCP 21.10 <p><u>Wetlands</u></p> <ul style="list-style-type: none"> • Impacts to wetlands will be minimized by one or more of the following measures: <ul style="list-style-type: none"> ○ Conducting construction activities when wetland soils and water are frozen or stable and vegetation is dormant. ○ Use of equipment with low ground-pressure tires or tracks. ○ Placement of construction matting to help minimize soil and vegetation disturbances and distribute axle loads over a larger surface area, thereby reducing the bearing pressure on wetland soils. • Access roads through wetlands will not require permanent fill. • Erosion control BMPs will be installed where needed to prevent soil erosion into and within wetlands. • Any spoils will be removed from wetlands to non-sensitive upland areas or other approved location. Cleaning of construction equipment and mats, per the Wisconsin Council on Forestry's "Invasive Species Best Management Practices: Rights-of-Way" guidance to mitigate the spread of invasive species (see FEIS Appendix D). Where necessary to ameliorate minor impacts, such

Resource	Environmental Commitment
	<p>as rutting and vegetation disturbance due to equipment operation and mat placement in wetlands, site restoration activities will be implemented, monitored, and remedial measures applied until established restoration goals are achieved, as required by regulatory permits obtained for the C-HC Project.</p> <p><u>Invasive Species</u></p> <ul style="list-style-type: none"> • The Utilities will follow the Wisconsin Council on Forestry’s “Invasive Species Best Management Practices: Rights-of-Way” guidance to mitigate the spread of invasive species (see FEIS Appendix D). • Work below the ordinary high-water mark (OHWM) of waterways will be avoided to the extent practicable; the most likely activity would be withdrawing water to stabilize excavations. • Before moving construction equipment and material between waterway construction locations where equipment or materials are placed below the OHWM of a waterway, standard inspection and disinfection procedures will be incorporated into construction methods as applicable (see WAC NR 329.04(5)). • All natural areas, such as wetlands, forests, and prairies, will be surveyed for invasive species following construction and site revegetation. If new infestations of invasive species due to construction of the C-HC Project are discovered, measures should be taken to control the infestation. <ul style="list-style-type: none"> ○ The WDNR or IDNR, as applicable, will be consulted to determine the best methods for control of encountered invasive species. • The Utilities will employ a Certified Pesticide Applicator for all herbicide applications within the C-HC Project. The Certified Pesticide Applicators will only use herbicides registered and labeled by the USEPA and will follow all herbicide product label requirements. Herbicides approved for use in wetland and aquatic environments will be used in accordance with label requirements, as conditions warrant.
<p>Wildlife, including Special Status Species</p>	<ul style="list-style-type: none"> • In accordance with WDNR avoidance and minimization measures, reptile exclusion fencing will be installed in areas during the appropriate season where habitat is likely to support rare turtles, snakes, or salamanders. • The Utilities will develop a project-specific Avian Protection Plan for the C-HC Project. An eagle management plan will be included as part of the Avian Protection Plan. • Bird flight diverters will be installed on shield wires when overhead transmission lines are built in areas heavily used by rare birds or large concentrations of birds or in specific areas within known migratory flyways. • Design standards for this project will meet avian-safe guidelines as outlined by the Avian Power Line Interaction Committee for minimizing potential avian electrocution risk. • The Utilities will identify locations, in coordination with USFWS, IDNR, and WDNR, where the installation of bird flight diverters will be recommended to minimize the potential for avian collisions. If an eagle nest occurs near the ROW, the Utilities will coordinate with the USFWS to determine if and where bird flight diverters are needed to minimize collision risk. • The Utilities will coordinate with the USFWS, IDNR, and WDNR on eagle nest surveys to occur before construction activities to identify eagle nests within 0.5 mile on either side of the ROW. The surveys will occur preferably in the winter or spring before leaf-on when nests are the most visible, and survey data will be provided to the agencies. • The Utilities will coordinate with the USFWS if an eagle nest occurs within 660 feet of the edge of the ROW to determine if and which permits are recommended or if mitigation measures are appropriate to minimize impacts. • The Utilities will work with the IDNR and the WDNR to determine locations where state-listed bird species habitat is present, and implement appropriate measures to avoid and/or minimize impacts to those species. • Prior to tree clearing during migratory bird nesting season, the Utilities will complete a field review of the final ROW to identify existing stick nests. Tree-clearing crews will also be trained to stop work and notify environmental staff if they encounter an unanticipated nest. • Vegetation clearing within threatened and endangered avian species habitat will be avoided during migratory bird nesting season. <p><u>Iowa Pleistocene Snail</u></p> <ul style="list-style-type: none"> • Upon final route selection and after landowner permission is obtained, additional habitat assessments and algific talus slope surveys will be completed along the final route selected in Iowa.

Resource	Environmental Commitment
	<ul style="list-style-type: none"> • Geotechnical surveys at the proposed pole locations will be completed along the final route selected in Iowa to determine whether caves or cavities exist in bedrock that could be connected to algalic talus slopes within or adjacent to the action area. • Should any algalic talus slopes be identified during habitat assessments, or any caves or cavities be detected in the bedrock during geotechnical surveys, they will be avoided by construction. • Pole locations and construction access roads will be adjusted to avoid algalic talus slopes, if present. • Vegetation removal that occurs on steep slopes along the proposed ROW in Iowa will be the minimum amount necessary to maintain conductor clearances. • All seed mixes used for restoration and revegetation in areas of algalic talus slope habitat will be free of neonicotinoids. • The use of BMPs during construction and vegetation management activities to prevent the spread of invasive species will help to maintain greater plant diversity along the cleared transmission corridors. <p><u>Northern Long-eared Bat</u></p> <ul style="list-style-type: none"> • Tree removal activities will be avoided during the northern long-eared bat “pup season” (June 1 to July 31) to avoid potential direct impacts to pups at roosts. • Northern long-eared bat surveys will be performed between the two proposed corridors within the Refuge per the USFWS’s most recent <i>Range-wide Indiana Bat/Northern Long-eared Bat Survey Guidelines</i> (USFWS 2018a). • Northern long-eared bat surveys may be performed along other portions of project segments per the most recent survey guidelines to determine northern long-eared bat presence or probable absence. Areas having survey results of probable absence will not be subject to tree removal restrictions during the pup season. <p><u>Rusty Patched Bumble Bee</u></p> <ul style="list-style-type: none"> • Prior to construction, areas within High Potential Zones preliminarily screened as low-quality habitat or questionable habitat will be evaluated and documented using the <i>Rusty Patched Bumble Bee Habitat: Assessment Form and Guide</i> (Xerces Society for Invertebrate Conservation 2017). • Areas determined to contain suitable habitat within High Potential Zones per the <i>Rusty Patched Bumble Bee Habitat: Assessment Form and Guide</i> (Xerces Society for Invertebrate Conservation 2017) will be surveyed for rusty patched bumble bee no more than 1 year prior to construction per the <i>Survey Protocols for the Rusty Patched Bumble Bee</i> (USFWS 2018b). Additional surveys may be performed more than 1 year prior to construction to guide project planning. • Where the rusty patched bumble bee is confirmed to be present, disturbance and vegetation clearing within suitable habitats will be minimized to the extent possible. • Seed mixes containing a diversity of native flowering plants will be used to reseed existing suitable habitat areas that require revegetation/restoration within High Potential Zones, as well as opportunity areas for expanding suitable habitat within known High Potential Zones. • The use of BMPs during construction and vegetation management activities to prevent the spread of invasive species will help to maintain greater plant diversity along the cleared transmission corridors. • Herbicide application where used for vegetation management purposes in suitable habitat within High Potential Zones will be targeted to limit the effects of the herbicide beyond the targeted species. • To avoid or minimize impacts in areas documented by surveys to be occupied by rusty patched bumble bee, activities within occupied habitat will be sequenced with seasonal time frames as much as is feasible (i.e., late spring/summer work in woodlands to avoid overwintering queens, late fall/winter work in open areas to avoid foraging and nesting sites). • The USFWS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of the rusty patched bumble bee: <ul style="list-style-type: none"> • Minimize pre-construction vegetation clearing and ground disturbance. • Use native species in restoration activities. • Maintain suitable habitat within the permanent ROW. • Document and report to the USFWS the timing and extent of disturbances within suitable habitat for rusty patched bumble bee to help inform future consultations.

Resource	Environmental Commitment
Water Resources and Water Quality	<ul style="list-style-type: none"> <li data-bbox="467 258 1414 625"> <ul style="list-style-type: none"> <li data-bbox="513 258 1414 310">• To implement the reasonable and prudent measures listed above, the Utilities must comply with the following terms and conditions: <ul style="list-style-type: none"> <li data-bbox="513 317 1414 369">• Minimize clearing, grading, and vegetation removal within suitable habitat areas in the High Potential Zones. <li data-bbox="513 375 1414 520">• Reseed all construction ROW suitable habitat areas (temporary and permanent) within the High Potential Zones with pollinator-friendly native seed mixes consistent with recommendations provided by the USFWS. When possible, include species preferred by the rusty patched bumble bee and ensure that some plants are in bloom through the season when the rusty patched bumble bee may be present. The USFWS provides a list of plants favored by the species (USFWS 2019). <li data-bbox="513 527 1414 625">• Provide a written summary of the suitable habitat impacted, the timing of impact as it pertains to the rusty patched bumble bee active and inactive seasons, and the estimated percentage of disturbed ground at completion of transmission line construction and other associated activities. <li data-bbox="467 642 1414 741">• An erosion control plan, coordinated with the IDNR and WDNR, will be prepared once a route is ordered/approved, and BMPs will be employed near aquatic features (wetlands, streams, waterbodies) to minimize the potential for erosion and to prevent any sediments from entering the aquatic features. <li data-bbox="467 747 1414 800">• Erosion controls will be regularly inspected and maintained throughout the construction phase of a project until exposed soil has been adequately stabilized. <li data-bbox="467 806 1414 930">• Waterway crossings will require a temporary clear span bridge (TCSB) to avoid the necessity of driving construction equipment through streams. Each TCSB will consist of construction mats, steel I-beam frames, or other similar material placed above the OHWM on either side to span the stream bank. If there are waterways that are too wide to clear span, a temporary bridge with in-stream support will be designed and constructed. <li data-bbox="467 936 1414 1035">• The use of TCSBs will be minimized where possible by accessing the ROW from either side of the stream or by using existing public crossings to the extent practical. The Utilities will work with private landowners to identify alternative access routes to further reduce the use of stream crossings, if possible. <li data-bbox="467 1041 1414 1140">• For those streams that will not be crossed by construction vehicles and where stream-crossing permits have not been acquired, wire will be pulled across those waterways by boat, by helicopter, or by a person traversing across the waterway. Wire stringing activity may require that waterways be temporarily closed to navigation. <li data-bbox="467 1146 1414 1178">• No structures will be located below the OHWM. <li data-bbox="467 1184 1414 1236">• Any dewatering within the project area during construction will be discharged to a non-sensitive upland site to facilitate re-infiltration to the aquifer. <li data-bbox="467 1243 1414 1316">• Nearby waterways could be used as a water source during project construction. The Utilities will attempt to avoid water withdrawals during spawning seasons. The Utilities will coordinate water withdrawals with the IDNR and WDNR. <li data-bbox="467 1323 1414 1780"> <ul style="list-style-type: none"> <li data-bbox="467 1323 1414 1375">• The Utilities will follow these requirements when working in proximity to the Refuse Hideaway Landfill site and contaminated groundwater plume: <ul style="list-style-type: none"> <li data-bbox="524 1381 1414 1455">○ Once a route for the C-HC Project is selected and final design is underway, the Utilities will develop a geotechnical investigation plan, which will include an environmental sampling plan for collection of groundwater and soil samples. <li data-bbox="524 1461 1414 1514">○ The environmental sampling plan will be provided to the WDNR case manager for WDNR review and input prior to start of the geotechnical investigations. <li data-bbox="524 1520 1414 1551">○ Environmental sampling results will be shared with WDNR. <li data-bbox="524 1558 1414 1724">○ The Utilities will then draft a Contaminated Soil and Groundwater Management Plan for the C-HC Project in the vicinity of the Refuse Hideaway Landfill site, and WDNR will review the plan. If WDNR requires a formal approval process, an approval process consistent with the WAC Department of Natural Resources Chapters NR 700–754 will be followed. The Contaminated Soil and Groundwater Management Plan will identify appropriate disposal methods for any contaminated soil and groundwater intercepted during construction of the C-HC Project. <li data-bbox="524 1730 1414 1780">○ The Utilities will follow Occupational Safety and Health Administration (OSHA) requirements associated with working with potentially contaminated soil and groundwater. <li data-bbox="467 1787 1414 1864">• The Utilities will develop a Spill Prevention, Control and Countermeasure Plan for the construction of the Hill Valley Substation, if the amount of oil stored at the Hill Valley Substation meets the requirements of the Oil Pollution Prevention regulation at 40 CFR 112. The Hill Valley

Resource	Environmental Commitment
Air Quality	<p>Substation will be designed to include secondary containment for releases of hazardous materials during operation.</p> <ul style="list-style-type: none"> • The Utilities require all construction contractors to submit a spill prevention and response plan that identifies mitigation measures for spills within the footprint of the C-HC Project construction area. <p>The Utilities will review the Construction Emission Control Checklist with transmission line and substation construction contractors to identify appropriate emission reduction techniques for constructing the C-HC Project (see FEIS Appendix D).</p> <ul style="list-style-type: none"> • Contractors will clean up any dirt or mud that may be tracked onto the road by equipment daily. • Tracking pads may be constructed at frequently used access points to minimize mud being tracked onto public roads. Road sweeping will be used as needed to minimize dust. • A water truck will be available on-site to spray areas of the laydown yards and ROW that are creating excessive dust.
Noise	<ul style="list-style-type: none"> • When undertaking construction activities around residences, the Utilities and their contractors will be cognizant of the residents and will limit work hours in that area, specifically during the early morning hours. • If helicopters are used on the project, the Utilities will use various forms of outreach to notify the affected communities and landowners regarding when the helicopters will be in operation. • The Utilities and their contractors plan to generally work during daylight hours Monday through Friday, with an average workday to be approximately 11 hours.
Transportation	<ul style="list-style-type: none"> • Traffic control plans will be developed and implemented during construction to minimize traffic impacts and comply with permit requirements. • The Utilities will minimize the number of vehicles and the amount of time they are parked on the roads. • If a driveway is needed to access the ROW, the driveways may be protected using composite mats or other low-profile protection systems. Commercial or industrial driveways will be evaluated prior to use as surface protection may not be required. • Any damage caused by construction access will be repaired as needed. • The Utilities and their contractors will not block any residence driveways with equipment unless agreed upon with the landowner or resident. • During final design, the Utilities will attempt to locate structures so that they are directly adjacent to the crossing with either Rustic Road 70 or Rustic Road 75. • The Utilities will adhere to Wisconsin Department of Transportation (WisDOT) guidance on defining clear zones in its Facilities Development Manual Section 11-15, Attachment 1.9 (WisDOT 2019).
Cultural and Historic Resources	<ul style="list-style-type: none"> • Consultation between the Iowa and/or Wisconsin State Historic Preservation Offices (SHPOs), RUS, the Utilities, and affected tribal groups, among others, will be required under Section 106 of the National Historic Preservation Act (NHPA). This consultation must be completed prior to financing or license issuance. For the C-HC Project, Section 106 compliance will be completed using a Programmatic Agreement (see Appendix D). • The Utilities will develop an Unanticipated Discoveries Plan detailing the process for addressing the identification of previously unidentified potential historic properties such as archaeological sites, historic features, or unidentified human remains during the course of construction. Such a plan will include steps for preventing further harm to previously unidentified sites and notifying consulting parties in order to address impacts to potential historic properties. • If unanticipated archaeological resources or human remains are discovered during construction, the Utilities shall stop work at that location and shall immediately report the find to the Utilities' Construction Manager and Environmental Monitor. Work shall not commence in that location until the Wisconsin Historical Society or Iowa SHPO and PSCW are notified and direction sought from the Wisconsin Historical Society or Iowa SHPO. Interested tribes will also be notified during this time. Construction may resume after the direction is followed and the qualified archaeologist's reports, if any, are received and approved by the Wisconsin Historical Society or Iowa SHPO.
Land Use, including Agriculture and Recreation	<ul style="list-style-type: none"> • Where possible, siting in agricultural areas will be along fence lines or between fields or along public road ROW so that the proposed structures will be located along the edge of the land area used for agricultural purposes. If conflicts occur, landowners will be consulted during the real estate acquisition process to accommodate landowner needs to the extent practicable.

Resource	Environmental Commitment
	<ul style="list-style-type: none"> • During the final design process, landowner input will be obtained to place structures such that impacts to drain tiles will be minimized to the extent practicable. • During construction, matting may be used to more evenly distribute the weight of heavy equipment, and low ground-pressure construction equipment may also be used. • After construction, damaged drain tiles will be repaired to preconstruction conditions. • Where appropriate, minimization techniques, such as topsoil replacement and deep tilling, may be used. • Construction vehicles may be cleaned before entering the organic farm parcels, in accordance with input from the landowner. • During the easement negotiation, landowners can decline the use of herbicides for vegetation management activities once the line is in operation. Therefore, no herbicide will be applied within portions of the ROW on which the landowner wishes not to introduce it. • If construction activity occurs during wet conditions and soils are rutted, the ruts will be repaired as soon as conditions allow, to reduce the potential for impacts. • To minimize soil compaction during construction in agricultural lands, low-lying areas, saturated soils, or sensitive soils, low-impact machinery with wide tracks could be used. • Prior to and during construction, the Utilities will coordinate with land managers regarding public notification about construction activities and temporary closures of public areas. • See more detailed BMPs for agricultural lands in FEIS Appendix D.
Visual Quality and Aesthetics	<ul style="list-style-type: none"> • Steel monopoles with a weathered finish will be used at visually sensitive locations to minimize the visual impacts to the landscape.
Socioeconomics and Environmental Justice	<ul style="list-style-type: none"> • Short-term impacts to agricultural lands will be mitigated by providing compensation to producers and by restoring agricultural lands to the extent practicable.
Public Health and Safety	<ul style="list-style-type: none"> • If the proposed transmission lines parallel or cross distribution lines, appropriate measures can be taken to address any induced voltages.
Upper Mississippi River National Wildlife and Fish Refuge	<ul style="list-style-type: none"> • For the portion of the C-HC Project within the Refuge, preliminary low-profile structures are proposed with a design height to match the existing tree cover within the Refuge (approximately 75 feet) to reduce the potential of avian collisions. • The structures will be horizontal-symmetrical H-frame structures on concrete foundations with a typical span length of approximately 500 feet and will consist primarily of tubular steel H-frame structures. • All conductors on these low-profile structures will be placed on one horizontal plane and the shield wire will be marked with avian flight diverters. • Construction on the Refuge will occur outside the eagle nesting season (typically January 15 to June 15) or outside a 660-foot exclusion zone to avoid disturbance to nesting adult, chick, and fledgling eagles. • For the alternatives that cross the Mississippi River at the Nelson Dewey Substation (Alternatives 1, 5, and 6), additional minimization steps are proposed: <ul style="list-style-type: none"> ○ The Utilities propose to mitigate adverse impacts to forest resources in the Refuge through restoration and enhancement of forest resources both within and off Refuge lands. A restoration plan will be developed in consultation with the USFWS and USACE. The restoration plan will supplement existing USFWS efforts to restore bottomland hardwood forest within the Refuge, specifically on the floodplain of the Turkey River. Mitigation may also include the reestablishment and/or expansion of mature woodlands near the Nelson Dewey Substation and/or other non-Refuge locations adjacent to Refuge lands. These restoration efforts will mitigate adverse impacts on public lands. • Revegetation within the Refuge will be conducted in concert with USFWS and USACE review and direction and in compliance with applicable North American Electric Reliability Corporation (NERC)-regulated vegetation standards. As with the design of the project, the Utilities will work closely with the USACE and USFWS to identify the location, type, and overall revegetation plan that will be appropriate for the project and this specific location of the Refuge. • In addition to the environmental commitments outlined above and other mitigation to be developed with the USFWS and USACE, as part of the USACE and USFWS permit application processes, the Utilities will develop a project-specific mitigation plan. This plan will need to be deemed acceptable by USACE and USFWS prior to the issuance of permits. Appendix B contains the Federal Mitigation Plan for the C-HC Project.

2.8 Changes from the Draft EIS to the Final EIS

The purpose of this summary is to identify the substantial revisions made to the C-HC Project EIS between the DEIS and FEIS. These revisions were made to respond to public and agency comments received during the DEIS public review period and incorporate additional information analyzed by RUS and cooperating agencies to inform potential impacts to the human and natural environment.

Appendices

- New appendices were added to the FEIS:
 - Appendix F. Draft Environmental Impact Statement Public Comment Report
 - Appendix G. U.S. Fish and Wildlife Service Biological Opinion
 - Appendix H. Programmatic Agreement
 - Appendix I. Federal Mitigation Plan
 - Appendix J. U.S. Fish and Wildlife Service Compatibility Determination for the Upper Mississippi River National Wildlife and Fish Refuge
- Minor revisions were made to Appendix C, in Table C-1, to revise the transmission line segments that would comprise Alternative 6. Table C-1 was revised to reflect the minor adjustments that were made to Alternative 6 between the DEIS and FEIS for consistency with the C-HC Project route in Wisconsin ordered by the PSCW on September 26, 2019.

Chapter 2

- In Section 2.3, minor adjustments were made to Alternative 6 between the DEIS and FEIS for consistency with the C-HC Project route in Wisconsin ordered by the PSCW on September 26, 2019. Adjustments include:
 - Exchange of Segment X in place of Segment W and part of Segment V near the intersection of Stagecoach Road and County Road P south of Cross Plains, Wisconsin.
 - Potential combined use of Segments S10B, S10C, S11B, and S11C along U.S. Highway 151 west of Barneveld, Wisconsin, to allow for ongoing discussions between the Utilities and the Wisconsin Department of Transportation.
 - Accommodation of routing on either the north or south side of Wisconsin State Road 80 for approximately 1.5 miles along Segment Q02 east of Montfort, Wisconsin.
- In Section 2.4, project elements that were previously identified as connected actions in the DEIS were incorporated into the description of the C-HC Project.
- In Section 2.4, additional details were added on how the ROW would be maintained and on vegetation management practices.
- Two new sections were added. Section 2.6 was added to disclose the Agency Preferred Alternative and Section 2.7 was added to disclose the Environmentally Preferable Alternative.

Chapter 3

- In Section 3.1, the environmental commitments were updated, and additions were made to reflect ongoing discussions with cooperators, the issuance of the USFWS biological opinion, and the Utilities' applications to the Wisconsin Public Service Commission.

EIS Section 3.3, Vegetation, including Wetlands and Special Status Plants

- Information was added to the affected environment to more thoroughly describe the pine relicts that potentially occur in the analysis area and to describe the location of a known state-listed fern species, *Asplenium pinnatifidum*.

EIS Section 3.4, Wildlife, including Special Status Species

- Information was added throughout the section to provide the updated data for the rusty patched bumble bee (*Bombus affinis*) and to pull in relevant information and environmental commitments from the USFWS biological opinion.

EIS Section 3.5, Water Resources and Quality

- Updated information regarding Wisconsin Outstanding Resource Waters or Exceptional Resource Waters and trout streams present in the analysis area was added. An analysis was added to describe specific impacts to groundwater flow through karst features.

EIS Section 3.6, Air Quality and Climate Change

- Information was added to describe the potential climate change effects resulting from landcover changes due to construction activities such as clearing woodlands. An impact analysis was added to present the potential impacts of the C-HC Project and associated removal of forest vegetation on climate change and carbon sequestration.

EIS Section 3.7, Noise

- Discussions of noise impacts associated with potential blasting as well as impacts from construction noise on livestock were added.

EIS Section 3.8, Transportation

- Information regarding Wisconsin Rustic Roads present in the analysis area was added.

EIS Section 3.9, Cultural and Historic Resources

- The Nelson Dewey Plantation (historic home site) was identified as occurring within the area of potential effects for the C-HC Project.

EIS Section 3.10, Land Use, including Agriculture and Recreation

- Information was added throughout the section to provide more detail regarding USDA Natural Resources Conservation Service Conservation Reserve Program-enrolled lands and Wisconsin Managed Forest Law-enrolled lands and impacts to these lands.
- Information was added to describe forested areas managed for timber production and potential impacts to timber production from the C-HC Project.
- The Southwest Wisconsin Grassland and Stream Conservation Area was identified as a natural area that occurs within the analysis area, and a subsequent impact analysis was added throughout the various subsections.
- Information was added to clarify impacts to loss of agricultural lands from power line tower structures. Potential impacts to organic farming from herbicide drift were added.

EIS Section 3.11, Visual Quality and Aesthetics

- Visual simulations were updated with photograph details such as distance to nearest structure, and photographs from existing structures similar to the C-HC Project were added.

EIS Section 3.12, Socioeconomics and Environmental Justice

- U.S. Census data were reviewed at a finer scale to analyze potential impacts to environmental justice communities. Sections were revised to describe environmental justice communities using minority group populations and poverty levels at the census-tract level. Furthermore, the USEPA environmental justice screening tool was used to inform the affected environments for the seven environmental justice communities in the analysis area. Impact analyses were updated using the new datasets.
- The impact analysis regarding property values in the analysis area was updated based on new information received between the DEIS and FEIS.

EIS Section 3.13, Public Health and Safety

- Citations were added to address public comments that expressed concerns about potential links between public health and exposure to electric and magnetic fields.
- Updates were added to include additional types of severe weather events and to address security breaches.
- Updates were added to disclose potential impacts to livestock from exposure to electric and magnetic fields.
- Information was added regarding dispersal of charged particles and the potential impacts to individuals' health.

Chapter 4

- The revisions to the cumulative impacts analysis include better-defined spatial boundaries that are commensurate with the context and intensity of direct and indirect effects from the C-HC Project.
- The revisions to the cumulative impacts analysis also include a more-refined cumulative action scenario, which is a term used to refer to past, present, and reasonably foreseeable projects considered in cumulative impact analysis. RUS identified potential projects and developments in the redefined spatial boundaries, which include additional areas in Illinois, Iowa, and Wisconsin.
- A new subsection under the Air Quality and Climate Change section was added to include a discussion of the cumulative impacts to climate change. For this analysis, RUS reviewed two different electricity generation sources (coal-fired generation and wind-powered generation) to estimate a range of carbon dioxide emissions from electricity generation sources that could have access to transmission from the C-HC Project. These carbon dioxide emission estimates were used to evaluate potential cumulative climate change impacts.

2.9 Changes from the Final EIS to the Record of Decision

The purpose of this summary is to identify any necessary revisions to the description of the C-HC Project or associated environmental impact analysis after the issuance of FEIS. These revisions were made to respond to public and agency comments received during the FEIS review period.

Appendices

- New appendices were added to the ROD:
 - Appendix A. U.S. Fish and Wildlife Service Compatibility Determination for the Upper Mississippi River National Wildlife and Fish Refuge
 - Appendix C. Clean Water Act and River and Harbors Act Permits Issued by the USACE
 - Appendix E. U.S. Fish and Wildlife Service Revised Biological Opinion
 - Appendix F. FEIS Comment Response Report

Minor revisions to impact analysis

FEIS Section 2.4.6 describes the decommissioning activities that would occur after the life of the C-HC Project. Decommissioning activities would have similar impacts to those described for construction of the C-HC Project and are expected to occur within the 300-foot analysis area analyzed in the FEIS.

The C-HC Utilities would coordinate with local distribution and/or utility companies during final design of the C-HC Project to determine if distribution facilities need to be relocated. At this time, the need for relocating local utilities outside of the C-HC Project ROW or the 300-foot analysis area has not been identified.

During the FEIS review period, a typographical error in a series of six tables in FEIS Section 3.10 was brought to RUS's attention. In Table 3.10-6, Table 3.10-10, Table 3.10-14, Table 3.10-18, Table 3.10-22, Table 3.10-26, and Table 3.10-30, the FEIS erroneously reports impacts greater than 1 acre (>1 acre) for permanent impacts to grasslands, urban, barren, and wetland land cover classifications. However, the estimated impacts to grasslands, urban, barren, and wetland land cover classifications is herein corrected to disclose potential permanent impacts of less than 1 acre (<1 acre) for each land cover classification of grasslands, urban, barren, and wetlands.

2.10 NEPA Compliance

Throughout the NEPA process, the public and various government agencies have had the opportunity to provide input and comment on the C-HC Project. The Notice of Intent published on October 18, 2016, initiated the 30-day public scoping period, which ultimately was extended to 81 days ending on January 6, 2017. The announcement included a brief overview about the Proposed Action and alternatives, potential resource concerns, opportunities to provide input and attend meetings, and RUS project contacts. Letters, radio public service announcements, and newspaper advertisements announcing the proposed project and the scoping meeting locations and times were distributed prior to the public scoping meetings. RUS held six public scoping meetings to present the RUS NEPA process and timelines, and to answer questions and receive comments regarding the C-HC Project.

RUS also sent letters to Federal and state agencies and federally recognized tribes with interest in the C-HC Project area inviting them to participate in public and agency scoping meetings concurrently with the public scoping meetings in October and November 2016. Tribes were invited to participate in the National Historic Preservation Act (NHPA) Section 106 review process, attend public scoping meetings, and provide relevant information for inclusion in the DEIS.

2.10.1 Public Involvement

During the public scoping period, RUS received 379 comment letters from 352 commenters for a total of 1,736 individual comments. The key issues identified during the comment process were primarily related

to socioeconomic, NEPA process, wildlife, land use, and visual resources. A summary of the public comments received and organized by concern, issue, or resource topic is presented in the FEIS Section 1.7 and the scoping report available on the RUS website:

<https://www.rd.usda.gov/resources/environmental-studies/impact-statements/cardinal-%E2%80%93-hickory-creek-transmission-line>.

RUS held six public meetings on the DEIS during which interested parties made oral comments in a formal setting and/or submitted written comments. A court reporter was present to record these oral comments. A total of 401 comment submittals (letters, emails, commenters at hearings) was provided to RUS and the Cooperating Agencies for the DEIS; within the submittals, there were 2,686 individual comments. Seven of these 401 comment letters were duplicate letters, and 54 were form letters or a variation of a form letter. All comments that were received became a part of the administrative record and were entered into an interactive, searchable table and coded to reflect the subject matter of concern, sorted, and summarized. Appendix F of the FEIS includes all DEIS comments and responses to the comments from Federal agencies. The DEIS was revised to address substantive public comments and presented as the FEIS in October 2019.

The FEIS was made available for a 30-day review period that began on October 25, 2019. Two notices of availability (NOAs) were published in the Federal Register to notify the public that the FEIS was available for review. RUS published their NOA in the Federal Register on October 23, 2019. The USEPA published their NOA for the FEIS on October 25, 2019. The USEPA's NOA serves as the official public announcement of the release of the FEIS. In total, 73 comment letters were received during the FEIS review period. Two letters were received after the DEIS comment period and were coded with the FEIS comments to ensure they were addressed properly. RUS identified 422 individual comments contained within the comment letters (excluding duplicates). A summary of the public comments received and the responses to all public comments from the Federal agencies are provided in Appendix F of this ROD.

2.10.2 Agency Coordination and Consultation

A detailed description of coordination and consultation activities with Federal agencies, state agencies, and tribes is provided in FEIS Chapter 5.

On October 14, 2016, a letter was sent to 38 Federal and state agencies inviting them to participate in public and agency scoping meetings. Agency scoping meetings were held to provide updates and answer questions about the C-HC Project. Iowa agencies were invited to attend a meeting in Peosta, Iowa, on October 31, 2016. Wisconsin agencies were invited to attend a meeting in Middleton, Wisconsin, on November 3, 2016.

RUS also coordinated with the PSCW throughout the development of the DEIS and FEIS. Meetings and conference calls between RUS and PSCW were held periodically to discuss the status of each agencies' environmental review process and to share pertinent information about the C-HC Project.

RUS met with National Park Service (NPS) staff responsible for managing the Ice Age National Scenic Trail on June 12, 2017, and February 5, 2018. These meetings were held to discuss concerns about the proximity of the C-HC Project to the trail and Cross Plains Complex as well as to review the visual simulations prepared for the C-HC Project segments that were proposed near the trail. The NPS submitted comments during the DEIS public review period, and the FEIS contains updated information to address those substantive comments from the NPS.

On June 14, 2017, RUS met with the Dubuque City Manager and other staff to review the alternatives considered for crossing the Mississippi River.

2.10.2.1 CONSULTATION UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT

Section 7 of the ESA requires Federal agencies to ensure that their actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction of their designated critical habitat. It may also require consultation with the USFWS in making this determination.

On October 23, 2017, a letter (from SWCA Environmental Consultants on behalf of RUS) was sent to USFWS requesting technical assistance for the DEIS. The USFWS provided comments on the Administrative Draft Biological Assessment, submitted by the Utilities, on January 5, 2018. These comments provided recommendations on specific species that may be potentially affected by the C-HC Project as well as suggested mitigation measures. RUS formally submitted the Draft Biological Assessment to USFWS on November 3, 2018. USFWS submitted the draft Biological Opinion to RUS on April 22, 2019. The final Biological Opinion was issued by USFWS on July 1, 2019. USFWS revised the Biological Opinion on December 20, 2019, to focus solely on the selected alternative and updated the rusty patched bumble bee take estimates to reflect the selected alternative. The revised Biological Opinion is contained in Appendix E of this ROD.

2.10.2.2 CONSULTATION UNDER SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the NHPA requires Federal agencies to consider the effects of their actions on historic properties (including archaeological sites) that are listed on, or are considered eligible for listing on, the National Register of Historic Places (a historic property is an eligible site). In so doing, the lead agency must consult with Native American tribes, the Advisory Council on Historic Preservation, interested members of the public, and appropriate State Historic Preservation Offices (SHPOs). The ultimate goal of consultation is to identify and resolve any adverse effects of an undertaking on historic properties.

The Section 106 process is initiated with the establishment of the undertaking (36 CFR 800.3), which was done after RUS published the Notice of Intent in the Federal Register in October and November 2016. RUS is the lead Federal agency for Section 106 compliance. RUS used the NEPA process to satisfy the public involvement process for Section 106 of the NHPA (16 U.S.C. 470f), as provided for in 36 CFR 800.2(d)(3). The Section 106 process was coordinated with the NEPA process, starting with public scoping. During this period, potential consulting parties were identified and notified of the project. These parties include the tribes listed in Appendix B of the FEIS, the USACE, USFWS, Wisconsin and Iowa SHPOs, local governments, the PSCW, and the IUB.

In accordance with 36 CFR 800.4(b)(2), for projects “where alternatives under consideration consist of corridors or large land areas,” a phased approach can be followed to identify and evaluate historic properties. Further, “the agency official may also defer final identification and evaluation of historic properties if it is specifically provided for in a ... programmatic agreement executed pursuant to §800.14(b).” The Final Programmatic Agreement (PA) for the C-HC Project is included in Appendix D of this ROD.

2.10.3 *Coordination with Tribes*

RUS contacted federally recognized tribes on three different occasions during the development of the DEIS for the C-HC Project. FEIS Appendix B provides lists of the tribes contacted on each occasion as follows:

- On October 17, 2016, RUS mailed the first round of letters to 26 tribes announcing the public scoping period and public meetings held in October and November for the NEPA process.
- On November 17, 2016, RUS mailed the second round of letters to 26 tribes announcing the addition of two more public scoping meetings held in December in the proposed project area.
- On September 28, 2017, RUS mailed the third round of letters to 57 tribes initiating the Section 106 process and soliciting information about any specific historic properties or important tribal resources in the area of potential effects.
- On December 3, 2018, emails and certified letters were sent to RUS’s master list of tribes notifying tribes of the availability of the DEIS for the C-HC Project, public meetings, and the public comment period.
- On January 15, 2019, a notice of cancelled public meetings was sent out via email and certified mail to the RUS’s master list of tribes.
- On January 31, 2019, emails and certified letters were mailed to tribes, notifying them of the extension of the public comment period to April 1, 2019.
- On February 21, 2019, a final email and certified mailings were sent to tribes notifying them of the rescheduled public meetings in March 2019.

As RUS sent correspondence to tribes announcing updates in the NEPA process and coordination of the NHPA Section 106 process, RUS collected responses from tribes. Any tribe that responded to correspondence from RUS or the Utilities affirming interest in the C-HC Project was tracked in a separate mailing list for NHPA Section 106-specific mailings (Table 8).

Table 8. RUS Tribal Mailing List for NHPA Section 106

Flandreau Santee Sioux Tribe	Mille Lacs Band of Ojibwe Indians	Saginaw Chippewa Indian Tribe of Michigan	Winnebago Tribe of Nebraska
Ho-Chunk Nation	Otoe-Missouria Tribe	Shakopee Mdewakanton Sioux Community of Minnesota	Yankton Sioux Tribe
Iowa Tribe of Kansas and Nebraska	Prairie Island Indian Community	Spirit Lake Tribe	
Leech Lake Band of Ojibwe	Rosebud Sioux Tribe	Turtle Mountain Band of Chippewa Indians	
Menominee Indian Tribe of Wisconsin	Sac and Fox Tribe of the Mississippi in Iowa	Upper Sioux Community, Minnesota	

Starting in March 2019, the NHPA Section 106 mailing list (see Table 8) was used to email interested tribes of the development of a Programmatic Agreement for the C-HC Project. Tribes that responded affirming interest in developing the PA are:

- Ho-Chunk Nation
- Rosebud Sioux Tribe
- Upper Sioux Community, Minnesota

In May 2019, a notice was sent via email to the three tribes who responded in the affirmative to participating in the PA development. The notice requested review of and comment on an example PA for the C-HC Project. In September 2019, the three tribes were invited to participate in one of three

conference calls with consulting parties to provide comments for the revised PA. The Rosebud Sioux Tribe participated in the conference call held on September 19, 2019. The final PA was circulated with the tribes listed in Table 8 for signature as concurring parties on October 1, 2019. The Final PA is included in Appendix D of this ROD.

2.11 Findings Required by Other Laws

The following section identifies findings required by other Federal laws applicable to the C-HC Project. Compliance with NEPA, the Endangered Species Act, and the National Historic Preservation Act is discussed in Section 2.10 above.

2.11.1 Clean Water Act, Executive Order 11988, Executive Order 11990

Section 401 (Water Quality Certification) of the CWA requires any applicant for a Federal license or permit who proposes an activity that may result in a discharge to WUS to obtain a certification from the state in which the discharge originates. Section 404 of the CWA establishes a permit program for the discharge of dredged or fill material into WUS, including wetlands. Executive Order (EO) 11988 (May 24, 1977) directs each Federal agency to take action to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. EO 11990 (May 24, 1977) directs Federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial value of wetlands in carrying out programs that affect land use.

The C-HC Project has been designed to comply with the requirements of Section 401 and 404 of the CWA, EO 11988, and EO 11990.

2.11.2 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States, and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent or semi-permanent obstacle or obstruction.

Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408) provides that the Secretary of the Army, on the recommendation of the Chief of Engineers, may grant permission for the temporary occupation or use of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States. This permission will be granted by an appropriate real estate instrument in accordance with existing real estate regulations.

The USACE has issued permits under the Rivers and Harbors Act Sections 10 and 14 for crossing the Mississippi River (see Appendix C).

2.11.3 Clean Air Act

Since 1963, the Clean Air Act and subsequent amendments in 1970, 1977, and 1990 have provided the authority and framework for USEPA regulation of air emission sources. Regulations have been promulgated pursuant to the Clean Air Act to serve as requirements for the monitoring, control, and documentation of activities that will affect ambient concentrations of pollutants that may endanger public health or welfare.

According to the analysis presented in the FEIS Section 3.6, construction activities for the C-HC Project will result in emissions of regulated pollutants much smaller than the total projected annual emissions for counties within the C-HC Project analysis area. Additionally, pollutant emissions from construction and operation of the selected alternative are predicted to be within regulatory limits, meaning they will not exceed the National Ambient Air Quality Standards nor the Wisconsin Ambient Air Quality Standards. Iowa does not have separate ambient air quality standards.

2.11.4 Executive Order 12898 (Environmental Justice)

EO 12898 (February 16, 1994) requires agencies to advance environmental justice by pursuing fair treatment and meaningful involvement of minority and low-income populations. Fair treatment means such groups should not bear a disproportionately high share of negative environmental consequences from Federal programs, policies, decisions, or operations. Meaningful involvement means Federal officials actively promote opportunities for public participation, and Federal decisions can be materially affected by participating groups and individuals. Three environmental justice communities are estimated to experience greater adverse visual resources impacts, increased traffic volumes, and adverse property value impacts as a result of the selected alternative. All other identified environmental justice communities would experience impacts that are the same in nature and intensity as non-environmental justice communities.

2.11.5 Energy Policy Act

The Energy Policy Act of 2005 granted FERC the authority to impose mandatory reliability standards on transmission systems. To accomplish this, FERC designated North American Electric Reliability Corporation (NERC) as the Electric Reliability Organization with the authority to establish, approve, and enforce the reliability standards. NERC then delegated the authority for proposing and enforcing the reliability standards to particular regions. For the C-HC Project area, the Midwest Reliability Organization (MRO) was designated. The MRO accomplishes its monitoring and enforcement obligations by designated Reliability Coordinators. The MRO has delegated much of its transmission reliability responsibility to two Reliability Coordinators: the MISO for the United States and SaskPower for Canada. The C-HC Project falls within the regions overseen by the MRO and MISO. It is the responsibility of MRO and MISO to adhere to the reliability standards by providing a high-voltage transmission system grid in the midcontinent region of the United States.

From 2008 to 2011, in conjunction with state utility regulators and industry stakeholders including the Utilities, MISO evaluated how to build transmission facilities that would meet the significant renewable energy requirements within MISO at the lowest delivered megawatt-hour (MWh) cost. While MISO considered stakeholder comments, ultimately the MISO Board of Directors approved the final projects. In 2011, as part of the 2011 MISO Transmission Expansion Plan (MTEP), MISO adopted a portfolio of 17 multi-value projects (MVPs) to provide economic, reliability, and public policy benefits across what was then the entire MISO footprint: all or portions of 13 states and one Canadian province. MISO ultimately designated the C-HC Project as part of the MVP portfolio to be developed, identified as MVP

#5. MISO confirmed the MVP's benefits in the 2014 *MTEP14 MVP Triennial Review* (MISO 2014) and again in the 2017 *MTEP17 MVP Triennial Review* (MISO 2017).

2.11.6 Important Farmlands

The selected alternative for the C-HC Project is expected to cross approximately 644 acres of farmland that is designated by the Natural Resources Conservation Service as prime farmland and 610 acres of farmland of statewide importance. These lands constitute 17% and 16% of the lands in the C-HC Project analysis area, respectively. Impacts on prime farmland and farmland of statewide importance within the ROW include soil mixing, rutting, and soil compaction. Once construction and reclamation are complete, agricultural activities could resume within the ROW and under the transmission line. The permanent disturbance occurring from placement of transmission line structures within the C-HC Project ROW constitutes less than 1% of total land within the C-HC Project analysis area.

Impacts to important farmland will be avoided to the greatest extent possible through careful placement of transmission line structures. Due to the minor, temporary impacts to important farmland from the C-HC Project, RUS has determined the C-HC Project will not significantly impact important farmlands.

2.11.7 National Wildlife Refuge System Improvement Act of 1997

The National Wildlife Refuge System Improvement Act of 1997 was passed to ensure that the Refuge System is managed as a national system of related lands, waters, and interests for the protection and conservation of our nation's wildlife resources. The Act defines the term "compatible use" as a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.

Regulations codified in 50 CFR 25 and 50 CFR 26 provide the requirements for evaluating compatibility in the reauthorization of historic rights-of-way. The USFWS has determined the C-HC Project is a compatible use for the Upper Mississippi River National Wildlife and Fish Refuge (see Appendix A of this ROD).

2.12 RUS Loan Review

This ROD is not an approval of the expenditure of Federal funds. The ROD concludes the agency's environmental review process in accordance with NEPA and RUS's Environmental Policies and Procedures (7 CFR 1970). The ultimate decision as to loan approval depends upon the conclusion of this environmental review process plus financial and engineering analyses. Issuance of the ROD will allow these reviews to proceed.

2.13 Public Interest Review

Pursuant to 33 CFR Part 325, the USACE reviewed and evaluated in light of the overall public interest, the documents and factors concerning the Clean Water Act and Rivers and Harbors Act permit applications, as well as the stated views of other interested agencies and the concerned public. In doing so, the USACE considered the possible consequences of this work in accordance with 33 CFR Parts 320 to 331 and Part 230, and in particular, those public interest factors set forth in 33 CFR 320.4. The USACE finds the full range of practicable alternatives was identified and adequately addressed in the DEIS, FEIS, and through the regulatory review process and that issuance of a Clean Water Act Section 404 permit, as prescribed in regulations published in 33 CFR Parts 320 and 331 with the scope of work as described in

this document, is based on a thorough analysis and evaluation of the factors described above. The USACE has determined that all administrative requirements have been met and that issuance of Clean Water Act permits for this project is consistent with national policy, statutes, and administrative directives, and is not contrary to the public interest.

2.14 Right to Administrative Review

This ROD concludes the agency's environmental review process pursuant to NEPA and RUS's Environmental Policies and Procedures (7 CFR 1970). There are no provisions to appeal this decision. Legal challenges to the ROD may be filed in Federal district court under the Administrative Procedures Act.

2.15 Approval/Findings

This record of decision is effective upon the latest signature date on the next three pages.

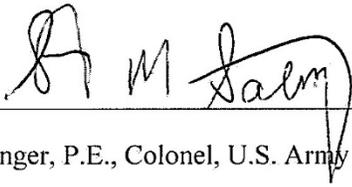
Signature: Chad Rupe Date: 01/16/2020

Chad Rupe, Administrator for Rural Utilities Service

Signature page 1 of 3.

Signature:  Date: 1/8/2020
Charles Wooley, Regional Director, U.S. Fish and Wildlife Service, Great Lakes Region

Signature page 2 of 3.

Signature:  Date: 16 January 2020

Steven M. Sattinger, P.E., Colonel, U.S. Army Commander & District Engineer

Signature page 3 of 3.

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