Application For
PSCW Certificate of Public Convenience and Necessity
and
WDNR Utility Permit

Mill Rd to Granville Rebuild Project

PSCW Docket No. 137-CE-212

October 2024

ATC
Energizing Your Future

SECTION **PAGE**

AFUDC	Allowance of Funds Used During Construction
AFR	Application Filing Requirements
AIN	Agricultural Impact Notification
AIS	Agricultural Impact Statement
APE	Areas of Potential Effect
ASNRI	Areas of Special Natural Resource Interest
ASR	Antenna Structure Registrations
ATC	American Transmission LLC and ATC Management Inc.
Applicant	American Transmission LLC and ATC Management Inc.
BESS	Battery Energy Storage System
BMP	Best Management Practices
BNHC	Bureau of Natural Heritage Conservation
BRP	Baseline Reliability Project
BRRTS	Bureau for Remediation and Redevelopment
CAFE	Corona and Field Effects
CPCN	Certificate of Public Convenience and Necessity
Commission	Public Service Commission of Wisconsin
DATCP	Department of Agriculture, Trade and Consumer Protection
DPP	Definitive Planning Phase
CWIP	Construction Work in Progress
EITMZ	Electronics and Information Technology Zone
EMF	Electromagnetic Field
ER	Endangered Resources
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FCL	Forest Crop Law
GIS	Geographic Information Systems
I	Interstate Highway
kV	Kilovolt
LDC	Local Distribution Companies
MFL	Managed Forest Land
MISO	Midcontinent Independent System Operator, Inc.

MSL	Mean Sea Level
MTEP	MISO Transmission Expansion Plan
NAIP	National Agriculture Imagery Program
NERC	North American Reliability Corporation
NHI	Wisconsin Natural Heritage Inventory
NRHP	National Register of Historic Places
OHWM	Ordinary High-Water Mark
PAD-US	Protected Areas Database
PAG	Paging Base Station
PSCW	Public Service Commission of Wisconsin
PSD	Project Scoping Document
PSSE	Power System Simulator for Engineering
Project	Mill Rd to Granville Rebuild Project
ROW	Right-of-way
RTD	Request to Disturb a Human Burial Site
SHPO	State Historical Preservation Officer
STH	State Highway
TARA	Transmission Adequacy and Reliability Assessment
TCSB	Temporary Clear Span Bridge
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WDNR	Wisconsin Department of Natural Resources
WEPCO	Wisconsin Electric Power Company
WHPD	Wisconsin Historic Preservation Database
WHS	Wisconsin Historical Society
WPDES	Wisconsin Pollution Discharge Elimination System
WRAM	Wisconsin Rapid Assessment Methodology
WisDOT	Wisconsin Department of Transportation

APPLICATION FOR PSCW CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AND WDNR UTILITY PERMIT[1]

1.0 PROJECT OVERVIEW

Description

The Mill Rd to Granville Rebuild Project (Project) involves the following primary scope elements:

- Construct a new greenfield Mill Rd Substation with a 345 Kilovolt (kV) six position ring bus, a 138 kV five position ring bus, and a 345 kV/138 kV autotransformer
- Rebuild the existing double-circuit 345 kV (9911)/138 kV (3444/and a portion of 36341) transmission lines as double-circuit 345 kV (W-42/W-43) transmission lines from the Mill Rd to Granville Substation (7.5 miles)
- Construct a new 138 kV transmission line (X-196) from the Mill Rd Substation to the Tamarack Substation (1.5 miles)
- Construct a new 138 kV transmission line (X-197) from the Tamarack Substation to the Butler Substation (5 miles)
- Modifications to the Granville, Butler, and Tamarack Substations
- Modifications to existing 345 kV transmission lines: 9911 and L-CYP31
- Modifications to existing 138 kV transmission lines: 2661, 36341, 3443, 3453, 5051 and 5061.

Need

The existing transmission facilities in the western Milwaukee area have unique characteristics that contribute to limitations on the surrounding transmission system, which has been a historical focus area that ATC has monitored for many years. As described in more detail in **Section 2** and in the Project Scoping Document (PSD) located in **Appendix D, Exhibit 1**, the Project in this area has three primary need drivers: the Project is needed to meet North American Reliability Corporation (NERC) TPL Reliability Standards, the Project is needed to support various generator interconnections, and the Project is needed to respond to load interconnections.

[1] This Application was prepared in accordance with the PSCW and WDNR *Application Filing Requirements Transmission Line Projects*, Version July 2024, and the *Application Filing Requirements for Substation Projects*, Version 2024 (collectively referred to as the Application Filing Requirements).

Cost

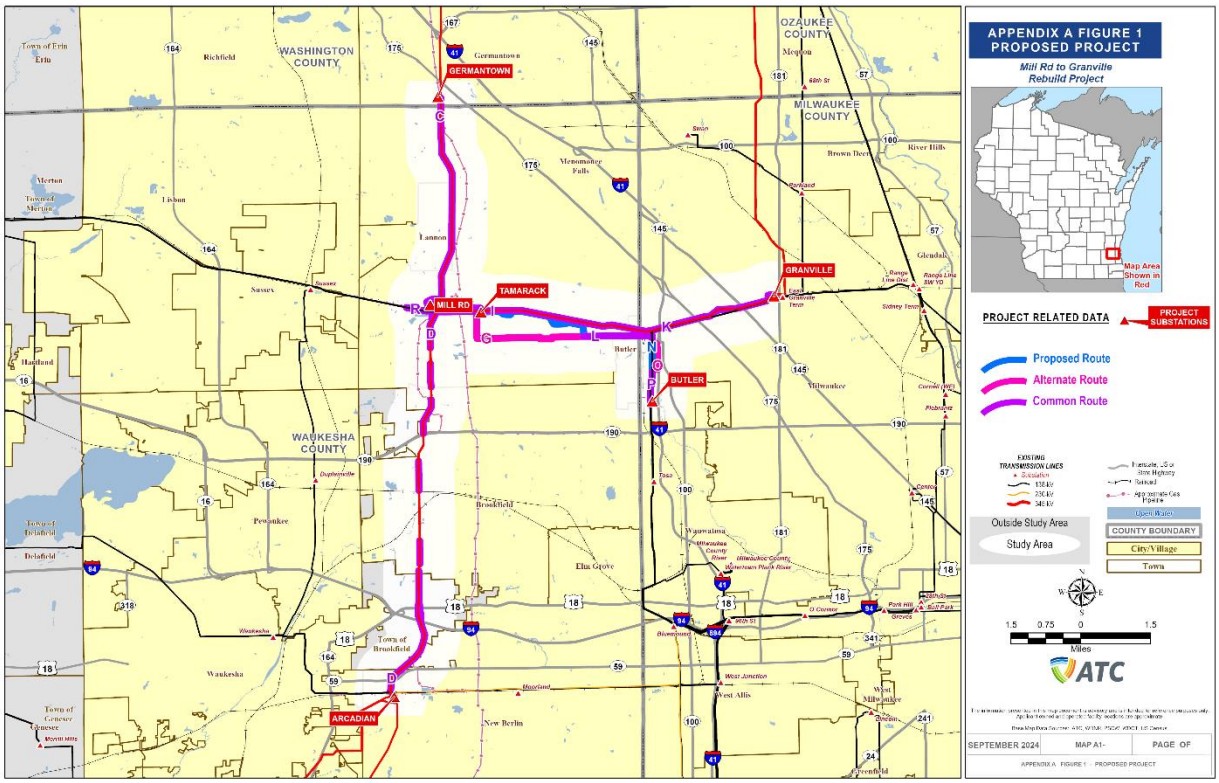
ATC estimates that the Project will cost $423,676,000 for the Proposed Route and $448,753,000 for the Alternate Route.

Schedule

The target Project in-service date is October 1, 2027. Project construction is scheduled to begin in February of 2026 and is expected to be substantially complete by December of 2027. Restoration and herbicide application activities will extend through the end of the 2028 growing season.

Route and Location

The below map shows the Proposed, Alternate, and Common routes.



1.1 Owners and Investors

American Transmission Company LLC and ATC Management Inc., its corporate manager, (collectively, ATC or Applicant(s)), W234 N2000 Ridgeview Parkway Court, Waukesha, Wisconsin 53188, propose to construct the Mill Rd to Granville Rebuild Project, which will be 100% owned by ATC.

1.2 Contractual Agreements

ATC has not entered into any contractual agreements related to this Project with any developer to construct, finance, lease, use, or own transmission facilities.

1.3 Project Location and Endpoints

This Project involves building a new Mill Rd Substation in the village of Menomonee Falls. The proposed substation will be located just south of Mill Road approximately 0.5 miles east of Lannon Road.

The Project also includes the following transmission line scope:

- Rebuilding approximately 7.5 miles of the existing 345 kV/138 kV lines as double-circuit 345 kV lines (W-42/W-43) between the Mill Rd Substation in the village of Menomonee Falls and the Granville Substation in the city of Milwaukee.
- Constructing approximately 1.5 miles of new 138 kV circuit (X-196) between the Mill Rd Substation and the Tamarack Substation in the village of Menomonee Falls.
- Constructing approximately 5.9 miles of new 138 kV circuit (X-197) between the Tamarack Substation in the village of Menomonee Falls and the Butler Substation in the city of Wauwatosa depending on the route chosen. Both proposed routes for this circuit will also be partially located in the city of Milwaukee. The Alternate Route for this circuit would also be partially located in the village of Butler. The length of the Proposed Route is approximately 5.7 miles, and the length of the Alternate Route is approximately 5.9 miles.
- Reconductoring approximately 4.5 miles of the existing the 138 kV circuit (2661) between the Mill Rd Substation in the village of Menomonee Falls and the Germantown Substation in the village of Germantown. This construction will also be partially located in the village of Lannon.
- Uprating approximately 8.5 miles of the 345 kV circuits (9911/L-CYP31) between the Arcadian Substation in the city of New Berlin and the Mill Rd Substation in the village of Menomonee Falls. There will also be some uprates on select spans in the town of Brookfield and city of Brookfield.
- Modifying the existing 138 kV circuit (36341) located between the Sussex Substation in the village of Sussex and the Tamarack Substation in the village of Menomonee Falls. The 138 kV circuit will be looped into the new Mill Rd Substation, and approximately one mile of the existing 138 kV circuit east of Mill Rd Substation will be removed. No additional modifications will be made to the circuit between Sussex and Mill Rd.
- Modifying the existing 138 kV circuit (3443) located between the Tosa Substation in the city of Wauwatosa and the Granville Substation in the city of Milwaukee. The circuit will be sectionalized and looped into the modified Butler Substation. The resulting 138 kV

circuit from the Tosa Substation to the Butler Substation will be renamed Line X-198, and the resulting 138 kV circuit from the Butler Substation to the Granville Substation will remain Line 3443 for both the Proposed and Alternate Routes. Line 3443 would take the location of existing Line 3453 in Segment N for the Alternate Route. There is no change to Line 3443 in Segment N for the Proposed Route. No additional modifications will be made to these circuits between Tosa and Butler or between Butler and Granville.

- Modifying the existing 138 kV circuit (3453) located between the Butler Substation in the city of Wauwatosa and the Granville Substation in the city of Milwaukee. The 138 kV circuit will be modified outside the Butler Substation to accommodate the new substation configuration for both the Proposed and Alternate Routes. Line 3453 will be relocated to the greenfield corridor, Segment O, for the Alternate Route. There is no change to Line 3453 in Segment N for the Proposed Route. No additional modifications will be made to this circuit between Butler and Granville.
- Modifying the existing 138 kV circuit (5051) located between the Bluemound Substation in the city of West Allis and the Butler Substation in the city of Wauwatosa. The 138 kV circuit will be modified outside the Butler Substation to accommodate the new substation configuration for both the Proposed and Alternate Routes. No additional modifications will be made to this circuit between the Bluemound and Butler Substations.
- Modifying the existing 138 kV circuit (5061) located between the Tosa Substation and the Butler Substation in the city of Wauwatosa. The 138 kV circuit will be modified outside the Butler Substation to accommodate the new substation configuration for both the Proposed and Alternate Routes. No additional modifications will be made to this circuit between Tosa and Butler.

1.4 Impacted Cities, Villages, and Townships

The Project will impact the below counties and their respective municipalities:

County	Municipality
Milwaukee	City of Milwaukee City of Wauwatosa
Waukesha	City of Brookfield City of New Berlin Village of Butler Village of Menomonee Falls Village of Lannon Town of Brookfield
Washington	Village of Germantown

1.5 PSCW and WDNR Review

1.5.1 Type of Application

Pursuant to the requirements of Wis. Stat. §§ 1.11, 1.12, 196.025, 196.49 and 196.491, and Wis. Admin. Code chs. PSC 4, 111 and 112, ATC hereby applies (Application) to the Public Service Commission of Wisconsin (PSCW or Commission) for a Certificate of Public Convenience and Necessity (CPCN) together with any other authorization needed to construct the proposed Project as set forth in further detail below. Through this Application and pursuant to Wis. Stats. ch. 283 and §§ 30.025(1s), 30.19, 30.123 and 281.36; and Wis. Admin. Code chs. NR 103, 216, 299, and 320, ATC hereby applies to the Wisconsin Department of Natural Resources (WDNR) for a Utility Permit. The WDNR permits and authorizations necessary to construct the Project are listed in **Section 8** of this Application.

Through this filing, ATC confirms its understanding that via the pre-application process provided for in Wis. Stat. § 30.025(1m), the WDNR, the PSCW, and ATC have conferred and made a preliminary assessment of the Project's scope and alternatives and have identified potentially interested persons. ATC is also aware, in accordance with Wis. Stat. §§ 30.025(1m)(b) & (c), of the information that it is required to provide and the required timing for the information submissions.

1.5.2 Type of Commission Action

The Project is categorized as a Type II action pursuant to Wis. Admin. Code § PSC 4.10(2) and Table 2, subsections (f), (fm) and (h). Information necessary for the initial preparation of an Environmental Assessment is provided as part of this Application.

1.5.3 Certificate of Public Convenience and Necessity (CPCN) Exemption

This Project does not qualify for a CPCN exemption under Wis. Stat. § 196.491(4)(c).

1.5.4 Expedited Review

ATC is not seeking expedited review of this Project.

1.6 Project Details and Project Area Information

1.6.1 Identify if the proposed Project is new construction, rebuilding of an existing line, maintenance of an existing line, etc.

The Project proposes the construction of a new Mill Rd Substation. The existing Tamarack and Butler Substations will be modified, and the yards at these substations will be expanded as part of the Project.

The existing Granville Substation will be modified within the existing substation footprint that will be expanded as part of a separate project at the Granville Substation during 2024 and 2025. Minor remote end substation work is also proposed at existing substations (Germantown, Cypress, Bark River, Sussex, Arcadian, Tosa, Bluemound) to support the Project.

The Project will rebuild an existing double-circuit 345 kV/138 kV line as double-circuit 345 kV lines (W-42/W-43) between the Mill Rd Substation and the Granville Substation.

The Project will construct a new 138 kV circuit (X-196) between the Mill Rd Substation and the Tamarack Substation.

The Project will construct a new 138 kV circuit (X-197) between the Tamarack Substation and the Butler Substation.

The Project will reconductor the 138 kV circuit (2661) between the Mill Rd Substation and the Germantown Substation.

The Project will uprate the 345 kV circuits (9911/L-CYP31) between the Arcadian Substation and the Mill Rd Substation.

Existing 138 kV circuits (36341, 2661) and 345 kV circuits (9911, L-CYP31) will be sectionalized and modified to loop into the new Mill Rd Substation. Existing 138 kV circuits (3443, 3453, 5051, 5061) will be modified outside the Butler Substation to accommodate the new substation configuration.

1.6.2 For new or expanded above-ground facilities, such as substations, provide the following:

For all subsections under **Section 1.6.2**, note that the footprint of the Granville Substation will not be expanded.

1.6.2.1. Identify the type of new or expanded facility.

The lists below identify the new or expanded facilities:

Mill Rd Substation

- Construct a new greenfield 345 kV six position ring bus with future plans for an ultimate five rung breaker and a half configuration.
- Install 345 kV circuit breakers with motor operated line disconnect switches and manual bus side disconnect switches.
- Install a new 500 MVA 345/138 kV autotransformer with space in the station allotted for a future second transformer at ultimate build out. Install a new 24-foot x 84-foot control building.
- Construct a new 138 kV five position ring bus with future plans for an ultimate four rung breaker and a half configuration.
- Install 138 kV circuit breakers with motor operated line disconnect switches and manual bus side disconnect switches.
- Install a 138 kV 10 ohm series reactor on Line 36341.

Butler Substation

- Reconfigure the Butler bus to install a 10 ohm series reactor between Bus 1 and Bus 2.

- Line 5051 termination to Bluemound Substation will be repositioned to Butler Bus 2.
- Line 5061 termination to Bluemound Substation will be repositioned to Butler Bus 3.
- Line 3443 that went from Granville to Tosa will be sectionalized and go into Butler Bus 1.
- New Line X-198 to Tosa (previously part of Line 3443 from Granville to Tosa) will be terminated at Butler Bus 2.
- New Line X-197 will terminate at Butler Bus 1 at one end and will proceed to terminate at Tamarack Substation at the other end.
- All line positions will have new dead-end structures, new bus and line side disconnect switches and new 138 kV breakers.

Tamarack Substation

- Retire the existing 138 kV line terminal for Line 3444 to the Granville Substation.
- Retain existing Line 3444 A-frame terminal and high bus disconnect switch stand for future line expansion.
- Reuse and relocate existing Line 3444 138 kV GCB 9250, associated line and bus disconnect switches, and surge arresters to a new east facing H-frame terminal, to accommodate the new 138 kV circuit (X-197) to the Butler Substation.
- Replace the entire bus section 5 and expand the substation footprint 25 feet to the east in the northeast portion of the yard to accommodate the new 138 kV circuit (X-197) to the Butler Substation.

1.6.2.2. The location of the new or expanded facility.

Mill Rd Substation

The Mill Rd Substation will be a new substation located on the south side of Mill Road approximately 0.5 miles east of Lannon Road in the village of Menomonee Falls, Waukesha County, WI. The parcel is owned by ATC and is currently vacant.

Butler Substation

The Butler Substation is located at 4565 North 119th Street in the city of Wauwatosa, Milwaukee County, WI. The existing substation yard will be expanded to the west on property owned by Wisconsin Electric Power Company (WEPCO).

Tamarack Substation

The Tamarack Substation is located at W180 N6100 Marcy Road in the village of Menomonee Falls, Waukesha County, WI. The existing substation yard will be expanded to the east on property owned by WEPCO.

1.6.2.3. The size and dimensions of the new facility or expansion of the existing facility, including any new or expanded driveways.

Mill Rd Substation

The new Mill Rd Substation secure yard will be approximately 653 feet by 878 feet, or approximately 12.3 acres.

The substation access driveway will be from Lannon Road, approximately 350 feet north of the Union Pacific Railroad crossing. The driveway will require acquisition of the adjacent, approximately 22-acre parcel between Lannon Road and the ATC-owned substation parcel. Uplands on that parcel may provide a use for excess soil cut from the substation site.

Butler Substation

The northerly approximately 370 feet of the existing Butler Substation yard will be expanded 85 feet to the west, and the expanded width will transition back to the existing fence over approximately 80 feet ending approximately 130 feet north of the southwest fence corner. The north substation driveway from Harley Davidson Avenue will remain in the same location but will be shortened by 85 feet due to the yard expansion. The south substation driveway from Harley Davidson Avenue will be unchanged since there is no yard expansion on the south end of the substation. Total estimated expansion for the Butler Substation is approximately 0.88 acres.

Tamarack Substation

A portion of the east perimeter of the existing Tamarack Substation yard will be expanded 25 feet to the east. The remainder of the existing perimeter fence will remain in place. The substation driveway from Marcy Road will not be affected.

1.6.2.4. Total size of the parcel the new or expanded facility would be placed, and the orientation of the facility within the parcel.

Mill Rd Substation

The total substation parcel is approximately 70 acres of ATC-owned property with the secure yard located in the southern portion of that acreage. The orientation of the yard will be such that the approximately 878-foot dimension of the secure yard will run west to east, and the approximately 653-foot dimension of the secure yard will run north to south. The entire approximately 22-acre adjacent parcel to the west will be acquired to build out the driveway; the new driveway will run west to east from Lannon Rd to the secure yard.

Butler Substation

The total parcel (ID 219-9998-000) size is approximately 1.23 acres of existing utility-owned property with an existing substation located in the parcel's center. The proposed substation is orientated where the fence runs approximately 576 feet from north to south on the east side, 350 feet from west to east on the north side and 263 feet from west to east on the south side. The fence on the west side will start to angle inwards at approximately 367 feet south of the northwest fence corner for a length of 85 feet south and 85 feet east. At this point, the new fence will reconnect with the old fence all the way to the southwest corner fence post.

Tamarack Substation

The total parcel (ID MNFV0109994001) size is approximately 12.74 acres of existing utility-owned property with an existing substation just west of the parcel's center. The proposed substation will be orientated where the fence runs approximately 180 feet from north to south, 185 feet from west to east on the north side and 160 feet from west to east on the south side. The fence on the east side will start to angle inwards at 103 feet south of the northeast fence corner for a length of 25 feet south and 25 feet west. At this point, the new fence will reconnect with the old fence all the way to the southeast corner fence post.

1.6.2.5. State if the applicant owns the parcel or is in negotiations for purchase of the parcel.

Mill Rd Substation

ATC owns the Mill Rd Substation.

ATC seeks to purchase approximately 22 total acres between Lannon Road and the substation parcel. **See Section 5** for additional information.

Butler Substation

WEPCO owns the Butler Substation, and ATC has a perpetual easement.

Tamarack Substation

WEPCO owns the Tamarack Substation, and ATC has a perpetual easement.

1.6.2.6. The current land use and zoning of the parcel.

Mill Rd Substation

The site is currently used for hunting and farming and is zoned Low Density/Residential.

Butler Substation

The site is used as a substation and is zoned Light Industrial (M1).

Tamarack Substation

The site is used as a substation and is zoned Governmental and Industrial.

1.6.2.7. Construction procedures to build or expand the facility.

Please refer to **Sections 5.5, 5.6, 5.7,** and **5.8**.

1.6.2.8. Describe associated permanent storm water management features that would be constructed, or expansion of or modification to existing storm water treatment facilities. Identify the locations of the point(s) of collection and discharge.

Mill Rd Substation

Preliminary plans for the Mill Rd Substation site anticipate that the substation pad will drain from the northwest to the southeast at a 1.25% slope and includes an approximately 64-foot-wide slope transition at 5.00%. Stormwater runoff will be routed to a proposed wet detention pond and infiltration basin on the east side of the site, covering approximately 4.0 acres.

Butler Substation

The preliminary plan for the Butler Substation is to maintain the existing stormwater detention requirements by the city of Wauwatosa. There is no additional Total Suspended Solids stormwater management required due to lack of new roadways. The new expansion will follow the current yard grading and drain to the east.

Tamarack Substation

The preliminary plan for the Tamarack Substation is to maintain the existing stormwater detention requirements by the village of Menomonee Falls. The proposed site expansion is not anticipated to disturb more than one acre of land or involve a net increase of impervious surface by 5,000 square feet or greater. Existing retention and discharge to wetland areas will not be altered with the expansion of this substation.

1.6.3 Generalized Geology, Topography, Land Cover and Land Use

Generalized Geology

Glaciation has determined the region's physiography, topography, and soils and is similar for the Proposed and Alternate Routes. Based on the U.S. Environmental Protection Agency's ecoregion classification system, the Project area is located entirely within the Southeastern Wisconsin Till Plains (53) Level III ecoregion and Kettle Moraines (53b) Level IV ecoregion. The Kettle Moraines (53b) ecoregion contains clayey soils in the east and sandy soils to the west

due to historical glaciation. There is an extensive amount of ground and end moraines and pitted outwash with belts of hilly moraines.

The Proposed and Alternate Routes predominantly overlap the Southern Lake Michigan Coastal ecological landscape, which is comprised of a Silurian dolomite parent material topped with glacial drift deposits approximately 50 to 100 feet in depth (*Chapter 19: Southern Lake Michigan Coastal Ecological Landscape at a Glance,* Physical and Biotic Environment, Bedrock, *Wisconsin Department of Natural Resources.* Accessed 29 July 2024). Segments A, B, C, D, and the Mill Rd Substation, which are all shared between both the Proposed and Alternate Routes, fall within the Southeast Glacial Plains landscape. This area is underlain by limestone and dolomite with some sandstone and shale and topped with glacial drift deposits greater than 50 feet in depth (*Chapter 18: Southeast Glacial Plains Ecological Landscape at a Glance,* Physical and Biotic Environment, Bedrock Geology, *WDNR*, https://widnr.widen.net/s/gdzljf7flj. Accessed 29 July 2024).

Topography

The topography for the Proposed and Alternate Routes is subdued, with little relief visible at most locations. Landforms are primarily level to gently rolling ground moraines. (*Chapter 19: Southern Lake Michigan Coastal Ecological Landscape at a Glance,* Physical and Biotic Environment, Bedrock, *Wisconsin Department of Natural Resources.* Accessed 29 July 2024). Topography around Segments A, B, C, D, and the Mill Rd Substation is more variable with undulating and rolling hills present. Approximately 260 feet of elevation change occurs across the Project area, with the highest elevations nearing 960 feet Mean Sea Level (MSL) within the Mill Rd Substation portion of the Project area and dropping down to just below 700 feet MSL at the central sections by the Little Menomonee River Parkway and Menomonee Parkway.

Topographical features have been assessed using aerial photography, as available through Google Earth 2018, United States Department of Agriculture Natural Resources Conservation Service digital elevation model datasets, and the United States Geological Survey 7.5-minute topographical map (**Appendix A, Figure 3**).

Land Cover

Land cover is similar for both the Proposed and Alternate Routes and consists primarily of urban areas with low to high intensity development. According to the 2022 US National Land Cover Database, other land cover types within the Project area include cultivated crops, emergent herbaceous wetlands, wooded wetlands, and deciduous forest. Increased environmental sensitivities are primarily found along forested areas and waterway crossings within the Project area where development is less extensive.

Land Use

The primary land uses within the Project area consist of urban land and agricultural production. The urban settings consist of residential, light and heavy industrial, and commercially zoned areas. Agricultural practices consist of non-specialty row crops; generally, hay, corn, and

soybean production. Pastureland and fallow fields are also present along the proposed routes. A small portion of the Project area crosses recreational areas, mostly in Segment D, which is shared by both the Proposed and Alternate Routes. The Proposed and Alternate Routes have been designed to follow existing utility and transportation corridors including ATC-owned transmission lines, a gas pipeline, county highways, and local roadways, where possible.

The proposed Mill Rd Substation parcel is zoned as R-1 Single Family Residential. The existing Butler Substation is proposed to be expanded and its parcel is zoned as M-1 Light Industrial. The existing Tamarack Substation is proposed to be expanded and its parcel is zoned as CW-1 Conservancy Wetlands and CV-2 Civic Institutional.

1.6.4 Special or Unique Natural or Cultural Resources

Special or Unique Natural Features were reviewed using desktop resources for the potential to occur along the proposed routes. Based on these reviews, the Project area intersects multiple wetland and waterway areas (discussed further in **Sections 6.0** and **8.0**) and intersects or is located near the following special or unique areas. Cultural resources are discussed further in **Section 6.4**:

<u>Common Route</u>

- Approximately 2.44 acres of an unnamed Wetland Mitigation Site is intersected by Segment D north of Bluemound Road with one structure planned for replacement
- Mitchell Park, which is also part of the Wetland Mitigation Program, is intersected by Segment D
- The southwest corner of Soccer Park is intersected by Segment D
- Marx Park is within 300 feet of Segment D
- The New Berlin Recreation Trail is outside of the Project area, but intersected by the right-of-way (ROW) in Segment D
- The Little Menomonee Parkway is intersected by Segment K with four structures planned for construction
- A calcareous fen wetland type is field identified and intersects Segment B

<u>Proposed Route</u>

- The Little Menomonee Parkway is intersected by Segment N with eight structures planned for construction

<u>Alternate Route</u>

- Willowood Park is within 300 feet of Segment G
- The Little Menomonee Parkway is intersected by Segment O with three structures planned for construction

No state or federally managed properties (for the purpose of protecting natural resources), unique landforms, migratory animal concentrations sites, outstanding or exceptional water

resources, or scenic roads/highways were identified as being present along the Proposed or Alternate Routes.

1.6.5 Areas of Residential Concentrations and Urban Centers

All the proposed construction activity will occur within well-developed urban centers in Milwaukee County and less densely developed suburban areas of Waukesha County and Washington County. A list of the municipalities crossed by the Project is included in **Section 1.4** above.

Between the new Mill Rd Substation, Tamarack Substation, and Granville Substation adjacent to ATC's existing double-circuit ROW, Project construction will occur near the following areas of residential concentrations:

- In the village of Menomonee Falls, north of residences on Lost Pond Court and Jackson Drive and north of residences on Thurston Avenue east of Lily Road.
- In the city of Milwaukee, south of multifamily buildings east of N. 9th Street on W. Menomonee Park Court and south of residences on W. Langlade Street and N. 95th Street.

The Proposed and Alternate Routes of the new 138 kV circuit between Tamarack Substation and Butler Substation (X-197) will cross near areas of residential concentrations, specifically:

- The Proposed and Alternate Routes cross areas of residential concentrations in the city of Wauwatosa to the west of residences on N. 118th Street just north of the Butler Substation.
- The Alternate Route will cross near areas of residential concentrations in the city of Menomonee Falls west of residences on Marcy Road between the Tamarack Substation and Silver Spring Drive/CTH VV and near residences on Silver Spring Drive/CTH VV between Davian Drive and Enterprise Avenue.

The proposed reconductor of the 138 kV circuit (2661) between the new Mill Rd Substation and the Germantown Substation will cross near areas of residential concentrations just south of County Line Road/CTH Q in the village of Menomonee Falls. Specifically, near duplex residences west of the Line 2661 on Sandhill Crane Drive and residences east of the Line 2661 on Cindy Drive.

1.6.6 Transmission Configuration

The proposed Project will construct double-circuit 345 kV/345 kV steel structures, single-circuit 345 kV steel structures, double-circuit 138 kV/138 kV steel structures, and single-circuit 138 kV steel structures. All structures will be self-supporting galvanized on concrete drilled pier foundations. The current structures range in height between 75 feet and 181 feet depending on voltage and location. The new structures are anticipated to range in height between 70 feet and 165 feet depending on voltage and location, which will be determined during detailed design. Detailed design will be completed after the Commission's decision on the proposed

Project. The range of span lengths are provided under **Section 5.3**, in **Table 5.3.3-1**. The assumed expected life of the facilities is approximately 80 to 100 years.

1.6.7 Proposed Project ROW

Existing easements will be used for locations that are routed along existing corridors. Additional easements will be required in some of these existing corridors. The lengths of the proposed Project ROW are provided in **Section 1.3** of this Application. Below is a table with the proposed ROWs. Information regarding existing ROWs, for example new ROW, partially overlapping existing transmission ROW, completely within existing ROW is provided in **Appendix B, Tables 1 and 7**.

ROW TABLE		
Circuit	**Span Range**	**Proposed ROW (Feet)**
W-42/W-43	10412 TO 10417	180
	10416 TO 10417	180
	10417 TO 10423	170
	10423 TO 10426	180
	10423 TO 10434	180
	10434 TO 10439	210
	10440 TO 10439	180
	10440 TO MILL RD	150
9911/W-41	9101-9107	180
	9108-9110	
	9113-9117	
	9131-9133	
	9139-9141	
	9144-9146	
	9154-9154C	
L-CYP31/2661	9158-9159	185
	9159-9161	
	9162-9164	
	9171-9176	
	9179-9182	
X-197	1 TO 14	100
	14 TO 63	100
	55 TO 42	100

	1 TO 7 & 4278 TO 4283	100
BUTLER SUBSTATION	4277 TO 4278C/D	100
X-197/X-198	7 TO 14 & 4283 TO 4289	100
	4283 TO 4289	100
X-196	36341A TO 36341I	100

1.7 Other Agency Correspondence, Permits and Approvals

1.7.1 Agency Correspondence

Copies of ATC correspondence with all government agencies concerning the Project are included in **Appendix H**.

1.7.2 State and Federal Permits/Approvals Required

All state and federal permits and approvals required for this Project and their status are listed below.

Federal			
Agency	**Activity**	**Permit**	**Status**
United States Army Corps of Engineers (USACE)	Wetland Impacts	Section 404 of the Clean Water Act	ATC will submit permit application upon receipt of a PSCW order, assumed in December 2025. Permit approval expected in March 2026.
USACE	Archaeological Review	Section 106 National Historic Preservation Act	USACE will initiate consultation upon receipt of ATC's permit application.
USACE	Waterway crossing	Section 10 of the Rivers and Harbors Act	Not applicable, this Project does not contain a Section 10 waterway crossings.
Federal Aviation Administration (FAA)	Erection of tall structures near airports/heliports	FAA 7460 (Notification)	See **Section 7.8**.

Federal			
Agency	**Activity**	**Permit**	**Status**
United States Fish and Wildlife Service (USFWS)	Protected species coordination	Incidental Take Authorization-Section 10 of the Endangered Species Act; Migratory Bird Treaty Act; Bald and Golden Eagle Act	USACE will initiate consultation upon receipt of ATC's permit application.

State			
Agency	**Activity**	**Permit**	**Status**
Department of Agriculture, Trade and Consumer Protection (DATCP)	Potential use of eminent domain on more than 5 acres of any farm	Agricultural Impact Notification (AIN)/Agricultural Impact statement (AIS)	An AIN has been submitted to DATCP concurrent with this Application. Please see **Appendix H, Exhibit 1**.
Wisconsin Department of Transportation (WisDOT)	Utility Crossing/Longitudinal Occupancy (roads)	Utility Permit DT 1553	ATC will apply for necessary permits after a route is ordered.
WisDOT	Driveway Construction	DT1504 – Connection to State Trunk Highway	ATC will apply for necessary permits after a route is ordered.
WisDOT	Oversize Loads or Excessive Weights	Wis. Stat. ch. 348 Vehicles – Size, Weight and Load; Wis. Stat. § 348.25-Vehicle Weight and/or Load Permit	ATC will apply for the necessary permits after a route is ordered.
WisDOT	Utility Crossing/Longitudinal Occupancy	Utility Permit DT 2036	Does not apply.

State			
Agency	**Activity**	**Permit**	**Status**
	(Wisconsin Southern Railroad)		
Wisconsin Historical Society (WHS); State Historical Preservation Officer (SHPO)	Archeological Review of impacts to previously documented cultural resources	Approval of Archaeological Surveys (Wis. Stat. § 44.40 and Section 106 of National Historic Preservation Act)	Pending. The redacted Cultural Resources Literature Review and Architectural History Review is provided as **Appendix F, Exhibits 5 and 6.**
WDNR	Wetland and Waterway impacts	Utility Permit	Pending. See **Section 8.0** and **Appendix F**. ATC is submitting an Individual Utility Permit application concurrent with this CPCN Application. Permit approval expected in January 2026.
WDNR	Soil disturbance	Stormwater/Erosion Control – NR 216	ATC will submit permit application upon receipt of a PSCW order, assumed in December 2025. Permit approval expected in January 2026.
WDNR	Protected Species coordination	Incidental Take Authorization/Permit	The certified Endangered Resources (ER) Review was approved by WDNR on 10/15/24. The ER Verification Form for potential laydown

State			
Agency	**Activity**	**Permit**	**Status**
			yards was approved on 9/10/24. Incidental Take Authorization or Permitting, if necessary, will be applied for before or upon receipt of a PSCW order, assumed in December 2025.
WDNR	Dewatering	WPDES general permit (WI-0049344-4)	Dewatering is assumed to be covered under NR 216 permit, as described above.
WDNR	Stormwater Pond w/in 500 feet of waterway	Ponds – Stormwater, Wildlife, Landscape - General Permit	ATC is submitting an Individual Utility Permit application concurrent with this CPCN Application. Permit approval expected in January 2026.

1.7.3 Local Permits

In addition to the approvals and permits issued by state agencies, the necessity of seeking local approvals for this utility construction Project is governed by Wis. Stat. § 196.491(3)(i). Upon issuance of a CPCN, local ordinances that could preclude or inhibit the Project are preempted by Wis. Stat. § 196.491(3)(i). However, ATC applies for those permits and other authorizations governed by local ordinances (county, town, village or city) that involve matters of public safety. Because the ordinances of the local units of government vary, each construction project may involve different local permits or authorizations. The public-safety-related permits or authorizations that ATC applies for generally include road crossing permits, road weight limits, noise abatement ordinances (usually involving hours or times of construction), building permits (for construction such as control houses), and other similar public safety concerns for which permits or authorizations may be required by local ordinance.

Local ordinances also often address siting and location issues for the construction of utility facilities or land use issues including recreational uses and aesthetics. These types of authorizations would require conditional use permits, zoning permits or variances, which often involve quasi-judicial proceedings and the exercise of discretion on the part of the local unit of government on whether the authorization or permit may be granted. Because the Commission's statutory obligation is to address the siting of proposed utility facilities, and to address land use, recreational use and aesthetics in the siting and route selection for transmission lines, ATC does not apply for these types of permits or authorizations. However, ATC works with all local units of government to ensure that the representatives of those units of government affected by ATC's proposed construction projects are informed concerning ATC's proposed construction activities and requests that the local unit of government provide the PSCW and ATC with its comments or concerns regarding the siting and location of the proposed Project.

The following local permits and ordinances would apply[2] to the proposed Project absent the provisions of Wis. Stat. § 196.491(3)(i):

Waukesha County
- Storm Water Management & Erosion Control Permit
- Floodplain Development Permit
- Driveway Permit

Washington County
- Floodplain/Shoreland Zoning Permit
- Erosion Control & Stormwater Management Permit

City of Brookfield
- Erosion Control Permit

Town of Brookfield
- Grading & Erosion Control Permit

Village of Germantown
- Erosion Control Permit

Village of Menomonee Falls
- Stormwater/Erosion Control Permit
- Zoning Permit, Building Permit, Possibly Electrical Permit for new substation and control house.

City of Milwaukee
- Erosion Control Permit
- Special Use Permit (wetland/shoreland zones)

City of New Berlin
- Grading and Erosion Control Permit
- Administrative Use Permit

[2] ATC accepted evaluations of local zoning representatives and did not seek to reconcile any differences between those evaluations and the local zoning ordinance.

City of Wauwatosa
Floodplain Development Permit

1.7.4 Railroad

The below table provides information on the number of railroad crossings or instances where the proposed project would parallel a railroad and the corresponding company ownership.

Segment	Cross #, Company	Parallel #
A	NA	NA
C	NA	NA
D	1=Union Pacific 1=Canadian Pacific Kansas City 1= Union Pacific	NA
E	1= Union Pacific	NA
F	NA	1= Union Pacific
G	NA	NA
I	1= Union Pacific	1= Union Pacific
J	NA	NA
K	NA	1= Union Pacific
L	1= Union Pacific	NA
M	NA	NA
N	NA	NA
O	NA	NA
P	NA	NA
Q	NA	NA
R	1= Union Pacific	1= Union Pacific

In ATC's previous project experiences, the railroad company approvals cannot be obtained prior to submittal of complete engineering and design plans. After the Commission's selection of a route, ATC will follow standard permit application procedures for utility crossings and installations in railroad ROW. Where the transmission line parallels a railroad, ATC will work with the railroad companies to determine if installation of the new line will create objectionable induction in their facilities and provide mitigation if necessary. Where the transmission line crosses a railroad, ATC will comply with National Electrical Safety Code Sections 231, 232, and 234 as adopted in Wis. Admin. Code ch. PSC 114, or the railroad company's reasonable clearance requirements, whichever is more stringent.

1.7.5 Pipeline

Segments C, E and F cross an ANR Pipeline.

Segment D parallels an ANR Pipeline.

After the Commission selects a route, ATC will work with the pipeline company to ensure that the approved route alignment will not adversely impact pipeline operation. Where the transmission line parallels a pipeline, ATC will work with the pipeline company to determine if installation of the new line would create objectionable induction in their facilities and provide mitigation if necessary. Where the transmission line crosses a pipeline, ATC will work with the pipeline company on clearances from the pipeline to ATC's structures or foundations.

1.7.6 WisDOT

Proposed routes that share ROW or cross State Highways (STH) or Interstate Highways (I) along all or part of the route are provided in **Table 1.7.6-1** below:

Table 1.7.6-1 – Highway Corridor Sharing and Crossings

ROUTE	Segment	AFFECTS	NOTES
Proposed	K	I-41	Replace transmission line overhead crossing I-41
Proposed	O	I-41	Add transmission line overhead parallel to I-41
Proposed	K	STH 175	Replace transmission line overhead crossing STH 175
Proposed	K	STH 145	Replace transmission line overhead crossing STH 145

ATC met with WisDOT on August 26, 2024. See **Appendix H, Exhibit 6** for meeting notes. WisDOT did not express any concerns with the transmission line crossings over State and Interstate Highways. WisDOT expressed concerns about the Alternate Route where it parallels I-41 (Segment O). WisDOT anticipates that the Project is permittable but could not be certain until it reviews the Project in more detail and therefore has not yet provided documentation confirming the acceptability of the Project. ATC will prepare a Constructability Report with the appropriate Project details for WisDOT to review after the Application has been submitted.

1.8 Construction Schedule and Sequence

1.8.1 Construction Schedule

ATC anticipates constructing the Project according to the following schedule:

Project Activity	Preliminary Date
Submittal of PSCW CPCN Application and WDNR Utility Permit	October 2024
PSCW CPCN Approval and Order	December 2025
WDNR Utility Permit Issuance - Anticipated	January 2026
Start Construction	February 2026
Project In-Service	October 2027

There are no notable seasonal or regulatory constraints.

Construction activities are dependent on obtaining required line outages on transmission and/or distribution lines. Those outage constraints are discussed in **Section 1.8.2**. The Project schedule is dependent on the availability of outages, which are subject to change.

1.8.2 Outage Constraints

Outages need to be coordinated with the nearby generation plants to the north of the Project and other transmission projects in southeastern Wisconsin. Outages on the 345 kV transmission lines in the area, notably 9911 (Arcadian to Granville) and L-CYP31 (Arcadian to Cypress), are constrained and these outage constraints have been taken into account when developing the proposed construction sequence and schedule presented in **Section 1.8.1**. Availability of outages are dependent on system configuration at the time of the outage. Construction activities that require outages will be minimized during the summer months to allow lines to remain in service or be restored to service in a shorter timeframe. Detailed outage planning, discussions, and coordination will continue through detailed design and will be finalized closer to the start of construction.

1.8.3 Construction Spreads

Construction is expected to be spread among the following portions of work and will be completed in the sequence as listed below:

- Mill Rd Substation (Segment B, upland areas only)
- Butler Substation (Segment Q)
- Transmission line reconfigurations outside Butler Substation (Segment P, upland areas only): approximately 0.2 miles
- New transmission line from the Tamarack Substation to the Butler Substation – construction from the Butler Substation to Silver Spring Road (Segments P, N & M for the Proposed Route OR Segments P, O and M for the Alternate Route): approximately 1.4 miles
- Mill Rd Substation (Segment B, all areas)
- Mill Rd Substation to Germantown Substation reconductor (Segment C): approximately 4.5 miles

- New Transmission Line from Mill Rd Substation to Tamarack Substation (Segment E): approximately 1.5 miles
- Tamarack Substation (Segment H)
- Temporary bypass transmission Line from Mill Rd Substation to Tamarack Substation (Segment Bypass)
- Rebuild transmission lines from Mill Rd Substation to Granville Substation including work at Granville Substation (Segments A, F, I, K and R): approximately 7.5 miles
- Arcadian Substation to Mill Rd Substation transmission line uprates (Segment D): approximately 8.5 miles
- New transmission line from Tamarack Substation to Butler Substation – construction from Tamarack Substation to the previously completed spread (Segments J and L for the Proposed Route OR Segments G and L for the Alternate Route): approximately 4.3 miles for the Proposed Route or 4.5 miles for the Alternate Route

1.8.4 Construction Sequence

The expected construction sequence for each construction spread listed above in **Section 1.8.3** is described in **Section 5.5.2** and is anticipated to follow the schedule outlined in **Section 1.8.1**.

Construction spreads will be completed in the order listed in **Section 1.8.3**. Work in each of these construction spreads will overlap at times. Work will be completed concurrently in two or more construction spreads at times and as allowed by outage constraints and construction resource availability to minimize the total duration of the construction project.

Clearing activities will be completed by construction spread. Clearing will occur shortly before or concurrent with other transmission line construction activities such as mat installation. Clearing will be completed before restoration of the work areas. Follow-up herbicide treatments will be applied within ATC's easements the year after clearing is completed where needed and permitted by property owners.

1.9 Project Maps

Consistent with the Application Filing Requirements, a set of Project maps is provided in **Appendix A, Figures 1–8.** The maps showing the Proposed and Alternate Routes and other Project data are provided on aerial photographs and include environmental, parcel, land use, and existing utility/infrastructure data. Also included is environmental information required to support WDNR permitting activities. ATC is providing separately to the Commission, in electronic format, Geographic Information System (GIS) data files supporting the mapping.

1.10 ESRI ArcGIS Data Files

All Project maps were created using ESRI Arc Pro 3.0.3. A spreadsheet of each GIS file, including the description of the data, the data source, and the date when the data was generated or collected is provided as part of the GIS data.

1.11 Mailing Lists

The mailing list is provided in Microsoft Excel format to the Commission. The list includes the owners of properties within 300 feet of the Project and properties on both sides of a roadway, regardless of distance to that roadway. In addition, several parcels were added to the list to provide a contiguous selection universe along certain streets and to avoid gaps. The property mailing list can be cross-referenced with the submitted GIS property shapefile.

In addition, a mailing list of all the below-listed entities affected by the proposed Project is included.

- County and municipal clerks;
- Chief executive officers of counties, towns, villages and cities in which the Project is proposed;
- The main public library in each county in which the proposed Project facilities will be located;
- The appropriate Regional Planning Commission; and
- Applicable state and federal agencies.

The information used to compile the mailing lists was derived from GIS layers acquired from Milwaukee, Washington and Waukesha County tax parcel data. ATC expects that this information is reasonably accurate but recognizes that some source data may be inaccurate and that changes may occur over time due to title transfers and parcel geography updates. Data regarding local officials is assembled from the applicable counties and municipalities. ATC expects that this information is reasonably accurate but recognizes that changes may occur over time.

2.0 PROJECT NEED ANALYSES

2.1 Project Need

The existing transmission facilities in the western Milwaukee area have unique characteristics that contribute to limitations on the surrounding transmission system, which has been a historical focus area that ATC has monitored for many years. The 345 kV network in the western Milwaukee area creates an hourglass shape, with three 345 kV lines to the north and three 345 kV lines to the south of this geographic area. In the area between those lines, there are two 345 kV circuits and associated 138 kV facilities running in parallel, which have a relatively low capability to support high power flows during contingency situations.

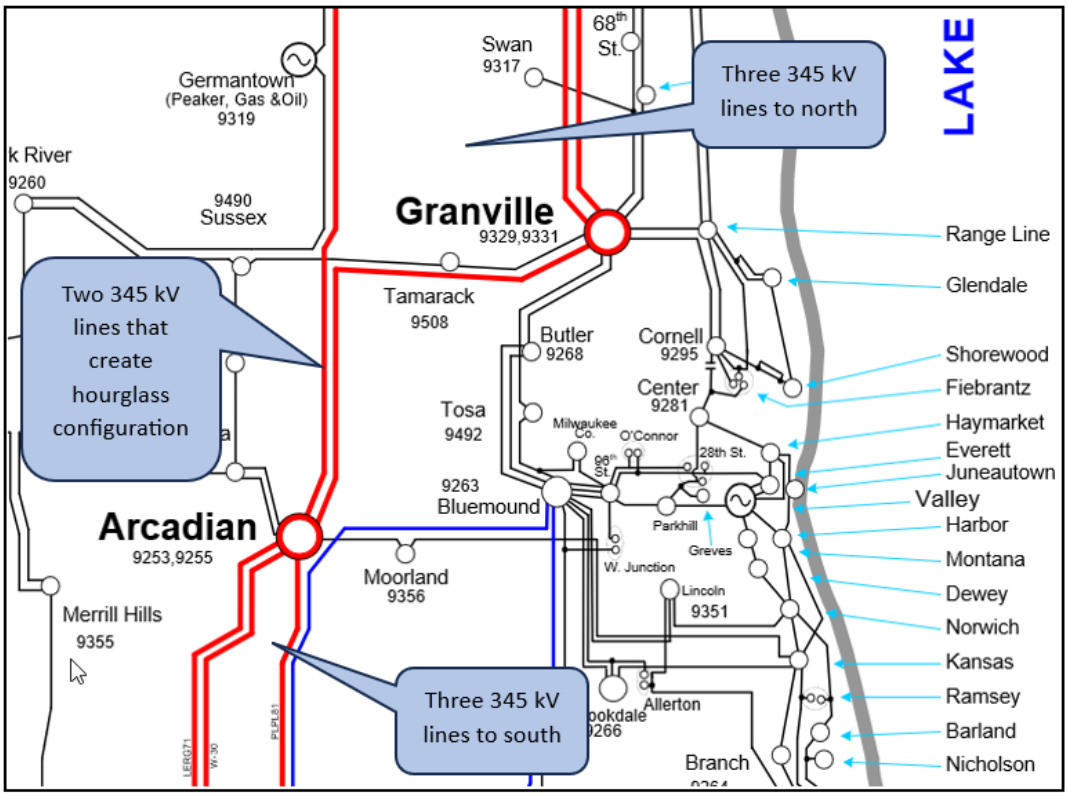


Figure 1.1: Western Milwaukee 345 kV Transmission Facilities

Given these unique conditions, the transmission system in the western Milwaukee has been a historical focus area for ATC and has led ATC to propose the Project, which has three primary need drivers:

NERC TPL Reliability Standards: As demonstrated in recent MISO MTEP annual assessments and the steady state reliability power flow analysis described herein, without reinforcements, the transmission system facilities in the western Milwaukee area are expected to exceed thermal limits in single-event and multi-event contingency situations. In other words, the western Milwaukee area needs transmission system reinforcements to comply with NERC TPL reliability standards.

Generator Interconnections: Various MISO DPP studies have shown that system reinforcements in this area are needed to support numerous generator interconnection requests, many of which are for new renewable generators located in Wisconsin.

Load Interconnections: We Energies has submitted multiple new large load interconnection requests associated with a new data center in the Electronics and Information Technology Manufacturing (EITM) zone in southeast Wisconsin, the load for which is scheduled to come on-line in 2027, which will further stress the facilities in this area. The NERC TPL reliability issues occur in the Project area with or without the new We Energies load interconnections in southeast Wisconsin, but the issues are exacerbated by these load additions.

Additional Considerations: In addition to these three primary need drivers, there are various other considerations that contribute to the need for system reinforcements:

> **Transfer Capability** – The western Milwaukee area has experienced historical economic congestion because of its limited local and regional transfer capability. The transmission system reinforcements associated with the Project will help alleviate this congestion.
>
> **Asset Renewal** – Many existing facilities in the area are approaching the end of their useful lives and based on their age and condition, can be rebuilt and renewed to optimize the Project scope.

This section of the Application and the PSD in **Appendix D** explain the various need drivers for the Project, describe the prior MISO and ATC studies that have been completed in the area, provide a detailed evaluation of two electrical transmission alternatives that ATC studied to meet the Project's stated need, and document the conclusions of ATC's planning analysis.

In sum, the transmission system in the western Milwaukee area needs reinforcements to comply with NERC TPL reliability standards, support the interconnection of new renewable generation in Wisconsin, provide adequate and reliable service to a large new data center in southeastern Wisconsin, improve transfer capability, and update aging transmission facilities. ATC has proposed Alternative 1, or the Project, to meet these needs. Additional details regarding the Project need can be found in the PSD in **Appendix D, Exhibit 1**.

2.2 Transmission Network Alternatives

The system needs described in **Section 2.1** require a network solution to address the multifaceted limitations in the western Milwaukee area. In the study area, the limiting and contingent transmission facilities involved both the 138 kV and 345 kV voltage classes. Therefore, ATC evaluated solutions that considered both voltage classes to optimize the alternatives studied in the PSD.

2.2.1 Proposed Solution

The proposed transmission solution—the Project—for addressing the multifaceted system needs is described below:

Substation Scope:

- Mill Rd Substation – Construct a new substation with a 345 kV ring bus, a 138 kV ring bus, 500 MVA 345/138 kV transformer, and a 10 ohm series reactor on the Sussex – Mill Road 138 kV line;
- Granville Substation – Replace an existing transformer with a new 500 MVA 345/138 kV transformer and add one 345 kV line terminal;
- Butler Substation – Reconfigure 138 kV line terminals and install a 10 ohm series reactor; and
- Tamarack Substation – Reconfigure 138 kV bus.

Transmission Line Scope:

- Rebuild the Granville – Arcadian 345 kV and Granville – Tamarack – Sussex 138 kV double-circuit line to a double-circuit 345 kV line between the Granville and Mill Rd substations;
- Construct a new Mill Road – Tamarack – Butler 138 kV line;
- Uprate the Arcadian – Mill Road 345 kV lines; and
- Reconductor the Mill Road – Germantown 138 kV line.

As part of its power flow analysis for the Project, ATC evaluated the Project against the NERC Reliability Standard TPL-001-5, contingency categories P0 through P7. The details of the analysis and a one-line diagram and cost estimate for the Project can be found in the PSD attached in **Appendix D, Exhibit 1**. ATC determined that the Project addresses various system limitations in the western Milwaukee area, as described in the PSD, and provides the best value solution among all the options considered to address the Project needs in the study area.

2.2.2 Viable Alternatives Considered

During the planning process, ATC considered various solution options for meeting the Project need. ATC determined that several of these options were not viable and dismissed them from further consideration, as described in **Sections 2.3** and **2.4** below and in Sections 4.3 and 7.4 of the PSD. ATC studied one viable alternative in greater detail, which is designated as Alternative 2. The scope of Alternative 2 is similar to Alternative 1 and is described in more detail below.

Alternative 2 Substation Scope:

- Mill Rd Substation – Construct a new substation with a 345 kV ring bus, a 138 kV ring bus, a 500 MVA 345/138 kV transformer, and a 10 ohm series reactor on the Sussex – Mill Rd 138 kV line;
- Granville Substation – Replace an existing transformer with a new 500 MVA 345/138 kV transformer and add one 345 kV line terminal; and
- Tamarack Substation – Reconfigure 138 kV bus.

Alternative 2 Transmission Line Scope:

- Rebuild the Granville – Arcadian 345 kV and Granville – Tamarack – Sussex 138 kV double-circuit line to a double-circuit 345 kV line between the Granville and Mill Rd Substations;
- Construct a new Mill Rd – Tamarack – Butler 138 kV line;
- Uprate the Arcadian – Mill Rd 345 kV lines;
- Reconductor the Mill Rd – Germantown 138 kV line; and
- Rebuild five 138 kV circuits in the Granville to Bluemound transmission line corridor and construct a new Granville – Butler 138 kV line.

Alternative 2 had a similar electrical performance to Alternative 1 in ATC's power flow analysis, as described in Section 4.2 and Section 5.1 of the PSD included in **Appendix D, Exhibit 1**. However, given the more significant transmission line scope of work, increased cost, and higher schedule risk associated with this alternative, ATC did not select it as the preferred electrical alternative for meeting the Project needs. A detailed analysis of this alternative is described in Sections 4.2 and 5 of the PSD in **Appendix D, Exhibit 1.**

2.2.3 Discussion of Proposed Solution and Viable Alternatives Considered

MISO and ATC conducted several studies that are both relevant to the Project and identify multiple system needs in and around the western Milwaukee area. Generally speaking, these studies have identified a need to improve local reliability, interconnect new load and generation in Wisconsin, increase regional transfer capability and provide operational flexibility in western Milwaukee. Recent MISO annual MTEP assessments have also identified limitations on the 138 kV facilities within the Granville – Bluemound 138 kV transmission corridor. As part of its planning analysis for the Project, ATC considered these analyses to ensure its proposed solution (i.e., the Project) is optimized and coordinated with ongoing study efforts. A more detailed discussion of these completed and ongoing analyses is provided in Section 3.1 of the PSD included in **Appendix D, Exhibit 1**.

The electrical transmission alternatives that ATC studied in detail are described in greater detail in **Section 2.2**. While both alternatives have similar components and electrical performance, the key difference is that Alternative 1 (ATC's preferred solution, or the Project) uses a flow control device at the Butler Substation, whereas Alternative 2 would require rebuilding several miles of 138 kV facilities along the transmission corridor between the Granville and Bluemound Substations in western Milwaukee. This difference results in Alternative 1 having a lower cost estimate (approximately $424 million) than Alternative 2 (approximately $569 million).

ATC's power flow analysis shows that the two alternatives perform similarly to meet the NERC TPL reliability requirements and adequately address the system needs listed above. Both alternatives also generate additional benefits, including providing operational flexibility, increasing transfer capability, reducing market congestion and system losses, providing better

coordination with future transmission expansion plans, and further enabling the reliable interconnection of new load and generation in Wisconsin.

That said, Alternative 1 has several advantages over Alternative 2. As mentioned, Alternative 1 calls for installing a flow control device at the Butler Substation. This effectively redirects power flow away from the historically congested Granville – Bluemound 138 kV transmission corridor and provides considerable relief from constraints associated with the existing "hourglass" configuration of the western Milwaukee area transmission system, without committing a significant investment to rebuild the 138 kV facilities in this corridor (which would be required under Alternative 2). Moreover, Alternative 1 would require less new right-of-way, would have less social and environmental impact, would be lower in cost, and would have a greater ability to achieve the Project's targeted in-service date.

Therefore, Alternative 1 is the proposed solution to address all the system needs described above and in the PSD.

2.3 Local Transmission, Distribution, and Distributed Resource Alternatives

2.3.1 Other Solution Options Considered

As discussed below, there were several transmission solution options that ATC considered, but ultimately rejected as not viable and declined to study in greater detail. Note that solution options are not considered "alternatives" since they do not address all the needs identified in **Section 2.1**. ATC considered these options at a very high level but did not analyze them in detail by (for example) performing power flow analysis, developing a proposed scope of work, and preparing cost estimates. In other words, these are conceptual transmission solution options that ATC considered, but for which ATC did not proceed with detailed evaluation or analysis. **Section 2.4** provides a discussion of non-transmission alternatives that ATC considered but ultimately rejected and declined to study in further detail.

Rebuild Granville – Bluemound 138 kV Transmission Corridor

ATC considered rebuilding the 138 kV transmission lines between the Granville and Bluemound Substations. This option would only increase existing facility ratings and address the local 138 kV asset renewal needs. However, many of the key contingencies in the western Milwaukee area involve both 345 kV and 138 kV voltage classes; therefore, without improvements to the 345 kV voltage classes, ATC determined that this option is inadequate to address the system needs. This option is also subject to the same ROW and environmental constraints as Alternative 2, which are described in greater detail above. Therefore, ATC determined that this solution option is not viable and dismissed it from further detailed consideration.

Construct New 345 kV Transmission Line from Granville Substation

This option involved constructing a new 345 kV transmission line from the Granville Substation to either the Arcadian or Bluemound Substations. It is important to note that 345 kV facilities do not exist at the Bluemound Substation, so this option would require

converting the 230 kV facilities at the Bluemound Substation to 345 kV. Regardless of the endpoint, this option does not address the key 138 kV contingencies in the western Milwaukee area. Without addressing the 138 kV system needs, this option is not a viable solution, and ATC therefore dismissed it from further detailed consideration.

Distribution and Distributed Resources Options

New distribution or distributed resources, such as solar or battery storage, are not technically feasible or cost-effective alternatives for addressing the system needs. These distributed resources could not be reasonably sited in a way to alleviate the reliability concerns. As such, ATC did not conduct a detailed study of any other alternatives beyond the transmission solutions discussed in previous sections. In other words, there were no viable Local Transmission, Distribution, and Distributed Resource Alternatives that could address the system needs, and therefore these alternatives were not studied in further detail.

2.3.2 Reasons for Rejecting Studied Alternatives

The reasons for rejecting the alternatives studied are discussed in **Section 2.3.1**.

2.4 Non-transmission Options

ATC is a transmission-only utility and Wisconsin law prohibits ATC from directly serving a retail customer or cooperative member, owning electric generation facilities, or selling, marketing, or brokering electric capacity or energy in wholesale or retail markets.[3] Because ATC cannot serve any retail electric load, it likewise cannot and does not implement energy conservation, energy efficiency, or demand response programs, which are the responsibility of the local distribution companies (LDCs) that are ATC's transmission customers. And because ATC cannot own electric generation resources, it likewise cannot construct renewable or nonrenewable generation projects to meet the Project's stated needs.

That said, and as discussed below, non-transmission alternatives are not cost-effective or technically feasible alternatives for addressing the system needs associated with the Project. A transmission solution (i.e., the Project) is the only cost effective and technically feasible alternative to adequately address the system needs and operate the transmission system reliably.

2.4.1 Energy Conservation, Energy Efficiency, and Demand Response

As noted, ATC is a transmission-only utility that is precluded from implementing energy conservation and efficiency programs; these programs are the responsibility of Wisconsin LDCs, which are ATC's customers. Furthermore, these LDCs' energy efficiency and conservation efforts are already included in the annual load forecasts provided to ATC and incorporated into ATC's planning analysis, as discussed in Section 3.1.3 of the PSD.

[3] *See* Wis. Stat. § 196.485(3m)(a)2.

Finally, ATC's steady state reliability analysis indicates that there are system limitations on the transmission system that need to be resolved to meet NERC reliability requirements. The Project is also needed to support the interconnection of a significant amount of new generation resources and a large load addition in the EITM zone in the village of Mount Pleasant; notably, the size of this new load is significantly larger than the load pockets ATC serves in the cities of Madison or Milwaukee, and it is associated with a data center that will be continuously operating 24 hours per day, 365 days per year. Under the MISO Open Access Transmission and Energy Markets Tariff, ATC is obligated to serve load within its service territory. Given the foregoing needs associated with the Project, energy efficiency and conservation programs are not cost effective or technically feasible options.

As to demand response programs, these are voluntary initiatives that incentivize customers to reduce energy use during peak periods. Like energy efficiency and conservation measures, Wisconsin LDCs are responsible for implementing demand response programs, and any impact these programs have on overall retail load are included in the annual load forecasts provided to ATC and incorporated into ATC's planning analysis. Because these programs are voluntary and are typically only activated during high demand periods, they do not provide a technically feasible or cost-effective means of meeting NERC reliability requirements or supporting the interconnection of new generation or load to the transmission system, which are key need drivers for the Project. Therefore, demand response is not a technically feasible or cost-effective alternative.

2.4.2 Noncombustible Renewable Energy Resources

ATC is a transmission-only utility that is precluded from owning electric generation resources, and therefore, ATC cannot develop noncombustible or combustible renewable energy resources to address the needs described in **Section 2.1**.

Further, and as discussed in Section 3.1 of the PSD, MISO's Definitive Planning Phase (DPP) studies indicate that the Project is a required network upgrade for various new generation resources that are being proposed throughout Wisconsin.

In any event, the amount of noncombustible renewable energy generation needed to address the Project need would not be viable and could not be constructed in sufficient time to meet the targeted in-service date. There are presently no noncombustible renewable energy resources in the MISO generation interconnection queue of the right capacity and in the right location to address the need for the Project. In fact, as evidenced by the DPP study results described earlier, many new proposed renewable generators in Wisconsin are exacerbating the need for the Project. Accordingly, noncombustible or combustible renewable energy resources are not cost effective or technically feasible alternatives to the Project.

Finally, a battery energy storage system (BESS) is not a viable alternative to the Project. Large-scale BESSs operate by storing or discharging energy from or to the high-voltage transmission system. These systems typically have limited storage capacity and discharge duration and therefore cannot provide continuous support to the transmission system throughout the year.

This continuous support is necessary, especially given that the Project is required to provide adequate and reliable service to the new data center being constructed in the EITM zone, which (as noted) will be operated continuously throughout the year. Accordingly, BESSs are not a technically feasible or cost-effective solution for meeting the Project's stated needs.

2.4.3 Combustible Renewable Energy Resources

Please reference **Section 2.4.2** for a discussion as to why combustible renewable energy resources are not feasible alternative to the Project.

2.4.4 Advanced nuclear energy using a reactor design or amended reactor design approved after December 31, 2010, by the U.S. Nuclear Regulatory Commission

ATC is a transmission-only utility that is precluded from owning any generation resources, and therefore, ATC cannot construct new nuclear generation to address the Project need. Further, new nuclear generation is one of the most capital-intensive forms of generation and can take more than a decade to permit, site, and construct. New nuclear generation is not a cost-effective alternative to the Project and could not be constructed in time to meet the targeted in-service date. Accordingly, new nuclear generation is not a cost effective or technically feasible alternative to the Project.

2.4.5 Nonrenewable Combustible Energy Resources:

Nonrenewable combustible energy resources are not cost effective or technically feasible alternatives to the Project, for the same reasons discussed in **Section 2.4.2**.

2.5 No-build Options

As described in **Section 2.1** of this Application and Sections 4.1 and 4.3.1 of the PSD included in **Appendix D, Exhibit 1**, ATC's analysis indicates that, without the Project in service, there are numerous thermal and voltage violations on various transmission facilities in western Milwaukee that require a solution per NERC reliability standards. These limitations also impact the capability to reliably interconnect new generation in Wisconsin and large new loads in southeast Wisconsin. A "No Build Option" would not address these existing reliability needs or other needs the Project is intended to address, including increasing transfer capability in southeast Wisconsin and renewal of aging assets. These results indicate that the Project need cannot be addressed without additional transmission facilities. In other words, the no-build option would violate NERC TPL Reliability Standards and is not a cost effective or technically feasible alternative to the Project.

2.6 Energy Conservation and Efficiency, and Demand Response

Please reference **Section 2.4.1** for a discussion of why energy conservation, energy efficiency, and demand response are not cost-effective or technically feasible alternatives or viable options for addressing this Project's needs.

2.7 Market Efficiency Projects

The need for the proposed Project is not based on market efficiency. Therefore, a market efficiency study was not performed.

2.8 Modeling Information

ATC is providing data files containing power flow modeling information separately to the Commission with a request for confidential handling. ATC used Power System Simulator for Engineering (PSSE) for building the reliability models and Transmission Adequacy and Reliability Assessment (TARA) from PowerGem for the power flow analysis included in the PSD. The reliability modeling files are provided in PowerWorld format. The reliability and load interconnection studies utilized the MISO MTEP23 series models. The generation interconnection studies utilized MISO's MTEP 2020 cycle DPP models. The PROMOD studies utilized MISO's MTEP23 F2A economic models.

2.9 Area Load Information

The annual forecasted load growth rate for the Focused Study Area (western Milwaukee) is generally flat (or 0.0%) for 2024 through 2033, without accounting for the large new load addition in the EITM zone. As mentioned in **Section 2.1**, We Energies has submitted multiple load interconnection request forms to interconnect multiple large loads associated with a new data center campus in the EITM zone in the village of Mount Pleasant. Section 3.1.3 and Figure B.2 of the PSD included in **Appendix D, Exhibit 1** contain historical coincident load data for 2014 through 2023 and forecasted coincident load data for 2024 through 2033.

2.10 Generation and Resource Retirements

As of the date of this Application, there was a MISO approved generation retirement request near the Project study area for the Oak Creek Power Plant. We Energies recently submitted an application for a CPCN (Docket No. 6630-CE-317) to the PSCW to replace this retiring generation. MISO began the Oak Creek generation replacement study in early September and a tentative schedule is for the replacement impact study to be completed by the end of 2024.

2.11 Regional Transmission Organization Information

ATC provides transmission service under the terms of the MISO Open Access Transmission and Energy Markets Tariff. ATC submitted a preliminary version of this Project to MISO as an MTEP Appendix B project on October 26, 2023. ATC expects that the Project will ultimately be included in the 2025 MISO Transmission Expansion Plan (MTEP25) as an approved Appendix A project (expected in December 2024). The Project has been assigned MTEP ID# 24919 and is classified as a Baseline Reliability Project (BRP).

3.0 MAGNETIC FIELDS

Under ATC's direction, a magnetic field study was performed (EMF Report) by Sargent and Lundy, which is provided as **Appendix G, Exhibit 1**. The EMF Report provides magnetic field calculations for the typical proposed line configurations on the Proposed and Alternate Routes and was prepared following the guidance set forth in the Application Filing Requirements. Calculations were performed using the Bonneville Power Administration Corona and Field Effects (CAFE) program. All figures and tables referenced in **Sections 3.0** through **3.4** below are contained in the attachments to the EMF Report. A five-year power flow projection was used (instead of 10 years) because 2033 is the last year in the power flow models created by MISO from the MTEP23 model series, which is the 10-year projection case for transmission planning purposes. There are no current MTEP models for 2038 that have been developed for transmission planning.

3.1 Magnetic Field Profiles

The EMF profile of the proposed transmission line within any route will vary depending on the presence or absence of existing transmission or distribution facilities and other factors. The EMF Map in **Appendix G, Exhibit 1** provides the location of each typical facility configuration and its associated EMF profile. Corresponding figures and tables can be found in **Appendix G, Exhibit 1**, which detail the existing and proposed magnetic field results within 300 feet of the proposed transmission centerline.

3.2 Magnetic Field Scenario

The tables provided in the EMF Report provide the estimated magnetic field levels at 80% and 100% of peak load for one- and five-years post construction, out to 300 feet from the configuration centerline. The tables have been modified as applicable to account for estimated present magnetic field levels for existing facilities.

3.3 Assumptions

Magnetic field modeling assumptions are provided on each of the figures included in the EMF Report. Each figure represents a typical condition that exists on the proposed alignment. Typical configurations were defined as any configuration—transmission or distribution—more than 2,500 feet in length. Facilities whose configurations were less than 2,500 feet were assigned to the predominant configuration in the area. The figures identifying the facility configuration along the line segments contain the modeling assumptions including the conductor Phase ID and phase angles, a pole design diagram identifying the dimensions of pole arms and conductor locations, the horizontal distance from the conductors to the poles, and the height of all conductors above ground at mid-span. Where underground electric lines exist, the assumed distance below the ground surface is shown. The figures also provide the estimated current levels for the year of estimated in service and five years post construction.

Background magnetic field data was estimated using the National Centers for Environmental Information Magnetic Field Calculator (noaa.gov). A summary of the estimated background magnetic field data in each route segment can be found in the table below.

Route Cross Section	Longitude	Latitude	Elevation	Nanotesia [nT]	miiliGauss [mG]
1-1	88.01062	43.1293	750	53,572.10	535.721
2-2	88.01776	43.1276	744	53,571.70	535.717
3-3	88.031	43.1268	751	53,571.80	535.718
4-4	88.04466	43.1234	704	53,571.10	535.711
5-5	88.06422	43.1203	763	53,570.00	535.7
6-6	88.08069	43.1227	785	53,571.50	535.715
7-7	88.09854	43.1252	815	53,573.10	535.731
8-8	88.11277	43.1274	845	53,574.40	535.744
9-9	88.12598	43.1279	839	53,575.20	535.752
10-10	88.13675	43.128	838	53,575.70	535.757
11-11	88.14635	43.128	831	53,576.10	535.761
12-12	88.14404	43.1626	858	53,591.70	535.917
13-13	88.15475	43.1063	865	53,566.20	535.662
14-14	88.16135	43.0542	861	53,542.40	535.424
15-15	88.06026	43.1187	742	53,569.30	535.693
16-16	88.06053	43.1122	704	53,566.60	535.666
17-17	88.06074	43.1063	728	53,563.70	535.637
18-18	88.06199	43.1017	738	53,561.60	535.616
25-25	88.01062	43.1293	750	53,572.10	535.721
26-26	88.01776	43.1276	744	53,571.70	535.717
27-27	88.031	43.1268	751	53,571.80	535.718
28-28	88.04466	43.1234	704	53,571.10	535.711
29-29	88.06422	43.1203	763	53,570.00	535.7
30-30	88.08069	43.1227	785	53,571.50	535.715
31-31	88.09854	43.1252	815	53,573.10	535.731
32-32	88.11277	43.1274	845	53,574.40	535.744
33-33	88.12598	43.1279	839	53,575.20	535.752
34-34	88.14385	43.1301	849	53,576.80	535.768
35-35	88.13675	43.128	838	53,575.70	535.757
36-36	88.14635	43.128	831	53,576.10	535.761

37-37	88.15262	43.1319	907	53,577.50	535.775
38-38	88.15413	43.1248	832	53,574.90	535.749
39-39	88.13519	43.1237	842	53,573.60	535.736
40-40	88.12906	43.1192	844	53,571.30	535.713
41-41	88.11913	43.1194	860	53,570.90	535.709
42-42	88.11202	43.1192	808	53,570.90	535.709
43-43	88.10547	43.1186	789	53,570.60	535.706
44-44	88.09641	43.1192	778	53,570.60	535.706
45-45	88.08301	43.1192	783	53,570.00	535.7
46-46	88.06804	43.1193	769	53,569.60	535.696
47-47	88.05805	43.113	718	53,566.70	535.667
48-48	88.06026	43.1187	742	53,569.30	535.693
49-49	88.06053	43.1122	704	53,566.60	535.666
50-50	88.06074	43.1063	728	53,563.70	535.637
51-51	88.06199	43.1017	738	53,561.60	535.616
52-52	88.1226	43.1267	860	53,574.30	535.743
53-53	88.10288	43.1243	814	53,572.90	535.729
54-54	88.09911	43.1234	795	53,572.40	535.724
55-55	88.09234	43.1232	782	53,572.20	535.722
56-56	88.0898	43.121	777	53,571.20	535.712

3.4 Substations

Existing Substations

Magnetic field measurements at existing substations were taken at approximately one meter above the ground surface at locations per PSCW Application Filing Requirements Section 3.1. The EMF meter utilized for measurement at all sites was a F.W. Bell 4100 Series. Measurements were taken as depicted in **Appendix G, Exhibit 1**. All substation magnetic field readings are representative of the existing load conditions. Load flows will not change significantly due to the Project, so magnetic field strengths are not expected to change significantly either.

Magnetic field measurements were taken on June 27, 2024 at the existing Butler and Tamarack Substations under normal system conditions with all substation elements in service.

Magnetic field measurements were taken on May 2, 2022 at the existing Granville Substation at normal system conditions with all Granville Substation system elements in service. An unrelated future project will make significant impacts to the Granville Substation perimeter fence plan and bus configuration before this Project begins. The unrelated project is not complete, and thus measurements reflect the existing substation configuration.

New Substations

Magnetic field profiles for the new Mill Road site were developed based on the above Transmission Line EMF measurements. See **Appendix G, Exhibit 1**.

Substations Associated with New Generation

Not applicable.

4.0 PROJECT COSTS

4.1 Transmission Route and Substation Costs

The following table provides the total cost estimate of each route alternative. The dollars are based on the projected in-service year (2030). To align with Commission guidance, ATC presents these costs as a +10%/-30% estimate. ATC will continue, however, to minimize ratepayer impact by seeking to limit costs wherever possible.

PROJECT COST CATEGORY	Proposed Route	Alternate Route
Overhead Transmission Line Facilities		
Material	$ 40,956,000	$ 43,107,000
Labor	$ 143,614,000	$ 155,640,000
Other	$ 115,717,000	$ 126,617,000
Subtotal	**$ 300,287,000**	**$ 325,364,000**
Substation Facilities		
Material	$ 48,403,000	$ 48,403,000
Labor	$ 59,761,000	$ 59,761,000
Other	$ 1,413,000	$ 1,413,000
Subtotal	**$ 109,577,000**	**$ 109,577,000**
Pre-certification Costs - ATC	$ 5,100,000	$ 5,100,000
One-time (5%) Environmental Impact Fee	$ 7,884,000	$ 7,884,000
Annual (0.3%) Impact Fee (during construction)	$ 828,000	$ 828,000
Subtotal	**$ 13,812,000**	**$ 13,812,000**
TOTAL PROJECT COST	**$ 423,676,000**	**$ 448,753,000**

*The estimated Project costs above do not include allowance for funds used during construction (AFUDC). ATC anticipates receiving MTEP Appendix A approval from MISO in December 2024 for this Project, which allows for Construction Work in Progress (CWIP) in Rate Base treatment and no AFUDC costs. Contingency costs are included in the cost estimate for the Project.

An application for PSCW approval of a project is filed very early in a project's overall development timeline. Because of this, a contingency amount (20%) was applied across the board to all line items in the cost estimate for this Project. Once ATC receives approval from the PSCW, the detailed design phase of the Project begins and ATC can finalize structure placement

(if applicable), begin outage coordination, and order materials. Following the completion of outage coordination, ATC next schedules construction activities.

As the Project progresses through its timeline, the amount of contingency is reviewed and may be reduced as key activities are completed. For example, in the time in between preparing the estimates for a filing and the receipt of an order, commodity costs can fluctuate significantly. Once final engineering for the Project is completed and the steel is ordered, the amount of contingency is reduced. On the other hand, contingency costs for labor may be increased until outage availability is confirmed, and ATC is able to determine the appropriate level of necessary labor.

ATC has found that it is difficult to determine if/when contingency dollars may need to be used, and often, the contingency associated with one line item may not be necessary. However, contingency dollars greater than what was associated with other line items may exceed the budgeted amount. Thus, ATC initially applies an across-the-board amount to allow for flexibility throughout the Project.

4.2 345 kV Project

In accordance with previous Commission rulings under Wis. Stat. § 196.491(3)(gm), the 345 kV transmission line costs and the substation costs regardless of transmission voltage are used in calculating the one-time environmental and annual impact fees. These costs and the method for determining these costs are provided in **Section 7.10**.

5.0 ROUTING AND SITING INFORMATION

5.1 Routing and Siting Factors

In order to identify routes associated with the Project, ATC used a robust routing and siting process. ATC established a Project team with extensive expertise in the relevant subject areas to identify and evaluate route options. The Project team first identified a study area (**Appendix A, Figure 2**) that encompassed all likely corridors that would meet the system configuration requirements of connecting the new and rebuilt transmission lines between the designated endpoints. The team reviewed maps, aerial imagery and other geographic information; evaluated engineering, constructability, environmental, and cost considerations for potential segments; and performed field inspections (where they were feasible – see **Section 5.4** for more details). Corridors that were reviewed but rejected are provided in **Appendix A, Figure 2** and included in the GIS data files provided to the Commission.

As part of the routing and siting process, ATC identified Project criteria that maximized the use of existing transmission lines in the Project area. The siting process generally consisted of:

1. Identifying a Project study area between established end points: Mill Rd Substation, Tamarack Substation, Granville Substation and Butler Substation. The routing criteria used are consistent with economic and engineering considerations, reliability of the electric transmission system, and protection of the environment. Where no existing transmission lines exist to connect route segments, the state statutory siting priorities under Wis. Stat. § 1.12(6) were used to identify potential connecting segments. These include, in order of priority:
    a. Existing utility corridors
    b. Highway and railroad corridors
    c. Recreational trails to the extent the facilities may be constructed below ground and do not significantly impact environmentally sensitive areas
    d. New corridors
2. Possible transmission line routes were screened against several criteria, including those specified in Wis. Stat. § 196.491(3)(d). Route segments were screened using criteria including but not limited to the following, which are not listed in order of priority nor assigned weighted values:
    - Location of existing linear infrastructure;
    - Use of existing ROWs to minimize the need for additional facility ROW (corridor-sharing);
    - Locations of cemeteries, schools, day care facilities, and hospitals;
    - County and state road expansion plans;
    - Community and landowner impacts;

- Ability to minimize impacts to environmental and natural resource features, including wetlands, waterways, and woodlands;
- Archeological, tribal, and historic resources;
- Location of airports and airstrips;
- Avoiding high-density residential areas;
- Conformance with existing and proposed land use patterns; and
- Design modifications or construction practices to overcome terrain or other physical challenges.

The above elements were evaluated for their presence in the Project area and their relative sensitivity to the construction, operation and maintenance of the new and rebuilt transmission circuits. These considerations were refined using collected data and engineering constraints. The Project team identified routes that used or followed existing ATC transmission lines to the extent deemed feasible.

Finally, the Project team completed a multidisciplinary review and evaluation considering and balancing the quantitative as well as qualitative factors discussed above along with design, engineering, economic, and operational considerations to identify the routes contained within this Application. The Project team did not contact or consult local government officials or entities, landowners or other interested parties for input during the routing and siting process to identify issues or concerns. See **Section 7.1** for a summary of the communications with potential impacted local units of government and landowners crossed by or near the proposed Project.

Specifically for route development, it is important to consider that the Mill Road – Granville Project area encompasses densely developed urban residential, commercial and industrial areas of Milwaukee and Waukesha Counties located in close proximity to wetlands and to the Menomonee River and the Little Menomonee River.

These and related constraints created limited areas to develop route alternatives. For the new 138 kV circuit between the Tamarack Substation and Butler Substation (X-197), though very congested with urban and environmental constraints, two route alternatives were identified and are proposed in this Application. The Proposed and Alternate Route each conform to the statutory priority siting opportunities by corridor-sharing with other linear infrastructure where feasible.

Between the Mill Rd Substation and Tamarack Substation, the Proposed Route and Alternate Route for the new 138 kV line share a greenfield common segment which runs parallel to existing ATC circuits approximately 600 feet north of the railroad. East of the Tamarack Substation, the Proposed Route then extends principally along ATC's existing 345/138 kV double-circuit lines and diverges due to space constraints in that transmission line right-of-way onto greenfield route segments near Ridgewood Drive, Kohler Lane and Shawn Circle before intersecting with Silver Spring Drive between Enterprise Drive and Lily Road. At the intersection

with Silver Spring Drive, the Proposed Route and Alternate Route form a common segment east onto Sliver Spring Road. The Proposed Route then follows an existing ATC transmission line corridor south of Silver Spring Drive and forms a common segment with the Alternate Route near W. Hampton Avenue south into the Butler Substation.

The Project team considered but ultimately did not carry forward an alternative to the Proposed Route utilizing Pilgrim Road between Kohler Lane and Silver Spring Drive. That alternative was not pursued due to potential constraints with residential properties along and close to Pilgrim Road and the dense commercial development at the intersection of Pilgrim Road and Silver Spring Drive. **Appendix A, Figure 2**.

The Alternate Route south of the Tamarack Substation follows Marcy Road to Silver Spring Drive and proceeds east along Silver Spring Drive before forming a common segment with the Proposed Route between Enterprise Drive and Lily Road to Silver Spring Road and south to the intersection of Silver Spring Drive and N. 118th Court. From that intersection, the Alternate Route turns east toward I-43 and then south along the west side of I-43 for ½ mile across the Menomonee River before turning west and forming a common segment with the Proposed Route north of W. Hampton Avenue and extending into Butler Substation.

The team considered four alternative segments for the north-south corridor roughly between the intersection of N 124th Street and Silver Spring Road and West Hampton Avenue just north of Butler Substation. These segments included the following linear features (See map in **Appendix A, Figure 2**):

- North 124th Street, a local road
- Union Pacific/Chicago & Northwestern Railroad (UP/C&N Railroad) lines
- ATC's existing 138 kV line corridor (Proposed Route)
- I-43 (both east and west sides of the expressway)
- Lovers Lane/STH 100, a local and state trunk highway

A high-level construction and engineering review concluded that neither the N. 124th Street nor the UP/C&N Railroad corridor options were feasible due to space constraints and conflicts within or adjacent to those corridors. The east side of I-43 was deemed infeasible due to WisDOT's planned future construction of a sound wall as part of ongoing, multi-year I-43 improvement projects along that segment. The Lovers Lane/STH 100 segment was deemed infeasible as that road corridor was too constrained by existing residential development and by potential adverse impacts to the shoreland areas of Menomonee River and Little Menomonee River adjacent to it. In the end, the Proposed Route was selected to follow the existing ATC 138 kV transmission line corridor. The Alternate Route was selected to follow the segment on the west side of I-43. As noted above, there is a common route segment from just north of W. Hampton Avenue to Butler Substation.

The routing and siting opportunities to rebuild ATC's existing 345/138 kV double-circuit line (9911/3444) to a 345/345 kV configuration (W-42/W-43) between Granville Substation and the

Mill Rd Substation were even more congested. In this area specifically, route alternatives following highways were deemed infeasible for a 345 kV double-circuit line due to airport height constraints near Timmerman Field on the east end of the Project and because of adverse impacts to residential areas adjacent to possible routes. The Project team concluded that the only feasible route for the rebuilt circuits was to construct within and adjacent to the existing ATC right-of-way between the Granville Substation and a new Mill Rd Substation. This route conforms to the statutory priority siting opportunities by following existing utility and railroad corridors. Moreover, it avoids new impacts to nearby dense urban residential communities and new disturbances to the surrounding environment.

ATC also proposes a minor adjustment to the existing alignment of circuits 9911 and W-41 (existing L-CYP31) to facilitate a straight-line connection of these circuits into the new Mill Rd Substation. The new line segment would be approximately 2,200 feet in length and would alleviate the need, expense and on-the-ground impacts of new dead-end and angle structures that would otherwise be required by alternative line configurations into the new substation. Once construction is complete, ATC intends to vacate and restore approximately 1,000 feet of 9911 and W-41 (existing L-CYP31) ROW currently occupied.

5.2 Easements and Existing Utility Infrastructure

ATC intends to acquire new high-voltage easements for this Project for both new ROW and where the Project ROW overlaps existing transmission line ROW, if necessary. In those locations where Project ROW overlaps an existing transmission line easement and additional ROW is needed, ATC will evaluate whether the existing easement will be retained or released at the conclusion of all construction activities. ATC generally intends to release the existing easements but may retain an existing easement based on the specific provisions in the easement and the needs of the Project. For instance, there may be a need to retain an existing easement due to property usage restrictions recorded after the existing transmission line easement. ATC will use its standard high-voltage easement for this Project as shown in **Appendix E, Exhibit 4**.

5.3 Route Segments

Please see **Section 1.6.6** for anticipated structure heights and **Section 1.6.7** for ROW information. **Table 5.3.1-1** below provides additional information on the routes broken down by segment.

Table 5.3.1-1 Route Characteristics

Segment	Structure Type	Transmission Configuration	Transmission Conductor	Span Length	Affected Existing Distribution	ROW Sharing	Preliminary Structure QTY
A	Mono-Pole Steel 138 kV	Single-Circuit Vertical	TP-556.5 kcmil (26/7) “Dove” ACSR	390 FT to 1190 FT (Typical)	N/A	Yes	19

C	Mono-Pole Steel 345 kV/345 kV	Double-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	390 FT to 1190 FT (Typical)	No	Yes	12
D	Mono-Pole Steel 345 kV/345 kV	Double-Circuit Vertical	2156 kcmil (84/19) "Bluebird" ACSR	590 FT to 1190 FT (Typical)	Yes	Yes	11
E	Mono-Pole Steel 138 kV	Single-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	200 FT to 650 FT (Typical)	N/A	NO	9
F	Mono-Pole Steel 345 kV/345 kV	Double-Circuit Vertical	Bundled-TP-477 kcmil (26/7) "Hawk" ACSR	250 FT to 1150 FT (Typical)	No	Yes	7
G	Mono-Pole Steel 138 kV	Single-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	350 FT to 1000 FT (Typical)	Yes	Yes	34
I	Mono-Pole Steel 345 kV/345 kV	Double-Circuit Vertical	Bundled-TP-477 kcmil (26/7) "Hawk" ACSR	250 FT to 1150 FT (Typical)	No	Yes	22
J	Mono-Pole Steel 138 kV	Single-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	350 FT to 1000 FT (Typical)	Yes	No	27
K	Mono-Pole Steel 345 kV/345 kV	Double-Circuit Vertical	Bundled-TP-477 kcmil (26/7) "Hawk" ACSR	250 FT to 1150 FT (Typical)	No	Yes	26
L	Mono-Pole Steel 138 kV	Single-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	350 FT to 1000 FT (Typical)	Yes	No	14

M	Mono-Pole Steel 138 kV	Single-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	350 FT to 1000 FT (Typical)	Yes	Yes	2 (Proposed)/3 (Alternative)
N	Two Mono-Pole Steel 138 kV/ 138 kV	Single-Circuit Vertical & Double-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	350 FT to 1000 FT (Typical)	No	Yes	5
O	Mono-Pole Steel 138 kV	Single-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	350 FT to 1000 FT (Typical)	No	No	9
P	Two Mono-Pole Steel 138 kV/ 138 kV	Single-Circuit Vertical & Double-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	350 FT to 1000 FT (Typical)	No	Yes	15 (Proposed)/20 (Alternative)
R	Mono-Pole Steel 138 kV/138 kV	Single-Circuit Vertical & Double-Circuit Vertical	TP-556.5 kcmil (26/7) "Dove" ACSR	150 FT to 900 FT (Typical)	No	Yes	5

5.4 Impact Tables

The following tables are included in **Appendix B**.

Table 1 – General Route Impacts

Table 2 – Land Cover

Table 3 – Federal, State, Local, and Tribal Lands

Table 4 – Distances of Schools, Daycare Centers, and Hospitals from ROW Centerline

Table 5 – Distances of Residential Buildings from ROW Centerline

Table 7 – Route Impact Summary

The information contained in **Appendix B**, **Tables 1** through **5** and **Table 7,** was developed from a combination of sources including available reference data, aerial photography, and field observations along the Project routes. These sources were utilized to measure and calculate impacts using GIS software.

The reference data includes county tax parcel data obtained in 2024, state managed lands information from the WDNR, roads and road width data from WisDOT, pipeline mapping from National Pipeline Mapping System, and sensitive receptor datasets from the Wisconsin

Department of Public Instruction, Wisconsin Department of Health Services, and Homeland Infrastructure Foundation-Level Data. Aerial imagery sources include the National Agricultural Imagery Program (Accessed 2024), ESRI World Imagery basemaps, and Google Earth, Maps, and Street View (sourced from ©2024 Google and its data suppliers). As a supplement, aerial imagery from several recent dates were also viewed in Pictometry, a licensed imagery-based system that provides high resolution, two- or four-way oblique views of the ground surface.

Table 1 – General Route Impacts

The general ROW requirements and ROW sharing characteristics for the Project are presented in **Appendix B, Table 1**. The Project was broken into 18 segments to facilitate analysis. The Alternate Route is approximately 3.9 miles in length, includes a total of 48.2 acres of ROW, and contains Segments G and O. The Proposed Route is approximately 3.3 miles in length, includes a total of 38.1 ROW acres, and contains Segments J and N. The Common Route is 24.4 miles in length and includes a total of 471.4 acres. The Common Route consists of Segments A, B, C, D, E, F, H, I, K, L, M, P, Q, and R, which means those segments are common to both the Proposed and Alternate Route options. Segments B, H, and Q are associated with the Proposed Mill Rd Substation and expansions of the Tamarack and Buter Substations. GIS software was used to determine lengths and the new and shared ROW widths.

The type and extent of existing ROW was determined from the following sources in conjunction with aerial photography and field observations:

Utility Easement: Existing ATC-owned utility easement widths were determined from review of easement agreements. Existing easements along the pipeline corridor (Segment D) were estimated based on aerial photograph interpretation (e.g., fence lines, differences in vegetation).

Road: Within the Project study area, parcel data did not define the extent of the local road ROW. The ROW width was estimated based on aerial photograph interpretation and immediately adjacent parcel data.

Table 2 – Land Cover

Land cover data was digitized in 2024 based on NAIP, Esri World Imagery, and Google Maps images. Land cover analysis was informed by field observations, where accessible. Field work along the proposed routes was completed April 22-25, June 3-6 and 19-21, July 3, and September 10, 2024, and included aquatic resource identification and direct land cover observation. Land cover was digitized using GIS software to quantify the area by category within the ROW of the Proposed and Alternate Routes. The area of each identified land use was quantified using GIS software and the resulting acreages were summed by land cover category by segment for both proposed routes.

The results of this review, broken down by segment, are presented in **Appendix B, Table 2**. Land cover identified within the Project study area consisted of Crop Land, Grassland, Forested Upland, Forested Wetland, Non-Forested Wetland, and Developed/Urban categories. For the

purpose of this table, land cover analysis of forested lands includes both forested and shrub lands per the Application Filing Requirements instruction (reference Wiscland 2 Land Cover User Guide 2016). A summary of land cover analysis results along the Proposed and Alternate Routes is provided in the table below.

Table 5.4-1 – Summary Land Cover Analysis Results

Land Cover	% of Alternate Route	% of Proposed Route
Crop Land	0%	0%
Specialty Agriculture	0%	0%
Grassland	35%	40%
Forested Upland	6%	14%
Forested Wetland	7%	2%
Non-Forested Wetland	17%	13%
Developed/Urban	35%	31%

Table 3 –Federal, State, Local and Tribal Lands

Wisconsin V10 Statewide Parcel Data, along with WDNR GIS server public lands layers and the Protected Areas Database (PAD-US) 3.0 dataset, were used to identify federal, state, local, and tribal owned or managed lands along the Project ROW. Road ROW was not included in this evaluation. This information is provided in **Appendix B, Table 3**.

The Project intersects a number of publicly owned lands including properties owned by WisDOT, Milwaukee and Waukesha Counties, and local municipalities. No tribal lands, American Indian reservations, or federally owned (or managed) lands are present within the ROW of either of the proposed routes.

Table 4– Distances of Schools, Daycare Centers and Hospitals from ROW Centerline

The presence of sensitive receptors (schools, daycare centers, and hospitals) within 300 feet of the Project centerline were determined using GIS measurements and field verified to the extent practicable**.** This information is provided in **Appendix B, Table 4**.

The following databases were used to identify these facilities:

- Locations of licensed family and group childcare centers were provided by the Wisconsin Department of Children and Families (downloaded on November 3, 2023, current as of July 22, 2022).
- Public and private school locations were provided by the Wisconsin Department of Public Instruction (downloaded August 2024, current as of February 1, 2024).
- Hospital locations were provided by the Wisconsin Department of Health Services (downloaded August 2024, current as of April 12, 2024).

Within 300 feet of the Proposed Route centerline, there is one daycare, which is located within 151-300 feet of Proposed Route Segment J. There are no schools or hospitals within 300 feet of the Project centerline of the Proposed Route.

Within 300 feet of the Alternate Route centerline, there are two daycares, both located within 151-300 feet of Alternate Route Segment G. There are no schools or hospitals within 300 feet of the Project centerline of the Alternate Route.

Within 300 feet of the Common Route centerline, there are two daycares, located within 151-300 feet of the Common Route Segment D and L, respectively. There are no schools or hospitals within 300 feet of the Project centerline of the Common Route. This information is provided in **Appendix B, Table 4**.

Table 5 – Distances of Residential Buildings from ROW Centerline

Residential building types (homes and apartments) and the distance of these buildings from ROW centerlines were determined using GIS measurements and field verified to the extent practicable. This information is provided in **Appendix B**, **Table 5**. Residential buildings were tallied according to five distance categories from the ROW centerline: 0–25 feet, 26–50 feet, 51–100 feet, 101–150 feet, and 151–300 feet.

There are a total of four homes within 300 feet of the Proposed Route centerline, a total of 81 homes within 300 feet of the Alternate Route centerline, and a total of 171 homes within 300 feet of the Common Route centerline. No apartment buildings are present within 300 feet of the Proposed Route centerline. A total of 19 apartment buildings are present within 300 feet of the Alternate Route centerline and a total of 11 apartment buildings are within 300 feet of the Common Route centerline. The Project will be designed and constructed to comply with state and federal electrical codes. Homes within the five distance categories are summarized in the table below.

Table 5.4-2 – Distances of Residential Buildings from Route Centerline

Distance	Proposed Route	Alternate Route	Common Route
0 - 25 feet	0	0	0
26 - 50 feet	0	7	1
51 - 100 feet	0	18	22
101 - 150 feet	0	15	25
151 - 300 feet	4	60	134

Table 6 – Estimated Magnetic Field Data

Please see **Appendix G**, **Exhibit 1.**

Table 7 – Route Impact Summary

Table 7 presents a summary of impacts along the proposed routes, including total route length and ROW acreage; upland and wetland acreage within the Project ROW; and residential

buildings within 300 feet of the route centerline. This information is provided in **Appendix B, Table 7**. No new analyses were performed; the data is a summary of the information in **Tables 1-5**.

5.5 Construction Impacts

5.5.1 Construction Sequence

Construction of an overhead transmission line requires several different activities at any given location. **Section 5.5.2** generally describes the major construction activities and approximate sequence, along with the anticipated impacts associated with each activity.

Two temporary bypass circuits will be constructed to help with construction outage sequencing. One temporary bypass circuit will be built for line 36341 from the Mill Rd Substation to the Tamarack Substation to keep the Tamarack Substation in-service.

The other temporary bypass circuit will be built for line 2661 to keep line 2661 in-service while the Mill Rd Substation is constructed.

5.5.2 Construction Impacts by Phase

Surveying and staking of ROW

This activity will have minimal impact, typically completed by a two-person crew travelling by foot, ATV, or pick-up truck.

Clearing of ROW

To facilitate construction equipment access and ensure safe clearances between vegetation and the transmission line, all vegetation will be cleared for the full width of the ROW. Vegetation will be cut at or slightly above the ground surface using mechanized mowers, harvesters, or by hand. Root stocks will generally be left in place, except in areas where stump removal is necessary to facilitate the movement of construction vehicles or required by the landowner. Where permission of the landowner has been obtained, stumps of tall-growing species will be treated with an herbicide to discourage re-growth.

Temporary staging of poles and other materials along ROW

This activity will have minimal impact. Trucks, loaders, and cranes are needed to unload poles and other materials near each work location.

Installation of erosion control BMPs

Best Management Practices (BMPs) will be location-specific and installed prior to all anticipated ground disturbance. Where unexpected ground disturbance occurs, BMPs will be installed immediately after the disturbance occurs.

Foundation installation and/or excavation for transmission structures

Excavation or drilling is required for all structures whether they are direct-embedded, reinforced concrete foundations, or micropiles.

In general, the excavated holes for each type of foundation will range from 4 to 10 feet in diameter and may be 15 to 35 feet in depth, or greater depending on soil conditions. The method of installation, diameter, and depth of the foundation will vary depending on the soil capability and structure loadings.

- For direct-embedded poles (no concrete foundation required), a hole is excavated to the appropriate depth. The base of the structure is placed into the excavated hole, and the area around the pole is backfilled with clean granular fill.
- For structures requiring a reinforced concrete foundation, a hole is drilled or excavated, and a rebar cage and anchor bolts are placed into the excavation. The excavation is then filled with concrete to a point where the rebar cage and anchor bolts are covered leaving a typical one-to-two-foot reveal of the foundation above grade with exposed threaded anchor bolts. The complete caisson is allowed to cure.

Micropile foundations (or micropiles) are similar in form and installation to drilled-pier foundations, except that micropiles are installed in groups, are much smaller in diameter (typically between 5-15 inches) and can be installed at depths of up to 200 feet using rotary drilling rigs. Adjustment of micropile diameter, depth, and number can provide support for very large loading capacities.

Excess soils from excavations may be spread in the ROW in upland areas and stabilized or hauled to an offsite disposal location, depending on the setting and the property owner's requirements.

In areas where groundwater seeps into the excavation, or where water is needed to hold the hole during drilling, it may be necessary to dewater the excavation. Depending on site conditions, the water may be de-silted and discharged to an upland area where it is allowed to re-infiltrate or removed from site via a tank truck.

Typical equipment for this phase of construction includes pick-up trucks, dump trucks, back hoes, drill rigs, cranes, vacuum trucks, tanker trucks and concrete trucks.

Structure setting

After the direct-embed base is set or the caisson is cured, the remainder of the steel pole structure (or sections) is mounted to the base. Typical equipment for this phase of construction are cranes, bucket trucks, pick-up trucks and dump trucks.

Wire stringing and clipping

After all the structures within a wire pull segment are set, the wires are pulled and clipped into place. This requires access to each structure with either a bucket truck or helicopter. Wire set up areas containing reel trailers, wire pullers, and related equipment are located at each end of the wire pull.

Cleanup and Restoration of ROW

Upon completion of construction, cleanup and site restoration are completed. This includes removing construction mats, Temporary Clear Span Bridges (TCSBs), and other material or debris from the ROW, and any necessary seedbed preparation and seeding. Typical equipment for these activities includes mat trucks, bobcats, pickup trucks and other light duty vehicles.

Transmission line construction will be confined to the ROW, the access routes, and the laydown and staging areas. ATC will utilize existing roads or ROW and will arrange access locations where roadways are not present. Most disturbances will likely occur in the area immediately surrounding transmission line structures. In areas where access cannot be gained from existing roads, some disturbance from vehicular traffic may also occur. Disturbance at these areas may include clearing of vegetative cover, soil compaction, vehicular tracking, and some topsoil disturbance.

5.5.3 Unique Construction Methods

Unique construction methods are not anticipated for this Project.

5.5.4 Special Construction Methods

Timber mats would be utilized to provide access through agricultural lands and wetlands.

TCSBs would be installed in approved locations to provide construction access across waterways where necessary.

It will be necessary to keep two existing circuits energized during construction to maintain local service which will require temporary bypass lines.

Specifically, the 138 kV circuit 36341 between the Sussex Substation and the Tamarack Substation will remain energized during Project construction by installing an approximately one (1) mile temporary bypass circuit running parallel with the south side of the railroad line between Mill Rd Substation and Tamarack Substation. This temporary 36341 bypass circuit will necessitate securing approximately 100-foot-wide temporary easements from adjacent landowners until the new X-196 138 kV circuit between the Mill Rd Substation and the Tamarack Substation is energized.

In addition, the 138 kV circuit 2661 between the Bark River Substation and Germantown will remain energized during Project construction by installing a 3-pole temporary bypass circuit on the west edge of the Mill Rd Substation site. No additional temporary easements will need to be secured since the 2661 temporary bypass will be installed on ATC-owned land.

All poles, conductor and related guy wires and attachments will be removed and restored after Project construction is completed and energized.

5.5.5 Dewatering Methods

Dewatering may be required for the installation of some concrete foundations, or directly embedded structures. Dewatering operations will meet the requirements described in the

WDNR Technical Standard 1061 – Dewatering Practices for Sediment Control. Dewatering BMPs such as discharging to an internally drained area, using temporary or portable settling basins/tanks, or using geotextile filtering practices may be used to reduce impacts from dewatering operations. If the selected BMP is not adequately removing sediment to meet the performance criteria, the dewatering operations will be stopped, and the treatment method altered before resuming to prevent impacts to regulatory water features or off-ROW areas.

5.6 Substation Construction Impacts

The new Mill Rd and existing Tamarack, Butler, and Granville Substations are described in **Section 5.8** and shown in **Appendix I, Figures 1-5.**

Approximately 46.6 acres of the existing 70-acre Mill Rd Substation site would require grading for construction, storm water detention, and a relatively level platform for the secure yard and electrical equipment. An additional 7.7 acres of the adjacent parcel to the west would require grading to create a substation access drive from Lannon Rd. Excavation cuts of approximately 370,000 cubic yards and fill of approximately 360,000 cubic yards would be required. It is anticipated that the 12,000 cubic yards of net cut excavated soil will be trucked offsite to an approved upland site for disposal. Conduit for control and communication cables and grounding conductor would be installed prior to the placement of the final layer of crushed rock surface within the substation yard and around the fenced perimeter. It is estimated that this effort will result in the need to dispose of an additional 7,100 cubic yards of soil. Disturbed areas outside of the crushed rock surface will be restored with topsoil and vegetation.

The construction at the Butler Substation within the existing substation pad will consist of equipment demolition and foundation removals associated with the various equipment relocations and retirements. Foundations not conflicting with the substation expansion to the west will be removed up to 18 inches below grade. Foundations in conflict with the new substation facilities will be removed in their entirety.

Surface grades and elevations of the existing Butler Substation footprint will be retained as part of this Project. There will be limited impact with We Energies distribution facilities in the yard except conduits and a slab foundation for the relocation of cap bank 63. Construction of the new facilities outside the existing substation perimeter includes the creation of the proposed substation expansion area up to 85 feet to the west. This will require the demolition of the existing transmission structures and their foundations currently in the expansion area.

There also exists a manhole just outside of the substation yard where underground distribution cables are located. These cables will be located to make sure the site expansion design is not in conflict. In both the existing substation pad and proposed expansion area, new drilled pier foundations will be installed to support six substation dead-end structures and most other equipment supports, including a new 10 ohm series reactor. Drilled piers for the substation structures range from two feet to eight feet in diameter. New circuit breakers will be supported by slab-on-grade type foundations. Conduits for control, power and communication cables will be installed at a depth of 30 to 42 inches below grade and prior to the final layer of crushed

rock within the substation yard and around the fenced perimeter. The disturbed area outside of the crushed rock will be restored with topsoil. New ground grid conductor will be installed at a depth of 24 inches below grade up to 3 feet outside of the expanded substation fence.

Reconfiguring of the existing bus will include the removal, salvage and re-use of existing equipment. Existing equipment to be re-used includes a CCVT and disconnect switches with 9-foot phase spacing. This work will involve the change out of line/bus disconnect switches, 138 kV gas circuit breakers, arresters and various line/T-line structures. The yard expansion would require up to 3.5 feet of excavation for topsoil removal. The disturbed grading area at the Butler Substation would be approximately 0.88 acres. Excess soil from the grading and foundation excavations is anticipated and would be trucked off site to an approved upland site for disposal.

Construction within the Tamarack Substation pad will consist of equipment demolition and foundation removals associated with the various equipment relocations. Existing foundations that are not in the way of the proposed layout will be removed up to 18 inches below grade. New drilled pier foundations will be installed to support a new transmission line dead-end structure and equipment support structures. The relocated circuit breaker will be supported by slab-on-grade type foundation. Foundations and fence posts for the relocated section of fence will be installed in 10-foot intervals. Conduits for control, power and communication cables will be installed 30 to 42 inches below grade. New ground grid connections to the station ground grid will be required for all relocated equipment and expanded fence. Additionally, the ground grid will be expanded to cover the site expansion area to the east. The yard expansion would require up to 3.5 feet of excavation for topsoil removal. The disturbed grading area at Tamarack Substation would be approximately 0.7 acres. Excess soil from the grading and foundation excavations is anticipated and would be trucked off site to an approved upland site for disposal.

Excavation at Granville Substation would be limited to equipment foundations, new conduit installations, and a new ground grid. The disturbed area would be approximately 0.3 acres. Spoil from the foundation and conduit excavations would be trucked offsite to an approved upland site for disposal.

Work at all substations would include the installation of new foundations. Drilled pier foundations ranging in size from two to eight feet in diameter and four to 40 feet deep. Slab-on-grade foundations will be used for 138 kV gas circuit breakers. A pier and wall foundation up to three feet thick would be used for the Mill Rd control house.

Bulldozers, dump trucks, water trucks, compactors, scrapers, loaders and backhoes would be used to complete the substation grading. Dump trucks, vac-trucks, concrete trucks, man-lifts, loaders, drill rigs and cranes would be needed to perform the substation construction.

5.7 Staging Areas and Temporary Workspace

ATC has identified 11 construction laydown areas within 10 parcels for the Project. Laydown 2 and Laydown 7 share the same parcel. A site map of the laydown areas is provided in **Appendix**

A, Figure 4. Exact laydown locations within parcels may shift, but any new locations will be selected away from sensitive natural resources. If additional staging areas or temporary workspaces are required, ATC will notify the Commission of these new construction locations and will submit the necessary information to the PSCW prior to establishing any such areas in accordance with Wis. Admin. Code § PSC 111.71.

Laydown yard locations have been selected based on their proximity to the proposed routes. Preference was given to locations where either existing improved parking lots were present, or where active quarries and gravel pits had the necessary capacity to store equipment during various construction phases. These sites were selected with the intention that no further expansion or ground disturbances would be needed.

Laydown Yard	Address/Coordinates	Description
Laydown 1 - Phoenix JCR Wauwatosa	11800 W BURLEIGH ST, CITY OF WAUWATOSA 43.084996, -88.060240	Paved lot
Laydown 2 - Lannon Stone Company	N52W23096 LISBON RD, TOWN OF LISBON 43.119366, -88.206400	Quarry
Laydown 3 - Zignago Construction	9327 N SWAN RD, CITY OF MILWAUKEE 43.187343, -88.024036	Gravel lot
Laydown 4 - Canadian National R&R	TOWN OF LISBON 43.111899, -88.202356	Paved/gravel lot
Laydown 5 - Granville Rd RR Yard	8716 N GRANVILLE RD, CITY OF MILWAUKEE 43.176187, -88.042095	Paved lot
Laydown 6 - Sussex-West Quarry ()	N51W23995 LISBON RD, TOWN OF LISBON 43.110442, -88.222685	Quarry
Laydown 7 - Lannon Stone Company	N52W23096 LISBON RD, TOWN OF LISBON 43.123253, -88.206065	Quarry
Laydown 8 - Lannon Stone Company	W220N6799 TOWN LINE RD, TOWN OF LISBON 43.140354, -88.194286	Quarry
Laydown 9 - 9000 W Fond du Lac Ave	9000 W FOND DU LAC AVE, CITY OF MILWAUKEE 43.128221, -88.024310	Paved lot

Laydown Yard	Address/Coordinates	Description
Laydown 10 - Drexel Building Supply	W232N5700 WAUKESHA AVE, VILLAGE OF SUSSEX 43.120013, -88.208729	Paved lot
Laydown 11 - Cargill	5701 N 124TH ST, CITY OF MILWAUKEE 43.122491, -88.065665	Gravel lot

5.8 Off ROW Access Roads

Sixty-nine off-ROW access routes have been identified throughout the Project area. Off-ROW access unique ID's and associated segments can be found in **Appendix A, Figure 4**. Off-ROW access will consist of temporary matted access to be removed and restored upon Project completion. Access will otherwise occur entirely from within the proposed or existing ATC ROWs, unless the contractor can arrange for voluntary alternative access that minimizes cost, environmental impacts, or landowner impacts.

A permanent driveway is proposed to the Mill Rd Substation. ATC evaluated multiple options with permanent driveway access from Mill Road and Lannon Road. A Practicable Alternatives Analysis has been completed and provided in **Appendix F, Exhibit 6**. Off-ROW laydown yards and staging areas are discussed above in **Section 5.7**. A site map depicting proposed temporary and permanent off-ROW access is provided in **Appendix A, Figure 4**.

Once construction is complete, any temporary off-ROW disturbances will be restored to pre-construction conditions. If additional off-ROW access paths are identified prior to construction for use during construction, ATC will complete an environmental review of these paths and submit the necessary information to the PSCW prior to establishing any such areas in accordance with Wis. Admin. Code § PSC 111.71.

5.9 Substation Site Information

5.9.1 Description, Diagrams, Graphics

The new Mill Rd Substation site is located on the slope of an existing hill that currently sees an approximate elevation change of 100 feet and is partially clear and partially wooded. The site is zoned Low Density/Residential. The site will include a substation pad, access drive, retaining walls, infiltration pond and wet pond. The substation pad will be 653 feet by 878 feet (12.3 acres). The access drive is approximately 25 feet by 2450 feet plus build up grading (1.4 acres). Three-tiered retaining walls on the southeast corner of the property are anticipated, totaling approximately 1690 feet of retaining wall. The infiltration and wet pond will be approximately 4.0 acres. Major new equipment in the substations will include a control building, H-Frame dead-ends, 345/138 kV power transformer, 345 kV and 138 kV breakers, 138 kV series reactor and 345 kV and 138 kV voltage transformers. See **Appendix I, Figure 1** for a detailed depiction of site feature geometry.

The existing Butler Substation will expand into a flat area to the west of the existing substation. The site is zoned Light Industrial (M-1). The expansion area will be approximately 85 feet by 370 feet and will comprise 0.88 acres in total. Major new equipment includes a 138 kV series reactor and H-Frame dead-ends. See **Appendix I, Figure 2** for detailed geometry of the site expansion.

The Granville Substation is an existing site and new substation equipment will be located within the existing substation. The site is zoned Industrial-Light. The perimeter, total area, and stormwater facilities of the substation will not be affected by this work. See **Appendix I, Figure 3** for a detailed grading plan of the existing site. Major new equipment includes a 345/138 kV power transformer. See **Appendix I, Figure 3**.

The existing Tamarack Substation will expand into a flat area to the east of the existing substation. The site is zoned Governmental and Industrial. The expansion area will be approximately 25 feet by 103 feet and will comprise 0.07 acres in total. Major new equipment includes a H-Frame dead-end. See **Appendix I, Figure 4** for detailed geometry of the site expansion.

5.9.2 Associated Transmission and Distribution Line Work

See **Section 1.3** for an overview of the transmission lines that will be constructed outside of the fence of the proposed substations.

6.0 NATURAL RESOURCE IMPACTS

6.1 Forested Land

Forested areas along the proposed routes were quantified as part of the land cover impact analysis (**Section 5.4**) and the resulting acreages are provided in the Land Cover table (**Appendix B**, **Table 2**). Forested lands are defined as an upland area of land covered with woody perennial plants reaching a mature height of at least six feet tall with definite crown (closure of at least 10 percent). For the purposes of the Application Filing Requirements, forested lands do not include narrow windbreaks located between agricultural areas but do include shrublands and forested riparian areas. The following tree size classification system was used to characterize forested units:

- Saplings refer to live trees from one to five inches diameter at breast height (dbh);
- Pole timber ranges from five to nine inches dbh (softwoods) and from five to 11 inches dbh (hardwoods); and
- Saw timber is greater than nine inches dbh (softwoods) and greater than 11 inches dbh (hardwoods).

6.1.1 Impacted Woodlands

The Project will impact forested lands along both the Proposed and Alternate Routes. Impacts will result from vegetation clearing for the new ROW, with varied clearing widths depending on transmission line voltage and configuration. The ROW will be maintained in perpetuity following construction via routine vegetation management practices that ensure the area remains free of incompatible woody vegetation. No woodland impacts are planned for temporary off-ROW access or staging areas.

The establishment of an additional hazard tree buffer along proposed routes may result in additional tree removal as a part of the Project. A hazard tree is defined as a tree that has been assessed and found to be likely to fail and cause an unacceptable degree of injury, damage, or disruption. Hazard trees pose a high or extreme risk. Hazard tree removal is sparse and selective in nature and does not result in the loss of forested land. Removal of hazard trees has not been included within this assessment as the impact is negligible overall.

In total, the Proposed Route contains approximately 5.22 acres of woodlands within the limits of the proposed ROW while the Alternate Route contains approximately 7.87 acres of woodlands within the limits of the proposed ROW. The Common Route contains approximately 63.00 acres within the ROW. The proposed substation sites and Mill Rd Substation driveway contain approximately 15.78 acres of woodlands within the limits of their proposed footprints. Additionally, the temporary bypass circuits contain approximately 3.68 acres of woodlands within their proposed alignment.

Dominant tree and shrub species observed throughout the Project footprint generally consist of Buckthorn (*Rhamnus spp.*), Honeysuckle (*Lonicera spp.*), box elder (*Acer negundo*), Basswood

(*Tilia americana*), Aspen (*Populus spp.*), and sumac (*Rhus spp.*). Other common species identified include oaks (*Quercus spp.*), black cherry (*Prunus serotina*), green ash (*Fraxinus pennsylvanica*), maples (*Acer spp.)*, willows (*Salix spp.*), black walnut (*Juglans nigra*), gray dogwood (*Cornus racemosa*), and elms (*Ulmus americana*). These species are comprised of a range of size classifications as determined during field surveys. These woodlands exist within the private property of individual landowners, public owned lands, and public road ROW.

Trees and brush will be cleared from the limits of the designed ROW and substation sites to facilitate construction equipment access and ensure safe clearances between vegetation and the transmission line. Clearing will be completed in advance of or concurrent with transmission line construction. Vegetation will be cut at or slightly above the ground surface using mechanized mowers, sky trims, processors, harvesters, or by hand. Rootstocks will generally be left in place except in areas where stump grinding is necessary to facilitate the movement of construction vehicles, or if requested by the landowner.

Engineering design and the final selection of access routes will attempt to minimize impacts to forested lands. A summary of the forest types, number of acres to be cleared, average size of trees, ownership, and use are shown in **Table 6.1.1-1** below by segment.

Table 6.1.1-1 Tree Clearing Summary

Segment	Type of Woods	Acres to clear	Average age/ size of trees	Dominant/Common Species	Ownership
Common Segments					
A	Wetland	3.52	Sapling	Hawthorn, Buckthorn, Autumn Olive, Sumac	Private
	Upland	7.98			
C	Wetland	4.35	Sapling / Pole Timber	Red Oak, Sugar Maple, Black Cherry, Basswood, American Elm, Green Ash, Boxelder, Buckthorn, Honeysuckle, Sumac	Public / Private
	Upland	6.84			
D	Wetland	9.72	Sapling / Pole Timber	Red Oak, Sugar Maple, Black Cherry, Black Locust, Cottonwood, Basswood, Green Ash, Boxelder, Buckthorn, Honeysuckle, Sumac	Public / Private
	Upland	6.01			
E	Wetland	2.14	No field data	No field data	Private
	Upland	3.06			
F	Wetland	0.00	No field data	No field data	Private
	Upland	0.21			
I	Wetland	2.17		Boxelder, Buckthorn, Honeysuckle	

	Upland	3.12	Pole Timber		Public / Private
K	Wetland	0.00	Pole Timber	Red Cedar, American Elm, Boxelder, Basswood, Green Ash, Oaks, Hawthorn, Buckthorn, Honeysuckle	Public / Private
	Upland	6.13			
L	Wetland	0.49	Pole Timber / Saw Timber	Basswood, Oaks, Green Ash, Buckthorn, Honeysuckle	Public / Private
	Upland	2.43			
M	Wetland	0.00	n/a	n/a	n/a
	Upland	0.00			
P	Wetland	0.00	Pole Timber / Saw Timber	Basswood, Boxelder, Willow, Oaks	Private
	Upland	0.22			
R	Wetland	0.00	No field data	No field data	Private
	Upland	1.36			
Proposed Route Segments					
J	Wetland	2.41	No field data	No field data	Public / Private
	Upland	1.73			
N	Wetland	0.36	Pole Timber	Basswood, Boxelder, Oaks, Buckthorn, Honeysuckle	Public / Private
	Upland	0.72			
Alternate Route Segments					
G	Wetland	1.17	Pole Timber / Saw Timber	Black Walnut, Sugar Maple, Boxelder, Green Ash, Cottonwood, Gray Dogwood, Buckthorn, Honeysuckle	Public / Private
	Upland	4.62			
O	Wetland	0.00	Pole Timber / Saw Timber	Basswood, Boxelder, Oaks, Buckthorn, Honeysuckle	Public / Private
	Upland	2.08			
Substations & Mill Rd SS Driveway					
B	Wetland	1.08	Sapling /	Red Oak, Black Cherry, Boxelder, Buckthorn	Private
	Upland	14.25			

			Pole Timber		
West Driveway	Wetland	0.80	No field data	No field data	Private
	Upland	0.66			
H	Wetland	0.00	n/a	n/a	n/a
	Upland	0.00			
Q	Wetland	0.00	n/a	n/a	n/a
	Upland	0.00			
Temporary Bypass Circuits					
Temp Bypass	Wetland	0.97	No field data	No field data	Private
	Upland	2.57			

6.1.2 Managed Forest Law and Forest Crop Law

ATC obtained information from the WDNR identifying quarter-quarter (40-acre) sections in which all or some portion of the land is enrolled in the Managed Forest Land (MFL) or the Forest Crop Law (FCL) programs. Only one MFL property exists along Segment C and is summarized below in **Table 6.1.2-1**. No FCL enrolled properties were identified along either proposed route.

Table 6.1.2-1 MFL Parcel Table

Type	Segment	Order Number	Approximate Forested Clearing (acres)	Order Expiration Date	Location
Common Route					
MFL	C	68-006-1995	2.11	12/31/2044	T08-R20E-S16, Part of the NW of the NW

The full extent to which program participation may be affected cannot be determined based on the information available to ATC. Currently, no impacts to the program are anticipated as the proposed work within the enrolled property follows the existing ATC transmission corridor. During the easement negotiation process, conflicts between the terms and conditions of the MFL Program Agreement and ATC's proposed easement, if any, will be addressed. If any landowner would be unable to continue in the program, or if the level of participation is impacted, ATC will compensate the landowner as appropriate. Due to conflicts between transmission line easements and the obligations of the landowner under the terms and conditions of this program, the land in the easement area may have to be removed from the MFL.

6.1.3 Mitigating or Minimizing Construction Impacts In and Around Forested Lands

The Project will require the clearing of woody vegetation within the Project's ROW. Tall-growing woody vegetation that may interfere with safe construction and safe and reliable operation of the transmission line will not be allowed to persist and will be controlled. Woody vegetation will be removed as needed within the ROW for construction of the Project and managed through the operational life of the facility. The Proposed and Alternate Routes, Mill Rd Substation site and driveway, and temporary bypass circuits will require the clearing of woody vegetation within the proposed ROW. Tall-growing woody vegetation that may interfere with safe construction and safe and reliable operation of the transmission line will not be allowed to persist and will be controlled. Woody vegetation may be chipped and scattered over the ROW in non-agricultural upland areas. Chipping will only occur in wetlands or floodplains such that chipped material is thinly scattered in a manner that does not impede revegetation, alter surface elevations, and/or obstruct the natural flow of water, in compliance with wetland permit requirements. Chipped material derived from onsite locations may be spread as mulch in upland areas to provide surface protection from erosion along access paths. Upon abandonment of access routes, mulch will be spread evenly so that it does not hinder revegetation. **Section 6.3** (Invasive Species) describes tree clearing timing restrictions and slash management procedures to prevent the spread of invasive species and disease-causing organisms.

Woody vegetation will be removed periodically through routine vegetation management activities throughout the transmission asset's operational life.

6.2 Grasslands

6.2.1 Grasslands Impacted by the Project

Grasslands within the Project area were quantified as part of the impact analysis (**Section 5.4**) and the resulting acreages are provided in the Land Cover table in **Appendix B, Table 2**. Grasslands identified within the Project area consist primarily of old fields, manicured areas, and roadside grasslands (dominated by herbaceous vegetation) that are not in agricultural production and include upland road ROW.

In total, the Proposed Route contains approximately 13.28 acres of grasslands within the limits of the proposed ROW while the Alternate Route contains approximately 19.20 acres of grasslands within the limits of the proposed ROW. The Common Route contains 157.33 acres of grasslands within the ROW. The proposed substation sites contain approximately 1.80 acres of grasslands within the limits of their proposed footprints. There are no impacts to grasslands expected as part of the Mill Rd Substation driveway. The temporary bypass circuits contain approximately 2.60 acres of grassland within their proposed alignment.

Based on preliminary construction plans, approximately 61.62 acres of temporary construction matting will be placed in grasslands along the Proposed Route while the Alternate Route plans

for approximately 64.60 acres placed in grasslands, of which 57.27 acres is common to both the Proposed and Alternate Routes.

Dominant grass species observed within the Project footprint generally consist of smooth brome (*Bromus inermis*) and Kentucky bluegrass (*Poa pratensis)*. Other common species identified include wild parsnip (*Pastinaca sativa*), goldenrods (*Solidago spp.)*, clovers (*Trifolium spp.*), wild bergamot (*Monarda fistulosa*), Canada thistle (*Cirsium arvense)*, bird's-foot trefoil (*Lotus corniculatus*), crown vetch (*Securigera varia*), dandelion (*Taraxacum officinale),* and Queen Anne's lace (*Daucus carota)*. These grasslands exist within the private property of individual landowners, public owned lands, and public road ROW.

Table 6.2.1-1 below summarizes grasslands within each route segment.

Table 6.2.1-1 Grassland Impacts Summary

Segment	Type	Dominant/Common Species	Acres	Ownership	Use
Common Segments					
A	Old Field	Reed Canary Grass, Timothy Grass, Canada Goldenrod, Bird's Foot Trefoil, Crown Vetch	1.95	Private	Natural Area
C	Roadside, Pasture, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Reed Canary Grass, Canada Goldenrod, Wild Bergamot, Canada Thistle, Bird's Foot Trefoil, Crown Vetch	33.05	Public / Private	Natural Area, Commercial, Residential
D	Roadside, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Reed Canary Grass, Goldenrods, Common Milkweed, Canada Thistle, Bird's Foot Trefoil, Crown Vetch, Queen Anne's Lace, Dandelion	37.11	Public / Private	Natural Area, Residential, Recreational
E	Roadside, Old Field, Manicured	No field data	2.48	Private	Natural Area, Commercial, Residential
F	Roadside, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Dandelion	3.25	Private	Natural Area, Residential

I	Roadside, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Reed Canary Grass, Wild Parsnip, Buckthorn, Honeysuckle	31.81	Public / Private	Natural Area, Commercial, Residential
K	Roadside, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Tall Fescue, Reed Canary Grass, Clovers, Goldenrods, Yellow Rocket, Queen Anne's Lace, Dandelion, Buckthorn, Honeysuckle	27.63	Public / Private	Natural Area, Commercial, Residential
L	Roadside, Manicured	Kentucky Bluegrass, Smooth Brome, Reed Canary Grass, Common Plantain, Dame's Rocket, Teasel, Canada Goldenrod, Queen Anne's Lace, Dandelion, Sumac, Buckthorn, Honeysuckle	6.55	Public / Private	Commercial, Residential
M	Roadside, Manicured	Kentucky Bluegrass, Common Plantain, Dandelion	0.55	Private	Commercial
P	Roadside, Manicured	Kentucky Bluegrass, Tall Fescue, Teasel, Queen Anne's Lace, Dandelion, Buckthorn	5.25	Private	Commercial
R	Old Field	No field data	5.10	Private	Natural Area
Proposed Route					
J	Roadside, Manicured	Kentucky Bluegrass, Reed Canary Grass, Canada Goldenrod, Oxeye Daisy, Thistles, Crown Vetch, Queen Anne's Lace	8.69	Public / Private	Natural Area, Commercial
N	Roadside, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Tall Fescue, Teasel, Mullein, Buckthorn	4.59	Public / Private	Natural Area, Commercial, Residential
Alternate Route					

G	Roadside, Manicured	Kentucky Bluegrass, Tall Fescue, Reed Canary Grass, Goldenrods, Common Milkweed, Canada Thistle, Bird's Foot Trefoil	15.07	Public / Private	Natural Area, Commercial, Residential
O	Roadside, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Reed Canary Grass, Orchard Grass, Common Plantain, Teasel, Canada Goldenrod, Thistles, Crown Vetch	4.13	Public / Private	Natural Area, Commercial, Residential
Substations & Mill Rd SS Driveway					
B	Old Field	Smooth Brome, Canada Goldenrod, Dame's Rocket	0.68	Private	Natural Area
West Driveway	n/a	n/a	0.00	Private	n/a
H	Manicured	Kentucky Bluegrass, Clovers, Dandelion	0.17	Private	Commercial
Q	Manicured	Kentucky Bluegrass, Tall Fescue, Dandelion	0.95	Private	Commercial
Temporary Bypass Circuits					
Temp Bypass	Roadside, Old Field, Manicured	Kentucky Bluegrass, Smooth Brome, Dandelion, Creeping Charlie, Buckthorn	2.61	Private	Natural Area, Residential

6.2.2 Mitigating and Minimizing Construction Impacts In and Around Grasslands

Impacts to grasslands from construction activities will be mitigated and minimized throughout Project implementation. This may be achieved through carefully planned access routes, avoidance, when possible, limited access widths, and the use of construction matting to minimize the potential for ground disturbance. BMPs to prevent the introduction and spread of invasive species will be followed and are detailed in **Section 6.3**. BMPs will also help further minimize construction impacts to grasslands.

Means to mitigate or minimize construction activities near grassland areas are as follows:

- When possible, access paths will be developed within the ROW to minimize soil disturbance and impacts to existing vegetation including grasslands.

- Erosion control BMPs will be used to reduce potential topsoil loss and stormwater runoff.
- In places where the ground is uneven, grading may occur to provide a safe and level driving surface for equipment. Grading will be confined to an area that is necessary for equipment while leaving adjacent grassland areas undisturbed to the extent possible.
- Timber construction matting will be used in many areas to reduce impacts to the ground surface.
- Sensitive grasslands with areas of native vegetation or sensitive species may be avoided by carefully planned access paths when possible.
- Once construction is completed, appropriate seed mixes will be used during restoration. Natural areas or prairie grasslands with a variety of species may be seeded with a native seed mix. Other areas such as pastures or manicured areas may be seeded with a mix appropriate for those areas. See **Section 6.9** for more details regarding restoration.

6.3 Invasive Species

6.3.1 Invasive Species/Disease-Causing Organisms

Field investigations for regulated invasive plant species were completed where access was available within the Project area during the 2024 growing season. The general location and composition of invasive plant species present along the Proposed and Alternate Routes were documented during environmental field surveys. Survey areas are depicted on the wetland report figures in **Appendix F, Exhibit 3**. The general locations of regulated invasive plant species will be shared with the Project team to help with avoidance and implementation of invasive species BMPs.

Regulated invasive plant species were commonly observed along both routes and are typical of roadside, agricultural, and developed areas. It is assumed these species are present within Project areas that were not accessible at the time of field survey. Overall, 14 invasive plant species were noted. Of these, 12 species fall into the “Restricted” category, while 2 fall into the “Prohibited/Restricted” category of Wis. Admin. Code ch. NR 40. The observed species include:

Species observed	NR 40 Status
Canada Thistle (Cirsium arvense)	Restricted
Hybrid cattail (Typha X glauca*)*	Restricted
Common reed (Phragmites australis)	Prohibited/Restricted
Buckthorn (Rhamnus cathartica)	Restricted
Teasel (Dipsacus sp.)	Restricted
Crown vetch (Coronilla varia)	Restricted

Dames rocket (Hesperis matronalis)	Restricted
Honeysuckle (Lonicera sp.)	Prohibited/ Restricted
Reed canary grass (Phalaris arundinacea)	Restricted
Spotted knapweed (Centaurea biebersteinii)	Restricted
Wild Parsnip (Pastinaca sativa)	Restricted
Multiflora rose (Rosa multiflora)	Restricted
Japanese knotweed (Polygonum cuspidatum)	Restricted
Oriental bittersweet (Celastrus orbiculatus)	Restricted

The Project's location spans Waukesha, Washington, and Milwaukee Counties and is within the established state distribution of Oak wilt disease (*Bretziella fagacearum*) and quarantine zone for the emerald ash borer (*Agrilus planipennis*). The Project's location is also within established quarantined spongy moth (*Lymantria dispar*), formerly known as gypsy moth, areas.

6.3.2 Mitigation Methods

BMPs will be used to comply with Wis. Admin. Code ch. NR 40 and Commission requirements. The intent of these practices is to prevent the introduction of invasive species to uninfected areas and limit the spread of invasive species already present onsite.

Additionally, these practices will minimize the potential introduction, spread or transport of invasive species to off-site locations. General BMPs that may be used during construction are presented below.

- Avoidance through construction timing and alternative access;
- Proper management of construction vehicles and materials (i.e. storage, cleaning);
- Minimizing ground disturbance;
- Placing a barrier between construction vehicles and plants (i.e. construction matting);
- Proper storage and disposal of plant materials; and
- Promoting native regeneration.

To minimize the spread of oak wilt, ATC will avoid cutting or pruning oak trees during the restricted times outlined in Wis. Admin. Code § PSC 113.051 (April 15 – July 1).

Standard practices that minimize the spread of emerald ash borer include avoiding the movement of ash wood from emerald ash borer quarantine areas to non-quarantine areas, as per Wis. Admin. Code § ATCP 21.17. Similarly, standard practices to avoid the spread of the spongy moth include avoiding movement of wood from spongy moth quarantine areas to non-quarantine areas, as per Wis. Admin. Code § ATCP 21.10. If cut vegetation cannot be left on-site, alternative plans will be developed to meet the requirements.

6.4 Archaeological and Historic Resources

Pursuant to Wis. Stat. § 44.40, ATC's consultant, Stantec, conducted an archival and literature review concerning known historic architectural properties, archaeological sites, and human burials/cemeteries with the potential to be impacted by the Project. To assess the Project's potential cultural resource impacts, Stantec staff examined the National Register of Historic Places (NRHP), inventories contained in the Wisconsin Historic Preservation Database (WHPD), and other archival documents. Not only was information about known cultural resources reviewed, but data contained in prior archaeological reports were also examined to determine whether locations potentially impacted by Project-related ground disturbance have been investigated previously.

Due to confidentiality requirements, the archaeological resource literature review report accompanying this Application has been redacted. A confidential copy of the archaeology letter report has been provided to the PSCW (**Appendix F, Exhibit 4**).

6.4.1 Construction Location List

Stantec staff considered separate areas of potential effect (APEs) for archaeology and historic architecture. The proposed Project's archaeological APE consists of all physical locations where Project-related ground disturbance could occur, while lands lying within a quarter mile of existing transmission line centerlines and a half mile from new, proposed centerlines comprise the historic architecture APE. Maps identifying these APEs and all known resources within them are included in the archaeological and architecture history reports attached to this Application (**Appendix F, Exhibits 4 and 5**).

6.4.2 Wisconsin Historic Preservation Database Results

Review of the WHPD identified ten (10) archaeological sites and one (1) Euro-American cemetery within the proposed Project's archaeological APE. All but one of the archaeological resources are associated with the pre-contact era and are known as two unnamed sites (MI-0141 and WK-0578), Roebel Camp Site (WK-0026), Poplar Creek Finds (WK-0422), Gettleman (WK-0543), Reimer (WK-0560), Gettleman 2 (WK-0587), Lenser 1 (WK-0654), and Lenser 2 (WK-0655). The non-burial post-contact site potentially impacted by the Project is known as the Zink Farmstead (WK-0555), while the Euro-American cemetery situated within the proposed Project's archaeological APE is known as the Rest Haven Cemetery (MI-0535/BMI-0001).

While none of these resources have been formally evaluated for their significance or integrity, previous archaeological investigations suggest that Poplar Creek Finds (WK-0422) and Reimer (WK-0560) lack the integrity necessary for listing in the National Register of Historic Places (NRHP). None of the resources within the Project's archaeological APE were subjected to field survey as current Project plans have a low likelihood to result in adverse effects. Potential Project impacts to the known archaeological sites and Euro-American cemetery are addressed in **Section 6.4.3**.

Review of the WHPD also identified 78 previously recorded historic architecture resources within the proposed Project's historic architecture APE. Associated files in the WHPD demonstrate that three of the 78 resources have been determined eligible for listing in the NRHP: (1) the Arthur Davidson Sr. House in Brookfield (FS7/AHI 16681); the Hegner-Karbowski Farmhouse in Milwaukee (FS41/AHI 114342); and the Upper Menomonee River Parkway in Wauwatosa (FS54/AHI 160841). One resource, the Gredler-Gramins House in Brookfield (FS6/AHI 7788) is already NRHP listed. Initial WHPD review indicated that the remaining 74 properties have not been formally evaluated for their NRHP listing.

Field survey of historic architectural properties was conducted in June and July 2024. Analysis of field work results confirmed the continued status of the NRHP listed property and two of the properties previously recommended as potentially eligible in the WHPD. The third potentially eligible property, FS41/AHI 114342, the Hegner-Karbowski Farmhouse, was recommended not eligible for the NRHP, due to a lack of integrity and significance. Stantec also recommended an additional six resources as likely having the significance and integrity necessary for NRHP listing. One of these resources, the Chicago and Northwestern Railway Bridge over the Menomonee River (FS32/AHI 245579), is treated as considered eligible for the purposes of this report, as it very likely is, but access was not available to determine its current state.

6.4.3 Project Impacts

Project-related ground disturbance has the potential to impact ten known archaeological sites.

Impacts to site MI-0141 and Roebel Camp Site (WK-0026) could include soil grading, transmission structure foundation installation, timber mat placement, and vehicle/equipment access. As these sites have not been formally evaluated for their potential to be listed in the NRHP, Stantec recommends that Project-related ground disturbance at these sites remain within the assumed plow zone and not extend to soils greater than six inches below the ground surface. Should Project plans include ground disturbance beyond such depths within these sites' boundaries, then additional archaeological investigation may be necessary to assess their significance and integrity.

Five known archaeological sites (Gettleman [WK-0543], Unnamed [WK-0578], Gettleman 2 [WK-0587], Lenser 1 [WK-0654], Lenser 2 [WK-0655]) have the potential to be impacted by Project activities related to transmission line reconductoring. While this reconductoring involves the replacement of select transmission line structures, no such structures exist within the boundaries of these sites. In addition, Project plans include the placement of timber mats across the ground surface during reconductoring efforts. The placement of timber mats will stabilize the ground surface and increase accessibility to the transmission line, reducing ground disturbance to soil compression within approximately six inches of the ground surface and creating conditions that will effectively reduce the potential for adverse impacts to these known resources.

The WHPD-mapped spatial boundaries of the Zink Farmstead (WK-0555) are impacted by an off-ROW access route proposed to be used for reconductoring efforts. Further research has

determined that the site's mapped boundaries in the WHPD are incorrect and that it lies entirely outside of the proposed off-ROW access. As such, it is very unlikely that the Zink Farmstead (WK-0555) will be impacted by Project-related ground disturbance.

The Project has the potential to impact Poplar Creek Finds (WK-0422) through the uprating of an existing transmission line structure and the use of an off-ROW access route. It is Stantec's opinion that the site will not be impacted by the proposed uprating as the cultural material from Poplar Creek Finds (WK-0422) exists in a low density and likely does not meet the eligibility requirements for listing in the NRHP.

The construction efforts related to a new Project-related substation and access route have the potential to impact a known archaeological resource known as Reimer (WK-0560). Prior site documentation has demonstrated that this site likely lacks the significance and integrity necessary for listing in the NRHP, and as such Stantec recommends that Project-related ground disturbance proceed as planned at Reimer (WK-0560) without further archaeological investigation or avoidance measures.

Project-related ground disturbance also has the potential to impact the Rest Haven Cemetery (MI-0535/BMI-0001). Impacts to this resource could include soil grading, the retirement and removal of existing transmission lines, the installation of new transmission line structure foundations, the placement of timber mats, and vehicle/equipment access. Due to this resource's relatively small footprint it is likely that Project-related ground disturbance at Rest Haven Cemetery (MI-0535/BMI-0001) will be limited to the placement of timber mats that will be installed to facilitate access to the Project ROW. While it is unlikely that timber mat placement will result in adverse effects to Rest Haven Cemetery (MI-0535/BMI-0001), their placement could constitute ground disturbance requiring the filing of a Request to Disturb a Human Burial Site (RTD) permit. Further information concerning this potential permit is available in **Section 6.4.5**.

6.4.4 Project Mitigation Measures

As can be seen in the table below, six of the eligible properties will experience no effects from this Project, and two properties will experience no adverse effects. The Schwabenhof resource (FS30/AHI 16801) will experience adverse effects from the Alternate Route and no adverse effects from the Proposed Route, as discussed in the associated report (**Appendix F, Exhibit 5**). Detailed effects analyses are included in the corresponding field site narrative section of this report.

NRHP Listed and Eligible Properties

Field Site No./WHPD No.	Site Name	Location	Effects
FS5 / 239421	Cy and Nancy Werner House	New Berlin	No Effects

FS6 / 7788	Gredler-Gramins House	Brookfield	No Effects
FS7 / 16681	Arthur and Clara Davidson Sr. Farmhouse	Brookfield	No Adverse Effects
FS8 / 220461	Erich and Betty Gnant House and Office	Brookfield	No Effects
FS19 & 20 / 124041 & 124042	Ranch Community Services	Menomonee Falls	No Adverse Effects
FS29 / 8039	H. Carl and Darlene Schulze House	Menomonee Falls	No Effects
FS30 / 16801	Bert Phillips Ballroom / The Schwabenhof	Menomonee Falls	**Proposed** – No Adverse Effects **Alternate**- Adverse Effects
FS32 / 245579	Chicago & North Western Railway Bridge over the Menomonee River	Milwaukee	No Effects
FS54 / 160841	Upper Menomonee River Parkway	Wauwatosa	No Effects

ATC will continue to seek opportunities to avoid or minimize impacts to cultural resources, to the extent practicable, through engineering and construction planning and implementation measures.

Engineering measures will focus on detailed design of proposed routes and evaluating opportunities to modify designs such that impacts are avoided or further minimized. Construction measures may include:

- Careful planning of access routes in a manner that avoids known cultural sites.
- Installation of timber matting or use of low-pressure tracked equipment to minimize equipment access disturbance.
- Installation of environmental signage notifying construction crews of sensitive resources and a requirement for modified construction practices.

Prior to start of construction, all crew members will receive Project-specific training, which includes direction for avoidance and/or minimization of impacts to cultural resources as well as plans to address any unanticipated archaeological discovery. Routine environmental construction monitoring, to be conducted throughout the course of Project implementation, will document Project activities in the vicinity of cultural resources and help to identify and avoid potential issues in the field. An onsite archaeological monitor may be required depending on permit conditions.

6.4.5 Burial Site Disturbance

The Project proposes timber mat placement across part of a cataloged burial site known as Rest Haven Cemetery (MI-0535/BMI-0001). ATC and Stantec will work with WHS to determine whether timber mat placement requires burial site disturbance authorization and/or permitting.

6.4.6 Unanticipated Archaeological Discoveries

An Unanticipated Archaeological Discoveries Plan is provided as **Appendix F, Exhibit 7**. Prior to the start of construction, all crew members will receive Project-specific training that includes direction for avoidance and/or minimization of impacts to cultural resources as well as plans to address any unanticipated archaeological discovery.

6.4.7 Native American Human Burial Sites

No Native American human burial sites or significant archaeological sites are mapped within the Project's archeological APE.

6.5 Conservation Easements

The Project crosses one property owned by the town of Brookfield with a WDNR conservation easement. This land was identified based on a review of conservation easement data available from the National Conservation Easement Database, Protected Areas Database of the United States, The Nature Conservancy Lands, the Wisconsin Department of Natural Resources and the Wisconsin Department of Agriculture Natural Resources Conservation Service Easements. Terms and conditions of the conservation easement will not be known until property title is received.

Segment	Area of Overlap	Easement Type (GAP)	Ownership
Common Route			
D	3.72	2 - Managed for biodiversity - disturbance events suppressed	State

This conservation easement is intersected already by the existing double-circuit 345 kV 9911 line. There are no structure replacements or new structures planned within the easement as

work will be limited to uprating the current 9911 line. The proposed work would cause temporary disturbance due to the placement of construction matting, however, conditions would be restored to their pre-construction conditions as best as practicable.

The title search information has not been completed for the Project. Upon receipt of a PSCW Decision and Order, title searches will be completed. If additional information regarding conservation easements is discovered during the easement acquisition process, ATC will work with the landowner to accommodate the existing agreement or make them whole.

6.6 Restoration

Throughout Project implementation, inspections will be conducted on a routine basis to monitor disturbance to soils and vegetation and track the need for re-vegetation and restoration activities in accordance with Wis. Admin. Code Ch. NR 216 and the WPDES general permit conditions. Documentation of inspections describing the re-vegetation progress and corrective measures taken will be maintained where applicable.

Site restoration, including re-vegetation where necessary, will be completed as soon as practicable upon completion of construction and as allowed by seasonal conditions. The need for and approach to site restoration and re-vegetation will be based on the degree of disturbance caused by construction activities and the ecological setting of each site. The actual restoration activities completed will be dependent on post-construction site conditions and landowner concerns. If construction and access can be accomplished without creating appreciable soil disturbance, restoration may not require active revegetation efforts in some locations.

A restoration plan for disturbed sites will be developed based on the level of ground disturbance and the site setting. In some cases, re-growth of vegetation in disturbed areas may be allowed to occur without supplemental seeding. In cases where there is no sign of re-growth of pre-existing vegetation in the first month of the subsequent growing season, an assessment will be made and, if necessary, an appropriate seed mix will be properly applied. Where appropriate and based on the surrounding habitat, seed mixes will contain a diversity of flowering species to support pollinator foraging and the seed bed will be adequately prepared to ensure successful germination. ATC standard seed mixes are provided in **Appendix F, Exhibit 10**. Restoration of disturbed areas will comply with WDNR-approved technical standards/BMPs and will be monitored to track seed germination and plant growth.

During active construction and restoration, inspections will be conducted to monitor re-vegetation and restoration activities in accordance with Wis. Admin. Code Ch. NR 216 and the WPDES general permit conditions. Written documentation of the inspection will be maintained describing the re-vegetation progress and corrective measures taken, if applicable. Upon completion of restoration, ATC will monitor each work location and access route to ensure stabilization and re-vegetation occurs. If regulated by Wis. Admin. Code ch. NR 151, monitoring will continue until vegetative cover reaches 70%. If required by the WDNR Utility Permit, additional monitoring of wetland vegetation will be completed.

Invasive species located along the Project ROW and the BMPs to avoid the spread of invasive species are discussed in **Section 6.3**. Prior to construction, ATC will identify locations where BMPs will be implemented to avoid the spread of invasive species to comply with the requirements of Wis. Admin. Code ch. NR 40. The BMPs are intended to prevent the spread of invasive species from areas currently impacted by invasive species to areas where invasive species are not present.

Areas where invasive species are not present prior to construction will be monitored during construction and restoration activities. The vegetative communities in these locations will be evaluated post-construction and compared to adjacent areas not accessed by construction vehicles to determine if invasive species have spread into the area, and if so, the likelihood that the spread was a result of Project construction. The post-construction invasive species monitoring will depend on the vegetative community and extent of infestation. Potential remedial actions will be site-specific and developed once these factors are evaluated.

6.7 Contaminated Sites

Contaminated sites were identified using online data provided by the WDNR and Bureau for Remediation and Redevelopment (BRRTS) tracking system (Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web | | Wisconsin DNR) and the WDNR Historic Registry of Waste Disposal Sites (http://dnr.wi.gov/topic/Landfills/registry.html). The presence of contaminated and/or historic waste disposal sites within two miles of each segment (Segments A-Q) of the Project centerline were determined using GIS measurements. A review of activity records indicated 1,027 BRRTS cases and 41 landfill/historic waste sites within two miles of the proposed Project route centerlines. Of these cases, 938 are closed BRRTS sites and 89 are open BRRTS sites. This information is mapped in **Appendix F, Exhibit 8.**

	Within 0-1 mile Buffer of Segment			Within 1-2 mi Buffer of Segment		
Segment ID	# of BRRTS Cases (Closed)	# of BRRTS Cases (Open)	# of Landfill/Historic Waste Sites	# of BRRTS Cases (Closed)	# of BRRTS Cases (Open)	# of Landfill/Historic Waste Sites
A	2	1	1	36	5	7
B	2	1	2	39	5	7
C	42	1	3	87	19	7
D	99	5	9	190	20	19
E	7	1	5	46	6	5
F	6	2	5	48	5	5
G	66	7	7	137	10	4
H	6	1	5	30	3	2
I	119	12	9	174	13	1

J	57	5	7	142	13	3
K	172	20	5	245	18	4
L	121	11	4	152	11	2
M	90	8	3	165	13	1
N	129	9	3	179	18	2
O	129	10	3	184	19	2
P	168	13	3	167	16	2
Q	121	8	0	187	20	4

6.8 Floodplains

Based on preliminary design assumptions, the Proposed and Alternate Routes will each have nine structures in floodplains and the Common Route will have 49 structures in floodplains. Based on preliminary construction plans, approximately 2.81 acres of temporary construction matting will be placed in floodplain along the Proposed Route, the Alternate Route plans for approximately 0.68 acres of temporary matting to be placed in floodplain, and the Common Route (including substations and temporary bypass lines) plans for approximately 29.07 acres of temporary matting placed in floodplain. Floodplains along proposed routes are displayed on **Appendix A, Figure 3**.

The Project will avoid or minimize floodplain impacts to the extent practicable through the engineering design of this Project, the use of specific construction techniques, and implementation of BMPs and ATC's standard environmental protection practices. When construction activities are complete, the matting will be removed, and the ground surface will be restored to pre-existing conditions to the extent practicable.

ATC has not reached out to the local floodplain zoning authority but does supply the applicable local governments with information and requests that they provide the PSCW and ATC with their comments or concerns regarding the siting and location of the proposed Project. ATC will review floodplain areas and address comments from the local units of government as necessary.

7.0 COMMUNITY IMPACTS

7.1 Communication with Potentially Affected Public

Project Mailer

On October 1, 2024, ATC sent Project notification mailings to landowners within 300 feet of the proposed centerlines and to landowners on either side of highways along the proposed routes. In addition, a small number of landowner parcels were added to provide a contiguous universe of selected parcels along certain roads and to avoid selection gaps. Mailings were also sent to relevant county and municipal local officials and staff.

The Project mailers included a letter, Project description, Project overview map, sectional map (based on the location of the parcels owned and/or jurisdiction represented), preliminary Project schedule, URL of the Project webpage, a QR code linking to a detailed Project video, and ATC contact information. Copies of public outreach mailings are included in **Appendix E, Exhibits 1** and **2**.

Direct mail pieces also included information regarding submission of electronic or written comments to the Commission after submission of the Application. The docket number for the Project was included. ATC received one electronic comment from Milwaukee County prior to this Application's filing, provided as **Appendix E, Exhibit 3**.

The Parcel Notification Map is provided as **Appendix A, Figure 8** with the "Notification Area Shaded."

Project Website

Prior to sending the Project mailer, ATC launched a dedicated Project webpage (https://atc-projects.com/Mill-Granville). This page included several features including a detailed Project video designed to provide a Project overview and an interactive Project map. The website also contained information regarding the Project need, frequently asked questions, topic-specific fact sheets, regulatory process and Project schedule.

7.2 Community Issues

At this time, no community issues have been identified.

7.3 Land Use Plans

Existing land use plans are provided in **Appendix A, Figure 7.**

7.4 Agriculture

7.4.1 Type of Farming

The primary farming practice along the Proposed and Alternate Routes is non-specialty row crops; generally, corn, soybean and oats. The amount and type of agricultural land use along the proposed routes, by route segment, are detailed in **Appendix B, Table 2**. No specialty agricultural land use or organic farming is present within the Project area.

The total agricultural land use along the Alternate Route is 18.72 acres or approximately 1% of the proposed ROW. The total agricultural land use within new and expanded substations is 8.37 acres and is entirely associated with the proposed Mill Rd Substation. The total agricultural land use within the proposed West Driveway is 0.90 acres. The total agricultural land use for the temporary bypass is 0.70 acres. No agricultural lands are present along the Proposed or Alternate Routes.

7.4.2 Agricultural Practices affected by Farming

Cropland is the only agricultural practice affected by the Project, as no specialty agriculture has been identified in the Project Area. Due to agricultural BMPs of crop rotation, fallow years, and the planting of non-harvested cover crops, the type of crop affected at the time of construction is currently unknown.

No irrigation systems are known to exist within the proposed Project area. Drainage tiles may be present but have not been confirmed. Temporary impacts during construction may include crop loss, soil compaction, and damage to drain tiles. ATC will work with landowners to address drain tile concerns throughout the Project planning and implementation phases.

Other agricultural practices that may be affected by the Project (construction or operations), also include aerial seeding or spraying, windbreaks, and organic farms.

Aerial seeding or spraying practices are not yet known; however, limiting them will be short term in nature, and would primarily consist of crop losses from loss of access to land, and/or soil compaction along equipment access routes and around structure installation sites. Short-term impacts would be minimized by providing compensation to producers and by restoring agricultural lands to the extent practicable. Where appropriate, minimization techniques such as topsoil replacement and deep tilling may be used.

Long-term impacts such as removal of a windbreak would be required to safely construct, operate and maintain the transmission lines in easement areas. ATC will hire an Agricultural Specialist who will work with agriculture owners to suggest newer practices such as planting a cover crop between fields. Property owners will be consulted during the real estate acquisition process to accommodate their needs to the extent practicable.

In the case of organic farms, if identified, landowners will be consulted to minimize potential impacts due to the transmission line routing or construction. Methods to minimize impacts could include offsetting the transmission line structures from the property line so tree lines or other buffers are maintained. Additionally, construction vehicles may be cleaned prior to entering the organic farm parcels, based on input from the landowner. Further, to protect organic farms during vegetation management activities once the line is in operation, herbicide would not be applied within portions of the ROW on which the landowner wishes not to introduce it. Where necessary, ATC will follow organic protocols consistent with those of the certifying agency employed by the farmer. The only permanent impact to agriculture will occur from transmission structures placed within active agricultural land. Currently, 10 structures are

proposed to be installed within agricultural land along the Common Route. No transmission structures are proposed to be installed within agricultural land along the Alternate Route or Proposed Route. 14.63 acres of agricultural land from the Mill Rd Substation parcel and 9.20 acres of agricultural land from the West Driveway parcel will no longer be farmed. Impacts from construction will be minimized through the mitigation measures presented in **Section 7.4.4**.

7.4.3 Farmland Preservation Program

ATC is not aware of any parcels enrolled in the Farmland Preservation Program. No title documentation has been reviewed to analyze for permanent agricultural or conservation easements that may be affected by the Project.

7.4.4 Mitigation of Construction Impacts – Agricultural Lands

Potential impacts on agriculture from Project construction include crop losses, soil mixing, and/or soil compaction along equipment access routes and at structure installation or modification sites. These impacts are expected to be short term and temporally limited to construction. These impacts may be minimized by utilizing existing access paths in agricultural fields and replacing topsoil in impacted areas. Mitigation measures could include compensation to producers for loss in productivity and restoring agricultural lands to the extent practicable through decompaction and drain tile repair if necessary.

Each agricultural landowner who may be affected by the Project will be consulted regarding farm operation, locations of farm animals and crops, current farm biological security practices, landowner concerns, and use of access routes. Potential impacts to each farm property along the Project routes will be identified and, where practicable, construction impact minimization measures may be implemented.

7.4.5 Drainage Districts

The DATCP mapping for Wisconsin Drainage Districts does not identify drainage districts of any status along the proposed routes.

7.4.6 Agricultural Impact Statement (AIS) Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP)

An AIS is generally required when a “project involves the actual or potential exercise of the powers of eminent domain and if any interest in more than five acres of any farm operation may be taken.” Wis. Stat. § 32.035(4)(a). As there is the potential that eminent domain may be used to acquire more than five acres of any farm operation, this Project would require an AIS to be prepared.

ATC has consulted with DATCP representatives and is submitting an Agricultural Impact Notice (AIN) to DATCP concurrent with the filing of this Application. Please refer to **Appendix H, Exhibit 1** for a copy of the AIN.

7.4.7 Neutral-to-Earth (NEV) and Induced Voltage

No confined animal dairy operations are located within one-half mile of the Proposed Route centerline. ATC has identified two confined animal feeding operations. ATC has identified one agricultural building within 300 feet of the Proposed Route centerlines. See **Appendix A, Figure 6**. The Proposed and Alternate Routes will run parallel to railroads and gas pipelines. No induced voltage impacts are expected. An induction study will be completed to confirm results.

7.5 Residential and Urban Areas

There are 180 homes and apartments located within 300 feet of the Project centerline for the Proposed Route, and of these existing residences none are located within the Project ROW.

There are 82 homes and apartments located within 300 feet of the Project centerline for the Alternate Route, and of these existing residences four are located within the Project ROW.

See **Appendix B, Table 5** for additional information.

Anticipated impacts to residences and the planned mitigation are described below:

Noise

A majority of the proposed transmission line is located in non-residential areas, and the primary laydown/show-up yard is an existing quarry. The equipment noise levels of the laydown yards will be consistent with local truck traffic and equipment. The construction noise levels along the transmission line route including the substation sites will be equivalent to highway traffic and truck equipment throughout the remaining Project route.

Noise will be intermittent and not out of the ordinary for general truck traffic. Most truck and equipment noise will be from 6:00 am to 7:00 pm, Monday through Friday. There is also the possibility for some weekend work between 6:00 am to 7:00 pm. Most trucks will leave the designated laydown yards each day during this time.

When undertaking construction activities around residences, especially when constructing the new Mill Rd Substation, ATC and its contractor will be cognizant of the residents and will limit work hours in that area, specifically during the early morning hours.

Dust

Dust impacts will be minimized throughout the Project, especially adjacent to residential areas. ATC and its contractors will clean up any dirt or mud that may be tracked onto private driveways, access roads, local roads, or the highway on a daily basis. Drilling operations for the installation of the transmission line foundations will create limited spoil piles, which will be hauled off site as soon as practical. Water will be used to control dust during grading operations at Mill Rd, Tamarack and Butler Substations. Erosion control measures will be installed, and areas will be restored as soon as possible after grading is complete to further reduce the potential for construction dust.

Duration of Construction

Construction is anticipated to begin in early 2026 and end in late 2027.

Time-of-Day Construction

Construction work will generally occur Monday through Friday during daylight hours. Weekend work is also very likely. No night work is anticipated at this time.

Road Congestion

Construction vehicles will use public roads to access the ATC ROW. There may be occasions when construction vehicles are parked on roads during construction. ATC will minimize the number and amount of time vehicles are parked on the roads. All current traffic control measures will be adhered to while equipment is on a public roadway.

Impacts to Driveways

The only driveways ATC and its contractor anticipate using are driveways on which ATC receives specific landowner permission to travel or park equipment. ATC will ensure residence driveways are not blocked with equipment.

7.6 Aesthetic Impacts

No photo simulations were requested by Commission Staff. No scenic roads were identified in the Project area.

7.7 Parks and Recreation Areas

The Project intersects one public trail, two parks and is within 300 feet of three additional parks. Marx Park is located in and owned by the town of Brookfield and is within 300 feet of Segment D of the Common Route with no direct impacts. Soccer Park is located in and owned by the city of Brookfield and intersected by the ROW in Segment D with no impacts. The New Berlin Recreational Trail is located in the city of Waukesha and within 300 feet of Segment D outside of the Project area with no impacts. The trail is located within WEPCO and ATC ROW, but outside of the Project area. Willowood Park is located in and owned by the village of Menomonee Falls and is within 300 feet of Segment G on the Alternate Route with no impacts. Mitchell Park is located in and owned by the city of Brookfield and is intersected by Segment D of the Common Route with one structure planned for replacement. Work is planned to occur entirely within the existing ATC ROW and will utilize temporary construction matting and pads to facilitate access. The Little Menomonee Parkway is located in the city of Wauwatosa and owned by Milwaukee County Parks and is intersected by Segment K of the Common Route, Segment N of the Proposed Route, and Segment O of the Alternate Route. Temporary construction matting and work pads are planned in all three segments to facilitate access. Three new structures are proposed within the Parkway within Segment O of the Alternate Route. Eight structures are proposed for replacement within Segment N of the Proposed Route. Four (4) structures are proposed for replacement within Segment K of the Proposed Route. A summary of impacts by route is provided in **Table 7.7-1** below.

Table 7.7-1 List of Parks, Recreation Areas and Trails Affected by the Project

Segment	Property Name	Owner/Manager	Description of Impacts
Common Route			
D	Marx Park	Town of Brookfield	Within 300 feet – no impacts
D	Soccer Park	City of Brookfield	Within 300 feet – no impacts
D	New Berlin Recreation Trail	WEPCO/ATC ROW	Within 300 feet – no impacts
D	Mitchell Park	City of Brookfield	Intersects Project area - one structure replacement, temporary construction matting and access
K	Little Menomonee Parkway	Milwaukee County Parks	Intersects Project area - Four replacement structures, temporary construction matting and access
Proposed Route			
N	Little Menomonee Parkway	Milwaukee County Parks	Intersects Project area - Eight replacement structures, temporary construction matting and access
Alternate Route			
G	Willowood Park	Village of Menomonee Falls	Within 300 ft – no impacts
O	Little Menomonee Parkway	Milwaukee County Parks	Intersects Project area - Three new structures, temporary construction matting and access

Structure placement and construction matting has been designed and placed intentionally to minimize impacts to surrounding resources and avoid clearing by utilizing existing ROW easements where possible. Temporary construction matting and pads will be used to minimize equipment access disturbance. Once construction activities are complete, the matting will be removed, and the ground surface restored to pre-existing conditions to the extent practicable.

ATC will work with the land managers to coordinate the timing of construction to minimize impacts to park and recreational area users. To ensure public safety, portions of these areas

may need to be closed temporarily during construction. ATC will minimize the area and duration of closures as much as possible and work with the land managers to communicate any necessary closures to park and recreational area users.

7.8 Airports

ATC will work with the land managers to coordinate the timing of construction to minimize impacts to park and recreational area users. To ensure public safety, portions of these areas may need to be closed temporarily during construction. ATC will minimize the area and duration of closures as much as possible and work with the land managers to communicate any necessary closures to park and recreational area users.

7.8.1 Location of Private and Public Airstrips GIS

A list of the airports and heliports and their corresponding locations are provided in **Table 7.8.1** below:

Type of Facility	Facility Name	Ownership	Type, Orientation, & Length of Runway	Owner Address	Owner City/State/Zip	Medical Use	Distance from Project (mi)
Heliport	Aurora St Luke's Medical Center	Private	H1 Aluminum	2900 W. Oklahoma Ave	Milwaukee, WI 53215	Yes	1.0 Miles to Segment K
Airport	Capital Drive	Private	Runway 3/21 Asphalt – 2994' Runway 9/27 Asphalt – 3387' Runway 18/36 Turf – 1602'	4800 N. Pinecrest Drive	Chenequa, WI 53058		1.0 Miles to Segment D
Heliport	Columbia St Mary's	Private	H1 Rooftop	2323 N Lake Dr	Milwaukee, WI 53211	Yes	8.0 Miles to Segment K
Heliport	Community Memorial Hospital	Private	H1 Asphalt	W180 N8085 Town Hall Road	Menomonee Falls, WI 53052	Yes	0.2 Miles to Segment C
Airport	Doering Farms	Private	Runway 3/21 Turf – 2600'		Colgate, WI 53017		9.4 Miles to Segment M
Airport	Faken	Private	Runway N/S Turf – 2000'	19019 W Coffee Road	New Berlin, WI 53151		2.9 Miles to Segment D
Heliport	Hoffman Prop Inc	Private	H1 Concrete	PO Box 170320	Milwaukee, WI 53217		9.6 Miles to Segment K

Airport	Lawrence J Timmerman	Public	Runway 15L/33R Asphalt – 4107' Runway 4L/22R Asphalt – 3203' Runway 15R/33L Turf – 3231' Runway 4R/22L Turf – 2840'	County Courthouse	Milwaukee, WI 53233		1.0 Miles to Segment K
Heliport	Milwaukee Regional Medical Center	Private	H1 Asphalt H2 Asphalt/Concrete	9000 W. Wisconsin Ave	Milwaukee, WI 53226	Yes	4.4 Miles to Segment Q
Airport	SSS Aerodrome	Private	Runway 18/36 Turf – 1100'	7018 W Bonniwell Rd	Mequon, WI 53092		8.7 Miles to Segment K
Heliport	St Mary's Hospital of Milwaukee	Private	H1 Concrete	2323 N Lake Dr	Milwaukee, WI 53211	Yes	8.0 Miles to Segment K
Heliport	St Mary's Hospital Ozaukee	Private	H1 Asphalt	13111 N. Port Washington Rd	Mequon, WI 53097	Yes	9.6 Miles to Segment K
Heliport	St Mary's Hospital Ozaukee	Private	H1 Concrete	2323 N Lake Dr	Milwaukee, WI 53211	Yes	9.6 Miles to Segment K
Airport	Waukesha County	Public	Runway 10/28 Concrete – 5849' Runway 18/36 Asphalt – 3599'	515 W Moorland Blvd	Waukesha, WI 53188		3.7 Miles to Segment D
Heliport	Waukesha Memorial Hospital	Private	H1 Mats	725 American Avenue	Waukesha, WI 53188	Yes	3.4 Miles to Segment D
Airport	Willow Creek	Private	Runway 7/25 Turf – 1200'	N201 W10360 Will	Colgate, WI 53017		0.6 Miles to Segment C
Heliport	WITI TV Studio Building	Private	H1 Asphalt	9001 North Green Bay Road	Brown Deer, WI 53209		4.2 Miles to Segment K

7.8.2 Description of Airports T Line

Under the provisions of 14 C.F.R. Part 77 (Part 77), the FAA's objective is to ensure safe and efficient use of the navigable airspace for public use and military airports and heliports. To accomplish this objective, the FAA conducts aeronautical studies of proposed and existing structures provided to the FAA in Form 7460-1, Notice of Proposed Construction or Alteration. The criteria for filing a notice are defined in Part 77.9. Part 77 does not typically apply to private use facilities, except those that have FAA-approved plans or procedures. Nevertheless, ATC used the same imaginary surface requirements that the FAA enforces on public use airports when evaluating the proposed route corridors and potential impacts to private use facilities. The description of facilities and evaluation of impacts is discussed below. Please see **Table 7.8.1** for a description of the airports/airstrips, their runways, and types of use.

7.8.3 Impact to Aircraft Safety T Line

The Project is governed by Wis. Stat. § 196.491(3)(i). Where structure heights meet FAA requirements but would otherwise be further restricted by height limitation zoning ordinances, ATC is not subject to those zoning ordinances but will work with the impacted local units of government to reasonably address their concerns.

7.8.4 Potential Construction Limitations and Permit Issues T Line.

ATC used the FAA Notice Criteria Tool to determine which structures in the Project would require filing with the FAA. The FAA Notice Criteria Tool has been checked for all proposed structure locations. Portions of the proposed alignments require notice to the FAA either due to proximity or height. Each structure was checked in the Notice Criteria Tool at the actual proposed structure height from the Preliminary Design. Structures will be filed for the actual height on the ordered route once design is completed.

7.8.5 FAA Documentation T Line

Documentation of the FAA Notice Criteria Tool checks along with a summary of checks performed and results are included in **Appendix H, Exhibit 2.**

7.9 Communication Towers

7.9.1 Communication Interference T Line

A preliminary communication interference study was performed. To identify any communication towers adjacent to the proposed routes, a 10 km radius was utilized for analysis. The following communications were identified in the report: land mobile, commercial, broadcast, microwave, paging base stations (PAG), cell, antenna structure registration, and AM and FM towers. Each route option has its own potential interference with communication, but once in detailed design, further analysis will be conducted to determine the scope of interference, if any, and the associated mitigation options.

The type of communication tower/facility will determine the types of interference that might be encountered with the addition of the transmission line facilities. Based on the types of facilities that were found to be located within 10 km of the proposed routes, the following are potential interference types that might occur; however, further studies during detailed engineering will be required to either confirm or disprove the interference impacts.

Communication Tower Noise Interference:

Radio frequency noise interference occurs when transmission line hardware is exposed to weather for long periods of time, typically years. Impurities in rain will build calcium deposits online hardware, which can result in high frequency spark gap emissions. Since new line hardware is designed and manufactured using modern production techniques, spark gap emissions are rare in new transmission line construction. If the transmission line does exhibit a level of corona discharge that requires correction, this can be remedied. Remedies for corona discharge include locating and correcting improperly installed transmission line hardware and, when necessary, providing additional noise shielding of antennas on the communication tower by relocating the affected antennas to the opposite side of the tower.

Microwave Signal Obstruction:

All microwave antennas emit a unidirectional polarized signal, which can be obstructed when man-made objects, such as steel poles, are placed within 0.6F1 (First Fresnel zone) of the parabolic antenna's cone of radiation. Other factors that are also considered to determine if microwave tower reliability will be affected include the diameter of the transmission line pole, pole height, microwave antenna height above ground level, and distance from the communication tower to the transmission line pole (Fraunhofer region). Microwave signals are not affected by transmission line conductors. During detailed engineering, a situational analysis can be completed to determine if any transmission line pole obstructions exist. If obstructions do exist, there are several ways to remedy the issue. Remedies include remounting the microwave antenna elsewhere on the communication tower, if possible, to reestablish line of sight clearance to the far end communication tower (note: Federal Communications Commission (FCC) license modification is required when raising a microwave antenna more than five feet above its licensed height on the tower) and relocating the transmission line pole. During ATC's inspection, no microwave facilities were found near the proposed lines that would need modification at this time, and network engineers would plan new facilities to avoid the lines.

Transferred Ground System Voltage:

Energized transmission line segments built within 500 feet of an existing communication tower site may increase the risk of transmission line noise conduction into sensitive electronic equipment due to the potential difference between ground systems. This condition may also increase the risk to human safety if a transmission line to ground fault were to occur. Detailed design analyses will address and recommend corrective grounding measures for all communication tower sites susceptible to this condition. For any issues determined during

detailed design, remedies could include modifying the tower site ground system to rectify this condition and providing additional transmission line ground conductors to balance the impedance between ground systems.

Paging Base Stations, Cell, and AM Facilities:

The FCC database research found PAG, cell, and AM facilities within 10 km of the proposed transmission routes. ATC does not anticipate potential interference with these facilities by the proposed transmission line route options. Typically, AM facilities have the potential for interference from transmission lines, such as distortion of the AM antenna radiation pattern. There were four AM facilities within the 10 km radius. The closest AM facility is in Union Grove and is about five km to the closest segment on the Proposed Route and farther to the Alternate Route. This distance should prevent issues for the AM stations near field radiation pattern. PAG are only transmitters (no receivers); therefore, they are not susceptible to radio frequency interference of any type.

Due to the ultra-high frequency bands on which cellular services operate, such services do not have the potential for radio frequency interference from the installation of a transmission line. Antenna Structure Registrations (ASRs) are applications made to the FAA for communication towers that exceed 200 feet in height as they can pose dangers to aircraft at that height. ASRs do not indicate the type of communication facility the tower might be supporting, if any.

7.9.2 GIS Location Information GIS

In order to determine the types of communication towers adjacent to the proposed routes, a research of available FCC databases was conducted and all communication towers within a 10 km distance were determined. A location map showing all facilities within the 10 km range and accompanying tables which indicate facility type, owner, location, and distance to the proposed routes can be found in **Appendix D**, **Exhibit 2**. The types of facilities that were found within 10 km of the proposed routes were as follows: Land Mobile (LM Private), Commercial (LM Com), Broadcast (LM Bcast), Microwave (MICRO), PAG, Cell (CELL), Antenna Structure Registration (ASR) and AM and FM towers.

7.10 Community Income

Estimated Fee Payments to the Department of Administration

There are two types of community income from high-voltage transmission impact fees required under Wis. Stat. § 196.491(3g) for transmission lines designed for operation at 345 kV or more: a one-time environmental impact fee and an annual impact fee. The estimated impact fees for each route alternative are provided in **Table 7.10.1-1** below. Costs are based on the projected in-service year (2030).

Table 7.10.1-1 High Voltage Transmission Impact Fees

Cost Category	Proposed Routes	
	Proposed	Alternate
ATC – T-Line High Voltage Cost	$ 94,519,000	$ 94,519,000
ATC - Substation Cost	$ 63,159,000	$ 63,159,000
Total High-Voltage Cost	$ 157,678,000	$ 157,678,000
ATC - One-time (5%) Impact Fee	$ 7,884,000	$ 7,884,000
ATC - Annual (0.3%) Impact Fee	$ 828,000	$ 828,000

Base Cost and Fee Calculation

In accordance with previous Commission rulings under Wis. Stat. § 196.491(3)(gm), ATC considered the cost of the 345 kV transmission line and the 345 kV and lower voltage substation components when calculating these impact fees. Excluded from the high-voltage costs are costs associated with:

- Construction of lower voltage transmission lines and distribution lines;
- Operations and maintenance;
- Pre-certification expenses;
- Costs incurred prior to receiving an Order if approved;
- AFUDC; and
- The high-voltage impact fees themselves.

Additionally, the high-voltage cost estimates do not have any allowance for risk, which is included in the Project cost estimates.

One Time and Annual Payments

Estimates of the one-time environmental and annual high-voltage impact fee payments to each affected city, village, town and county for the Proposed and Alternate Routes are provided in **Appendix J, Exhibit 1**. If actual Project costs vary from the high-voltage cost estimates shown in **Table 7.10.1-1** above, due to realization of risk or cost savings, adjustment (true up) of the fees will occur in accordance with Wis. Admin. Code §§ 46.04(2) and 46.05(2).

8.0 WATERWAY/WETLAND PERMITTING ACTIVITIES

8.1 Waterway Activities

A summary of all wetlands and waterways (hereafter collectively referred to as "waterways") intersecting the proposed routes is presented in **Appendix F, Table 2**, with additional details provided in the Wetland and Waterway Determination Report (**Appendix F, Exhibit 3**). Field investigators and geospatial analysts used their best professional judgement to identify waterway routes and ordinary high-water mark (OHWM) widths. The identification of waterways was based on review of the WDNR 24K Hydrography layer, National Agriculture Imagery Program (NAIP) aerial photographs, and field observations along accessible routes. Features with distinguishable beds and banks and evidence of scour were considered a waterway, regardless of the width or if it was identified in the WDNR 24K Hydrography layer.

8.1.1 Proposed Waterbody or Waterway Crossing

The proposed routes intersect (cross) multiple waterways. These waterways were identified through a combination of field observations and aerial reviews.

The Proposed and Alternate Routes and other Project components intersect multiple waterways, as identified and summarized below in **Table 8.1.1-1**. Additional information about each waterway can be found in **Appendix F**, **Table 2**.

Table 8.1.1-1 – Summary of Waterway Crossings

Project Component	Waterways Crossed by the Project
Proposed Route Segments	6
Alternate Route Segments	11
Common Route Segments	67
Off-ROW Access – Proposed Route	-
Off-ROW Access – Alternate Route	-
Off-ROW Access – Common Route	-

8.1.2 Waterway Special Classifications

No Exceptional or Outstanding Resource Waters, Trout Streams, Wild Rice Water, or Wild or Scenic Rivers are crossed by the Project.

8.1.3 Navigability Determination Request

Unmapped drainage features identified within the Mill Rd Substation footprint (ST-35 and ST-36 within Segment B) are assumed non-navigable. A Navigability Determination Request will be submitted to WDNR for these drainages at a later date prior to the PSCW order. All other waterways are assumed to be navigable.

8.1.4 Waterway Impacts

Project construction plans will avoid vehicle/equipment crossing of waterways to the extent practicable during implementation. Traditional TCSBs, in accordance with WDNR General Permit conditions, will be used where vehicle/equipment crossing of waterways is necessary. No other waterway activities or work below the OHWM is proposed as part of this Project. A drawing of a typical TCSB is provided in **Appendix F, Figure 1**.

Based on preliminary access routes, ATC anticipates some waterways will require vehicle/equipment crossings using TCSBs to allow safe and efficient construction access along the ROW. This includes one waterway crossing along the Proposed Route, two waterway crossings along the Alternate Route, and 18 waterway crossings along the Common Route. The need for TCSB crossings will be determined based on field conditions. No waterways wider than 35 feet (measured from OHWM to OHWM) will be crossed with a TCSB.

8.1.5 Mitigating Construction Impacts – Waterway Crossings

The number of potential temporary stream crossings has been minimized in areas where construction can be completed by accessing the ROW on either side of the stream, from adjacent roads, or by use of existing bridges, culverted drives, or existing ford crossings. ATC may work with private landowners to identify alternative access routes to further reduce the use of stream crossings, when practicable. Where complete avoidance is not possible, waterways will be crossed using a traditional TCSB in accordance with WDNR General Permit conditions to avoid in-stream disturbance by construction equipment. No culverts or permanent bridges are proposed.

Appropriate erosion control measures will be installed and maintained where soil disturbance occurs near waterways and at temporary waterway crossings until construction disturbances are restored and conditions are permanently stabilized. Other mitigation methods including invasive species prevention (**Section 6.3**) and re-vegetation and restoration plans (**Section 6.6**) will be employed during construction to further reduce potential impacts to waterways.

8.1.6 Open-cut Trenching in Waterways

No waterways will be open-cut trenched. No direct impacts to waterways or work below the OHWM is proposed.

8.1.7 Directional Boring in Waterways

No waterways will be directionally bored. No direct impacts to waterways or work below the OHWM is proposed.

8.1.8 TCSB Installation and Removal

When necessary and authorized by the WDNR, TCSBs will be placed to avoid in-stream disturbance. Each TCSB will consist of construction mats and/or steel I-beam frames, or other similar material, that are approximately 16 feet wide and placed above the OHWM on either side of the stream banks to completely span the waterway. Matting will be placed using

appropriate equipment such as rubber-tired grapple trucks or excavators. Materials are typically carried onsite by pulp trucks or similar equipment and then assembled onsite.

Preparation for setting the bridge may include minor blading or excavation confined to the minimum area necessary for safe bridge installation. Removal of low-growing trees, shrubs, and other shoreline vegetation will be kept to a minimum. The TCSB will be secured to a fixed anchor; inspected routinely while installed to review function; and have any debris or mud removed daily. Monitoring reports detailing inspections of waterway/TCSB crossings will be maintained throughout the Project's life. TCSBs are temporary and will be used only as necessary during the construction phase of the Project.

Proper erosion control measures will be implemented and maintained during and after the use of the temporary crossing. Erosion controls may consist of silt fence, straw logs/bales, or other devices to prevent runoff or siltation into the waterway.

Once construction has been completed in the area and access across the waterway is no longer required, the TCSB and associated materials will be removed, and the area restored. Depending upon the level of disturbance, restoration may include minor grading/leveling to restore pre-existing topography, installation of seed, and stabilizing the banks with erosion control measures such as erosion mats and straw logs. Temporary erosion control measures will be maintained until permanent stabilization goals have been achieved. Project areas will be considered closed out when all restoration objectives are met.

The proposed TCSB crossings require approval by the WDNR under Wis. Stat. § 30.123. Proposed waterway crossings are designed to meet the standards and conditions for TCSB crossings in Wis. Admin. Code § NR 320.06. Wis. Admin. Code § NR 320.04 indicates that bridges spanning navigable waterways shall maintain a clearance of not less than five feet unless all the following conditions specified in NR 320.04(3) are met:

- The waterways likely have little or no navigation or snowmobile use;
- The waterways are not anticipated to have navigational use other than lightweight craft;
- A portage is provided over or around the bridges or culverts; and
- The reduced clearance would not be detrimental to the public interest.

Where the conditions specified in Wis. Admin. Code § NR 320.04(3) are met, waterway crossings will not require a five-foot minimum clearance. Fisheries waivers from WDNR will be requested in the case that TCSB placement or removal is necessary during the spawning restriction window.

8.1.9 Vegetation Management – Waterway Crossings

Vegetation cleared around waterways during TCSB installation and ROW clearing activities may include shrubs and trees. Standard ATC vegetation management procedure is to enforce a buffer along waterways (typically 35 feet) where mowing with heavy equipment is restricted to avoid ground disturbances near waterways. Woody vegetation will be selectively removed within these waterway buffers, leaving the existing herbaceous vegetation largely intact. These removals occur primarily above the ground surface and will not impact root structures within waterway buffers. Once the Project is complete and banks restored, herbaceous vegetation and low growing shrubs will be allowed to revegetate. The ROW will then be maintained in perpetuity via routine vegetation management practices to ensure that the area remains free of incompatible woody vegetation.

8.1.10 Permanent Culverts, Bridges and Storm Water Ponds

No new culverts or new permanent bridges are proposed for this Project. A stormwater pond associated with the Mill Rd Substation is proposed within 500 feet of the Fox River and will meet the general permit conditions for Ponds -Stormwater, Wildlife, Landscape identified in Section 1.7.2. The proposed pond:

- Will not be constructed within 35 feet of the OHWM or within 100 feet of a public rights feature;
- Will not adversely affect or impair adjacent wetlands or waterway;
- Will not result in take of threatened/endangered species; and
- Will not be constructed within mapped floodplain.

8.2 Wetland Activities

A summary of all wetlands intersecting proposed routes is presented in **Appendix F, Table 2** and are depicted on **Appendix A, Figure 4**. Wetlands were identified during field investigations along accessible corridors and/or from review of aerial photographs and other reference material as discussed below.

8.2.1 Wetland Identification

ATC's environmental consultant, Stantec, completed field surveys to identify aquatic resources within the Project area during April 22-25, June 3-6 and 19-21, July 3, and September 10, 2024. Field surveys were conducted within the public ROW and where access was granted by existing utility easements (ATC transmission lines). Where access permissions were not granted, wetlands were investigated both from adjacent publicly accessible areas and through additional review of desktop resources (National Agriculture Imagery Program, soil survey information, WDNR's Surface Water Data Viewer – Wetlands and Wetland Indicators and Lidar Data) to identify all wetland and waterway areas contained within the proposed ROW and all off-ROW work areas. These surveys were completed in the field using a combination of both wetland delineation and determination methods. Where formal delineation was conducted, surveys

were completed using the criteria and methods outlined in: the USACE Wetland Delineation Manual (USACE 1987); the Interim Regional Supplement to the Corps of Engineers 1987 Wetland Delineation Manual: Midwest Region (2010); subsequent guidance documents (USACE 1991, 1992); the Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (USACE 1996); the Guidance for Offsite Hydrology/Wetland Determinations (MN BWSR 2016); and the Basic Guide to Wisconsin's Wetlands and their Boundaries (Wisconsin Department of Administration Coastal Management Program 1995). Additional detail regarding field survey methodology is provided in the Wetland and Waterway Determination Report (**Appendix F, Exhibit 3**). No Wisconsin Rapid Assessment Methodology (WRAM) forms were completed as part of the delineation.

WDNR wetland boundary confirmation is requested as part of this Application. ATC believes all information necessary to confirm wetland communities and their boundaries is provided within this Application and **Appendix F, Exhibit 3**.

8.2.2 Wetland Inventory

Wetlands along the Proposed and Alternate Routes were quantified as part of the impact analysis (**Section 5.4**) and the resulting acreages are provided in the Land Cover table in **Appendix B, Table 2**. In general, the Proposed Route contains approximately 9.12 acres of wetland, the Alternate Route contains approximately 7.51 acres of wetland, and the Common Route contains approximately 178.95 acres of wetlands in their ROWs. The proposed substation sites and Mill Rd Substation driveway contain approximately 1.45 acres of wetlands within the limits of their proposed footprints. Additionally, the temporary bypass circuits contain approximately 5.46 acres of wetlands within their proposed alignment ROW.

Additional details on the wetlands identified along the Proposed and Alternate Routes are provided in the Wetland and Waterway Determination Report (**Appendix F, Exhibit 3**). A detailed inventory of wetlands occurring within the proposed routes and along any off-ROW activities is provided in WDNR Table 2 (**Appendix F, Table 2**) and is depicted on **Appendix A, Figure 4**. Both routes intersect multiple wetlands, as identified and summarized below in **Table 8.2.2-1**.

Table 8.2.2-1 – Summary of Wetlands Communities by Route

Common Segments		
Wetland Community	**Total Square Feet w/in ROW**	**Total Acreage w/in ROW**
Seasonally Flooded Basin (farmed wetlands)	61,934	1.42
Fresh Wet Meadow (including degraded)	4,616,454	105.98
Shallow Marsh	2,139,107	49.11
Shrub-Carr	406,635	9.34

Hardwood Swamp	329,821	7.57
Floodplain Forest	416,000	9.55
Proposed Route		
Wetland Community	**Total Square Feet w/in ROW**	**Total Acreage w/in ROW**
Seasonally Flooded Basin (farmed wetlands)	-	-
Fresh Wet Meadow (including degraded)	26,153	0.60
Shallow Marsh	104,186	2.39
Shrub-Carr	-	-
Hardwood Swamp	149,432	3.43
Floodplain Forest	-	-
Alternate Route		
Wetland Community	**Total Square Feet w/in ROW**	**Total Acreage w/in ROW**
Seasonally Flooded Basin (farmed wetlands)	-	-
Fresh Wet Meadow (including degraded)	146,690	3.37
Shallow Marsh	132,858	3.05
Shrub-Carr	15,898	0.36
Hardwood Swamp	23,902	0.55
Floodplain Forest	-	-
Substations & Mill Rd SS Driveway		
Wetland Community	**Total Square Feet w/in ROW**	**Total Acreage w/in ROW**
Seasonally Flooded Basin (farmed wetlands)	-	-
Fresh Wet Meadow (including degraded)	30,598	0.70
Shallow Marsh	-	-
Shrub-Carr	-	-
Hardwood Swamp	34,685	0.80
Floodplain Forest	-	-
Calcareous Fen	5,281	0.12
Temporary Bypass Circuits		

Wetland Community	Total Square Feet w/in ROW	Total Acreage w/in ROW
Seasonally Flooded Basin (farmed wetlands)	4,563	0.1
Fresh Wet Meadow (including degraded)	7,665	0.18
Shallow Marsh	-	-
Shrub-Carr	-	-
Hardwood Swamp	-	-
Floodplain Forest	-	-

8.2.3 Wetland functional values

Characterizations of wetland functional values within the Project area are somewhat generalized due to the nature of desktop wetland analysis. Assessment of wetland functional values is based on seven categories, per WDNR Wetland Rapid Assessment Methodology (WRAM), including human use, wildlife habitat, fish and aquatic life habitat, shoreline protection, storm and floodwater storage, water quality protection, and groundwater processes. Wetland functional values determined by desktop review are summarized by route, below. These assessments will be field verified, to the extent practicable, prior to construction.

Proposed Route

Most wetlands identified along the Proposed Route are composed of low quality (degraded) to medium quality fresh wet meadow and low quality (degraded) to medium quality shallow marsh communities dominated by various invasive species including reed canary grass (*Phalaris arundinacea*) and cattail *(Typha species*). Other wetlands identified included low to medium quality hardwood swamps and shrub-carr communities. Many of these wetlands have been impacted by historic disruption of natural drainage features by urban development and road construction activities. Common canopy dominants observed in the hardwood swamp communities include red maple (*Acer rubrum*, FAC) and swamp cottonwood (Populus heterophylla, OBL). The shrub layer in these communities was often dominated by similar species present in the canopy layer. Specific characteristics of wetlands are summarized in the Wetland and Waterway Determination Report (**Appendix F, Exhibit 3**).

General functional value of wetlands along the Proposed Route is low to medium. Roadside and urban wetlands have low functional values based on limited plant diversity and wildlife habitat use. Most wetlands contain low to medium plant diversity because of the presence of invasive species and may serve as limited wildlife habitat. Human use is restricted for most wetlands given the areas' inaccessibility. Flood storage is also limited due to the historic changes made in the area to shed water.

Alternate Route

Most wetlands identified along the Alternate Route are composed of low quality (degraded) to medium quality fresh wet meadow and shallow marsh dominated by various invasive species including reed canary grass (*Phalaris arundinacea*) and cattail *(Typha* species). Other wetlands identified included low to medium quality hardwood swamps and shrub-carr communities. Many of these wetlands have been impacted by historic disruption of natural drainage features by urban development and road construction activities. Common canopy dominants observed in the hardwood swamp communities include green ash (*Fraxinus pennsylvanica*, FACW) and *Salix interior (sandbar willow, FACW)*. The shrub layer in these communities was often dominated by similar species present in the canopy layer. Specific characteristics of wetlands are summarized in the Wetland and Waterway Determination Report (**Appendix F, Exhibit 3**).

General functional value of wetlands along the Alternate Route is low to medium. Roadside and urban wetlands have low functional values based on limited plant diversity and wildlife habitat use. Most wetlands contain low to medium plant diversity because of the presence of invasive species and may serve as limited wildlife habitat. Human use is restricted for most wetlands given the areas' inaccessibility. Flood storage is also limited due to the historic changes made in the area to shed water.

Common Route

Most wetlands identified along the Common Route, which include the Mill Rd Substation, Bypass, and Driveway segment are composed of low quality (degraded) to medium quality fresh wet meadow and shallow marsh dominated by various invasive species including reed canary grass (*Phalaris arundinacea*) and cattail *(Typha* species). Other wetlands identified included low to medium quality hardwood swamps, floodplain forest, seasonally flooded basin, and shrub-carr communities. Two medium to high quality calcareous fens were identified within the Common Route. Many of these wetlands have been impacted by historic disruption of natural drainage features by farming, urban development, and road construction activities. Common canopy dominants observed in the hardwood swamp communities include American Elm (*Ulmus americana*, FACW) and green ash (*Fraxinus pennsylvanica*, FACW). The shrub layer in these communities was often dominated by similar species present in the canopy layer and also includes Europena buckthorn (*Rhamnus cathartica*, FAC) and Morrow's Honeysuckle (*Lonicera morrowii*, FACU). Specific characteristics of wetlands are summarized in the Wetland and Waterway Determination Report (**Appendix F, Exhibit 3**).

Existing functional values of wetlands may be temporarily impacted by transmission line construction including equipment access, ROW clearing, pole installation, and other construction activities. Forested and shrub wetland areas that exist within the proposed ROW will be cleared and converted to herbaceous wetland communities. The ROW will be maintained as an herbaceous community in perpetuity through routine vegetation management cycles. The conversion of wooded wetlands to herbaceous wetlands may affect their functional value by changing the vegetative community; however forested and shrub areas will remain intact immediately outside of the ROW in these areas. Wildlife use may be temporarily reduced during times when construction is actively working in the area. Permanent fill in wetlands will be limited to the footprint of the new poles and reduction in flood storage will be negligible. The Project will avoid or minimize wetland impacts to the extent practicable through the engineering design of the Project, the use of specific construction techniques, and through implementation of BMPs and ATC's standard environmental protection practices. Following construction, all temporarily impacted wetlands will be restored to pre-existing conditions through re-vegetation and restoration plans.

8.2.4 "Significant" or "High-Quality" Wetlands

All wetland communities identified within the Project area (**Section 8.3**) were evaluated to determine which wetlands can be considered Areas of Special Natural Resource Interest (ASNRI) as described in Wis. Admin. Code § NR 1.05 (**Appendix F**, **Table 2**) and if any may be considered "significant" or "high quality" per the AFR. Wetland communities that may be considered "high quality" (per the AFR) include: deep marsh, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, and ephemeral ponds in wooded settings. Aerially interpreted wetlands may require field verification to assess quality or significance due to the difficulty in remotely assessing wetland quality.

Two calcareous fens were field delineated on the parcel containing the new Mill Rd Substation (Segment B). The Project has been designed to avoid impacts to these wetlands.

No other wetlands and waterways have been identified as ASNRI. No other wetlands or waterways considered significant or high quality have been identified.

8.2.5 Wetland Impacts

Impacts to wetlands will occur as a result of the Project. **Appendix F, Table 1** summarizes all permanent and temporary impacts to wetlands as currently designed. Proposed transmission facilities and construction activities occurring in wetlands are depicted on **Appendix A, Figure 4**.

Temporary construction matting within wetlands and placement of TCSBs will be required to gain vehicle/equipment access to complete the necessary scope of work. Conservative estimates of temporary wetland impacts associated with construction matting include 207,044 square feet (4.75 acres) along the Proposed Route, 164,940 square feet (3.79 acres) of temporary wetland impacts are proposed along the Alternate Route, and 3,056,987 square feet (70.18 acres) along the Common Route. The proposed substation sites and Mill Rd Substation driveway will result in no temporary impacts and all impacts will be permanent wetlands impacts. The Temporary Bypass Circuits include approximately 7,665 square feet (0.18 acres) of temporary wetland impacts along their proposed alignment.

Conceptual transmission structure locations were developed to evaluate the potential permanent fill in wetlands and to help develop preliminary construction plans. The Proposed Route includes four permanent structures proposed within wetland resulting in 708 square feet (0.02 acres) of permanent fill. The Alternate Route includes 12 permanent structures resulting in 2124 square feet (0.05 acres) of permanent fill. The Common Route includes 43 permanent structures resulting in 7,611 square feet (0.17 acres). The proposed substation sites and Mill Rd Substation driveway include approximately 46,606 square feet (1.07 acres) of permanent wetland fill and the Temporary Bypass Circuits include approximately 7,665 square feet (0.18 acres) of permanent wetland fill along their proposed alignment.

Conversion of forested wetlands to herbaceous wetland communities will occur as a result of vegetation clearing for Project. Forested wetland conversion includes both forested and shrub dominated wetland communities. Conservative estimates of wetland conversion along the Proposed Route include 149,432 square feet (3.4 acres), 50,096 square feet (1.15 acres) of wetland conversion along the Alternate Route, and 1,179,675 square feet (27.08 acres) along the Common Route which includes the expansion of existing ROW along Segments C and D. The proposed substation sites and Mill Rd Substation driveway include approximately 25,608 square feet (0.59 acres) of wetland conversion along their proposed alignment.

To conservatively estimate wetland impacts by the Project, impact calculations have assumed that proposed transmission facilities will be constructed as currently designed. Due to the length of the Project, engineering constraints (span lengths and clearances), routing limitations (such as landowner impacts), constructability, and the extent and configuration of wetlands within the Project area, complete avoidance of wetlands is not possible. However, transmission line designs and construction plans will be refined during the detailed design phase with the objective of further reducing wetland impacts to the extent practicable. **Table 8.2.5-1** below summarizes the total wetland impacts by community along proposed routes.

Table 8.2.5-1 – Wetland Impacts by Route

Common Segments						
Wetland Community	**Permanent Fill**		**Temporary Fill**		**Conversion**	
	Square Feet	**Acres**	**Square Feet**	**Acres**	**Square Feet**	**Acres**
Seasonally Flooded Basin	-	-	61,934	1.42	-	-
Fresh (Wet) Meadow	4,948	0.11	1,697,835	38.98	-	-
Shallow Marsh	2,297	0.05	903,181	20.73	-	-
Hardwood Swamp	353	0.008	88,557	2.03	331,334	7.61
Floodplain Forest	-	-	45,619	1.04	16,644	0.38
Shrub-Carr	-	-	47,859	1.09	406,635	9.34
Sedge Meadow	-	-	8,279	0.19	-	-
Conservative Desktop Community	-	-	187,019	4.29	-	-
TOTAL:	7,599	0.17	3,040,282	69.80	1,154,066	26.49
Proposed Route						
Wetland Community	**Permanent Fill**		**Temporary Fill**		**Conversion**	
	Square Feet	**Acres**	**Square Feet**	**Acres**	**Square Feet**	**Acres**
Seasonally Flooded Basin	-	-	-	-	-	-
Fresh (Wet) Meadow	-	-	19,217	0.44	-	-
Shallow Marsh	353	0.008	56,831	1.30	-	-
Hardwood Swamp	353	0.008	130,996	3.01	149,432	3.43
Floodplain Forest	-	-	-	-	-	-
Shrub-Carr	-	-	-	-	-	-
Sedge Meadow	-	-	-	-	-	-
Conservative Desktop Community	-	-	-	-	-	-
TOTAL:	707	0.02	207,044	4.75	149,432	3.43
Alternate Route						
Wetland Community	**Permanent Fill**		**Temporary Fill**		**Conversion**	
	Square Feet	**Acres**	**Square Feet**	**Acres**	**Square Feet**	**Acres**

Seasonally Flooded Basin	-	-	-	-	-	-
Fresh (Wet) Meadow	-	-	85,384	1.96	-	-
Shallow Marsh	530	0.01	52,726	1.21	-	-
Hardwood Swamp	177	0.004	6,859	0.16	25,861	0.59
Floodplain Forest	-	-	-	-	-	-
Shrub-Carr	177	0.004	16,305	0.37	24,235	0.56
Sedge Meadow	-	-	-	-	-	-
Conservative Desktop Community	-	-	3,666	0.08	-	-
TOTAL:	2,121	0.05	164,940	3.79	50,096	1.15

Substations and Mill Rd SS Driveway

Wetland Community	**Permanent Fill**		**Temporary Fill**		**Conversion**	
	Square Feet	**Acres**	**Square Feet**	**Acres**	**Square Feet**	**Acres**
Seasonally Flooded Basin	-	-	-	-	-	-
Fresh (Wet) Meadow	20,998	0.48	4,640	0.11	-	-
Shallow Marsh	-	-	-	-	-	-
Hardwood Swamp	25,608	0.59	4400	0.10	25,608	0.59
Floodplain Forest	-	-	-	-	-	-
Shrub-Carr	-	-	-	-	-	-
Sedge Meadow	-	-	-	-	-	-
Conservative Desktop Community	-	-	-	-	-	-
TOTAL:	46,606	1.07	9,040	0.21	25,608	0.59

Temporary Bypass Circuits

Wetland Community	**Permanent Fill**		**Temporary Fill**		**Conversion**	
	Square Feet	**Acres**	**Square Feet**	**Acres**	**Square Feet**	**Acres**
Seasonally Flooded Basin	-	-	-	-	-	-
Fresh (Wet) Meadow	-	-	7,665	0.17	-	-
Shallow Marsh	-	-	-	-	-	-
Hardwood Swamp	-	-	-	-	-	-
Floodplain Forest	-	-	-	-	-	-
Shrub-Carr	-	-	-	-	-	-

Sedge Meadow	-	-	-	-	-	-
Conservative Desktop Community	-	-	-	-	-	-
TOTAL:	-	-	7,665	0.17	-	-

8.2.6 Construction Matting in Wetlands

Matting will be placed prior to or during construction and will be removed after construction completion. ATC anticipates that matting will be left in place for greater than 60 days between May 15 and November 15, although attempts will be made to reduce this matting duration to the extent feasible. When construction activities are complete, the matting will be removed, and the ground surface restored to pre-existing conditions to the extent practicable. Wetland areas in which ground disturbance occurs may be seeded with an annual cover crop to stabilize soils. Generally, wetland areas will be allowed to revegetate naturally, however, native seed mixes most closely resembling existing conditions may be used in areas where revegetation rates are low. The restoration plan for wetlands with matting placement exceeding 60 days between May 15 and November 15 is provided in **Appendix F**, **Exhibit 2**.

8.2.7 Open-cut Trenching in Wetlands

No wetlands will be open-cut trenched for the Project.

8.2.8 Directional Boring in Wetlands

No wetlands will be directionally bored for the Project.

8.2.9 Plowing in Wetlands

No wetlands will be plowed for the Project.

8.2.10 Equipment Access in Wetlands

Access and construction within wetlands are necessary as part of this Project. Where access through wetlands is needed, one or more of the following methods will be used to reduce soil and vegetation disturbance: completing construction during dry or frozen conditions, utilizing equipment with low ground pressure tires or tracks, and/or using construction matting. Therefore, no discharge of fill from soil mixing and/or soil rutting is anticipated. A summary of temporary wetland impacts, resulting from matted access in wetlands, is provided in **Section 8.2.5.** Detailed wetland impact calculations are provided in WDNR Table 1 (**Appendix F**, **Table 1**). The restoration plan for wetlands with matting placement exceeding 60 days between May 15 and November 15 is provided in **Appendix F**, **Exhibit 2**.

8.2.11 Vegetation Management in Wetlands

Trees and brush will be cleared for the full width of the ROW to facilitate construction equipment access and ensure safe clearances between vegetation and the transmission line. New transmission line ROW development will require clearing of incompatible woody

vegetation with varied clearing widths depending on voltage and configuration. The ROW will be maintained as an herbaceous community in perpetuity through routine vegetation management cycles. No clearing of wooded wetlands off-ROW is proposed. A summary of wetland conversion, resulting from clearing of wooded wetland communities, is provided in **Section 8.2.5**, above. Detailed wetland impact calculations are provided in WDNR Table 1 (**Appendix F**, **Table 1**).

Clearing will be completed in advance of or concurrent with transmission line construction. Vegetation will be cut at or slightly above the ground surface using mechanized mowers, sky trims, processors, harvesters, or by hand. Rootstocks will generally be left in place except in areas where stump grinding is necessary to facilitate the movement of construction vehicles, or if requested by the landowner.

Deposition of cut vegetation and woody debris provides effective temporary surface stabilization but can also act as wetland fill when those deposits prevent revegetation, alter surface elevations, and/or obstruct water flow. Thoughtful management of cut or chipped vegetation and woody debris is necessary to ensure clearing in wooded wetlands does not result in deposition of wetland fill.

Complete removal of all chipped vegetation from wetlands is not feasible due to the density of woody material present along the proposed Project routes. Removal of all woody material would pose an increased risk of wetland impact resulting from more frequent and increased equipment use and access within wetlands, plus additional cost (equipment, labor, time).

ATC will implement wetland impact minimization measures during forested wetland clearing activities to prevent deposition of wetland fill and so that the site can be successfully restored and revegetated following construction. These measures consist primarily of efforts to minimize the volume and depth of cut vegetation deposited in wetlands so that it does not act as wetland fill. These efforts are outlined below.

Cut vegetation which is mowed/chipped will be thinly scattered in a manner that allows for rapid decomposition and does not impede vegetative growth. Thinly scattered chipped vegetation is a loose, biodegradable material, providing effective temporary surface stabilization and readily allowing for infiltration and surface flow of water within wetlands. Where necessary, woody material will be removed from wetland areas as needed to minimize deposition of chipped vegetation.

- Larger woody material, which cannot readily be mowed, will generally be removed from wetland areas for offsite disposal.
- Wetland areas will be monitored over the duration of the Project to ensure wetland impact minimization measures are followed and site restoration and revegetation is successful following construction completion. Routine environmental monitoring will ensure compliance with impact minimization requirements and that performance standards for wetland revegetation are achieved.

If routine environmental monitoring identifies that wood chip placement has impeded revegetation, altered surface elevations, and/or obstructed water flow, the Project's environmental monitor will immediately notify and work with the construction and/or vegetation management contractors to develop and implement plans to address the concern. These plans may include physical removal, further scattering of chipped material, and supplemental seeding applications.

8.2.12 Wetland Impact Minimization

The Project will avoid or minimize wetland impacts to the extent practicable through the engineering design of this Project, the use of particular construction techniques, and implementation of BMPs and ATC's standard environmental protection practices. These efforts include, but are not limited to, spotting structures outside of wetland areas or near their edges, avoiding access through wetlands, using low-ground pressure equipment, accessing during dry or frozen conditions, and/or 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. A new permanent driveway is required to access Mill Rd Substation and will result in permanent wetland fill. A Practicable Alternatives Analysis (**Appendix F**, **Exhibit 6**) was prepared to evaluate multiple driveway options. No other proposed access routes will require permanent wetland fill. Temporarily impacted wetlands will be restored to pre-existing conditions through re-vegetation and restoration plans, discussed in **Section 8.2.14** and in the Matting Restoration Plan (**Appendix F**, **Exhibit 2**).

Final construction access plans will consider opportunities to minimize temporary construction impacts to wetlands to the extent practicable by the following techniques:

- Attempts will be made to avoid access through wetlands that occur in only a portion of the ROW.
- Previously existing access routes within wetlands will be utilized when possible.
- Access from uplands at either end of certain wetlands may be used so travel through the entire length of wetland is not necessary.
- Complete all necessary construction activities during the same mobilization so that each wetland is only temporarily impacted and restored once.

The new permanent driveway will result in permanent wetland fill. No other access roads through wetlands will require permanent fill. All spoils will be removed from the wetlands to an upland area or other approved offsite location. Erosion-control BMPs will be installed where necessary to prevent soil erosion into and within wetlands. The sediment and erosion control BMPs may include limiting grading and equipment access along slopes where practicable. Other specific practices that may be utilized along slopes will be location specific and based on final construction plans, and include the following sediment control BMPs:

- Ditch Check (WDNR Technical Standard 1062): A ditch check is a temporary dam constructed across a swale, drainage ditch, channel, or other area of concentrated

flow to reduce the velocity of water. Ditch checks are constructed using stone, straw bales or manufactured products identified on the WisDOT Erosion Control Product Acceptability List.

- Non-Channel Erosion Mat (WDNR Technical Standard 1052): A protective soil cover made of straw, wood, coconut fiber or other suitable plant residue, or plastic fibers formed into a mat, usually with a plastic or biodegradable mesh on one or both sides. Erosion mats are rolled products available in many varieties and combinations of material and with varying life spans.
- Seeding For Construction Site Erosion Control (WDNR Technical Standard 1059): Planting seed to establish temporary or permanent vegetation for erosion control.
- Temporary Grading Practices For Erosion Control (WDNR Technical Standard 1067): Temporary grading practices used to minimize construction site erosion. These practices include, but are not limited to, surface roughening (directional tracking and tillage) and temporary ditch sumps.
- Vegetative Buffer For Construction Sites (WDNR Technical Standard 1067): An area of dense vegetation intended to slow runoff and trap sediment. Vegetative buffers are commonly referred to as filter or buffer strips.
- Sediment Bale Barrier (Non-Channel) (WDNR Technical Standard 1055): A temporary sediment barrier consisting of a row of entrenched and anchored straw bales, hay bales or equivalent material used to intercept sediment-laden sheet flow from small drainage areas of disturbed soil.
- Silt Fence (WDNR Technical Standard 1056): Silt fence is a temporary sediment barrier of entrenched permeable geotextile fabric designed to intercept and slow the flow of sediment laden sheet flow runoff from small areas of disturbed soil.
- Interim Manufactured Perimeter Control and Slope Interruption Products (WDNR Technical Standard 1071): Manufactured perimeter control and slope interruption products include a variety of products designed to detain or slow the flow of sediment-laden sheet flow runoff from small areas of disturbed soil.

To mitigate the spread of invasive species in wetlands, appropriate protection measures will be implemented. These measures, detailed in **Section 6.3**, could include: avoidance of infested areas, removal or control of small populations of invasive plants, scheduling of construction activities during the invasive plant's dormant period, and cleaning of equipment after accessing infested areas.

8.2.13 Environmental Monitoring

To ensure compliance with environmental standards and to reduce impacts to the environment, ATC will employ environmental monitor(s) that will be responsible for monitoring

ATC and contractor activities during Project implementation. The environmental monitor will be on site periodically during clearing, construction, and restoration phases to help maintain compliance with permit conditions. Additional details about monitoring during construction and restoration are described in **Sections 8.2.11, 8.2.14**, and the Matting Restoration Plan provided in **Appendix F, Exhibit 2**.

8.2.14 Wetland Restoration

When clearing and construction activities are complete, matting will be removed, and the ground surface restored to pre-existing conditions to the extent practicable. Wetland areas where ground disturbance occurred may be seeded with an annual cover crop to stabilize soils. Generally, wetland areas will be allowed to naturally revegetate. However, native seed mixes most closely resembling existing conditions may be used in areas where revegetation rates are low. The Matting Restoration Plan for these wetlands is provided in **Appendix F, Exhibit 2**.

ATC will monitor restoration and revegetation progress within all wetland (and upland) areas in accordance with Wis. Admin. Code Ch. NR 216 and WPDES general permit conditions. The Project will be considered permanently stabilized once all Project disturbances have been restored and a uniform perennial vegetative cover with a density of at least 70% of its pre-existing condition has been established. If the environmental monitor determines that the site restoration should be closed out despite lack of meeting part, or all, of the final objectives, due to third-party activities within the ROW, this decision will be documented and provided to the agencies upon request.

8.3 Mapping Wetland and Waterway Locations, Impacts, and Crossings

Environmental Access Plan Maps are provided in **Appendix A**, **Figure 4**. This figure set shows the Project scope, field-identified wetlands and waterways, construction access and matting plans, and proposed TCSB locations. Environmental maps depicting delineated wetlands and waterways, WDNR mapped wetlands and waterways, and mapped hydric soils are provided as an attachment to the Wetland and Waterway Determination Report provided in **Appendix F**, **Exhibit 3**. These maps include the required wetland and waterway mapping information as listed below.

- Delineated wetlands.
- Wisconsin Wetland Inventory and hydric soils.
- WDNR mapped waterways.
- Delineated waterways.
- Proposed TCSB locations (labeled to correlate with WDNR Table 1 (see **Appendix F, Table 1**)).
- Existing transmission lines.
- Proposed transmission line routes with segment naming.
- Proposed structure locations and numbering.

- Construction access plans.
- Off-ROW staging areas and temporary workspaces.

Locations for other Chapter 30 activities such as grading or riprap (labeled to correlate with WDNR Table 1 (see **Appendix F, Table 1**)).

9.0 ENDANGERED, THREATENED, SPECIAL CONCERN SPECIES AND NATURAL COMMUNITIES

9.1 WNDR Endangered Resources Review

A proposed ER Review was submitted to the WDNR for review, subsequently approved on October 15, 2024, and assigned ER Log #24-1098. Due to confidentiality requirements for Natural Heritage Inventory (NHI) data, a redacted public version of the Certified ER Review is provided in **Appendix F, Exhibit 1.** The ER Review summarizes all state-listed rare species, natural communities, and other natural features with element occurrences within one or two miles of the Project for terrestrial/wetland occurrences or aquatic occurrences, respectively.

Additionally, 11 areas have been identified for use for potential laydown yards and staging areas along the Project. The potential laydown yard locations were not included in the ER Review search area because they are comprised of existing artificial/paved surfaces or are entirely within areas of crushed stone or gravel and are anticipated to meet the no/low impact activities 2-A1 or 2-A2 of the Broad Incidental Take Permit/Authorization. An ER Verification Form for the potential laydown yards was approved by the WDNR on September 10, 2024.

Regular communication with the WDNR will continue throughout the application process to follow federal and state endangered resource laws during Project evaluation, planning, and implementation.

9.2 NHI Occurrences

Biological surveys and refined habitat assessments, if necessary, will be conducted in consultation and coordination with the WDNR, and the results will be provided upon completion. The habitat assessment and biological survey results will be used at a site-specific level along the Project to guide implementation of required and recommended follow-up actions outlined by species in the Certified ER Review.

9.3 Species as Identified in the Completed ER Screening and/or Field Assessments

Required actions to protect rare species will be implemented where threatened and endangered animals are verified to occur based on species surveys or where species are assumed to occur based on the presence of suitable habitat along the Project. The required follow-up actions, as well as the effects these actions have on the proposed Project, vary by animal group, and are summarized in the Certified ER Review, **Appendix F, Exhibit 1**. In general, the actions include completing species surveys in areas of suitable habitat; surveys for/assessments of suitable habitat and/or habitat avoidance; implementing time-of-year avoidance periods; consulting with the WDNR's Bureau of Natural Heritage Conservation (BNHC) if a protected species is verified or assumed to be present; and, if necessary, altering the Project where a protected species is verified to be present.

If there is uncertainty during the Project regarding actions to avoid impacts or take for some species, ATC will coordinate with the WDNR's BNHC on appropriate conservation measures. If

the Project cannot completely avoid all areas of suitable habitat or take, ATC will work with the WDNR's BNHC Incidental Take Coordinator to apply for an Incidental Take Permit/Authorization for the affected species.

Rare species and natural communities that are not legally protected or are exempt from protection include special concern animal species; threatened and endangered, and special concern plant species; and natural communities. Two natural features identified in the NHI include an animal assemblage and a natural community. In consultation with the WDNR BNHC, ATC may implement recommended avoidance and impact minimization measures by species, community, or feature where they are verified to occur. Recommended avoidance and minimization measures to protect special concern animal species when and where practicable include voluntary species surveys conducted in conjunction with required surveys, adherence to avoidance periods, avoid and/or minimize habitat impacts, use of exclusion fencing, use of erosion/runoff prevention practices, and use of on-site biological monitors. Similarly, measures recommended for conserving rare plants include voluntary species surveys, use of exclusion fencing in occupied areas, conducting above-ground work during frozen ground conditions or during the dormant season, and use of on-site biological monitors during work activities. Recommendations that may be implemented for natural communities and the animal assemblage include avoiding direct impacts, completing work during a portion of the year when impacts are minimal, incorporating buffers along community edges where practicable, and/or consulting with the WDNR about appropriate avoidance and/or minimization measures. There are no recommended actions for the known natural community given its distance from the Project area.

9.4 Provide Communications with WDNR and U.S. Fish and Wildlife Service, as Applicable

The NHI portal has been reviewed and the ER Review was submitted to the WDNR for review on September 4, 2024. The Project has a federal nexus requiring a Section 7 consultation. An Official Species list has been generated through the USFWS's Information for Planning and Conservation website. Additional consultation with the USFWS will be initiated in coordination with the USACE as the lead permitting agency, as necessary.