

Ex.-PSC-Rahn-3
Docket 5-CE-139
Witness: P.R. Rahn
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Page 1 of 36

Public Service Commission of Wisconsin
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Environmental Assessment

Western Milwaukee County Electric Reliability Project

PSC Docket 5-CE-139

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Public Service Commission of Wisconsin

I. Introduction

Wisconsin Electric Power Company (WEPCO) proposes to build a new distribution substation to be called the Milwaukee County Substation (MCSS). The proposed substation would be located on the WEPCO Milwaukee County Power Plant (MCP) property at 9250 Watertown Plank Road in the city of Wauwatosa and would replace the existing Milwaukee County Substation. American Transmission Company LLC (ATC) proposes to build two new transmission lines along new rights-of-way (ROW) in the cities of Wauwatosa and Milwaukee. One 138 kilovolt (kV) transmission line would link an existing north-south transmission line to the proposed substation. The second 138 kV line would link the existing 96th Street Substation site with the proposed substation. These two projects were joined into one docket because their purposes are interdependent.

When considered together, the proposed projects are a Type II action, under Wis. Admin. Code § PSC 4.10(2), requiring the preparation of an environmental assessment (EA) to determine if an environmental impact statement (EIS) is warranted under Wis. Stat. § 1.11(2)(c). The Commission, in cooperation with the Wisconsin Department of Natural Resources (DNR), prepared this EA.

II. Potential Permits and Approvals Required

Table 1 Potential Permits and Approvals Required

Agency	Activity	Type of Permit or Approval
Federal Agencies		
US Army Corps of Engineers	Wetland and waterway crossing	Section 404 (Clean Water Act) permit
	Site preparation and grading	Archeological Review (Section 106 National Historic Preservation Act)
State Agencies		
Public Service Commission of Wisconsin	Construction of electric transmission lines	Certificate of Public Convenience and Necessity (CPCN - Wis. Stat. §196.491 and Wis. Admin. Code ch. PSC 111)
	Construction of electric substation	Certificate of Authority (CA - Wis. Stat. § 196.49 and Wis. Admin. Code ch. PSC 112)
Wisconsin Department of Natural Resources	Transmission structure placement in a wetland	Wetland Water Quality Certification (Wis. Stat. § 281.36 and Wis. Admin. Code chs. NR 103 and 299)
	Transmission line construction access	Temporary clear span bridge permit (Wis. Stat. § 30.123)
	Stormwater management during construction and operation	WPDES general permit (Wis. Stat. Ch. 283 and Wis. Admin. Code ch. NR 216)
	Threatened and endangered species review	Incidental take review, endangered resource impact review (Wis. Stat. § 29.604 and Wis. Admin. Code ch. NR 27)

Agency	Activity	Type of Permit or Approval
Wisconsin Department of Transportation	Road crossing	Design approval
	Construction of utility in road ROW	Utility permit
	Construction along state roads	Utility Permit DT 1553
	Oversize loads or excessive weights on highways	Wis. Stat. ch. 348 Vehicles – Size, Weight and Load; Wis. Stat. § 348.25-Vehicle Weight and or Load Permit
Wisconsin Historical Society	Site preparation and grading	Approval of archaeological surveys (Wis. Stat. § 44.40 and Section 106 of National Historic Preservation Act)
City		
City of Milwaukee	Land-disturbing activity greater than 4000 sf	Erosion Control Permit
	Land-disturbing activity greater than one acre	Storm Water Management Plan
	Underground lines in street ROW	Occupancy Permit
City of Wauwatosa	Land-disturbing activity greater than 4000 sf	Erosion Control Permit
	Underground lines in street ROW	Occupancy Permit
	Substation construction	Conditional Use Permit
Other		
Union Pacific and Canadian Pacific Railroads	Railroad crossing	Permission

III. Purpose and Need

The proposed project is intended to meet the growing electrical needs of MRMC, the Milwaukee County grounds, and nearby areas. MRMC includes a Level One Adult Trauma Center and a Level One Pediatric Trauma Center. WEPCO has requested that ATC provide a level of reliability to the new substation comparable to what currently exists.

In response, ATC developed reliability criteria for serving the Level One trauma centers. The criteria require two transmission lines to the proposed substation with sufficient physical separation to ensure that a single event is unlikely to cause an outage of both transmission lines. However, because of the relatively close proximity of the two lines as they enter the new substation, ATC has proposed to underground one of the two lines as it nears the substation in order to satisfy its reliability criteria.

In its application, WEPCO states that for the existing 24.9 to 13.2 kV MCSS, the N-1 contingency is the loss of either substation transformer. The limiting factor in this contingency is the smaller emergency rating of the remaining transformer. The allowable loading for the existing MCSS is calculated by WEPCO to be 25.78 megavolt amperes (MVA). It states the loss of either 24.9/13.2 kV transformer will result in loading the remaining transformer above its allowable contingency loading, beginning in the 2014 to 2015 timeframe.

MCSS supplies all the electric supply needs of MRMC. MRMC has undertaken a broad construction program. It projects that its load will increase to 41.9 MVA by 2021. As past projections of load growth at MRMC have been very accurate, WEPCO expects an 85 to 90 percent realization of load planned for this area. Load growth is also anticipated on the 24.9 kV system in this region. Development proposed to date, including initial load projections through 2020, that could be served by the 24.9 kV system includes up to an additional 48 MVA. The substation is normally served by two underground, networked 24.9 kV, networked conductors from Bus Section 9 of WEPCO's 96th Street Substation. There is a dedicated backup 24.9 kV line from Bus Section 7 of the 96th Street Substation.

The existing MCSS 13.2 kV distribution system serving MRMC has no adjacent 13.2 kV capacity available for bridging. WEPCO states it is different from its other 13.2 kV distribution system because there is a 30-degree phase difference between this distribution system and the rest of WEPCO's 13.2 kV system in the area. WEPCO has double redundancy in the three 24.9 kV lines that serve MCSS; however, it states it does not have a spare 24.9/13.2 kV transformer as this transformation is unique on WEPCO's system. The lack of a spare transformer is presently the weakest link of the supply to MRMC, according to the application.

MCSS supplies all of the power requirements of MRMC. MRMC is a consortium of six health care institutions with a Level One Adult Trauma Center and a Level One Pediatric Trauma Center. Level One Trauma Centers provide the highest level of specialty expertise and meet strict national standards. They are available 24 hours a day, 365 days a year, to treat life-threatening injuries. These facilities require a high level of electric reliability.

IV. Proposed Facilities

Based on its review of the available options, WEPCO determined that a new 138/13.2 kV substation is required to serve the projected load growth at MRMC. WEPCO believes supplying the new substation directly from the 138 kV system creates a more robust distribution system for MRMC with ample capacity for the projected growth of MRMC as well as other new development on the Milwaukee County grounds. It would also free up three 24.9 kV distribution feeders from 96th Street Substation that are presently used as the normal and alternative source lines to MCSS. The recovered 60 MVA of capacity (20 MVA per feeder) at 96th Street Substation would provide additional flexibility in serving future 24.9 kV load growth in the area.

WEPCO proposes to construct a new 138/13.2 kV substation on a portion of the MCPP property at 9250 West Watertown Plank Road. The new substation would occupy approximately 2.3 acres in the northwest portion of this property. The existing MCPP substation would remain in service until the proposed substation is completed and all distribution feeders are transferred. The current MCPP substation would then be retired and removed. This substation would initially consist of two 35 MVA, 138/13.2 kV transformers. The substation would be expandable to a total of three 138/13.2 kV transformers and two 138/24.9 kV transformers.

The initial two 138/13.2 kV transformers would supply six distribution feeders serving existing customer loads and one feeder would supply an existing transformer at MCPP. ATC would serve the substation from two radial 138 kV transmission lines. The 138 kV and 13.2 kV bus tie

breakers would be operated normally open. Closed transition switching would be used during planned maintenance work.

ATC proposes to bring one of the two radial lines from the west and the other radial line from the south. The application contains two proposed routes (with variations) for each line—western routes A and B and southern routes C and D.

Both proposed western transmission lines would tap the existing 138 kV Bluemound–Tosa transmission line (Line 5041). Route A would tap Line 5041 north of the intersection of West Walnut Road and North 120th Street. Route B would tap Line 5041 south of the intersection of West Diane Drive and North 120th Street. Both proposed southern routes would connect to the existing 96th Street Substation on WEPCO-owned property northeast of the Interstate 94 (I-94)/U.S. Highway (USH) 45 interchange in the city of Wauwatosa.

V. Estimated Costs

WEPCO estimates that the total cost for the distribution portion of the new MCSS would be \$10,864,000. This includes the capital cost, cost of removing the existing substation, and the operation and maintenance cost associated with distribution feeder work and integrating the new MCSS with the existing power plant.

The total project cost includes the capital cost of the transmission line, modifications to the distribution system, modifications to existing substations, removal and salvage costs, operations and maintenance expense, and precertification expenses. ATC's estimated cost for the alternatives that meet the requirements of the Level One Trauma Center Guide ranges from \$23,319,550 to \$40,623,050. The total project cost (WEPCO plus ATC) is estimated to range between \$34,183,550 and \$51,487,050, depending on the routes selected.

VI. System Alternatives Analysis

WEPCO considered several distribution-level remedies. However, any benefits derived from these alternatives would be short term. MCSS and other substations in this area are already at or near capacity. The application states that the anticipated area load growth would require a new transmission-to-distribution substation no later than 2020, even if a distribution-level alternative is implemented. WEPCO believes any practical alternative must continue to support the existing MRMC 13.2 kV system. Converting the MRMC campus to another voltage, such as 24.9 kV, is neither desirable nor practical. Such a conversion would require the complete rebuild of all of WEPCO's facilities from the existing MCSS to its customers' substations, as well as significant investment by its customers to convert their electric service facilities to the new voltage.

WEPCO and ATC have agreed that N-1-1 contingency planning is the preferred approach to provide an adequate level of transmission reliability to the new MCSS. For the proposed new MCSS, use of MRMC backup generation is not considered to be an acceptable system reconfiguration in an N-1-1 contingency. The existing backup generation is intended to provide sufficient power for life support devices and to facilitate the orderly evacuation of the facilities in the event of an emergency. It cannot support the entire MRMC load.

WEPCO states that supplying the new MCSS with one transmission line and WEPCO-owned backup generation is not a reasonable alternative because such an option does not allow closed-transition auto-changeover between sources to be maintained. Additionally, WEPCO believes the cost of a combustion turbine, the additional infrastructure costs to interconnect the generator, the annual fuel costs, and generator maintenance make this option cost-prohibitive. Lastly, annual generator maintenance outages are viewed as posing an unacceptable risk to the trauma centers' electric supply.

VII. Routes Considered

ATC considered several potential corridors for new transmission lines in the project area, based primarily on the locations of existing substations, transmission lines, and transportation corridors. The nearest existing substations with transmission interconnections are the 96th Street Substation (south), the Bluemound Substation (southwest), Tosa Substation (northwest), and Butler Substation (farther northwest). Existing ATC transmission line interconnections in the project area are: 96th Street-Bluemound, Bluemound-Tosa, and Bluemound-Butler. Major transportation corridors in the proposed project area consist primarily of city streets in Milwaukee and Wauwatosa, federal and state highways and two railroad lines. The major thoroughfares include I-94, USH 45, State Highway (STH) 100 (Mayfair Road), and STH 18 (Bluemound Road).

ATC investigated corridors that cross open space to the north/northwest of the proposed substation site and connect to the Tosa Substation (approximately four miles to the northwest). However, potential route locations were restricted by current and planned uses of this open space, which include: flood control basins associated with Underwood Creek; the planned UW-Milwaukee (UWM) Innovation Park; the planned DNR Forestry Education Center; and a monarch butterfly conservation area. Further, a transmission line to the north of the proposed substation would require crossing the Menomonee River. Beyond this open space, commercial and residential development in transportation corridors to the north/northwest would likely require an underground route. ATC did not select route corridors from the north/northwest for further consideration, as it determined that these longer routes would increase project costs without reducing impacts.

Route corridors directly west of the proposed substation site that connect to existing ATC north-south transmission lines were analyzed, based primarily on the availability of potential interconnection points. ATC investigated a potential interconnection to the existing north-south transmission line at an ATC-owned parcel near Watertown Plank Road. However, the size of this parcel is not large enough for necessary facilities and this location was rejected as a potential interconnection point. ATC also considered a route originating at the Bluemound Substation, located along the existing north-south transmission corridor. However, since a transmission line would still be required from the existing corridor to the new substation, ATC determined that this more distant interconnection point would increase project costs without reducing impacts. Two interconnection points along the existing north-south ATC transmission line were selected for further consideration, as these properties are owned by ATC and are sufficiently large to accommodate necessary infrastructure. The potential interconnection point at Walnut Road and

119th Street was designated as the origination point for Route A, and the potential interconnection point south of Watertown Plank Road near the Canadian Pacific (CP) Railroad corridor was designated as the origination point for Routes B(1) through B(3).

ATC investigated several route corridor options to the southwest and southeast of the proposed substation. Planned reconstruction of the I-894/USH 45/I-94 Zoo Interchange limited the potential for locating a transmission line from the Bluemound Substation (located southwest of the proposed substation) to the east side of I-894/USH 45. The MRMC campus limited options for locating a transmission line to the southeast of the proposed substation. Underground construction in the MRMC campus could disrupt access for emergency vehicles, and roads through the campus are heavily congested with existing underground utilities. ATC determined that originating a transmission line further east would increase the length of the line without reducing impacts to residential and commercial areas.

ATC also investigated route corridors directly south of the proposed substation site, originating at the existing 96th Street Substation. This origination point minimizes the length of the line, consequently reducing project costs. Four route options originating at the 96th Street Substation, Routes C(1-3) and D, were selected for further consideration. Route C(1) shares a corridor with USH 45, and Routes C(2) and D follow city streets and traverse the less-developed west side of the MRMC campus. Route C(3) combines parts of Routes C(1) and D.

The routes proposed in its application were selected by ATC because they use existing corridors where possible, reduce project costs, and minimize environmental impacts.

VIII. Description of the Proposed Routes

ATC has proposed four possible east-west routes to connect the 138 kV Bluemound-Tosa line to the new MCSS:

Route A—Walnut Road Hybrid consists of Segments 1UG, 2, 3, 4, 5, 6, and 7 (see Figure 1). Route A begins at the interconnection point located west of 119th Street. The line would follow Walnut Road east for 0.35 mile as an underground segment and then transition to aboveground to continue east, crossing the Union Pacific (UP) Railroad and STH 100 (Mayfair Road). On the east side of STH 100 the route then turns south to parallel the highway and cross the CP Railroad. At a spot just north of Underwood Creek the route turns east, crossing the USH 45 freeway, and then paralleling the east side of the freeway south to Watertown Plank Road. The route turns east to follow the north side of the street until it reaches a point just south of the proposed substation site. The route then turns to proceed north into the substation. The total route length is 2.2 miles.

B(1)—Underwood Creek Overhead consists of Segments 8a, 9a, 9b, 4, 5, 6, and 7 (see Figure 1). Route B(1) begins at a proposed interconnection point located near 120th Street and West Diane Drive in the Underwood Parkway. Route B(1) lies north of and parallel to Underwood Creek and the CP Railroad until it crosses to the south side of the creek at 115th Street. The route continues, following Underwood Creek, crossing the UP Railroad, Watertown Plank Road, and STH 100. The route then turns and continues east, crossing the USH 45

freeway, and then parallels the east side of the freeway south to Watertown Plank Road. Turning east, the route follows the north side of the street until it reaches a point just south of the proposed substation site. The route then turns to proceed north into the substation. The total route length is 2.0 miles.

B(2)—Underwood Creek Overhead-Watertown Plank Hybrid consists of Segments 8a, 9a, 23UG, 18UG, and 19UG (see Figure 1). Route B(2) begins at a proposed interconnection point located near 120th Street and West Diane Drive in the Underwood Parkway and follows the same path as Route B(1) north of and parallel to Underwood Creek and the CP Railroad until it crosses to the south side of the creek at 115th Street. Route B(2) continues to follow Underwood Creek, crossing the UP Railroad, until it reaches Watertown Plank Road. At that point, the line would transition to underground as the route follows Watertown Plank Road east, crossing USH 45, until it reaches a point just south of the proposed substation site. The route then turns to proceed north into the substation. The total route length is 1.8 miles.

B(3)—Underwood Creek Overhead-County Grounds Hybrid consists of Segments 8a, 9a, 9b, 4, and 10UG (see Figure 1). Route B(3) begins at the same interconnection point located near 120th Street and West Diane Drive in the Underwood Parkway and follows the same path as Route B(1) to the east side of the USH 45 freeway. At that point, the line transitions to underground and the route continues east on Segment 10UG to the substation site. The total route length is 1.9 miles.

ATC has proposed four possible north-south routes to connect the 96th Street Substation to the new MCSS:

Route C(1)—Highway 45 Overhead consists of Segments 11, 12a, 12b, 13, 14, 6, and 7 (see Figure 1). The route begins at the 96th Street Substation and follows the east edge of the USH 45 freeway ROW north to Watertown Plank Road, crossing Bluemound Road and Wisconsin Avenue. At Watertown Plank Road, the route turns east to follow the north side of the street until it reaches a point just south of the proposed substation site. The route then turns to proceed north into the substation. The total route length is 1.4 miles.

Route C(2)—95th Street Underground consists of Segments 11UG, 12UG, 15UG, 16UG, 17UG, 18UG, and 19UG (see Figure 1). The line would be buried for the entire length of the route. The line would begin at the 96th Street Substation and after running cross-country for 0.2 mile would be buried beneath 95th Street as it heads north, crossing Bluemound Road. At Wisconsin Avenue, the route proceeds east a short distance within the street ROW to 94th Street. It then turns north to continue to Watertown Plank Road, mainly following 94th and 95th Streets. At Watertown Plank Road the route turns east and continues east until it reaches a point just south of the proposed substation site. The route then turns to proceed north into the substation. The total route length is 1.3 miles.

Route C(3)—Highway 45 Hybrid consists of Segments 11, 12a, 12b, 13, 20UG, 17UG, 18UG, and 19UG (see Figure 1). Route C(3) combines the southern part of Route C(1) for its aboveground part and the northern end of Route C(2) for its underground part. The route

transitions between those two routes, using Segment 20UG, at a point approximately half way between Wisconsin Avenue and Watertown Plank Road. The total route length is 1.3 miles.

Route D—92nd Street Underground consists of Segments 21UG, 22UG, 16UG, 17UG, 18UG, and 19UG (see Figure 1). The line would be buried for the entire length of the route. The route heads east from the 96th Street Substation until it reaches 92nd Street. It then turns north, following 92nd, Michigan, and 93rd Streets to Wisconsin Avenue, crossing Bluemound Road. At Wisconsin Avenue, the route continues west for a short distance to 94th Street. It then turns north to continue to Watertown Plank Road, mainly following 94th and 95th Streets. At Watertown Plank Road the route turns east and continues east until it reaches a point just south of the proposed substation site. The route then turns to proceed north into the substation. The total route length is 1.5 miles.

IX. Existing and Future Land Use in the Project Area

Existing Environment

The proposed routes pass through a highly-developed part of the Milwaukee metropolitan area, although less-developed parcels are encountered as well. The final part of all routes passes through lands of the Milwaukee County grounds. All routes except Route B(3) enter the proposed MCSS site from the south, and lie on the western edge of MCPP property.

Route A begins in a residential neighborhood and heads east along Walnut Road, passing the city of Wauwatosa's police station and public works department buildings and grounds. Opposite the police department, the Cedar Glen 80-unit senior housing development is being constructed on the south side of Walnut Road, between 116th and 113th Streets. Another 50 units of apartments are planned nearby, west of a closed city landfill. The transition from underground to overhead construction would be in this area. East of the UP Railroad, the route passes through a commercial area along STH 100 (Mayfair Road). Much of Segment 3 parallels a recently restored section of Underwood Creek. Segment 4 crosses the Milwaukee County grounds just north of the Milwaukee County Fleet Maintenance Facility and south of the Wisconsin Lutheran College athletic fields. Segment 5 parallels the east side of the USH 45 freeway, crossing a grassy, undeveloped area of the County grounds, where a portion of the Monarch Trail is located.

All three of the Route B options begin near 120th Street and West Diane Drive in the Underwood Parkway, in the midst of residential neighborhoods. The routes lie on parkway land as they follow the creek eastward. Segment 8a lies in a wooded wetland north of Underwood Creek and the double track of the CP Railroad. Segment 8b is an alternative to Segment 8a that would place the line on the south side of Underwood Creek. Segments 9a and 9b follow the Oak Leaf Trail within the parkway. Routes B(1) and B(3) cross the Milwaukee County grounds just north of the Milwaukee County Fleet Maintenance Facility and south of the Wisconsin Lutheran College athletic fields. Route B(1) is identical to Route A between USH 45 and the proposed MCSS site. Route B(3) is different in that it uses Segment 10UG to pass through undeveloped grassy land of the County grounds to reach the proposed MCSS site. On Segments 23UG and 18UG of Route B(2), the line would be buried in the Watertown Plank Road ROW between

Underwood Parkway and a point just south of the proposed substation site, passing through commercial, office, and institutional lands on either side of the street.

All C Route options begin at the 96th Street Substation. Route C(1) follows the east edge of the USH 45 freeway ROW past a large apartment building (Parkside Pool Apartments), Milwaukee Montessori School, and Saint Therese Church. South of Wisconsin Avenue, single-family residential neighborhoods lie to the east. North of Wisconsin Avenue, the route skirts the western edge of MRMC. Route C(2) goes through these same areas, but is shifted to the east side of the apartments, school, and church, where the line would be buried beneath 95th Street. Cannon Park is to the east, bordering Segment 11UG. Segments 16 UG and 17UG are mostly buried under 94th and 95th Streets as they pass through the western part of MRMC. Route C(3) combines the southern part of Route C(1) where it is overhead and the northern end of Route C(2) where it is underground.

Route D begins at the 96th Street Substation and passes through residential neighborhoods south of Wisconsin Avenue. A small commercial area is located at the intersection of 92nd Street and Bluemound Road. North of Wisconsin Avenue, the route crosses the grounds of MRMC.

The proposed substation site on the grounds of MCPP is comprised of old-field habitat dominated by cool season grasses, early successional weed species, and some common native forbs. Construction of the 2.3-acre substation would require the removal of this vegetation, which is common in the immediate area. Park land with trails is present north of the substation site. A Milwaukee Metropolitan Sewerage District (MMSD) sanitary sewer line crosses the site. It would be necessary to relocate the sewer line to accommodate the new substation. The sewer line would be predominantly located on MCPP property, although a portion of the reroute would extend onto property to the west. The substation site is not located in a floodplain.

Future Land Use Considerations

The land use plans of the cities of Wauwatosa and Milwaukee largely show existing land uses in the project area continuing into the future. The notable exception is the northeast quadrant of the Milwaukee County grounds, where the use is shown as changing from “institutional” to “campus.” This reflects the development of the UWM Innovation Park-Integrated Research Complex, which has already begun. This complex, consisting of an engineering and graduate school campus of UWM and private research facilities is expected to become a major employment center. The site will include not only academic research and industry facilities, but also privately developed housing and a wildlife habitat. Segment 10UG of Route B(3) follows along the path of a planned street in the complex. Park land that includes trails is located north of the segment. If Segment 10UG is used for the transmission line, the line would be buried and would not interfere with the development and operation of the research park or users’ enjoyment of the adjacent parkland. There could be an aesthetic impact to the complex if an aboveground line along Watertown Plank Road (Segment 6 of Routes A, B(1), and C(1)) is built. The MMSD sewer reroute required for the new substation would extend into an area of UWM Innovation Park where a parking lot is planned.

Land in the northwest quadrant of the intersection of Watertown Plank Road and USH 45 is also slated for development. This redevelopment is partly due to USH 45 reconstruction necessitating the relocation of some Milwaukee County government facilities. Office park is the planned future use of these highway-impacted lands and the land on the south side of Watertown Plank Road. An aboveground transmission line on Segment 4 (Routes A, B(1), and B(3)) would be compatible with this redevelopment, although it would divide the county lands north of Watertown Plank Road into two sections, which could constrain redevelopment.

West of the closed city landfill, on Segment 2 (Route A), a 50-unit residential building is planned. Part of the building would lie within 300 feet of the proposed transmission centerline.

Work will begin shortly on the USH 45 Zoo Interchange reconstruction project. The work near Segment 5 (Routes A and B(1)) will likely expand the highway ROW so that the segment would lie within a freeway ramp area. ATC would coordinate closely with the Wisconsin Department of Transportation (WisDOT) so that transmission line construction work and facility placement would not interfere with work on this and other affected freeway and street segments.

Monarch Trail

A migratory stopover point for monarch butterflies is located on the undeveloped areas of the Milwaukee County grounds, north of Watertown Plank Road and east of USH 45. The Friends of the Monarch has established the Monarch Trail, where the public may view butterfly roosting trees and nectaring areas. A plan has been developed to protect this important habitat. The areas to be protected are located north of Segment 10UG. Segment 5 (Routes A and B(1)) crosses the southern part of the Monarch Trail, which is in an area expected to become a new freeway ramp as part of the USH 45 reconstruction project. This portion of the habitat would be lost to highway reconstruction.

The deed for the property being developed as the UWM Innovation Park northeast of the intersection of Watertown Plank Road and USH 45 requires that a portion of the property be maintained in perpetuity as a natural area and prohibits building, construction activities, or other disruptive improvements. A habitat protection and restoration plan has been developed for the area that is intended to preserve and enhance Monarch butterfly roosting sites. Segment 10UG crosses the UWM property south of the natural area. The natural area would not be directly or permanently impacted by construction and operation of the transmission line.

Environmental Corridor

The part of the Route B options along Underwood Creek from the transmission line tap at 120th Street to east of STH 100 is considered a primary environmental corridor by the Southeastern Wisconsin Regional Planning Commission (SEWRPC). These corridors provide habitat and opportunities for movement for many bird, animal, and plant species, as well as educational and recreational opportunities for local residents. Such a corridor is even more highly valued in the very urbanized Milwaukee metropolitan area where less than 0.5 percent of the total land area in the county supports natural vegetation and critical species habitat.

Most of Segments 8a, 8b, 9a, 9b, and 3 are located within this specially-designated corridor. A transmission line built in this corridor would detract from its natural qualities, particularly where permanent tree clearing would be required.

Oak Leaf Trail

A heavily-used bicycle and walking trail parallels the Route B options for about a mile. This trail, which is part of a countywide system of biking and hiking trails called the Oak Leaf Trail, lies along Routes B(1-3). Segment 9a follows a portion of the trail that is a paved, off-street path. The aesthetics of the trail would be adversely impacted by the presence of the proposed overhead line and the loss of some trees adjacent to the trail. Temporary closure or detour of the trail may be needed during construction of the line. Milwaukee County is on record as opposing the placement of the transmission line on county-owned park land containing the trail. The county Parks Department, the entity responsible for trail construction and maintenance, plans to move the trail off of the Underwood Parkway roadway west of 115th Street and onto parkway land. Depending on the exact location of the new off-road trail, the loss of trees required to build a transmission line on Segment 8b also could affect the aesthetics of the trail. Elsewhere, the transmission line could possibly affect any future realignment of the trail in the corridor.

Wisconsin Department of Transportation

WisDOT plans significant modifications to the interstates, highways, and connecting streets in the project area. This would affect the type, location, and construction timing of the proposed project. The WisDOT reconstruction of the highways and interstates where I-94 connects with USH 45 (known as the “zoo interchange”) are scheduled to start in 2013 and continue through 2018. This multi-year WisDOT project includes portions of I-94, USH 45, STH 100, USH 18, STH 59, Watertown Plank Road, Wisconsin Avenue, and Bluemound Road, among others. WisDOT has not yet finalized construction plans for USH 45 and so it is not known whether any portion of Segments 11, 12b, or 14 would be within the future highway ROW. The ROW is likely to be expended so that Segment 5 would lie within a freeway ramp area. However, WisDOT has indicated in several letters addressed to ATC that there would be sufficient space in its ROW for locating the proposed transmission facilities, both overhead and underground, as described in the application. WisDOT permits and approval would be needed to construct any segments that occupy any portion of WisDOT ROW.

The construction of Segment 23UG (Route B(2)) is proposed to occur during the reconstruction of Watertown Plank Road. WisDOT plans to begin construction in December 2013 and work from Innovation Drive west through STH 100. A WisDOT August 19, 2011, letter states that WisDOT does not object to underground transmission construction within the Watertown Plank Road ROW in 2014, when the road would be under construction.

If the Commission approves a route that requires a WisDOT permit, ATC would continue to work with WisDOT to revise pole placement so as to not conflict with WisDOT construction plans. WisDOT has stated it would work with ATC to find mutually acceptable locations for all proposed transmission structures.

X. Natural Resource Considerations

Waterways

Among the east-west route alternatives, all Route B options parallel Underwood Creek and cross it once.

Along Segment 8a, Underwood Creek flows through a concrete-lined channel located south of the railroad tracks. MMSD and the Milwaukee Riverkeepers intend to explore the option of restoring Underwood Creek in this area to the historic stream bed, which still exists on the north side of the railroad tracks. Although detailed plans are not available for review at this time, construction of a transmission line along Segment 8a is not expected to prevent restoration of the creek in this area. ATC plans to locate structures on this segment outside of the natural stream channel and it would work with MMSD to design the transmission line to avoid a conflict with the stream restoration.

A portion of Segment 3 on Route A parallels a restored portion of the creek before crossing it. None of the north-south route options cross identified waterways.

Wetlands

Wetlands, especially those present in highly developed urban areas, can provide important functions and values, including, but not limited to, groundwater recharge and discharge, flood protection, water quality protection, critical habitat for terrestrial and aquatic species, and educational and recreational opportunities.

No wetlands are located on the proposed substation site or along the north-south route options, but wetlands do exist along several of the east-west route alternatives. Some of them would be crossed by overhead line and some by underground line during transmission line construction. Because of span length requirements and ROW limitations, some short- and long-term impacts to wetlands would be unavoidable. In addition, construction access through wetlands would be required for some pole locations. Permanent loss of wooded wetlands, in addition to potential soil compaction and changes in wetland hydrology, vegetation, and microclimates, would likely occur for the Route B options.

ATC would attempt to minimize wetland construction impacts during final route design and access planning. Suggested construction best management practices include use of matting and low ground pressure and specialized tracked vehicles, as well as scheduling activities during dry or frozen ground conditions.

East-West Routes

Route A would likely have four structures placed in wetlands and affect potentially 0.77 acres of wetland habitat. A portion of Segment 3 is located near a recently restored portion of Underwood Creek, east of STH 100. Common species observed within this wetland area include reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), American water-plantain (*Alisma subcordatum*), purple-stem beggar ticks (*Bidens connatus*), and redbtop

(*Agrostis gigantea*). The ROW along this segment includes 0.71 acres of wetland. Segment 5 crosses a wet meadow wetland along the western portion of the Milwaukee County grounds. The wetland is dominated by narrow-leaved cat-tail (*Typha angustifolia*), with significant populations of cut-leaved teasel (*Dipsacus laciniatus*) along the edges. This area contains 0.06 acre of wet meadow. Although the species observed within these communities are typical of lower quality habitat, the functional value of these wetlands is likely quite high due to the scarcity of wetlands in this urban setting.

Segment 8a, common to all of the Route B options, is located within the wooded wetland community associated with the natural portion of Underwood Creek. Wooded wetlands are uncommon in urban settings. DNR identifies Underwood Creek as a Natural Heritage Inventory (NHI) waterway and considers it an Area of Special Natural Resource Interest. Dominant plant species observed within this area include green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), and American elm (*Ulmus americana*) in the overstory, with common buckthorn (*Rhamnus cathartica*) and box elder (*Acer negundo*) commonly observed within the shrub layer. Because a 70-foot wide ROW is required, it would be necessary to permanently clear 0.92 acre of wooded wetland if this segment is used and place three transmission structures in the wetland. In addition, it is possible that “danger trees” adjacent to the ROW that would threaten the transmission line could be trimmed or removed. Alternative Segment 8b would require permanently clearing 0.19 acre of wooded wetland and placing two structures in wetlands.

Additionally, Segment 10UG, which is part of Route B(3), would require temporary impacts within three wet meadow areas. Based on preliminary designs, approximately 0.04 acre of wetland would be excavated during construction of this underground segment, then restored to pre-construction conditions.

No wetland impacts would occur along any of the north-south route options.

Woodlands

In its analysis, ATC defined woodlands as areas dominated by trees (greater than 20 percent canopy cover) within the proposed route segment ROWs. The wooded land includes both upland woodland communities and maintained park land with sufficient tree cover to meet the 20 percent threshold. All trees located in the ROW would be cleared. Once the transmission line is constructed, ATC proposes to maintain the ROW free of all tall-growing trees along overhead segments. ROW containing underground segments would be maintained to prevent the re-growth of trees, but shrubs would be allowed.

Several of the east-west routes cross upland woodland communities. The largest block of wooded lands occurs within the Underwood Parkway, west of 115th Street, on the B Route options (Segment 8a), with 1.44 acres of upland woodland located within the proposed ROW and 0.92 acre of wooded wetlands. The vegetative community observed along Segment 8a is generally comprised of mature disturbed mesic woodland adjacent to the railroad corridor. This mesic woodland transitions to a hardwood swamp/floodplain forest community associated with Underwood Creek at its northern end. Other smaller woodlands are found on Segments 9a (1.25 acres within the ROW) and 9b (0.23 acre), near the Underwood Parkway, and scattered along other segments. Alternative Segment 8b, located on the south side of the concrete channel

carrying Underwood Creek, contains 2.26 acres of woodland. Most of these woodlands are dominated by species such as red oak (*Quercus rubra*), black oak (*Quercus velutina*), shagbark hickory (*Carya ovata*), black cherry (*Prunus serotina*), black walnut (*Juglans nigra*), and box elder. The understory is mainly honeysuckle (*Lonicera* spp.) and buckthorn (*Rhamnus* spp.) with varying herbaceous vegetation and lawn.

Other wooded areas within the ROWs are comprised of scattered trees within areas of grassland or lawn. These wooded areas are primarily located within the Underwood Parkway (Segment 8b) and on the Milwaukee County grounds property along Swan Boulevard (Segment 5), and Watertown Plank Road (Segment 6). The route segments passing through these areas contain 2.26, 0.49, and 1.34 acres of woodland, respectively. Tree species are similar to those described above, with other common species observed including basswood (*Tilia americana*), maple (*Acer* spp.) and various other conifers and landscape shrubs. Many of the trees along Segment 6 will be cleared as part of the development of the UWM Innovation Center.

In summary, Route B(1) would require the loss of about 4.8 acres of upland woods and nearly one acre of wooded wetland. Routes B(2) and B(3) would require clearing approximately 2.7 and 3.0 acres of trees, respectively. In comparison, Route A could result in the loss of about 2.2 acres of upland trees and potentially some landscape (specimen) trees if Segment 1UG is not placed within Walnut Street.

On the north-south routes, only Route C(1) would require the loss of more than one acre of trees.

The upland woods present along the route alternatives are located mostly on Milwaukee County property and are used for recreational purposes. The trees vary in size and age throughout the project area (and within individual stands), but are generally greater than 18 inches diameter at breast height.

Clearing or trimming of oak trees between April and October could possibly spread oak wilt to oaks present in the surrounding woodlands. Clearing trees outside of this season is highly recommended. If this is not possible, immediate treatment of oak stumps or wounds with tree wound paint could help prevent the spread of oak wilt disease.

Grasslands

Most of the grassland areas encountered within the route corridors are located on the east-west routes along Segment 5 on the Milwaukee County grounds, Segment 9a in the Underwood Creek Parkway, and along Segments 12a and 13 within or adjacent to USH 45 ROW. Along Segment 5, the 1.74 acres of grassland in the ROW is part of a disturbed upland meadow dominated by teasel and Canada goldenrod. Segment 9a's 2.02 acres of grassland consists of mowed grass with scattered trees and shrubs adjacent to the Oak Leaf Trail. The 0.84 acre of grassland on Segment 12a and 2.19 acres on Segment 13 are associated with the USH 45 freeway ROW. On Segment 3 (Route A) 1.46 acres of grassland lies along the recently restored section of Underwood Creek. The 1.21 acres of grassland along Segment 10UG consists of open meadow on the Milwaukee County grounds that has been graded and seeded in recent years. Construction of the transmission line would temporarily disturb grasslands in the ROW, but they would be allowed to recover once construction is completed.

The proposed Milwaukee County Substation site consists of 2.3 acres of grassland dominated by cool season grasses, early successional weed species, and some common native forbs. The vegetation would be permanently converted to substation use, but this type of grassland is common in the immediate area.

Invasive Species

Several invasive plant species occur along the proposed transmission line routes. Species identified include common reed, narrow-leaf cattail, cut-leaved teasel, common buckthorn, and honeysuckle. ATC would follow the Wis. Admin. Code ch. NR 40 invasive species rules and would implement Transportation and Utility Rights-of-Way Best Management Practices to comply with the applicable rules.

If it is evident that transmission line construction activities could spread invasive plant species to new areas, appropriate protection measures would be implemented. These measures could include: avoidance of infested areas, removal or control of small populations of plants, scheduling construction activities during the plant's dormant period, use of construction matting for avoidance, and cleaning of equipment prior to accessing uninfested areas. A post-construction assessment of these areas would be conducted, and if necessary, the areas would be monitored for up to three years.

Threatened and Endangered Resources

Information concerning the presence of rare species (threatened, endangered, or special concern) in the project area was obtained through a review of the Wisconsin Department of Natural Resources' NHI database. The NHI database notes the presence of 17 non-historic (1970 or later) occurrences of rare species within two miles of the proposed transmission line routes. No designated State Natural Areas are located in the vicinity of the route corridors.

Because the routes are located within a developed landscape, much of the area is comprised of previously disturbed lands with few naturally-occurring communities. Much of the undeveloped areas are impacted by fragmentation, the presence of invasive or non-native species, and direct human impacts. The identification of potential habitat focused on undeveloped and natural areas within the project area. Highly disturbed or developed areas (*i.e.* mowed lawns, developed lands, road ROW) were not investigated.

Subsequent to the review of NHI data, the applicants completed habitat characterizations within and adjacent to the proposed route alternatives and on the proposed substation site. This work was used to evaluate the likelihood that the NHI-listed species would be found within or in close proximity to the route alternatives. Habitat for most rare species is limited.

A detailed characterization and evaluation of the plant communities present along the routes was conducted by ATC during its field evaluation. Based on the review of the area and consultation with a DNR Endangered Resources Specialist, targeted areas determined to have some potential for rare plant habitat were surveyed in detail. One of these areas (Segment 8a) is on the B routes.

During these surveys, the presence of rare plant species was not observed. WEPCO also did not find any rare plant species or their habitats on the proposed substation site.

The review of existing DNR NHI information indicated that several state threatened or endangered species have been identified and mapped in close proximity to the project. A total of 14 threatened or endangered species, including a snake, a turtle, a frog, and 11 plants have been documented in the NHI database or are known or are likely to occur within the project area. Habitat for the snake was previously evaluated in the area. During this evaluation, suitable habitat was identified in the project area.

Because the project has the potential to impact the snake species, ATC should follow avoidance measures for the species. The following measures could be used to avoid harming the snake:

- Locate poles outside of wetland areas and/or suitable overwintering habitat, and complete work during the snake's inactive period from approximately mid-March to November 5.
- Within suitable upland habitat, install exclusion fencing prior to mid-March of each year to prevent snakes from entering the construction work space.
- For poles and construction activity within wetlands use a combination of exclusion fencing followed by snake removals during the snake's active season prior to entry into wetland areas regardless of when construction will occur.

The turtle species generally prefers open or sluggish waters and adjacent wetland communities. Because habitat of this type is not located near the proposed transmission line routes, it is unlikely this species is present. Suitable foraging and nesting habitat for the turtle is not present in or near the project area. Impacts to this species are unlikely to occur. The frog species is no longer present in the project area.

Special Concern Species

The review of existing NHI information indicated that several special concern species have been identified and mapped close to the project area. A total of 21 species, including three invertebrates (a butterfly, a dragonfly, and a crayfish), one amphibian, two fish, and 15 plants, have been documented in the NHI database in the project area.

Potential habitat for the butterfly and dragonfly may be temporarily disturbed by transmission line construction activities. This temporary disturbance would not likely constitute an adverse impact, even if these species are present.

Impacts to the crayfish can be limited by minimizing work in wetland and floodplains. Following the snake avoidance measures would also mitigate crayfish impacts. The frog's habitat is not found along the routes. Implementing strict erosion and siltation control measures at the new substation site during the entire construction period would help protect the fish and other sensitive aquatic species

The special concern plant species were evaluated as part of the rare plant survey. No listed plant species were observed during the survey period. Low to marginally-suitable habitat exists for all of the listed plants along parts of Segment 8a (B routes). Given the disturbance, fragmentation, and the presence of invasive or non-native species within the area, the potential for impact to these species is low. If any of the rare plant species are discovered in project work areas, protective measures should be taken.

ATC would work to minimize potential impacts to rare species by utilizing avoidance and minimization techniques. If for some reason avoidance measures cannot be implemented, ATC would provide supplemental information required for the issuance of an Incidental Take Authorization by DNR.

XI. Cultural and Socio-economic Issues

Historical and Archeological Resources

Wisconsin Historical Society (WHS) databases and records were reviewed to identify the presence of any known archeological or historic resources that may be affected by the proposed project. The records review revealed four recorded archeological sites and one historic property that may be impacted by the proposed project.

Along the proposed east-west routes, two villages/campsites are intersected by Segments 2, 3, and 9b. Segment 4 crosses a burial site, described as containing three burials that are not catalogued. Construction in the area of the burial site would be subject to the requirements of the Wisconsin Burial Sites Preservation Law, Wis. Stat. § 157.70. Segments 13, 14, 16UG, 17UG, and 20UG of the proposed north-south routes cross a recorded village/campsite.

Underwood Creek Parkway was determined to be eligible for listing in the National Register of Historic Places. For the purposes of the eligibility survey, the boundary of the parkway was generally defined to include Underwood Creek, the parkway, and park space along the creek. Segments 3, 8a, 8b, 9a, and 9b cross or are parallel to Underwood Creek within the parkway boundary.

Potential impacts to archeological and historic resources would need to be addressed in accordance with direction from WHS, as WHS may make specific recommendations to avoid or minimize these impacts. For example, additional field investigations could be required for archeological sites. WHS would require that the investigations be conducted by a qualified archeologist able to assess the location, boundaries, and integrity of each site.

Air Space

No airports are located in the project area. A helipad associated with MRMC is located less than 600 feet from an overhead segment of the proposed transmission line. Based on the height of the proposed transmission line and its distance from the helipad, the line would not be considered an

obstruction to air navigation as defined in Federal Aviation Administration regulations for heliports, CFR 14 § 77.23.

Aesthetics

ATC proposes to construct overhead portions of the line using single-pole steel structures with braced post insulators. Typical pole height would be 75 feet, with heights ranging from 60 to 120 feet. Poles would typically be located 500 feet apart, but could range from 260 to 625 feet apart. A 70-foot-wide easement would generally be required.

An overhead transmission line in the highly-developed project area would be visible to many people in the course of their daily activities. This would be especially true for an overhead line along the heavily-traveled USH 45 freeway, and to a lesser degree along STH 100 and Watertown Plank Road. Underground lines are largely hidden, although the cleared ROW may be noticeable in wooded areas. Residential areas are perhaps most sensitive to aesthetic impacts from a transmission line.

The new Milwaukee County Substation would be built adjacent to MCPP. Its location in this setting would reduce its incremental aesthetic impact as compared to a completely undeveloped site. The UWM Innovation Center would be constructed directly west of the substation. Parkland lies further to the north. Trees on a parcel adjacent to the north side of the substation site would help screen it from parkland to the north. Landscaping of the substation site could potentially provide some screening from views to the west and south.

Temporary aesthetic impacts would be experienced during construction. Dust, noise, and traffic congestion could affect areas near construction sites. Dust impacts may be more common for underground construction, due to the greater amount of earthwork required.

East-West Routes

Additional poles would be required for switches near where the new east-west line would tap the existing north-south transmission line between 119th and 120th Streets. These tap facilities would be more visible on Route A than at the tap location for Routes B(1-3). The Route A tap would be located north of Walnut Street, near several homes. The tap for the Route B options, although located at the edge of a residential neighborhood, would be further from nearby homes and effectively screened by more trees. Additional structures and a switch would be located further west along the tapped transmission line, adjacent to a trucking terminal.

An underground line would require transition structures where the line converts from overhead to underground and vice versa. These transition structures would also be a new visual feature in the environment. Two transition structures in or adjacent to residential neighborhoods would be required for Route A. Route B(1) would not require any transition structures. Route B(2) would need a transition structure adjacent to Watertown Plank Road and the UP Railroad. Route B(3) requires a structure adjacent to USH 45, at the edge of the UWM Innovation Park.

As originally proposed by ATC, construction of the underground line along Walnut Street (Segment 1UG), would require the removal of many trees from in front of homes, significantly

affecting the aesthetics of the neighborhood. Also, trees would not be permitted in the ROW for the underground line following construction. Shrubs would be allowed, except near manholes installed for maintaining the underground line. Placing the line beneath the street pavement could save many trees, particularly if it is not necessary to relocate existing utility lines to the area of the ROW outside the curb. Underground construction for other segments within city streets is not expected to impact trees as Segment 1UG might.

Since submitting its application, ATC has had further discussions with the city of Wauwatosa about burying the transmission line in the street. It now appears feasible, and Wauwatosa is agreeable, to burying the line under the Walnut Street pavement. A sanitary sewer line would have to be relocated.

Segments 8a, 8b, 9a, and 9b (Routes B(1-3)) are located in Underwood Parkway, paralleling Underwood Creek. These segments would require the clearing of trees, both landscape trees and volunteer trees, growing along the edge of the creek's concrete-lined channel. The trees along Segment 8b that would be removed now provide additional screening of the nearby heavily-used railroad tracks and the concrete-lined channel of the creek.

Underwood Creek is located in a primary environmental corridor identified by the Southeastern Wisconsin Regional Planning Commission. An environmental corridor assumes a greater resource value in the urbanized project area, given the relative rarity of natural areas. Area residents have observed such wildlife as deer, fox, owls, and woodcock on these lands. Routes B(1-3) would reduce the wooded habitat for these animals.

An overhead transmission line built on Segment 9a (Routes B(1-3)) would be readily visible to users of the Oak Leaf Recreational Trail. The transmission line ROW would be kept clear of tall-growing trees and shrubs, but could be planted to native grasses and forbs to provide habitat and visual interest. The Milwaukee County Parks Department has plans to relocate the trail west of 115th Street to an off-street location from its current location on Underwood Parkway Drive. This would place the trail even closer to the new line, if it is built on Segment 8b. The line's presence could influence the new placement of the trail.

Overhead Segments 3, 5, and 6 of Route A parallel STH 100, USH 45, and Watertown Plank Road, respectively, and would be readily visible to motorists on these heavily-traveled roads. Segments 5 and 6 of Route B(1) would be similarly visible.

North-South Routes

Because Route C(1) is entirely overhead and Route C(2) and Route D are entirely underground, only Route C(3) of the north-south transmission line routes would require a transition structure. The structure would be located adjacent to USH 45, on the western edge of the MRMC campus, between Wisconsin Avenue and Watertown Plank Road.

Burying the underground line beneath the paved street surface would eliminate the long-term aesthetic impacts of those segments. This would be the case for the great majority of the underground route segments proposed for Routes C(2 and 3) and D. Segment 19UG would be

buried on the Milwaukee County Power Plant property. Long-term aesthetic impacts are largely avoided on Routes C(2) and D because they are entirely underground.

Overhead Segments 12a, 12b, 13, and 14 of Route C(1) parallel the USH 45 and would be highly visible to motorists on this heavily-traveled freeway. Segments 12a, 12b, and 13 of Route C(3) would be similarly visible. Segment 6 of Route C(1), which parallels Watertown Plank Road, would be visible to motorists and pedestrians. Segments 11 and 12a would be very close to the Parkside Pool Apartments and the new line would be a prominent feature near the building.

Property Values

The potential impact of new overhead transmission lines on property values has been studied and discussed in the literature. To the extent that potential buyers' negative perceptions of transmission lines may make a nearby property less attractive, it would reduce the pool of potential buyers for a given property, or may increase a property's time on the market before sale. This could somewhat reduce property values near overhead lines. This effect would be expected to diminish over time. If property values are reduced, it might be reflected in lower property value assessments for nearby properties, resulting in a shifting of the relative tax burden to other areas of the affected jurisdiction.

Underground lines would be expected to have a much reduced effect on property values, due to their greatly reduced visibility. Many potential buyers may be unaware that a buried line exists near a property they are considering, so it would not be a factor in their purchase decisions.

For this proposed project, underground lines have been proposed for most locations where the routes pass through residential neighborhoods. The notable exception is the beginning part of the Route B options (Segments 8a, 8b, and part of 9a), along Underwood Creek. Where these lines would be located in the street beneath the pavement, little to no effect on property values would be expected. However, on Segment 1UG (Route A) where tap structures would be needed and ATC has proposed to bury the line on private properties adjacent to Walnut Road, the loss of landscape trees and future landscaping options could potentially affect the appearance of some homes and the future marketability of these properties.

Milwaukee Montessori School and St. Therese Parish

The Milwaukee Montessori School is located between Segments 12b and 12UG. It also runs an associated day care at that location. The school's operators and its associated community of parents, employees, and neighbors are concerned that an overhead line, as proposed for Segment 12b, would drive students away from enrolling in the school, due to concerns about health impacts from magnetic fields, thereby threatening the continued existence of the school. Milwaukee Montessori School has spent significant sums modernizing the school building since purchasing it in 1998.

The potential loss of revenue from renting facilities to the school is also a concern of St. Therese parish, which owns a gymnasium and parking lot used by the school. The parish also claims an overhead line on the west side of the church property would inhibit the use of the church grounds

for such current activities as athletics and church fairs. The parish and school believe that an underground line would not present a threat to the continued current uses of their properties.

Proximity to Residences

Residential buildings are located throughout the project area and are located in close proximity to the route alternatives. Most of the single family homes are located along Segment 1UG on Walnut Road (Route A), on Segments 12UG and 15UG along 95th Street (Routes C(1) and C(3), and on Segment 22UG along 92nd Street (Route D). The numbers of residences along each route are detailed in Tables 2 and 3.

Table 2 Residence Distances from ROW Centerline (East-West Routes)

Route	0-25 ft	26-50 ft	51-100 ft	101-150 ft	151-300 ft	Total
A	0	10	9	4	43	66
B(1)	0	0	1	1	9	11
B(2)	0	0	1	1	9	11
B(3)	0	0	1	1	9	11

On Segment 8b (an alternative to Segment 8a for the B routes), 19 single-family residences are located within 300 feet of the centerline, all between 151 and 300 feet. Using this segment instead of Segment 8a would increase the residence total for the Route B options by 11. In addition, one multi-family residence with greater than 16 units is located between 51 and 100 feet from the centerline of Segment 1UG (Route A) and another similarly sized multi-family building is between 151 and 300 feet from the centerline of Segment 9a (all Route B options).

Table 3 Residence Distances from ROW Centerline (North-South Routes)

Route	0-25 ft	26-50 ft	51-100 ft	101-150 ft	151-300 ft	Total
C(1)	0	0	0	0	7	7
C(2)	0	1	20	5	36	62
C(3)	0	0	0	0	7	7
D	0	2	53	28	84	167

In addition, one multi-family residence with greater than 16 units is located between 26 and 50 feet from the centerline of both Segments 11 and 11UG.

Contaminated Materials

Contaminated materials may be encountered during construction of the proposed project. While most of the identified contaminated sites near the proposed routes and substation are listed as closed in the DNR Bureau for Remediation and Redevelopment Tracking System (BRRTS) database, a closed site does not guarantee that contamination has been entirely removed or remediated. It is possible that excavations may encounter contamination from adjacent properties with contaminated soils that extend beyond the site boundaries, from contaminants that were transported via groundwater flow, or historic contamination that was buried by subsequent development activities and not recorded in the BRRTS database.

It is essential that the construction corridor be assessed for potential contaminants prior to the start of construction, as some contaminants such as metals and polychlorinated biphenyls (PCBs) are not easily detected in the field by simple observation. The applicants would be required to prepare a contaminated materials management plan that would deal with material screening, material testing location and protocols, and the management of construction activities in and around potential contamination. If contaminated material is encountered, the applicants would isolate the soils and conduct testing to determine proper disposal of the material.

The potential for encountering contaminated groundwater would be minimized by environmental site assessment and investigation conducted prior to the start of construction. A contaminated water management plan would describe the location of potential contaminants, the type of contaminants that may be present, the measures that would be taken to isolate the water, analyze samples, transport it off-site, and properly treat and dispose of contaminated groundwater.

The DNR BRRTS database identified active and closed contaminated sites near Segments 4, 7, 10UG, 11UG, 12 UG, 16UG, 19UG, 22UG, 23UG, and at the MCSS site. Areas with a greater likelihood of contamination that may affect construction activities include segments near the intersection of 92nd Street and Bluemound Road (Segment 22UG of Route D), in the proposed UWM Innovation Park area (Segment 10UG of Route B(3)), and along Watertown Plank Road (Segment 23UG of Route B(2)). Other sites listed in the BRRTS database would be less of a concern for this project because the contamination appears to have been limited in size and/or reported no groundwater contamination. Contaminated groundwater is difficult to fully remediate and more likely to impact off-site properties.

Some contaminated sites near the proposed routes have been successfully remediated to the level that they have been significantly repurposed. Such is the case of the former city of Wauwatosa landfill site located along Segment 2, on Walnut Road. Currently, a large apartment complex is being constructed on the property, and the potential of encountering off-site contamination during the construction of this project is low.

Near Segment 10UG is a closed site on a property currently owned by Milwaukee County. Groundwater contaminated with chlorinated solvents, polycyclic aromatic hydrocarbons, and volatile organic compounds (VOCs) were identified at this site. Trench excavation for the underground cables may encounter groundwater and require dewatering. It is unknown whether the groundwater along this segment is contaminated.

Along Segment 22UG, in the vicinity of the intersection of 92nd Street and Bluemound Road, there are three listed contaminated sites, of which two are closed. A gas station is an open site due to petroleum contamination of the groundwater. The underground trenching required for this segment may encounter contaminated groundwater and impact construction activities.

Segment 23UG would be constructed underground along Watertown Plank Road. Several documented contaminated areas are located north and south of the road and may have contaminated the road ROW. Between STH 100 and USH 45, one private business and Milwaukee County Fleet Management activities caused soils to be contaminated primarily with

petroleum products. One of the Milwaukee County sites has reported groundwater and soil contaminated with metals, VOCs, and PCBs in addition to the petroleum substances. South of Watertown Plank Road, near the intersection with STH 100, there are two closed underground storage tank sites. Consequently, there may be contamination issues associated with the construction of an underground trench within the Watertown Plank Road ROW.

The proposed Milwaukee County Substation would be located on the MCPP property, which has four areas of documented contamination. The contamination has affected both soil and groundwater. One of the sources of contamination is a former leaking underground storage tank. The DNR closed this site in 1993. The exact location and levels of residual contamination at the proposed substation site are unknown. Soil borings conducted at the proposed site prior to the start of construction may provide additional information regarding the contamination that may be encountered during construction. WEPCO would comply with DNR requirements in the management and disposal of any contaminated soils encountered during construction of the substation. If dewatering is required, especially as part of the relocation of the existing sanitary sewer line, contaminated groundwater may also be encountered.

Electric and Magnetic Fields

Electric and magnetic fields (EMF) occur whenever and wherever we use electricity. A magnetic field is created when electric current flows through any conductor such as a power line or the electrical wiring in a home. Other sources of magnetic fields include electrical appliances such as power tools, vacuum cleaners, microwaves, computers, electric blankets, fluorescent lights, and electric baseboard heaters. Because there are so many common sources of EMF, we are exposed to a wide variety of magnetic fields every day.

The Commission and its staff have been aware of concerns related to the health effects of EMF for over 20 years. During this time the Commission has been monitoring EMF research and regulatory activity on both the national and international level.

Concerns about exposure to EMF are often raised during power line construction cases. Exposure to power line electric fields was investigated in the early 1970s and no adverse health effects were discovered. In the late 1970s, however, researchers began to focus on exposure to magnetic fields and the potential for adverse human health effects. This issue has yet to be fully resolved because scientific studies investigating the potential human health effects of exposure to EMF have resulted in conflicting findings and interpretations.

Scientists have uncovered only weak and inconsistent epidemiological associations between exposure to power frequency EMF and human health. Several epidemiological studies have shown a statistical association between the risk of childhood leukemia and the kind of electrical wires outside the home. However, other epidemiological studies have found no link to leukemia. Cellular studies and studies exposing test animals to EMF have shown no link between EMF and disease. Taken as a whole, the biological studies conducted to date have not been able to establish a cause-and-effect relationship between actual magnetic field exposure and human disease, nor have scientists been able to identify any plausible biological mechanism by which exposure to power frequency EMF might cause human disease.

Magnetic field levels have been estimated for each of the possible segments of the proposed transmission line. These levels vary from location to location due to differences in current flows, conductor arrangement, and the cancellation effect of fields generated by other nearby electric transmission and distribution lines.

The estimated field levels in the year 2015 at normal loads (80 percent of estimated peak, system in normal configuration) at the proposed centerline would range from a low of 6.2 milliGauss (mG) on Segments 11 and 12, to a high of 107 mG on Segment 23UG. In 2025, those same estimates would be 9.8 and 109 mG, respectively. Segments 11 and 12 would have two distribution lines buried nearby. Segment 23UG would be buried in the Watertown Plank Road ROW and would have an electric distribution line buried five feet away.

There are no existing electric lines at most locations along the proposed routes. Where the proposed transmission line is aboveground and not near existing electric distribution lines, the magnetic field level at normal load is calculated to be 7.3 mG at the proposed centerline in 2015. At 25 feet from the centerline, the field would be 3.8 mG. In 2025, the estimated field levels at the centerline and 25 feet away are estimated to be 11 and 5.6 mG, respectively.

Estimated magnetic fields are generally very low along underground segments, except for directly over the lines. Where there are no other power lines nearby, such as on Segments 1UG and 10UG, the levels at normal loads would be 7.4 mG at the centerline in 2015 and 11 mG in 2025. Field strengths drop off very rapidly with increased distance from the centerline. At 25 or more feet from the centerline, levels would be 1.0 mG or less for both years.

The centerline of the proposed overhead line on Route C(1) comes close to a large apartment building on Segments 11 and 12A. The estimated field levels at normal loads in 2015 would be at a maximum of 19 mG, 25 feet west and south of the centerline, near where a distribution line would be buried. At the centerline itself, the estimated magnetic field reading would be 6.2 mG. The estimated field levels for the existing distribution lines at those same locations are 16 and 2.2 mG today. In 2025, the estimated field levels would be 16 and 9.8 mG.

Segments 11UG, 12UG, and 15UG of Route C(2) pass along the edge of a residential neighborhood and near the Parkside Pool Apartments, the Milwaukee Montessori school, and St. Therese Church. Magnetic fields at normal loads at the proposed centerline of these segments would range from a low of 7.0 mG to a high of 9.8 mG in 2015. In 2025, those same estimates would be 11 and 12 mG. Currently, fields at normal load from existing nearby distribution lines are calculated to range from 1.4 to 9.8 mG at the proposed centerline and from 0.19 to 11 mG at 25 feet from the proposed centerline.

Segment 22UG of Route D passes many homes along 92nd Street. Magnetic fields at normal loads at the proposed centerline of Segment 22UG would range from a low of 7.4 mG to a high of 13 mG in 2015. In 2025, those same estimates would be 11 and 16 mG. Currently, fields at normal load from existing nearby distribution lines are calculated to range from 0.36 to 11 mG at the proposed centerline and from 0.4 to 27 mG at 25 feet from the proposed centerline.

Underground Construction - Methods and Segments

ATC has proposed that some route segments be constructed underground for reasons of reliability, aesthetics, and limited ROW availability. ATC would construct the underground segments between May and October of 2014. Construction within some road ROWs would be timed to coincide with WisDOT planned road construction. Members of the public have also suggested that some of the planned overhead segments be constructed underground, as well as some entirely new segments. Improved visual aesthetics is the most commonly cited reason for burying transmission lines. However, it is also necessary to consider the construction impacts associated with undergrounding transmission.

Transmission lines can be constructed underground by way of open trench construction, jack and bore, or horizontal directional drilling. Both jack and bore and horizontal directional drilling are used for crossing under an obstacle and where open trench construction would be infeasible or prohibited. Each of the three construction methods can cause significant surface disturbance.

Regardless of the construction technique, special structures are necessary at each location where the conductors transition from overhead to underground. Each overhead/underground transition structure costs approximately \$380,000 for a standard configuration with one switch structure and one riser. The structure is generally larger and aesthetically more prominent in the landscape than a standard overhead structure. The structure would have a foundation diameter of five to eight feet and be approximately 74 feet tall. This is slightly larger than a typical aboveground structure with a concrete foundation four to six feet in diameter.

Underground transmission construction is more costly and can disturb larger areas of the ground surface than overhead transmission construction. Underground transmission construction costs between four and 14 times more than overhead line construction of the same voltage and length. Problems with underground lines can take weeks to months to repair, while overhead lines can take hours to days. The life expectancy of the typical underground conductors is around 50 years compared to 80 years for the useful life of a typical overhead transmission line.

Underground construction activities would impact local road and trail use and impede the use of public spaces until post-construction restoration is complete. Because construction would take place during the summer/early fall period, noise and dust associated with construction activities and equipment traffic might have a greater impact on adjacent residences, businesses, and people who enjoy outdoor activities in the vicinity. ATC would work with local property owners and municipal governments to minimize the disruption. Property owners would be notified approximately one to two weeks prior to the start of underground construction.

Restoration of underground transmission easements would be limited to low-growing vegetation, without significant underground root structures. Small woody species such as shrubs are possible, though the area near aboveground facilities (i.e., manholes, transition structures) must remain clear to allow access for maintenance. ATC would work with property owners to manage post-construction plantings in the ROW.

Open Trench Construction

Typical open trench construction for this project would consist of a trench approximately 3.5 feet wide and six to eight feet deep. Generally, a 20-foot-wide permanent easement and an additional 30-foot-wide temporary easement, for a total of 50 feet, would be needed for construction of underground segments. The trench would be located in the permanent easement. The temporary easement would be used for construction equipment, such as loading and unloading of dump trucks and concrete trucks, as well as ROW access. In areas where underground segments would be constructed in public roadways, no additional temporary easement may be necessary and the 20-foot-wide permanent easement may be sufficient. However, in locations where vaults would be constructed and where obstacles exist, the construction easement would be wider.

Where the transmission line would be constructed in unpaved areas, all shrubs and trees would be cleared from the travel path and the area to be trenched. An excavator or a backhoe would strip off and segregate topsoil and stockpile the soil for later reuse; the subsoils would be hauled off-site for disposal. The underground transmission cables for this project would be installed in three foot by three foot concrete duct banks. Then the trench would be backfilled with thermal fill and the segregated topsoil replaced at the surface. In many instances, groundwater would be encountered during the trenching. In accordance with DNR permits, groundwater may be pumped from the excavation to a suitable upland area or pumped directly into a tanker truck for transport to a proper location for release or disposal. Potential contamination of subsoils and groundwater further complicates the removal and disposal procedures.

Open trench construction also requires that large underground vaults be constructed near each transition structure and at approximately 1,385-foot intervals along the underground route. The vaults are approximately 12 feet wide, 25 feet long, and 10 feet tall. At the vault locations, the trench would be enlarged to 15 feet wide by 12 to 15 feet deep for a length of 30 feet. The temporary construction easement at these locations would be widened to 30 feet.

Urban road ROWs often contain a variety of underground obstacles, such as existing utilities, railroads, natural features, topography, major roadways, or underpasses. The trench might need to be deeper and wider to avoid underground obstacles. ATC has stated that it would make minor adjustments to the alignment to prevent impacts to existing utilities. Additionally, if the route cannot be modified to avoid impacts, other options include relocation of an existing utility or constructing the duct bank below the existing infrastructure. When trenches are excavated deeper than anticipated, the trench must be widened for stability purposes.

Approximately 500 feet of duct bank can be constructed per day. Traffic control measures and partial street closings would be anticipated, until construction is completed. Steel plating would be used over the excavated trench so that streets can be crossed and driveways remain usable during most periods of construction. ATC would coordinate with municipalities and potentially affected residents and business owners regarding street and driveway access. In streets or areas where open trench construction is not allowed, jack and bore construction would be utilized.

Jack and Bore Installation

Jack and bore is used to cross under an obstacle of limited length. The method is best used for constructing under surficial obstacles such as wetlands, waterways, highways, and railroads. It is not recommended for use in areas with sandy, loose soils (non-cohesive). Additionally, jack and bore construction is not recommended to avoid impacts to wooded areas due to the sizeable construction areas required and the possible negative impacts to large tree roots from the augering of the large borehole.

This construction method involves excavating entrance and exit pits on either side of an obstacle that are deep enough to accommodate the boring equipment. The size of the construction area that must be cleared is usually proportional to the diameter of the bore, its maximum depth, and the length of the bore. A large lay down area is necessary to weld the pipe together prior to its installation into the bore hole. ATC anticipates the construction footprint on the entrance (sending) side would be approximately 70 by 30 feet within which a 40 by 10-foot bore pit would be excavated. On the exit (receiving) side, the construction footprint would be approximately 50 by 30 feet within which a bore pit of 20 by 10 feet would be excavated. The borehole for this project would be approximately 4 feet in diameter.

On the sending side, a hydraulic ram is used to push a steel casing through the soil. An auger inside the casing removes the spoils. After the steel casing has been installed, the steel casing is then replaced with a non-metallic casing. PVC conduits are held in place by plastic spacers and are slid into the non-metallic casing. A thermal grout is then used to fill the spaces between the conduits and the casing.

Space limitations in urban areas make jack and bore techniques problematic due to the sizeable laydown areas necessary. In undeveloped areas, the large laydown areas create unavoidable impacts to wetlands and woodlands.

Horizontal Directional Drill Installation

Directional drill construction is also used to cross under obstacles, but is generally used for much longer distances. The construction method uses a guided drill head to open the initial hole from entry to exit. Then a series of increasingly larger drill bits bring the opening to the desired final diameter. When the hole is the specified diameter, the conduits are bundled together and pulled through the hole. The depth of the bore is dependent upon the width of the obstacle and the entry and exit angles. The minimum depth of the bore is typically 20 feet. ATC estimates that the borehole diameter that would be used for this project would be approximately four feet.

The construction area required for directional drilling is larger than that required for jack and bore construction. The entry side of the borehole would be approximately 150 feet long by 75 feet wide and the exit staging area would be approximately 100 feet long by 65 feet wide, with an additional pipe laydown area of 50 feet wide by the length of the bore. The lengthy laydown area is required for assembly of the pipes prior to installation.

Proposed Underground Segments

ATC has cited cost and minimization of construction impacts in proposing mostly open trench construction methods for the proposed underground segments. Where open cut construction would not be possible, ATC proposes to install the cables using the jack and bore method.

Segment 1UG would require 0.35 mile of underground construction along Walnut Road. This segment is proposed to be underground because the road is too narrow to accommodate aboveground transmission easements. ATC's application initially proposed that the line be constructed within the road ROW north of the paved street surface, as a single circuit 138 kV line with two solid dielectric cables per phase, for a total of six cables. Due to the lack of a sidewalk, the Walnut Road residential properties are fully landscaped up to the curb, including within the city ROW, creating a tree-lined residential neighborhood street. Construction north of the paved surface would require the removal of numerous trees and significantly change the character of the neighborhood.

ATC originally cited concerns raised by the city of Wauwatosa over the safety of the existing water and sewer mains as a reason why the transmission line could not be constructed under the paved street. However, the city of Wauwatosa now states that there is a way to construct the transmission line within the paved street, by relocating a city sanitary sewer line. Impacts of this alternative have not been fully addressed by ATC.

Other underground construction options, such as directional drilling, might save some trees in landowner's front yards. However, there would be other impacts associated with the large construction setup and laydown areas that would be needed. Directionally drilling north of the paved street would require significant vegetation clearing at the entry and exit setup areas and for parts of the laydown areas. The borehole would be below most, but not all, tree roots and may impact trees where it is shallower at the entry and exit points. This method is likely to be more expensive and may not be advisable in an area with utility obstacles.

Members of the public have requested that parts of Segments 8a, 8b, and/or 9a of the B routes be constructed underground for aesthetic reasons. ATC, at the request of the PSC, analyzed a combination of approaches, including jack and bore and directional drilling. The undergrounding of Segment 8a would greatly disturb the wooded wetland north of the railroad tracks. Problems associated with directional drilling or open trench construction of Segments 8b and/or 9a up to the Union Pacific rail line include tree clearing in the wetland, lack of available construction areas, and increased costs. Furthermore, any underground construction of Segments 8b and 9a must contend with the offset in the route at the 115th Street crossing and the engineering limitations of curving underground transmission cables.

Segment 10UG would be constructed adjacent to a future street in the UWM Innovation Park development and would connect to the proposed WEPCO Milwaukee County Substation. Approximately 20 feet of new ROW would be required. The segment would disturb approximately 0.04 acres (1,800 square feet) of wet meadow wetlands. Approximately 15,000 cubic feet of excavated materials would be excavated from all the wetland crossings for this segment. DNR permits are necessary for management of wetland impacts. For underground construction within wetlands, matting would be used for equipment access. Clay liners/plugs

(i.e. trench breakers) would be used in wetlands approximately every 50 feet to ensure that the trench does not drain the wetland. Otherwise, construction work would occur as in upland areas.

Segments 11UG, 12UG, and 15UG of Route C(2) proceed north from the 96th Street Substation, through the parking lot of an apartment complex, to 95th Street, where the line would continue north in the southbound lanes (western portion) of 95th Street to Wisconsin Avenue. At that point Segment 15 turns and proceeds east in the Wisconsin Avenue ROW to 94th Street. Segments 12UG and 15UG would be constructed within the paved portions of the street. Some of the transmission line ROW for Segment 15UG would overlap the USH 45 ROW. Temporary construction ROW would be 20 feet wide. These route segments pass in front of an apartment complex, the Milwaukee Montessori School, and the Saint Therese Church, all three of which have expressed a desire to have the line underground rather than aboveground. There would be temporary noise and dust disturbance to apartment residents and visitors to the church and school. However, building users have indicated that these temporary construction impacts would be preferable to the perceived impacts of a visible, aboveground transmission line.

Segments 16UG and 17UG would be constructed through the MRMC campus, between Wisconsin Avenue and Watertown Plank Road, following parts of 94th and 95th Streets, with short crossings of lawn areas. Use of these segments takes into account future plans of the campus and the WISDOT's planned expansion of USH 45. Lane closures would be necessary during construction.

Segments 23UG and 18UG of Route B(2) are located within the Watertown Plank Road ROW. The alignment is within the road ROW, but varies between the paved street and the area just south of the street. Watertown Plank Road is a highly developed area. During construction, there would be some disruption of traffic flow due to temporary lane and sidewalk closures.

Segments 21UG and 22UG of Route D connect to Segment 16UG just north of Wisconsin Avenue. Route D proceeds east from the 96th Street Substation site, turning to continue north in the northbound lanes of 92nd Street. All work would take place within the street ROW. The transmission line would stay in street ROW as the route curves west and north along Michigan Street, then west along Wisconsin Avenue. 92nd Street is a divided residential street with some businesses at its intersection with Bluemound Road. There are mostly medium-sized landscape trees in the median and between the sidewalk and curb. Some trees would be removed by the proposed construction.

Segment 20UG of Route C(3) connects overhead Segment 13 to underground Segment 17UG. This underground segment is on new ROW through a mowed grass area between the MRMC campus and the USH 45 ROW.

Segment 19UG is a connecting segment between Wisconsin Avenue and the proposed Milwaukee County Substation. Approximately 20 feet of new ROW would be required for the proposed underground segment. The route crosses the Milwaukee County Power Plant property owned by WEPCO.

Other Potential Underground Routes

Various entities have suggested undergrounding all project transmission lines, undergrounding certain proposed overhead segments, or adding several alternative underground segments. The city of Wauwatosa has requested that ATC analyze alternative routes that include burying segments along 119th Street, Diane Drive, and Watertown Plank Road west of the CP Railroad. Residential areas along these narrow, tree-lined streets would experience impacts similar to those associated with Segment 1UG along Walnut Street. Undergrounding more of the route along Watertown Plank Road would require directional boring or jack and bore construction in order to cross Underwood Creek, the Watertown Plank Road bridge, and the railroad tracks. The added cost and required horizontal space necessary for pipe assembly and the entry and exit pits associated with this type of construction are a concern for these options.

Finally, the Milwaukee Montessori School has suggested a slightly more direct underground alternative to Segments 11UG, 12UG, and 15UG. The southern end of Segment 11UG and the northern end of Segment 15UG are the same as for the ATC-proposed Route C(1) but the middle portion of this alternative route would cross through the parking lots of the Parkside Pool apartment building, the Saint Therese Church, and the Montessori School instead of being buried in 95th Street. The alternative would continue north of Bluemound Road through a property that is USH 45 ROW. ATC refers to this alternative as Route C-Alt-1. This alternative may have the advantage of a slightly reduced cost and less construction impact to 95th Street traffic. However, the cost savings may not be realized if jack and bore construction is necessary to cross under the USH 45 ramp from Wisconsin Avenue.

The estimated field levels in the year 2015 at normal loads (80 percent of estimated peak, system in normal configuration) at the proposed centerline would range from a low of 6.2 milliGauss (mG) on Segments 11 and 12, to a high of 107 mG on Segment 23UG. In 2025, those same estimates would be 9.8 and 109 mG, respectively. Segments 11 and 12 would have two distribution lines buried nearby. Segment 23UG would be buried in the Watertown Plank Road ROW and would have an electric distribution line buried five feet away.

XII. Contacts

The PSC sent a project notification letter to all potentially affected landowners and local officials. The PSC received many comments voicing concerns about health impacts and impacts to residential properties, Underwood Parkway, the Monarch Trail, Milwaukee Montessori School, and Saint Therese Church from area residents and public officials. Milwaukee County objects to the use of county park land for a transmission line. The city of Milwaukee endorses underground routes on either side of the Milwaukee Montessori School. The city of Wauwatosa is also supportive of buried lines.

In addition, the following information was received from local and state agencies:

- Tom Chapman, Milwaukee Metropolitan Sewerage District—provided information about possible future restoration of Underwood Creek

- Kevin Haley, Landscape Architect, Milwaukee County Parks Department—provided information about the Oak Leaf Trail
- Shari Koslowsky, DNR Bureau of Endangered Resources—provided information on potential threatened and endangered species impacts in the project area
- Lori Steckervetz, DNR Bureau of Endangered Resources—provided information on potential threatened and endangered species impacts at the Milwaukee County Substation site
- Tamara Szudy, Principal Planner, city of Wauwatosa—provided information concerning future plans for lands near the routes

XIII. Summary and Conclusion

Wisconsin Admin. Code § PSC 4.20(2)(d) identifies ten broad factors, which are useful to consider when evaluating whether an EIS is warranted for a given Commission action. The following subsections will discuss each of the ten factors with respect to this case.

Effects on geographically important or scarce resources, such as historic or cultural resources, scenic or recreational resources, prime farmland, threatened or endangered species, and ecologically important areas

If proper precautions are taken, rare species and plant communities should not be harmed. The substation site does not support rare species habitat.

Impacts on archeological sites should also be negligible if the recommendations of WHS are followed. Proper transmission line siting, construction methods, and adherence to DNR permit conditions would minimize impacts to wetlands and streams.

The designated primary environmental corridor along Underwood Creek could be adversely affected by the permanent loss of some wooded wetlands and upland trees. In addition, the visual character of the corridor would be altered by the presence of overhead poles and conductors. Continued use of the portion of the Oak Leaf Trail in the project area would not be inhibited, but its visual character would change.

Conflicts with federal, state, or local plans or policies

The project does not conflict with any known federal, state, or local plans or policies, although some transmission line segments would be located on county park land and installation of overhead utilities is not in harmony with Milwaukee County's policy. Although the routes proposed by ATC follow some residential streets within the cities of Milwaukee and Wauwatosa (primarily because of the proposed interconnection points), they also share corridors with railroads and highways to the extent possible, thereby adhering to the state policy of maximizing the use of existing corridors in routing transmission lines.

Significant controversy associated with the proposed action

Notice of the proposed project was sent to city and county government offices and local media, in addition to all potentially affected landowners. Although the proposed project is more controversial than most projects of this size, the concerns expressed are not unusual for transmission lines proposed in densely developed urban areas. A number of solutions and mitigation measures to reduce the potential impacts have been brought forward by the applicants and other interested parties.

Irreversible environmental effects

Few aspects of the proposed project would be truly irreversible, although reversing project actions would be costly and unlikely, once constructed. Fuel consumed in construction would be irreversibly committed and unavailable for other uses. The potential loss of some wooded wetland habitat adjacent to Underwood Creek if Segment 8a is used would be permanent as long as the line was in place.

New environmental effects

Constructing the new 138 kV transmission lines and the new substation would not result in any new type or form of environmental effects. These are common activities of utilities in the electric industry.

Unavoidable environmental effects

Transmission line and substation construction would result in temporary disturbance to soils, vegetation, and animal life at construction sites. Also, short-term traffic congestion could occur if underground construction options in road ROWs are chosen. Short-term noise and visual impacts during construction would be unavoidable. Ongoing visual impacts would be caused by the new facilities. Tall-growing trees within the overhead transmission line ROW would be removed. Trees would not be allowed in the underground transmission line ROW.

Precedent-setting nature of the proposed action

The proposed project would not set any precedents. Utilities frequently build new transmission lines and substations to provide reliable transmission service. Underground construction of relatively low-voltage transmission lines in highly developed urban areas is not uncommon.

Cumulative effect of the proposed action when combined with other actions and the cumulative effect of repeated actions of the type proposed

The overall cumulative effect of repeated actions of this type is normally considered minor. In general, constructing transmission lines within existing transportation corridors (rather than pursuing new ROW) is considered beneficial. Building facilities to provide reliable electrical service can facilitate area growth and land development, as can the provision of other public services.

The building of new transmission facilities on park land and overhead through residential neighborhoods could have a substantial cumulative effect if the utility corridor is upgraded in future years or this practice becomes commonplace.

Foreclosure of future options

The proposed projects are mostly compatible with existing land use plans in the area, although Milwaukee County opposes the siting of the proposed transmission lines on county-owned park land. Careful siting of poles along Underwood Creek could allow for restoration of the creek to its historic bed, although the adjacent wooded wetland community would be partially removed and subject to further degradation. Construction of an overhead transmission line on Segment 4 could constrain the redevelopment of county lands in the northwest quadrant of the junction of USH 45 and Watertown Plank Road.

ATC has stated its commitment to work with WISDOT and within WISDOT's accommodation policy for utility facilities.

Direct and indirect environmental effects

The direct environmental impacts of upgrading the transmission line would include changes to the visual environment, including the physical presence of transmission poles and conductors and the loss of trees. The land occupied by the new substation would be removed from its current use. Soil erosion could occur at construction sites. The use of appropriate mitigation techniques could greatly reduce direct impacts to both sensitive resources and agricultural operations.

The indirect effects of the project may be less obvious. They would include the following:

- Invasive species could be introduced to wetlands and woodlands adjacent to the new transmission lines as a result of construction activities.
- The extra reliability and service capacity afforded by the upgraded transmission system would make power interruptions and voltage drops less likely in the area at times of peak electric demand. This would help avoid the shutdown of or damage to electrical machinery and appliances, reducing disruptions to electric customers. The MRMC would continue to receive electric service at the highest reliability standards.
- Transmission lines along or within residential streets that result in the loss of mature trees could make the neighborhoods less desirable.
- Development and growth in the area would be supported electrically.
- Magnetic field levels along the route of the new transmission lines and nearby distribution lines would change.

Conclusion

Transmission line construction would create temporary visual and noise impacts, while longer-term visual impacts would be caused by the physical presence of the new line and the potential loss of landscape trees in residential neighborhoods. Underground construction could create dusty conditions and short-term traffic congestion. A transmission line along USH 45

would be highly visible to motorists and a line along the Oak Leaf Trail would be highly visible to trail users.

A transmission line using Segment 8a (B routes) would require permanently clearing 2.36 acres of woodland (0.92 acres of wooded wetland) in the Underwood Parkway. About 2.3 acres of old field grassland habitat at the Milwaukee County Substation site would be permanently lost.

A transmission line built on Segment 4 could constrain the redevelopment of county lands in the northwest quadrant of the junction of USH 45 and Watertown Plank Road.

Some impact summary data for ATC’s proposed routes are shown in the table below. The numbers listed for the plant communities are the acreages that could potentially be affected by construction of the proposed transmission line.

Table 4 Impact Summary Data

Route	Length (miles)	Grassland (acres)	Upland Forest (acres)	Wetland (acres)	Dwellings within 300 feet
A	2.2	4.03	2.17	0.77	67+
B(1)	2.0	5.47	4.84	0.98	12+
B(2)	1.8	2.34	2.70	0.92	12+
B(3)	1.9	4.41	3.00	0.96	12+
C(1)	1.4	4.14	1.39		8+
C(2)	1.3	0.14	0.04		63+
C(3)	1.3	3.28	0.01		8+
D	1.5	0.14	0.05		167

+ Values include one large (more than 16 units) multi-unit building, which is counted here as one dwelling.

In summary, the need for the proposed project does not appear to be controversial for this case—the electric reliability required by MRMC and the planned growth in the area make a compelling case for additional electric support. ATC has worked with local agencies and organizations, as well as the city of Milwaukee and WisDOT, to design routes that mitigate community and natural resource impacts to a great extent. Because of the density and diversity of development types within the project area, some short- and long-term impacts would be unavoidable.

The proposed routes, and variations of those routes that have been offered in comments and testimony offer trade-offs that can minimize or avoid most major social or natural resource effects. The proposed project would set no precedents. The overall environmental impacts associated with this project would not have a significant effect on the human environment. Therefore, preparation of an EIS is not necessary.

RECOMMENDATION:

X No significant impact. Environmental review complete. Preparation of an environmental impact statement is not necessary.

_____ Prepare an environmental impact statement.

Submitted by: Paul Rahn

Title: Environmental Analyst

Date: October 5, 2012

This environmental assessment complies with Wis. Stat. § 1.11. and Wis. Admin. Code § PSC 4.20.

By: *Kathleen J. Zuelsdorff*

Kathleen J. Zuelsdorff, WEPA Coordinator

Date: October 29, 2012

KJZ:PRR:jlt:D:00602236

Attachment