

5.0 Affected Environment and Potential Impacts

5.1 Introduction

Chapter 5 describes the affected environment for the proposed Project, including descriptions for each resource and customary impacts expected to those resources from the construction, operation, maintenance, and connection of the proposed Project. Specifically, Chapter 5 is organized in the following way:

- Section 5.2 discusses the customary impacts of the proposed Project that do not vary by geographic section and that are common to all proposed routes and variations, such as noise, property values, and electric and magnetic fields (EMF).
- Section 5.3 through Section 5.5 discuss the customary impacts of the proposed Project that vary by geographic section and may be different for all proposed routes and variations, such as aesthetics, wetlands, and corridor sharing.

Chapter 5 also states the laws, regulations, and guidelines that are potentially applicable to the impacts of the proposed Project. Affected resources that do not vary by geographic section and whose potential impacts are not expected to be significant⁶⁹ are only discussed in Chapter 5. In contrast, the affected resources presented in Chapter 5 that either (1) vary by geographic section, or (2) whose potential impacts are potentially significant, are carried through to the comparative analysis in Chapter 6.

Affected resources that are only discussed in Chapter 5 include: displacement, noise, air quality, greenhouse gas emissions, and climate change, property values, electronic interference, transportation and public services, environmental justice, socioeconomics, recreation and tourism, cultural values, electric and magnetic fields, implantable medical devices, stray voltage, induced voltage, intentional destructive acts, environmental contamination, and worker health and safety.

Affected resources that are carried through into Chapter 6 include: aesthetics, land use compatibility, agriculture, forestry, mining and mineral resources, archaeology and historic resources, water resources, vegetation, wildlife, rare species, rare communities, corridor sharing, and costs of construction, operation, and maintenance.

Chapter 6 provides a detailed analysis of all affected resources that differ in geographic sections or variation areas; it also provides a comparative analysis of the environmental consequences for the proposed routes and variations.⁷⁰ Therefore, the more generalized Chapter 5 analysis is paired with the more detailed analysis of Chapter 6 to present the full range of issues and analyses that provide the basis for the conclusions needed in both federal and state decisions.

The affected environment and environmental consequences are analyzed in Chapter 5 and Chapter 6 for each resource within a given spatial bounds, or region of influence (ROI). The ROI for each resource is the geographic area within which the proposed Project may exert some influence; it is used in this EIS as the basis for assessing the potential impacts to each resource from the proposed Project. The spatial area for each resource's ROI may be different and each is described within its own section in Chapter 5 and Chapter 6. Information presented on each resource in Chapter 5 and Chapter 6 is generally relevant to the ROI of each resource. Additional data is provided in Appendix E through Appendix G, as described in Section 1.1.

5.2 General Impacts Common to All Routes

Resources described within Section 5.2 are those that do not vary by geographic section and would have similar expected general impacts from the proposed Project for all proposed routes or variations considered. The proposed routes and variations constitute the alternatives considered within this Environmental Impact Statement (EIS). Since the resource impacts do not provide a means to distinguish or compare the impacts for the proposed routes or variations, the resource is not discussed further in Chapter 6 of this EIS.

⁶⁹ Council on Environmental Quality's (CEQ) National Environmental Policy Act (NEPA) implementing regulations at 40 Code of Federal Regulations (CFR) §1508.27 addresses the concept of significance (or "significantly") as used in NEPA, indicating that determining potential significance of impacts from a proposed action requires consideration of both context (of the project) and intensity (severity of impact) by agency decision makers. 40 CFR §1508.27(b) sets out a need for agency decision makers to consider a variety of factors in evaluating intensity, including but not limited to, whether or not the impact would be beneficial or adverse, duration of the impact, unique characteristics of the environmental context (e.g. presence of endangered species).

⁷⁰ Minnesota Rules, part 7850.4100 lists 14 factors for the Commission to consider in its route permitting decisions, including effects on human settlements, effects on public health and safety, and effects on the natural environment as described in Chapter 1. The information gathered during the environmental review process is applied to these factors. Chapter 5 and Chapter 6 discuss the route alternatives reviewed in this EIS and their merits relative to the routing factors of Minnesota Rules, part 7850.4100.

Maps referenced in this section either provide information for the entire proposed Project area or information specific to the geographic sections. Information for the entire proposed Project area is included on Map 5-1, Map 5-2, and Map 5-3. Information and details for the West Section are on Map 5-4 through Map 5-10; for the Central Section are on Map 5-11 through Map 5-17; and for the East Section are on Map 5-18 through Map 5-24.

5.2.1 Human Settlement

Transmission lines have the potential to impact human settlement through a variety of means. The proposed Project could potentially result in displacement, noise, air quality, property values, electronic interference, and transportation and public service impacts. Further discussion of each of these resources and the potential impacts that could result from the proposed Project are discussed below.

5.2.1.1 Displacement

This section describes the potential for displacement impacts in the West, Central, and East sections (described in Chapter 4) from the proposed Project.

For electrical safety code and maintenance reasons, utilities generally do not allow residences or other buildings within the right-of-way (ROW) of a transmission line. Any residences or other buildings located within a proposed ROW are generally removed, or “displaced.” Displacements are relatively rare and are more likely to occur in densely populated areas where avoiding all residences and businesses is not always feasible.

The ROI for this analysis of displacement is the anticipated 200-foot ROW of the transmission line as structures within the ROW would need to be removed for construction and operation of the proposed Project.

Displacement in the West, Central, and East Sections

There are no residences, churches, schools, daycares, or nursing homes within the ROI that would be displaced as a result of the anticipated alignment of the proposed Project (Map 5-4, Map 5-11, 5-18). There are 11 non-residential structures (e.g., farm structures and animal sheds) within the ROW of the different routes and variations (Appendix E):

- Cedar Bend WMA Variation in the Cedar Bend Variation Area (two buildings; Appendix S - Part I, Maps 29 and 30);

- Beltrami North Variation 2 in the Beltrami North Variation Area (two buildings; Appendix S - Part I, Map 10);
- Beltrami North Central Variation 4 (three buildings) and Beltrami North Central Variation 5 (three buildings) in the Beltrami North Central Variation Area (Appendix S - Part I, Map 32); and
- Proposed Blue Route in the Pine Island Variation Area (one building; Appendix S - Part II, Map 36).

General Impacts

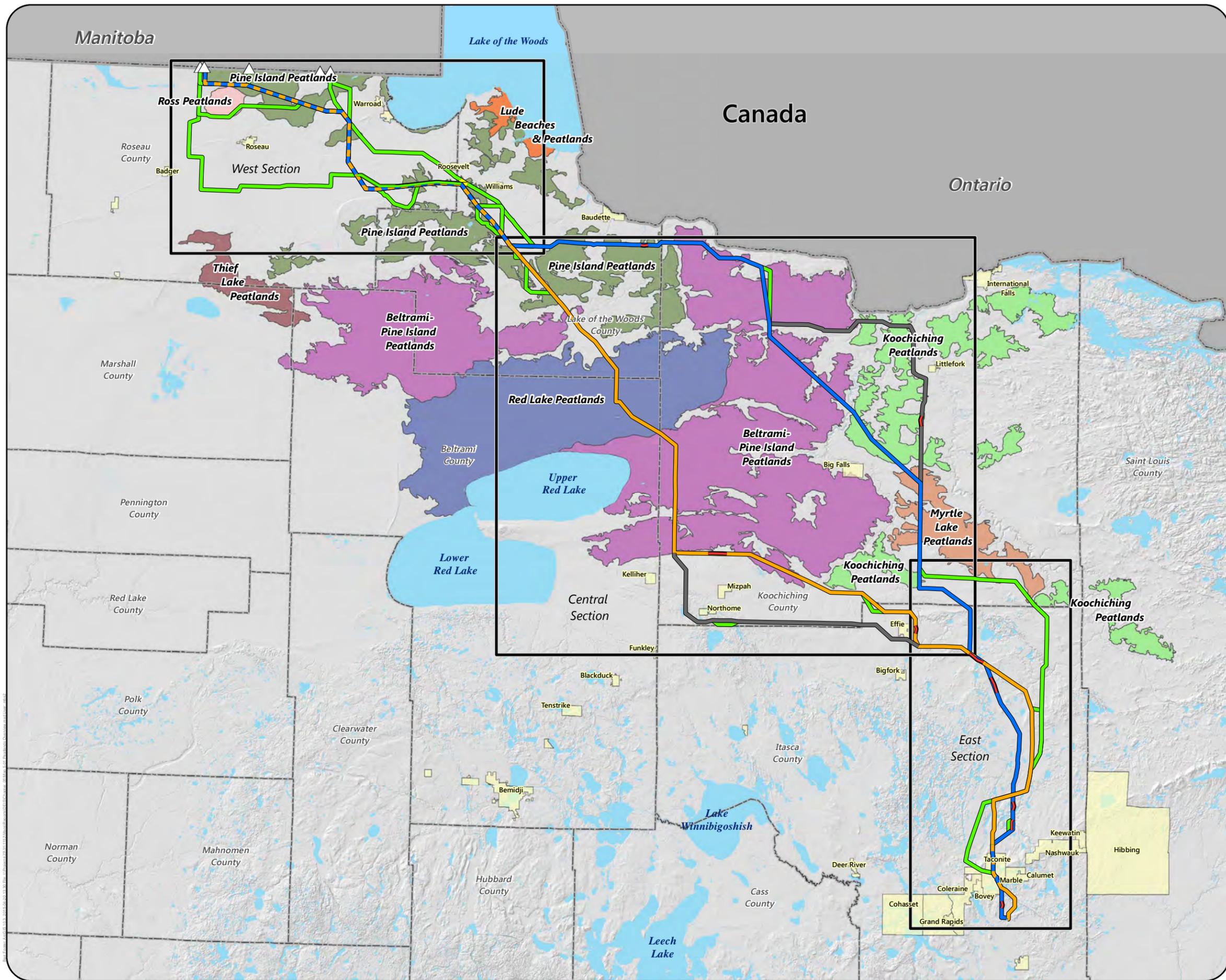
Displacement would not occur for any residences or businesses as a result of the proposed Project because there are no residences or businesses within the ROI, which is the 200-foot ROW. A limited number (less than three for each proposed route or variation) of non-residential structures are identified within the anticipated ROW and could potentially be affected by the proposed Project (see Section 2.9). The Applicant would need to coordinate with each affected landowner to address the potential impact from the proposed Project. Since there is no residential or business displacement expected from construction and operation of the proposed Project for any proposed route or variation considered, displacement is not discussed further in Chapter 6 of this EIS.

Construction Impacts

Operation, maintenance, and emergency repair impacts to residences, churches, schools, daycares, or nursing homes would be avoided since none of these structures are located within the ROW of the proposed Project. A limited number (less than three for each route or variation) of non-residential structures are located within the ROW. However, as the proposed routes and variations cross relatively sparsely populated areas, adequate space is generally available to allow the alignment of the transmission line to be adjusted so that no buildings would ultimately be located within the ROW of the proposed Project. Therefore, no displacement of residences are anticipated and no significant impacts are expected as a result of operation, maintenance, or emergency repair of the proposed Project, regardless of the route or variation considered.

Operation, Maintenance, and Emergency Repair Impacts

Operation, maintenance, and emergency repair impacts to residences, churches, schools, daycares, or nursing homes are not expected as none of these



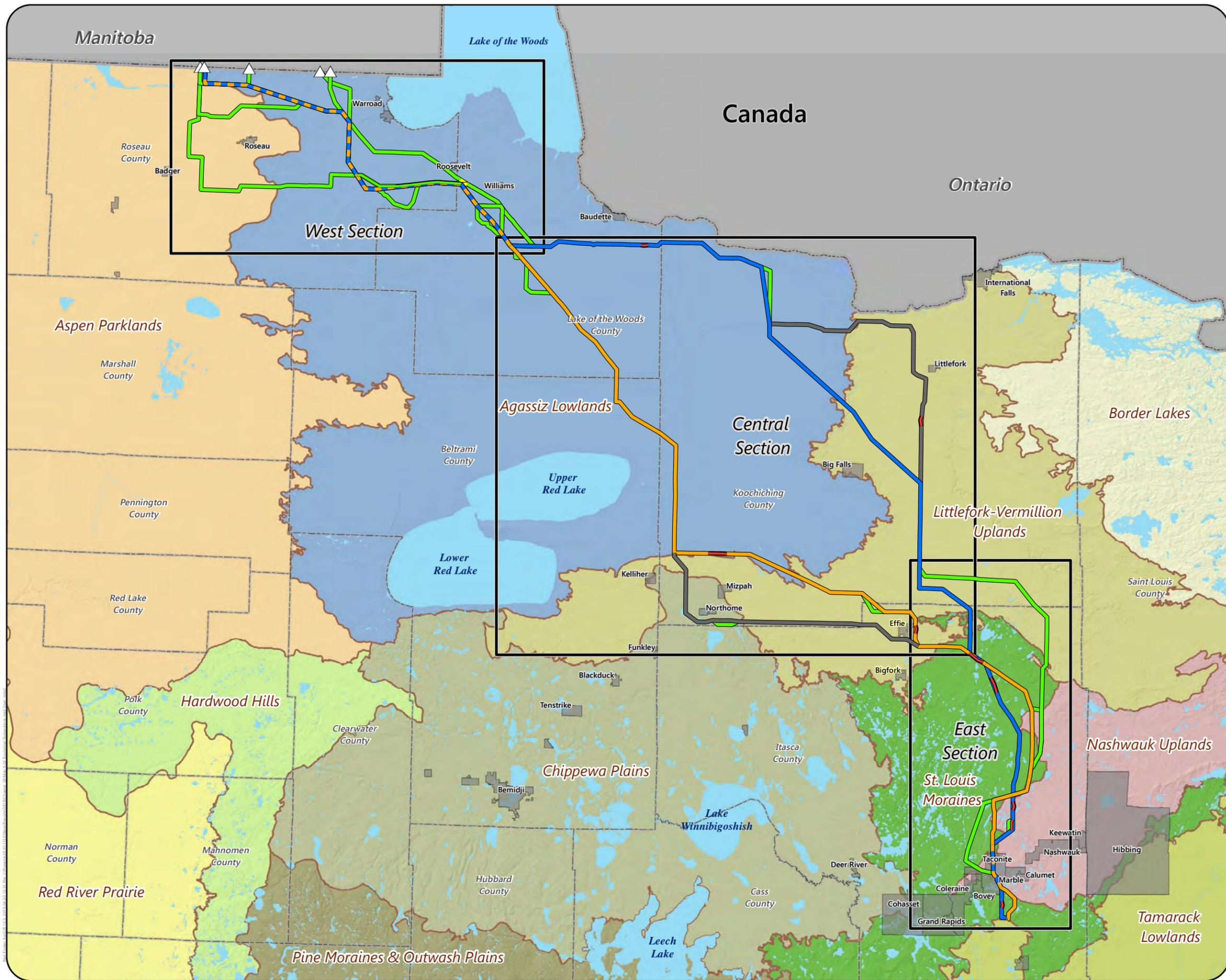
- △ Border Crossing Point
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
 - Segment Option
- Alternatives**
 - Route Variation
 - Route Variation Hop
 - Alignment Modification
- Project Section
- Municipal Boundary
- County Boundary
- International Boundary
- Peatland Ecological Land Type Associations**
 - Beltrami-Pine Island Peatlands
 - Koochiching Peatlands
 - Lude Beaches & Peatlands
 - Myrtle Lake Peatlands
 - Pine Island Peatlands
 - Red Lake Peatlands
 - Ross Peatlands
 - Thief Lake Peatlands



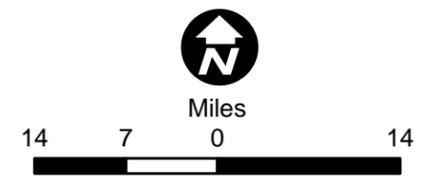
Map 5-1

PEATLANDS OVERVIEW
Great Northern Transmission Line
Draft Environmental Impact Statement





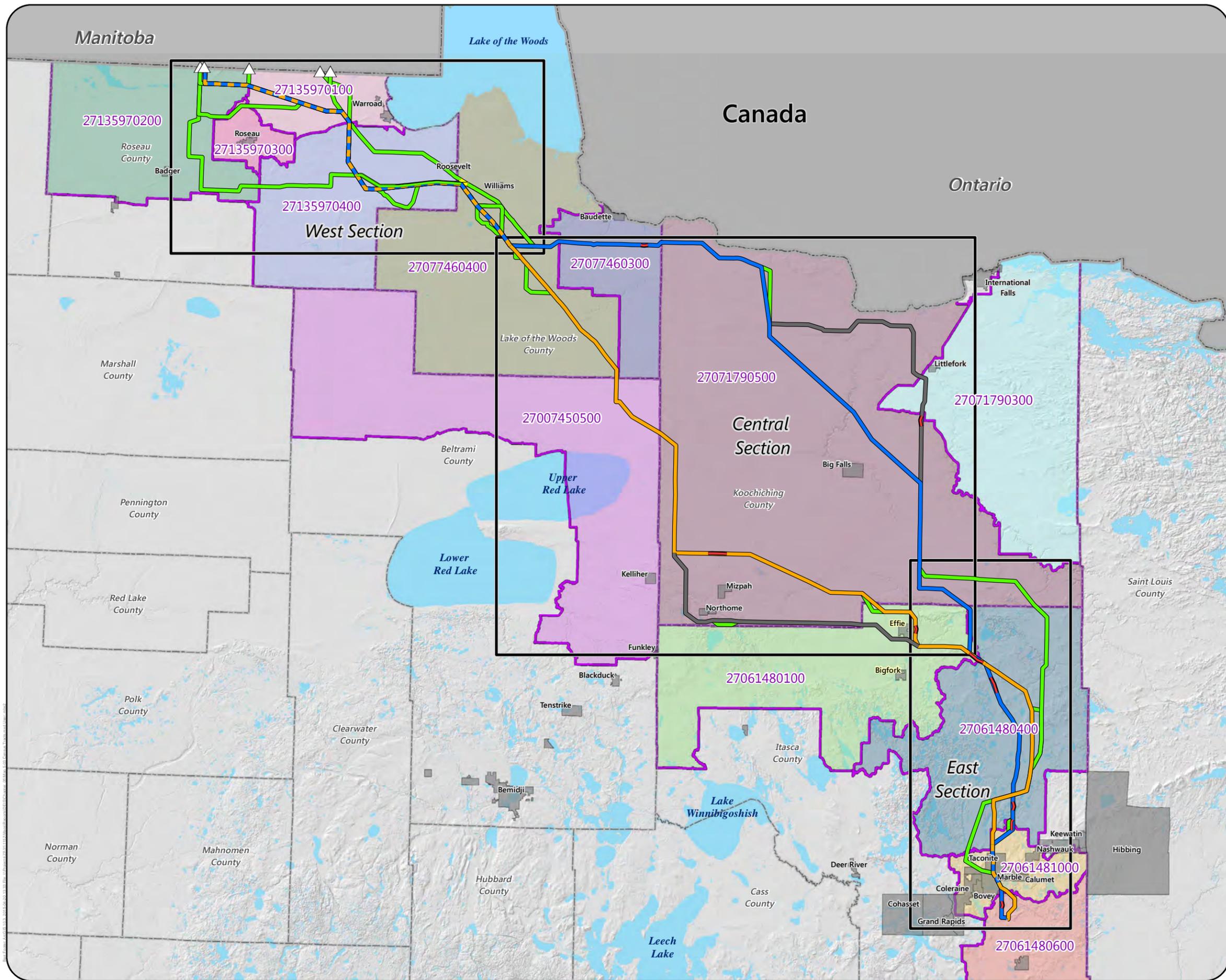
- △ Border Crossing Point
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
 - Segment Option
- Alternatives**
 - Route Variation
 - Route Variation Hop
 - Alignment Modification
- Project Section
- Municipal Boundary
- County Boundary
- International Boundary
- Ecological Subsections**
 - Agassiz Lowlands
 - Aspen Parklands
 - Border Lakes
 - Chippewa Plains
 - Hardwood Hills
 - Littlefork-Vermillion Uplands
 - Nashwauk Uplands
 - Pine Moraines & Outwash Plains
 - Red River Prairie
 - St. Louis Moraines
 - Tamarack Lowlands



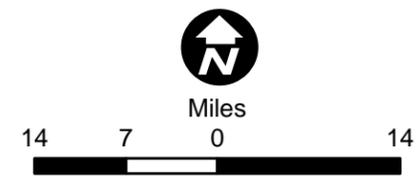
Map 5-2

ECOLOGICAL SUBSECTIONS
 Great Northern Transmission Line
 Draft Environmental Impact Statement





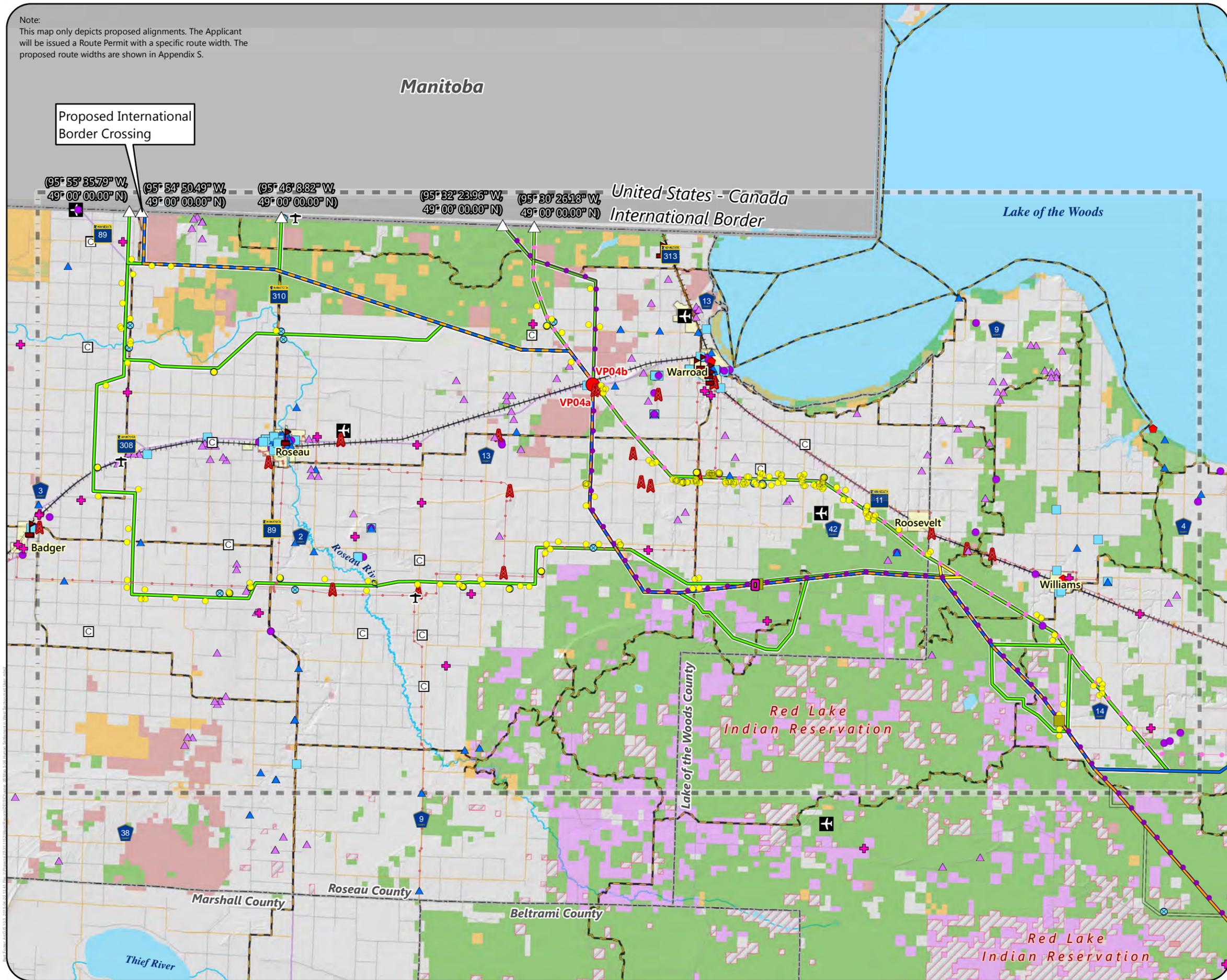
- △ Border Crossing Point
- Proposed Routes**
- Blue/Orange Route
- Blue Route
- Orange Route
- Segment Option
- Alternatives**
- Route Variation
- Route Variation Hop
- Alignment Modification
- Project Section
- Municipal Boundary
- Census Tract
- County Boundary
- International Boundary



Map 5-3
CENSUS TRACTS
 Great Northern Transmission Line
 Draft Environmental Impact Statement



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



- △ Border Crossing Point
- Proposed Regeneration Site
- Visual Simulation Viewpoint

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route

Alternatives

- Route Variation
- Route Variation Hop
- Proposed Series Compensation Station

Existing Transmission Lines

- 69 or 115 kV
- 230 kV
- 500 kV

- Residences Within 1500 Feet of Anticipated Alignment
- Church
- Cemetery
- Airport
- Airstrip
- Aggregate Source Location
- Communication Tower
- County Well Index Within 1,500 Feet of Anticipated Alignment

MPCA Database

- Hazardous Waste
- Investigation and Cleanup
- Tanks and Leaks
- Multiple Activities
- Snowmobile Trail
- Railroad
- Indian Reservation Land

State Fee Lands by Type

- Consolidated Conservation
- Federal - State Lease
- Other - Aquired, Tax Forfeit, Volstead
- Trust Fund

Project Section Miles

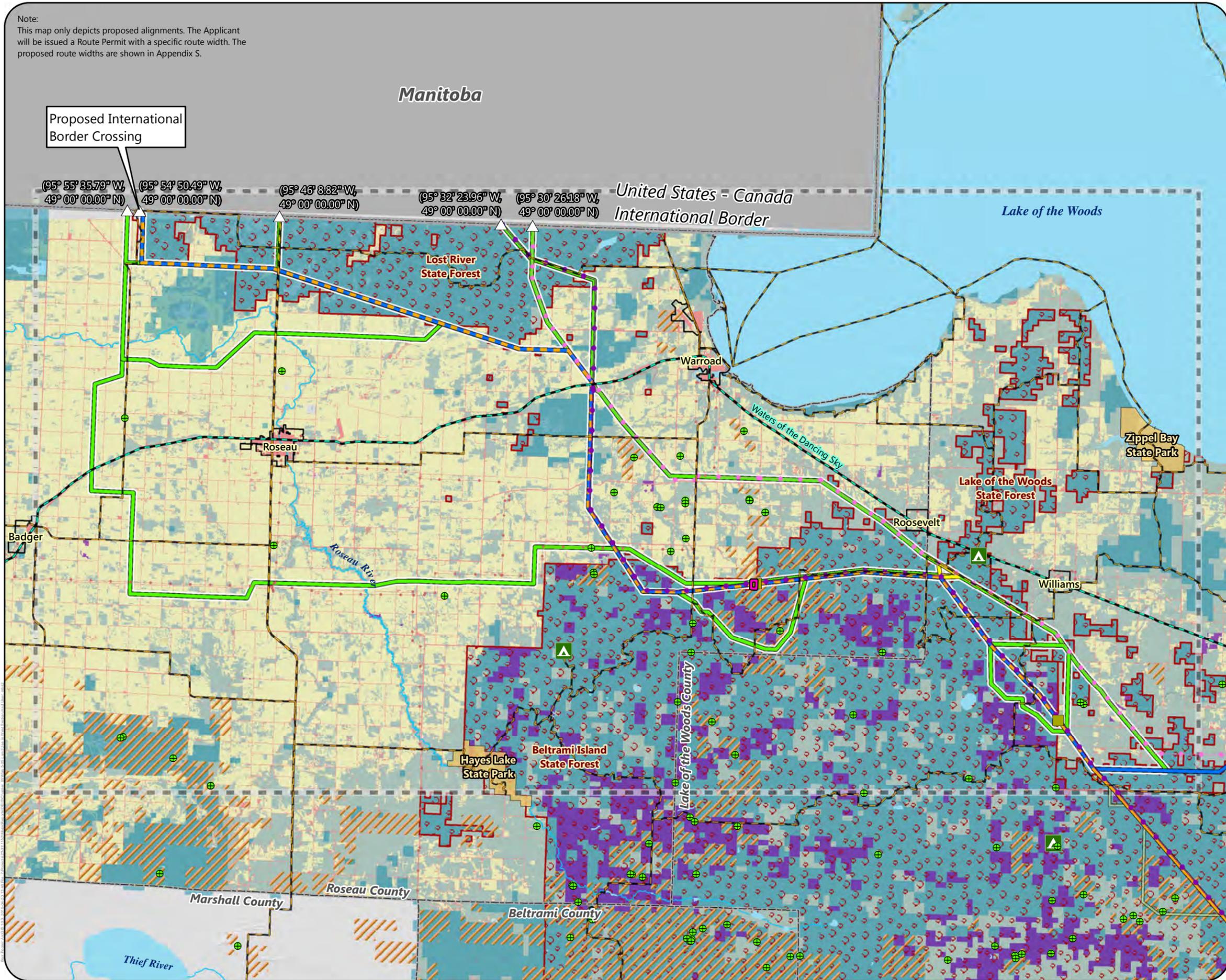
4.5 0 4.5

Map 5-4

HUMAN SETTLEMENT IN WEST SECTION
Great Northern Transmission Line
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Note:
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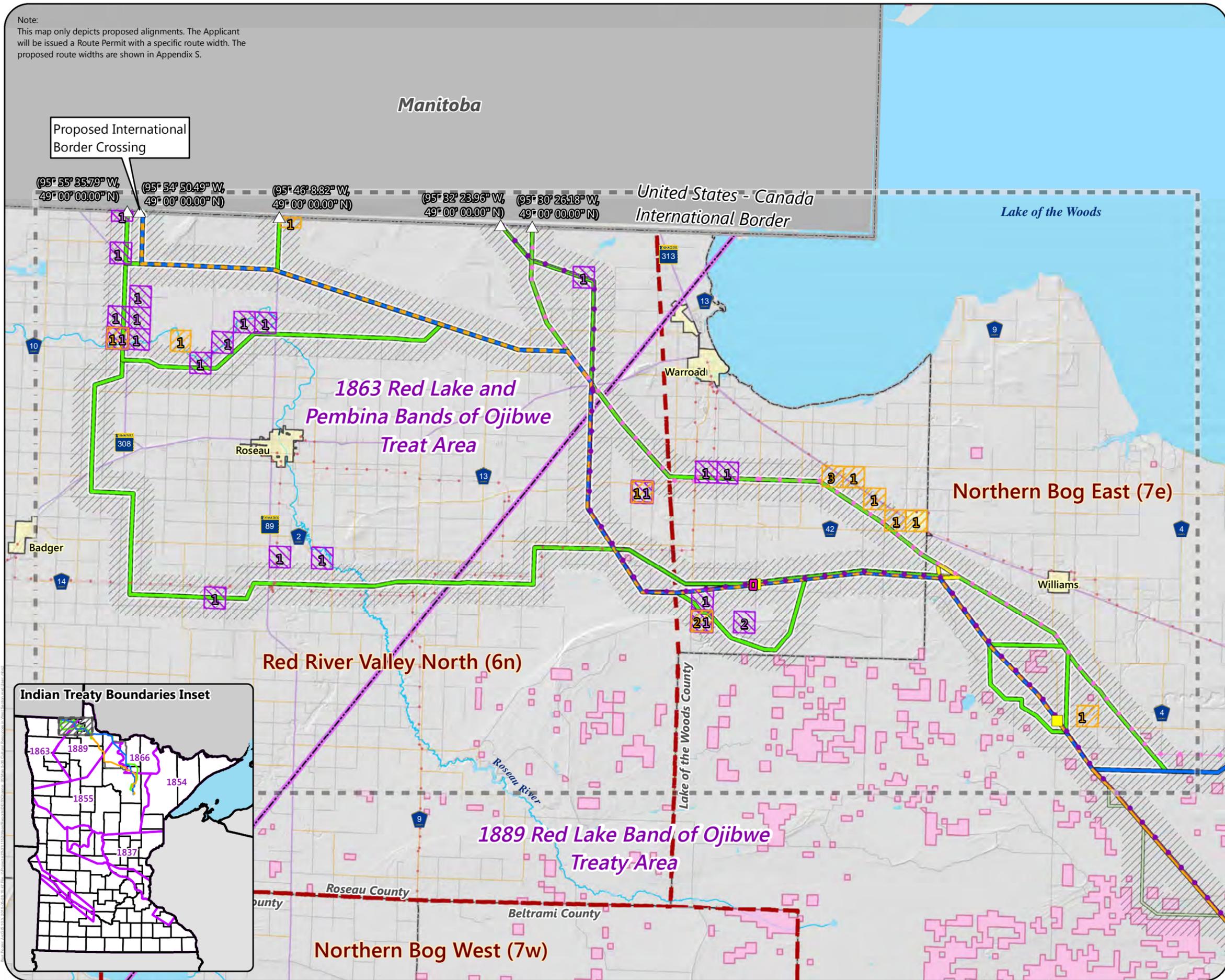
- △ Border Crossing Point
- Proposed Regeneration Site
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
- Alternatives**
 - Route Variation
 - Route Variation Hop
 - Proposed Series Compensation Station
- Existing Transmission Lines**
 - 69 or 115 kV
 - 230 kV
 - 500 kV
 - Mineral Exploration/Engineering Drillhole
 - State Forest Campground
 - Scenic Byway
 - Snowmobile Trail
 - State Park
 - State Forest Boundary
 - USFWS Interest Lands
 - State Fee Lands
- Land Use/Land Cover**
 - Developed or Disturbed Land
 - Forested and/or Swamp Land
 - Great Plains Grassland & Shrubland
 - Agricultural Land
 - Introduced & Semi Natural Vegetation
 - Mineral Lease Location
 - Project Section



LAND USE IN WEST SECTION
Great Northern Transmission Line
Draft Environmental Impact Statement

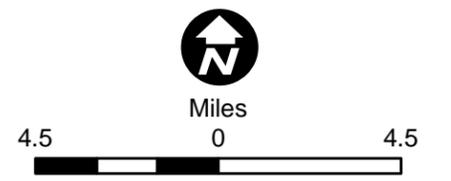
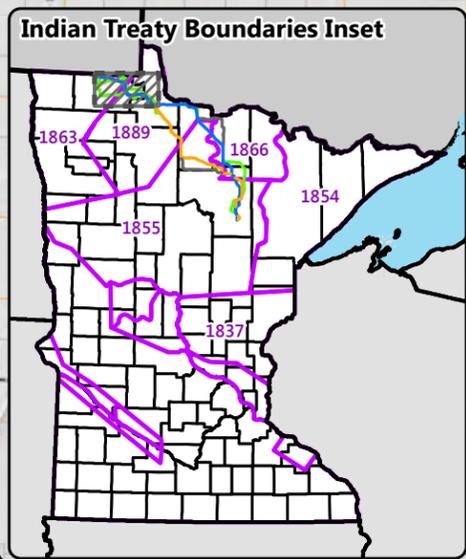


Note:
This map only depicts proposed alignments. The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.



- △ Border Crossing Point
- Proposed Regeneration Site
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
- Alternatives**
 - Route Variation
 - Route Variation Hop
 - Proposed Series Compensation Station
- Existing Transmission Lines**
 - 69 or 115 kV
 - 230 kV
 - 500 kV
 - Cultural Resources Search Area
- Section Containing Cultural Resource***
 - Historic Architectural Sites
 - Archaeological Sites
 - Historic Architectural and Archaeological Sites
 - Archaeological Resource Area
 - Approximate Indian Treaty Boundaries
 - Indian Reservation Land
 - County Boundary
 - Project Section

*Note: Labeled with number of records found by inventory type.

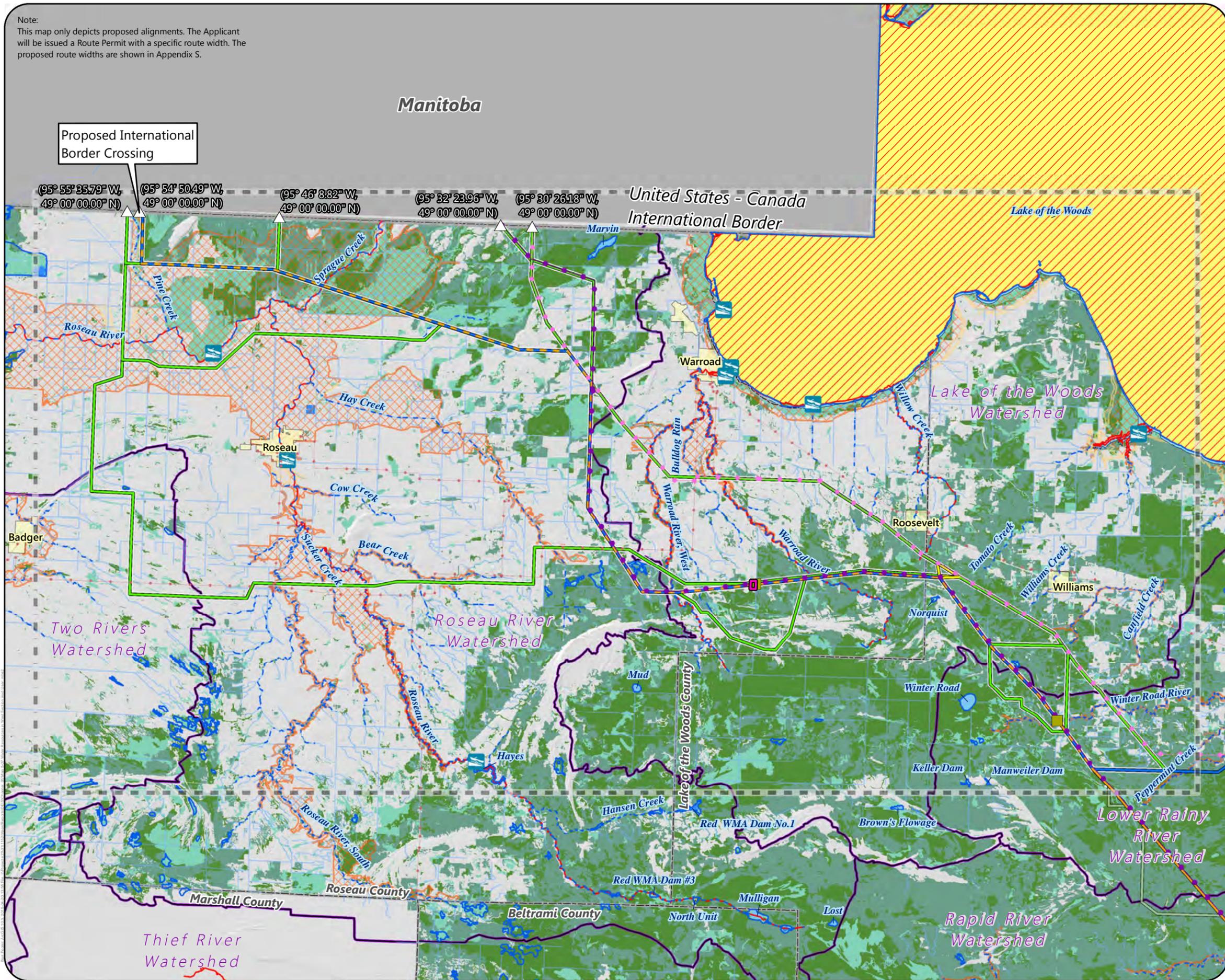


Map 5-6

**CULTURAL RESOURCES
IN WEST SECTION**
Great Northern Transmission Line
Draft Environmental Impact Statement



Note:
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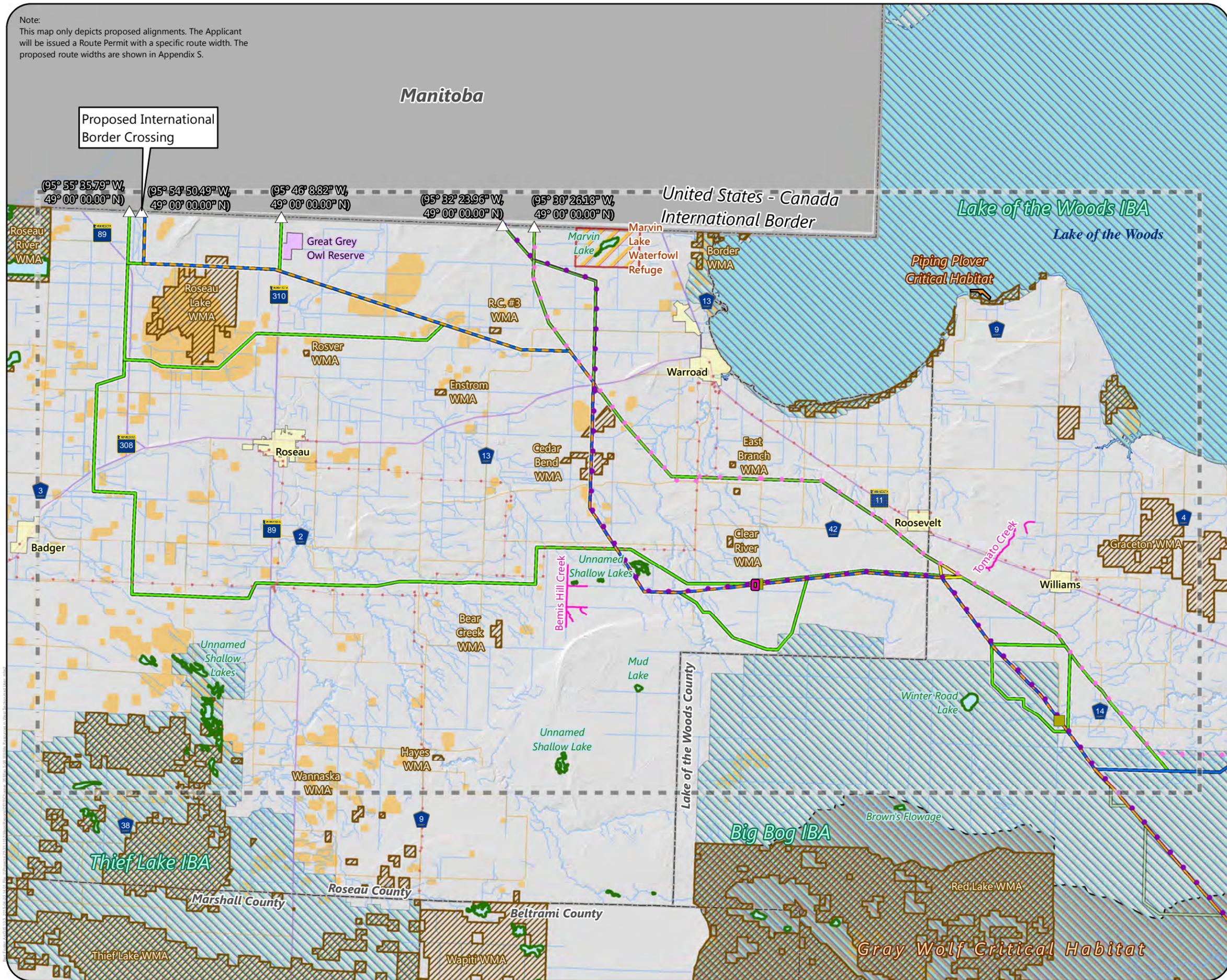
- △ Border Crossing Point
- Proposed Regeneration Site
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
- Alternatives**
 - Route Variation
 - Route Variation Hop
 - Proposed Series Compensation Station
- Existing Transmission Lines**
 - 69 or 115 kV
 - 230 kV
 - 500 kV
- Trailer Launch Water Access
- NHD Watercourse
- PWI Watercourse
- MPCA Impaired Stream
- NHD Waterbody
- PWI Waterbody
- MPCA Impaired Waterbody
- Wild Rice Lake
- Watershed Boundary (HUC-8)
- National Wetland Inventory**
 - PAB, Freshwater Pond
 - PUB, Freshwater Pond & Other
 - PUS, Other
 - PEM, Freshwater Emergent Wetland
 - PFO, Freshwater Forested/Shrub Wetland
 - PSS, Freshwater Forested/Shrub Wetland
 - Lake
 - Riverine
- FEMA Floodplain Data**
 - 100-Year Floodplain
 - 500-Year Floodplain
 - Project Section



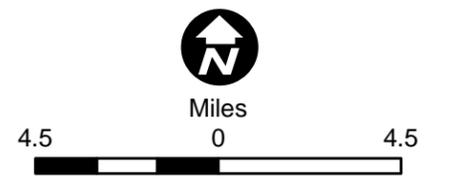
WATER RESOURCES IN WEST SECTION
Great Northern Transmission Line
Draft Environmental Impact Statement



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



- △ Border Crossing Point
- Proposed Regeneration Site
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
- Alternatives**
 - Route Variation
 - Route Variation Hop
 - Proposed Series Compensation Station
- Existing Transmission Lines**
 - 69 or 115 kV
 - 230 kV
 - 500 kV
 - Trout Stream
 - Shallow Lake
 - Great Grey Owl Reserve
 - State Game Refuge
 - Wildlife Management Area (WMA)
 - Audubon Society Important Bird Areas
 - Grassland Bird Conservation Core Areas
- Critical Habitat Extents**
 - Gray Wolf Critical Habitat
 - Piping Plover Critical Habitat
 - Project Section

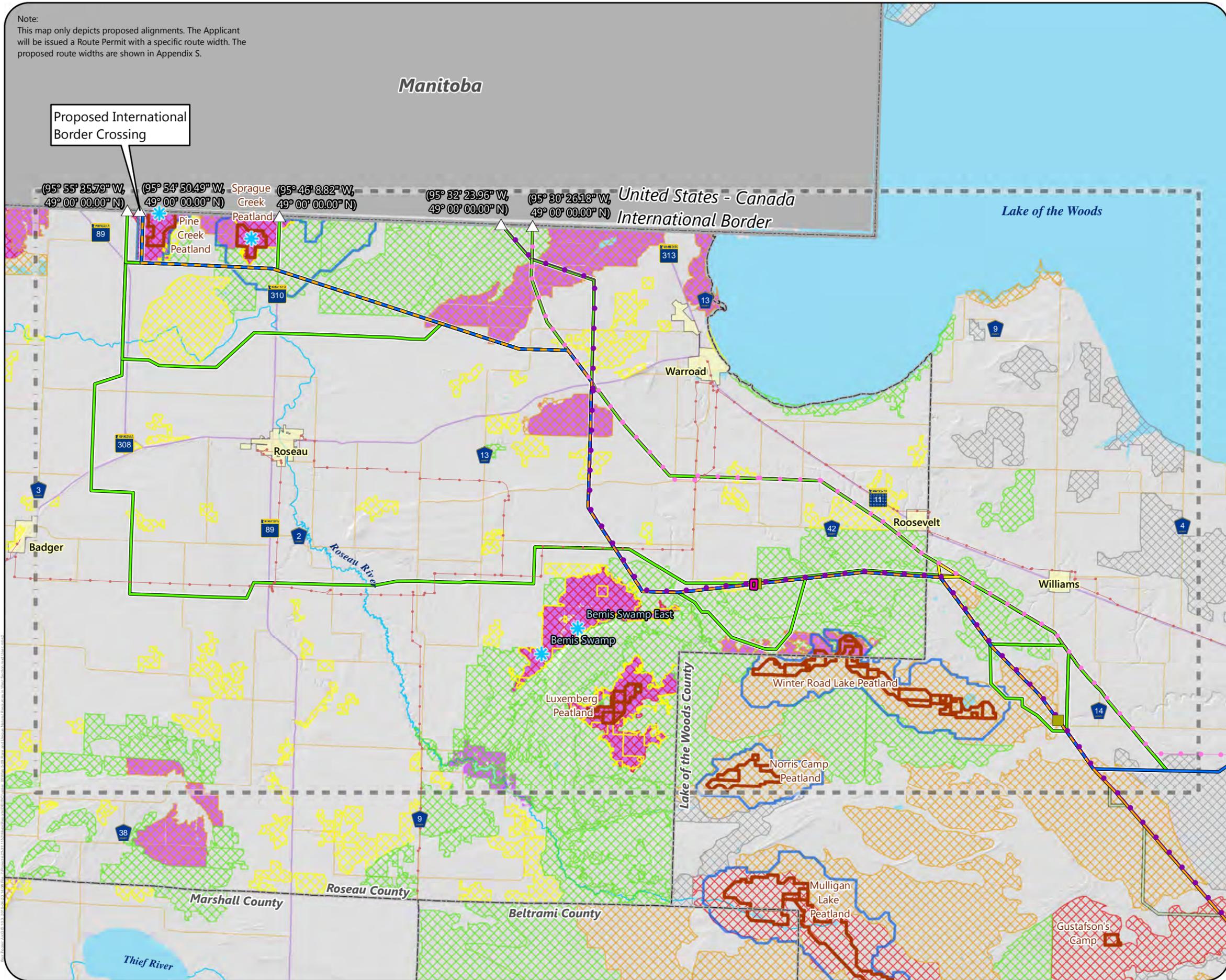


Map 5-8

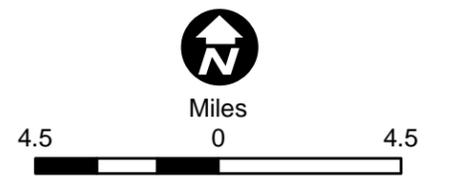
**WILDLIFE RESOURCES
IN WEST SECTION**
Great Northern Transmission Line
Draft Environmental Impact Statement



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



- △ Border Crossing Point
- Proposed Regeneration Site
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
- Alternatives**
 - Route Variation
 - Route Variation Hop
- Proposed Series Compensation Station
- Existing Transmission Lines**
 - 69 or 115 kV
 - 230 kV
 - 500 kV
- ★ Approximate Calcareous Fen Location
- Scientific and Natural Area (SNA)
- Preliminary Peatland SNA Watershed Protection Area
- High Conservation Value Forest
- Native Plant Community (Data only available for Roseau County)
- Site of Biodiversity Significance** (Ranks Preliminary Except for Roseau County)
 - Rank Unknown
 - Below Minimum Significance
 - Moderate Significance
 - High Significance
 - Outstanding Significance
- Project Section



Map 5-9

RARE AND UNIQUE NATURAL RESOURCES IN WEST SECTION
Great Northern Transmission Line
Draft Environmental Impact Statement



Note:
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Manitoba

Proposed International Border Crossing

(95° 55' 35.79" W, 49° 00' 00.00" N) (95° 54' 50.49" W, 49° 00' 00.00" N) (95° 46' 8.82" W, 49° 00' 00.00" N) (95° 32' 23.96" W, 49° 00' 00.00" N) (95° 30' 26.18" W, 49° 00' 00.00" N)

United States - Canada International Border

Lake of the Woods

Warroad

Roseau

Roosevelt

Williams

Badger

Roseau County

Marshall County

Beltrami County

Lake of the Woods County

Thief River

- △ Border Crossing Point
- Proposed Regeneration Site
- Proposed Routes**
 - Blue/Orange Route
 - Blue Route
 - Orange Route
- Alternatives**
 - Route Variation
 - Route Variation Hop
 - Proposed Series Compensation Station
- Existing Transmission Lines**
 - 69 or 115 kV
 - 230 kV
 - 500 kV
 - Snowmobile Trail
- Corridor Sharing by Category***
 - Existing Transmission Line
 - Road
 - Existing Transmission Line & Road
 - Field Line, Section Line, or Trail
 - None
 - Project Section

*Note: Not all corridor sharing combinations shown



Map 5-10

CORRIDOR SHARING IN WEST SECTION
Great Northern Transmission Line
Draft Environmental Impact Statement

