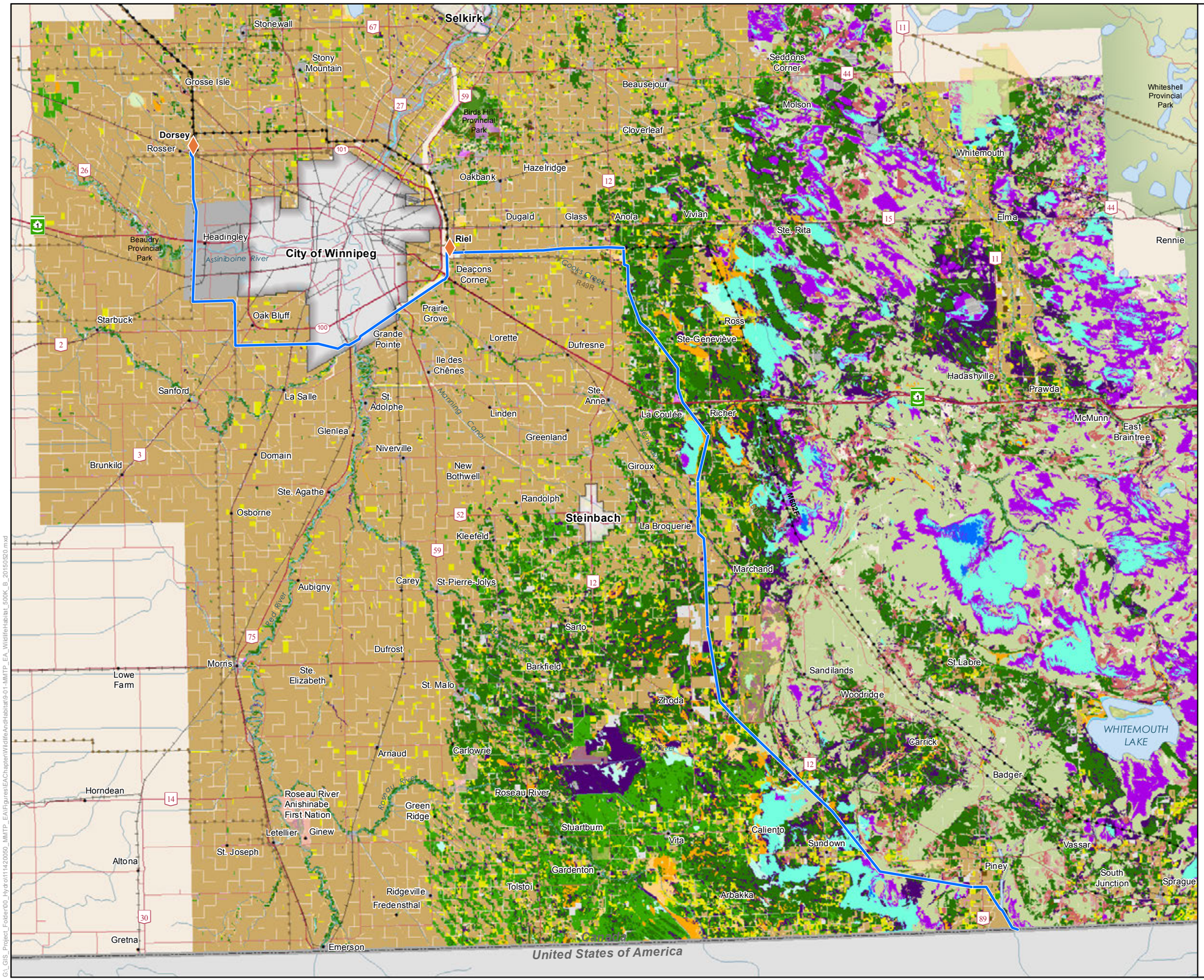


Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Forest Resource Inventory[1]

Non-Forested - Fields/Agriculture
- Abandoned Land
- Cropland
- Hayland
- Land Clearing
- Pasture

Non-Forested - Meadow
- Dry Upland Ridge Prairie
- Moist Pairie
- Wet Meadow

Non-Forested - Unclassified
- Beaver Floods/Gravel Pit/Mine/Dump/Town

Non-Forested, Marsh-Muskeg
- Marsh
- String Bog
- Muskeg
- Water

Non-Productive Forest
- Protection Forest
- Treed Muskeg
- Willow/Alder

Productive Forest
- Hardwood
- Mixedwood - N
- Mixedwood - M
- Softwood

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

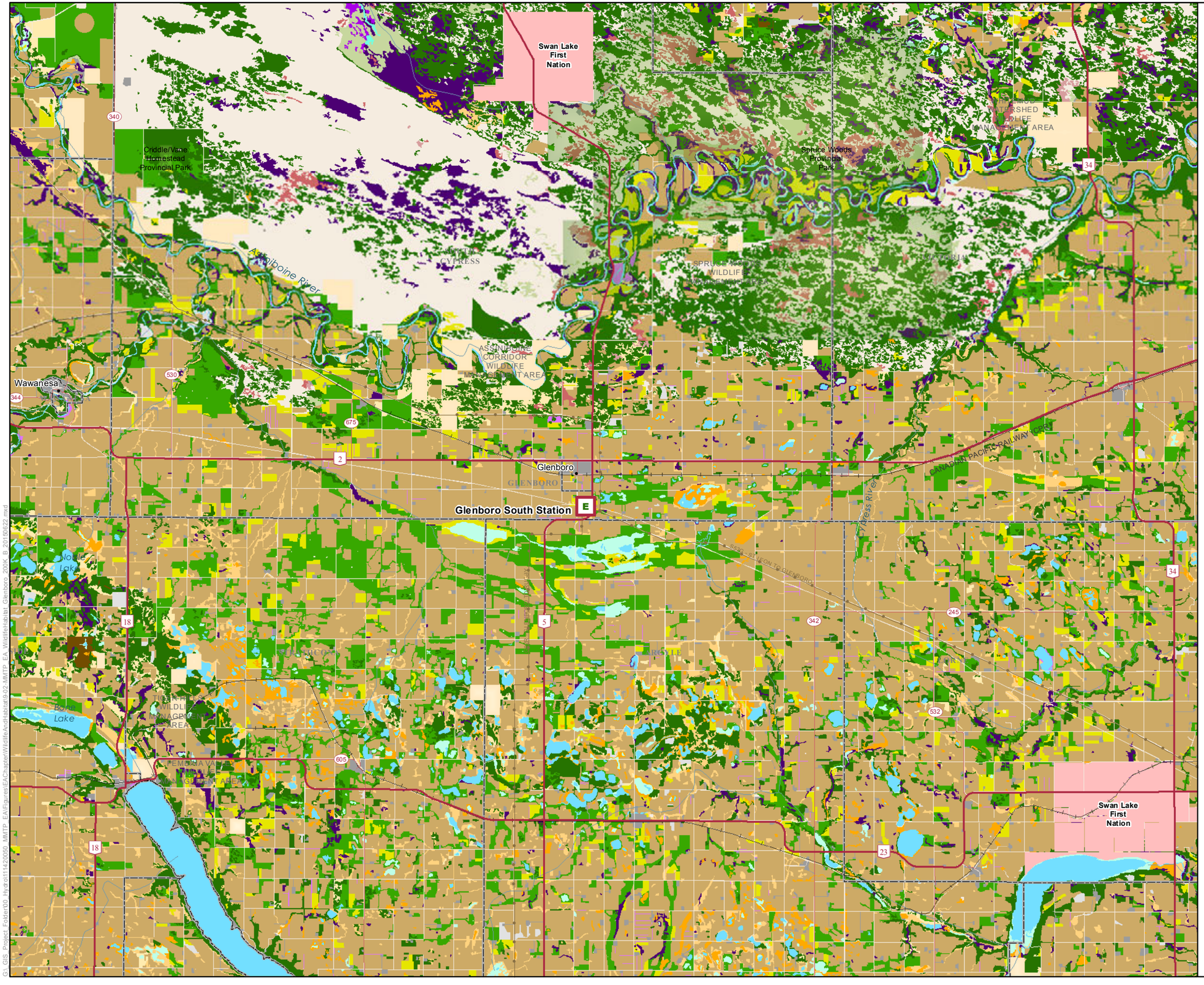
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Wildlife Habitat in the Eastern Project Region

Map 9-1

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-01-MMTP_EA_WildlifeHabitat_500K_B_20150920.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Electrical Station

Infrastructure

- Existing Transmission Line

Forest Resource Inventory

Non-Forested - Fields/Agriculture
- Abandoned Land
- Cropland
- Hayland
- Land Clearing
- Pasture

Non-Forested - Meadow
- Dry Upland Ridge Prairie
- Moist Pairie
- Wet Meadow

Non-Forested - Unclassified
- Beaver Flood/Gravel Pits/Mine/Dump/Town

Non-Forested, Marsh-Muskeg
- Marsh
- Muskeg
- Water

Non-Productive Forest
- Protection Forest
- Treed Muskeg
- Willow/Alder

Productive Forest
- Hardwood
- Mixedwood - N
- Mixedwood - M
- Softwood

Landbase

- Community
- Provincial Highway
- Provincial Road
- Railway
- First Nation Lands
- Wildlife Management Area
- Provincial Park
- Rural Municipality

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

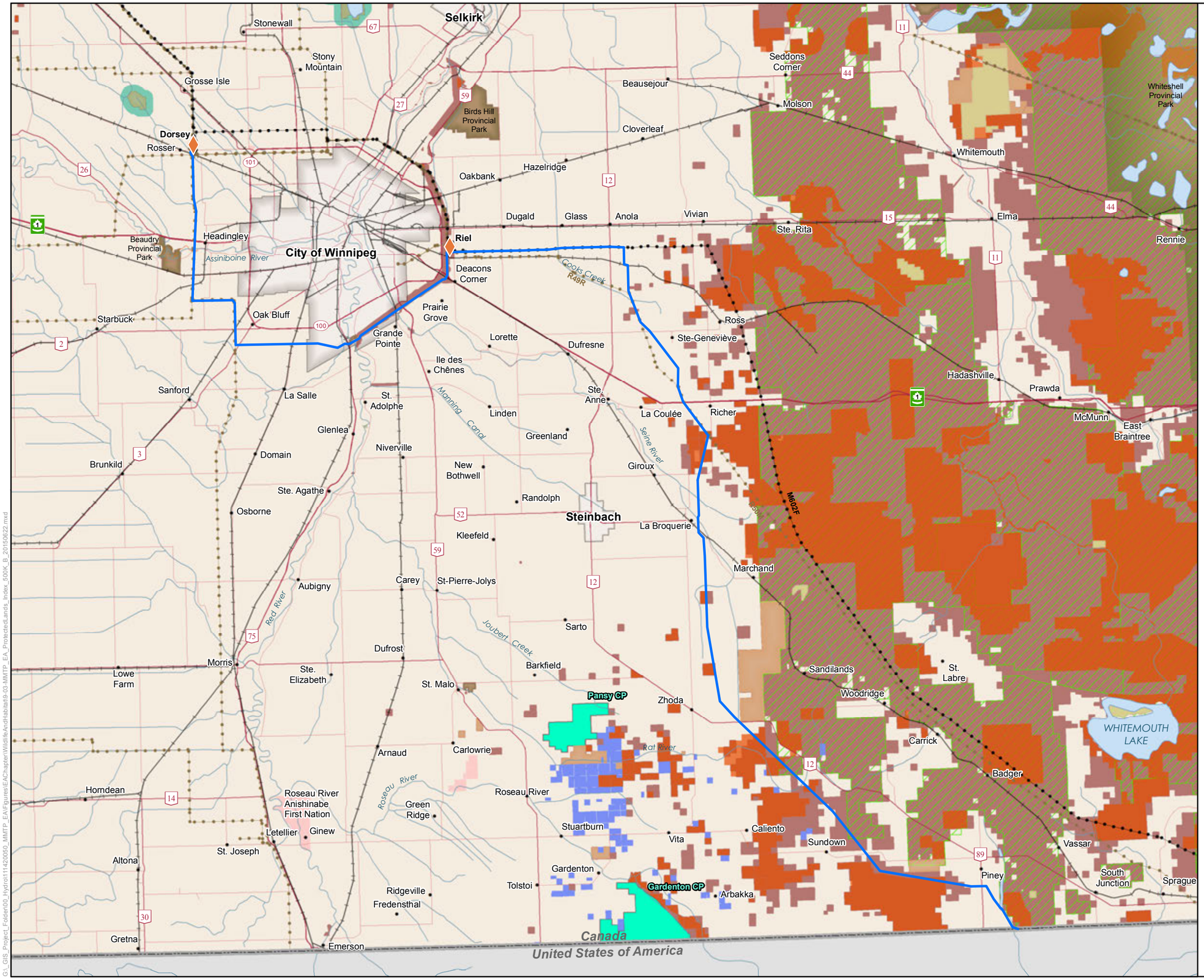
0 5 Kilometres
0 2.5 5 Miles

1:200,000

Wildlife Habitat in the Western Project Region Glenboro

Map 9-2

G:\ GIS_Project_Folder\00_Hydro\11142\0050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-02-MMTP_EA_WildlifeHabitat_Glenboro_200K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Designated and Protected Lands

- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- Privately Owned Tall Grass
- CDC Important Bird Areas
- Candidate Protected Areas[1]
- Community Pastures
- Provincial Forest
- Manitoba Crown Lands

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- City

Source:
1. Candidate Protected Areas, 2013, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 14, 2015

N

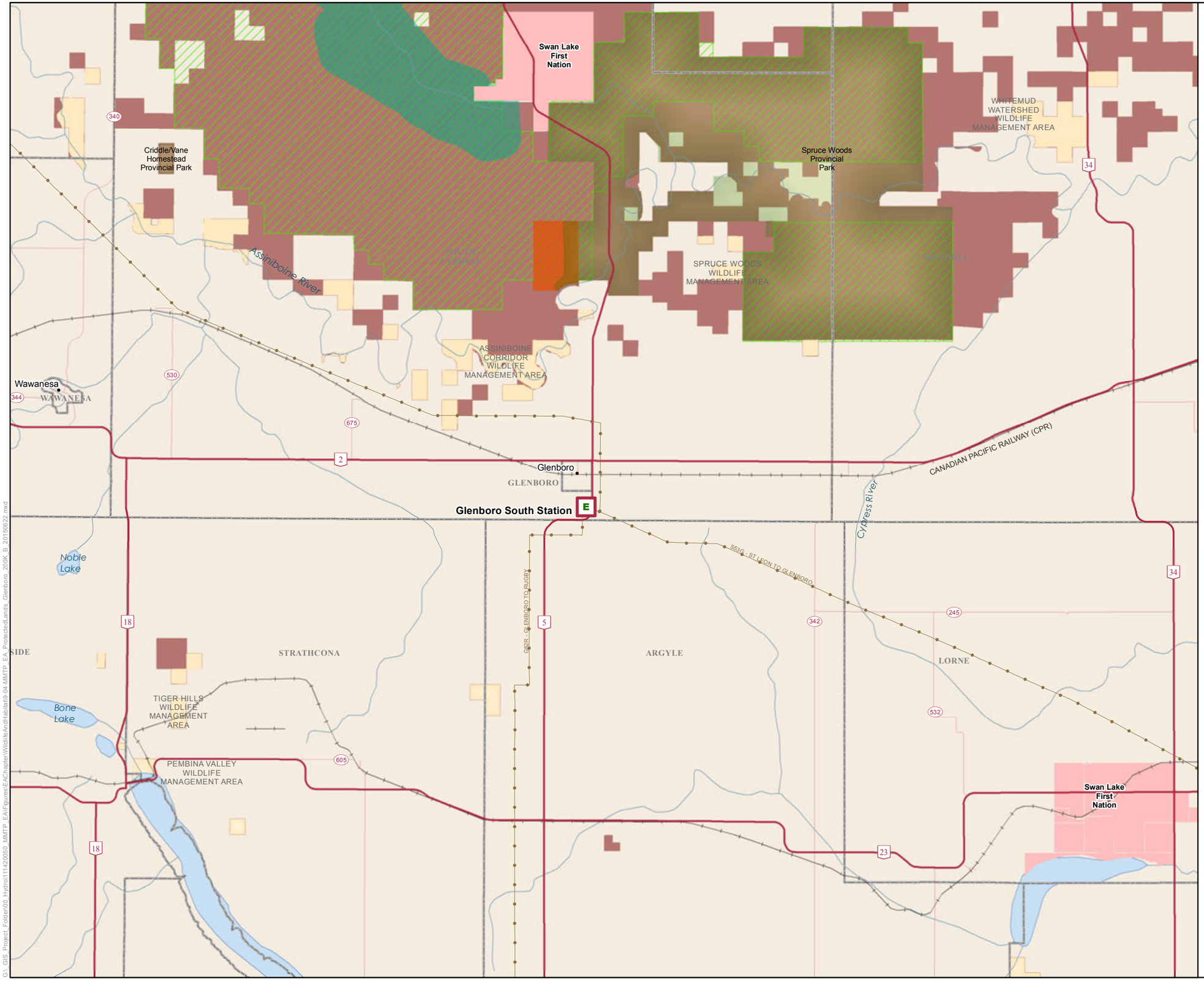
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Designated and Protected Lands in the Eastern Project Region

Map 9-3

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-03-MMTP_EA_ProtectedLands_Index_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Electrical Station

Infrastructure

- Existing Transmission Line

Landbase

- Community
- Provincial Highway
- Provincial Road
- Railway
- CDC Important Bird Areas
- First Nation Lands
- Manitoba Crown Lands
- Provincial Park
- Candidate Protected Areas[1]
- Provincial Forest
- Rural Municipality
- Wildlife Management Area

Source:
1. Candidate Protected Areas, 2013, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 14, 2015

N

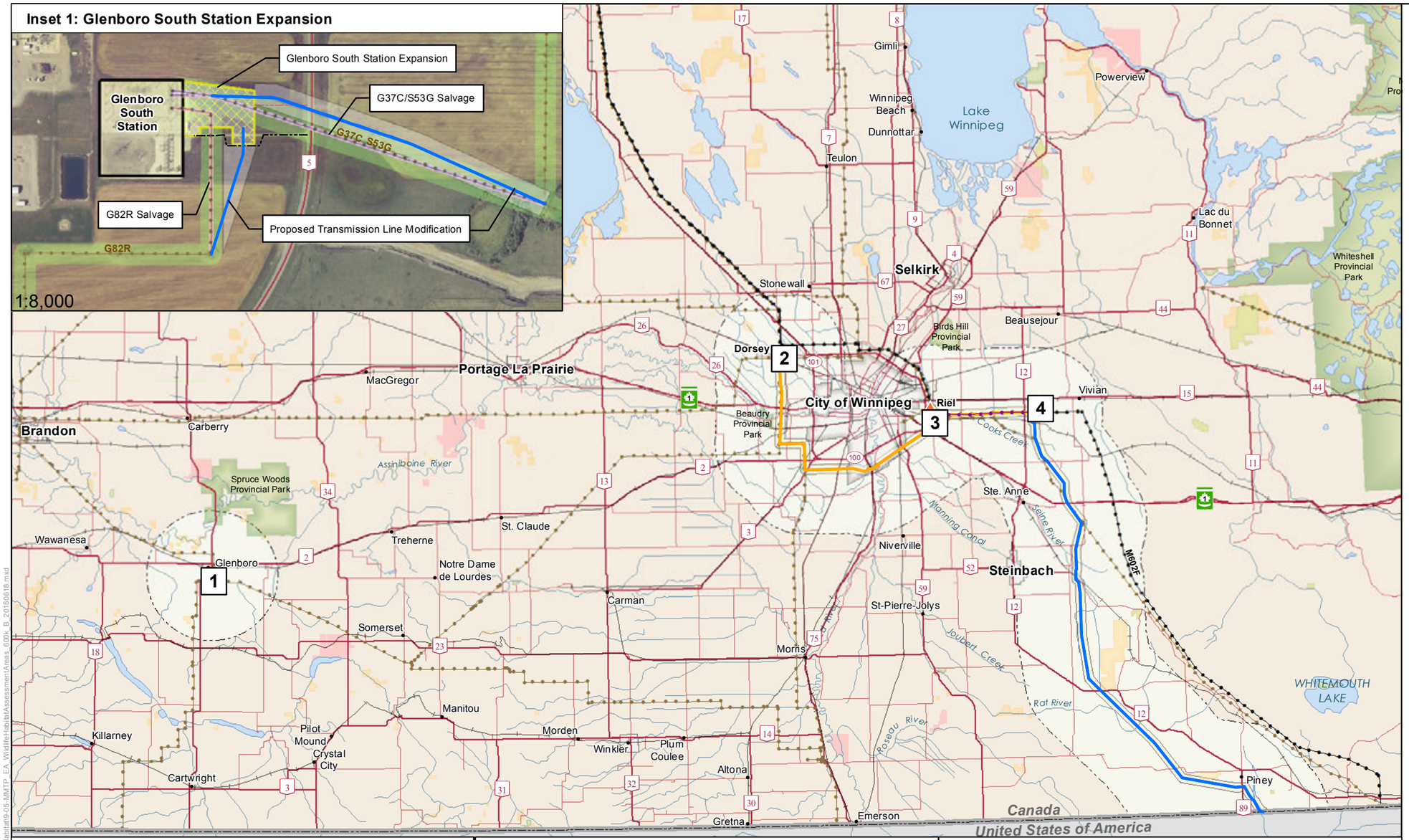
0 5 Kilometres
0 2.5 5 Miles

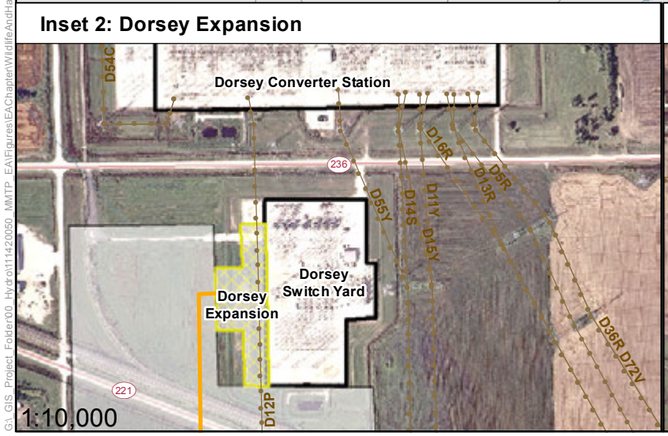
1:200,000

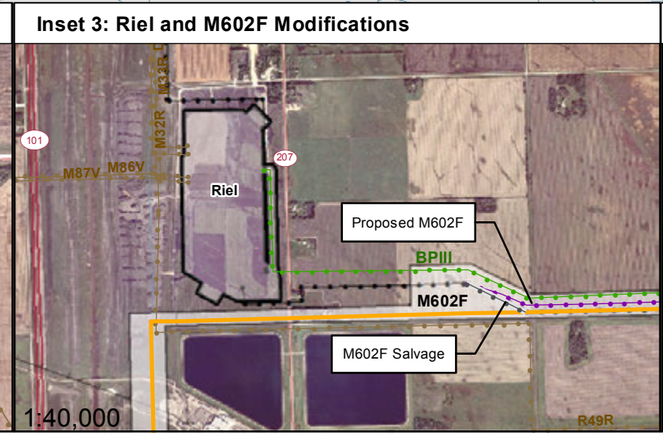
Designated and Protected Lands in the Western Project Region

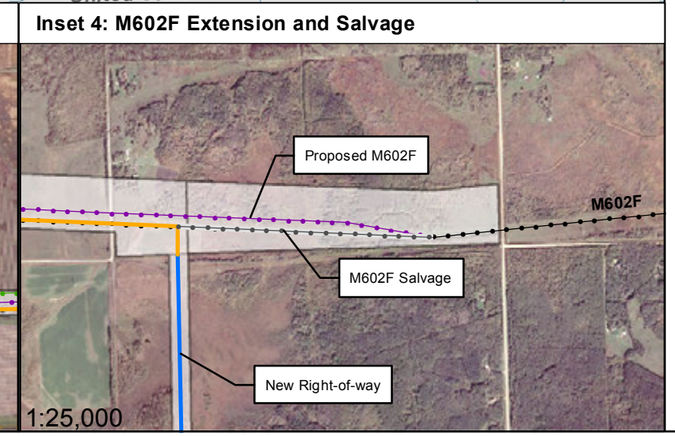
Map 9-4

G:_GIS_Project_Folder\00_Hydro\111420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-04-MMTP_EA_ProtectedLands_Glenboro_200K_B_20150622.mxd









Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Final Preferred Route (Existing Corridor)
- Final Preferred Route (New Right-of-way)
- Transmission Line (Salvage)
- M602F Modification (New)
- Existing/New Glenboro South Station Access
- New Glenboro South Station Access
- G37C Salvage
- G82R Salvage
- Station Expansion
- Existing ROW
- Project Development Area (PDA)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- City
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- Provincial Boundary

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 11, 2015

N

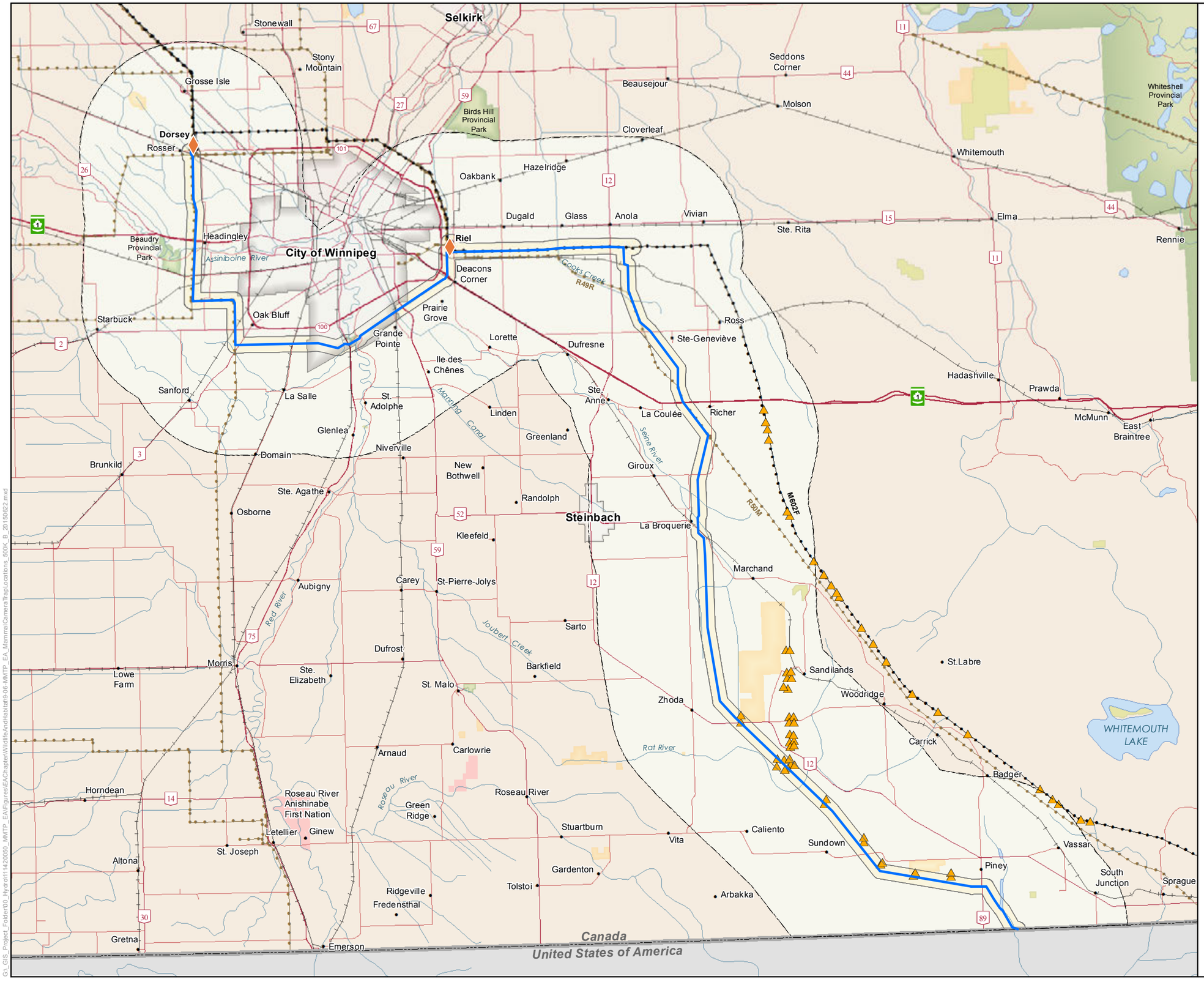
0 10 20 Kilometres
0 5 10 20 Miles

1:1,000,000

Project Infrastructure and Wildlife and Wildlife Habitat Assessment Areas

Map 9-5

G:\GIS_Project_Folder\00_Hydro\111420050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-05-MMTP_EA_WildlifeHabitatAssessmentAreas_600k_B_20150618.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Mammal Camera Trap Locations

- Mammal Camera Trap

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

0 5 10 Kilometres
0 5 10 Miles

1:500,000

Mammal Camera Trap Locations 2014

Map 9-6

G:_GIS_Project_Folder\00_Hydro\11142\0050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-06-MMTP_EA_MammalCameraTrapLocations_500K_B_20150822.mxd

Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Elk Survey Sites and Habitat

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Potential Elk Habitat[1]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

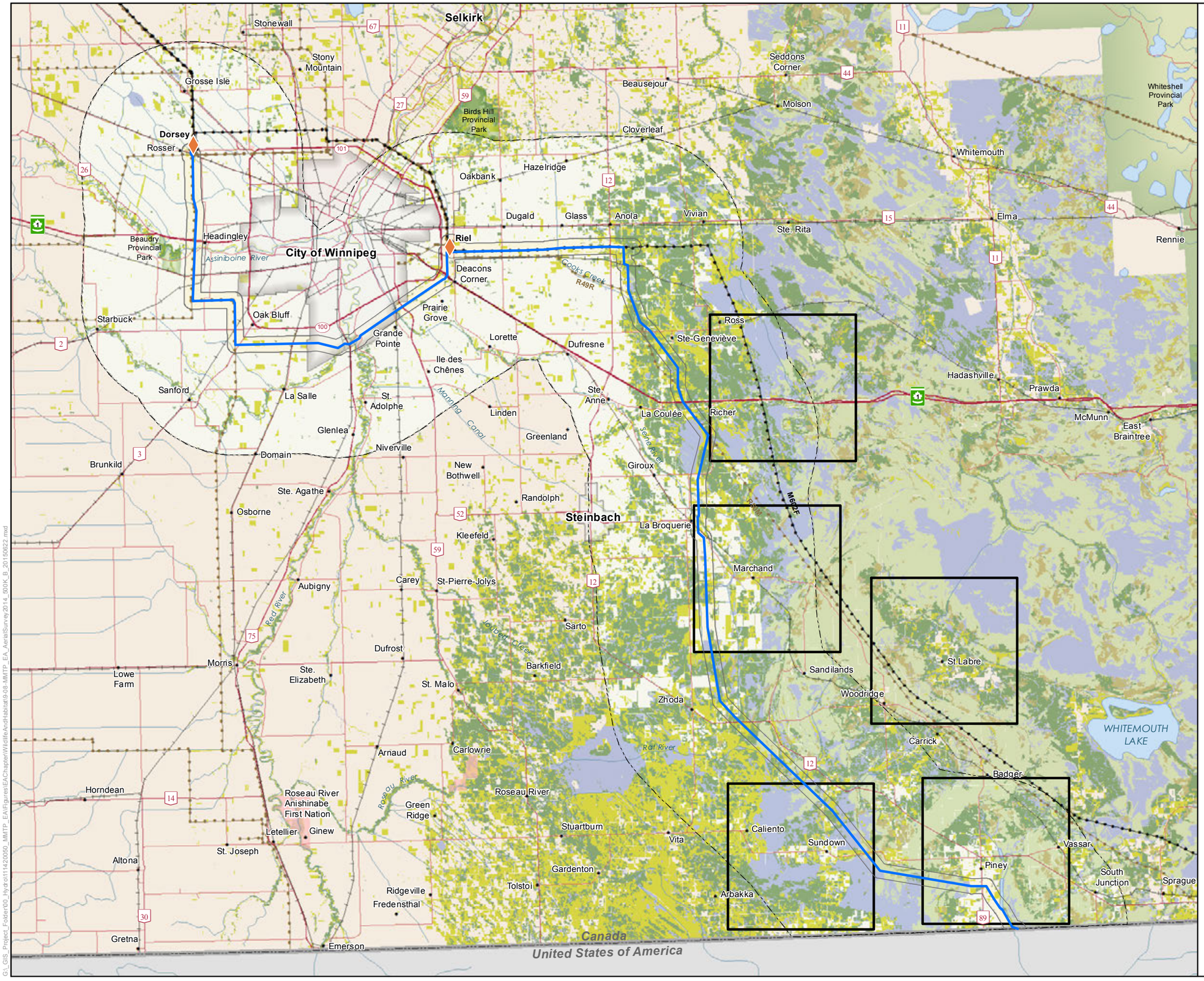
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Elk Breeding Survey Locations 2014

Map 9-7

G:_GIS_Project_Folder\00_Hydro\11142\0050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-07-MMTP_EA_ElkBreedingSurvey_500K_B_20150822.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Aerial Survey Grid

- Aerial Survey Block

Natural Wildlife Habitat[1]

- Grassland
- Hardwood
- Mixedwood
- Softwood
- Wetland

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

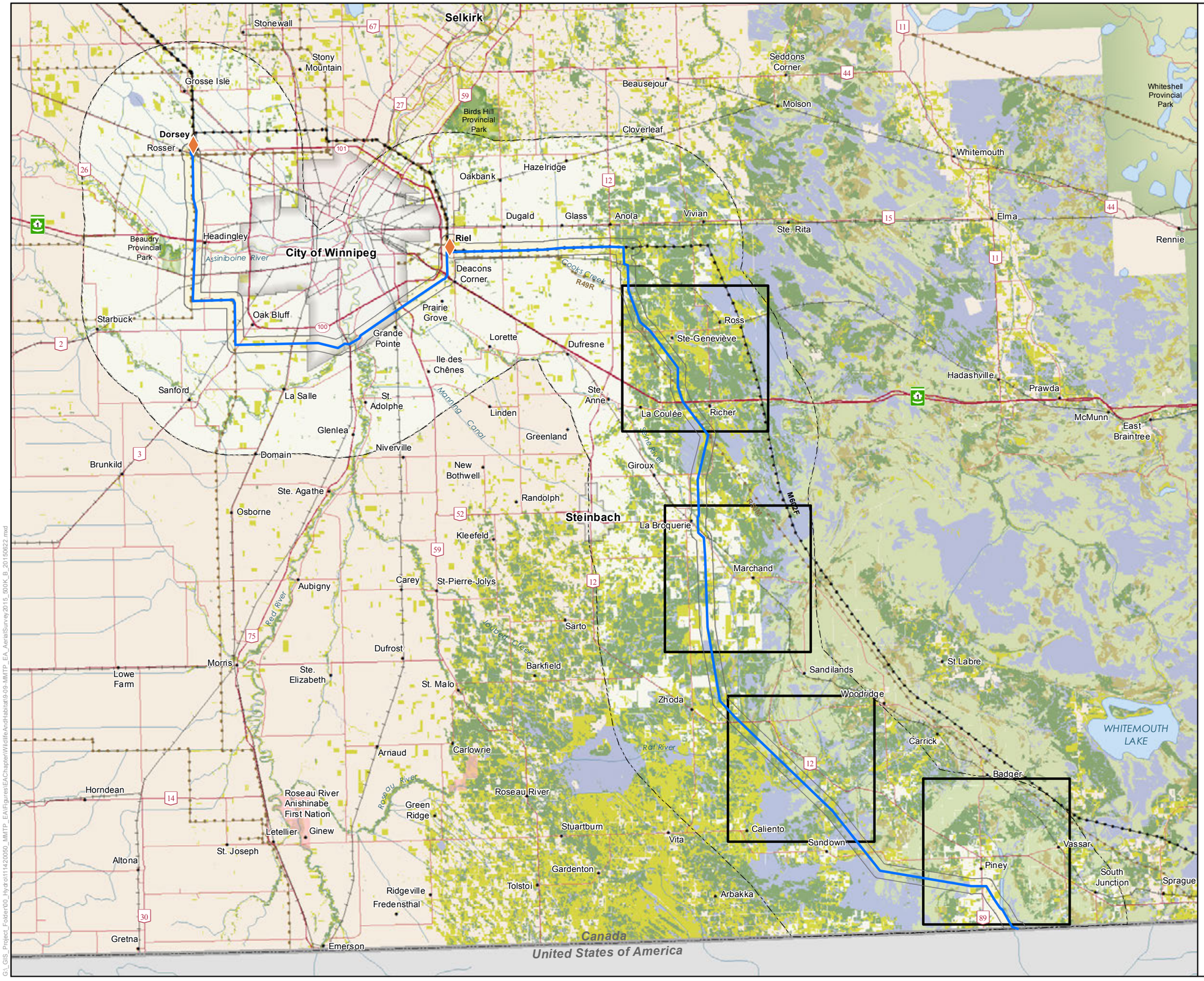
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Aerial Winter Mammal Track Survey Location 2014

Map 9-8

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-08-MMTP_EA_AerialSurvey2014_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Aerial Survey Grid

- Aerial Survey Block

Natural Wildlife Habitat[1]

- Grassland
- Hardwood
- Mixedwood
- Softwood
- Wetland

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

0 5 10 Kilometres
0 5 10 Miles

1:500,000

Aerial Winter Mammal Track Survey Location 2015

Map 9-9

G:_GIS_Project_Folder\00_Hydro\11\420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-09-MMTP_EA_AerialSurvey2015_500K_B_20150622.mxd

Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Breeding Bird Survey Location

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: July 29, 2015

N

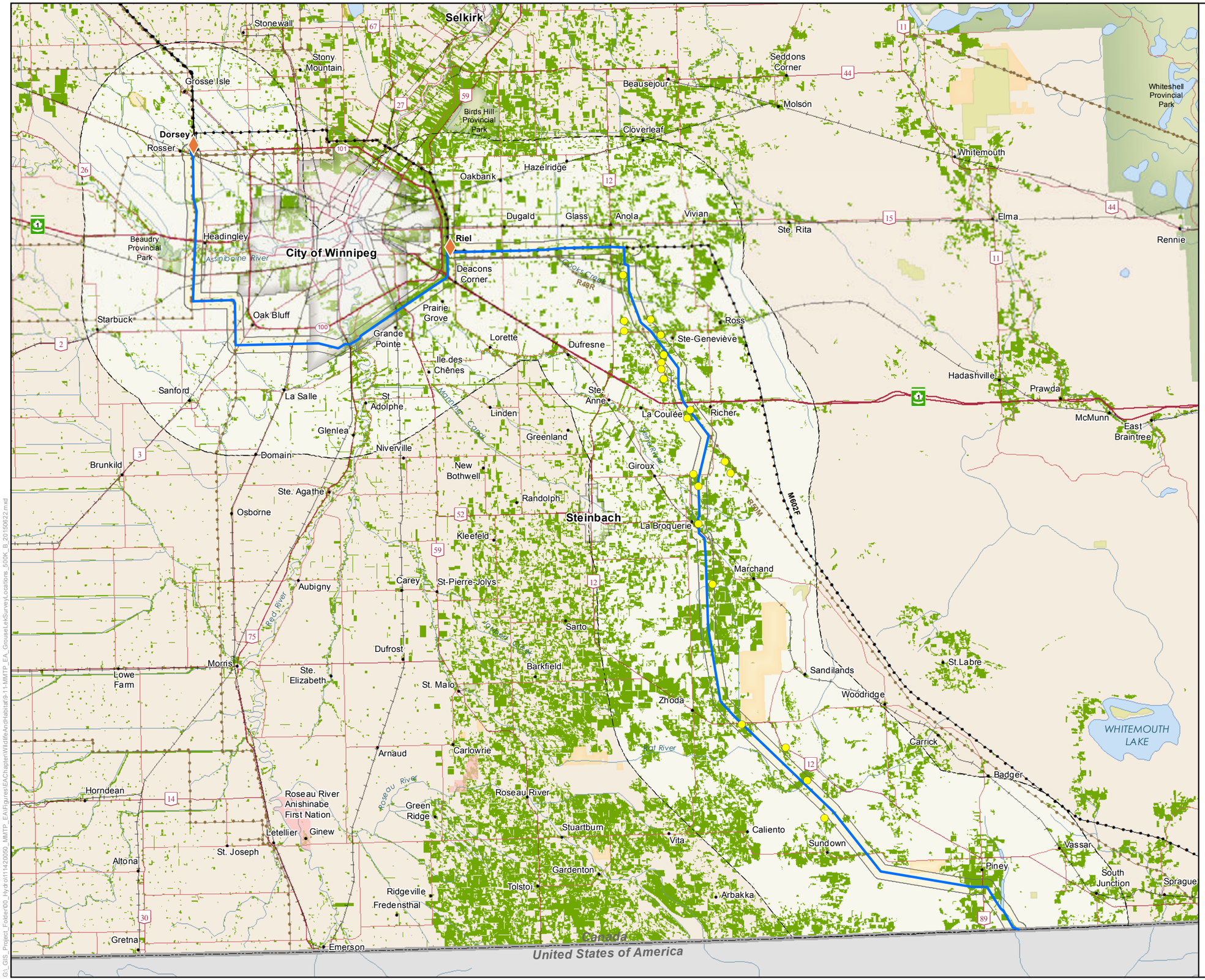
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Breeding Bird Survey Locations 2014

Map 9-10

G:_GIS_Project_Folder\00_Hydro\111420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-10-MMTP_EA_BBSLocations_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Features and Habitat

- Sharp-tailed Grouse Lek Survey Site
- Potential Grouse Lek Habitat[1]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Federal Land Cover Classification, 1996-2005, Natural Resources Canada

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

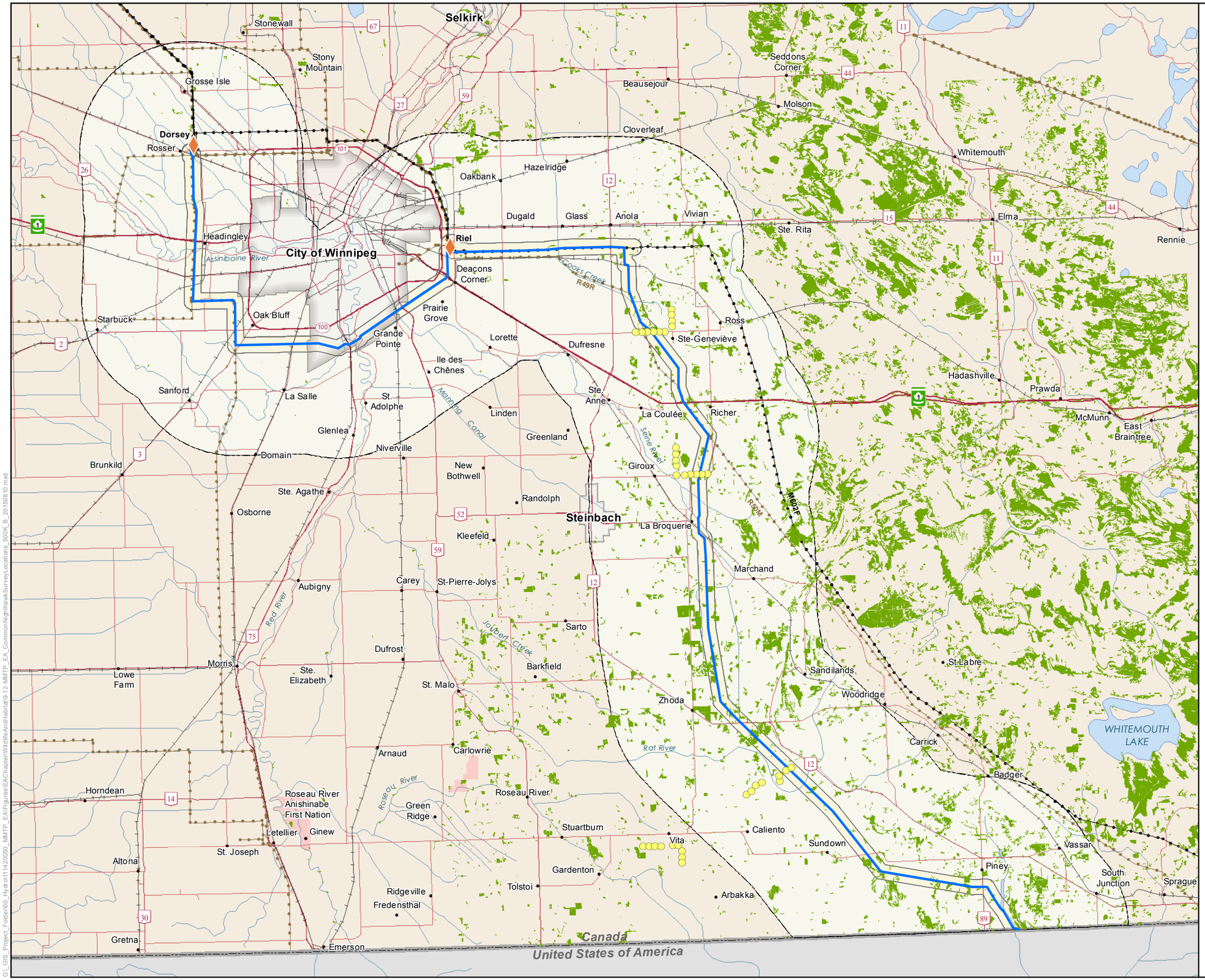
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Sharp-tailed Grouse Lek Survey Locations 2014

Map 9-11

G:_GIS_Project_Folder\00_Hydro\11142005D_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-11-MMTP_EA_GrouseLekSurveyLocations_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Common Nighthawk Survey Features and Habitat

- Nocturnal Survey Site
- Potential Common Nighthawk Habitat[1]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

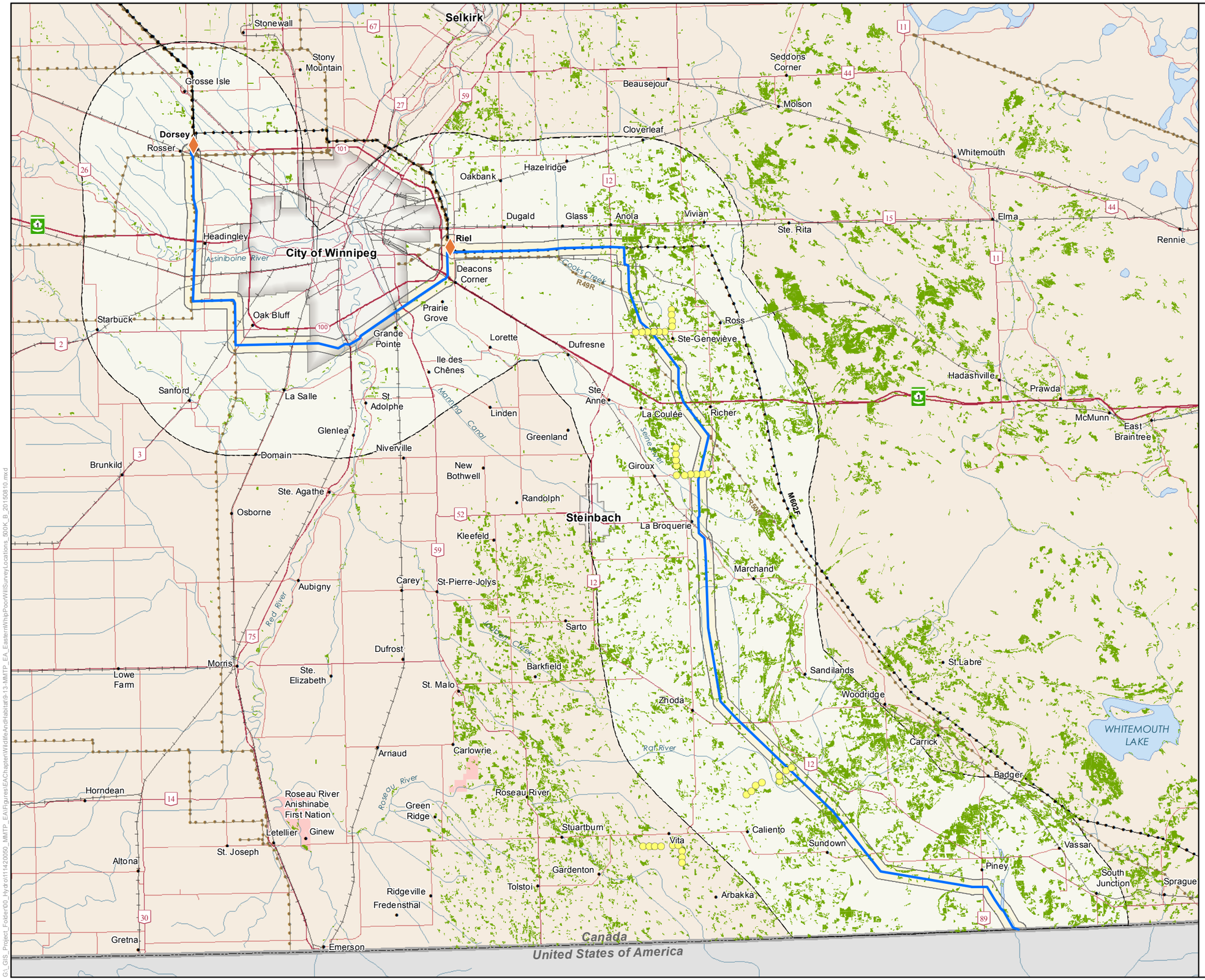
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Common Nighthawk Survey Locations 2014

Map 9-12

G:_GIS_Project_Folder\00_Hydro\111420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-12-MMTP_EA_CommonNighthawkSurveyLocations_500K_B_20150810.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Eastern Whip-Poor-Will Survey Features and Habitat

- Nocturnal Survey Site
- Potential Eastern Whip-Poor-Will Habitat[1]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

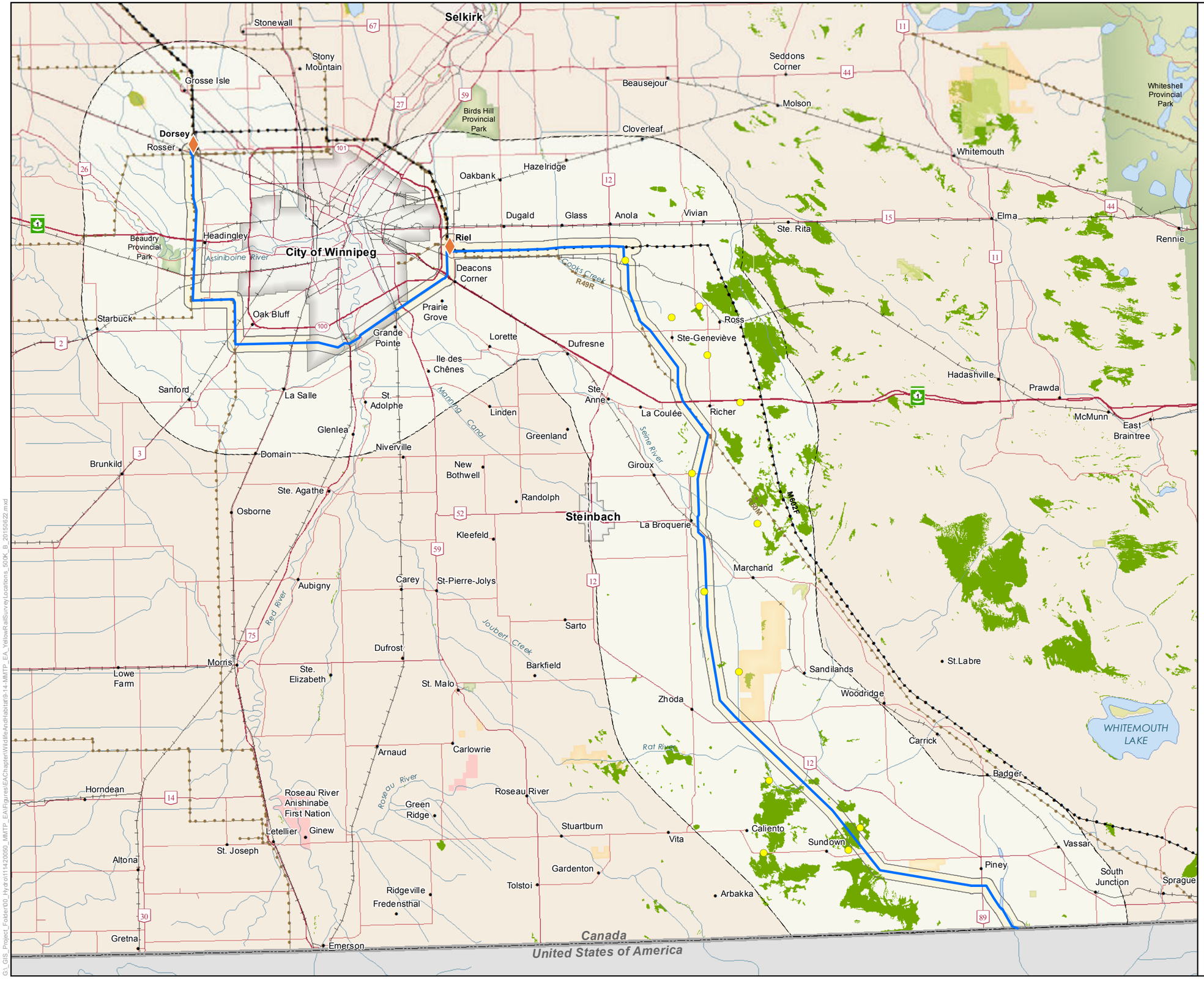
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Eastern Whip-Poor-Will Survey Locations 2014

Map 9-13

G:_GIS_Project_Folder\00_Hydro\111420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-13-MMTP_EA_EasternWhipPoorWillSurveyLocations_500K_B_20150810.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Yellow Rail Survey Features and Habitat

- Yellow Rail Survey Site
- Potential Yellow Rail Suitable Habitat[1, 2]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship
2. Vegetation and Wetlands, 2015, Stantec

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

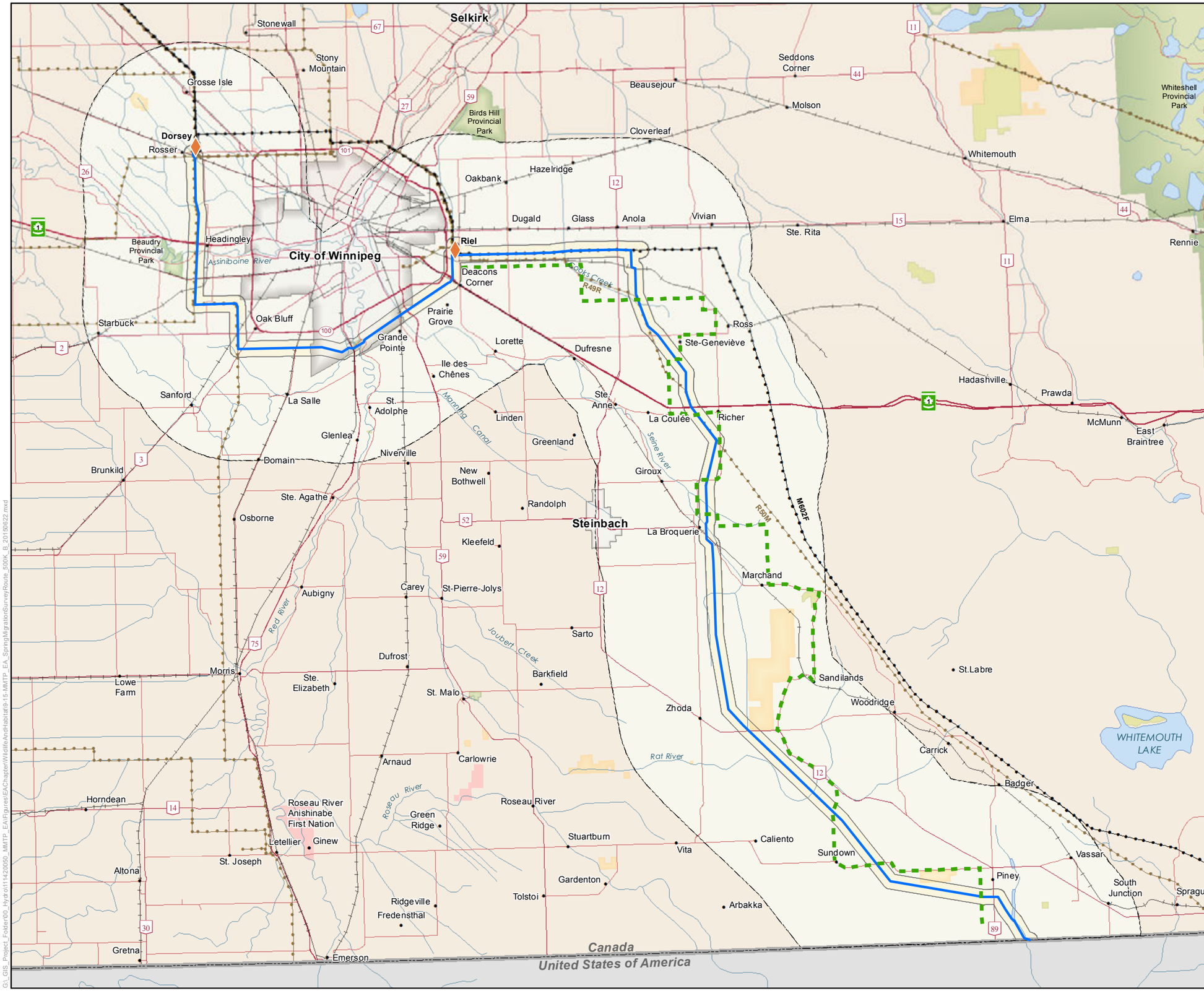
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Yellow Rail Survey Locations 2014

Map 9-14

G:_GIS_Project_Folder\00_Hydro\11142\050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-14-MMTP_EA_YellowRailSurveyLocations_500K_B_20150822.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Spring Migration Survey Route

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

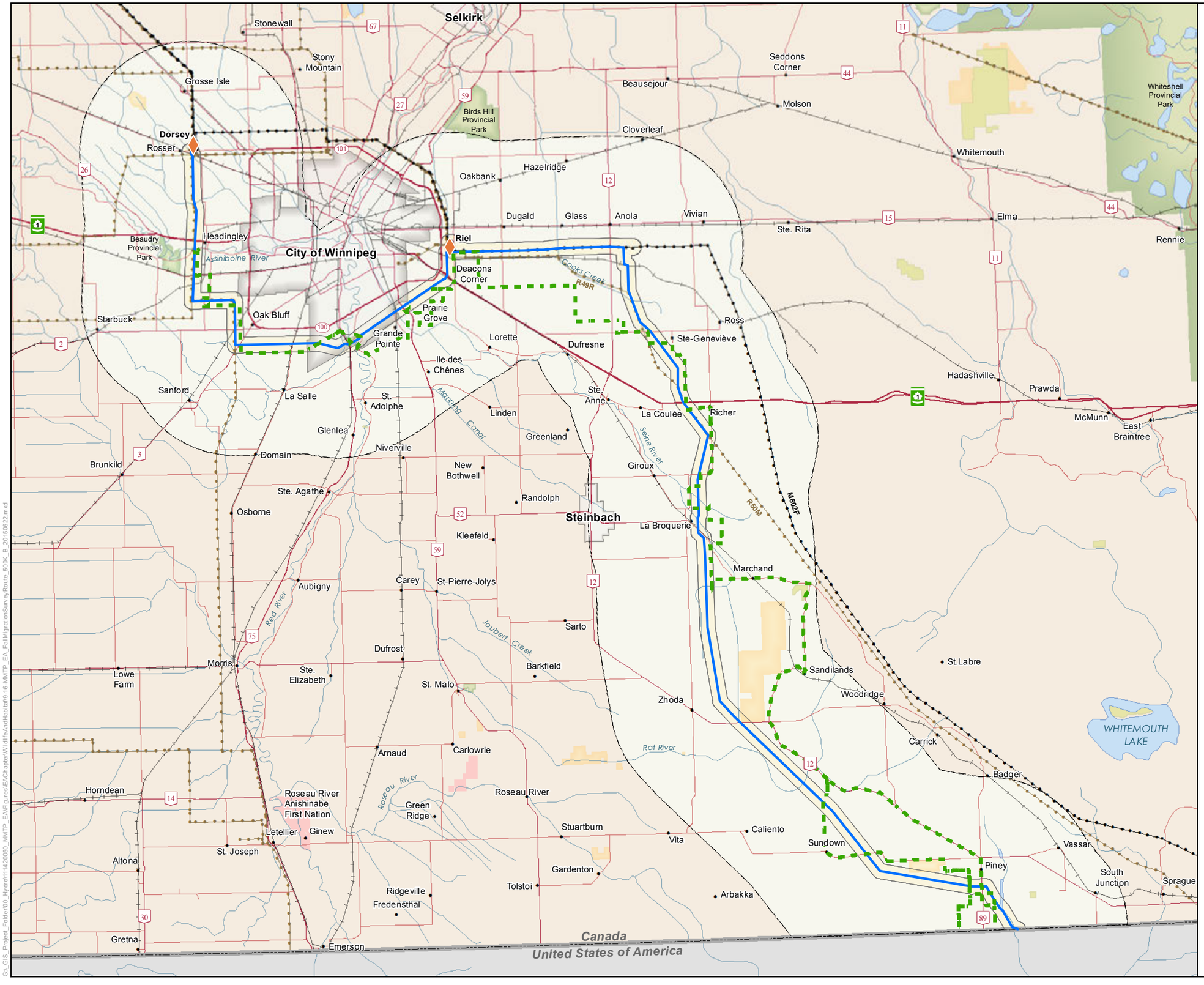
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Spring Migration Survey Route 2014

Map 9-15

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-15-MMTP_EA_SpringMigrationSurveyRoute_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Fall Migration Survey Route

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

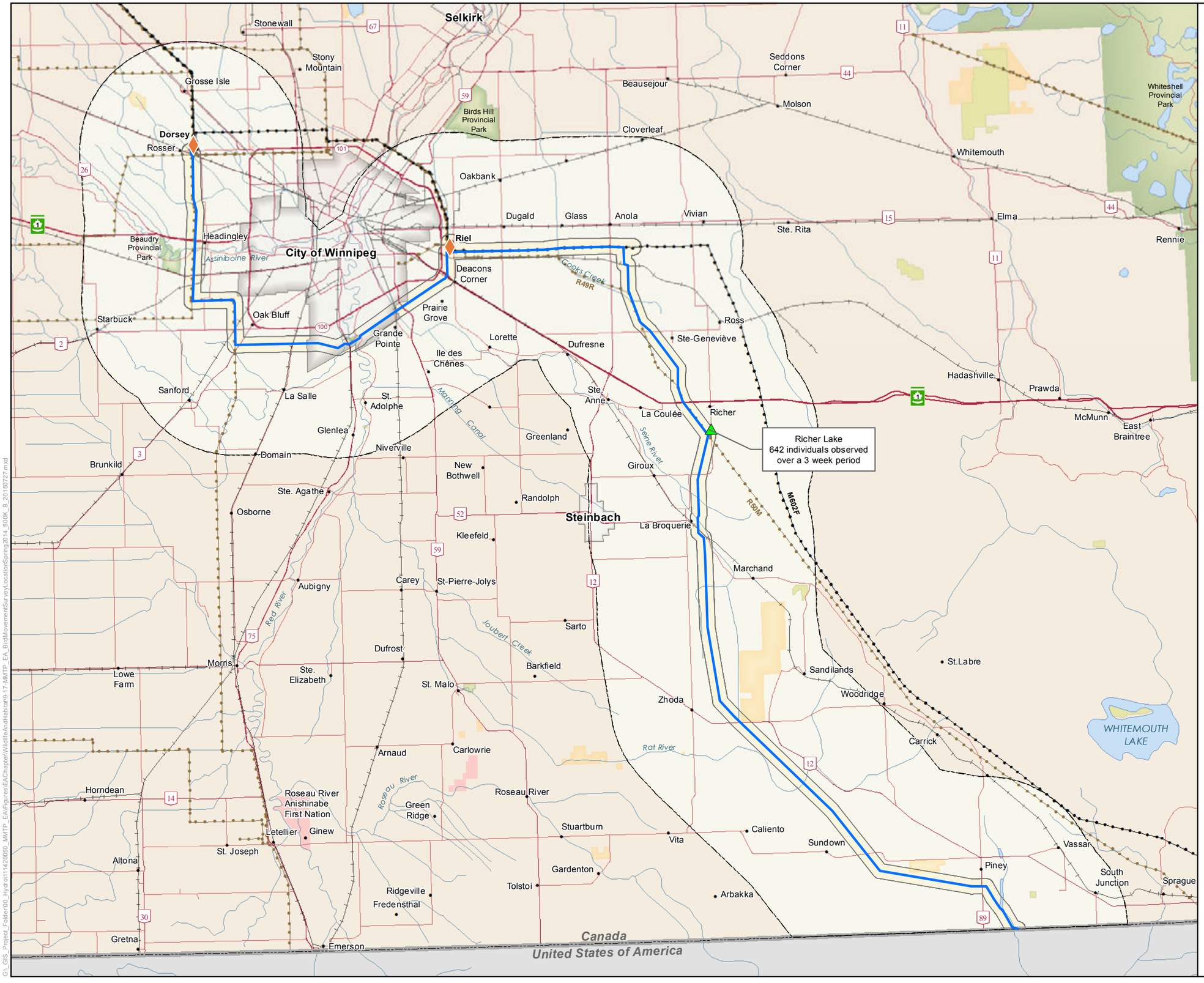
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Fall Migration Survey Route 2014

Map 9-16

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-16-MMTP_EA_FallMigrationSurveyRoute_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Bird Movement Survey Location

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

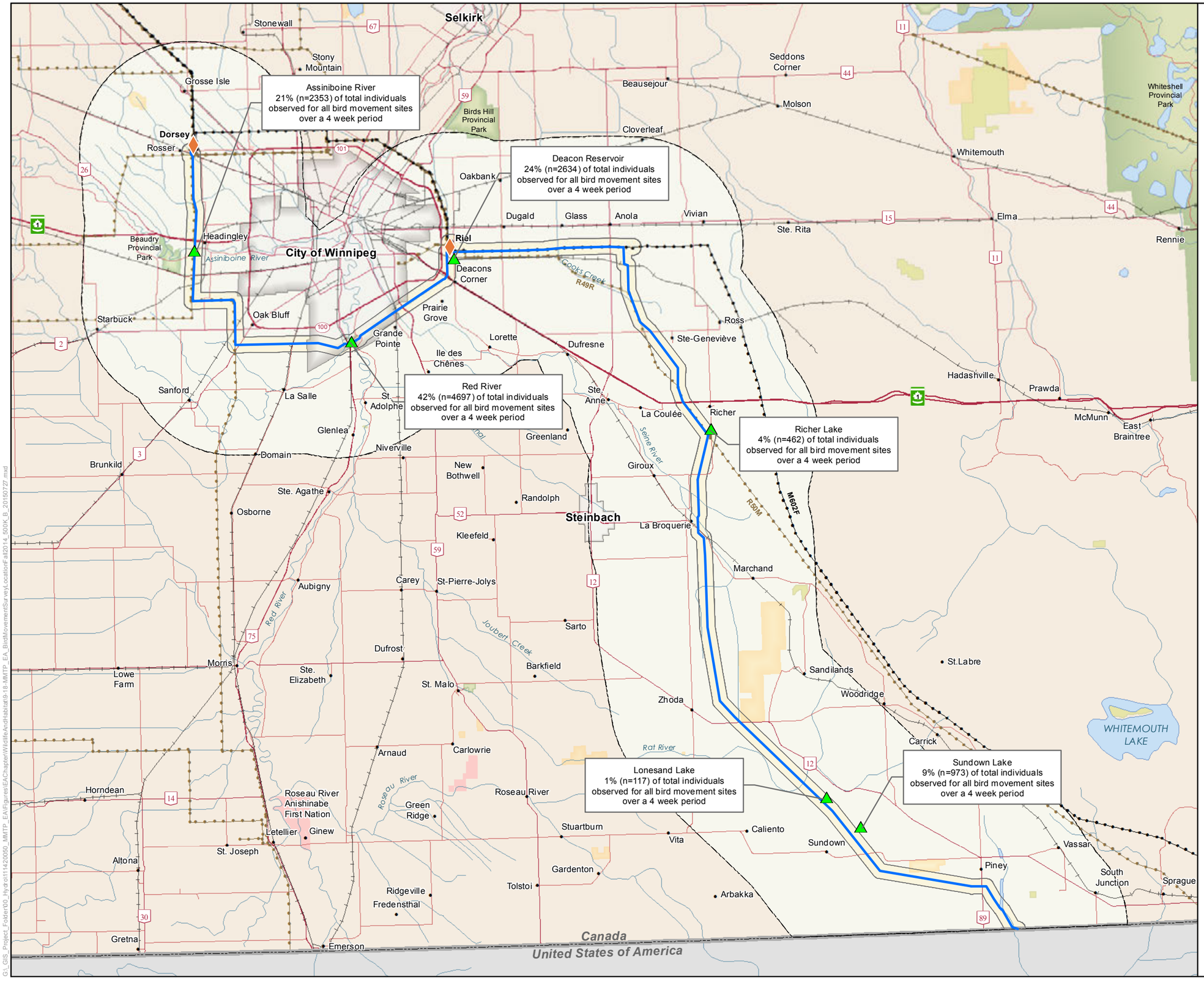
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Bird Movement Survey Location Spring 2014

Map 9-17

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EA Chapter\WildlifeAndHabitat\9-17-MMTP_EA_BirdMovementSurveyLocationSpring2014_500K_B_20150727.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Bird Movement Survey Location

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

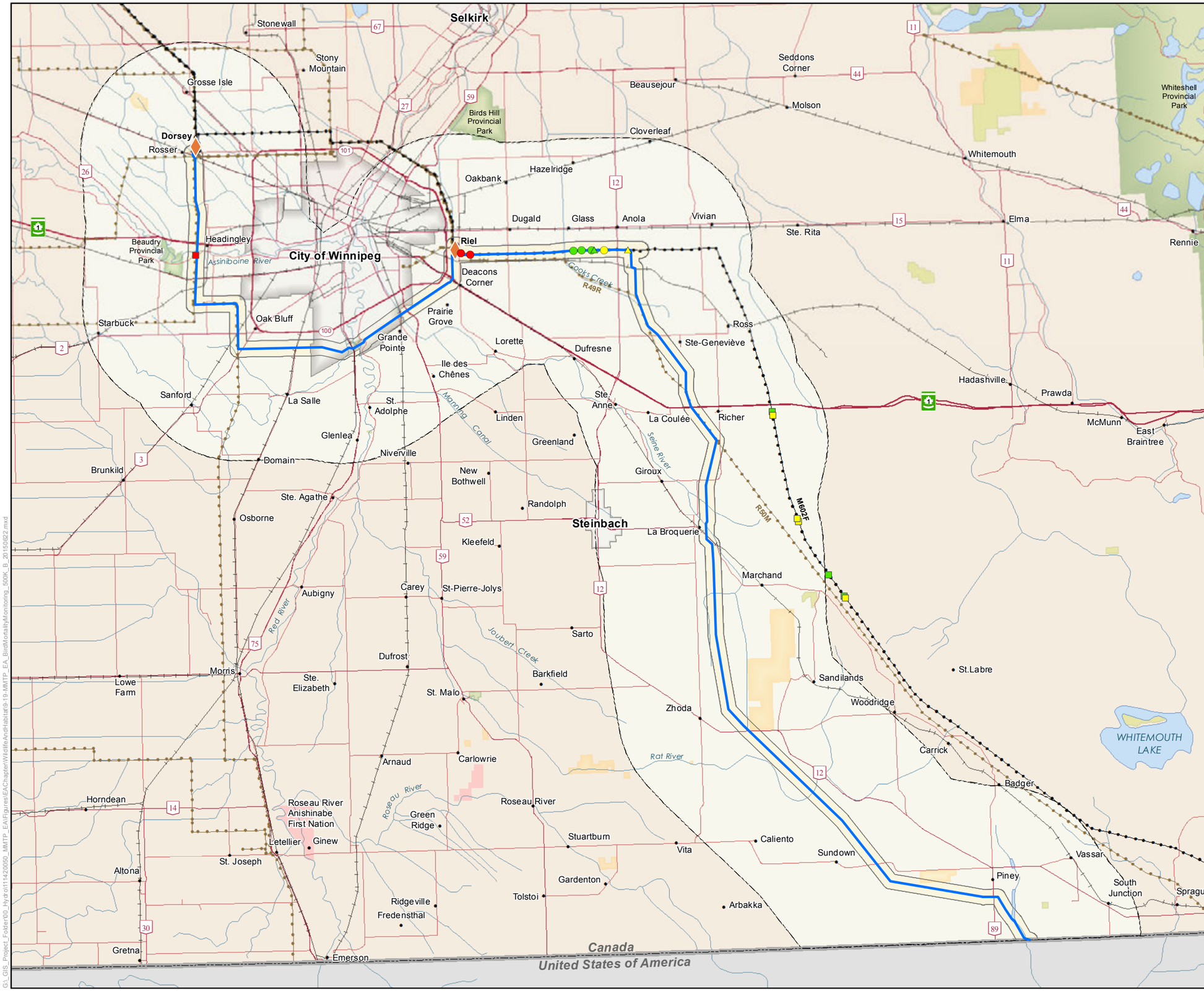
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Bird Movement Survey Location Fall 2014

Map 9-18

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-18-MMTP_EA_BirdMovementSurveyLocationFall2014_500K_B_20150727.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Agriculture (High Collision Risk)
- Agriculture (Moderate Collision Risk)
- Agriculture (Low Collision Risk)
- Forest (High Collision Risk)
- Forest (Moderate Collision Risk)
- Forest (Low Collision Risk)
- Grassland (Moderate Collision Risk)
- Grassland (Low Collision Risk)

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

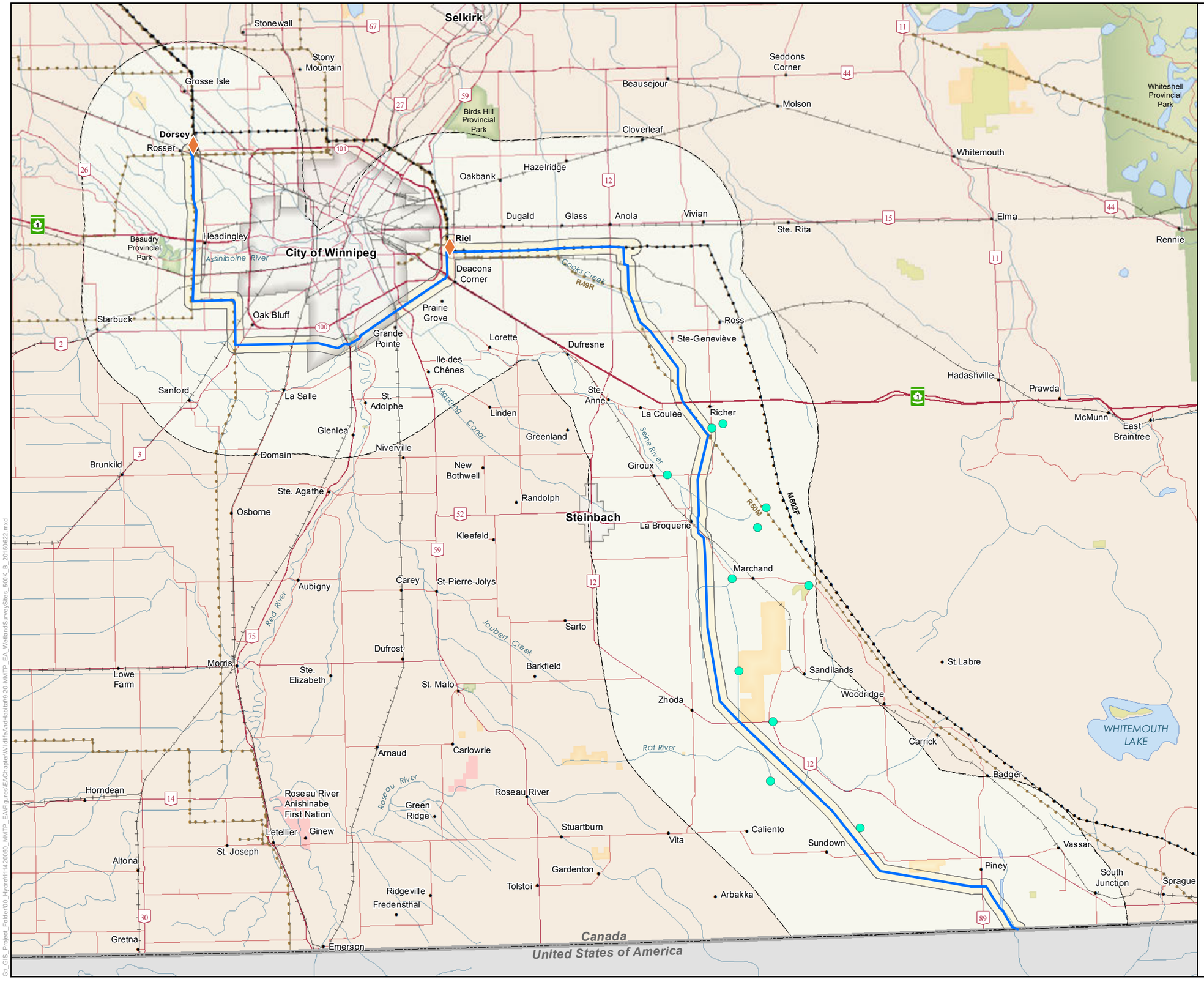
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Bird Mortality Monitoring Locations 2014

Map 9-19

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-19-MMTP_EA_BirdMortalityMonitoring_500K_B_20150822.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Wetland Herptile Survey Site

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

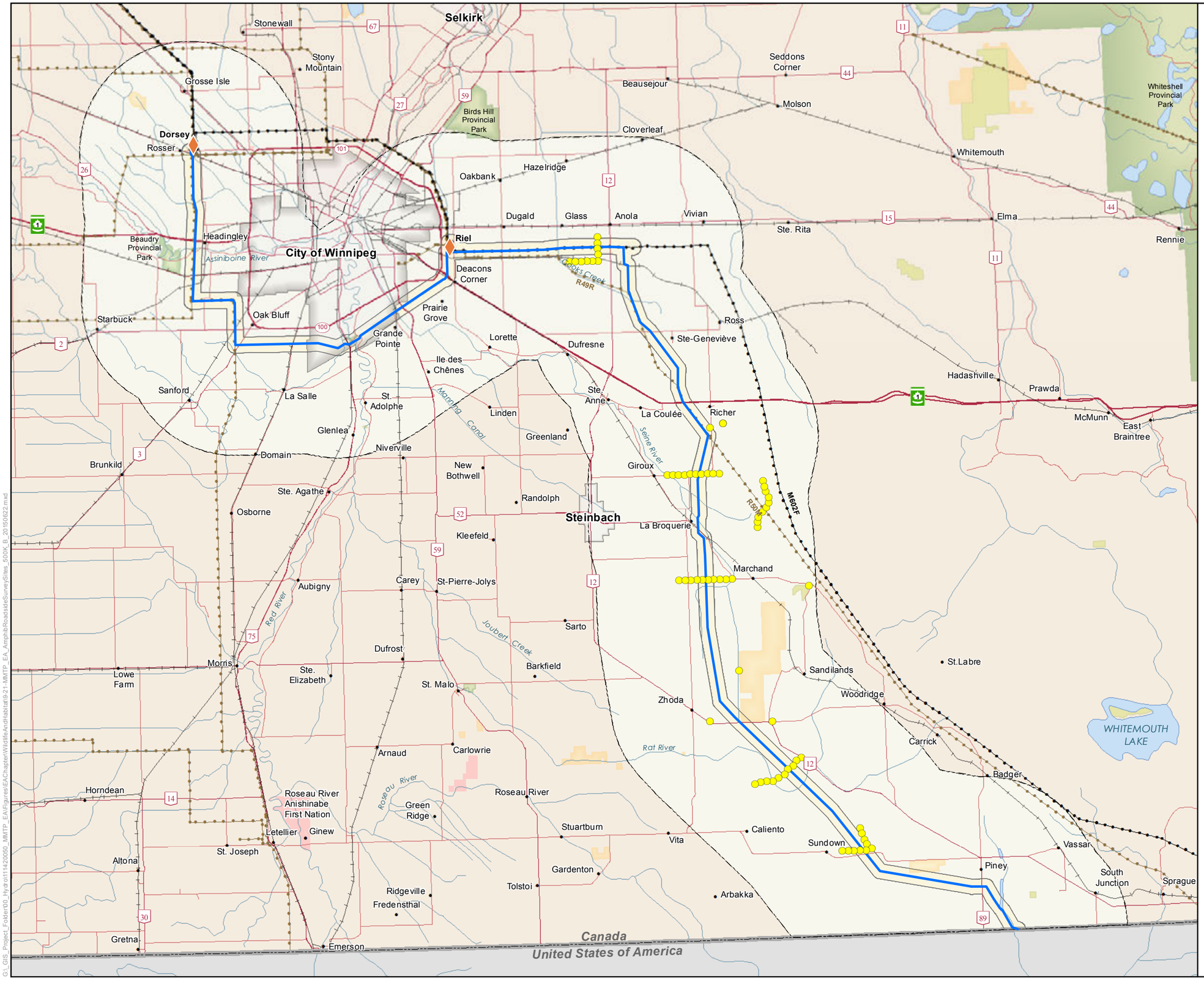
- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

Wetland Herptile Survey Locations 2014

Map 9-20

G:\GIS_Project_Folder\00_Hydro\11142050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-20-MMTP_EA_WetlandSurveySites_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Amphibian Roadside Survey Site

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

0 5 10 Kilometres
0 5 10 Miles

1:500,000

Roadside Amphibian Call Count Survey Locations 2014

Map 9-21

G:_GIS_Project_Folder\00_Hydro\11142\050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-21_MMTP_EA_AmphibRoadsideSurveySites_500K_B_20150822.mxd

Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Survey Feature

- Visual Encounter Survey Site

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

0 5 10 Kilometres
0 5 10 Miles

1:500,000

Visual Encounter Survey Locations 2014

Map 9-22

Selkirk
Stonewall
Stony Mountain
Grosse Isle
Dorsey
Rosser
Birds Hill Provincial Park
Beausejour
Seddons Corner
Molson
Whiteshell Provincial Park
Cloverleaf
Whitemouth
Hazelridge
Oakbank
Dugald
Glass
Anola
Vivian
Ste. Rita
Elma
Rennie
Beaudry Provincial Park
Headingley
Assiniboine River
City of Winnipeg
Riel
Deacons Corner
Cooks Creek
R49R
Prairie Grove
Starbuck
Oak Bluff
Grande Pointe
Lorette
Dufresne
Ross
Ste-Geneviève
Ile des Chênes
Hadashville
Prawda
Sanford
La Salle
St. Adolphe
Manitoba Canal
Linden
Ste. Anne
La Coulée
Richer
McMunn
East Braintree
Glenlea
Greenland
Seine River
Niverville
Domain
Brunkild
New Bothwell
Giroux
Ste. Agathe
Randolph
Osborne
Steinbach
La Broquerie
M602F
R50R
Kleefeld
Marchand
Aubigny
Carey
St-Pierre-Jolys
Red River
Joubert Creek
Sarto
Dufrost
Barkfield
Morris
Lowe Farm
Ste. Elizabeth
St. Malo
Sandilands
St.Labre
Woodridge
Zhoda
WHITEMOUTH LAKE
Carrick
Arnaud
Carlowrie
Rat River
Badger
Horndean
Roseau River Anishinabe First Nation
Roseau River
Green Ridge
Roseau River
Letellier
Ginew
Stuartburn
Caliento
Vita
Sundown
Vassar
St. Joseph
Altona
Piney
South Junction
Sprague
Gardenton
Tolstoi
Ridgeville
Fredensthal
Arbakka
Gretna
Emerson
Canada
United States of America

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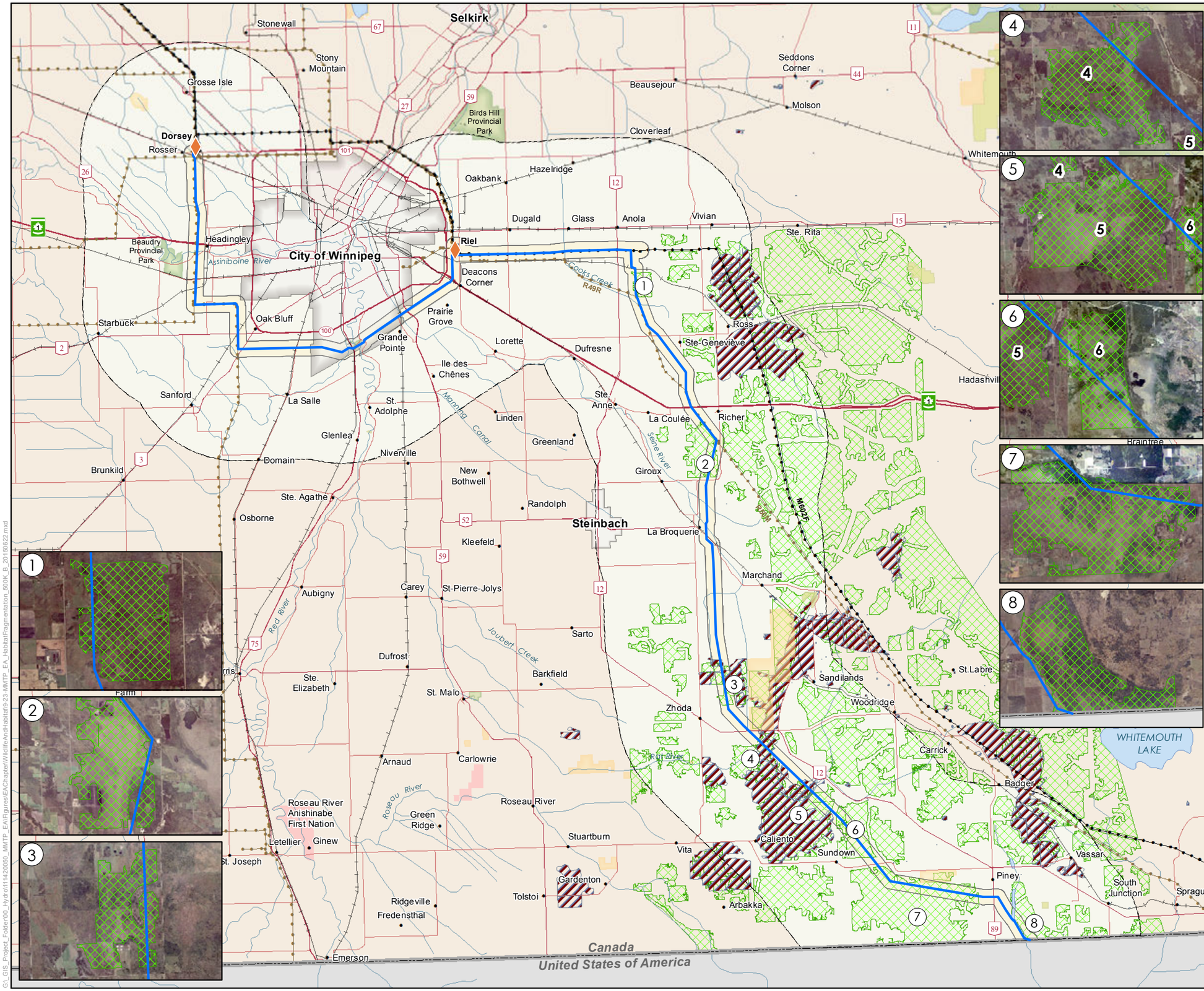


Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Habitat Fragmentation

- Intact Habitat[1]
- Forest Fires (2004-2013)[2]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship
2. Forest Fires, 2013, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

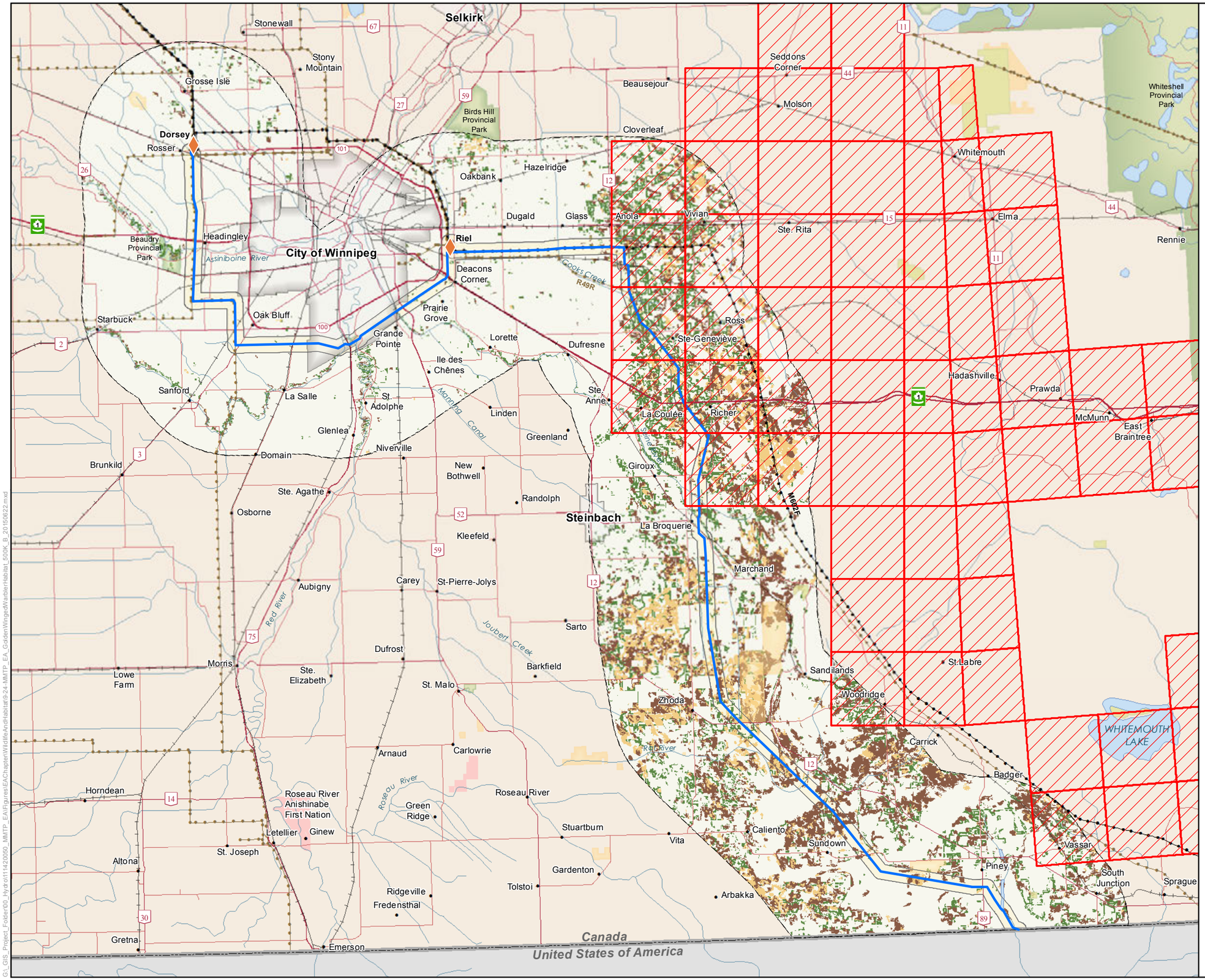
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Habitat Fragmentation

Map 9-23

G:_GIS_Project_Folder\00_Hydro\111420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-23-MMTP_EA_HabitatFragmentation_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Critical Golden-winged Warbler Habitat Grid[1]

- 10 x 10km Square Grid

Potential Golden-winged Warbler Habitat[2]

- High
- Medium
- Low

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Critical Golden-winged Warbler Grids, 2014, Environment Canada
2. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 11, 2015

N

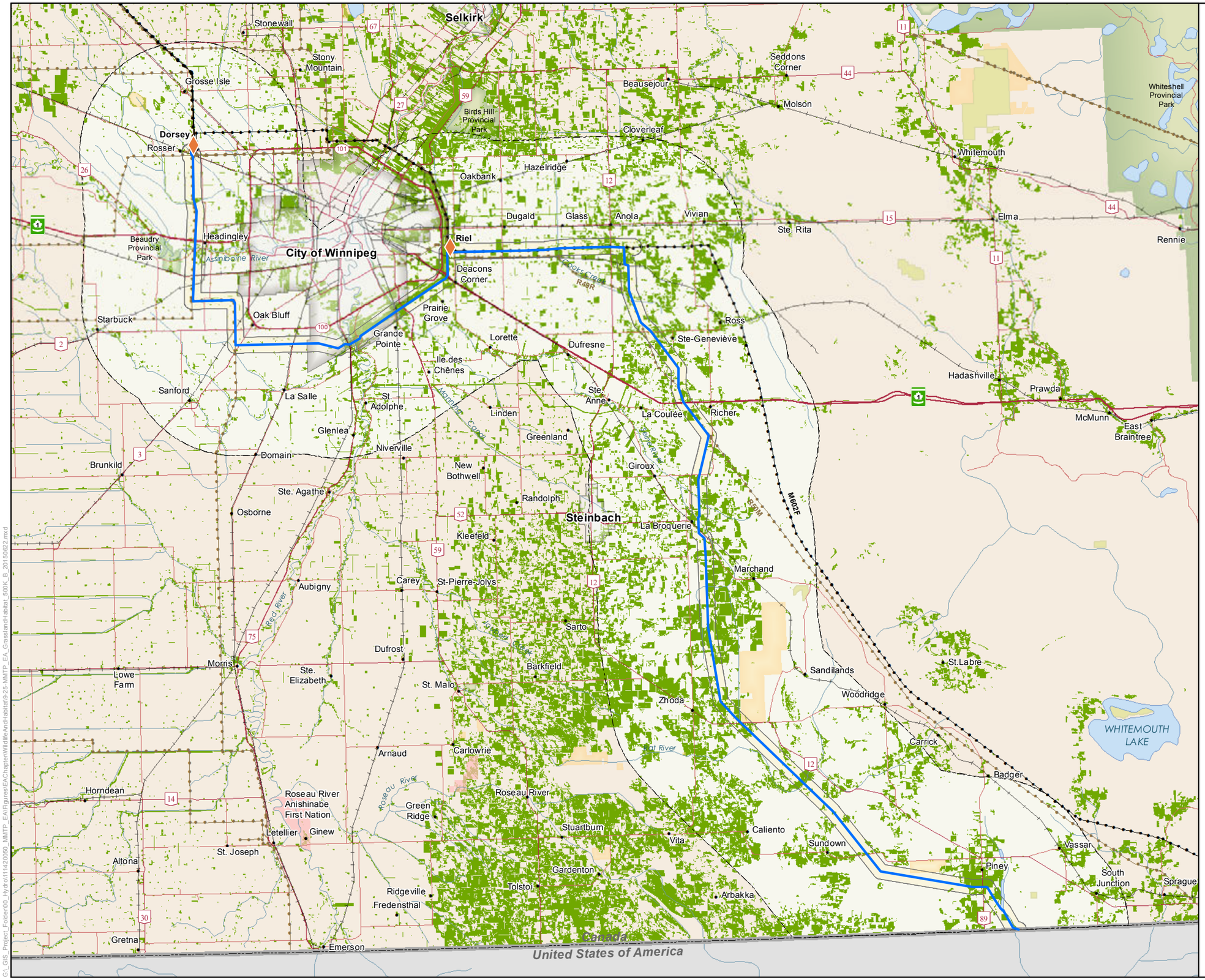
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Potential Golden-winged Warbler Habitat in the RAA

Map 9-24

G:_GIS_Project_Folder\00_Hydro\11142\0050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-24_MMTP_EA_GoldenWingedWarblerHabitat_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Grassland Habitat[1]

- Grassland

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Federal Land Cover Classification, 1996-2005, Natural Resources Canada

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

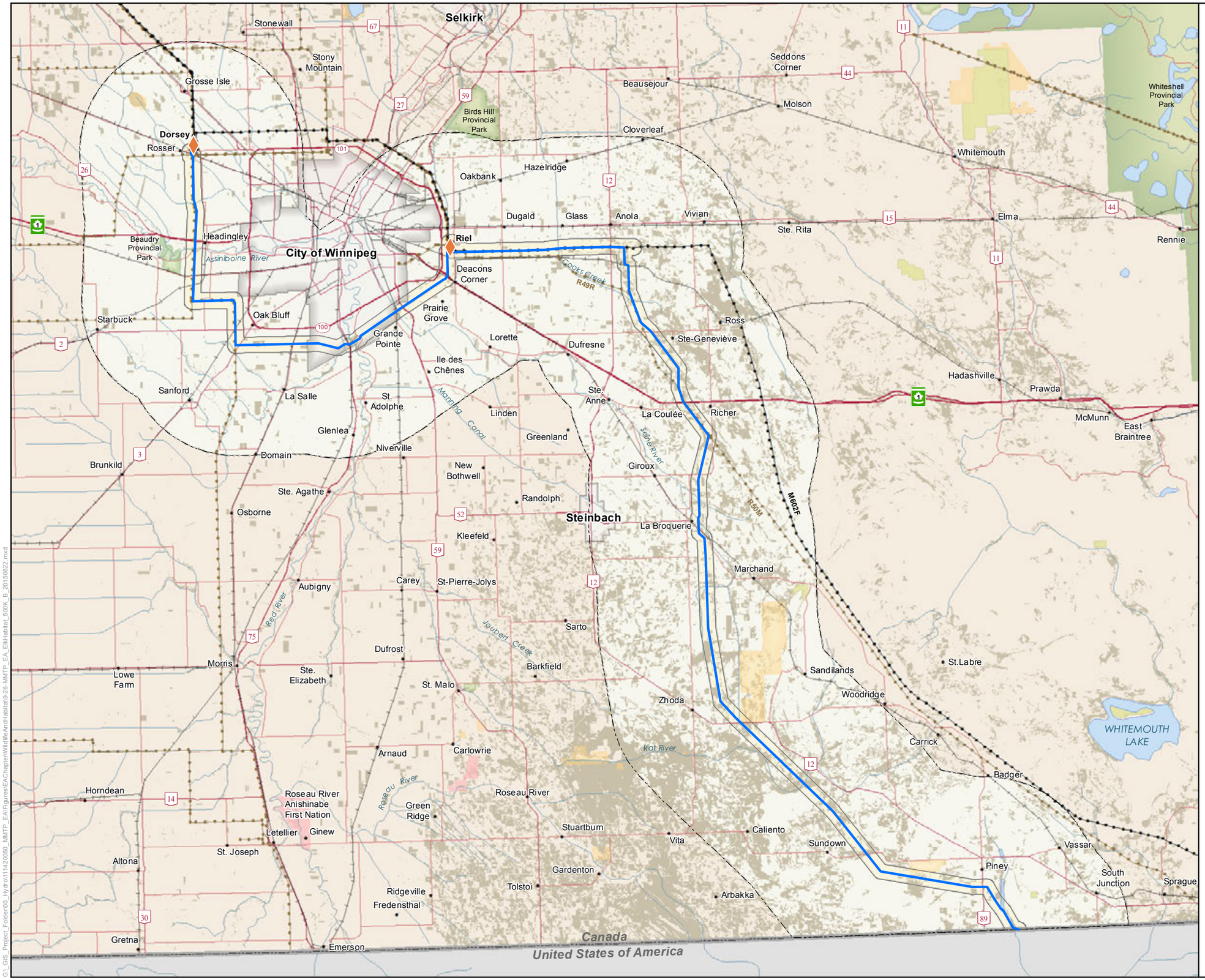
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Grassland Habitat

Map 9-25

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-25-MMTP_EA_GrasslandHabitat_500K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Elk Habitat

- Potential Elk Habitat[1]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 11, 2015

N

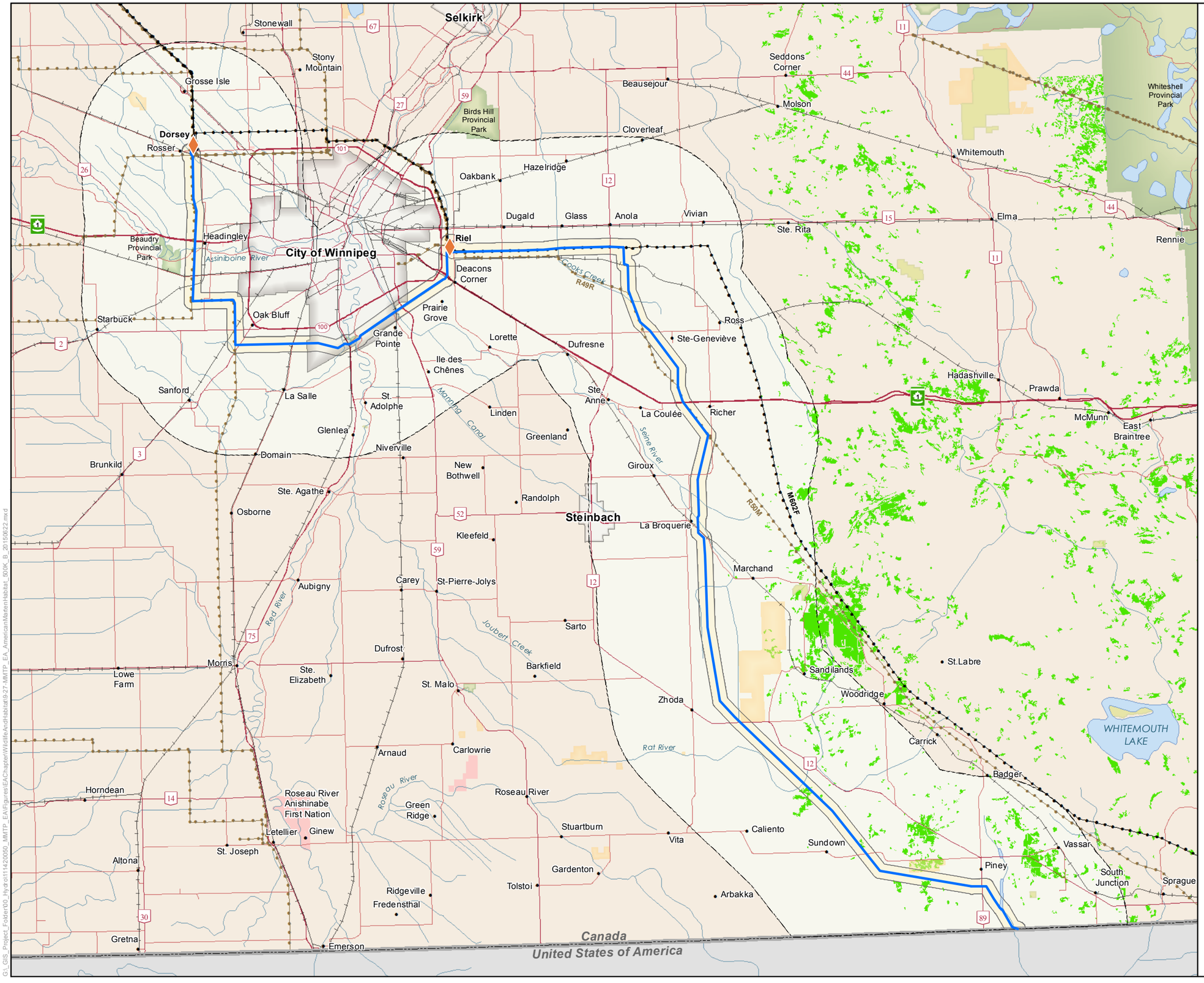
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Potential Elk Habitat

Map 9-26

G:_GIS_Project_Folder\00_Hydro\11142\0050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-26-MMTP_EA_ElkHabitat_500K_B_20150822.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Potential American Marten Habitat[1]

- American Marten Habitat

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Source:
1. Forest Resource Inventory, 1979-1999, Manitoba Conservation and Water Stewardship

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 11, 2015

N

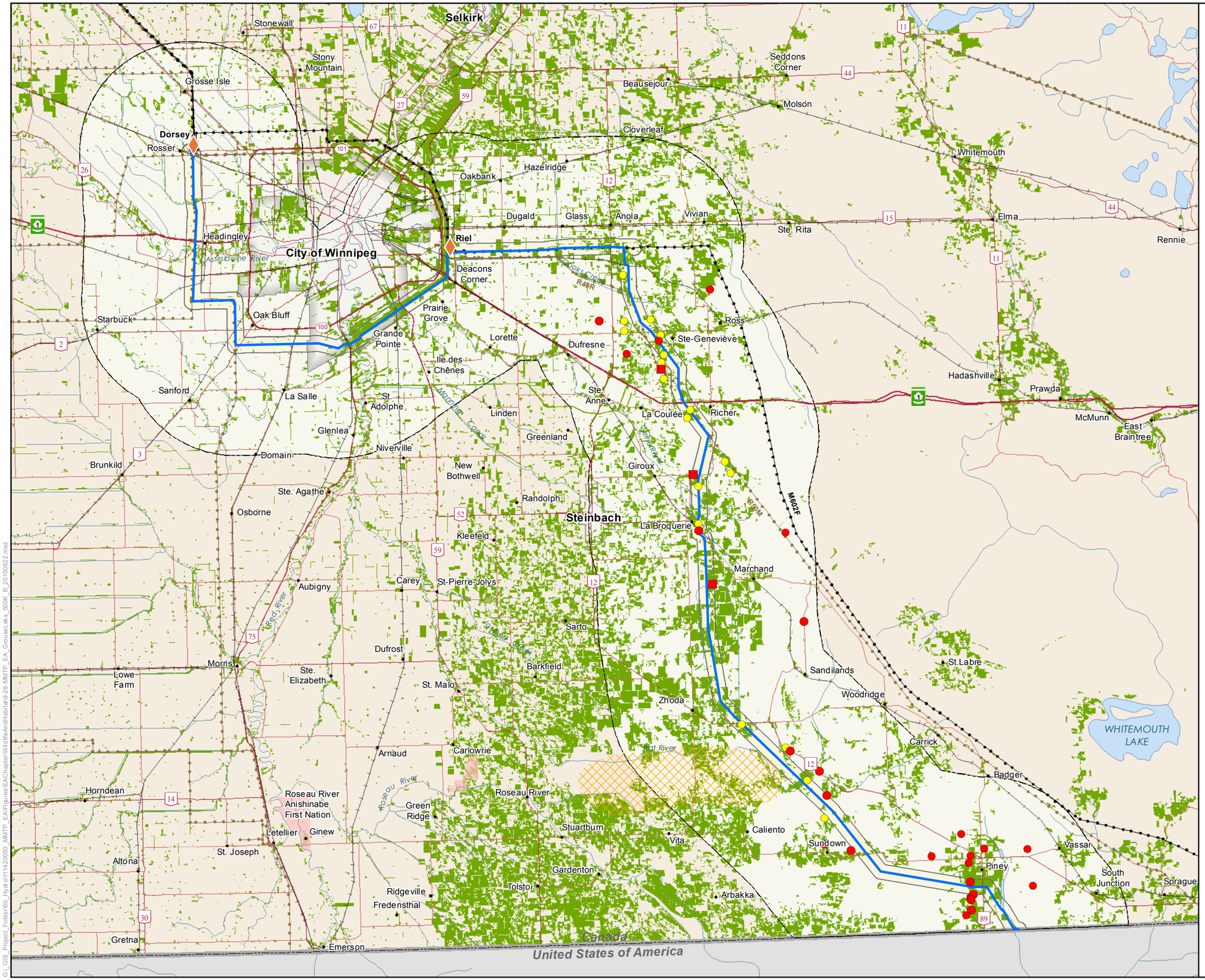
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Potential American Marten Habitat

Map 9-27

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-27-MMTP_EA_AmericanMartenHabitat_500K_B_20150622.mxd



Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Grouse Lek Survey Features and Habitat

- Incidental Sharp-tailed Grouse Observation
- Lek Observation
- Grouse Lek Survey Site
- 3 Grouse Leks (MCWS data)
- Potential Grouse Lek Habitat[1]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- City

Source:
1. Federal Land Cover Classification, 1996-2005, Natural Resources Canada

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 11, 2015

N

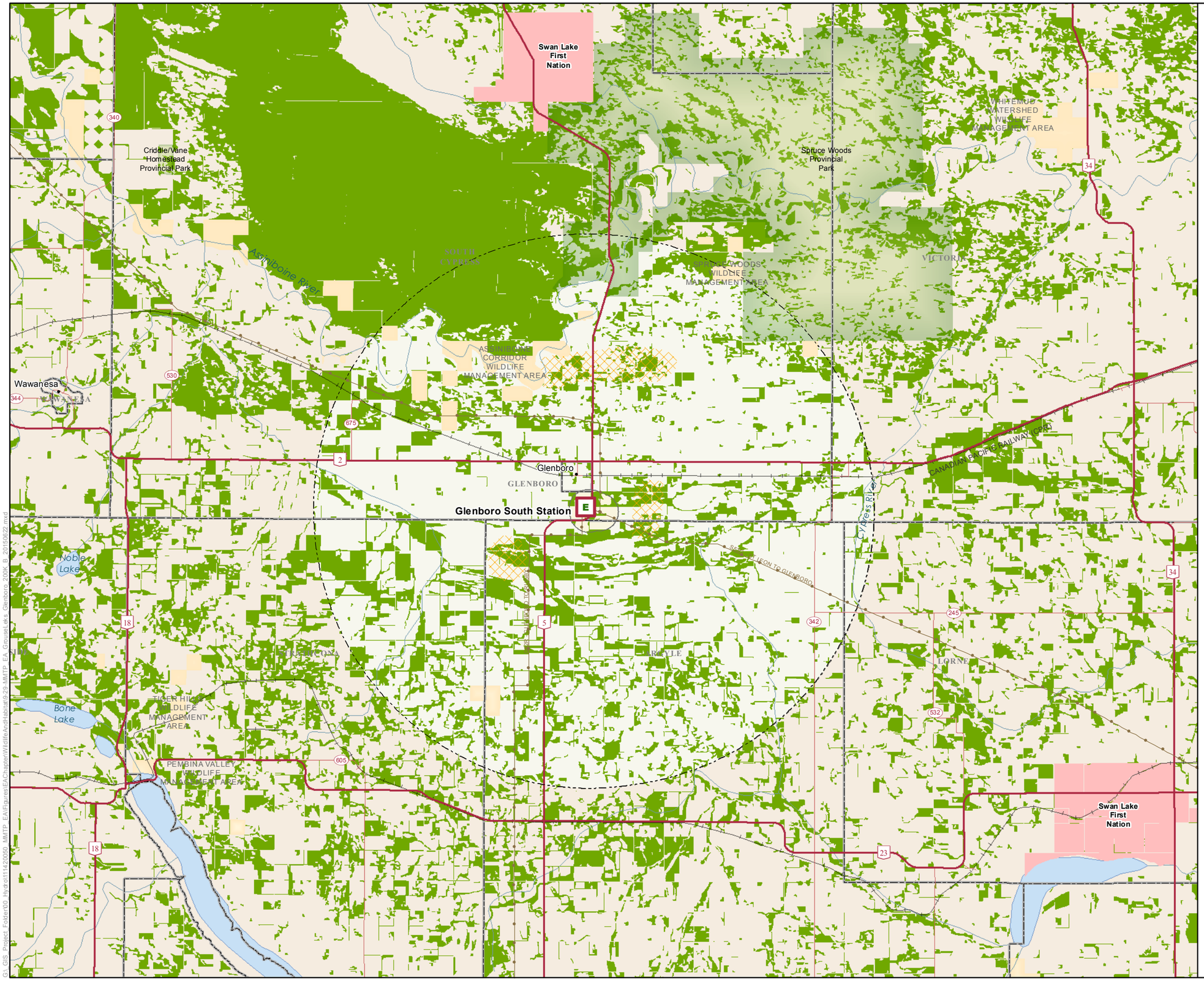
0 5 10 Kilometres
0 5 10 Miles

1:500,000

Sharp-tailed Grouse Leks

Map 9-28

G:_GIS_Project_Folder\00_Hydro\11142\0050_MMTP_EA\Figures\EAChapter\WildlifeAndHabitat\9-28-MMTP_EA_GrouseLeks_500K_B_20150622.mxd



Manitoba-Minnesota Transmission Project

Project Infrastructure

- Electrical Station

Infrastructure

- Existing Transmission Line

Grouse Lek Survey Features and Habitat

- 4 Grouse Leks (MCWS data)
- Potential Grouse Lek Habitat[1]

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Provincial Highway
- Provincial Road
- Railway
- First Nation Lands
- Wildlife Management Area
- Provincial Park
- Rural Municipality

Source:
1. Federal Land Cover Classification, 1996-2005, Natural Resources Canada

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 11, 2015

N

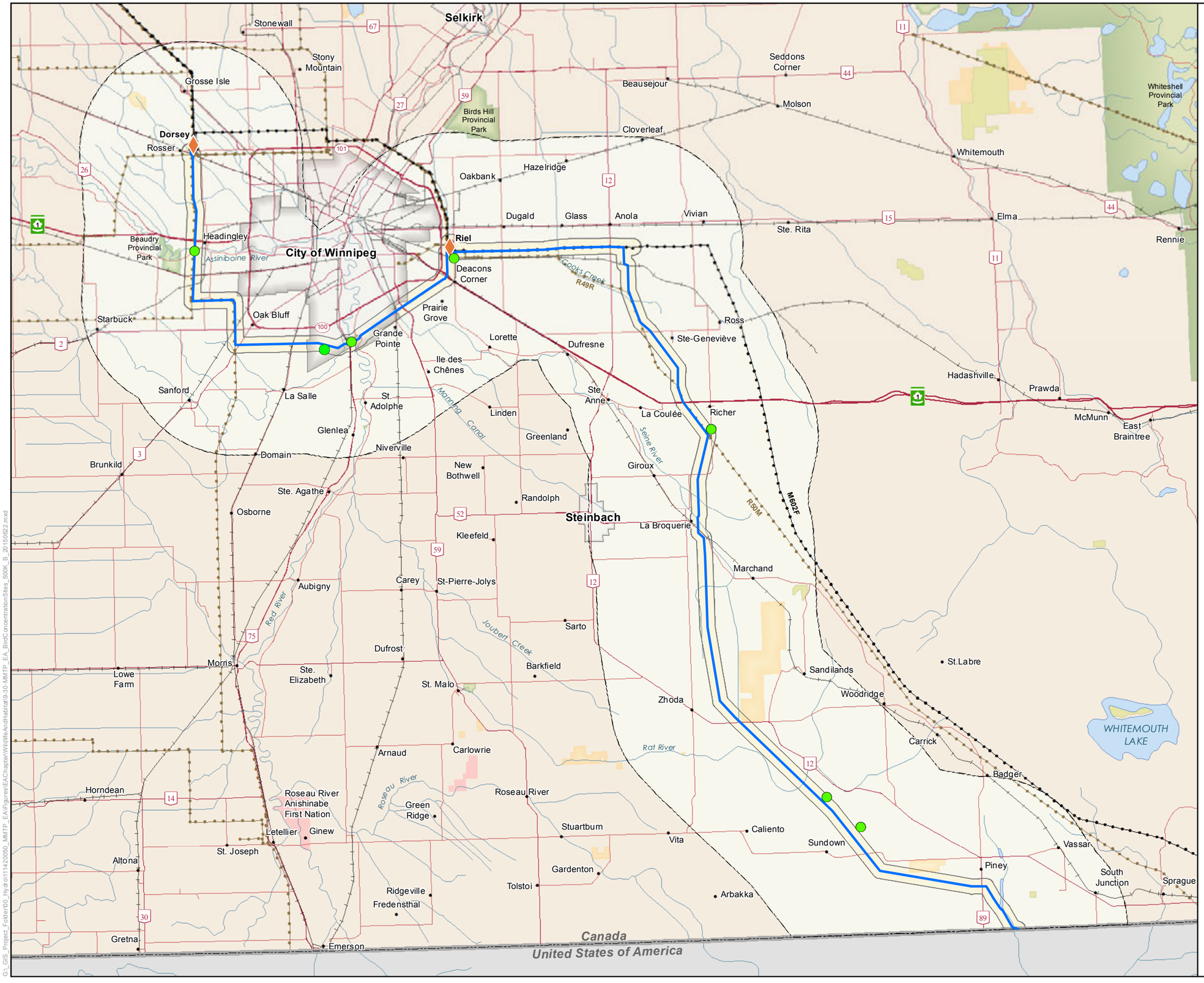
0 5 Kilometres
0 2.5 5 Miles

1:200,000

Sharp-tailed Grouse Leks
Glenboro South Station

Map 9-29

G:_GIS_Project_Folder\00_Hydro\11142\0050_MMTP_EA\Figures\EA\Chapter\WildlifeAndHabitat\9-29-MMTP_EA_GrouseLeks_Glenboro_200K_B_20150622.mxd



Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Bird Concentration Sites

- Bird Concentration Site

Assessment Area

- Wildlife and Wildlife Habitat Local Assessment Area
- Wildlife and Wildlife Habitat Regional Assessment Area

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park
- City

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: August 10, 2015

N

0 5 10 Kilometres
0 5 10 Miles

1:500,000

Bird Concentration Sites in the RAA

Map 9-30

G:_GIS_Project_Folder\00_Hydro\11420050_MMTP_EA\Figures\EA Chapter\WildlifeAndHabitat\9-30-MMTP_EA_BirdConcentrationSites_500K_B_20150622.mxd