

Appendix I:
Information Related to Preferred, Alternative, and
Considered but Eliminated Segments

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Considered but Eliminated Segments

Summary

The route identification process for the CapX2020 Hampton – Rochester – La Crosse 345 kV Transmission Line Project (Project) was conducted over 24 months between summer 2007 and summer 2009. The following text describes how potential route segments were identified, compared, and eliminated or selected for inclusion in a final Preferred or Alternative Route as part of the Route Permit Application (Application). An index map for the route sections described in the chapters that follow is located in Appendix J, Figure J-1. All segments associated with the Preferred and Alternative Routes as well as those considered but eliminated are shown on Figures J-2, J-3, J-4, and J-5 in Appendix J.

Table 1-1 describes routing concepts and terminology used for the purposes of this report.

Table 1-1: Routing Terminology

Routing Term	Description/Definition
Route Segments	Discrete segments where the transmission line may be routed, located primarily along existing linear infrastructure or property lines. Segments are named with letter/number combinations depending on their geographical location. Segment combinations of multiple, connecting segments are noted in the text as A1-A2-A3-A4, etc.
Route Section	Discrete midpoints or endpoints that contain multiple potential routes. Combinations of route segments can be compared within a single route section to identify a Preferred and Alternative Route within that route section. Preferred and alternative routes within multiple route sections can be combined to perform an end-to-end analysis of a route to and from project endpoints.
Preferred/Alternative Route	Routes that are being proposed for the Project in the Minnesota Route Permit Application.

1.0 Hampton-North Rochester 345 kV Section

1.1 Hampton Substation Area

The Hampton Substation is the northern endpoint for the Hampton-North Rochester 345 kV section. The Hampton Substation was proposed as part of the Brookings County to Hampton 345 kV Project (Brookings Project), and serves as the northeastern endpoint for that project. The exact location where the Preferred and Alternative Routes would exit the Hampton Substation will depend on the final site selected for the Hampton Substation.

The Applicant's Preferred Route was identified as A3-A5 along the east side of US Highway 52 (US 52) to the intersection of US 52 and Minnesota Highway (MN) 56. These route segments were chosen as preferred because they are located along an existing major transportation corridor. A5 deviates slightly from US 52 to avoid a cluster of commercial buildings located next to the roadway, and at the US 52/MN-56 interchange to allow for coordination of structure placement with the Minnesota Department of Transportation (Mn/DOT). A10 is located on the west side of US 52 for approximately 0.7 miles to avoid farms and residences located on the east side of the road. The Preferred Route overlaps with the Brookings Project's Alternative Route. The Preferred Route is shown on Figure J-2 in Appendix J.

Alternative Route segments for the Project were identified approximately 1.0 mile east of US 52. These segments are located on the opposite side of US 52 from the Brookings Project's routes to provide sufficient distance between the two transmission lines should the route permit be issued for the Brookings Project's Alternative Route. The route segment combination A194-A193-A151-A150-A122-A6-A8 was chosen as the Alternative Route exiting the Hampton Substation. This route combination follows mostly parcel lines and field lines, and avoids interruption of agricultural operations wherever possible. Slight angles were added along segment A6 along 240th Street E and just south of Lewiston Blvd. to increase distance from a residences located along these roads. Segment combination A176-A177 was identified as part of the Alternative Route to allow access to either the US 52 or MN-56 corridors from the Alternative Route from the Hampton Substation. A177-A176 follows a property line for most of its length. The Alternative Route is shown on Figure J-2 in Appendix J.

Segments in this area that were considered but eliminated are shown on Figure J-2 in Appendix J. Segment A2 was originally identified because it followed a field line, but was eliminated due to proximity to residences. Segment A4 was eliminated to avoid significant overlap between the Preferred and Alternative Routes, and the Brookings Project Alternative Route. Segments A121, A7, and A123 were eliminated because the segments result in a longer route that follows a lower percentage of parcel lines and would necessitate more corner structures than the segment combination A122-A6-A8. Segments A173 and A153- A154 were eliminated because they would follow parcel lines for a shorter distance and necessitate more corner structures than A177-A176. Segment A168 was considered but eliminated due to proximity to residences. Segments A11, A12, A13, and A175, located on the west side of US 52, were eliminated because the Preferred Route follows US 52, and the Alternative Route connected with the MN-56 corridor south of the A11/A12/A13 area. Additionally, route segments chosen for the Alternative Route

are located on the east of US 52 so as to allow for a sufficient distance between the Hampton – Rochester – La Crosse Project and the Brookings Project.

1.2 US 52 Corridor – Preferred Route

An alignment that would parallel US 52 was chosen as the Preferred Route in the Hampton-North Rochester 345 kV section for several reasons. US 52 offers the most direct route between the Hampton and North Rochester Substation siting areas, and serves as a major transportation corridor in southeast Minnesota. Furthermore, an existing 69 kV transmission line owned by Xcel Energy parallels the road between Cannon Falls and Zumbrota. The Preferred Route along US 52 would follow the existing 69 kV transmission line for approximately 16 miles. Utilizing existing transmission and transmission corridors is a high priority in Minnesota's non-proliferation siting priorities. Segments that comprise the Preferred Route in this area are A155-A17-A19-A192-A39-A119-A40-A134-A135-A9-A77.

Route segments that would deviate from US 52 and the existing 69 kV transmission line were eliminated in favor of utilizing existing linear corridors. At the Cannon River crossing, this strategy is consistent with Minnesota Department of Natural Resources (MDNR) recommendations that "any crossing of the Cannon River utilize an existing corridor, with the preferred locations adjacent to Highway 56 or Highway 52" (MN DNR 2009). Segments A18 and A20 were eliminated because they did not follow existing linear corridor across the Cannon River.

The Applicant identified a preferred substation siting area in the southern portion of the North Rochester Substation siting area. A Preferred Route was identified west of US 52 that would avoid more densely populated areas of Zumbrota, including US 52 where residences occur on both sides of the highway. The Applicant identified several route options west of Zumbrota between US 52 and the preferred siting area within the North Rochester Substation siting area. The route segment combination A41-A138-A139-A43-A143-A106-A95-A97-A184 was identified as the preferred segment combination because it would follow parcel lines for the majority of its length, follow an existing transmission line for 2.5 miles and there would be no residences within 150 feet of the centerline. Only segment A43 would deviate from parcel lines, to increase the distance between the preferred alignment and a home and farm buildings.

Figure J-2 in Appendix J shows routes segments in this area that were considered but eliminated. Segments A124, A80, A69, and A101 were eliminated because they would likely increase the overlap between the Preferred and Alternative Routes approaching the North Rochester Substation siting area, and because other routing opportunities existed to the east that followed property lines. Other route segments were considered but eliminated because they were located in proximity to more residences (A124, A79, A81, A78, A82, A140, A86, A89 A91, A98, A84, A85, and A182), or appeared to have the potential to interrupt agricultural operations (A83-A89-A92, A137-A90, A141, A142, A144).

1.3 MN-56 / MN-60 Corridor – Alternative Route

MN-56 between Cannon Falls and Kenyon, and MN-60 between Kenyon and Zumbrota, are major transportation corridors that together connect the proposed Hampton Substation siting area with the proposed North Rochester Substation siting area. In accordance with Minnesota rules and policy that require consideration of existing transportation corridors in the routing of new high-voltage transmission lines, the MN-56 and MN-60 corridors were included in the Project Certificate of Need (CON) notice corridors, and the preliminary macro-corridors as an alternative to the Preferred Route that parallels US 52 for the majority of its length.

Route segments along these corridors are discussed in three sections; Intersection of US 52/MN-56 to the Cannon River, Cannon River to Kenyon, and Kenyon to the North Rochester Substation siting area. Figure J-2, Appendix J shows all segments along the MN-56 corridor, and Figure J-2, Appendix J shows all segments along the MN-60 corridor.

1.3.1 Intersection of US 52/MN-56 to the Cannon River

Segment combination A14-A157-A159 was identified as the Alternative Route in this area. Segment A14, which follows a railroad corridor and parcel lines, was selected because it had no residences located within 150 feet of the route centerline but still followed an existing linear feature. Plans exist for an industrial park along the abandoned railroad grade where segment A14 is proposed. Industrial land uses are generally considered more compatible with transmission line routing when compared to residential land use, and transmission line easements are often incorporated into building setbacks and parking areas.

Segment combination A157-A159 was identified and added for consideration in early 2009 to provide an alternative that did not cross Lake Byllesby Regional Park. Segment A159 would follow parcel lines along the Dakota/Goodhue county boundary. The segment combination borders, but does not cross, the western boundary of Lake Byllesby Regional Park, away from potential developments identified in the Master Plan. The segment combination would minimize impacts to residences and would cross the Cannon River at a narrow point such that the river can be spanned

Segments that were considered but eliminated in this area are shown on Figure J-2 in Appendix J. Segment A16 would parallel MN-56, but was eliminated because there are three residences located within 150-feet of the route centerline. Three alternative segment combinations were identified to cross the Cannon River. Segment combination A23-A25 would follow MN-56, segment combination A156-A21-A23-A24 would follow Dixie Avenue to the Cannon River and would follow an abandoned railroad grade on the south side of the river, and A158-A22 would not follow existing linear features. All three options would cross Lake Byllesby Regional Park, managed by Dakota County. Segment A25 would also pass near a parcel of Byllesby County Park, managed by Goodhue County. In a letter to the Applicant dated January 9, 2009, MDNR recommended that “any crossing of the Cannon River utilize an existing corridor, with the preferred locations adjacent to MN-56 or US 52.” Although Segment A25 does follow along the east side of MN-56, it crosses approximately 0.5 miles of West Byllesby Park. The Lake Byllesby

Regional Park Master Plan (Dakota County 2005) identifies this area as a bird viewing hub, with potential for developments such as bird blinds, informational kiosks, parking, picnic shelter, a residential learning center, and a boardwalk. Although construction of the proposed transmission line and associated 150-foot right-of-way (ROW) clearing on the east side of the highway in this area would not impede these developments, the Applicant identified another Cannon River crossing that would not cross Byllesby Park. Another factor in not proposing the MN-56 river crossing is the route segments south of the river (A22-A26-A103) have more residences in close proximity, do not follow property boundaries as well and fall within an area of concern for the Stanton airfield.

1.3.2 Cannon River to Kenyon

The Applicant assessed several roads, including MN-56 and country roads, between the Cannon River and Kenyon for routing feasibility consistent with the approach used for US 52. In this area, however, residences are more prevalent and are located close to roads. In the judgment of the Applicant, mid-section property boundaries (or parcel lines) are more appropriate transmission line routes in this area. This approach maximizes the distance from homes, a consistent message heard in public comments.

The Applicant assessed property boundaries in this corridor for routing opportunities and identified three long route segments (A46, A47, and A48) along the MN-56 corridor that would maximize the use of parcel lines or field/fence lines and minimize impact to residences. These options also avoided natural resources in this area, which includes a large wetlands complex associated with the Warsaw WMA. Segment A46 is located 0.25 miles west of MN-56 and would follow property lines for approximately 67 percent of its total length (9.29 miles). A46 also passes 0.25 mile west of the westernmost boundary of the Nansen Agricultural Historic District, which is listed on the National Register of Historic Places (NRHP) as a historic district.

Segment A47 would parallel MN-56 for approximately 0.5 mile and would follow property boundaries for approximately 70 percent of its total length (9.49 miles). Segment A47 also borders the Warsaw Wildlife Management Area (WMA) and passes through wetlands adjacent to the Warsaw WMA which are greater than 1000 feet in width and would not be spannable by the proposed transmission line. Several residences are clustered around the Warsaw WMA and wetland areas, and it would be difficult to avoid impact to resources and residences in this area. Segment A47 also crosses the most upland forest and therefore would likely require the most tree clearing.

Segment A48 would follow property lines for approximately 89 percent of its total length (10.5 miles). A48 would follow 5th Avenue Way through the municipal boundary of Dennison approximately 0.3 miles east of residential developments. Segment A48 would be located within one mile of the Veblen Farmstead near Nerstrand, a historic farmstead which is listed on the NRHP. Segment A48 would also cross a native plant area which has been identified by MDNR as having outstanding biodiversity.

The Applicant proposed segment A48 as the alternate route because it minimizes impacts to residences and follows property boundaries for the greatest percentage compared to route segments A46 and A47. The table below provides a summary of routing factors taken into consideration.

Category	Data		
	A46	A47	A48
Corridor Sharing			
Total length paralleling roads (miles)	0.4	0.7	1.2
% paralleling roads	4%	7%	11%
Total length paralleling section lines Property Lines (miles)	6.2	6.6	9.4
% paralleling property lines	67%	70%	89%
Residences			
0-75 feet (within ROW)	0	0	0
75-150 feet	0	1	1
151-300 feet	2	2	2
Other Routing Considerations			
Length crossing upland forest (miles)	0.41	0.83	0.18
	Close proximity to Nansen Agricultural Historic District	Crosses Warsaw WMA	Crosses an area of outstanding biodiversity

1.3.3 Connecting the Cannon River Crossing with A48

A network of route segments was identified that could be used to link the segment that crosses the Cannon River (A159) with the remainder of the MN-56 corridor between the Cannon River and Kenyon (A48). Routing constraints identified in this area include Stanton Airfield, a privately-owned public-use airfield near Stanton, and farms and residences.

Segment combination A120-A161-A167 was identified as the Alternative Route in this area. This segment combination offers the most direct route between the A159 and A48. Segment A120, located west of the Stanton Airfield was initially identified as a route that avoided interfering with approaches to Stanton Airfield. A120 was carried forward because it passed by a small number of residences and followed 100 percent parcel lines. Segment combination A161- A167 was chosen to connect to A48 because the segment combination would avoid residences located on Goodhue Avenue. Segment A167 would cross an irrigation pivot at an angle that would not interrupt operation of that pivot.

Segments considered but eliminated in this area are shown on Figure J-2 in Appendix J. Segment combination A160-A126 -A103 was eliminated because it would follow only 53 percent parcel lines. Segments that connected between the eliminated Cannon River crossing segments and the eliminated segments A46 and A47, and segments that conflict with the Stanton Airfield's regulated airspace (A35), were eliminated from consideration. The Applicant also identified a network of segments that connected the MN-56 corridor with the US 52 corridor south of the Cannon River, but a feasible route was not

identified in this area due to high residential density southwest of Cannon Falls and along roadways, and lack of suitable linear corridors. These segments are all shown in Figure J-2 in Appendix J.

1.3.4 MN-60 Corridor to North Rochester Substation Siting Area

Segment A48 ends northwest of Kenyon, and connects to a network of segments along the MN-60 corridor that connect to the alternative siting area within the North Rochester Substation siting area (Figure J-2, Appendix J).

The Alternative Route in this area would follow segments A129-A130-A53-A55-A62-A66-A164-A165-A87-A179-A169-A93-A44-A45-A106-A148-A149-A186. The combination of segments A129-A130-A53-A55 was carried forward because there was only one residence within 300 feet of the centerline, and because it followed parcel lines for 87 percent of its length. Where segments A53 and A55 do not follow parcel lines, there does not appear to be potential for interruption of agricultural operations. The segment combination carried forward (A62-A66-A164-A165-A87) follows parcel lines for 91 percent of its length. Where it does not follow parcel lines, there does not appear to be potential for interruption of agricultural operations. Segment combination A179-A169 was identified as a bypass to the Woodbury WMA because it followed parcel lines and is located at least 0.5 mile from the WMA. Agricultural operations under A179 appear to be spannable using strategic structure placement along field lines. Segment combination A93-A44-A45 forms a 1.25-mile straight line to join with the segments approaching the North Rochester Substation Siting Area, and follow 100 percent parcel lines.

Segments A106-A148-A149 were selected because they followed mostly property lines, and allowed a continuation of the straight line formed by A93-A44-A45 to the northern boundary of the North Rochester Substation siting area. Angles were added to A106 along a property line to maximize distance between the transmission line and a residence with farm buildings. A186 was identified because it followed the Prairie Island-Byron 345 kV transmission line into the alternative siting area within the North Rochester Substation siting area.

Segments in this area that were eliminated are shown on Figure J-2 in Appendix J. The segment combination along 457th Street (Segments A131-A49-A58-A57) and segments that connect to it (A132, A54, A56) were eliminated because there were more residences within 300 feet of the centerline than along the Alternative Route. Similarly, the segment combination A64-A68-A74-A178 was eliminated because there were more residences located within 300 feet of the centerline when compared with segment combination A62-A66-A164-A165-A87. Other connector segments close to Kenyon (A50, A59, A60, and A61) were eliminated because these segments have more residences nearby and/or do not follow property boundaries as well as route segments A129-A130-A53-A55.

Segments along MN-60 (A65, A67, A166, and A70) and connectors to MN-60 (A172, A101) were eliminated because residences were located close to that roadway. Segments A170-A73-A178 were eliminated because of proximity to residences. Segments A163-A71 were eliminated because they did not follow mostly parcel lines and appeared to have the potential to interrupt several agricultural operations. Segments leading to the preferred siting area, including A75, A76, A94, A183, and A96, were eliminated because segments farther north allow the Alternative Route to connect to either the alternative

or preferred substation siting area. Segments A104 and A171 were eliminated because they are located in close proximity or adjacent to the Woodbury WMA.

2.0 Zumbro River Crossing 345 kV Section

Figure J-3 in Appendix J shows all route segments in the Zumbro River Crossing 345 kV section.

2.1 Zumbro River Crossing

Three potential routes were identified as options for the Zumbro River Crossing; the Preferred Route White Bridge Road crossing, the Alternative Route North Zumbro crossing, and the Route Option Zumbro Dam crossing. The routes and route segments associated with each crossing are detailed in the sections that follow and are shown on Figure J-3 in Appendix J.

2.1.1 White Bridge Road Crossing – Preferred Route

The White Bridge Road crossing was chosen as the Preferred Zumbro River Crossing. The White Bridge Road route consists of the following segment combination: B180-B181-B86-B2-B192-B4-B5-B138-B104 B105-B107-B69-B102-B100-B101-B110-B94. Segment combination B180-B181-A181-B86 was identified as an egress from the preferred North Rochester Substation siting area. This segment combination would follow parcel lines for the majority of its length and would parallel US 52 for 0.5 mile. Segment B2-B192-B4-B5-B138-B104 would follow property lines for less than 50 percent of its length; however, it would avoid several homes located in proximity to property lines or roads.

Segment B105 follows a parcel boundary for the majority of its length, and segment B107 follows parcel lines and roads for its entire length. There are no residences located within 300 feet of segment combination B69-B102 this segment combination would follow property lines for over 50 percent of its length.

Segment B100, crosses the Zumbro River on the north side of White Bridge Road to avoid a small residential development on the south side of White Bridge Road. After crossing the Zumbro River, segment B100 would follow an angle northeast along the border of a forested area to avoid impacts to agriculture. Parcel lines were not followed along this angle so as to reduce impacts to forested areas along the river. The remaining length of segment B100 would follow property lines. Segments B101, B110, and B94 would follow parcel lines for 100 percent of their lengths.

Segments in this area that were eliminated are shown on Figure J-3 in Appendix J. Segment combination B13-B15-B140-B16-B108 was eliminated because it would have a significantly greater impact on residences and would require a greater number of corner structures. Segment combination B103-B81-B73-B72 and segment B24 were eliminated because they would have greater impacts on residences. Segment combination B25-B39-B41 was eliminated because it appeared to interrupt farm fields.

2.1.2 North Zumbro Crossing – Alternative Route

The North Zumbro Crossing is located approximately 2.2 miles north of the Preferred Route.

Segments combination B182-B184-B183-B175-B1-B126-B70-B95-B97-B99-B164 was identified as the North Zumbro Route. Segment combination B182-B184-B183 would follow parcel lines and 195th Avenue for the majority of its length. Segment B175 angles away from 195th Avenue to avoid several residences, and roughly follows a diagonal field line before joining segment B1 which would follow an east/west property boundary. Segment B1 follows parcel lines for 78 percent of its length up to 595th Street, which it follows for approximately 0.5 miles. Segment B126 was selected over B128 because there were no residences located within 300 feet of the centerline, whereas there were four residences located within 300 feet of the centerline along Segment B128. Segment B70 was chosen over B133 because it followed more existing parcel lines (for 87 percent of its length), would require less tree clearing, and has fewer residences within 300 feet of the centerline when compared to other segments in the area. Segment combination B95-B97-B99 was identified because it would follow parcel boundaries for a greater length when compared to the segment Combination B96-B129-B97-B98.

Segments in this area that were eliminated are shown on Figure J-3 in Appendix J. Although Segment B82 would parallel roads for the majority of its length, it was eliminated because of proximity to residences. Segment combination B185-B85-B176 was eliminated because it did not provide a feasible egress from the northern portion of the North Rochester Substation siting area. Segment combination B128-B90-B133-B129 and associated connector segments B127 and B96 were eliminated because they would follow less parcel lines, would require more tree clearing, and would have greater impacts on residences.

2.1.3 Zumbro Dam Crossing

The Zumbro Dam crossing is located at the Zumbro Hydro Electric Dam, where an existing 34.5 kV transmission line approaches the Dam from the west.

The route option for the Zumbro River Crossing would have the same alignment as the White Bridge Road crossing for the following segment combination: B180-B181-A181-B86-B2-B192-B4-B5-B138-B104. The Zumbro Dam crossing then deviates from the White Bridge Road crossing at the intersection of segments B104 and B105, and would consist of the following segments: B8-B10-B11-B12-B17-B18-B74-B21-B28-B91-B111.

Segments that comprise the Zumbro River approach and crossing are B2-B192-B4-B5-B138-B104-B8-B10-B11-B12-B17-B18. Although this segment combination only follows property lines for approximately 50 percent of its length, there are no residences within 300 feet of the centerline for this segment combination. In addition, the route follows an existing 34.5 kV distribution line for 0.8 mile of its length and would eliminate approximately 0.75 mile of tree clearing. On the east side of the Zumbro River, the segment combination B74-B21-B28-B91-B111 would be used to connect the Zumbro River crossing with the routes to Alma. This segment combination was chosen because it would follow property lines or

roads for 75 percent of its length and there are no residences located within 300 feet of the route centerline.

Segments in this area that were eliminated are shown on Figure J-3, Appendix J. Segment combination B135-B137 would parallel roads for the entirety of its length, but was eliminated because it would increase impacts to residences, as there are three residences located within 300 feet of the route centerline. The segment combination north of the Preferred Route (B3-B136-B7) would follow property lines for almost 100 percent of its length, but was eliminated because this segment combination would increase the amount of tree clearing required and would increase residential impacts. Similarly, segment B106 to the south of the Preferred Route would also require a greater amount of tree clearing and would increase residential impacts.

2.1.4 75th Street River Crossing

A Zumbro River crossing utilizing 75th Street in Olmsted County was considered early in the route analysis process. This route consists of a portion of segment B22 and segments B26, B42, B43, B118, B162, B44 and then connecting to segment B54 along the Dairyland Q3 161 kV transmission line.

B22 follows a 34.5 kV transmission line and B26-B42-B118 follow both a road (75th Street) and a 69 kV transmission line.

Although these segments follow roads and/or low voltage transmission lines, they pass very close to many homes in rural residential neighborhoods north of Rochester. This route segment also adds five miles in length when compared to the Preferred Route (White Bridge Road and the Preferred Route to Alma).

3.0 Alma Approach 345 kV Route Section

Figure J-4, Appendix J shows all route segments between the Zumbro River and the Alma crossing option.

3.1 Zumbro River to Dairyland Q-3 161 kV Line

Route segments which make up the Preferred and Alternative Routes between the Zumbro River and the Dairyland Q-3 161 kV transmission line are located in similar geographical areas and form straight lines 17-20 miles long and 1.7 miles apart from each other. The Preferred and Alternative Routes consist of the following segment combinations:

- Preferred Route: B111-B93-B161-B163-B29-B80-B32-B88-B77-B34-B36-B116-B37-B55
- Alternative Route: B27-B166-B79

The Preferred Route was chosen because it follows a greater percentage of property lines (88 percent versus 43 percent), and transmission lines and roads (3.4 percent versus 0.4 percent) than the Alternative Route. Additionally, the Preferred Route has less of an impact on forested areas than the Alternative Route.

Segments in this area that were eliminated are shown on Figure J-4 in Appendix J. Segment B92 was eliminated because it did not follow parcel lines and would require multiple corner structures. B30, B31, and B33 were eliminated because they would add approximately 2 miles in length and corner structures without offering significant benefits such as avoidance of residences or natural resources. Similarly, B76 was eliminated because it offered no significant advantages over B88, but would add length and corner structures. Segment combination B35-B177 and B115-B177 were eliminated because they would require a greater number of corner structures than B36-B116.

3.2 Dairyland Q-3 161 kV Transmission Corridor

The Preferred and Alternative Routes to the Mississippi River crossing at Alma would share the same segment (B56) for 5.5 miles through the bluffs approaching the Mississippi River. Segment B56 follows the existing Dairyland Q-3 161 kV transmission line through the bluffs, and the RJD Memorial Hardwood Forest. Segment B56 intersects the far northwest corner of the Snake Creek management unit of the RJD Memorial Hardwood Forest, which is managed for recreation purposes. Applicant concluded that any other route alignment in this area would require new right of way through the RJD Memorial Hardwood Forest to reach the Mississippi River. To avoid the creation of a new corridor, Applicant concluded that the Preferred and Alternative Routes should follow the Dairyland Q-3 161 kV transmission line.

Segment B56 exits the bluffs and the RJD State Forest in the Mississippi River Valley near MN-61. Segment B57 continues along the same alignment as the Dairyland Q-3 161 kV transmission line and crosses the McCarthy Lake WMA prior to crossing the Mississippi River south of Alma. McCarthy Lake WMA is a conservation and recreation area that provides important wildlife habitat and opportunity for hunting, birding, and wildlife viewing.

In a letter to the Applicant dated January 9, 2009, MDNR stated its opposition to a route through the McCarthy WMA. The Agency cites the restoration work by The Nature Conservancy (TNC), which owns the Weaver Dunes Scientific and Natural Area property adjacent to the southeastern side of the WMA, the National Audubon Society designation of the area as an Important Bird Area, and the restoration of a dredge soil disposal site by U.S. Army Corps of Engineers (USACE). The letter also references the MDNR-owned Kellogg-Weaver Dunes Scientific and Natural Area adjacent to the northeastern side of the WMA, the Snake Creek Management Unit of the RJD State Forest, and the McCarthy Lake WMA and Weaver Bottoms of the Mississippi River, which are important waterfowl stopovers during migration seasons. In the Alma crossing area, USACE MDNR prefers that a route alternative north of the McCarthy WMA may reduce potential impacts to resources in this area.

To address MDNR's concern regarding the McCarthy Lake WMA, the Applicant identified a route option that would bypass McCarthy Lake WMA: Segment B58 would parallel the Canadian-Pacific railroad north along the westernmost boundary of McCarthy Lake WMA, would follow parcel lines and roads for 94 percent of the route to the river crossing location. Segment B58 would create newly impacted areas rather than utilize an existing transmission corridor.

4.0 North Rochester Substation to Northern Hills Substation 161 kV Section

Two potential routes were identified for the 161 kV transmission line between the North Rochester Substation siting area and the Northern Hills Substation. Figure J-5 in Appendix J shows the Preferred 161 kV Route.

4.1 Preferred 161 kV Route

The Preferred 161 kV Route was chosen because it follows roads or transmission lines for 89 percent of its length and roads, transmission or property lines for 100 percent of its length. The Preferred Route shares less corridor with the Douglas Trail than the Alternative Route. The segments identified for the Preferred 161 kV Route include: A191-B187-B114-B190-B186-B188-B191- B62-B171-B172-B174-B125-B169-B68-B156-B158-B66.

Segment combination B65-B124-B123-B130-B131 and segment B132 were eliminated because there is one home located in the ROW and because this combination would impact the greatest number of residences. Segments B154 and B157 were eliminated because they would impact more residences than the segment combination B68-B156-B158 and would follow less linear corridor. Segment combination B167-B170-B168 was eliminated for the same reasons as described for segments B154 and B157, when compared to segment combination B172-B174-B125-B169.

4.2 Alternative 161 kV Route

The Alternative 161 kV Route follows a combination of existing high-voltage transmission line corridor, roads, and the Douglas Trail. The Alternative Route follows transmission line corridor for 32 percent of the route. However, the route does not provide an opportunity to collocate the new line with existing facilities. Transportation and Douglas Trail adjacency accounts for 45 percent of the route and property lines are followed 12 percent of the route. In total, 88 percent of the route follows existing transmission, transportation, trails or property lines. Segments identified for the Alternative 161 kV Route (from northern substation siting area): A189-A188-A191-A190- B121-B147-B122-B145-B149-B150-B153-B152-B158-B66. Segments A189-A188 would parallel the existing Prairie Island-Byron 345 kV transmission line from the northern portion of the North Rochester Substation siting area.

Segment B148 was eliminated because there is one residence located in the ROW and because it would require additional angle structures when compared with segment combination B147-B122-B145-B149. Segment B64 was eliminated because it would cross the Pine Island golf course in and would follow 1.0 mile of the Douglas Trail. Segment B146 was eliminated because it parallels New Haven Road where there are several residences located near the road, would require 0.3 mile of tree clearing, and would require additional angle structures when compared with Segment B145. Segment B151 was eliminated because it would follow the Douglas Trail for its entire length (approximately 3.0 miles) and would cross through the town of Douglas, which has a high density of homes.