

- Proposed Regeneration Site
- Proposed Routes**
- Blue/Orange Route
- Blue Route
- Orange Route
- Segment Option
- Alternatives**
- Route Variation
- Alignment Modification
- Existing Transmission Lines**
- 69 or 115 kV
- 230 kV
- 500 kV
- Streets and Highways**
- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Project Section
- Municipal Boundary
- County Boundary



Map 4-8

CENTRAL SECTION OVERVIEW
 Great Northern Transmission Line
 Draft Environmental Impact Statement



Hop

There is one connecting segment, or hop, located in the southwestern portion of the Beltrami North Central Variation Area: Hop 5 (Map 4-7). Hop 5 provides a connection from the south end of Beltrami North Central variations 4 and 5 west to the Proposed Orange Route. This hop requires crossing over the existing 500 kV transmission line to rejoin the Proposed Orange Route.

4.3.2 Central Section

There are eight variation areas within the Central Section: Pine Island, Beltrami South Central, Beltrami South, North Black River, C2, J2, Northome, and Cutfoot (Table 4-4, Map 4-8). In addition, there are four alignment modifications (minor adjustments of the transmission line alignment centerline and associated ROW) within the proposed routes: Silver Creek WMA, Airstrip, Mizpah, and Gravel Pit (Table 4-4, Map 4-8). The variation areas are described in the following sections.

4.3.2.1 Pine Island Variation Area

The Pine Island Variation Area encompasses the entire Central Section (Map 4-8). The primary issues identified by commenters in this variation area include the presence of large peatland complexes, sharing of transmission line corridors, and a need for the proposed transmission line to avoid SNAs. The Pine Island Variation Area includes the Beltrami South Central, Beltrami South, North Black River, C2, J2, Northome, and Cutfoot variation areas (Map 4-8). Table 4-4 and Map 4-9 provide details for the Pine Island Variation Area.

Variations

There are two route alternatives within the Pine Island Variation Area: the Proposed Blue Route and the Proposed Orange Route (Table 4-4, Map 4-9). The proposed routes have a common start point where the Proposed Blue and Proposed Orange routes split east of Aichele Forest Road in the northwestern portion of the Pine Island Variation Area. The proposed routes do not share any portion of their alignments in this variation area.

Table 4-4 Proposed Routes, Variations, and Alignment Modifications in the Central Section

Variation Area	Variation Names in the EIS	Name(s) in the Scoping Decision Document	Length (mi)
Pine Island	Proposed Blue Route	Blue Route	109.8
	Proposed Orange Route	Orange Route	105.4
	Silver Creek WMA Alignment Modification	Silver Creek WMA Alignment Modification	1.0
	Proposed Blue Route	Blue Route	1.0
Beltrami South Central	Proposed Orange Route	Orange Route	1.2
	Beltrami South Central Variation	Beltrami WMA Alternative Route Segment 7	1.7
Beltrami South	Proposed Orange Route	Orange Route	5.6
	Beltrami South Variation	Beltrami WMA Alternative Route Segment 8	7.5
North Black River	Proposed Blue Route	Blue Route	8.4
	North Black River Variation	North Black River Alternative Route Segment	9.2
C2 Segment Option	Proposed Blue Route	Blue Route	32.8
	C2 Segment Option Variation	C2 Proposed Alternative	46.0
	Airstrip Alignment Modification	Airstrip Alignment Modification	1.5
	C2 Segment Option Variation	C2 Proposed Alternative	1.5
J2 Segment Option	Proposed Orange Route	Orange Route	42.2
	J2 Segment Option Variation	J2 Proposed Alternative	45.2
	Mizpah Alignment Modification	Mizpah Alignment Modification	2.8
	Proposed Orange Route	Orange Route	2.8
	Gravel Pit Alignment Modification	Gravel Pit Alignment Modification	1.2
Northome	Proposed Orange Route	Orange Route	1.2
	J2 Segment Option Variation	J2 Proposed Alternative	3.7
	Northome Variation	Northome Alternative Route Segment	4.0
Cutfoot	Proposed Orange Route	Orange Route	4.2
	Cutfoot Variation	Cutfoot Alternative Route Segment	4.8

The proposed routes have a common endpoint in the southeast corner of the Pine Island Variation Area, just west of Bass Lake Campground, in the southeastern portion of the Pine Island Variation Area. The Proposed Blue Route is longer than the Proposed Orange Route.

Alignment Modification

The Silver Creek WMA Alignment Modification is located along the Proposed Blue Route in the north-central portion of the Pine Island Variation Area (Map 4-9). This alignment modification is the same length as the comparable segment of the Proposed Blue Route (Table 4-4). The alignment modification shifts the ROW south from private, state forest, and federal lands onto state lands in order to avoid the USFWS land and the Silver Creek WMA. Section 6.5.2.1 provides additional information on the Silver Creek Alignment Modification.

4.3.2.2 Beltrami South Central Variation Area

The Beltrami South Central Variation Area is located in the northwestern portion of the Central Section (Map 4-8). The primary issue identified in this variation area is a need by USFWS to consider avoidance of USFWS land. The Beltrami South Central Variation Area is within the Pine Island Variation Area and bordered by the Beltrami South Variation Area to the southeast (Map 4-8). Table 4-4 and Map 4-10 provide details for the Beltrami South Central Variation Area.

Variations

There are two route alternatives within the Beltrami South Central Variation Area: the Proposed Orange Route and the Beltrami South Central Variation (Table 4-4, Map 4-10). The Proposed Orange Route and Beltrami South Central Variation have a common start point where the 500 kV corridor crosses Aichele Forest Road in the northwestern portion of the Beltrami South Central Variation Area. The Proposed Orange Route and Beltrami South Central Variation do not share their alignments in this variation area. The Proposed Orange Route and Beltrami South Central Variation have a common endpoint located approximately 1.25 miles to the southeast of their common start point, in the southeastern portion of the Beltrami South Central Variation Area. The Beltrami South Central Variation is less than one-half mile longer than the Proposed Orange Route (Table 4-4).

4.3.2.3 Beltrami South Variation Area

The Beltrami South Variation Area is located in the northwestern portion of the Central Section (Map 4-8). The primary issue identified in this

variation area is a need by USFWS to consider avoidance of USFWS land. The Beltrami South Variation Area is within the Pine Island Variation Area and bordered by the Beltrami South Central Variation Area to the northwest (Map 4-8). Table 4-4 and Map 4-10 provide details for the Beltrami South Variation Area.

Variations

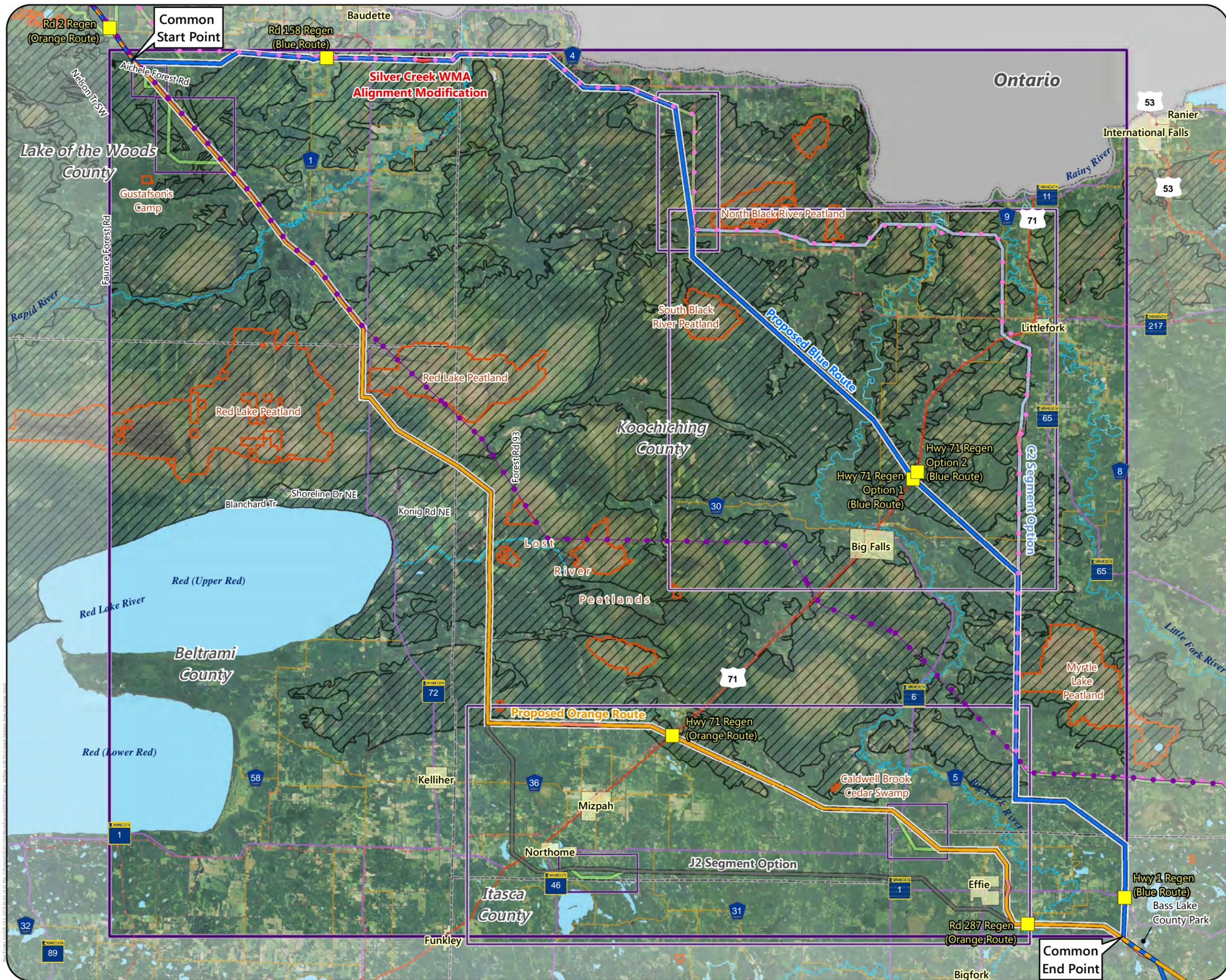
There are two route alternatives within the Beltrami South Variation Area: the Proposed Orange Route and the Beltrami South Variation (Table 4-4, Map 4-10). The Proposed Orange Route and Beltrami South Variation have a common start point located approximately 2.5 miles southeast of where the 500 kV corridor crosses Aichele Forest Road in the northwestern portion of the Beltrami South Variation Area. The Proposed Orange Route and Beltrami South Variation do not share their alignments in this variation area. The Proposed Orange Route and Beltrami South Variation have a common endpoint located approximately 1.25 miles to the southeast of Stony Corners Trail in the southeastern portion of the Beltrami South Variation Area. The Beltrami South Variation is about 2 miles longer than the Proposed Orange Route (Table 4-4).

4.3.2.4 North Black River Variation Area

The North Black River Variation Area is located in the north-central portion of the Central Section (Map 4-8). The primary issues identified by the commenters in this variation area were the avoidance of non-ferrous mineral reserves and whether to share the existing 230 kV transmission line corridor or to develop an alternative that requires a new corridor. The North Black River Variation Area is within the Pine Island Variation Area and bordered by the C2 Variation Area to the south (Map 4-8). Table 4-4 and Map 4-11 provide details for the North Black River Variation Area.

Variations

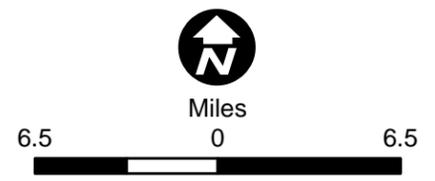
There are two route alternatives within the North Black River Variation Area: the Proposed Blue Route and the North Black River Variation (Table 4-4, Map 4-11). The Proposed Blue Route and North Black River Variation have a common start point located just west of Town Road 118 in the northern portion of the North Black River Variation Area. The Proposed Blue Route and North Black River Variation do not share their alignments in this variation area. The Proposed Blue Route and North Black River Variation have a common endpoint located north of the intersection of Sandsmark Trail and CSAH 32 in the southern portion of the North Black River Variation Area. The North Black River Variation is about one mile longer than the Proposed Blue Route (Table 4-4).



- Proposed Regeneration Site
- Proposed Routes**
- Blue/Orange Route
- Blue Route
- Orange Route
- C2 Segment Option
- J2 Segment Option
- Alternatives**
- Silver Creek WMA Alignment Modification
- Scientific and Natural Area (SNA)
- Peatland Complex
- Existing Transmission Lines**
- 69 or 115 kV
- 230 kV
- 500 kV
- Streets and Highways**
- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary
- International Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

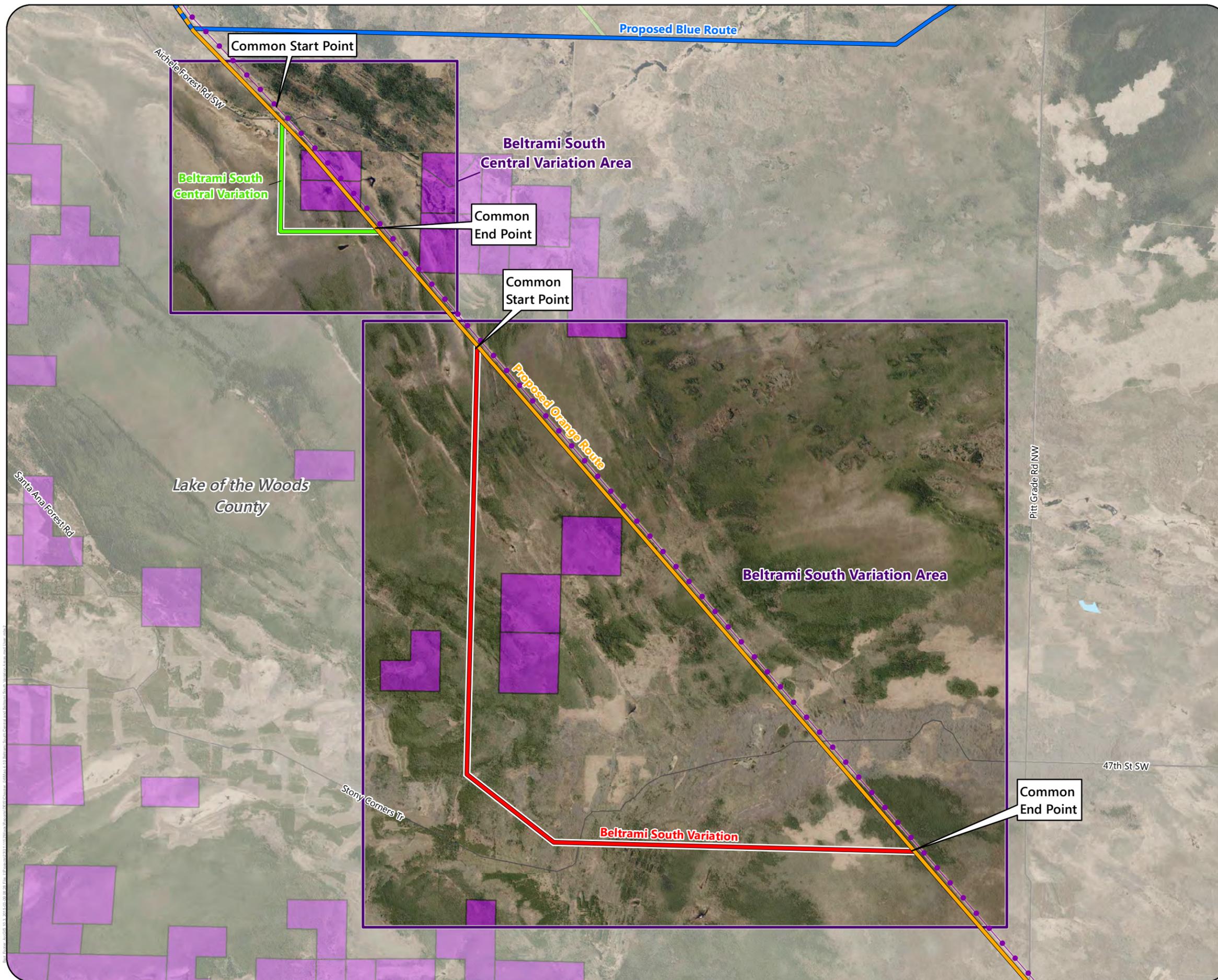
The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.



Map 4-9

PINE ISLAND VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

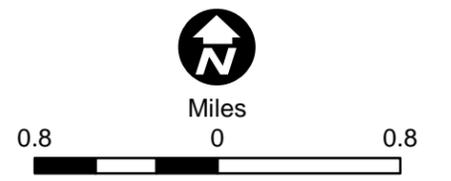




- Proposed Routes**
-  Blue/Orange Route
 -  Blue Route
 -  Orange Route
- Alternatives**
-  Beltrami South Central Variation
 -  Beltrami South Variation
- USFWS Interest Land**
-  USFWS Interest Land
- Existing Transmission Lines**
-  500 kV
- Streets and Highways**
-  Local Road
 -  Variation Area

Note:
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The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.



Map 4-10

BELTRAMI SOUTH CENTRAL AND BELTRAMI SOUTH VARIATION AREAS
Great Northern Transmission Line
Draft Environmental Impact Statement

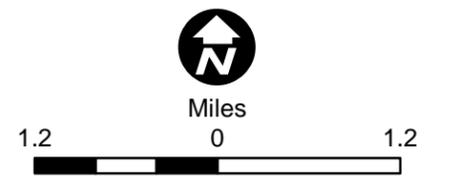




- Proposed Routes**
- Blue Route
 - C2 Segment Option
- Alternatives**
- North Black River Variation
- Existing Transmission Lines**
- 69 or 115 kV
 - 230 kV
- Streets and Highways**
- State Trunk Highway
 - County State Aid Highway
 - Local Road
 - Variation Area
 - International Boundary

Note:
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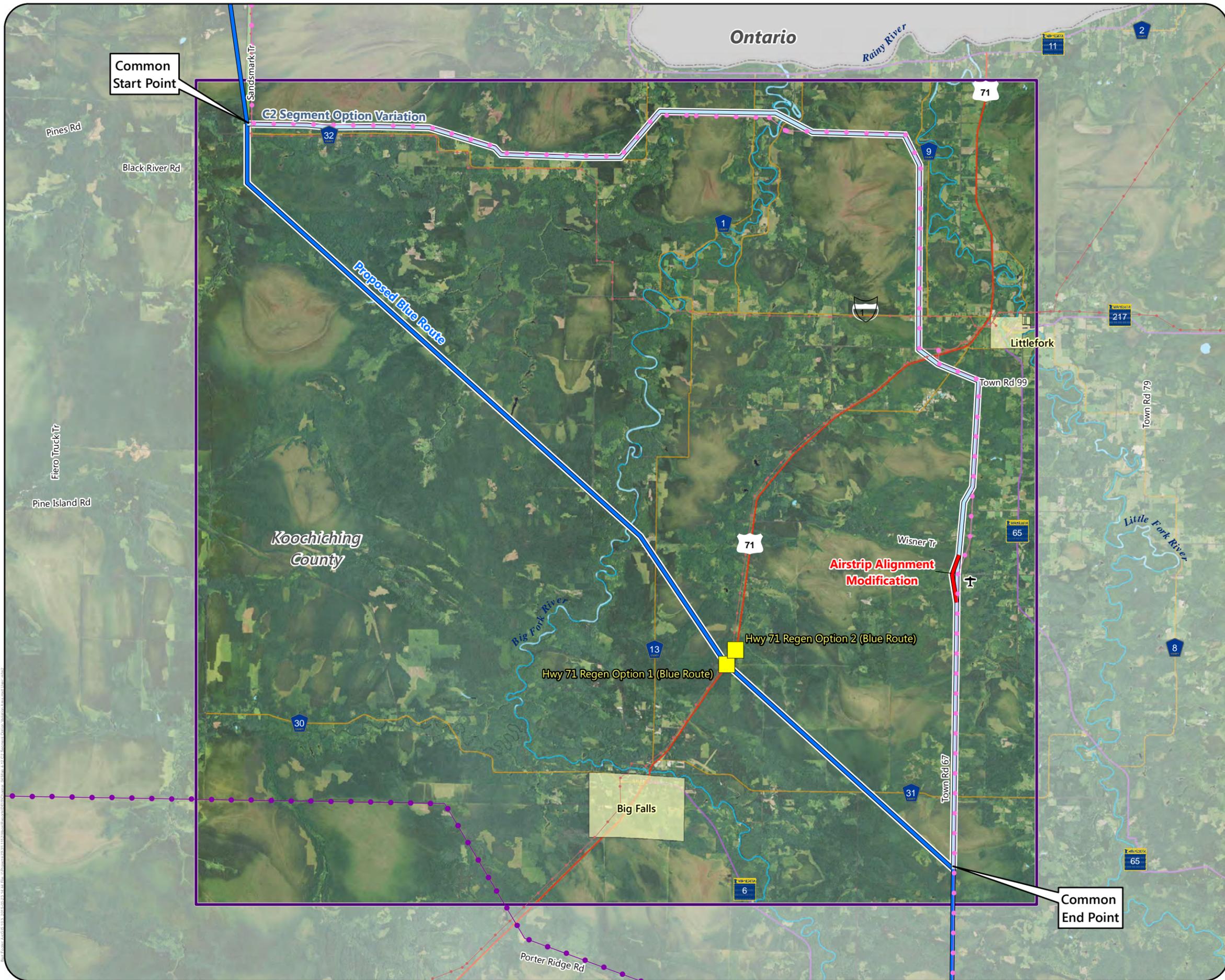
The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.



Map 4-11

NORTH BLACK RIVER VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement





- Proposed Regeneration Location
- Proposed Routes**
- Blue Route
- Alternatives**
- C2 Segment Option Variation
- Airstrip Alignment Modification
- Airstrip
- Existing Transmission Lines**
- 69 or 115 kV
- 230 kV
- 500 kV
- Streets and Highways**
- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- International Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.



Map 4-12
C2 SEGMENT OPTION VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement



4.3.2.5 C2 Segment Option Variation Area

The C2 Segment Option Variation Area is located in the northeastern portion of the Central Section (Map 4-8). The primary issue identified by commenters in this variation area are whether to share the existing 230 kV transmission line corridor or to develop variations that require new corridors. The C2 Segment Option Variation Area is within the Pine Island Variation Area and bordered by the North Black River Variation Area to the northwest (Map 4-8). Table 4-4 and Map 4-12 provide details for the C2 Segment Option Variation Area.

Variations

There are two route alternatives within the C2 Segment Option Variation Area: the Proposed Blue Route and the C2 Segment Option Variation (Table 4-4, Map 4-12). The Proposed Blue Route and C2 Segment Option Variation have a common start point located north of the intersection of Sandsmark Trail and CSAH 32 in the northwestern portion of the C2 Segment Option Variation Area. The Proposed Blue Route and C2 Segment Option Variation do not share their alignments in this variation area. The Proposed Blue Route and C2 Segment Option Variation have a common endpoint located approximately two miles south of the intersection of Town Road 67 and CSAH 31 in the southeastern portion of the C2 Segment Option Variation Area. The C2 Segment Option Variation is about 13 miles longer than the Proposed Blue Route (Table 4-4).

Alignment Modification

The Airstrip Alignment Modification is located along the C2 Segment Option Variation in the eastern portion of the C2 Segment Option Variation Area (Map 4-12). The alignment modification is the same length as the comparable segment of the C2 Segment Option Variation (Table 4-4). The modification shifts the alignment west to allow additional space to use the runway at a private airstrip. The land ownership remains a mix of private, corporate, and state lands. Section 6.5.2.2 provides additional information on the Airstrip Alignment Modification.

4.3.2.6 J2 Segment Option Variation Area

The J2 Segment Option Variation Area is located in the southern portion of the Central Section (Map 4-8). The primary issue identified by commenters in this variation area is the presence of large peatland complexes. The J2 Segment Option Variation Area is within the Pine Island Variation Area (Map 4-8). Table 4-4 and Map 4-13 provide details for the J2 Segment Option Variation Area.

Variations

There are two route alternatives within this variation area: the Proposed Orange Route and the J2 Segment Option Variation (Table 4-4, Map 4-13). The Proposed Orange Route and J2 Segment Option Variation have a common start point located north of Flowing Well Trail and east of Forest Road 54 in the northwestern portion of the J2 Segment Option Variation Area. The Proposed Orange Route and J2 Segment Option Variation do not share their alignments in this variation area. The Proposed Orange Route and J2 Segment Option Variation have a common endpoint located southeast of Effie near County Road 288 in the southeastern portion of the J2 Segment Option Variation Area. The J2 Segment Option Variation is about 3 miles longer than the Proposed Orange Route (Table 4-4).

Alignment Modifications

The Mizpah Alignment Modification is located along the Proposed Orange Route in the northwestern portion of the J2 Segment Option Variation Area (Map 4-13). This alignment modification is the same length as the comparable segment of Proposed Orange Route (Table 4-4). The alignment modification shifts the ROW north from the private and state lands onto only state land. Section 6.5.2.3 provides additional information on the Mizpah Alignment Modification.

The Gravel Pit Alignment Modification is located along the Proposed Orange Route in the southeastern portion of the J2 Segment Option Variation Area (Map 4-13). The alignment modification is the same length as the comparable segment of the Proposed Orange Route (Table 4-4). The modification shifts the alignment east from the Proposed Orange Route to avoid private land with a gravel pit. The land ownership changes from private, corporate, and state lands to a mix of corporate and state lands. Section 6.5.2.4 provides additional information on the Gravel Pit Alignment Modification.

4.3.2.7 Northome Variation Area

The Northome Variation Area is located in the south-central portion of the Central Section (Map 4-8). The primary issue identified in this variation area is a need by USFWS to consider avoidance of USFWS land. The Northome Variation Area is within the Pine Island and J2 variation areas (Map 4-8). Table 4-4 and Map 4-13 provide details for the Northome Variation Area.

Variations

There are two route alternatives within the Northome Variation Area: the J2 Segment Option Variation and the Northome Variation (Table 4-4, Map 4-13). The J2 Segment Option Variation and Northome Variation have a common start point located just north of the intersection of Stone Road and CSAH 24 in the western portion of the Northome Variation Area. The J2 Segment Option Variation and Northome Variation do not share their alignments in this variation area. The J2 Segment Option Variation and Northome Variation have a common endpoint located north of Little Constance Lake in the eastern portion of the Northome Variation Area. The Northome Variation is about one-half mile longer than the comparable segment of the J2 Segment Option Variation (Table 4-4).

4.3.2.8 Cutfoot Variation Area

The Cutfoot Variation Area is located in the southeastern portion of the Central Section (Map 4-8). The primary issue identified by commenters in this variation area is a desire by commenters to avoid private land with old cedar stands. The Cutfoot Variation Area is within the Pine Island and J2 variation areas (Map 4-8). Table 4-4 and Map 4-13 provide details for the Cutfoot Variation Area.

Variations

There are two route alternatives within this variation area: the Proposed Orange Route and the Cutfoot Variation (Table 4-4, Map 4-13). The Proposed Orange Route and Cutfoot Variation have a common start point located west of Minnesota Highway 6 in the northwestern portion of the Cutfoot Variation Area. The Proposed Orange Route and Cutfoot Variation do not share their alignments in this variation area. The Proposed Orange Route and Cutfoot Variation have a common endpoint located south of Cutfoot Sioux Trail in the southeastern portion of the Cutfoot Variation Area. The Cutfoot Variation is about one-half mile longer than the Proposed Orange Route (Table 4-4).

4.3.3 East Section

There are five variation areas within the East Section: Effie, East Bear Lake, Balsam, Dead Man's Pond, and Blackberry (Map 4-14, Table 4-5). In addition, there are five alignment modifications: Bass Lake, Wilson Lake, Grass Lake, Dead Man's Pond, and Trout Lake (Map 4-14, Table 4-5). The variation areas are described in the following sections.

4.3.3.1 Effie Variation Area

The Effie Variation Area is located in the northern portion of the East Section (Map 4-14). The primary issues identified by commenters in this variation area are whether to share the existing 230 kV or 500 kV transmission line corridors or to develop variations that require new corridors. The Effie Variation Area includes the East Bear Lake Variation Area. The Balsam Variation Area overlaps the Effie Variation Area to the south (Map 4-15). Table 4-5 and Map 4-15 provide details for the Effie Variation Area.

Variations

There are three route alternatives within the Effie Variation Area: the Proposed Blue Route, Proposed Orange Route, and the Effie Variation (Table 4-5, Map 4-15). The proposed Blue Route and Effie Variation have a common start point where the existing 500 kV and 230 kV transmission line corridors converge near Lofgrin Truck Trail in the northwestern portion of the Effie Variation Area. The Proposed Orange Route begins in the west-central portion of the Effie Variation Area. The Proposed Blue and Orange routes share one portion of their alignment in the central portion of this variation area. The Proposed Orange Route and Effie Variation share one portion of their alignment in this variation area. The Proposed Blue and Orange routes and the Effie Variation have a common endpoint located southeast of Wolf Lake in the southern portion of the Effie Variation Area. The Effie Variation is 8 miles longer than the Proposed Blue Route and about 5 miles longer than the Proposed Orange Route; the Proposed Orange Route is about 3 miles longer than the Proposed Blue Route (Table 4-5).

Alignment Modifications

The Bass Lake Alignment Modification is located along the Proposed Blue/Orange Route in the central portion of the Effie Variation Area (Map 4-15). The alignment modification is slightly longer than the comparable segment of the Proposed Blue/Orange Route in the Effie Variation Area (Table 4-5). The alignment modification shifts the ROW southwest to avoid the Bass Lake County Park and Campground (Itasca County) and the George Washington State Forest campground on Larson Lake. The alignment modification modifies the proportion of land ownership to a mix of slightly less corporate land and slightly more state land. Section 6.5.3.1 provides additional information on the Bass Lake Alignment Modification.

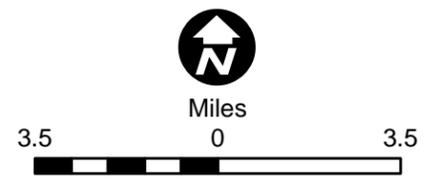
The Wilson Lake Alignment Modification is located along the Proposed Blue Route in the central portion of the Effie Variation Area (Map 4-15). The alignment



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- Municipal Boundary
- County Boundary

Note:
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The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.



Map 4-13

J2 SEGMENT OPTION, NORTHHOME AND CUTFOOT VARIATION AREAS
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