CHAPTER

7

7. Environmental Analysis: Q1-Highway 35 Route

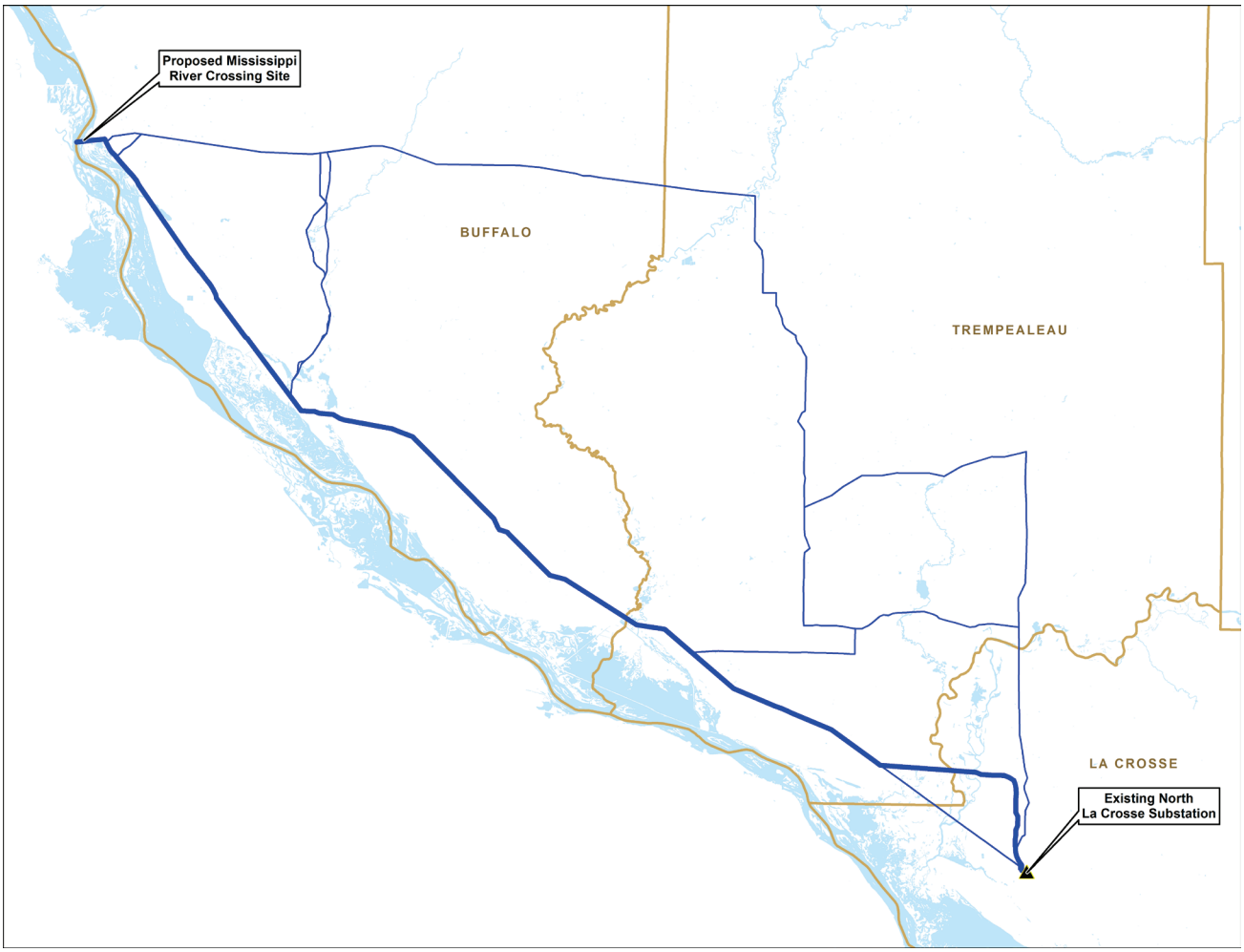
7.1. ROUTE DESCRIPTION

This chapter focuses on the Q1-Highway 35 Route, beginning at the Mississippi River crossing at Alma in Buffalo County, crossing Trempealeau County, and ending at the proposed Briggs Road Substation site near the village of Holmen in La Crosse County. The route consists of Segments 1, 2A1, 2A2, 2A3, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 3, 4, 8A, 8B, 8C, 9, and 18H, and can be tracked on the maps in Figures Vol. 2-1A, 2-1L, 2-1M, 2-1N, 2-1O, 2-1P, 2-1Q, 2-1J, and 2-1K. A visualization of this route alternative is shown in Figure 7.1-1.

The route is 43.0 miles long, and its ROW shares 93.5 percent of its length and 48.7 percent of its area with existing corridors. The majority of these existing corridors contain electric transmission lines, predominantly 161 kV. The new line would, in most cases, be constructed on steel, self-supporting single poles on concrete foundations. Some poles in hilly, wooded areas may use guy wires to reduce pole diameters and weights, making construction easier. Transmission structures in the Black River floodplain would be constructed on vibratory caisson foundations, that do not require excavation or concrete. The hollow pole sections are vibrated into the earth using a crane or helicopter-mounted vibratory hammer.

Segment 1 is 0.9 miles long and crosses the Mississippi River at the DPC J.P. Madgett Power Plant at Alma. The new line at this location would be triple-circuited with existing 161 kV and 69 kV lines, using steel multi-pole structures and expanding the existing 180-foot ROW to 280 feet. The segment also crosses railroad tracks, GRR/STH 35, and an existing 161 kV transmission corridor. From the Wisconsin side of the crossing, the route turns southeast to follow the ROW of the DPC 161 kV Q1 transmission line, paralleling STH 35 and the Burlington Northern Santa Fe (BNSF) railroad tracks for 1.9 miles on Segments 2A1, 2A2, and 2A3. An additional 27.5 feet of new ROW on private property would be needed in addition to the ROW that would be shared with the existing line. The route then crosses to the west of the highway, following the Q1 line ROW that parallels the east side of the railroad. Segment 2B, 3.1 miles in length, shares corridor with the railroad but would require an additional 35 feet of new ROW. Segment 2C crosses to the east side of the highway for 1.4 miles as it passes Cochrane. An additional 70 feet of new ROW width would be required for this segment. Once past Cochrane, the route leaves the Q1 ROW, switching to a DPC 69 kV corridor on the west side of STH 35 and the railroad to avoid homes and try to reduce aesthetic impacts GRR. This 1.8-mile Segment 2D would use a triple-circuit 345/161/69 kV steel single-pole design and expand beyond the existing transmission line/railroad ROW by 75 feet. Segment 2E continues along the BNSF railroad ROW, using a double-circuit line design for another 3.1 miles as the existing Q1 route and STH 35 veer away.

Figure 7.1-1 Q1-Highway 35 Route



The route then turns east, crossing STH 35, to rejoin the existing Q1 route after 1.1 miles. This Segment 2F would consist of an entirely new, 150-foot-wide ROW, with double-circuit 345/161 kV steel single-pole structures. Once the route rejoins the existing Q1 route, it follows Segment 2G for 6.6 miles until it makes a 0.7 mile detour (Segment 2H, shown on the map in Figure Vol. 2-1O) to facilitate line construction in a wooded, hilly area. The route then continues along the existing Q1 route for another 14.9 miles (Segments 2I, 3, and 4). Along this 22.2-mile, cross-country section of the route from Segment 2G through Segment 4, the transmission line would, except for Segment 2H, share the existing 80-foot-wide Q1 ROW, expanding it by an additional 35 feet on each side.

The next 4.5-mile section of the route follows the STH 35 corridor due east. Segments 8A and 8B lie approximately 400 feet north of the highway centerline. Segment 8A crosses farmland for 1.1 miles and consists of entirely new ROW. Segment 8B crosses 2.3 miles of the Black River bottoms and its forested wetlands. The transmission line ROW would overlap the highway ROW by 32 feet, requiring the acquisition of 118 feet of new ROW. Segment 8C lies about 100 feet north of the highway and overlaps 65 feet of the STH 35 ROW for 1.1 miles, requiring 85 feet of additional, new ROW.

Where the route meets USH 53, it turns and follows the highway south for 3.1 miles to the proposed Briggs Road Substation. Segment 9 is on the west side of USH 53/STH 35 until a point 0.3 mile south of Old CTH NA, where it crosses to the east side of the highway to avoid a concentration of homes. The

segment crosses back to the west side of the highway 0.25 mile north of CTH MH. Segment 18H continues on the west side of the highway until it reaches the substation sites. Where the route is adjacent to USH 53, an additional 85 feet of new ROW would be required; the remainder is shared with the highway ROW.

7.2. GEOGRAPHY

7.2.1. Geology

The project area is located in Wisconsin's Driftless Area, which was bypassed by the glaciers from the north. This unglaciated or "driftless" region was once covered by limestone deposits. Erosional forces have worn away and deeply dissected much of the original plain. Limestone is now found only as remnants capping the ridge tops and higher hills. St. Peter sandstones and Prairie du Chien dolomites from the Ordovician Period form the bedrock surface at the highest elevations on the landscape. In the bottoms and river lowlands, the Ordovician rocks have eroded away, leaving the older Cambrian sandstone with some dolomite and shale. There are no rocks which date prior to the Devonian Period. Outcroppings of bedrock are common for the region, especially on the sheer bluff faces along the Mississippi River.

The landscape was modified by glacial meltwater streams and later non-glacial streams, as well as by wind deposition and erosion processes. The melting of the massive glacial ice fields produced torrential flows of meltwater in streams and rivers of this region. Valley trains of gravel and sand were deposited from the outwash. This was followed by a drop in the water level of the Mississippi River and its tributaries. Over time, tributary streams eroded into their flood plains and meandered inside the larger glacial outwash valleys. In a relatively short time period, a large portion of the flood plains of glacial times has been altered, leaving narrow, dissected terraces.

For thousands of years, sediment has continually been deposited on the floors of the project area floodplains. However, about 150 years ago, agricultural practices began to destroy the protective covering of sod and forest litter on the uplands and accelerated erosion processes. In some drainageways this post-settlement alluvium is quite significant. The earlier, older topsoil in the stream valleys has been buried in many places, and new soil development has begun on the surfaces of the alluvial soils covering the earlier, buried topsoils.

7.2.2. Topography

The Q1–Highway 35 Route is in the Western Coulees and Ridges Ecological Landscape[80] identified by WDNR. This region includes the southwestern and west-central portions of Wisconsin. It is characterized by the highly eroded, thoroughly-dissected upland with high, narrow ridges and deep, steep-sided valleys. Constant geologic erosion occurs where slopes are steep and very steep. Some areas, such as those identified as stony and rocky land, have so much runoff that geologic erosion almost keeps pace with the weathering of bedrock and the initial stages of soil formation.

Bedrock is often at or close to the surface. The elevation of the limestone ridges is about 1,200 feet, or about 500 feet above the adjacent valleys. Aside from the upland itself, the strongest topographic features of the region are the Mississippi River valley and the valleys of numerous Mississippi River tributaries including the Trempealeau and Black Rivers.

[80] Ecological Landscapes of Wisconsin, WDNR website: http::dnr.wi.gov/landscapes

The topography and its challenges vary among different parts of the proposed transmission route.

The route begins on the west by crossing the Mississippi River floodplain (Segment 1). It then moves slightly up the hillside and turns south along the Mississippi River valley (Segments 2A1 to 2E). Topographic changes for this portion of the route fluctuate between the relatively flat lowlands at approximately 660 to 680 feet above mean sea level (AMSL) to slightly above the base of the bluffs at around 780 feet AMSL. The route passes in and out of the designated floodplain.

About 11 miles southeast of the crossing, just south of the intersection of STH 88 and STH 35, the route shifts inland for approximately 13 miles (Segments 2F through 2I to the Trempealeau River). This portion of the route crosses a more varied terrain of repeated river valleys and upland ridges. The elevations range between 680 to 1,200 feet AMSL. This more varied topography would result in a significant increase in length and number of off-ROW access routes required for construction and maintenance of the proposed transmission line. Segments 2G and 2H would have over 10 miles of off-ROW access roads. For more information about the length and impacts associated with access roads for this route, see Section 7.5 in this chapter.

At the Trempealeau County boundary, the route crosses the relatively level ground of the Trempealeau River valley, the Black River valley, and various prairies and wetlands for approximately 18 miles (the southern end of Segment I through Segment 18H by the proposed substation site).

7.2.3. Soils

The soil types and their distribution are greatly influenced by the bedrock of the region, its water regimes, and the area's vegetation or land use.

Wind-borne loess, water-borne alluvium, and colluvium at the bases of bluffs form the uppermost geologic deposits and, in addition to the bedrock, are the parent materials for many of the local soils. The sedimentary bedrock of sandstones and dolomitic limestone are overlain by soils of silt loams (from loess) and sandy loams. Soil types range from shallow silty clay loams on steep rocky land to deep silt loams on the valley bottoms, with smaller areas of sandy outwash soils. Aeolian (wind) silt deposits are present and range from 0.5 to 16 feet deep with decreasing depths from southwest to northeast. After long-time cover by prairie, savanna, or deciduous forest vegetation, many area soils have had the potential to be very productive for farming or woodlands.

The Q1–Highway 35 Route starts in the west crossing the wet loamy and sandy alluvial soils characteristic of the Mississippi River bottom lands (Segment 1). It consists of highly variable, medium-textured materials transported by stream waters and waters that ran off the nearby terraces and uplands. Segments 2A1 through 2E would traverse the gently undulating soils of stream terraces and outwash plains, periodically crossing several river valleys. The soils are primarily Fayette, Sparta, and Plainfield loamy sands and sands. The stream terraces are generally droughty and low in productivity. They are subject to severe erosion by wind. In several areas they are directly adjacent to steep stony and rocky land with slopes greater than 30 percent. Three transmission poles are proposed to be constructed on the steep slopes. Others would be constructed in low river valley land. The soils of the river valleys crossed by the route consist primarily of loamy alluvial land, with Toddville and Burkhardt soils, on silty stream terraces consisting of deep, silty soils. These soils range from well-drained to poorly-drained. For most of Segments 1 to 2E, bedrock is between 50 and 100 feet below the land surface.

Where the route turns inland, it crosses the gently rolling to very steep soils on limestone ridges (Segment 2F to the Trempealeau River valley). Predominant soils include the Fayette and Dubuque silt loam units.

A number of these soils are severely eroded and would require additional protections during construction and maintenance activities. This portion of the route also crosses outcroppings of steep stony and rocky land that have shallow and fragile soils. Seven poles would be constructed on these hill sides. Bedrock is mostly within 5.0 feet of the land surface for this portion of the route.

Crossing the nearly level floodplain of the Trempealeau and Black Rivers, the soils are characterized as wet alluvial and loamy alluvial lands (southern end of Segment 2I), stratified sediments deposited by floodwaters. They vary in texture, drainage, and fertility, but are mainly poorly drained sandy loam, loam, and silt loam, underlain by loose sand at a depth of 3.0 to 10 feet. In the uplands between the river valleys, soils are primarily Gotham, Sparta, and Dickinson soils. Gotham and Sparta soils are nearly level to moderately steep, somewhat excessively drained, sandy soils on stream and river terraces. Both were formed in sandy sediment. The Dickinson series consists of nearly level to gently sloping well-drained soils on river terraces. The soils were formed in coarse, loamy sediment and underlain by fine sand. The La Crosse County portion of the route is fairly level and crosses primarily Finchford loamy sand and Chelsea fine sand soil units. The Finchford and Chelsea soils are excessively drained. Bedrock is located at a depth greater than 100 feet along Segments 3 through 18H.

7.2.4. Land cover in general

The land use in this area of the Mississippi River Valley region is mostly agricultural. Flat areas that are not too wet are farmed, and the remaining steep hillsides are forested with exposed outcroppings. Numerous creeks run off the hillsides flowing toward the Mississippi River to the southwest. Wetlands and rivers make a significant portion of the land area non-developable. More than 30 percent of the lowland crossed by the transmission route is open water. Of the non-farmed areas, a large percentage is owned by state and federal government entities. Lowlands are dominated by areas of: (1) open water; (2) woodlands of willow, soft maple, box elder, ash, elm, cottonwood, and river birch trees; and (3) prairie vegetation. Extensive stands of bottom-land hardwoods like elm and cottonwood are found in the vicinity of the Black and Mississippi Rivers. Upland woods that in pre-settlement times were populated with oaks today have more diversified, mostly broad-leaved deciduous forest with oak and maple as the predominant hardwood. Oaks continue to grow along the steep hillsides. In a few places on the steep bluffs along the Mississippi River, where water access and fertility are low, red cedar makes up a large part of the stand.

Human populations in the area of the Q1-Highway 35 Route have remained somewhat static over the past 30 years, except for the area in and around the city of La Crosse where populations have increased more than 20 percent since 2000. The village of Holmen continues to grow. In the rural areas, the population densities have been relatively low. Small urban areas dot the landscape along major highways and on the flat alluvial lands and prairies.

7.3. NATURAL RESOURCES AND IMPACTS

7.3.1. Woodlands

A general discussion of potential woodland impacts can be found in Chapter 5, Section 5.5.17. Potential impacts on particular woodlands along the Q1-Highway 35 Route are discussed below.

7.3.1.1. Existing environment

Historical vegetation in the project area consisted of southern hardwood forests, oak savanna, scattered prairies, and floodplain forests and marshes along the major rivers. With Euro-American settlement, most of the level land on ridge tops and valley bottoms was cleared of oak savanna, prairie, and forest for

agriculture. The steep slopes between valley bottom and ridge top, unsuitable for raising crops, grew into oak-dominated forests after ubiquitous pre-settlement wildfires were suppressed.

Current vegetation in the project area is a mix of forest (40 percent), agriculture, and grassland with some wetlands in the river valleys. The primary forest cover is oak-hickory (51 percent) dominated by oak species and shagbark hickory. Maple-basswood forests (28 percent), dominated by sugar maple, basswood, and red maple, are common in areas that were not subjected to repeated pre-settlement wildfires. Bottomland hardwoods (10 percent) are common in the valley bottoms of major rivers and are dominated by silver maple, ashes, elms, cottonwood, and red maple. Relict conifer forests including white pine, hemlock, and yellow birch are a rarer natural community found in the cooler, steep, north-slope microclimates. In a few places on the steep bluffs along the Mississippi River, where access to water and fertility are low, red cedar makes up a large part of the stand.

7.3.1.2. Potential impact

The expected ROW for the new line would be about 150 feet wide, in many cases expanded from the existing 161 kV ROW. Xcel, as the lead utility for the project, has provided a visualization of the tree clearing that would be required for the ROW. It is shown in Figure 4.2-1. On steeper, larger slopes, however, the applicants indicate that they would cut trees on the downslope only as far as necessary to avoid tree-transmission contact. Considering clearance requirements, plus an additional number of feet for future growth, there would likely be trees on the valley floor that would never grow into the wire on some high spans. The trees would not need to be removed.

Indirect impacts would likely result from increasing the width of the disturbed corridor. Edge effects such as changes in vegetation structure, light conditions, and moisture conditions would encroach further into the interior of the forested wetland complex. The increase in edge-to-interior ratio would be a measure of forest fragmentation. Large corridors in a forest block generally provide conduits for the introduction of invasive plant and animal species and result in barriers to the movement of some local wildlife, including increased exposure to predators.

South of Alma, small patches of woodland or individual trees would be trimmed or removed as the original Q1 ROW was expanded or the new route was moved away from the existing Q1 ROW. Over Segments 2A1 through 2F, about 9.0 acres of upland woodlands would be cleared for new ROW.

Heading inland from the Mississippi River, Segment 2G shares the Q1 corridor over wooded hills and farmed valleys and crosses portions of mixed forested complex, including wetlands and uplands. See Figures Vol. 2-1N and Vol. 2-1O. The amount of woodland clearing needed to expand the existing ROW along Segment 2G would total about 27 acres, three times the wood clearing needed northward toward Alma. Segment 2H, with its short, two-thirds mile relocation onto all new ROW and bisecting a large forest complex, would require about 12 acres of forest clearing. Segment 2I would require about 21 acres of new forest clearing, resulting in a total of about 70 acres of forest removed along this portion of the route.

Segments 3 and 4 continue along the existing Q1 ROW and cross mostly active crop land, with a few woodlots. Segment 3 would require about 19 acres of woodland clearing where the route passes a farmed and developed area north of Trempealeau.

Segment 8A follows STH 35 crossing farmland and woods, requiring about 3.0 acres of tree removed in just over 1.0 mile of ROW. Segment 8 B runs across the Van Loon/Black River bottomlands. About 20 acres of trees would be cleared for the new ROW. Most of this is wooded wetlands and these impacts

are discussed in Section 7.3.5 below. The proposed transmission line corridor would be separated from the northern edge of the STH 35 ROW by about 245 to 263 feet of wooded wetland. If this route were chosen, the existing corridor width of 110 to 140 feet for the highway would increase to about 535 feet with the road, the transmission ROW, and a tree buffer between them. This narrow strip of forested wetland this wide would be unlikely to mitigate the forest fragmentation effects caused by the widened corridor.

A small amount of woodland (1.6 acres over about 2.4 miles) would also be lost along Segment 9 as the route runs along the highway toward the Briggs Road substation sites.

7.3.2. Endangered resources

This section discusses potential impacts to endangered resources that might be present in the area affected by construction or operation of the new line on the Q1-Highway 35 Route. Endangered resources include rare or declining species (*e.g.*, state- or federally-listed threatened or endangered species, candidate species, and special concern species), high quality or rare natural communities, and unique and significant natural features. Endangered resources are tracked via the state's NHI database.

For some species and route segments, if this route is ordered, incidental take of state threatened or endangered animal species may occur as defined by Wis. Stat. § 29.604. Further consultation under WDNR's incidental take process may be needed and an incidental take permit or authorization may be needed for construction to proceed in those segments.

Rare species are discussed below as groups (taxa) or individually if there is a high level of concern. Instances where existing information indicates that additional assessment or consultation for incidental take would be needed are described in the text.

7.3.2.1. Natural communities

The Q1–Hwy 35 route passes through the following major landscapes:

1. Mississippi River and adjacent floodplain (Figures Vol. 2-1A and Vol. 2-1L through Vol. 2-1N)
2. Open and wooded bluffs (Figures Vol. 2-1N through Vol. 2-1P)
3. Black River floodplain and wetlands, also described in this EIS as the Van Loon area (Figures Vol. 2-1Q, Vol. 2-1J, and Vol. 2-1K)

Approximately 38 percent or 299 acres of 789 total acres of ROW area for this route is located in non-agricultural upland and wetland (*i.e.*, forested and non-forested wetland, upland forest, upland shrub and prairie/grassland).

Thirty-four natural community occurrences are recorded by the NHI within the search area for this route, most of them are emergent marsh and floodplain forest, followed by other wetland communities. The applicants' field assessment confirms this list, with the addition of southern mesic forest in uplands along Segments 2, 3, and 4 (Figures Vol. 2-1L through Vol. 2-1Q and Figure Vol. 2-1J) and wet mesic forests adjacent to floodplain forests in Segments 2 (Figure Vol. 2-1A and Vol. 2-1B) and 8 (Figure Vol. 2-1J). Given the predominance of private lands, many more diverse, high quality, or rare natural community occurrences likely exist, but remain unmapped. Nevertheless, the occurrences that have been recorded in the NHI and the applicants' field assessment provide a reliable qualitative description of the natural communities present. Table 7.3-1 summarizes the NHI occurrences for natural communities. These communities represent varied topography, climatological conditions that range from aquatic to dry, and vegetation cover that ranges from sparsely vegetated barrens to densely vegetated floodplain forest.

Table 7.3-1 NHI natural community occurrences along Q1-Highway 35 Route

NHI - Natural Community Type	Number of Occurrences
Alder Thicket	0
Cedar Glade	1
Dry Prairie	5
Dry-Mesic Prairie	0
Emergent Marsh	6
Floodplain Forest	6
Lake-Oxbow	1
Lake - Shallow, Hard, Drainage	2
Moist Cliff	1
Oak Barrens	1
Sand Prairie	2
Shrub-Carr	4
Southern Dry-Mesic Forest	2
Southern Sedge Meadow	2
Southern Tamarack Swamp (Rich)	0
Stream - Fast, Hard, Cold	1

Source: WDNR - NHI Database

Upland forests are composed of oak (*Quercus* spp.), hickory (*Carya* spp.), basswood (*Tilia Americana*), cherry (*Prunus serotina*), American elm (*Ulmus Americana*), birch (*Betula* spp.), and aspen (*Populus* spp.). There are also pine plantations (*Pinus resinosa*) in Segment 2. Lowland or wet forests include American elm, river birch (*Betula nigra*), black willow (*Salix negra*), red maple (*Acer rubrum*), and swamp white oak (*Quercus bicolor*). Wetlands along the routes have not been well documented, except to distinguish where invasive species like reed canary grass (*Phalaris arundinacea*), common reed (*Phragmites australis*), and purple loosestrife (*Lythrum salicaria*) are predominant.

Table 7.3-2 provides the acreage of natural community impacts as acreages of land cover types. Upland forest, followed by wetland forest and wetland communities, are the most impacted. Transmission lines built on existing or new ROW in forested natural communities result in permanent direct changes through forest loss and indirect changes from fragmentation and edge effects. These changes in turn alter habitat conditions such as light, moisture, vegetation composition and structure, for the plant and animal species that live there.

Table 7.3-2 Summary of area affected in acres, by general habitat type

Habitat Type	Q1-Hwy 35 In ROW	Q1-Hwy 35 Out of ROW (Access)	Q1-35 Total In/Out ROW
Forested Upland	184.9	1.5	186.4
Forested Wetland	55.5	0.6	56.1
Non-Forested Wetland	37.6	0.7	38.3
Grassland	36.7	0.2	36.9
Shrub Upland	0.9	0	0.9
Total In ROW	315.6	3	318.6

Source: Table 8 of Applicants' Confidential Rare Species Report, January 2011.
Note: Methods used to arrive at these numbers are different than those used to measure land cover in Appendix A, Table 2 of the CPCN Application. For that reason, direct comparisons between the two tables cannot be made.

The application indicates a permanent loss of 128 acres of forested land along new ROW and 113 acres of existing ROW through forested land cover that will continue to be maintained free of woody vegetation.[81] This latter number is an underestimate because some existing ROW areas are not actually cleared. For example, Segment 8B has 32 feet of shared ROW width (approximately 7 acres) along STH-35/GRR that remains forested. The following route segments would cause the most impact to forested natural communities:

- Segment 1 at the Alma crossing (Figure Vol. 2-1A)
- Segments 2A, 2G, 2I, and 3 along STH 35/GRR across the bluffs (Figures Vol. 2-1A and Vol. 2-1N through Vol. 2-1Q)
- Segment 8B through the Van Loon area along STH 35/GRR (Figure Vol. 2-1J)

Segment 8B has the greatest area of forest loss in relation to the segment length. The potentially affected forest along Segment 8B is part of the largest contiguous area of mesic and wet forest and natural communities in the project area. This segment is less than 0.5 mile from the boundary of the Van Loon Floodplain Forest State Natural Area. Forested natural communities in Segments 2I through 2H, which are also common to the original Q1 route and the Q1-Galesville route, are a mosaic of mesic to dry upland forests dissected by agriculture and pasture use. Upland forest land in Segment 2 and floodplain forest land in Segment 8B provide different habitat resources and so different rare species may be present in each.

Rare species that might be present in upland grassland or prairie communities in Segments 2E, 2G, and 2I would experience fewer obvious changes in their habitat conditions than the rare species that might occur in forested natural communities. However, surface erosion, access grading, and invasive species disturbances during construction and operation could create unstable and unfavorable conditions for invertebrates, nesting birds and native plant species in grasslands or prairies.

Impacts to wetland natural communities, including forested wetlands, would occur primarily in the Van Loon/Black River area (Segment 8B; see Figure Vol. 2-1J), but also at the Trempealeau River crossing (Segment 2I; see Figures Vol. 2-1H and Vol. 2-1I), the Mississippi River crossing, and the Mississippi River sloughs (Segment 1, 2A, 2B; see Figures Vol. 2-1A and 2-1L). Segment 8B of the Q1-Highway 35 route across the Van Loon has a similar composition to Segment 5B of the Q1 Route (also in Figure Vol. 2-1J), but the former would have slightly less forested wetland loss because it is a shorter route segment.[82] Rare animal species and high quality habitat exist at all of the locations mentioned; but the Van Loon crossing in Segment 8B is noted for its exceptional natural resource value (see also Section 7.3.5.2 in Chapter 7 for a description of the Van Loon).

Segment 9 crosses the New Amsterdam Grasslands, a nature preserve owned by the Mississippi Valley Conservancy.[83] Segments 17A and B range from one-third to one mile east of the Van Loon Savanna State Natural Area. This 310-acre site is as an important area of conservation, primarily because it provides critical nesting habitat for rare grassland birds, like the state threatened Henslow's sparrow and Bell's vireo. A line through the preserve could result in permanent loss of habitat quality for these species. By connecting Segment 8C to Segment 18B or 18C of the Q1-Galesville Route, instead of Segment 9C, impacts to this natural community and the rare birds that depend on this site could be avoided.

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[81] CPCN Application, Appendix A, Tables 2 and 4.
[82] Segment 5B, part of the original Q1 Route examined by the utilities, is described in Appendix N of the CPCN Application.
[83] See Section 7.4.9 on land use in this chapter. Figure 7.4-2 shows the location of the New Amsterdam Grasslands tract. The location can also be examined in Figure Vol. 2-1K.

Construction measures can be implemented to avoid and minimize impacts in wetland communities. The success of these measures varies depending on location, proximity to other disturbances, time of year, soil and hydrological conditions, topography, and weather at the time of construction. Winter construction techniques as a means of avoiding or minimizing impacts have unpredictable results in the southern half of the state, and they could have unpredictable results in this project area as well. With transmission projects of this complexity it may be difficult to adhere to schedules specifying that certain segments be completed in the winter. During wet or unfrozen conditions, multiple layers of mats might be needed to ensure stability for access and this increase in mat mass could result in permanent changes to soils and wetland topography. Ice road construction is susceptible to break-throughs and rutting during unanticipated melting. Clearing and vegetation management change the natural community composition in wetlands. Opening new ROW, grading, vegetation clearing, and other ground disturbing activities near an existing roadway or in remote areas create optimal conditions for the introduction and spread of invasive species over time, regardless of the measures taken during construction to clean equipment and re-seed the workspace. Conversely, if frozen conditions are maintained for several weeks and there is adequate precipitation for ice roads, winter construction can greatly minimize surface disturbance.

Moving the existing Q1 161 kV transmission line would compensate for some of the forest loss within the Van Loon area along Segment 8B. However, the existing ROW on Segment 5B is dominated by herbaceous and shrub invasives and native species. If this segment is abandoned and no longer maintained, conversion back to forested vegetation may not occur without active management and restoration.

In terms of acres of impact per route mile, the Q1–Highway 35 route has a slightly higher concentration of forest impacts and a higher concentration of wetland impacts than the other proposed routes. And, although it is difficult to compare the quality of the impacted forests and wetlands, this route includes some large natural communities.

7.3.2.2. Rare species

The Q1-Highway 35 route has approximately 80 special concern, threatened, and endangered species occurrences recorded within 2.0 miles of the proposed route. The occurrences are primarily rare fish, mussel, bird, and plant species and are summarized in Table 7.3-3. There is approximately the same number of occurrences recorded for this route, the original Q1 Route, and the Q1-Galesville Route. Understandably, the occurrences are located on segments common to the three routes:

- Segment 1 across the Mississippi River
- Segments 2A through 2I along the Mississippi River and across the hill-and-valley region between Waumandee Creek and the Trempealeau River
- Segments 8B and 5B across the Black River -- all three routes cross the Black River, albeit at different locations

Table 7.3-3 Summary of NHI rare species occurrences along the Q1-Highway 35 Route, by taxa

Taxa	Q1-Hwy 35 Special Concern	Q1-Hwy 35 Threatened	Q1-Hwy 35 Endangered
Bird	7	6	2
Butterfly	4		1
Dragonfly/Mayfly	6		1
Fish	7	5	4
Mammal			
Mussel	4	3	5
Snake	2		1
Terrestrial Snail		1	
Turtle	1	2	
Terrestrial Plant	9	4	
Aquatic/Wetland Plant	2	3	
Total	42	24	14

Special Concern = SC; Threatened = THR; Endangered = END

The following sections in this chapter examine rare species in more detail, grouped in each section by taxa.

7.3.2.3. Fish, mussels, and other aquatic invertebrates

Thirty-seven of the recorded rare species occurrences are fish, mussels, or aquatic dragonflies and mayflies. One threatened and one endangered mussel are associated with the Black River (Segment 8B), the West Channel of the Trempealeau River, and the Trempealeau River crossings (Segment 2I). Rare mussels may also be present in Waumandee Creek (Segment 2F). Approximately five of the fish species are also associated with these crossings; the other occurrences are recorded in the Mississippi River. One endangered mayfly, the Pecatonica River mayfly (*Acanthametropus Pecatonica*) is recorded in the Black River. Two special concern dragonfly species are recorded at the Trempealeau River and the Black River.[84]

The endangered mayfly is recorded in the section of the Black River near Segment 8B. The applicants indicate that work below the ordinary high water mark (OHWM) is proposed in this segment. If the route including this segment is approved, further assessment would be needed at the Black River crossing to determine if this species could be present. A definitive determination of presence or absence will be difficult since little is known about the species. If the species is reasonably likely to occur in the area affected by the project, activities that disturb the clean sand bottoms of the river crossings should be avoided by using alternative access routes or crossings that do not cause disturbance below the OHWM to reach pole locations. If disturbance below the OHWM cannot be avoided, methods to minimize the area and quantity of soil disturbance should be used. Also, the most conservative erosion and vegetation management measures should be considered to prevent sediment or contaminants from reaching the waterway.

Most of the threatened or endangered mussel species that may be present along this proposed route are found in waterways with flowing water. Some of the species are associated with backwater sloughs or wetlands that also have some flowing water. Mussels depend on specific fish species as hosts for the larval stage of their lifecycle and several host fish species may reside in the backwaters. At major waterway crossings at the Black, Trempealeau, West Channel of the Trempealeau, and the Mississippi River, further assessment may be needed to determine if rare mussel species are present. Impacts to these species may be avoided by using methods similar to those cited above for the Pecatonica River mayfly. When defining impacts to mussels, it is important to consider the different habitats and fish that are necessary for mussels

[84] The Black-Buffalo-Trempealeau Basin contains 62 percent of the state's endangered, threatened or special concern species.

to complete their complex lifecycle. Disturbances below the OHWM such as dewatering or installation of bridges should be carried out in such a way as to allow host fish to safely leave the area. If barges are used to transport equipment across waterways, the river bed at the barge launch area should be surveyed to determine if rare mussels are present and if so, they should be relocated to a safe location.

The same measures also need to be considered with the many rare fish species present in the Black River, West Channel of the Trempealeau River, Trempealeau River, Waumandee Creek, Shingle Creek, and the Mississippi River. For any waterway crossing where rare fish species may occur, WDNR recommends scheduling work outside the spawning season. This is because impacts during the most critical period of the species' life-cycle can still be avoided if erosion control measures fail.

7.3.2.4. Turtles and snakes

Two threatened turtle species, the Blanding's turtle (*Emydoidea blandingii*) and wood turtle (*Glyptemys insculpta*), and one endangered snake species, the Eastern Massasauga rattlesnake (EMR – *Sistrurus catenatus catenatus*) may be present in the work area. The EMR is also a federal candidate species for listing. USFWS and WDNR biologists have identified suitable habitat and have reported occurrences overlapping the route as well as further north of STH 35, where habitat appears to be the most suitable. Historically, the species also occurred south of STH 35, but the extent to which the species still uses this area is unknown. This is in part because the core of the population south of STH 35 might occur on private lands adjacent to state or federal properties for which it is difficult to gain access.

All three species prefer wetland or floodplain habitat mixed with areas or patches of open upland habitat. Wood turtles remain near waterways in riparian areas. While each of these three species has different preferences for vegetation structure and density within these natural community types, their range may be extended in a diverse contiguous community like the Van Loon (*e.g.*, wood turtles may be found in emergent wetlands). Recorded occurrences of all three of these species in the Van Loon area (Segment 8B) emphasize its high habitat quality relative to other segments or routes. Portions of Segment 2 also have good quality habitat for these three species, and occurrences of both turtle species are recorded within the NHI search area along this segment as well. While there is suitable habitat for the EMR at crossings at Trempealeau River and West Channel of the Trempealeau, the species has not been recorded there.

Winter habitat for the Blanding's turtle, the wood turtle, and the EMR might occur in the area of Segment 8B. All of these species attempt their hibernation in locations that do not freeze. For the EMR, suitable overwintering sites include crayfish burrows or crevices that reach below the frost line. For Blanding's turtle this can include mucky substrate beneath some depth of water, usually greater than two feet. Wood turtles hibernate in the banks and substrates of streams and rivers.

The timber rattlesnake (*Crotalus horridus*) is a special concern species with declining populations in the state. It prefers deciduous forests and woodland edges in an agricultural setting during the summer. Gravid females and juvenile timbers prefer to remain in open-canopy bluff prairies during the summer where additional structures like brush, trees, or rock shelves provide shade. They hibernate in rocky outcrops and bedrock fissures below the frost line. This species, as well as the North American racer (also special concern), may occur along upland bluff, dry mesic, and prairie habitats in Segment 2G (see Figures Vol. 2-1N and Vol. 2-1O).

Winter construction in wet areas ideally includes a relatively more stable, frozen surface for equipment than may occur at other times of the year. Helicopter methods have been proposed for installation of some poles in the Van Loon. Frozen conditions during the winter in this area cannot be assured because

of subsurface flow, springs, and variable winter temperatures. If mats in one or more layers are placed along access routes, the excess weight could cause compaction and subsequently soil disturbance when they are removed and the site is restored. Ground disturbance also would still occur during vegetation clearing and grubbing out roots, during the placing of mats for access, and for equipment transport and utilization at the pole location site. If the soil is unfrozen at the time of construction, the applicants have proposed filling the wetlands, which increases temporary disturbance and makes restoration to pre-construction conditions more difficult. At each pole installation site, the soil must be excavated below the frost line, where EMRs hibernate. Compaction, vibrations, and soil disturbance in or near the zone of hibernation could directly or indirectly impact overwintering individuals.

Conversely, construction during other times of the year carries the risk of interfering with reptiles movements to nesting sites, causing direct and indirect disturbance to the nests and adults. Whenever maintenance on the line occurred, similar impacts would need to be considered.

Impacts on reptile species can be avoided by staying out of occupied habitat areas when delineating the boundaries for the construction workspace. If work is scheduled during the active season, exclusion fencing can be installed before the species become active and move into the workspace. When access to private lands or unexpected wet conditions preclude timely and effective installation of exclusion fencing, monitoring and removal can be effective if the ground surface is visible and the space to be cleared is relatively small. Scheduling and/or locating construction activities outside of hibernation areas during winter may be necessary and successful if measures described above to avoid impacts during the active season can be implemented. Impact to wood turtles overwintering would be unlikely to occur if temporary bridges were used and there was no disturbance below the OHWM. Exclusion or relocation of disturbed overwintering reptiles is generally not a viable method of avoidance for large construction disturbances such as this project.

EMRs use open wetland, meadow, and upland habitats for basking. However, openings created for utility ROWs can result in threats to EMRs that are not present to the same degree in natural openings. Transmission lines attract raptors that predate snakes, and dense monostands of invasive species like reed canary grass (*Phalaris arundinacea*) or buckthorn (*Rhamnus cathartica*) can be introduced and make habitat less suitable for EMRs.

The Van Loon/Black River Bottoms supports one of two known viable populations of EMRs in the state. This conclusion is based on the population size and current survey data from known occurrences throughout the state. Take of a single EMR, especially a gravid female, might have a significant impact on the long-term viability of the EMR population at this site and throughout the state.

Considering the length of the route and the breadth of land use interests and concerns that exist, it is unlikely that project activities could be scheduled or located to avoid impacts to the wood turtle, Blanding's turtle, EMRs, and the timber rattlesnake. It is also unlikely that other avoidance methods like exclusion fencing or monitoring could be effectively implemented where they are needed throughout the entire route.

Given all these factors, an incidental take permit may be needed for the EMR, Blanding's and wood turtles if the Q1–Highway 35 Route is selected. An application including a conservation plan would need to be submitted under Wis. Stat. § 29.604(6m)(c). The application would also include, among other things, a description of the alternative actions to the taking that the parties have considered, the reasons that these alternatives could not be utilized, the impacts that are likely to occur, and the steps that the parties would take to minimize and mitigate impact to the species. Based in part on the conservation plan, WDNR

would determine whether the following criteria for issuing an incidental take permit could be met according to Wis. Stat. § 29.604(6m)(f)1:

1. The taking will not be the purpose of, but will be only incidental to, the carrying out of a lawful activity.
2. The parties will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking.
3. The parties specified will ensure that adequate funding for the conservation plan will be provided.
4. The taking will not appreciably reduce the likelihood of the survival or recovery of the endangered species or threatened species within the state, the whole plant-animal community of which it is a part, or the habitat that is critical to its existence.

7.3.2.5. Terrestrial invertebrates

Four special concern butterflies and one endangered butterfly, the regal fritillary (*Speyeria idalia*), are recorded in the NHI database within 2.0 miles of this proposed route. The wing snaggletooth (*Gastrocopta procera*), a state-threatened land snail, may also occur in the project area. All of these species prefer upland habitats with plants that prefer prairie, grassland, or open habitats. Suitable habitat is found primarily along Segments 2G, 2I, and 3 of the proposed route. The NHI database has recorded occurrences at approximately 15 locations for the regal fritillary and 13 locations for the wing snaggletooth in the state. Both species have particular habitat requirements that contribute to their rarity. If this route was ordered, host plant surveys would be required in some habitat areas; if host plants were located, surveys for the species itself might also be necessary. Concurrent surveys for the host plants of special concern butterflies might also be requested where feasible to plan ways to minimize disturbance. Additional surveys would be needed to determine whether the wing snaggletooth is present and, if it was, to delineate the extent of the occurrence relative to the proposed workspace prior to construction. Snails overwinter *in situ*, so winter construction alone might not be a viable avoidance measure. Covering the ground with mats can minimize, and under some circumstances, avoid impacts to overwintering invertebrates if ground disturbance is not planned for the occupied area. Adjusting the route or the workspace is the most reliable means of avoiding impact. Appropriate ROW management that facilitates growth of native plants and maintains an open herbaceous habitat can provide long term benefits to these species.

7.3.2.6. Birds

Six threatened, two endangered, and seven special concern bird occurrences are recorded in the NHI database within 2.0 miles of this proposed route. Of these, the endangered cerulean warbler (*Dendroica cerulean*), the threatened great egret (*Ardea alba*), and the threatened red-shouldered hawk (*Buteo lineatus*) are recorded in the NHI database coincident with the proposed route. The threatened least Bell's vireo (*Vireo bellii pusillus*) and the threatened Henslow's sparrow (*Ammodramus henslowii*) occur within the NHI search area in the southern portion of the project area. The endangered Peregrine falcon (*Falco peregrinus*) and the threatened yellow-crowned night heron (*Nyctanassa violacea*) may also be present on the northern route segments. Two other threatened species, the Acadian flycatcher (*Empidonax virescens*) and the hooded warbler (*Wilsonia citrina*), are regionally present in La Crosse or Trempealeau Counties, but have not yet been recorded in the project area. Habitat for these species might be found in the forests, wetlands, or open grassland communities on Segments 2, 8, and 9. The special concern prothonotary warbler (*Protonotaria citrea*), which prefers shrubby habitats near water bodies and wetlands, may also be present at the major river crossings for this route. Surveys completed by the applicants in accessible locations along Segment 2 recorded occurrences of 18 special concern and three threatened bird species. One of the threatened species and most of the special concern species identified during the applicants' surveys were not recorded in the NHI database.

Direct impacts to rare birds can be avoided by restricting construction to the non-breeding season. For route segments that rely on existing transmission ROW, some rare bird species like the cerulean warbler and the flycatcher that prefer wooded habitat or the Bell's vireo that prefers shrubby habitat might nest adjacent to the ROW if there is woody habitat on both sides. Depending on the width and vegetation structure within the ROW, the birds might not perceive the space as open unsuitable habitat. If so, noise, human activity, and vibrations from construction during critical periods of the breeding season might disturb birds adjacent to the ROW, resulting in nest abandonment. If helicopters are used for construction during the breeding season, they could increase the extent of disturbance beyond the ROW. Whenever maintenance on the line occurred, similar impacts would need to be considered. Birds that prefer woody or forested habitat could suffer indirect impacts through loss of habitat or reduction in habitat quality and increased predation because of ROW clearing.

The Mississippi Valley Nature Conservancy reports that the New Amsterdam Grassland[85] may support the least Bell's vireo and the Henslow's sparrow. While these species may also use habitat in portions of Segment 18 on the other side of STH 53, the Conservancy lands necessarily restrict development that would destroy the habitat. Grassland species are sensitive to tall structures because they perceive tall structures as a threat and the structures may invite raptors. If the structures are installed there, the existing habitat might no longer function to support as many grassland birds.

Collectively, the threatened, endangered, and special concern species that have been identified in the project area breed from approximately mid-March through September. Abandoning the segment of the existing Q1 Route across the Van Loon to double circuit with the CapX 345 kV line could partially compensate for loss of forest or edge bird species habitat along Segment 8B of the Q1-Highway 35 Route. As noted above, the nature and magnitude of impacts from habitat changes would depend on the width of the ROW, the location within the block of habitat, and resulting vegetation in the ROW. The potential impacts could be assessed through pre- and post-construction surveys.

Because of the complex land use concerns and length of the route, it might not be possible to adhere to a project schedule that avoids the breeding season for all these species at all locations where they might be present along the Q1-Highway 35 Route. Further consultation would be needed with WDNR to determine whether impacts might occur and if so, whether an application for incidental take would be needed.

During seasonal or diurnal migrations, birds can collide with transmission lines and lines can present barriers to their use of stopover habitat. The risk increases when the lines are vertically arrayed, when they reach above other visible barriers like tree lines, or when they are placed in areas of abundant bird use like migration corridors, colonial nesting areas, or stopover habitat. USFWS has provided recommendations to the applicants specifically for the Mississippi River crossing (Segment 1) to design a wider ROW with structures that minimize the height and vertical array of lines. As a result of this recommendation, the width of the cleared ROW would increase from 125 feet up to 280 feet in order to keep the height of the line below 200 feet. Poles across the Van Loon and the Trempealeau River could reach up to 170 feet tall, well above the tree line and/or existing power lines. If this route is approved, USFWS and WDNR should be consulted to determine where bird diverters would be necessary to help birds recognize and avoid the lines.

[85] See Section 7.4.9 on land use in this chapter. Figure 7.4-2 shows the location of the New Amsterdam Grasslands tract. The location can also be examined in Figure Vol. 2-1K.

7.3.2.7. Plants

Nine special concern and four threatened terrestrial plant species, and two special concern and three threatened aquatic plant species are recorded in the NHI database as occurring near the project area. Although no rare plant surveys were completed for this project, during the applicants' habitat assessment, one special concern plant was found along a forested portion of Segment 2. Two species, the threatened Hill's thistle (*Cirsium hillii*) and the threatened snowy campion (*Silene nivea*), are in habitats intersected by Segments 2 and 8B. The snowy campion is found on alluvial deciduous forest margins and meadows. Hill's thistle is found in dry prairies and pine and oak barrens. Both plants prefer habitats in natural communities that are declining in number and/or quality in Wisconsin. The threatened prairie milkweed (*Asclepias sullivantii*) is found in fens and low to mesic prairies, surviving in prairie remnants along railroads and (rarely) as isolated plants along roadsides after native vegetation has been destroyed. Suitable habitat for this species might be present along Segment 8B. Other rare plant occurrences have been recorded on or near Segment 9.

Two features of this route increase the likelihood that these and other rare plants are likely to be present. First, the Q1-Highway 35 Route crosses upland habitats that are remote and less impacted by human activity. Secondly, the route crosses habitats like the Van Loon/Black River bottoms that are intended to be protected and managed to preserve high quality habitats. Impacts on natural communities described in this section of the EIS can ultimately change habitat conditions and make it difficult for rare plants to persist. Wisconsin's Endangered Species Law protects only state-listed threatened or endangered plant species on public lands, but utility, agriculture, and forestry projects are exempted from this protection. Therefore, if this route is approved, additional surveys and avoidance and minimization measures for rare plant species can only be recommended by WDNR.

7.3.2.8. Summary of endangered resources impacts for the Q1-Highway 35 Route

The proposed Q1-Highway 35 Route covers a range of upland, wetland, and aquatic natural communities. Segments 1 and 2 cross the Mississippi River, floodplains, and backwaters. Segment 2 also crosses upland wooded and prairie and other open habitats as well as wetland habitat at the Trempealeau River. Segment 8 crosses an internationally important contiguous stretch of river and floodplain habitat through the Van Loon or Black River Bottoms. These natural communities support habitat for endangered, threatened, and special concern fish, mussels, birds, reptiles, insects, and plants. Use of Segment 8B could potentially affect the greatest number of rare species, followed by Segments 2G, 2H, and 2I. Among the rare species present, the EMR, wing snaggletooth snail, red-shouldered hawk, and Pecatonica river mayfly are among the state's most at-risk species.

Impacts to two threatened bird species may occur within the New Amsterdam Grassland, which is part of the Mississippi Valley Nature Conservancy. Eliminating Segment 9 and connecting Segment 8C directly to Segment 18A along section or property lines could avoid this impact.

Given the varied and competing land use and resource impacts along with the construction challenges with multiple lines, steep slopes, and wetlands, it is unlikely that common measures to avoid impacts to rare species during transmission line construction and operation (such as timing restrictions, winter construction, work space reduction, exclusion fencing, and matting, for example) can be optimally implemented for this route. Moving the existing Q1 line out of route Segment 5B[86] to the new 345 kV

[86] Segment 5B is part of the existing Q1 161 kV transmission route, and part of the originally proposed Q1 Route for this project. See CPCN Application, Appendix N (PSC REF #150059 and #150060) and the map in Figure Vol. 2-1 Index.

line in Segment 8B would partially compensate for some impacts to some of the species discussed in this section. In conclusion, impacts to multiple rare species are likely to occur, and this may include state endangered or threatened reptiles, birds, or invertebrates.

If this route were approved, additional assessment and surveys would be needed along some route segments for some of the species discussed above. Further consultation with WDNR would be needed to determine whether a permit or authorization under Wisconsin's Endangered Species Law is needed and could be issued if incidental take of state-threatened or endangered animal cannot be avoided. Further consultation would be recommended for numerous other special concern species and rare plant species to develop measures to minimize impacts.

Relative to the other proposed routes, the Q1-Highway 35 Route could have endangered resource impacts similar to the original Q1 Route in nature and magnitude. However, the Van Loon/Black River crossing of the Q1-Highway 35 Route is shorter than that along the Q1 Route. For both the Q1-Highway 35 Route and the original Q1 Route, permanent long-term impacts to the Van Loon/Black River bottoms could occur.

While the rare species that might be affected along the Q1-Galesville Route are similar to the Q1-Highway 35 Route, a greater portion of the Q1-Highway 35 Route is forested, forested wetland, and wetland. The Black River can be spanned by the new line on the Q1-Galesville Route. Based on what is known about rare species occurrences and habitats along the routes, the Q1-Highway 35 Route is likely to affect more rare wetland species than the Arcadia Route, the Q1-Galesville Route, or the Arcadia Route with the Ettrick Connector. More of the species that could be affected along this route prefer forested or wetland habitats than the species that might be present along the Arcadia Route.

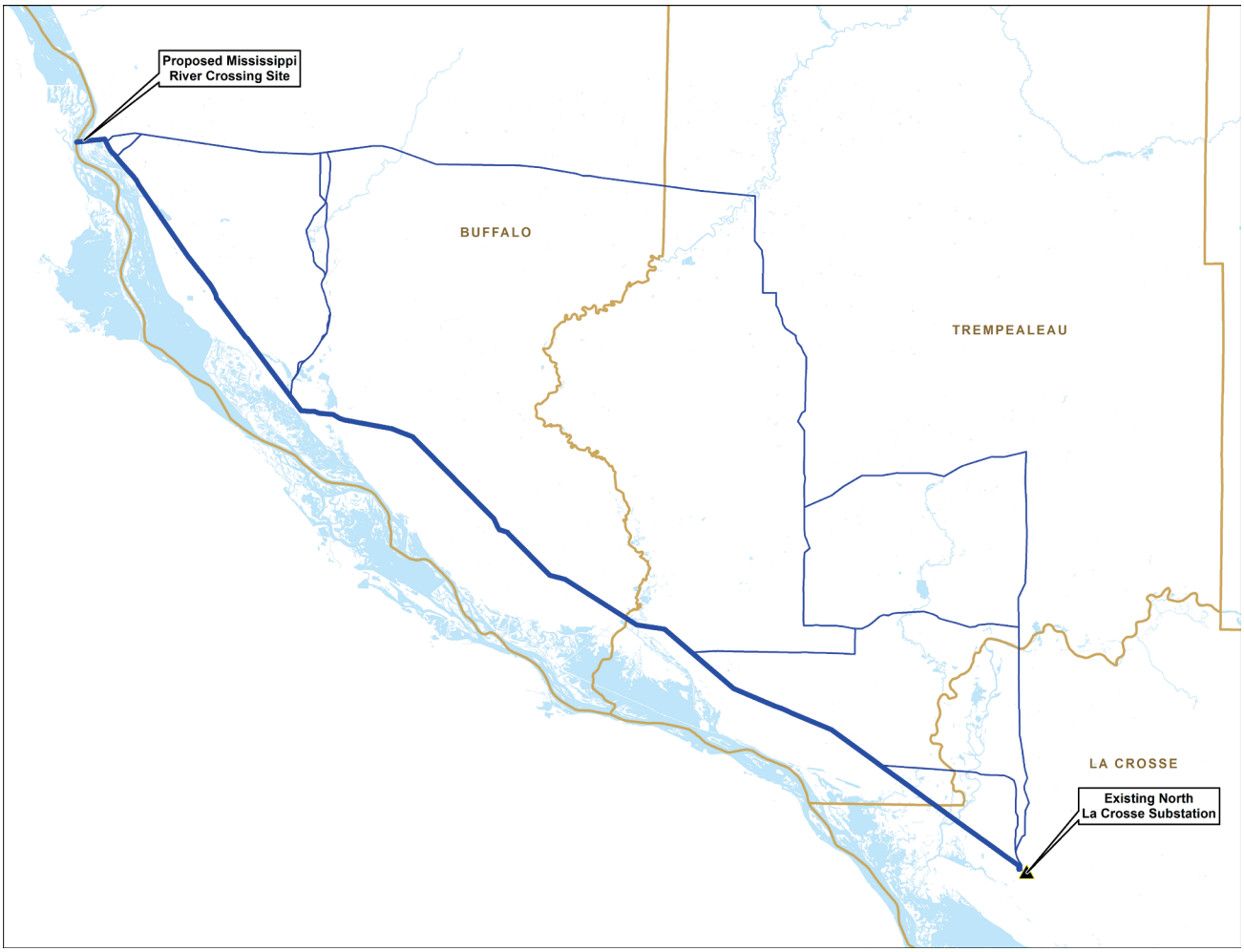
7.3.2.9. Original Q1 Route

This section discusses potential impacts to endangered resources that could be present in the area affected by construction or operation of the new line on the original Q1 Route. This route was not included among the applicants' proposed routes, but it is described in Appendix N of the CPCN and could still be considered by the Commission. The original Q1 Route is the same as the Q1-Highway 35 Route until the two diverge near the intersection of STH 35 and McDonagh Lane. At this point, the Q1-Highway 35 Route continues eastward as Segment 8A and the original Q1 Route continues to the southeast as Segment 5A. Up to this point, the northern Segments 1 through 4 and potential endangered resources impacts are the same as those described for the Q1-Highway 35 Route. See Figure 7.3-1 to see the Q1 Route.

Segment 5B of this route crosses approximately 5,000 to 6,000 feet of USFWS land, and USFWS has stated its opposition to its use for either the new line or a rebuild of the Q1 line.[87]

[87] Letter from Kevin Foerster, Manager, Refuge, to Thomas Hillstrom, Xcel Energy. August 16, 2010.

Figure 7.3-1 Original Q1 Route



Approximately 41 percent or 317 acres of 774 total acres of the ROW area for this route is located in non-agricultural upland and wetland (*i.e.*, forested and non-forested wetland, upland forest, upland shrub, and prairie/grassland.)

The nature of the endangered resources impacts that could occur along Segments 5A and 5B are similar to those that could occur along Segment 8B on the Q1-Highway 35 Route, with some differences in magnitude and severity. The area south of STH 35 has suitable habitat for EMRs, and Blanding's and wood turtles. Historically, more EMRs have been noted south of STH 35, but rising water levels might have been responsible for reductions in habitat quality there. Presently, biologists believe the core population south of STH 35 might now be located on adjacent private land.

The rare plant species that occur along the original Q1 route are likely to be the same as those present along the Q1-Highway 35 Route because habitat conditions are generally similar. The Q1 Route impacts approximately twice as much non-forested wetland on Segment 5B than the Q1-Highway 35 Route. It also shares an existing ROW with the existing Q1 161 kV line. Still, it has likely been years since the last maintenance on this line, so the clearing necessary for construction would remove the existing shrubby vegetation as well as forest trees to widen the ROW.

It is reasonable to consider Segment 8B and Segment 5B relatively the same in terms of overall impact. Beyond Segment 5B, there are no important areas of natural communities or rare species occurrences. The original Q1 route does not impact the New Amsterdam Grassland conservation site.

7.3.3. Rivers and streams

This section describes the streams and basins where the proposed project route would be located and the smaller watersheds within the basin that could be affected by the project.

7.3.3.1. Basin information

The proposed route would be located in the Black, Buffalo, and Trempealeau Basins. The Black, Buffalo, Trempealeau Basin (BBT) group is a group of distinct river basins that drain directly to the Mississippi. The three basins in the BBT group include several watersheds and many unique and rare aquatic habitats. The group is part of the Great Western Rivers area of Wisconsin. The ridge tops and valleys of the "Driftless Area" generally support forests and agriculture, respectively. The "driftless" terrain drains to the Mississippi's wide floodplains that can be viewed for miles from the region's steep bluff overlooks. Along the Q1-Highway 35 Route, the BBT group includes the Little Buffalo River Watershed and the mouths of Waumandee Creek, the Lower Trempealeau River, and the Lower Black River. These are illustrated in Figure Vol. 2-4. The floodplains associated with the stream outflows are shown in Figure Vol. 2-5.

7.3.3.2. Hydrologic features

The northwestern portion of the route passes through the southern portion of the Lower Buffalo River Watershed. The Lower Buffalo River Watershed is approximately 176,278 acres in size and consists of 638 miles of streams and rivers, 891 acres of lakes, and 9,907 acres of wetlands. The watershed is dominated by forests and agriculture, but has problems with agricultural nonpoint source pollution affecting streams and groundwater in the watershed. Most streams in the Lower Buffalo River Watershed have stream habitat that has been severely degraded by agricultural nonpoint source pollution. All assessed streams have degraded fishery habitat, mainly due to stream bank destruction and in-stream sedimentation.

The Waumandee Creek Watershed empties into the Mississippi River at the southern end of STH 88 across Segment 2E. It is approximately 142,060 acres in size and consists of 508 miles of streams and rivers, 3,011 acres of lakes, and 8,254 acres of wetlands. The watershed is dominated by forests and agriculture.

The middle portion of the route passes across the Lower Trempealeau River Watershed, which is approximately 113,345 acres in size and consists of 333 miles of streams and rivers, 4,667 acres of lakes, and 13,987 acres of wetlands. The watershed is dominated by forests and agriculture. It empties into the Mississippi River near the unincorporated village of Marshland across Segment 2I.

The southeastern portion of the route passes across the Lower Black River Watershed and crosses the Lower Black River west of Holmen and Onalaska. The Lower Black River is the main feature of the Van Loon Wildlife Area and its associated wetlands, discussed in some detail in Section 7.3.5.

7.3.3.3. Ecological landscapes

These watersheds are located in the Western Coulee and Ridges Ecological Landscape of southwestern and west-central Wisconsin. They are characterized by highly eroded, driftless topography and relatively extensive forested landscape. Several large rivers pass through it or border it, including the Wisconsin, Mississippi, Chippewa, Kickapoo, and Black Rivers.

Historical vegetation consisted of southern hardwood forests, oak savanna, scattered prairies, and floodplain forests and marshes along the major rivers. With Euro-American settlement, most of the level land on ridge tops and valley bottoms was cleared of oak savanna, prairie, and forest for agriculture. The steep slopes between valley bottom and ridge top, unsuitable for raising crops, grew into oak-dominated forests after the ubiquitous pre-settlement wildfires were suppressed. Current vegetation is a mix of forest (40 percent), agriculture, and grassland with some wetlands in the river valleys.

Nonpoint source water pollution is a concern. Nonpoint source water pollution is usually a result of agricultural practices that allow soil erosion or runoff. The Waumandee Creek watershed was selected as a priority watershed project in 1985 under the Wisconsin Nonpoint Source Pollution Abatement Program. The Waumandee Creek Watershed has severe nonpoint source pollution impacts degrading all of the streams. Many of the streams have also been severely channelized which significantly reduces the potential to improve fishery habitat in these streams. Most of the streams in the Lower Trempealeau River Watershed have stream habitat that has been severely degraded by agricultural nonpoint source pollution. All streams that were assessed are considered to have degraded fishery habitat resulting from stream bank destruction and in-stream sedimentation. The Lower Black River has been identified as a Nonpoint Source Priority Watershed since 1989. Over 400 hundred miles of trout streams are generally in good condition, but water quality problems currently result from urban and rural storm water runoff, barnyard runoff, and inadequate sod cover on stream banks. The wetlands around the Lower Black River form the Van Loon Wildlife Area, discussed in more detail in Section 7.3.4.

Trout streams of different qualities are illustrated in Figure Vol. 2-4. According to Figure Vol. 2-4, the only classified trout stream that is close to the Q1-Highway 35 Route, the portion of Eagle Creek classified as a Class 3 trout stream, appears to be north of Segment 2G and does not pass under the Q1 line. The Basin also includes many "natural channel streams," or streams whose paths have not been channelized at any point in their meandering. These streams are rare statewide but many are located in the Basin. Some of these natural channel streams are ORWs or ERWs. Figure Vol. 2-3 shows that no ORWs or ERWs are located along the Q1-Highway 35 Route. Another rare waterbody type in the Basin is the "kettle lake," but most Basin lakes have been created with dams and other impounding structures, some originally constructed as many as 150 years ago or more.

7.3.3.1. Potential waterway impacts specific to this route

There are 46 waterways crossed by this route, but few of them would require installation of a temporary clear span bridge (TCSB). Many of the waterways appear to be ditched and are located in agricultural areas that are actively grassed. Waterways associated with some of the larger stream complexes have heavier vegetative riparian areas and more natural flows, with oxbows and meandering channels that should not be altered. These streams are the ones most likely to be adversely affected by removal of stream bank vegetation and potential soil erosion and sedimentation.

Several open-water back sloughs located near the Mississippi River on Segment 1 would require some type of bridging over the waterways to facilitate construction. Bridge placement over these waterways may be difficult, if the bed and bank of the waterways cannot be easily identified and also because these areas are routinely inundated or flooded, even during winter.

Segment 2B a waterway an unnamed tributary to the Mississippi River that is connected to Lizzy Pauls Pond. A larger segment of access road is proposed to cross this open back water of the river. Driving on the bed of the river could cause significant damage to the resource and increase sedimentation into the river. Impacts at this crossing could be minimized by using floating construction mats during frozen conditions. Winter construction may not be an effective means of minimizing impacts if the waterway

area does not adequately freeze solid. The construction difficulties might be alleviated if poles were shifted west towards the river and relocated on land instead of in the waterway. This relocation option could also eliminate the need to drive on the bed of the waterway in order to place the new utility pole. Other waterways along this segment are not expected to be impacted by the utility line construction.

Segment 8B has several backwater slough and tributaries associated with the Black River. If this segment is chosen, these waterways will need to have temporary bridges placed over them. The heavily forested environment and high organic content of this forested floodplain area could make it difficult to locate the "top of bank" to place the bridge. Additionally, this area is highly susceptible to flooding, and might be entirely underwater during certain times of the year. This area is also highly organic and mucky, creating an environment that is more susceptible to erosion and sedimentation into the river. Caution would be needed for the proper placement of the temporary bridges. Several poles proposed to be placed in the floodplain forest along Segment 8B may need Wis. Stat. ch. 30 permitting for the placement of a structure "below the ordinary high watermark" of the Black River. Super-saturated conditions might also be encountered, and dewatering of the excavations for new structures would need to be regulated to protect the larger forested floodplain environments.

7.3.3.2. Waterways across the original Q1 Route

The original Q1 Route proposed by the applicants was identical to the Q1-Highway 35 Route except that it followed the existing 161 kV ROW through the Van Loon Wildlife Area and Black River bottomlands instead of relocating the 161 kV line and double-circuiting it with the 345 kV line parallel to STH 8. This section focuses on the existing 161 kV ROW, which makes up Segments 5A, 5B, and 5C.

Segment 5A does not cross any waterways, and Segment 5C crosses one.

Segment 5B crosses 15 waterways where temporary bridges would need to be installed. These waterways are associated with an unnamed tributary to Tank Creek, with Shingle Creek, and with the Black River and the Van Loon Wildlife Area, which is a rich complex of waterways and back sloughs associated with the Black River. See Section 7.3.5.2 for a detailed discussion on the Van Loon Wildlife Area. Segment 5B also crosses the Refuge. Structures would be placed on either side of the Black River channel. Impacts from pole placement at these locations could have significant visual impact for waterway users. The Black River provides a diverse environment for canoeing, fishing, hiking, and other activities. The transmission structures near the shoreline could have significant adverse impacts on the surrounding environment because of the large poles required for the long span and the clearing requirements associated with the new double-circuit line.

If the original Q1 Route were selected, the streams crossed by Segment 5B would be susceptible to the same kinds of impacts as those expected along Segment 8B and would need similar protections.

7.3.4. Wetlands and the Van Loon Wildlife Area

7.3.4.1. Wetlands crossed and impacts by route segment

The Q1-Highway 35 Route crosses several wetland communities along the Mississippi River and GRR south of Alma, across the mouth of Waumandee Creek, through the ridge-and-valley land between Waumandee Creek and the Trempealeau River, across the mouth of the Trempealeau River, and through the Black River bottomlands. Construction in any wetlands could alter wetland hydrology, vegetative character and function. Minimizing impacts is necessary and might be achieved by restricting construction to winter or periods of low flow and implementing requirements of Wis. Admin. Code ch. NR 40 for invasive species, or using matting or other low ground pressure equipment.

The project area for the Q1-Highway 35 Route has numerous wetlands that would be crossed. Some can be spanned and some cannot, and some of those that can be spanned could be adversely affected by the removal of trees in the ROW. Table 7.3-4 summarizes the potential impact of the proposed route on wetlands.

Table 7.3-4 Q1-Highway 35 Route wetland summary by segment*

Segment	Existing ROW Forested Wetland Shared (acres)	New ROW Forested Wetland Affected (acres)	Existing ROW Non-forested Wetlands Affected (acres)	New Non-forested Wetland Affected (acres)
1	8.2	4.5	0	0
2A1	0	0	0	0
2A2	0	0	0	0
2A3	0.3	0.1	0	0.1
2B	2.4	1.5	5.1	2.1
2C	0	0	0	0
2D	0	0	0	0
2E	0.2	1.2	0.3	0.7
2F	0	4.9	0	2.3
2G	3.4	2.6	2.1	1.6
2H	0	0	0	0
2I	0	0	6.7	4.9
3	0	0	0	0
4	0	0	0	0
8A	0	0	0	0
8B	7.2	18.5	0.7	1.8
8C	0	0	0	0
9	0	0	0	0
18H	0	0	0	0
Total	21.8	33.3	14.9	13.6

*Does not include information from segment ROW within road ROW in open water, where the application shows no resource impacts.

Forested wetland habitat would be permanently lost due to transmission line ROW. The affected area would be converted to a shrub wetland or sedge meadow. A total of 83.48 wetland acres are located along the proposed ROW. Of that, 39.8 percent are existing forested wetlands that would be converted to shrub or sedge meadow wetlands.

A discussion of wetlands by route segment follows.

On Segment 1 at Alma (Figure Vol. 2-1A), a transmission structure would be placed on an island supporting a forested wetland complex. The proposed ROW also crosses a forested wetland on the Wisconsin side of the Mississippi River. A transmission structure would be placed in this wetland as well. The proposed ROW at these locations bisects the existing wooded environment. An open sedge meadow environment and habitat for more edge species would be created as a result of the forest clearing. The loss of forest wetland would be permanent because the trees would not be allowed to grow back, and the likelihood of invasive species being introduced to the site would be greater.

Segments 2A1, 2A2, 2A3, and 2B follow the STH 35 corridor and an existing utility corridor. Five transmission structures in this area would be located in wet meadow currently dominated by reed canary grass. Segment 2B also passes over a wooded wetland stream corridor located near the Mississippi River confluence with Lizzy Pauls Pond. See Figure Vol. 2-1L. Large portions of land covered by Segment 2B are in active crop production and follow railroad or roadway corridors that are already cleared. However, one structure could be located in a wet meadow complex dominated by reed canary grass.

Segment 2C continues to follow the railroad and roadway corridors. This segment follows portions of an existing utility corridor on the edge of a larger forested complex, but very little wetland is present along this segment.

Segment 2D crosses active crop lands. See Figure Vol. 2-1M. Although the applicant has not identified these areas as wetlands, aerial photography indicates possible wet soils. If this route is selected, detailed wetland delineation will need to be completed for areas that exhibit wet signatures.[88]

Segment 2E, which continues to follow the railroad and roadway corridors is similar aspects to the previous described route segments. One transmission pole on this segment would be located in a forest floodplain with backwater sloughs. If this pole were relocated to the south a few meters along the proposed route, it would avoid this wetland.

Much of Segment 2F and the western part of Segment G cross a large forested wetland. See Figure Vol. 2-1N. Two transmission structures would be located in this forested wetland dominated by American elm, box elder, and black willow. If this route is approved, it is unclear how this very large forested wetland complex could be avoided. The existing DPC Q1 transmission corridor is just north of the proposed ROW. The applicant could minimize new impacts by combining the new corridor with the existing corridor and utilizing winter construction, construction mats, and low ground pressure equipment.

Segments 2G and 2H are mostly upland, and Segment 2I has large sections of mixed forestry and farm use. However, Segment 2I also follows the Q1 Route across the Trempealeau River bottomlands, another extensive forested floodplain wetland complex. See Figure Vol. 2-1P. Four transmission structures would be located in wetlands identified as shrub carr, wet meadow, and emergent aquatic wetland complexes in this area at the mouth of the Trempealeau River.

Segments 3 and 4 continue along the existing Q1 ROW and cross mostly active crop lands, with a few woodlots. Segment 8A follows STH 35 and continues across farmland. Few wetlands are present along these segments.

Segment 8B crosses the Van Loon Wildlife Area. See Figure Vol. 2-1J. Thirteen transmission structures would be located within the diverse floodplain forested wetland of the Van Loon Wildlife Area and, while the line would be parallel to STH 35, its ROW would not share any of the existing corridor. These wooded wetland impacts would result in permanent forest loss and convert the area to a wet meadow open environment. The proposed ROW is located outside of the existing WisDOT STH 35 ROW, about 400 feet north of the roadway. A variety of wetlands would be directly impacted by this portion of the proposed route. The existing wetlands are large forested complexes associated with the Black River that are seasonally inundated and regularly have saturated conditions. This portion of the route also crosses back water sloughs, high quality habitat for a diverse range of species. See additional information regarding the importance of the Van Loon Wildlife Area in the following section of this chapter.

Segments 8C, 9, and 18H complete the route through what is primarily active crop land along STH 35 and USH 53, with no notable wetlands to cross.

7.3.4.2. Description and significance of the Van Loon

The Van Loon wetlands are a large forested wetland complex located at the juncture of La Crosse and Trempealeau Counties. See the maps in Figures Vol. 2-1I, 2-1J, and 2-1K. Because of their varied historical and resource value, the Van Loon wetlands are also referred to as Van Loon Bottoms, Black

[88] The aerial photography showing wet soils can be found in the CPCN application, Appendix D, Sheet Maps 10 through 12.

River Bottoms, or McGilvray Bottoms. The wetlands surround the Black River for the last 10 miles before its confluence with the Mississippi River.

The WDNR Van Loon Wildlife Area, which is part of the Van Loon wetlands, is one of the largest contiguous bottomland hardwood sites in western Wisconsin, incorporating about 3,800 acres of state-owned and leased public hunting land and about 500 acres of private lands.[89] The long-range plan for the Van Loon Wildlife Area focuses on keeping the property natural and unspoiled. The area provides hunting, hiking, fishing, bird watching, and plant study, as well as trapping, canoeing, and educational opportunities. The historic Seven Bridges Road, accessible only by bicycle or on foot, crosses the Van Loon from east to west, north of the proposed Q1-Hwy 35 Route. Within the WDNR Wildlife Area, 317 acres have been designated the Van Loon Floodplain Forest State Natural Area (SNA), and 1,574 acres have been designated the Van Loon Floodplain Savannah SNA.

USFWS owns several parcels of wetlands in La Crosse County as part of the Refuge.

The Van Loon Wildlife Area contains the third largest block of undisturbed floodplain forest habitat in Wisconsin. In the Van Loon Wildlife Area, the canopy of the forests is dominated by large silver maple (*Acer saccharinum*), swamp white oak (*Quercus bicolor*), green ash (*Fraxinus pennsylvanica*), river birch (*Betula nigra*), cottonwood (*Populus deltoides*), yellowbud hickory (*Carya cordiformis*), American elm (*Ulmus americana*), basswood (*Tilia americana*), and black ash (*Fraxinus nigra*). Shrub species include prickly ash (*Zanthoxylum americanum*), elderberry (*Sambucus canadensis*), buttonbush (*Cephalanthus occidentalis*), common winterberry (*Ilex verticillata*), and nannyberry (*Viburnum lentago*). Ground layers include cut-leaved coneflower (*Rudbeckialaciniata*), Virginia wild rye (*Elymus virginicus*), Virginia waterleaf (*Hydrophyllum virginianum*), wild ginger (A*sarumcanadense*), wood nettle (*Laportea canadensis*), sensitive fern (*Onoclea sensibilis*), meadow-rue (*Thalictrum revolutum*), and calico aster (*Aster lateriflorus*). Marsh areas host an array of emergent aquatic plants. There are also considerable populations of the invasive reed canary grass (*Phalaris arundinacea*).

The Van Loon supports a diverse assemblage of wildlife and warmwater fish species. Rare and uncommon bird species include red-shoulder hawk (*Buteo lineatus*), cerulean warbler (*Dendroica cerulea*), and prothonotary warbler (*Protonotaria citrea*). Other bird species include pileated wood pecker (*Dryocopus pileatus*), red-headed woodpecker (*Melanerpes erythrocephalus*), wood duck (*Aix sponsa*), green heron (*Butorides virescens*), yellow-crowned night heron (*Nyctanassa violacea*), eastern wood pewee (*Contopus virens*), yellow-throated vireo (*Vireo flavifrons*), blue gray gnat catcher (*Polioptila caerulea*), ovenbird (*Seiurus aurocapilla*), American redstart (*Setophaga ruticilla*), Acadian flycatcher (*Empidonax virescens*), blue-winged warbler (*Vermivora cyanoptera*), field sparrow (*Spizella pusilla*), and indigo bunting (*Passerina cyanea*). Rare turtles, snakes, plants and insects also occupy the area (see Section 7.3.2).

In addition to state and federally managed lands located within the area, the Van Loon wetlands have several other designations based on natural and cultural resources:

- The area is identified as a "Wetland Gem" by the Wisconsin Wetlands Association (WWA), distinguished as a high quality wetland complex with extensive mature floodplain forests, sloughs, and oxbow lakes, shallow marshes, and some shrub carr and low prairie mixes. The WWA fact sheet[90] on the Van Loon identifies agricultural runoff, dams, and invasive species as threats to the wetlands, and transmission line development as a threat to the migratory birds and forested wetland communities.

[89] The Wildlife Area is also shown on the WDNR map at http://dnr.wi.gov/maps/WM/WCR/8780vanloon.pdf.
[90] http://www.wisconsinwetlands.org/Gems/W11_Van_Loon_Bottoms.pdf.

- The Van Loon wetlands are included in the Upper Mississippi River (UMR) floodplain wetland designated as an International Wetland of Importance under the Ramsar Convention on Wetlands[91] signed in Ramsar, Iran in 1971, an international treaty to conserve wetlands. Only 29 other wetlands in the U.S. carry this status. The UMR is cited as possibly the most important remaining corridor of fish and wildlife habitat in the Midwest and a globally important bird area. More than 300 bird species use the UMR; 40 percent of waterfowl in the U.S. use the UMR during migration, and more than 100 native fish species live there.
- The Van Loon has been designated recently as a "Continentally Significant" Large River Corridor for terrestrial and aquatic conservation opportunity within Wisconsin's federally approved Wildlife Action Plan.[92]
- The Seven Bridges Road, which passes across the Van Loon, is listed in the National Register of Historical Places. A state-listed Native American burial mound group is also found in the Van Loon.
- The Van Loon is an Important Bird Area (IBA), a site that provides essential habitat to one or more species of breeding or non-breeding birds based on internationally defined criteria.[93]
- The Van Loon Bottoms is part of several public properties and wildlife habitat areas linked by the Black River, which is identified as a large and highly significant Land Legacy place. As such, the value of the Van Loon wetlands ecosystem extends to a landscape level resource.[94]
- The Van Loon and the Seven Bridges (McGilvray) Road are part of the Great Wisconsin Birding and Nature Trail, which showcases exceptional sites throughout the state for observing and experiencing wildlife and unique natural communities.[95]
- An active Friends of McGilvray Road group, formed to protect the Seven Bridges Road, greatly supports WDNR management of the Van Loon.[96]
- Local schools and bird clubs use it extensively for environmental education, scientific and recreation purposes.

The most direct and apparent impact to the Van Loon wetlands if this transmission route were approved would be the loss of 18.53 acres of forested wetlands within Segment 8B. The proposed transmission line corridor would be separated by about 245 to 263 feet of wooded wetland between the road and the northern edge of the cleared ROW for STH 35. A strip of forested wetland this wide would be unlikely to mitigate the effects of the fragmentation of the forest caused by the wide corridors. With the project in place, the effective corridor width of 110 to 140 feet for the road would increase to about 523 to 535 feet for the combination of the road, the transmission ROW, and the tree buffer between them.

The most direct and apparent impact to the Van Loon wetlands if this transmission route were approved would be the loss of 18.53 acres of forested wetlands along Segment 8B. The proposed transmission line corridor would be separated from the northern edge of the cleared ROW for STH 35 by about 245 to 263 feet of wooded wetland . A strip of forested wetland this wide would be unlikely to mitigate the effects of

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[91] http://www.ramsar.org/cda/en/ramsar-home/main/ramsar/1_4000_0__
[92] Wisconsin's Wildlife Action Plan (2005-2015), Priority Conservation Actions and Conservation Opportunity Areas, Western Coulee and Ridges Ecological Landscape. (http://www.dnr.state.wi.us/org/land/er/wwap/implementation/pdfs/Priority_rpt_EL_11.pdf). June, 2008, pp. 4-5.
[93] Bird Life International and Audubon Society.Wisconsin Important Bird Areas. http://www.wisconsinbirds.org/IBA/sites/VanLoonBottoms.htm
[94] WDNR.Wisconsin Land Legacy Report, Legacy Places by Ecological Landscape, http://dnr.wi.gov/master_planning/land_legacy/documents/wcoulee.pdf. pp. 142 ff.
[95] WDNR.Great Wisconsin Birding&Nature Trail, Mississippi/Chippewa Rivers Region.http://dnr.wi.gov/org/land/er/publications/GWBNT/Mississippi_Chippewa_Rivers_Region.pdf. p. 35.
[96] The Friends of McGilvray Road.http://www.7bridgesrd.org/about-the-friends.html.

the fragmentation of the forest caused by the two wide corridors. With the project in place, the effective corridor width would increase to about 523 to 535 feet for the combination of the road, the transmission ROW, and the tree buffer between them.

Indirect impacts would likely result from increasing the width of the disturbed corridor. Edge effects such as changes in vegetation structure, light conditions, and moisture conditions would encroach further into the interior of the forested wetland complex. The increase in edge-to-interior ratio would be a measure of forest fragmentation. Large corridors in a forest block generally provide conduits for the introduction of invasive plant and animal species and result in barriers to the movement of some local wildlife, including increased exposure to predators.

For the Q1-Highway 35 Route, the applicants also proposed removal of the DPC Q-1 161 kV transmission line from its existing ROW and double circuiting it with the new 345 kV line parallel to STH 35. This relocation of the Q1 line could be accomplished by removing the line during winter timeframes and using low tracked equipment or all terrain vehicles to remove the poles. The poles could be removed by hand, but the total line removal would require heavy equipment. The current Q1 DPC ROW is heavily covered in reed canary grass, and smaller woody vegetation. WDNR would request a forested wetland reclamation plan that would include planting of local trees and monitoring for invasive species. The goal of the reclamation plan would be to restore the forest canopy to surrounding conditions.

Removal of the 69 kV line at Seven Bridges was presented as a possibility in pre-application discussion but was not made part of the CPCN proposal alternatives. Since it no longer is in consideration, it should remain intact with its current ROW management.

7.3.4.3. Original Q1 Route

The originally-proposed Q1 Route followed Segments 5A, 5B, and 5C across farmland and across the Van Loon bottoms. In the Van Loon, there would be significant wetland impacts. Over the entire route, the wetland impact acreages of the Q1-Highway 35 Route can be compared to the acreages for the equivalent Q1 Route shown in Table 7.3-5.

Table 7.3-5 Original Q1 Route wetland summary by segment*

Segment	Existing ROW Forested Wetland Shared (acres)	New ROW Forested Wetland Affected* (acres)	Existing ROW Non-forested Wetlands Affected (acres)	New Non-forested Wetland Affected (acres)
1	8.2	4.5	0	0
2A1	0	0	0	0
2A2	0	0	0	0
2A3	0.3	0.1	0.02	0.1
2B	2.4	1.5	5.1	2.1
2C	0	0	0	0
2D	0	0	0	0
2E	0.2	1.2	0.3	0.7
2F	0	4.9	0	2.3
2G	3.4	2.6	2.1	1.6
2H	0	0	0	0
2I	0	0	6.7	4.9
3	0	0	0	0
4	0	0	0	0
5A	0	.01	0	0
5B	13.3	21.3	11.7	17.0
5C	0.2	0.3	0	0
Total	28.0	36.3	25.8	28.7

*Does not include information from segment ROW within road ROW in open water, where the application shows no resource impacts.

Route segments applicable only to the original Q1 Route are in bold below the double line. Again, forested wetland habitat would be permanently lost due to transmission line ROW. The affected area would be converted to a shrub wetland or sedge meadow. A total of 119.64 wetland acres are located along the proposed ROW. Of that, 30 percent are forested wetlands along the new ROW that would be converted to shrub or sedge meadow wetlands.

As shown in Table 7.3-4, Segments 1 through 4 are the same as those in the Q1-Highway 35 Route. In the area of the Van Loon, Segments 8A through 9 would be replaced by Segments 5A and 5C.

Segment 5B crosses the Van Loon Wildlife Area. See Figure Vol. 2-1J. Twenty-two transmission structures would be located within the diverse floodplain forested wetland of the Van Loon along the existing Q1 ROW, rather than the 13 expected on Segment 8B. This would result in permanent loss of wooded wetlands and a conversion of this area to a wet meadow open environment. The current DPC ROW is a monotypic reed canary grass environment, but either side of the ROW leads to a very diversified forested canopy. A variety of wetlands would be directly impacted by the new ROW expansion along this route segment. These wetlands are large forested complexes associated with the Black River that are seasonally inundated and regularly have saturated conditions. This portion of the route also crosses backwater sloughs, high quality habitat for a diverse range of species. See additional information regarding the importance of the Van Loon Wildlife Area in the previous section of this chapter.

7.3.4.4. Other permitting decisions

Two areas within the Van Loon bottoms have been designated as SNAs. WDNR is responsible for the care, maintenance, and perpetuity of these SNAs. Therefore, the care and preservation of the SNAs becomes a factor in WDNR permitting decisions.

Potential impacts on recreation are also a factor in the WDNR permitting processes under Wis. Stat. ch. 30. A boat landing is located at the West Channel Black River Bridge on STH 35. -The new line would likely be visible from the boat landing along STH 35 but, if it is not, it would create a dominant new

landscape feature with the tall towers and wide new ROW in the wooded wetlands upstream just a short distance.

7.3.5. Archeological resources/historic properties

WHS's archeological sites database shows 13 known archeological sites that appear to be within or adjacent to the proposed ROW of the Q1-Highway 35 Route and could be affected by construction activities. All of the sites are of prehistoric age: nine campsites, two burial and effigy mound sites, one workshop, and one lithic scatter site.

The mound sites are located along Segment 2B between Alma and Buffalo City and along Segment 8B, on the shore of the Black River. They include numerous animal and conical mounds that have been recorded. WHS generally treats mound sites as burial sites subject to the Wisconsin Burial Sites Preservation Law, Wis. Stat. § 157.70, in addition to state and federal Historic Preservation Acts.

Several segments are located near prehistoric campsites and workshop sites, particularly, particularly near to the Mississippi, Trempealeau, and Black Rivers.-

In order to provide comparable information about the original Q1 path through the Black River bottoms, the applicants provided archeological information related to Segments 5A, 5B, and 5C,. Two archeological sites were identified in the original DPC Q1 ROW area along Segments 5A and 5B—a campsite/village site located in the existing Q1 ROW west of Tank Creek, and a group of approximately 17 burial mounds under the existing Q1 ROW near the Black River. Both sites are protected by the Wisconsin Burial Sites Preservation Law.

To preserve the archeological integrity of these WHS-listed historic properties, the applicants have stated that they would locate transmission structures outside of them in order to span them. Some sites appear small enough to be spanned with appropriate line design.

It is likely, however, that all of these sites would require additional field investigations. WHS and PSCW would require that the investigations be done by a qualified archeologist able to assess each site's location and boundaries and its current integrity.

7.4. COMMUNITY IMPACTS

7.4.1. Aesthetic and visual impacts

This discussion of visual impacts is based on visits to the project area and the following underlying assumptions:

- Different types of viewers may have different levels of visual sensitivity
- Setting can influence the degree of visual impact
- Viewing conditions can influence the degree of visual impact.

The dominant visual environment along the Q1-Highway 35 Route consists of the Mississippi River valley to the west and the bluffs to the east. Dotting the landscape along the Mississippi River are clusters of residential homes and businesses that range from medium-sized cities to small hamlets. This corridor is highly valued for its scenic beauty (rivers, wetlands, wooded and rocky bluffs, diversity of species, and recreation opportunities) as well as for its utilitarian uses for transportation (barge, railroad, and road) and electricity generation (power plants and dams). Geographically, it is the only easily accessible flat area in a region dominated by hills and steep-walled valleys, creating a desirable corridor for linear features such as roads, power lines, railroads, and other utilities. The conflict between protection of natural resources and

the need for utility and transportation infrastructure is a major part of any discussion regarding this proposed project and how it may impact aesthetics.

The value placed on natural resources in this region is exemplified by the creation and protection of GRR. Approximately half of the Q1-Highway 35 Route is located adjacent to or within 0.5 miles of GRR, which includes STH 35 and portions of other highways. GRR is a series of roads designated as part of the National Scenic Byway and follows the Mississippi River for 3,000 miles through ten states. GRR was created to preserve, promote, and enhance the scenic, historic, and recreational resources of the Mississippi River. WisDOT has acquired scenic easements on approximately 101 parcels that would be crossed by the Q1-Highway 35 Route. These easements were acquired in order, "…to preserve the natural beauty of the roadside by preventing unsightly developments which may destroy or detract from the natural beauty…"[97] For more information regarding GRR and its scenic easements see Section 7.4.8.

The route crosses the Black River on Segment 8B along new ROW through waterways and wetlands on the north side of GRR (STH 35). Though double-circuited with the relocated existing 161 kV DPC transmission line, the lines and cleared ROW would represent new impacts to those familiar with the wildlife area.

Segments 8A, 8B, and the other segments across the Van Loon parallel to STH 35 have been proposed by the applicants to replace their original Q1 Route Segments 5A, 5B, and 5C.[98] Segments 5A and 5C pass through farmland that currently supports the existing DPC Q1 161 kV line on H-frame structures. If these route segments were part of the approved route, the new double-circuit structures would be taller and have more conductors; the existing structures would be removed. Along Segment 5 B, users of the Van Loon also would see much taller structures with more conductors and a wider ROW clearing through the wooded wetlands. The towers flanking the main Black River channel would be taller and visually dominant.

East of the Black River, Segments 8C, 9, and 18H parallel highways STH 35 and USH 53. These segments are located along the edge of several urban developments. In the town of Holland and the village of Holmen, the proposed transmission line would be visible to a large number of residences located near the highways.

The residents in and near the Mississippi River Valley most likely appreciate their familiar scenery, where infrastructure has blended over the years into the background of rocky bluffs and shorelines. The possibility of a new high-voltage transmission line on tall steel structures might be viewed as an intrusion that would not blend in, and some comments received by local residents confirms this. While there are several existing transmission and distribution lines located in this corridor, even within WisDOT scenic easements, their voltages are lower than the proposed line, and they are supported mostly on shorter wooden poles.

Along portions of the route that are inland and follow an existing transmission line route, the existing easements would be widened and the wooden structures would be replaced by tall steel poles. Widening the existing easement could require that wooded parcels and fencerows be cleared up to the full width of the increased ROW.

The Wisconsin Mississippi River Parkway Commission (WMRPC) and WisDOT have expressed concerns about the aesthetic impacts on behalf of users of GRR. Alternatively, visitors passing through the smaller

[97] WisDOT, Facilities Development Manual, Chapter 7, Section 35, p. 1.
[98] See CPCN Application, Appendix N.

roads inland in the project area may be less likely to take notice of the new line or find it obtrusive, especially if navigating the smaller roads require more of the driver's attention.

There are also a number of state and federal natural resource properties that are adjacent to or possibly within view of the proposed line that could be adversely affected. These include the Refuge and Trempealeau National Wildlife Refuge, both managed by USFWS, and state-managed properties including the Whitman Dam State Wildlife Area, Merrick State Park, Great River State Trail, Perrot State Park, Van Loon Wildlife Area, and the Holland Sand Prairie. In addition, the bluff tops along GRR provide scenic overlooks and vistas that may be altered by the presence of the new line.

Mitigation of aesthetic impacts often includes routing transmission lines along highways or existing transmission and other utility easements. It is assumed that widening existing easements is an incremental impact and less intrusive than creating new, cross-country ROW easements. Approximately 88 percent of this route is co-located with an existing electric transmission line easement (excluding Segment 8B). GRR is a highway feature that is paralleled by several transmission lines in different places, so sharing ROW and road corridors would be a logical mitigation techniques to examine here. However, since GRR exists also for its scenery and has scenic easements associated with it, such a technique might not succeed as mitigation. The applicant worked with WisDOT in an attempt to minimize aesthetic impacts along GRR. Twenty-three photographic simulations were submitted as part of the application to portray how the landscape would be altered by the construction of the proposed project. Additionally, the following methods were incorporated into the proposed Q1-Highway 35 Route as a means to further mitigate potential aesthetic impacts:

- Consolidating the proposed transmission line with existing transmission lines;
- Locating the proposed transmission line so that it would be less visible from GRR, including locating as many structures as possible outside of WisDOT scenic easements;
- Using specific structure types that require a narrow ROW so that screening trees can be retained;
- Using low profile structures (multi-poles) in the vicinity of the Trempealeau and Black Rivers so that the proposed line would be less visible;
- Using alternative pole finishes such as galvanized (gray) or self-weathering (brown) to allow the structures to better blend into the different surrounding landscapes.

Overall, visual or aesthetic impacts are difficult to measure and tend to be perceived as greater in natural or scenic settings. Choosing the most suitable type of mitigation for an aesthetic impact also varies among individuals, landscapes, and objectives.

7.4.2. Agriculture

A significant portion of the Q1-Highway 35 route (41 percent) crosses land used for agricultural purposes. Of the 325.2 agricultural acres within the proposed ROW, almost all is cropped with a small percentage in pasture and tree plantation uses, plus one small vineyard. The majority of the crops are corn and soybeans, but wheat and alfalfa were observed along some segments. The route crosses 30 parcels or 190 ROW acres enrolled in the Farmland Preservation Program (approximately 58 percent of crossed farmland). Within the ROW, there would be approximately 113 acres of prime farmland soils, 65.3 acres of farmland of statewide importance, and 11.9 acres of prime farmland if drained and/or protected from flooding.

Five pivot irrigation systems that are currently crossed by the existing DPC Q1 transmission line may be further impacted by the proposed line. The larger transmission line pole diameters and temporary impacts due to construction may present concerns for these systems. An additional pivot irrigation system on

Segment 18H in the town of Onalaska would need to be removed. Additional irrigation systems may exist along the route. Impacts to these systems could be minimized by working with agricultural landowners prior to the start of construction, providing appropriate compensation for damage or required modifications to the system, and post-construction restoration of agricultural lands to pre-construction conditions.

If the original Q1 Route were reconsidered and selected, it would cross cropland on either side of the Van Loon Wildlife Area along the path used by the existing DPC Q1 161 kV line.[99] The structures would be single-pole double-circuit structures five to seven feet in diameter instead of two-pole H-frames. On Segment 5A there would likely be little new impact and the possibility for improved mobility for field operations. Segment 5 C crosses a farm field along CTH XX that is irrigated with a large pivot system. The existing line crosses the field along the same path. There could be one or two structures in the path of the pivot.

Limited aerial applications of herbicides, fungicides, and pesticides may occur along the route, though no specific information is known about these practices. The applicants should work with landowners to minimize potential impacts where aerial spraying would be affected by transmission line placement.

Farms with livestock or farms that practice organic farming would require specific protection measures during construction to avoid the spread of farm pests and diseases or to protect organic certifications. Additional issues for organic farms might be caused by the removal of tree buffers for new ROWs or the enlargement of existing ROWs. The removal of the buffers might threaten a crop's organic status by increasing the potential for herbicide drift from adjacent fields. The number of properties that would require some form of protective measures along this route is yet unknown. Biosecurity and organic farm impacts can be minimized by the applicants working with agricultural landowners well in advance of construction, advance notice of construction activities, and follow through with agreed-to protection measures. In terms of project cost, the applicants estimate $5,000 per mile for various agricultural protection measures. See Section 5.5.2 in Chapter 5 for discussions about potential impacts and mitigation.

At 17 locations, animal confinement facilities are located within 300 feet of the proposed route's centerline. Six of these buildings are within 100 feet. There are also 15 non-residential agricultural buildings within 300 feet of the proposed centerline, with one of the metal sheds located within 100 feet. Concerns associated with the presence of confined animal buildings are stray voltage and the relationship of distribution lines to the proposed high-voltage lines. For a detailed discussion of this issue, see Sections 5.5.14 and 5.5.15 in Chapter 5.

Wis. Stat. § 182.017(7)(c) through (h) is a list of landowner rights, many of which address issues which are of particular import to agricultural landowners and their fields. These mitigation measures apply to landowners whose property is directly affected by the construction of a high-voltage transmission line and include the proper segregation of topsoils, post-construction restoration of the land, repair of damaged fences and drainage tile, scheduling construction in as much as practicable when the land is frozen or at the landowner's request, removal of construction debris and rocks, and payment for crop damage. A detailed discussion of landowners' statutory rights is included in Section 5.3.

The full width of the ROW could be cleared for construction of the proposed line, including properties currently planted with trees such as plantations or orchards. Under the state statutes (see Section 5.3), landowners must be compensated for any crop damage caused by construction or maintenance of a high-voltage transmission line. Additionally, landowners must be afforded a reasonable time prior to

[99] See CPCN Application, Appendix N.

commencement of construction to harvest any trees located within the easement boundaries and, if the landowner fails to do so, the landowner still retains title to all trees cut by the utility. However, after construction is completed, the utility would most likely not approve re-vegetating the transmission ROW with trees. The change of use for the ROW land under the easement might present a loss to the landowner. The applicants should work with tree farm and plantation landowners to minimize construction impacts and determine allowable post-construction use of the land within the easement.

For the portions of Segments 2F through 2I that cross the steep hilly inland terrain, there would be erosion concerns for agricultural soils during construction. Many of these land surfaces have slopes of 12 percent or greater. The area has experienced significant soil loss from crop fields in the past, and soil loss is currently a primary nonpoint source pollutant for the region. While farming practices and government programs have changed to limit erosion, construction of the transmission line could pose additional soil loss or nonpoint pollution concerns. Furthermore, fragile soils in this area may be more susceptible to rutting, compaction, and disturbance of the limited top soil present. More aggressive protective methods would be required to protect agricultural soils here than in other portions of the route.

Refer to Chapter 5, Section 5.5.2, for a general discussion of potential impacts associated with transmission line construction and operation in agricultural fields. The AIS prepared by WDATCP will contain discussions of potential impacts of the line on farmed fields. Its Executive Summary will be included in this EIS as Appendix C.

7.4.3. Airports and airstrips

No public-use airports would be impacted by any of the proposed routes. The nearest public airport is the City of La Crosse Municipal Airport. It provides scheduled commercial service and general aviation and freight services. The southernmost transmission structure on this proposed project route is approximately 4.4 miles from the nearest runway. All proposed transmission structures are outside of the height limitation zoning map for the airport and are not subject to any height restrictions.

Adjacent to Segment 8C of the Q1-Highway 35 Route is the privately-owned Parkway Farm Strip in the town of Holland (see Figure Vol. 2-1J). The airstrip consists of a 2,500-foot north-south, grass-covered runway located near the intersection of Amsterdam Prairie Road and STH 35. The runway lies perpendicular and adjacent to the route, between proposed structures 216 and 217. The proposed line would be double-circuited with the existing DPC Q1 161 kV line resulting in two sets of three conductors plus shield wires crossing the southern runway approach. The transmission structures would range in height between 130 and 195 feet tall. Conductors would attach to the transmission poles along the top 78 feet of the structure. At midpoint between the transmission structures, conductors at full sag might occupy the vertical airspace from approximately 34 to 112 feet above ground.

There are required FAA clearances regarding obstructions to the navigable airspace of public airports. However, they do not apply to private airstrips. The Commission, in previous decisions, has considered a simplified safety trapezoidal area for private airstrips. The trapezoid has been 250 feet wide at the runway thresholds, extending outward 5,000 feet, with an outer width of 1,250 feet resulting in a 20:1 sloped area. These trapezoid-shaped approach areas are shown in Figure Vol. 2-1J. The proposed transmission lines could be a safety hazard to the planes approaching and taking off from the Parkway Farm Strip airport.

7.4.4. Electric distribution line issues

There are distribution lines along the routes owned by NSPW and Riverland. Because of issues associated with stray voltage and its potential effect on confined animals (mostly dairy cows), all routes are analyzed for areas where distribution lines might be located too close to the proposed transmission lines. There is a general consensus that distribution lines located less than 150 feet from a transmission line and parallel to

the transmission line for a continuous distance greater than 1,000 feet can cause impacts to farms with confined animals. The cause, impact, and mitigation of stray voltage or NEV are discussed in detail in Section 5.5.14.

For this project, distribution lines would be removed, relocated, and/or buried if they present a physical conflict to the proposed transmission line or if their proximity to the transmission line might result in NEV concerns. No distribution lines are proposed to be underbuilt on the new 345 kV structures.

No relocations of distribution lines are proposed for the Q1-Highway 35 Route. The Commission may require the applicants to conduct pre-construction and post-construction testing of potentially impacted farms and lines.

7.4.5. Electric and magnetic fields

The majority of segments for this route would use existing transmission line corridors. The following information on EMF is provided to give readers an idea of the expected magnitude of the magnetic fields that could be produced by the proposed line under expected normal load conditions. This section also provides an estimate of the existing transmission line magnetic fields where existing transmission line ROW exists. In all cases the magnetic fields provided are estimates only. Magnetic fields are proportional to the current flowing on a line at any given time. Because current flow is highly variable, only an estimate of the magnetic fields can be provided. For more information on EMF, refer to Appendix B.

The information is provided by route segment. To locate the segment, refer to the map in Figure Vol. 2-1 Index.

Segment 1
There is an existing 161/69 kV double-circuit transmission line along Segment 1. The proposed project would replace this line with a 161/345/161 kV triple-circuit transmission line on H-frame structures (see Appendix A, Figure 14).

No residences, schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The estimated magnetic field from the existing 161/69 kV line under normal load conditions is approximately 3.3 mG at 100 feet and decreases to 1.6 mG at 150 feet. At 300 feet, the magnetic field falls to approximately 0.4 mG. The estimated magnetic field from the proposed line, under expected 2015 load conditions, would be about 46 mG at 100 feet and would decrease to 12.4 mG at 150 feet. At 300 feet, the expected magnetic field would be about 1.4 mG.

Segments 2A1, 2A2, 2A3, 2B, and 2C
There is an existing 161 kV single-circuit transmission line along Segments 2A1-2A3, 2B, and 2C. The proposed project would replace this line with a 161/345 kV double-circuit transmission line on single-pole structures (see Appendix A, Figures 3, 5, 6).

There are 17 residences within 300 feet of the proposed line. Two residences are between 51 and 100 feet of the line. Two residences are between 101 and 150 feet of the proposed line, and 13 residences are between 151 and 300 feet of the proposed line. No schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The estimated magnetic field from the existing 161 kV line under normal load conditions is approximately 6.3 mG at 100 feet and decreases to 0.9 mG at 150 feet. At 300 feet, the magnetic field from the existing line falls to approximately 0.8 mG. The estimated magnetic field from the proposed line under expected normal 2015 load conditions would be about 14 mG at 50 feet, 6 mG at 100 feet, and 3 mG at 150 feet. At 300 feet, the expected magnetic field would be about 0.9 mG.

Segment 2D
Along Segment 2D, there is an existing 69 kV transmission line. The proposed project would replace this line and the nearby 161 kV line, located to the east of Highway 35, with a 161/345/69 kV triple-circuit transmission line on single-pole structures (see Appendix A, Figure 19).

No residences, schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The estimated magnetic field from the existing 69 kV line under normal load conditions is approximately 0.2 mG at 100 feet and decreases to approximately 0.02 mG at 300 feet. For the proposed triple-circuit line under expected 2015 load conditions, the estimated magnetic field at 100 feet would be about 4.4 mG and would decrease to 0.8 mG at 300 feet.

Segments 2E and 2F
Along Segments 2E and 2F, the proposed project would move an existing 161 kV line located to the east of the proposed new ROW and construct a 161/345 kV double-circuit transmission line on single-pole structures (see Appendix A, Figures 1, 4, 5). The new double-circuit line would be built on the west side of the railroad.

There are five residences within 300 feet of the proposed line. All five residences are between 151 and 300 feet of the proposed facilities. No schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The estimated magnetic field from the proposed line under expected 2015 load conditions would be about 3 mG at 150 feet and would drop to approximately 0.9 mG at 300 feet.

Segment 2G
Along Segment 2G, there is an existing 161 kV single-circuit transmission line. The proposed project would replace this line with a 161/345 kV double-circuit transmission line on single-pole structures (see Appendix A, Figures 1, 5).

There are four residences within 300 feet of the proposed line. One residence is between 51 and 100 feet of the line. Three residences are between 151 and 300 feet. No schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The estimated magnetic field from the existing 161 kV line under normal load conditions is approximately 6 mG at 100 feet and decreases to 3 mG at 150 feet. At 300 feet, the magnetic field falls to approximately 0.8 mG. The magnetic field from the proposed line under expected 2015 load conditions would be about 14 mG at 50 feet, 6 mG at 100 feet, and 3 mG at 150 feet. At 300 feet, the expected magnetic field would be about 0.9 mG.

Segment 2H
There are no existing transmission lines along Segment 2H, and there are no residences, schools, daycare centers, or hospitals within 300 feet of the proposed line. The proposed facilities and magnetic fields would be identical to those for Segment 2G.

Segment 2I
Along Segment 2I, there is an existing 161 kV single-circuit transmission line. The proposed project would replace this line with a 161/345 kV double-circuit transmission line on single-pole structures (see Appendix A, Figures 1, 5).

There are 12 residences within 300 feet of the proposed line. Five residences are between 51 and 100 feet of the line. One residence is between 101 and 150 feet, and six residences are between 151 and 300 feet.

The estimated magnetic field from the existing 161 kV line under normal load conditions is approximately 21 mG at 50 feet and 6 mG at 100 feet. At 150 feet, the magnetic field decreases to 3 mG. At 300 feet, the magnetic field falls to approximately 0.8 mG. The magnetic field from the proposed line under expected 2015 load conditions would be about 16 mG at 50 feet, 6 mG at 100 feet and 3 mG at 150 feet. At 300 feet, the expected magnetic field would be about 0.8 mG.

Segment 3
There is an existing 161 kV single-circuit transmission line located along Segment 3. The proposed project would replace this line with a 161/345 kV double-circuit transmission line on single-pole structures (see Appendix A, Figures 1, 3, 5).

There are 21 residences within 300 feet of the proposed line. Five residences are between 51 and 100 feet of the line. Two residences are between 101 and 150 feet, and 14 residences are between 151 and 300 feet. No schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The estimated magnetic field from the existing 161 kV line under normal load conditions is approximately 21 mG at 50 feet and 6 mG at 100 feet. At 150 feet, the magnetic field decreases to 3 mG. At 300 feet, the magnetic field falls to approximately 0.8 mG. The magnetic field from the proposed line under expected 2015 load conditions would be about 16 mG at 50 feet, 6 mG at 100 feet, and 3 mG at 150 feet. At 300 feet, the expected magnetic field would be about 0.8 mG.

Segment 4
There is an existing 161 kV line along Segment 4. No residences, schools, daycare centers, or hospitals are within 300 feet of the proposed line. The proposed facilities and magnetic fields would be identical to those for Segment 3.

Segments 8A and 8B
There are no existing transmission facilities located along Segments 8A or 8B. The proposed project would construct a new 161/345 kV double-circuit transmission line on H-Frame structures along these route segments (see Appendix A, Figure 13).

There are two residences within 300 feet of the proposed line along Segment 8B. One residence is between 101 and 150 feet, and the other residence is between 151 and 300 feet. No schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The magnetic field from the proposed line under expected 2015 load conditions would be about 16 mG at 100 feet and would decrease to 4.8 mG at 150 feet. At 300 feet, the expected magnetic field would be about 0.8 mG.

Segment 8C
There are no existing transmission lines along Segment 8C. The proposed project would construct a 161/345 kV double-circuit transmission line on single-pole structures along this segment (see Appendix A, Figures 4, 5).

There is one residence within 300 feet of the proposed line. That residence is between 151 and 300 feet of the proposed line. No schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The magnetic field from the proposed line, under expected 2015 load conditions, would be about 6 mG at 100 feet and would decrease to 3 mG at 150 feet. At 300 feet, the expected magnetic field would be about 0.8 mG.

Segment 9
There are no existing transmission lines along Segment 9. The proposed project would construct a 161/345 kV double-circuit transmission line on single-pole structures along this segment (see Appendix A, Figures 1, 3, 5).

There are 12 residences within 300 feet of the proposed line. One residence is between 51 and 100 feet of the line. Two are between 101 and 150 feet, and nine are between 151 and 300 feet the line. No schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The magnetic field from the proposed line under expected 2015 load conditions would be about 16 mG at 50 feet, 6 mG at 100 feet, and 3 mG at 150 feet. At 300 feet, the expected magnetic field would be about 0.8 mG.

Segment 18H
There are no existing transmission lines along Segment 18H. The proposed project would construct a 161/345 kV double-circuit transmission line on single-pole structures along this segment (see Appendix A, Figures 1, 3, 5).

No residences, schools, daycare centers, or hospitals are within 300 feet of the proposed line.

The expected magnetic fields would be identical to Segment 9.

7.4.6. High-voltage impact fees

Wisconsin state statutes require compensation to be paid to municipalities that are burdened by the construction of high-voltage transmission lines via a one-time environmental impact fee and an annual impact fee. Described in statutes and rules (Wis. Stat. §§ 16.969 and 196.491(3g), and Wis. Admin Code ch. ADM 46), the fees paid by the utility to the counties, cities, villages, and towns are based on the percentage of the length of the 345 kV line constructed through each of those political subdivisions. The Commission determines what constitutes the "cost of the high-voltage transmission line" and the percentage applied to the various political subdivisions. Initial payments begin with an invoice issued no more than 60 days after the start of construction, and the Commission transmits the required information to WDOA. The annual payments continue for the life of the transmission line. There are some restrictions on how the one-time environmental impact fee may be used but the annual fee may be used in any way the local government sees fit. A complete discussion of how these fees are calculated and disbursed can be found in Section 4.5.4.

Income to local governments on an annual basis can range from thousands to tens of thousands of dollars, which would be a positive impact to the community. Based on the applicants' calculations and assumptions, the projected payments made to the municipalities are as illustrated in Table 7.4-1.

Table 7.4-1 High voltage impact fees expected to be paid to governmental units along the Proposed Q1-Highway 35 Route

Government Unit	One-Time Environmental Impact Fee	Annual Impact Fee	Total Payment During First Year of Construction*
Buffalo County	$2,108,082	N/A	$2,108,082
City of Alma	$156,369	$18,764	$175,133
City of Buffalo	$22,338	$2,681	$25,019
Town of Belvidere	$541,085	$64,930	$606,015
Town of Buffalo	$536,949	$64,434	$601,383
Town of Cross	$257,305	$30,877	$288,182
Town of Milton	$545,222	$65,427	$610,646
Village of Cochrane	$48,814	$5,858	$54,672
La Crosse County	$426,911	N/A	$426,911
Town of Holland	$414,501	$49,740	$464,241
Town of Onalaska	$12,410	$1,489	$13,899
Trempealeau County	$1,023,429	N/A	$1,023,429
Town of Caledonia	$368,170	$44,180	$412,350
Town of Trempealeau	$655,259	$78,631	$733,890

* After the first year, only the annual impact fee would be paid.

7.4.7. Public lands

7.4.7.1. Federal- and state-owned lands

The proposed routes at Alma would run across the Refuge. The applicants have negotiated the crossing in terms of the transmission line design and location.[100] The crossing is identified as Segment 1 and is a part of every route proposed for the project.

On the Wisconsin side of the Mississippi River the route is located close to, and in some place adjacent to, a number of large and important federal- and state-owned natural resource areas. However, it crosses only a few small portions of these lands:

- USFWS, Refuge – approximately 1,220 feet (Segment 2B, Figure Vol. 2-1L)
- USFWS, Lizzy Pauls Pond – approximately 952 feet (Segment 2B, Figure Vol. 2-1L)
- WDNR, Van Loon Wildlife Area and federal Refuge property – approximately 629 feet and approximately 1.0 mile (Segment 8B, Figure Vol. 2-1J)

The proposed transmission easement on the federally owned properties along Segment 2B would expand the existing railroad and 161 kV DPC transmission line easement by 35 feet in width. The new line would be double-circuited with the existing transmission line. Two proposed transmission structures would be constructed in wetlands and waterways.

7.4.7.2. Permit concerns at the Black River

Without prior approval from the state or USFWS, this route cannot cross properties owned by the state or the federal government. As of the date of this draft EIS, neither WDNR nor USFWS have indicated that an easement through their land in the Van Loon Wildlife Area or the related Black River Bottoms would be granted. The crossing of the Van Loon Wildlife Area along STH 35 via Segments 8A, 8B, and 8C was offered to replace the applicants' earlier conceived route utilizing the existing DPC Q1 161 kV

[100] CPCN Application, Appendix F

transmission ROW. If the original Q1 Route contemplated by the applicants[101] were reconsidered for any reason and approved, Segment 5B (see the map in Figure Vol. 2-1J) would cross over 0.25 mile of the state Van Loon Wildlife Area and almost a mile of the federal Refuge. In response to a request to USFWS to allow expansion of the existing Q1 ROW for the new line, USFWS told the applicants that:[102]

- DPC's permit for the existing ROW has expired.
- USFWS regulations and policies governing uses on national wildlife refuges prohibit new uses or projects that fragment habitat, including roads, bridges, and power lines.
- Considering the designs offered by the applicants and its understanding that other practicable alternatives exist, USFWS staff believe that the route would not be appropriate along this ROW.
- Placement of the new line at this location would lead to further habitat fragmentation and migratory bird impacts.
- Increasing the heights of the structures and adding the lines for the 345 kV project would lead to additional impacts to migratory birds.
- Unless an underground transmission crossing could be developed, USFWS Refuge management would recommend to the USFWS Regional Director (the designated deciding official) that no expansion of the existing ROW be granted.

The state wildlife area on Segment 8B is wooded wetlands managed by WDNR. The proposed line would be double-circuited with the relocated 161 kV DPC existing transmission line. Construction on the state property would be limited to one transmission pole (210) on new ROW that would parallel STH 35. WDNR has informed the applicants and the PSCW that, while a final decision on any WDNR permit for this project was not yet appropriate, it is concerned that routing the line through the Van Loon wetlands, including lands within and adjacent to the Van Loon State Wildlife Area, "would not meet the permitting criteria contained in NR 103, Wis. Adm. Code related to practical alternatives that avoid these impacts."[103] Noting that there are "at least two practicable alternatives that avoid significant adverse impacts to the Van Loon," WDNR states that, "Therefore, the DNR would not be able to issue wetland permits for a route that includes 'Segment 8b,' nor for any segment of 345 kV line that follows the existing Q1 line through the Black River Bottoms area."

7.4.7.3. Local public lands

In addition, the proposed route crosses the Trempealeau County Bike Trail in two places on Segments 3 and 4A.

Segment 9 is located on the opposite side of USH 53 from the Prairie View Elementary School. The line would be just a little over 300 feet west of the property line and approximately 420 feet from the main building. Construction of a new middle school on the same property but farther to the east is projected for the year 2018. The new line on Segment 9 would not appear to affect this new school.

7.4.8. Highway concerns—Great River Road

The Q1-Highway 35 Route generally follows an existing electric transmission line but in certain places also runs along USH 53 and along STH 35, which is the Wisconsin GRR.

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[101] CPCN Application, Appendix N
[102] Letter from Kevin Foerster, Refuge Manager, to Thomas Hillstrom, Xcel Energy Siting and Permitting Supervisor. August 16, 2010.
[103] Letter from David Siebert, WDNR Office of Energy and Environmental Analysis, to Daniel Sage, PSCW Gas and Energy Division. March 30, 2011.

7.4.8.1. Potential highway impact

The Q1-Highway 35 Route shares highway ROW in certain places along STH 35, the Wisconsin GRR, for Segments 2A through 2E and along Segment 18H. This sharing is shown in the maps in Figures Vol. 2-1A, Vol. 2-1L, Vol. 2-1M, and Vol. 2-1K. The Q1-Highway 35 Route follows GRR for approximately 20 miles of its approximately 43 mile length. The southernmost segment of this route, Segment 18H, is a segment common to all proposed routes and shares ROW with GRR. In addition, the route crosses STH 35 in Segment 2I (Figure Vol. 2-1P) and Segment 18G (Figure Vol. 2-1K).

The route also shares highway ROW along STH 54/93 and USH 53 for Segments 13A through 13D, as shown in the maps in Figures Vol. 2-1H and Vol. 2-1I. It crosses STH 88 for Segment 2E (Figure Vol. 2-1N) and USH 53 for Segments 13E (Figure Vol. 2-1I) and 18G.

Safety, efficiency, and aesthetics must be considered for drivers on these highways. Potential utility work in highway ROWs can have potentially adverse impact.

7.4.8.2. WisDOT permitting

Wisconsin Stat. § 86.16 allows utilities to locate their facilities along and across highway ROW with the written consent of the highway jurisdiction. Wherever the line would need to share ROW or cross a state or federal highway, a permit must be obtained from WisDOT to ensure that the work does not adversely affect the safety, efficiency, and aesthetics of the highway, interfere with the highway's present use or future expansion, or require access for future utility maintenance directly from the highway lanes or shoulder.

7.4.8.3. STH 35—Great River Road

Potential impacts to GRR (STH 35) have been a significant point of discussion in the project review for this docket.

STH 35 in the project area is designated as part of the Wisconsin GRR, maintained in partnership between WisDOT and the WMRPC. These entities have coordinated with the Wisconsin Department of Tourism, WDNR, Wisconsin Department of Commerce, and regional planning agencies, USACE, USFWS, and numerous local governmental and community offices to help create and maintain the character of GRR as a National Scenic Byway.

The Wisconsin GRR was designated a National Scenic Byway by the U.S. Department of Transportation Federal Highway Administration National Scenic Byway Program, in 2000, and the WMRPC has been designated the byway agency. The GRR is a 3,000-mile network of roads along the Mississippi River extending to the Gulf of Mexico. The Wisconsin segment is approximately 250 miles in length, running through Pierce, Pepin, Buffalo, Trempealeau, La Crosse, Vernon, Crawford, and Grant counties.

GRRs in all the Mississippi River states were designated as part of the National Scenic Byway in 2010. The Mississippi River Parkway Planning Commission was organized in 1938 by the ten states bordering the Mississippi River,[104] including Wisconsin, to pursue the creation of a national parkway along the length of the river. These efforts were interrupted by the outbreak of World War II and resumed again in 1949. Wisconsin began purchasing development rights for its portion of GRR in 1951, the first of the member states to do so. By 1961, the state had obtained easements covering approximately 53 miles of what would become known as the Great River Road. By July 1967, Wisconsin had acquired scenic easements along

[104] The member states are: Arkansas, Illinois, Iowa, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Tennessee, and Wisconsin.

most of the approximately 250 miles of GRR.[105] These easements have been managed by WisDOT. They are shown as a feature in the transmission route maps that make up Figure Vol. 2-1 in this EIS.

Maintenance and protection of the Wisconsin segments of GRR by WisDOT are accomplished with the assistance of county and local road agencies, and WisDOT is advised by WMRPC. WMRPC is made up of 16 members: a member from each of the eight Mississippi River counties and two members each from the state Senate and Assembly, all appointed by the governor to four-year terms, plus the Secretaries of WisDOT, WDNR, and Tourism, and the Director of WHS as non-voting members. WMRPC's statutory charge directs it to assist in the development and preservation of GRR in Wisconsin. Wis. Stat. § 14.85(5)(b).

GRR is defined in Wis. Stat. § 84.107(1). In the project area, STH 35 is synonymous with GRR.

7.4.8.4. Potential impacts to GRR

As described above, the Q1-Highway 35 Route follows GRR for approximately 20 of its approximately 43 miles (Segments 2A through 2E and 8A through 18H). The southernmost segment of this route, Segment 18H, is a segment common to all proposed routes and shares ROW with GRR. About 100 parcels along the route have scenic easements owned by the state of Wisconsin and managed by WisDOT. The route segments' geographic relationships with the scenic easements are shown in the transmission route maps in Figure Vol. 2-1.

While WisDOT has permitting authority for state and federal road ROW use in every transmission project that comes before the Commission, WisDOT has expressed strong concern about potential impacts to GRR and has pursued and been granted full party status in the Commission's review process in order to ensure that its position is represented to its satisfaction. In addition to concerns about aesthetic impacts to users of GRR, WisDOT also has responsibility for the maintenance of the scenic easements purchased along GRR, which have certain restrictions.

In this case, WMRPC is involved as well and has requested that the existing Q1 transmission ROW not be approved as a route for the new line.[106] It has expressed concern about the potential for new, 150-foot-high transmission structures on 150-foot-wide ROWs to have a "significant detrimental impact on the scenic beauty and overall attractiveness" of GRR between Alma and Fountain City and between Trempealeau and USH 53 across the Van Loon Wildlife Area. WMRPC acknowledges that transmission lines already exist between Alma and Fountain City but that they would be dwarfed in appearance by the new line. It has indicated that there would be a negative impact on the river tourist experience that would result in fewer visits to the area and a corresponding reduction in local tourism revenues.

WisDOT has indicated that federal and Wisconsin legal and policy restrictions exist for WisDOT utility accommodation permits in areas of scenic beauty when there are "feasible and prudent alternatives."[107] WMRPC has worked in close coordination with WisDOT on these interests. WMRPC has stated that the

[105] WDNR continued to purchase scenic easements into the 1970s on a limited basis in conjunction with road improvement projects along the route. "The Purchase of Scenic Easements and Wisconsin's Great River Road," Journal of the American Planning Association, Vol. 66, No. 2, Spring 2000.
[106] Letter from Alan Lorenz, Chair, WMRPC, to Ken Rineer of PSCW staff. August 16, 2011.
[107] Letter from James S. Thiel, General Counsel, WisDOT, to William Fannucchi of PSCW staff. July 13, 2011. PSC REF #150723.

scenic beauty of GRR would be impaired by the installation of the new line along the Q1-Highway 35 Route or within the viewscape of GRR users.[108]

WisDOT has indicated that the scenic easements do not allow new electric transmission facilities of the proposed size and also that positioning the line and its structures outside the geographic boundary of the scenic easement does not take them out of the viewscape from GRR and so still creates an adverse visual impact. The applicants have indicated that they do not hold this view but believe instead that, under the language of the scenic easements, the transmission line would be allowed.[109]

7.4.8.5. Mitigation of Great River Road impacts in the project area

WisDOT and WMRPC have both indicated that the best mitigation strategy to protect GRR is for the proposed project to avoid it. WisDOT has suggested an alternative path for the Q1-Highway 35 Route and Q1-Galesville Route (and implicitly for the original Q1 Route) that would avoid GRR between Alma and STH 88 by following the Arcadia Route out of Alma to the east (See Chapter 10) to STH 88 and follow STH 88 southward to connect to the eastern portion of the Q1 Routes (See Chapter 9).

The construction of the new line along GRR between Alma and the intersection with STH 88 would in many instances be an incremental as opposed to an entirely new impact. At least one existing transmission line, as well as a rail line for the BNSF Railroad, shares or parallels GRR in many locations along the proposed route. A consultant for WisDOT included an assessment of the visual quality along GRR around 1997, in conjunction with mapping other features found along GRR, such as cultural and natural resources and available facilities such as waysides and overlooks. The consultant presents five levels of quality: High, Good, Moderate, Poor, and Low. The assessment factored in items such as views to the river, views to the bluffs, road alignment, and the level of intrusion created by utility structures and the railroad. The section of GRR that would be avoided by use of the STH 88 Route is classified as being of poor visual quality.[110] If the new line was approved along this route and degraded the visual quality of this stretch of GRR, it could drop from poor to low.

7.4.9. Land use compatibility

Most areas along the Q1-Highway 35 Route are rural in nature and are currently in agricultural or other undeveloped uses, such as forestry. These uses are expected to continue into the future. An electric transmission line is usually compatible with these surrounding land uses. Greater potential for conflict exists on the southern quarter of the route, near the developed areas of cities and villages, where residential and commercial development, both existing and planned, becomes more common.

In general, residential uses are considered to be more sensitive to impacts from electric transmission lines than are commercial or industrial land uses, primarily due to aesthetic effects. Sharing a corridor with existing infrastructure, such as an existing transmission line or multi-lane highway, can mitigate impacts by causing incremental impacts instead of the entirely new impacts associated with a brand new corridor. About 93 percent of the route uses existing corridors.

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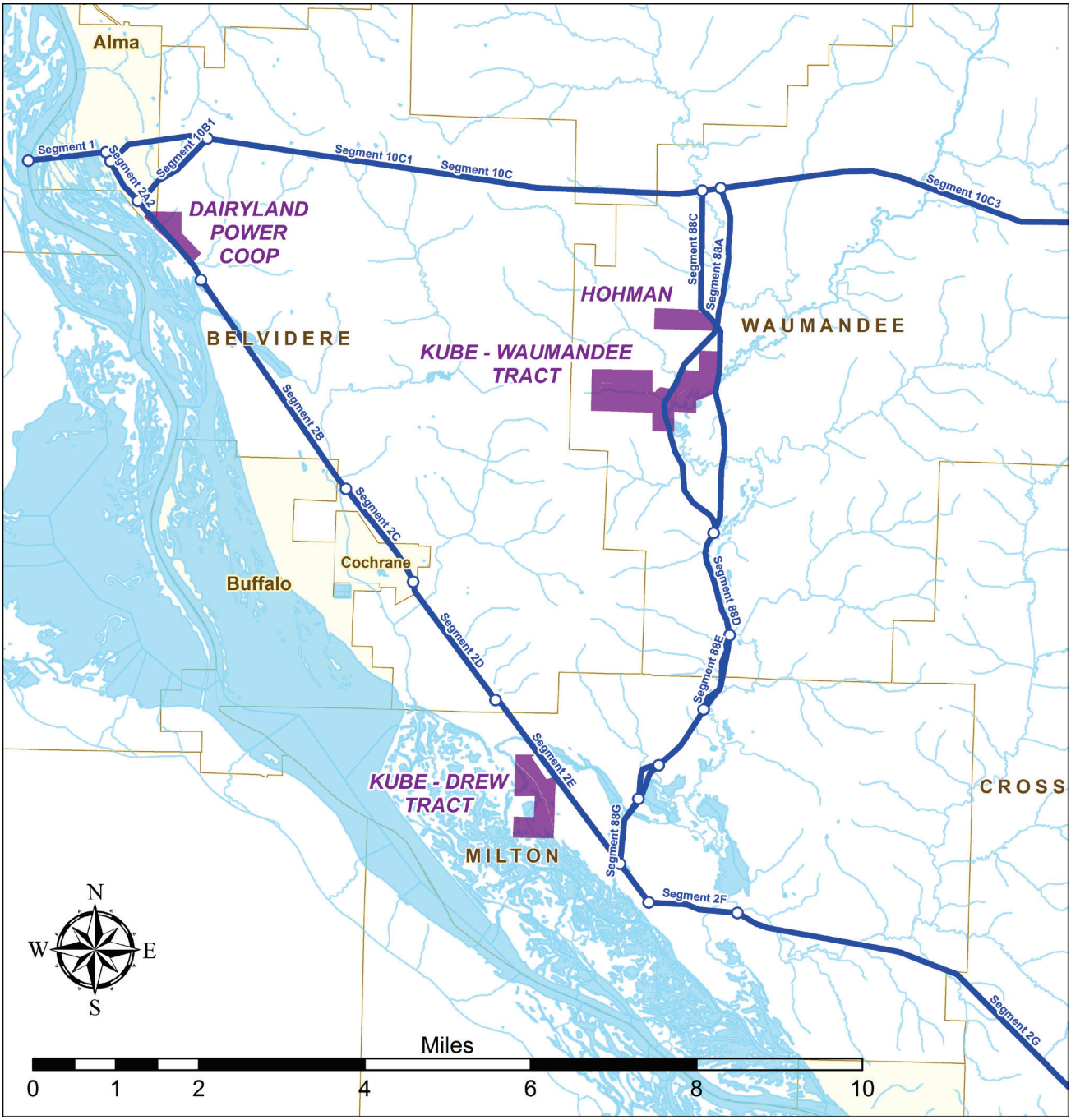
[108] CPCN Application, Appendix O contains a report, *Visual Assessment for the Great River Road, Wisconsin*, November 2010, which was prepared in response to concerns articulated early in the pre-application process by WisDOT and WMRPC, and illustrates some of the potential visual impacts.
[109] CPCN Application, Appendix O, pp. 2-3.
[110] *Inventory Map for: The Great River Road,* prepared for WisDOT by Ken Saiki Design, Landscape Architects. Map dated July 24, 1997. Provided by Robert Fasick, WisDOT to Kenneth Rineer of PSCW staff.

Segments on the northern part of the route pass through largely rural, sparsely-developed areas of Buffalo County, zoned for agricultural use. A conservation area, the "Dairyland Power Coop" tract, along the Mississippi bluffs is adjacent to the proposed route in Segment 2A3, and the proposed route passes through another, the Kube-Drew Tract in Segment 2E, an area of several federal and state wildlife areas. See Figure 7.4-1 and the map in Figure Vol. 2-1A. A campground along the Mississippi River is passed on Segment 2B. The route avoids the developed area of Cochrane as it skirts that community, but at the nearby golf course, new ROW containing the existing 161 kV line and the proposed 345 kV line would cross over a green. This could potentially interfere with golfers' use of the hole.

Figure 7.4-1 Mississippi Valley Conservancy Lands along the Q1 Routes and the STH 88 Connector alternatives



The existing DPC 161 kV line along the route passes through the middle of a farm field and a rural residential subdivision in the town of Milton. Moving the existing line to the proposed ROW would place the line in a railroad corridor or along field edges and result in fewer homes in close proximity to the line.

Near the Buffalo-Trempealeau county line, in the town of Buffalo, the route passes through the small, unincorporated community of Marshland. A concentration of homes lies near the existing line and route at this location.

In Trempealeau County, the route crosses or lies near a number of residential subdivisions on Segment 3, near the village of Trempealeau. Around the village of Trempealeau a transition area has been established to encourage more dense development. The town of Trempealeau's land use plan designates an extensive area for future low-density residential development north of the village of Trempealeau. As the route continues, it passes through a residential subdivision in the town of Caledonia near the town's western border.

Segment 8B crosses the Van Loon State Wildlife Area on a new ROW. The clearing required for the line would significantly change the wooded wetland habitat found in the ROW. Although a strip of woodland would remain in the ROW between STH 35 and the new line, providing some visual screening, the impacts to the wildlife area would be magnified due to the new ROW.

Segment 8C closely follows the north side of STH 35 as it enters the village of Holmen. The village created the "Seven Bridges" Tax Incremental District on the north end of the community, between Amsterdam Prairie Road and USH 53/STH 93. Holmen's vision for the District is "to create a distinctive signature entrance into the Village of Holmen as one approaches the community from the north and west. Land uses will consist of residential, multi-family, mixed uses, office, light industrial and green space." The area is currently a combination of agricultural and open space with some pockets of residential and small commercial businesses. Southeast of the intersection of Amsterdam Prairie Road and STH 35, multi-family housing is planned in the North Holmen Neighborhood Master Plan. Mixed (commercial/industrial) uses or light industrial use are planned for both sides of the highway before Segment 8C turns south to follow the west side of the USH 53 freeway. Some might consider a transmission line along this entryway to the community to detract from its visual appeal.

A medical clinic is planned for the southeast corner of the intersection of STH 35 and USH 53/STH 93. Residential uses are shown on both sides of the USH 53/STH 93 freeway in the village's smart growth plan and the town of Holland's comprehensive plan. The Amsterdam Prairie property of the Mississippi Valley Conservancy, a bird nesting area to be preserved in a natural state, lies adjacent to Segment 9 along the west side of the freeway (see Figure 7.4-2). Across the freeway is Prairie View Elementary School. South of the prairie, a large single-family home residential development borders the west side of the freeway, but Segment 9 crosses to the east side of the freeway, onto cropland to avoid these homes. The segment crosses again to the west side of the freeway about 0.25 mile north of CTH MH, in an area where homes are located on both sides of the freeway. Commercial use is designated for the southwest corner of the junction of the freeway and CTH MH. For the remainder of the distance between CTH MH and the substation sites, the Holmen plan shows mixed uses on the west side of the freeway and higher density residential on the east side. The land on the east side of the freeway is already partly developed for multi-family housing. The Briggs Road Substation would be built in an area whose future planned use is transitional residential or mixed use.

Figure 7.4-2 New Amsterdam Grasslands of the Mississippi Valley Conservancy adjacent to Segment 9

7.4.10. Residences

Fourteen homes are within 100 feet of the route centerline, with another eight homes between 100 and 150 feet from the centerline. The largest concentration of homes encountered along the route is found on Segment 3, near the village of Trempealeau, where the existing Q1 line crosses several rural residential subdivisions. Table 7.4-2 shows numbers of residences within increasing distances from the proposed transmission centerline.

Table 7.4-2 Residences within 300 feet of the Q1-Highway 35 Route

Segment	0'–25'	26'-50'	51'–100'	101'–150'	151'–300'
	From Route Centerline				
2A2					1
2A3				1	1
2B					10
2C			2	1	1
2E					4
2F					1
2G			1		3
2I			5	1	6
3			5	2	14
8B				1	1
8C					1
9			1	2	9
Total	0	0	14	8	52

The existing DPC 161 kV line passes through the middle of a rural residential subdivision in the town of Milton. Moving the existing line to the proposed ROW would result in about six fewer homes within 100 feet of an existing transmission line.

7.5. STAGING AND ACCESS

7.5.1. Staging areas

Construction staging areas would be required during the entire construction period for the storage of construction materials, transmission line poles, cables, equipment, vehicles, and related materials. The applicants identified potential staging areas on the basis of their location, access, security, and suitability for the efficient and safe warehousing of supplies. Environmental and landowner impacts were also considered. Identified sites were evaluated for potential impacts to wetlands, streams, natural features, threatened and endangered resources, and cultural or archaeological resources. Sites were also evaluated as to vegetation clearance, excavation, and grading requirements. Sites that needed minimal site preparation were preferred.

For example, sites that are paved or have been previously graded and cleared of vegetation (parking lots, old gravel pits, and farm fields) are considered ideal locations for staging areas.

Staging areas outside the transmission line ROW would be obtained from private landowners through leases that would last until the end of construction. If it became necessary to secure additional staging areas near the route to temporarily store transmission line construction materials, a similar selection process as that used for the original site selection would be followed, including an environmental review.

In general, 20 acres would be used at each site, and an access path at least 30 feet wide would be required. The applicants state that staging areas would not be located within wetlands. If a selected site was located near or upslope from a wetland or waterway, appropriate erosion control measures would be implemented to prevent impacts. In addition, access points for and the haul routes to and from these work sites would be selected, located, and designed to minimize disturbance to soils and sensitive natural resources to the greatest degree practicable as well as to minimize off-site tracking of soil. Each contractor would be required by the applicants to have a Spill Prevention Control and Countermeasure Plan in place that would cover both the contractor's construction equipment and construction activities.

The proposed staging area sites are primarily agricultural. Soil compaction would be expected on croplands, although measures could be taken to alleviate this compaction once construction is completed. Any nearby homes could experience noise, dust, and visual impacts. Screening vegetation might mitigate these impacts in some cases. Roads between the staging areas and worksites would be impacted by construction traffic.

The proposed off-ROW sites nearest this route are described below.

- Staging Area 1 is a 40-acre parcel located along Segment 2B, north of the city of Buffalo, on the northeast corner of the intersection of the BNSF railroad and Foegen Road, in the town of Belvidere. The parcel has an approximately 3.0-acre wetland in its northeast corner and a home site along its southern edge. The 20-acre part that would be used for staging is cropland.
- Staging Area 2 is a 16-acre parcel located along Segment 2G, northeast of Fountain City, on the northeast corner of the intersection of STH 93 and CTH P, in the town of Cross. The staging area is cropland.
- Staging Area 3 is a 20-acre parcel located near Segment 3, northwest of the village of Trempealeau, on the southwest side of Kribs Road, in the town of Trempealeau. The parcel is about 75 percent forested with the remaining area open land. Homes are located on all sides of the parcel, with residential subdivisions lying to the south and west. Trees located on the parcel could provide screening from the nearby homes.
- Staging Area 4 is a 20-acre parcel located a short distance northeast of Segment 3, northeast of the village of Trempealeau, on the northwest side of CTH K, in the town of Trempealeau. The entire parcel is cropland, with wooded residential properties located across CTH K.
- Staging Area 5 is a 17-acre cropland area within the proposed Briggs Road Substation West property, comprising the western part of the site. A home is located about 250 feet west of the site boundary. A large residential area of the village of Holmen is located to the northeast, across the USH 53 freeway.

7.5.2. Access paths

Construction access paths, for the most part, would follow existing paths identified for the maintenance of existing lines along the proposed route. These paths are generally able to support large equipment, but some tree clearing may be necessary to provide a 16-foot-wide path where trees have been encroaching or to allow for larger equipment. Existing paths have been developed over decades of use and coordination with landowners in order to minimize impacts to existing land uses and to avoid areas where large equipment cannot travel. Path widening, grading, or reinforcement may be necessary to accommodate ground conditions at the time of construction or the use of special equipment. BMPs would be used to prevent soil erosion from the paths where the ground would be disturbed.

The applicants indicate that, once construction is completed, the access paths would be restored to the landowner's satisfaction where the ground had been disturbed. Restoration would include grading to remove ruts and the establishment of ground cover to stabilize the soil. These activities would be regulated and monitored under a WDNR stormwater permit for construction activities.

The paths would also be used for future maintenance of the line. No specific ongoing maintenance measures for the paths are planned but, when access was needed, necessary improvements would be made at that time.

Clearing or trimming of oak trees during the growing season could possibly spread oak wilt to surrounding forests. Construction outside of the growing season or the immediate treatment of oak stumps or wounds could prevent this.

When proposed access paths cross cropland, it is usually at the edges of fields. Impacts from rutting and soil mixing could be reduced if construction access using these paths takes place when the ground is frozen and avoided when soils are wet.

Proposed access paths tend to be longer and more numerous in route areas dissected by ridges and valleys. Steep slopes can prevent direct access along the ROW path to pole locations. Off-ROW paths can also help reduce wetland and stream crossings by construction and maintenance equipment.

According to the applicants' preliminary access plan, the Q1-Highway 35 Route would require 61 off-ROW construction access paths totaling 12.4 miles in length and 24.0 acres in area. These paths range in length from 30 to 7,800 feet. These paths would require the clearing of nearly three acres of forest and would include 16.5 acres of cropland and 3.5 acres of grassland.