

APPENDIX 11.2

WILDLIFE TECHNICAL REPORT

Report to:

MANITOBA HYDRO



**Dorsey - Portage South Transmission
Line Project**

Wildlife Technical Report

Document No. 1100450300-REP-V0004-01



Third Party Disclaimer

The content of this document is not intended for the use of, nor is it intended to be relied upon by any person, firm or corporation, other than the client and Tetra Tech. Tetra Tech denies any liability whatsoever to other parties for damages or injury suffered by such third party arising from use of this document by them, without the express prior written authority of Tetra Tech and our client. This document is subject to further restrictions imposed by the contract between the client and Tetra Tech and these parties' permission must be sought regarding this document in all other circumstances.

Confidential

This document is for the confidential use of the addressee only. Any retention, reproduction, distribution or disclosure to parties other than the addressee is prohibited without the express written authorization of Tetra Tech

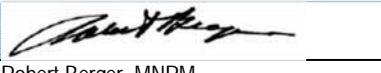
Report to:



DORSEY - PORTAGE SOUTH TRANSMISSION LINE PROJECT

WILDLIFE TECHNICAL REPORT

May 2012

Prepared by		Date	May 2, 2012
	Jason Kelly, MNRM Wildlife Resource Consulting Services MB Inc.		
Prepared by		Date	May 2, 2012
	Robert Berger, MNRM Wildlife Resource Consulting Services MB Inc.		
Reviewed by		Date	May 3, 2012
	Jason Jones, Ph.D., R.P.Bio.		
Authorized by		Date	May 3, 2012
	Dave Tyson, M.Sc., R.P.Bio., P.Bio.		



400-161 Portage Ave East, Winnipeg, Manitoba R3B 0Y4
Phone: 204.954.6800 Fax: 204.988.0546

REVISION HISTORY

REV. NO	ISSUE DATE	PREPARED BY AND DATE	REVIEWED BY AND DATE	APPROVED BY AND DATE	DESCRIPTION OF REVISION
00	March 2012	JK, RB	JJ	DT	
01	April 2012	JK, RB	JJ	DT	Addressed edits from external reviewers

EXECUTIVE SUMMARY

Manitoba Hydro is proposing to construct a 230-kV transmission line (D83P Project) from the Dorsey Station to the Portage South Station. The D83P Project is located in an agricultural setting, and any new transmission line right-of-way (ROW) or extension of an existing ROW will be primarily located on private property. The D83P study area is approximately 1,062 km² in size, and encompasses several conceptual transmission route options in order to initiate preliminary planning. The area is dominated by cropland and development, where anthropogenic disturbances cover about 96% of the study area. Water drainage is most often channelized into roadside ditches and creeks, and few areas of semi-native habitat such as grassland, wetland or forest remain. The two major water systems include the Assiniboine River and the La Salle River. Most of the semi-native wildlife habitat in the study area are found next to these two systems and consist of river bottom forest, riparian forest, shrubland and wetland vegetation associations.

Wildlife Resource Consulting Services MB Inc. was retained by Tetra Tech Inc. to characterize bird, mammal, amphibian, and reptile species and habitat capability in the D83P study area. Two standardized surveys of the study area included a breeding bird survey and a raptor survey. A reconnaissance survey was also conducted to collect habitat data as well as to determine site accessibility due to severe flooding along the Assiniboine River. In addition to field surveys, literature was used to supplement the wildlife species list for the study area. Qualitative habitat capability models were developed for birds, mammals, amphibians and reptiles. Land Cover Classification Enhanced for Bipole (LCCEB) and Canada Land Inventory (CLI) thematic layers were selected in ArcGIS 9.2 to map high quality wildlife habitat capability in the study area.

Of the 316 potential migrants, breeding and resident bird species in the study area, 92 bird species were identified over the course of all the studies. The majority of breeding bird species identified in the D83P study area is considered as common in agricultural Manitoba. Rare bird species in the study area included barn swallow and bobolink, which are two species at risk (Threatened under the Committee on the Status of Endangered Wildlife in Canada [COSEWIC]) found during the breeding bird surveys. A total of 78 barn swallows and 28 bobolinks were widely distributed in the study area; most observations, however, occurred south and west of Elie, Manitoba in agricultural cropland, developed and grassland habitat. Other species at risk such as yellow rail and short-eared owl were not detected, but some habitat is present, including wetlands and grasslands.

For most bird species, approximately 3.5% of the study area is considered to have higher quality habitat capability. Excluding waterfowl, high quality native habitat for birds includes forest, grasslands, wetlands and riparian areas, which are found primarily west of the town of Elie, Manitoba. The Assiniboine River is the exception, as it also has high quality habitat capability for songbirds and birds of prey. For waterfowl, approximately 1.0% of the study area

has high quality habitat capability. Waterfowl habitat is found mainly along the Assiniboine River, with the quality of habitat capability generally decreasing westward across the study area.

Site-specific studies were not conducted for mammals. Of the 60 potential mammal species in the D83P study area, seven were observed over the course of the studies: red squirrel, muskrat, white-tailed deer, beaver, raccoon, coyote, and red fox. These species are considered common in Manitoba. No mammalian species at risk were found, or are expected, in the study area. For most mammal species, approximately 3.5% of the study area is considered to have higher quality habitat capability. Mammal habitat is more limited east of Elie, Manitoba. Only about 2.0% of the study area has high quality habitat capability for ungulates. Most of the high quality mammal habitat is found in the western portion of the study area near the La Salle River, or along the Assiniboine River.

Site-specific studies were not conducted for amphibians or reptiles. Of the eight potential amphibian species in the D83P study area, six were observed over the course of the studies: boreal chorus frog, northern leopard frog, gray tree frog, wood frog, American toad and Canadian toad. These amphibian species are considered common in Manitoba. Northern leopard frog is listed as a species of Special Concern by the Species at Risk Act. Of the eight potential reptile species in the D83P study area only one, a single red-sided garter snake, was observed over the course of the studies; this species is considered common in Manitoba. For most amphibian and reptile species, approximately 3.8% of the study area is considered to have higher quality habitat capability. The highest quality amphibian and reptile habitat is found along the La Salle River and, to a lesser extent, Assiniboine River. In addition, there appears to be a higher concentration of amphibian and reptile habitat towards the western portion of the study area, where there are streams, creeks and water bodies.

Environmentally sensitive features identified in the D83P study area include the Assiniboine River and the La Salle River. Other potential sensitive sites or features may exist in the study area, including short-eared owl, yellow rail, barn swallow and bobolink habitat, mammal dens, deer wintering yards, high quality wetlands for amphibians including for the northern leopard frog, and snake hibernacula.

An initial comparison between three alternative routing options suggests there are only minor differences in the amount of each land cover type along each route. As currently aligned, Route A tends to have the least amount of native habitat found within 200 m of the route. Routes C that is located furthest north has a slightly larger amount of broadleaf, herb, shrub tall and water within the buffer, while grassland is slightly higher along Route B.

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	SCOPE	1
2.0	STUDY AREA.....	3
3.0	METHODOLOGY	5
3.1	LAND COVER CLASS ENHANCED FOR BIPOLE	5
3.2	BREEDING BIRD SURVEYS.....	6
3.3	BIRDS OF PREY SURVEY	8
3.4	RECONNAISSANCE SURVEYS AND INCIDENTAL OBSERVATIONS	9
3.5	HABITAT CAPABILITY ASSESSMENTS AND ROUTE EVALUATION	9
3.5.1	BIRD HABITAT CAPABILITY MODEL	10
3.5.2	MAMMAL HABITAT CAPABILITY MODEL.....	12
3.5.3	AMPHIBIAN AND REPTILE HABITAT CAPABILITY MODEL.....	13
3.5.4	IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE SITES.....	15
3.5.5	EVALUATION OF THREE ALTERNATIVE TRANSMISSION LINE CONCEPT ROUTES	15
4.0	EXISTING ENVIRONMENT	16
4.1	BREEDING BIRD RESULTS	16
4.1.1	BREEDING BIRD SURVEYS	16
4.1.2	BIRDS OF PREY SURVEY	24
4.1.3	INCIDENTAL OBSERVATIONS.....	24
4.2	BIRD HABITAT CAPABILITY ASSESSMENT.....	26
4.3	MAMMAL HABITAT CAPABILITY ASSESSMENT.....	26
4.4	AMPHIBIAN AND REPTILE HABITAT CAPABILITY ASSESSMENT	27
4.5	ENVIRONMENTALLY SENSITIVE SITES.....	27
4.6	ALTERNATIVE ROUTE ASSESSMENT	28
5.0	REFERENCES	32
APPENDIX A	LIST OF POTENTIAL SPECIES FOUND IN THE D83P STUDY	
APPENDIX B	LAND COVER CLASSIFICATION	
APPENDIX C	INCIDENTAL BIRD OBSERVATIONS	

LIST OF TABLES

Table 1: LCCEB Cover Types Found in the D83P Study Area	4
Table 3: Breeding Bird Survey Results by LCCEB Cover Type	20
Table 4: Number of Species Observations during the Birds of Prey Survey	25
Table 5: LCCEB Cover Types Found in Three Potential Routes for the D83P Transmission Line	28

LIST OF MAPS

Map 1: Alternative Routes	2
Map 2: Breeding Bird and Bird of Prey Survey Locations	7
Map 3: Locations of Observed Barn Swallow and Bobolink.....	18
Map 4: Bird Habitat Capability Assessment	19
Map 5: Mammal Habitat Capability Assessment	29
Map 6: Amphibian and Reptile Habitat Capability Assessment	30
Map 7: Environmentally Sensitive Sites	31

1.0 INTRODUCTION

1.1 BACKGROUND

Manitoba Hydro is proposing to construct a 230-kV transmission line (D83P Project) from the Dorsey Station to the Portage South Station (Map 1). The D83P Project will originate from the 230-kV switchyard of the Dorsey Station, located approximately 8 km northwest of Provincial Trunk Highway No.101, at the northwest side of Winnipeg. It will terminate at the Portage South Station, located about 12.5 km southeast of Portage La Prairie. As the D83P Project is located in an agricultural setting, any new right-of-way (ROW) or extension of an existing ROW will be primarily located on private property. An opportunity to parallel an existing 230-kV Transmission Line referred to as D12P also exists. The D12P transmission line has an unused portion of ROW which may be suitable for use by the D83P Project. Manitoba Hydro has identified a conceptual transmission route option in order to initiate preliminary planning. This route option parallels and is adjacent to the existing D12P 230 kV transmission line which extends from Dorsey to Portage South stations. The D83P transmission line for this option is designed to be a single circuit line configuration consisting of three conductors supported by self-supporting lattice steel towers. The span between the towers will be approximately 420 meters in order to match the existing D12P tower locations. Sky or ground wires (2 to 9 mm in diameter) will be located above the conductors. Wildlife Resource Consulting Services MB Inc. was retained by Tetra Tech Inc. (Tetra Tech) to provide information on wildlife species and habitats in the D83P study area.

1.2 SCOPE

The purpose of this report is to describe the existing environment for wildlife and habitat in the D83P Study Area. The scope of work includes desktop exercises and field surveys that are necessary to describe wildlife and habitat capability for a future environmental assessment of the D83P study area. Field studies were limited to where Manitoba Hydro identified conceptual transmission route options. Included in this report are: a list of wildlife species potentially occurring in the study area, a report on the species found during field studies, a wildlife habitat capability assessment, and the identification of potential sensitive sites for wildlife. Species at risk found in the study area are also described and mapped.

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

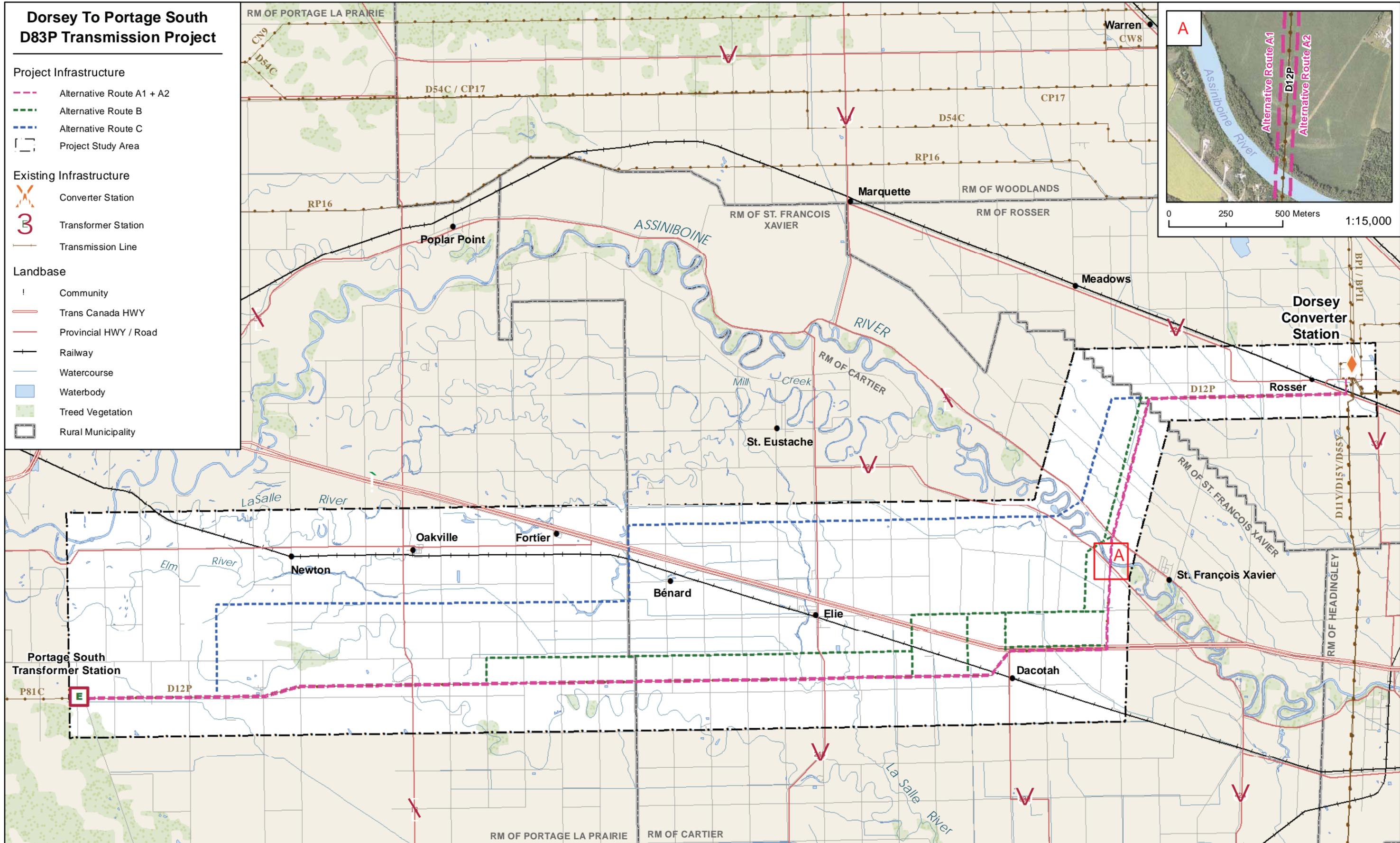
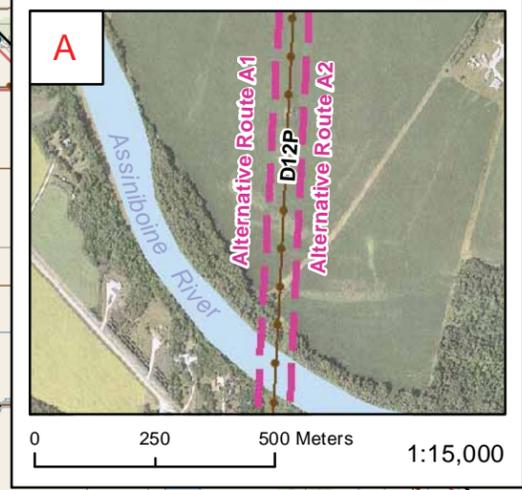
- - - Alternative Route A1 + A2
- - - Alternative Route B
- - - Alternative Route C
- Project Study Area

Existing Infrastructure

- Converter Station
- 3 Transformer Station
- Transmission Line

Landbase

- | Community
- Trans Canada HWY
- Provincial HWY / Road
- Railway
- Watercourse
- Waterbody
- Treed Vegetation
- Rural Municipality



Coordinate System: UTM Zone 14 NAD 83
 Data Source: MBHydro, Stantec, ProvMB, NRCan
 Date Created: September 29, 2011

0 2.5 5 Kilometres
 0 2.5 5 Miles

±

1:150,000

Project Study Area and Alternative Routes

2.0 STUDY AREA

The D83P study area described by Manitoba Hydro is approximately 1,062 km² (Map 1). The D83P study area is located in the Lake Manitoba Plains Ecoregion and Prairie Ecozone. This ecozone is characterized as being one of the warmest and most humid regions in the Canadian prairies, with a mean summer temperature of 16°C and average annual precipitation ranging from 450-700 mm (Smith *et al.* 1998). The Prairie Ecozone can be described as a mosaic of trembling aspen/oak forest and fescue. Agriculture is the dominant anthropogenic activity in the ecoregion (Smith *et al.* 1998). Most of the native vegetation in this ecozone has been supplanted by agricultural crops, except in the driest parts where it has been transformed into rangeland (Smith *et al.* 1998). The study area contains two watershed divisions, including the Lower Assiniboine and the La Salle River watersheds (La Salle Redboine Conservation District 2007). The major urban centers include Winnipeg, Portage la Prairie, Emerson, and Dauphin. Portage la Prairie is the largest urban center near the project.

A small portion of the D83P study area overlaps the Grant's Lake Managed Hunting Area. Grant's Lake Managed Hunting Area (MHA) was established to provide safer hunting experiences by distributing hunting pressure and ensuring that hunting only took place on private land with the permission of the owner or lawful occupant and on designated Crown land areas. The boundaries of the area are: Provincial Road 412 on the west, Provincial Road 221 on the south, Provincial Road 334 on the east and the 4th Base Line Road (which runs directly west from Grosse Isle on the north). The area includes the entire road allowances of the boundary roads (Manitoba Conservation 2011).

Due to the size of the Prairie Ecozone, not all wildlife species can be found distributed throughout the ecozone, but are more regionally distributed. A list of wildlife potentially occurring in the D83P study area was developed (Appendix A) in consultation with Preston (1982), Carey *et al.* (2003), and Banfield (1987). This ecozone continues to provide major breeding, staging and nesting habitat for ducks, geese, other waterfowl and shore birds, even though a significant reduction in acreage and numbers of wetlands has occurred (Smith *et al.* 1998).

The Land Cover Classification Enhanced for Bipole (LCCEB) land cover types for the D83P study area include annual crops, broadleaf, broadleaf dense, broadleaf open, cultivated agricultural lands, developed, exposed land, grassland, herb, shrub tall, shrubland, water, wetland, and wetland shrub and is located entirely within the Lake Manitoba Plain Ecoregion (Appendix B; Table 1). Cultivated agricultural land with Class 1 and 2 agricultural capabilities (La Salle Redboine Conservation District 2007) is by far the most common land cover type in the study area, followed by developed land cover. Together with annual crops, anthropogenic disturbances cover 96.2% of the study area. Developed areas include houses, farms, businesses, airports, communication towers,

other transmission lines, roads and a railway. The TransCanada Highway, primary and secondary roads, municipal boundary roads and trails are distributed throughout the study area. All other LCCEB types are sparse as each cover category comprises <5% of the study area.

Table 1: LCCEB Cover Types Found in the D83P Study Area

Cover Type	Area (km ²)	Cover Type	Area (km ²)
Cultivated agricultural land	708.53	Shrub tall	0.57
Developed	289.19	Wetland	0.09
Annual crops	23.75	Wetland shrub	0.05
Grassland	21.75	Exposed land	0.04
Broadleaf	13.72	Shrubland	0.01
Water	3.18		
Herb	1.43	Total	1062.31

3.0 METHODOLOGY

3.1 LAND COVER CLASS ENHANCED FOR BIPOLE

Map products produced for this report are based on the LCCEB. The LCCEB is based upon the Land Cover Classification of Canada (LCC) developed by the Canada Forest Services (Wulder and Nelson 2003). The LCC layer is a national vector database mapping layer that has been harmonized across the major Federal Departments involved in land management or land change detection (Agriculture and Agri-Foods Canada, Canada Forest Service, and Canada Centre for Remote Sensing). Existing forest classifications and inventories are based primarily on aerial photography, whereas development of the LCC was done using remotely sensed imagery (Landsat data) as part of Earth Observation for Sustainable Development of Forests program. The enhanced version includes a further harmonization/integration of the National Stratification Working Group ecological framework database (Smith *et al.* 1998) to the ecodistrict scale and the addition of wetland features, Manitoba forest harvest layers, forest fire layers and data from the Canada Land Inventory. This provides attribute data that define the climatological, landform and soil conditions, fire and harvest records, as well as ecological conditions for wildlife. The primary attribute of the LCCEB is the land cover type associated with a particular polygon – these land cover types identify the primary ecological cover condition of an area. The land cover classes developed were based on those used in the National Forest Inventory, and were endorsed by the Canada Forest Inventory Committee. Definitions for the cover types found in the study area are listed below (Geobase 2009):

- Annual Cropland: Annually cultivated cropland and woody perennial crops. Includes annual field crops, vegetables, summer fallow, orchards and vineyards. Classification process primarily detects and delineates lands that change from bare cover to green/vegetated cover during the growing season.
- Broadleaf Dense: Greater than 60% crown closure; broadleaf trees are 75% or more of total basal area.
- Broadleaf Open: 26-60% crown closure; broadleaf trees are 75% or more of total basal area.
- Cultivated Agricultural Land: Agricultural land, including annual and perennial crops; and would exclude grassland. This class is mapped when the distinction of subagricultural covers is not possible.
- Developed: Land that predominantly built-up or developed and vegetation associated with these land covers. This includes road surfaces, railway surfaces, buildings and paved surfaces, urban areas, industrial sites, mine structures and farmsteads.

- Exposed Land: River sediments, exposed soils, pond or lake sediments, reservoir margins, beaches, landings, burned areas, road surfaces, mudflat sediments, cutbanks, moraines, gravel pits, tailings, railway surfaces, buildings and parking, or other non-vegetated surfaces.
- Grassland: Predominantly native grasses and other herbaceous vegetation may include some shrubland cover. Land used for range or native unimproved pasture may appear in this class.
- Herb: Vascular plant without woody stem (grasses, crops, forbs, graminoids); minimum of 20% ground cover or one-third of total vegetation must be herb.
- Shrub Tall: A least 20% ground cover which is at least one-third shrub; average shrub height greater than or equal to 2 m. In the North, moist to wet erect tall shrub > 40 cm forming more than 25% of the vegetated cover, consisting mainly of dwarf birch (*Betula*), willow (*Salix*) and/or alder (*Alnus*). Remaining cover consists of graminoids, lichen and may contain <10% prostrate dwarf shrubs and bare soil.
- Shrubland: Predominantly woody vegetation of relatively low height (generally ± 2 meters). May include grass or grassland wetlands with woody vegetation, regenerating forest.
- Water: Lakes, reservoirs, rivers, streams, or salt water.
- Wetland: Land with a water table near/at/above soil surface for enough time to promote wetland or aquatic processes (semi-permanent or permanent wetland vegetation, including fens, bogs, swamps, sloughs, marshes, etc.). This class is mapped based on cover properties corresponding with image date(s) conditions.
- Wetland Shrub: Land with a water table near/at/above soil surface for enough time to promote wetland or aquatic processes; the majority of vegetation is tall, low, or a mixture of tall and low shrub.

3.2 BREEDING BIRD SURVEYS

A total of 57 breeding bird survey plots were sampled in the D83P study area over June 7, June 12 and July 2, 2011 (Map 2). Sampled LCCEB cover types included broadleaf, broadleaf dense, cultivated agricultural land, developed land, grassland, herb, and shrub tall. A few sample plots extended outside the study area into the surrounding region. An uncommon cover type in the study area, consisting of a single broadleaf cover type, was merged into the broadleaf-dense cover type.

Sample methods followed Elzinga *et al.* (2001). Unlimited distance point counts were used to sample the bird populations in the study area. Five-minute point counts were conducted at each sample station. Point count circle sheets were used to chart the location of individuals, and to keep track of movements to ensure that birds were not double-counted. Individual birds were recorded as falling within three distance categories (<50 m, 51-100 m, >100 m) estimated from the observer. Sample stations were separated by a minimum distance of 250 m to minimize double-counting individuals.

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- - - Alternative Route A1 + A2
- - - Alternative Route B
- - - Alternative Route C
- Project Study Area

Existing Infrastructure

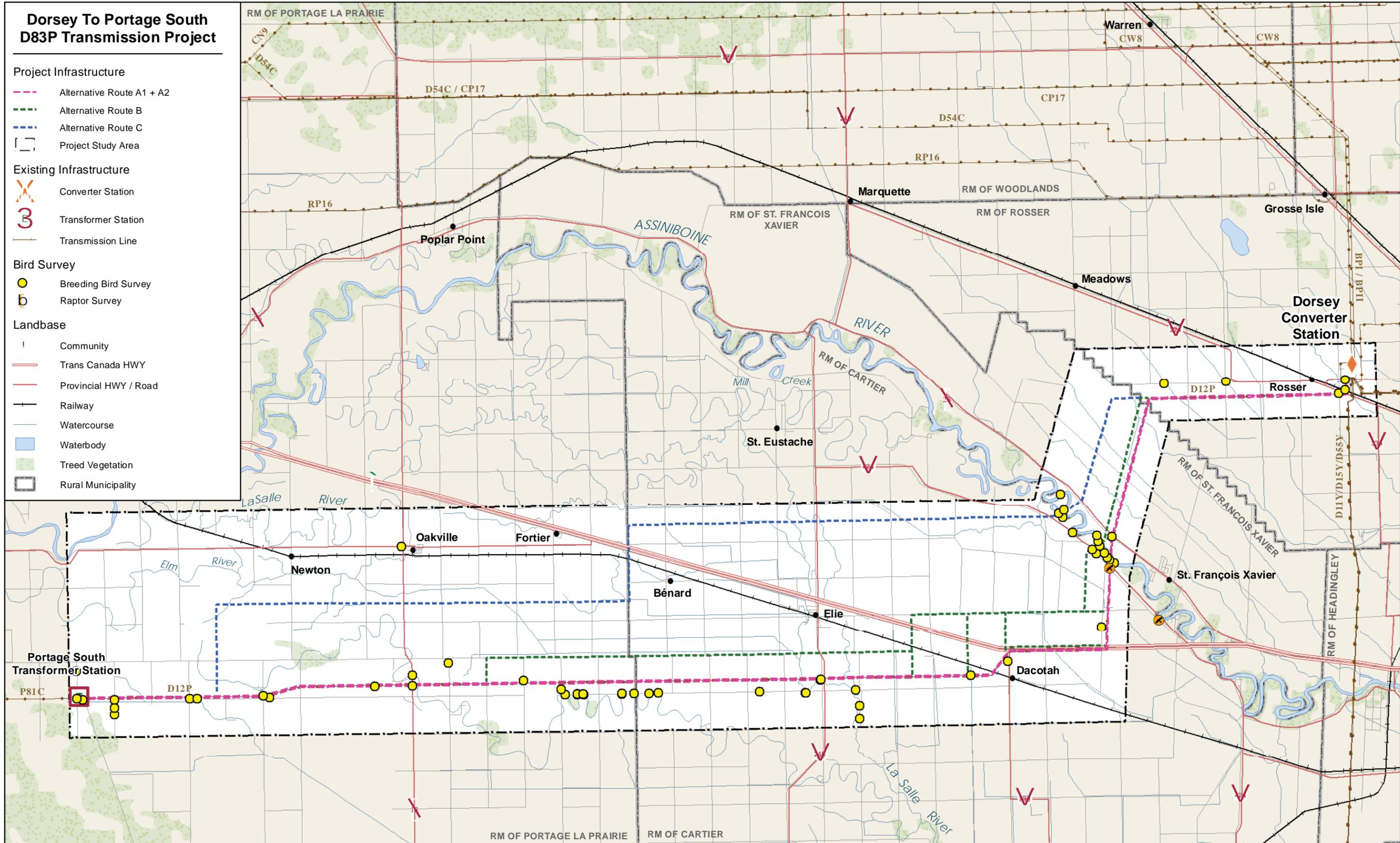
-  Converter Station
-  Transformer Station
-  Transmission Line

Bird Survey

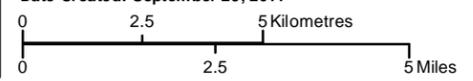
-  Breeding Bird Survey
-  Raptor Survey

Landbase

-  Community
-  Trans Canada HWY
-  Provincial HWY / Road
-  Railway
-  Watercourse
-  Waterbody
-  Treed Vegetation
-  Rural Municipality



Coordinate System: UTM Zone 14 NAD 83
 Data Source: MBHydro, Stantec, ProvMB, NRCan, WRCS
 Date Created: September 29, 2011




 1:150,000

Breeding Bird and Bird of Prey Survey Locations Within Project Study Area

Bird point count surveys were conducted by a biologist between approximately one-half hour before sunrise to 10:30 a.m. The position of each sample location was collected using a Garmin GPS map 60CSx Global Positioning System (GPS) unit. An 8 megapixel Olympus C-8080 digital camera was used to take photographs of representative habitat. Standardized sampling could not be achieved due to cover type limitations, private land access limitations, and further access restrictions from severe flooding at the time of the survey. Point counts were conducted systematically as to maximize the total number of sample plots to be surveyed. Data was entered into the Pointcount Data Recorder 1.6.27 software for analysis.

Roadside counts were conducted as property access was not feasible at the time of the survey. All sites were visited at least once. Twelve sites were visited on June 7, 28 sites on June 12, and 25 sites on July 2, 2011. Eight of the 57 roadside sites were re-sampled where it was determined that sample conditions became less than ideal (i.e., too windy) during the first site visit. A modified point count survey was conducted along the Assiniboine River due to severe flooding that prevented overland access. A canoe was used to access riparian habitat along the river on June 7, 2011. Observers travelled to 12 predetermined stations and pulled into the trees to remain stationary on site. Five-minute point counts were sampled using the same protocols as the land-based surveys.

3.3 BIRDS OF PREY SURVEY

Two locations were surveyed for birds of prey on April 30, 2011 (Map 2). Both sites selected were located along the Assiniboine River. The northern sample site was located adjacent to D12P where it crossed the Assiniboine River. The southern site was located 1.5 km east of the study area because access was limited due to flooding at the time of this survey. Survey locations focused on those geographic features in the D83P study area such as wide rivers and valleys, which tend to channel and concentrate birds of prey during spring migration. The Assiniboine River valley was determined to be the only site in the D83P study area that approached these criteria.

Raptor surveys were conducted between 8:00 a.m. and 11:00 a.m. The northern location was sampled first for 30 minutes and the southern location was sampled over four consecutive 30-minute observation periods. The maximum observation distance at each site was estimated at 300 m. Although a 360 degree view was afforded to the observer, efforts were focused along the Assiniboine River and not surrounding cropland cover type. The position of the sample station was collected using GPS. The biologist recorded information on species, number of individuals, sex, habitat, direction of travel, flight height, and distance and direction from the observer. Incidental observations of species at risk and stick nests were also recorded during all studies. Photographs were taken at each site.

3.4 RECONNAISSANCE SURVEYS AND INCIDENTAL OBSERVATIONS

A reconnaissance survey of the study area was conducted on May 14, 2011 to assess the accessibility of potential sampling sites due to severe overland flooding of the Assiniboine River. All birds observed during this survey were recorded and treated as incidental observations. General survey stops were selected opportunistically as encountered, and where the biologist determined that the habitat at the survey stop was of interest. Photographs of habitat features were taken at most sites. Additional incidental observations include all mammals, amphibians, and reptiles observed, and birds observed outside of the established protocols for the breeding bird and raptor surveys. Tetra Tech also recorded wildlife observations during rare plant surveys, and these observations are contained within the report.

3.5 HABITAT CAPABILITY ASSESSMENTS AND ROUTE EVALUATION

Bird, mammal, reptile and amphibian habitat capability assessments were conducted for the D83P study area. Habitat capability is defined as the potential for an area of land or water to provide an appropriate biophysical environment upon which an organism in question depends on, directly or indirectly, to carry out its life processes¹. To identify areas having the highest values for wildlife, and in particular, those wildlife habitats that may be most sensitive to potential disturbances in the D83P study area, three simple habitat capability models were constructed; one for each wildlife group including birds, mammals, and amphibians and reptiles.

The qualitative descriptive models that follow (Sections 3.5.1 to 3.5.3) were developed from a limited review of primary literature and by using professional judgment to determine the relative importance of wildlife habitat capability in the D83P study area. Three categorical variables (i.e., low, moderate and high) were used to differentiate between less important and more important potential wildlife habitats. Only those wildlife habitats of moderate or high importance are expressed on the habitat capability maps. Where possible, field data and further professional judgement were used to qualitatively validate the underlying assumptions and performance of each model developed (see Section 4).

Data used to interpret, quantify and map wildlife habitat capability for the D83P study area included LCCEB cover types and Canada Land Inventory (CLI) land class capability (Table 1, Section 3.1). The CLI is based on a national system developed in conjunction with the Canadian Wildlife Service and the game branches of the provinces (Canada Land Inventory 1998a and 1998b). The CLI land capability was assessed using interpretation of aerial photographs and by field surveys and is intended to serve as an inventory tool for land-use planning and wildlife protection (Canada Land Inventory 1998a and 1998b). Land capability for wildlife considers the quantity and quality of food, protective cover, and space to meet the needs for survival, growth and reproduction (Canada Land Inventory 1998a and 1998b). CLI land class capability is

¹ Adapted from Dunster and Dunster (1996)

ranked 1 through 7 with class 1 being highly product and having no limitation to productivity and class 7 having significant restrictions making an area uninhabitable (Canada Land Inventory 1998a and 1998b). The results were mapped using ArcGIS 9.2.

Habitat capability was assessed by calculating the amount of native land cover types compared to disturbed, non-native land cover types in the D83P study area. In some cases, the modeled extent of wildlife habitat capability is qualified, limited or refined with expressions of land class capabilities such as in the case for waterfowl and ungulates, or in the case of certain species such as amphibians, even disturbed areas (e.g., ditches) might provide relatively important habitat for the maintenance of wildlife corridors and landscape connectivity. Maps presented in this report were produced using Manitoba Hydro's Data Management Protocols and ORIENTIS System.

In addition to the production of wildlife habitat capability maps for birds, mammals, and reptiles and amphibians, two other desktop evaluation exercises were conducted: the identification of potential environmentally sensitive sites; and a preliminary description and evaluation of three alternative transmission line concept routes located in the D83P study area. The requirement for the identification of environmentally sensitive sites and the introduction of transmission line route concepts were developed to provide context for future studies concerning the selection of Valued Environmental Components (VECs) and for the development and selection of alternative transmission line routes.

3.5.1

BIRD HABITAT CAPABILITY MODEL

Based on VEC considerations and potential connections with the D83P project, habitat capability assessments were conducted for three bird groups: songbirds, birds of prey and waterfowl. For birds, the total area of each native land cover type in the D83P study area was estimated using ArcGIS 9.2. Waterfowl habitat capability was assessed further by using CLI land capability data to qualify the extent and location of waterfowl habitat in the study area. The total area of native land cover types overlapped by areas with a land capability of class 3 or 4 was calculated to quantify waterfowl habitat capability. No class 1 or 2 were found in the study area and classes 5 and up were too low in habitat capability to support waterfowl populations. Definitions, as defined by CLI (1998a), for the selected land capability classes are as follows:

- Class 3 – Lands in this class have slight limitations to the production of waterfowl. Capability on these lands is moderately high, but productivity may be reduced in some years because of occasional droughts. Slight limitations are due to climate or to characteristics of the land that affect the quality and quantity of habitat. These lands have a high proportion of both temporary and semi-permanent shallow marshes poorly interspersed with deep marshes and bodies of open water.
- Class 4 – Lands in this class have moderate limitations to the production of waterfowl. Capability on these lands is moderate. Limitations are similar to those in class 3, but the degree is greater. Water areas are predominantly temporary ponds, or deep, open waters with poorly developed mash edges, or both (Canada Land Inventory 1998a).

Birds are capable of occupying almost all types of habitat found on the landscape in Manitoba, including anthropogenic environments. However, many bird species do exhibit strong breeding and foraging habitat preferences, often utilizing narrow niches within selected habitats (Power 1971). Songbirds use a wide variety of habitats ranging from grasslands to forest and wetlands, with diversity varying according to habitat type (Yahner 1988; Gates and Giffen 1991).

Raptor nests are commonly constructed of sticks and other plant material, usually in a tree, although some species may nest on the ground or on cliff faces (Snyder 2001a; Snyder 2001b). The availability of foraging perches nearby may influence the selection of nest sites, as well as cover offered by the surrounding habitat (Smith *et al.* 2003).

Waterfowl are abundant and breed throughout much of Manitoba (Newman *et al.* 2000), although they are much more common in the prairie pothole region of the province, arriving in early spring and departing in late fall, occasionally remaining in the province into December depending upon conditions (Baydack and Taylor 2003). Waterfowl utilize water bodies for breeding; however they show no preference for permanent water bodies over semi-permanent wetlands (Rotella and Ratti 1992). Waterfowl typically nest in the vicinity of water, usually on the ground or in tree cavities (Kaufman 1996).

Bird Habitat Capability Model

Based on VEC considerations and potential connections with the D83P project, a general habitat capability model using LCCEB cover types was created for songbirds, birds of prey and waterfowl. The global bird model was enhanced for waterfowl using both CLI and LCCEB data.

Assumptions

- Vertical vegetation structure and diversity are important components of bird habitat.
- All native vegetation cover types provide nesting and foraging habitat for a large variety of bird species.
- While non-native vegetation cover types are used by a few bird species, it does not provide high quality habitat. Exceptions may include rare bird species.
- The habitat requirements of disturbance-tolerant and invasive bird species are less important than those of neotropical migrants, sensitive species or rare species that require native habitat.
- Important migration corridors in southern Manitoba include the Assiniboine River and possibly, the La Salle River.
- Waterfowl habitat includes breeding, nesting, foraging and migration staging areas, which in part, can be found on some agricultural lands; productivity however, is limited by land capability.

Model

Bird Habitat Capability

- LCCEB categories include broadleaf dense, broadleaf open, broadleaf, grassland, herb, shrub tall, shrubland, wetland shrub, and wetland.
- Waterbodies and streams.
- Waterfowl component - LCCEB native cover classes in CLI land capability classes 3 and 4.

3.5.2

MAMMAL HABITAT CAPABILITY MODEL

In order to assess mammal habitat capability in the D83P study area native LCCEB cover types were used where the total area of each native land cover type in the D83P study area was estimated using ArcGIS 9.2. Ungulate habitat capability was further assessed using CLI land capability data. The total area of native land cover types overlapped by areas with a land capability of class 3, 3W or 4 was calculated to quantify ungulate habitat. No class 1 or 2 were found in the study area and classes 5 and up were too low in habitat capability to support ungulate populations. Definitions, as defined by CLI (1998b), for the selected land capability classes are as follows:

- Class 3 – Lands in this class have slight limitations to the production of ungulates. Capability on these lands is moderately high, but productivity may be reduced in some years. Slight limitations are due to characteristics of the land that affect the quality and quantity of habitat, or to climatic factors that limit the mobility of ungulates or the availability of food and cover.
- Class 3W – Lands in this special class are class 3 areas that are winter ranges on which animals from surrounding areas depend.
- Class 4 – Lands in this have moderate limitations to the production of ungulates. Capability on these lands is moderate. Limitations are similar to those in class 3, but the degree is greater (Canada Land Inventory 1998b).

Riparian areas often contain habitat for aquatic furbearers such as beaver and muskrat. However, these sites tend to be fragmented in places, and are often too narrow to provide sufficient cover as travel corridors for terrestrial mammal species, with the exception of those that may tolerate or thrive in heavily disturbed human-dominated and agricultural landscapes. White-tailed deer fall into this category. For example, Banfield (1987) reports that while it is commonly believed that white-tailed deer prefer older-growth forests, they in fact inhabit a variety of more suitable habitats, such as edges of deciduous forest, stream banks, swamps and swamp edges; habitats which are also utilized by a variety of other mammals including raccoon and beaver (Banfield 1987). However, thermal cover for white-tailed deer and other mammal species is sparse in the study area, and might be limited to woodlots and remnants of river bottom forest along the Assiniboine River and riparian forest along the La Salle River.

Mammal Habitat Capability Model

Based on VEC considerations and potential connections with the D83P project, a general habitat capability model using LCCEB cover types was created for mammals. The global mammal model was enhanced for ungulates using both CLI and LCCEB data.

Assumptions

- Vertical vegetation structure and diversity are important components of mammal habitat.
- All native vegetation cover types provide breeding, foraging and thermal cover for a large variety of mammal species. Forest cover and water is particularly important to many species.
- While non-native vegetation cover types are used by many mammal species, it does not provide high quality habitat. Exceptions may include rare mammal species.
- The habitat requirements of disturbance-tolerant and invasive mammal species are less important than those of migrants (e.g., bats), sensitive species or rare species that require native habitat.
- Important movement corridors in southern Manitoba include the Assiniboine River and the La Salle River.
- White-tailed deer habitat includes breeding, foraging and thermal cover, which in part, can be found on agricultural lands; productivity and survival however, is limited by land capability.

Model

Mammal Habitat Capability

- LCCEB categories include broadleaf dense, broadleaf open, broadleaf, grassland, herb, shrub tall, shrubland, wetland shrub, and wetland.
- Waterbodies and streams.
- Ungulate component - LCCEB native cover classes in CLI land capability classes 3, 3W & 4.

3.5.3

AMPHIBIAN AND REPTILE HABITAT CAPABILITY MODEL

In order to assess amphibian and reptile habitat capability in the D83P study area native LCCEB cover types were used where the total area of each native land cover type in the D83P study area was estimated using ArcGIS 9.2. In addition, the area of water bodies and lengths of streams were included as amphibian habitat. The edges of roads were mapped to simulate amphibian and reptile habitat found in roadside ditches, which intermittently have standing, shallow water and vegetation; however, the area of potential habitat capability was not calculated as it was unknown whether ditches would contain water. Cultivated agricultural land, developed land and annual crops are less

suitable for amphibians and reptiles due to food and cover limitations, high risk of sensory disturbances and accidental mortality, and overall lack of water from drainage.

All amphibians that breed in Manitoba require water for reproduction, but many species are also found in terrestrial environments. For example, the American toad is primarily a forest toad found east of the Red River, while the Canadian toad prefers aspen parklands and prairie environments that may be found in the D83P study area. Frogs occupy a range of habitat in Manitoba, with preferences for wooded habitats (e.g., gray treefrog) to the boreal chorus frog's selection of marshy meadows and ditches (Preston 1982, Cook 1984).

Reptiles, such as red-sided garter snakes, are found in grasslands, woodlands, scrub, and forests adjacent to ponds, marshes, prairie potholes, roadside ditches, and streams (Stebbens 1985). Dens and snake hibernacula are typically found in along creek and river valleys with exposed shale outcrops, limestone formations, anthills, and small mammal burrows (Preston 1982). Northern prairie skink (listed as Endangered by *Species at Risk Act* [SARA]) and plains hognose snake are highly unlikely to occur in the study area due to habitat limitations (i.e., the absence of dry sandy soil grasslands) and other general range limitations.

Amphibian and Reptile Habitat Capability Model

Based on VEC considerations and potential connections with the D83P project, a general habitat capability model was created for amphibians and reptiles using LCCEB cover types.

Assumptions

- All native vegetation cover types provide breeding, foraging and cover for a variety of amphibian and reptile species. The proximity of water is particularly important to all amphibian species.
- Amphibian and reptile habitat is often associated due to common feeding requirements and predator-prey relationships.
- While non-native vegetation cover types are used by a few species, it does not provide high quality habitat. Exceptions may include non-native or semi-native habitat adjacent to water.
- Road side ditches and channelized creeks provide limited habitat to some amphibian and reptile species and are considered somewhat important to maintain connectivity of amphibian habitat throughout the landscape in agro-Manitoba. Western painted turtle habitat does not include ditches and channelized creeks.
- Plains hognose snake or northern prairie skink are not included, as these species would be limited to dry, sandy soil, grassland environments.

Model

Amphibian and Reptile Habitat Capability

- LCCEB categories include broadleaf dense, broadleaf open, broadleaf, grassland, herb, shrub tall, shrubland, wetland shrub, and wetland.
- Waterbodies and streams.
- Edges of roads were used to define ditches associated with them.

3.5.4 *IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE SITES*

Environmentally sensitive sites are defined as locations, features, areas, activities or facilities that could be identified in the D83P study area to be ecologically, socially, economically or culturally important or sensitive to disturbance and require protection during construction and operation of the project. For wildlife and habitat, environmentally sensitive sites may require special consideration because of the disproportionately high role they play in maintaining ecosystem function. Considerations for the identification of such sites include critical wildlife habitats, the presence of listed species and landscape connectivity, including existing wildlife movement corridors.

3.5.5 *EVALUATION OF THREE ALTERNATIVE TRANSMISSION LINE CONCEPT ROUTES*

The amount of habitat capability available along different routing options was estimated using ArcGIS 9.2. Three conceptual routes have been identified (Map 1). While routes A and C were easily identifiable route B was selected from a variety of conceptual options. The option selected as 'route B' was the route which has the least overlap either A or C. Each route was given a 200 m buffer in order to estimate the amount of area potentially influenced by the project. The LCCEB layer was then clipped by the buffered transmission line routes and the area of each LCCEB polygon in each route was calculated.

4.0 EXISTING ENVIRONMENT

4.1 BREEDING BIRD RESULTS

4.1.1 *BREEDING BIRD SURVEYS*

A total of 1,096 birds from 67 species were recorded on 59 plots in the D83P study area during the breeding bird surveys, with an average number of 19.2 birds/plot. In descending rank order of abundance, the five most common bird species found during the breeding bird surveys included: red-winged blackbird, barn swallow, American goldfinch, yellow warbler, and savannah sparrow (Table 2). Two species at risk, barn swallow and bobolink, were observed during the breeding bird surveys (Map 3).

The greatest number of species (n=58) recorded was found in cultivated agricultural land, followed by developed land (n=43) and grassland (n=29) (Table 3). This result was not surprising as these cover types are the most common in the study area, and the most intensively sampled. In addition, the greatest density of birds was observed near or along the Assiniboine and La Salle Rivers.

Bird species identified in the 16 developed habitat sample plots accounted for 43 of 67 species observed in all sampling plots, indicating bird diversity in the area is associated with disturbance tolerant species (Table 3). Most bird species observed in the developed habitats are common to disturbed landscapes. A few species such as hairy woodpecker, eastern wood-pewee and least flycatcher tolerate disturbance, but usually are associated with woodlots or forest habitat. Marbled godwit and western meadowlark tend to prefer unfragmented wetland and grassland habitats respectively. As several habitat specialists were found in the developed cover types, it is likely that this cover class contains a variety and mixture of habitats such as forest and grassland that are adjacent to the sample sites and suitable for these species. Both barn swallow and bobolink were observed in developed habitats (Map 4). Both species are listed as threatened by COSEWIC, but neither has status or schedule under the SARA.

Bird species identified in the 28 cultivated-agricultural land sample plots accounted for 58 of the 67 bird species observed in this study (Table 3). Similar to the species recorded in developed habitat, most bird species observed in cultivated agricultural land are common to disturbed landscapes, or are opportunistic and non-native species such as European starling and rock pigeon. Also similar to developed habitat, a variety of species associated with wetlands, grasslands and forest were recorded in this habitat category, including sedge wren, western meadowlark and yellow-throated vireo respectively. Barn swallow and bobolink were observed using this habitat type.

Table 2: Breeding Bird Survey by Species

Species	# individuals	# Indv/Plot	Species	# Individuals	# Indv/Plot
Alder Flycatcher	3	0.05	House Wren	17	0.30
American Crow	37	0.65	Killdeer	19	0.33
American Goldfinch	73	1.28	Le Conte's Sparrow	1	0.02
American Redstart	6	0.11	Least Flycatcher	18	0.32
American Robin	37	0.65	Mallard	40	0.70
Baltimore Oriole	20	0.35	Marbled Godwit	2	0.04
Barn Swallow	76	1.33	Marsh Wren	5	0.09
Black-and-White Warbler	1	0.02	Mourning Dove	39	0.68
Black-billed Magpie	9	0.16	Northern Shoveler	2	0.04
Black-capped Chickadee	4	0.07	Red-eyed Vireo	22	0.39
Blue Jay	4	0.07	Red-winged Blackbird	157	2.75
Blue-winged Teal	3	0.05	Ring-billed Gull	17	0.30
Bobolink	14	0.25	Rock Pigeon	1	0.02
Brewer's Blackbird	46	0.81	Rose-breasted Grosbeak	4	0.07
Brown-headed Cowbird	30	0.53	Sandhill Crane	1	0.02
Canada Goose	15	0.26	Savannah Sparrow	49	0.86
Chestnut-sided Warbler	3	0.05	Sedge Wren	4	0.07
Chipping Sparrow	7	0.12	Song Sparrow	30	0.53
Clay-colored Sparrow	34	0.60	Sora	8	0.14
Common Grackle	19	0.33	Spotted Sandpiper	2	0.04
Common Yellowthroat	9	0.16	Tree Swallow	7	0.12
Double-crested Cormorant	1	0.02	Vesper Sparrow	7	0.12
Downy Woodpecker	2	0.04	Virginia Rail	1	0.02
Eastern Kingbird	11	0.19	Warbling Vireo	18	0.32
Eastern Phoebe	3	0.05	Western Kingbird	1	0.02
Eastern Wood-Pewee	9	0.16	Western Meadowlark	28	0.49
European Starling	4	0.07	White-breasted Nuthatch	3	0.05
Franklin's Gull	12	0.21	Wild Turkey	1	0.02
Gray Catbird	7	0.12	Wilson's Snipe	4	0.07
Great Crested Flycatcher	15	0.26	Yellow Warbler	51	0.89
Hairy Woodpecker	7	0.12	Yellow-bellied Sapsucker	2	0.04
Hooded Merganser	1	0.02	Yellow-shafted Flicker	1	0.02
House Finch	2	0.04	Yellow-throated Vireo	2	0.04
House Sparrow	8	0.14			

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- - - Alternative Route A1 + A2
- - - Alternative Route B
- - - Alternative Route C
- Project Study Area

Existing Infrastructure

- Converter Station
- Transformer Station
- Transmission Line

Bird Survey Studies

Observation

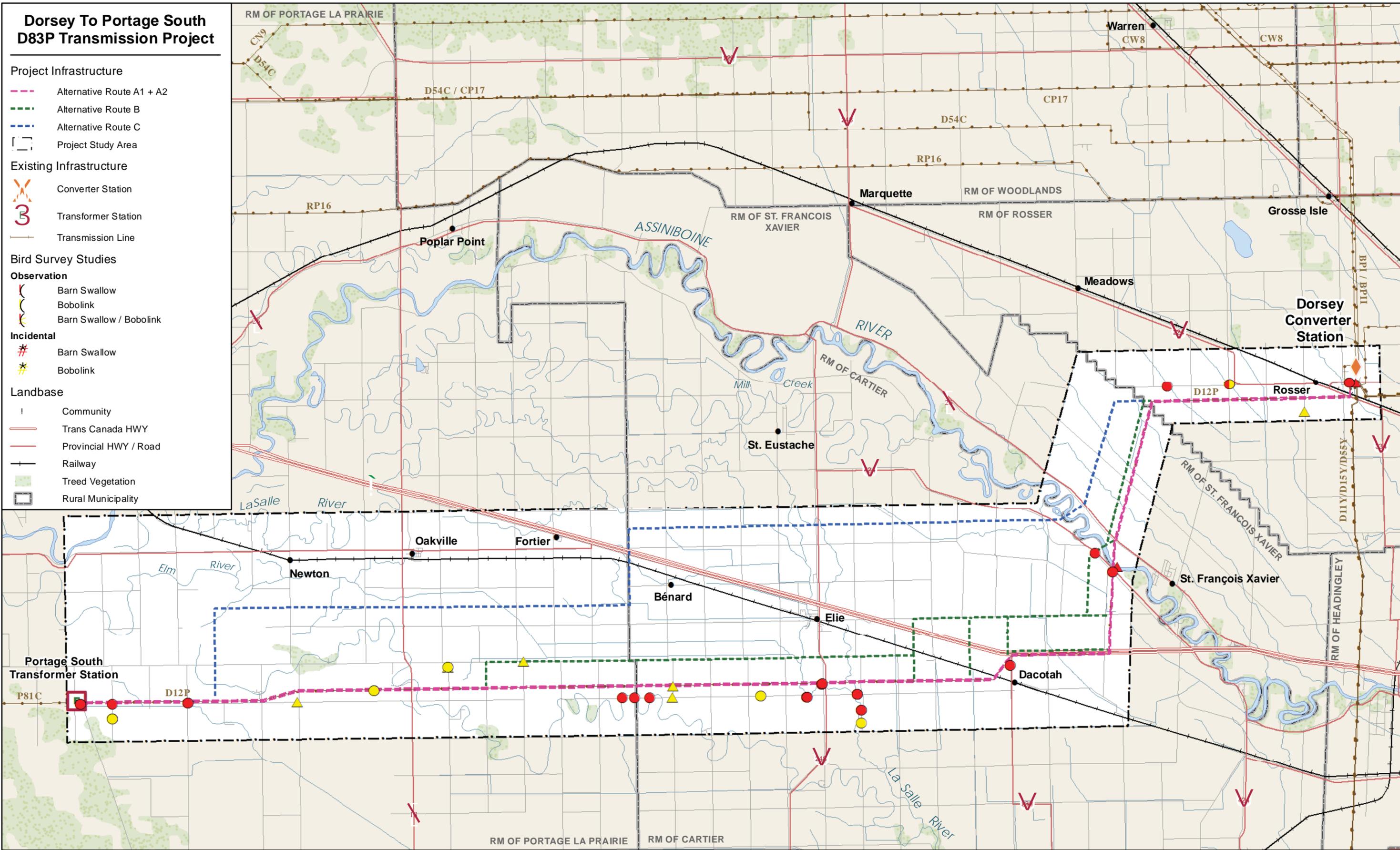
- Barn Swallow
- Bobolink
- Barn Swallow / Bobolink

Incidental

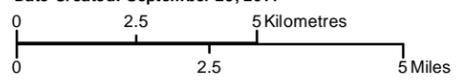
- Barn Swallow
- Bobolink

Landbase

- Community
- Trans Canada HWY
- Provincial HWY / Road
- Railway
- Treed Vegetation
- Rural Municipality



Coordinate System: UTM Zone 14 NAD 83
 Data Source: MBHydro, Stantec, ProvMB, NRCan, WRCS
 Date Created: September 29, 2011



1:150,000

Locations of Observed Barn Swallow and Bobolink Within Project Study Area

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- - - Alternative Route A1 + A2
- - - Alternative Route B
- - - Alternative Route C
- Project Study Area

Existing Infrastructure

- Converter Station
- Transformer Station
- Transmission Line

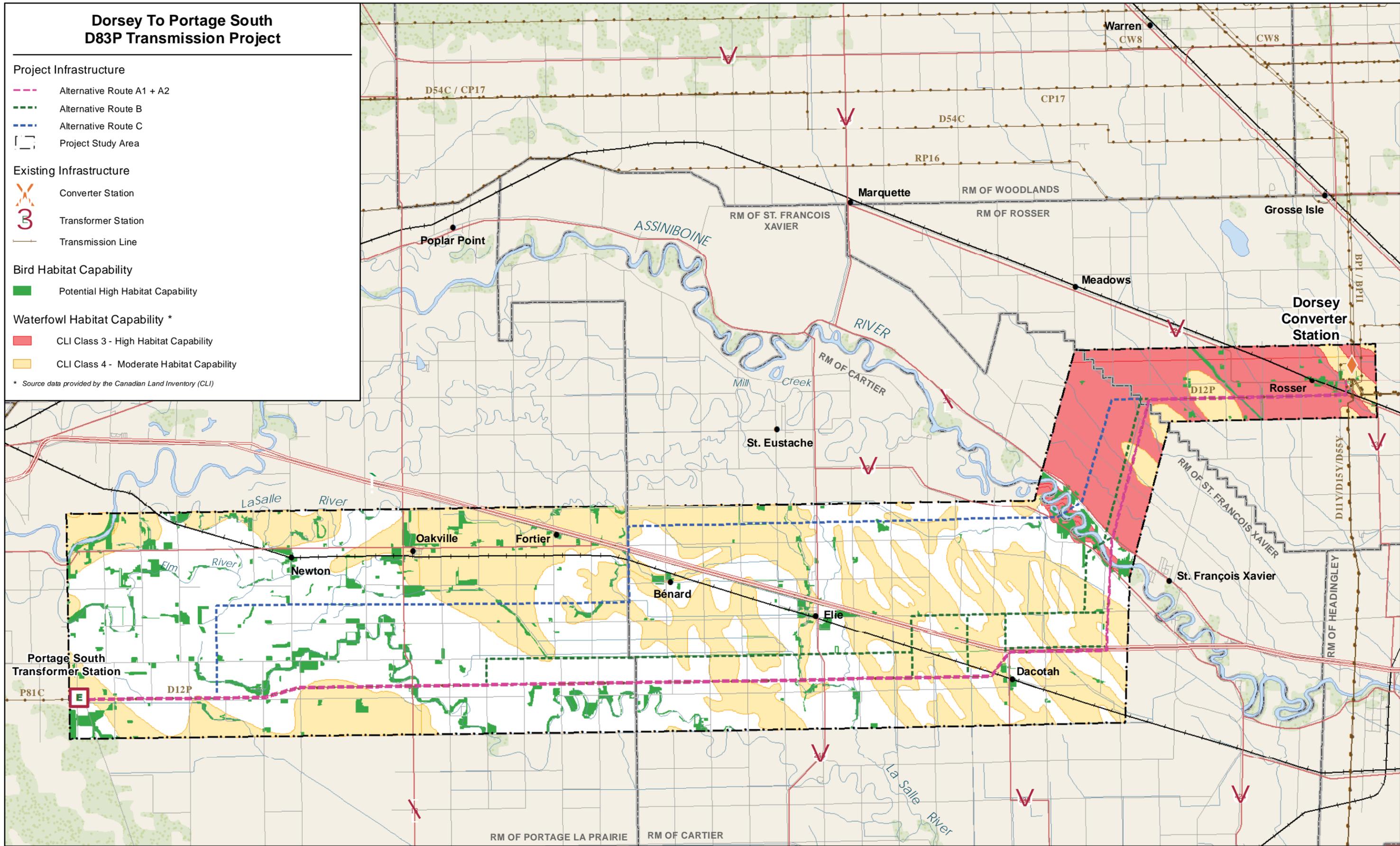
Bird Habitat Capability

- Potential High Habitat Capability

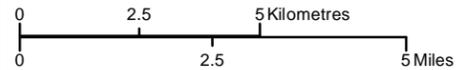
Waterfowl Habitat Capability *

- CLI Class 3 - High Habitat Capability
- CLI Class 4 - Moderate Habitat Capability

* Source data provided by the Canadian Land Inventory (CLI)



Coordinate System: UTM Zone 14 NAD 83
 Data Source: MBHydro, Stantec, ProvMB, NRCan, WRCS
 Date Created: September 29, 2011



1:150,000

Bird Habitat Capability Assessment Within Project Study Area

Table 3: Breeding Bird Survey Results by LCCEB Cover Type

Number of Plots Species	Broadleaf		Cultivated Agricultural Land		Developed		Grassland		Herb		Shrub Tall	
	n=6		n=29		n=16		n=6		n=1		n=1	
	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot
Alder Flycatcher	1	0.17	1	0.34					1	1		
American Crow	6	1.00	14	0.48	12	0.75	3	0.50	1	1	1	1
American Goldfinch	13	2.17	32	1.13	13	0.81	11	1.83	4	4		
American Redstart	2	0.33	2	0.69					2	2		
American Robin	4	0.67	22	0.76	7	0.44	3	0.50	1	1		
Baltimore Oriole	2	0.33	8	0.28	5	0.31	4	0.67	1	1		
Barn Swallow			57	1.97	18	1.13	1	0.17				
Black-and-White Warbler			1	0.34								
Black-billed Magpie			8	0.28	1	0.63						
Black-capped Chickadee	1	0.17	3	0.13								
Blue Jay			4	0.14								
Blue-winged Teal					2	0.13	1	0.17				
Bobolink			9	0.31	5	0.31						
Brewer's Blackbird			26	0.90	18	1.13	2	0.33				
Brown-headed Cowbird			15	0.52	11	0.69	3	0.50			1	1
Canada Goose	1	0.17	13	0.45			1	0.17				
Chestnut-sided Warbler	2	0.33							1	1		
Chipping Sparrow			5	0.17	2	0.13						
Clay-colored Sparrow	1	0.17	2	0.69	11	0.69	2	0.33				
Common Grackle			5	0.17	14	0.88						
Common Yellowthroat			5	0.17	4	0.25						
Double-crested Cormorant			1	0.34								
Downy Woodpecker					1	0.63	1	0.17				
Eastern Kingbird			5	0.17	5	0.31	1	0.17				
Eastern Phoebe	1	0.17	2	0.69								
Eastern Wood-Pewee	2	0.33	6	0.27	1	0.63						

Number of Plots Species	Cultivated Agricultural											
	Broadleaf n=6		Land n=29		Developed n=16		Grassland n=6		Herb n=1		Shrub Tall n=1	
	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot
European Starling	1	0.17	3	0.13								
Franklin's Gull			12	0.41								
Gray Catbird	1	0.17	3	0.13	2	0.13					1	1
Great Crested Flycatcher	5	0.83	8	0.28	1	0.63	1	0.17				
Hairy Woodpecker	1	0.17	3	0.13	3	0.19						
Hooded Merganser	1	0.17										
House Finch			1	0.34	1	0.63						
House Sparrow			5	0.17	3	0.19						
House Wren			11	0.38	4	0.25	2	0.33				
Killdeer			1	0.34	8	0.50	1	0.17				
Le Conte's Sparrow							1	0.17				
Least Flycatcher	2	0.33	11	0.38	5	0.31						
Mallard	1	0.17	12	0.41	12	0.75	15	2.50				
Marbled Godwit			1	0.34	1	0.63						
Marsh Wren					4	0.25	1	0.17				
Mourning Dove	2	0.33	2	0.69	9	0.56	8	1.33				
Northern Shoveler			2	0.69								
Red-eyed Vireo	5	0.83	12	0.41	2	0.13	2	0.33	1	1		
Red-winged Blackbird	1	0.17	59	2.34	82	5.13	14	2.33			1	1
Ring-billed Gull			6	0.27	1	0.63			1	1		
Rock Pigeon			1	0.34								
Rose-breasted Grosbeak	1	0.17	3	0.13								
Sandhill Crane			1	0.34								
Savannah Sparrow			35	1.27	14	0.88						
Sedge Wren			1	0.34	3	0.19						
Song Sparrow	4	0.67	15	0.52	9	0.56	2	0.33				
Sora					5	0.31	3	0.50				

Number of Plots Species	Cultivated Agricultural Land											
	Broadleaf <i>n=6</i>		Land <i>n=29</i>		Developed <i>n=16</i>		Grassland <i>n=6</i>		Herb <i>n=1</i>		Shrub Tall <i>n=1</i>	
	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot	Count	#/plot
Spotted Sandpiper					2	0.13						
Tree Swallow			3	0.13	4	0.25						
Vesper Sparrow			5	0.17	2	0.13						
Virginia Rail							1	0.17				
Warbling Vireo	4	0.67	7	0.24	3	0.19	2	0.33	1	1	1	1
Western Kingbird			1	0.34								
Western Meadowlark	1	0.17	1	0.34	13	0.81	4	0.67				
White-breasted Nuthatch			2	0.69	1	0.63						
Wild Turkey			1	0.34								
Wilson's Snipe			3	0.13			1	0.17				
Yellow Warbler	11	1.83	24	0.83	3	0.19	9	1.50	2	2	2	2
Yellow-bellied Sapsucker			1	0.34			1	0.17				
Yellow-shafted Flicker			1	0.34								
Yellow-throated Vireo			2	0.69								

Twenty-seven bird species were identified in broadleaf habitat areas (Table 3); approximately one-half of the point count locations within this habitat type were located in the vicinity of the Assiniboine River. Observations of wildlife habitat in the Assiniboine river bottom forest included large cottonwood trees (*Populus deltoides*), basswood (*Tilia americana*), American Elm (*Ulmus americana*), Manitoba maple (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), willow (*Salix* spp.) and bur oak (*Quercus macrocarpa*). Other tree species included trembling aspen (*P. tremuloides*) and balsam poplar (*P. balsamifera*). Large-diameter trees were observed mainly along the Assiniboine River in the study area. A few large trees were also observed near the La Salle River.

Twenty-nine bird species were identified in grassland habitat areas (Table 3) including the barn swallow. Most species seen in grassland habitat areas were observed in other habitat types and could be considered disturbance or generalist species. Seldom seen species in grassland habitat areas included blue-winged teal, downy woodpecker, marsh wren, sora, Wilson's snipe and yellow-bellied sapsucker. Within the sampled grassland area was the single sighting of a Le Conte's sparrow and Virginia rail. Both these species are more common to wetland habitat which, along with sightings of mallard and marsh wren, indicates that there may be an association between grasslands and wetlands in the study area.

Surveys in shrub-tall habitat (Table 3) and herb habitat (Table 3) indicated the presence of six and 11 species respectively. As only a single site was sampled in shrub-tall and one site sampled in the herb habitat classification these data should not be considered to be representative of bird species associated with these habitats.

A total of 76 barn swallows and 14 bobolinks, both listed as threatened under COSEWIC, were widely distributed in the study area; however, most observations occurred south and west of Elie, Manitoba. Barn swallows were most often observed feeding in cultivated agricultural lands or developed areas near drainage ditches and farmyards. A few nests were observed under bridges and inside large culverts. Occasionally, barn swallows were observed in grassland habitat. Bobolink detection frequency was distributed equally between cultivated agricultural land and developed areas. Bobolink songs and flight displays were observed mainly in alfalfa fields, which are considered uncommon in the study area; grasslands and certain types of wetlands can also be used for breeding and nesting.

Eight breeding bird stations were re-sampled in part, due to timing and deteriorating weather conditions. The data from the first visit of these eight sites were excluded from Table 3. No bird species were detected on these plots during the first visit that were not detected during the second visit.

The observation of bird species in each habitat type can be indicative of a number of factors including potential community relationships between species and habitat requirements needed for the species to be present. While this type of habitat analysis is potentially useful, caution should be applied in this case as the value of these data are limited by a number of factors, including sample size, potential inaccuracies in habitat

data, and potential issues of scale and habitat adjacency. Further, due to overland flooding in many areas surveyed near rivers and creeks, the presence of ground-nesting species were most likely under-represented. Finally, the number of plots falling into these habitat classes was not equally distributed. The final assessment of the quality and quantity of these bird communities, and the distribution of local populations therefore, should be based on supplemental data and further analysis.

4.1.2 *BIRDS OF PREY SURVEY*

During the birds of prey surveys, a total of 115 birds were observed: six at the northern site (sampled for 30 minutes, one occasion) and 109 at the southern site (sampled for 120 minutes, one occasion). Only two raptors were observed: 2 rough-legged hawks at the southern site. An additional 30 species of birds were also observed during these surveys (Table 4). Yellow-rumped warbler, purple martin, rough-legged hawk, ruby-crowned kinglet, and western palm warbler were not observed during the breeding bird survey. The weather conditions during the birds of prey survey were only fair, which likely resulted in the reduced number of birds of prey observations. No species at risk were recorded during the survey.

Although the presence of two rough-legged hawks migrating through this area does not confirm that the Assiniboine River is a migration corridor for birds of prey, other nearby sites suggests that it is still possible. At least one site along the Red River at St. Adolphe (i.e., located about 40 km SE of the Assiniboine River sample sites) is well known for spring bird migration, which includes large numbers of birds of prey, waterfowl and other species (Carey *et al.* 2003). Similarly, movement of Neotropical species through the southern site (e.g., western palm warbler and yellow-rumped warbler) indicate that the adjacent river bottom forest might be an important movement corridor for songbirds and other spring migrants.

4.1.3 *INCIDENTAL OBSERVATIONS*

Green-winged teal, American Kestrel, American white pelican, bald eagle, bank swallow, cedar waxwing, common raven, eastern bluebird, grey partridge, northern harrier, great horned owl, greater yellowlegs, red-tailed hawk, ring-necked duck, Swainson's hawk, upland sandpiper, wood duck, and yellow-headed blackbird were species observed incidentally that were not observed during other surveys. Bobolink and barn swallow were the only species at risk recorded during the reconnaissance surveys (Map 3). Refer to Appendix C for a list of all incidental bird species observations.

Human-supplemented bird habitats in the study area included wood duck, purple marten, eastern blue bird and tree swallow nest boxes. A few bird feeders were also observed. At least two American crow or common raven stick nests were observed on D12P transmission line tower structures (at approximately UTM 14 U 609138 5538022 and 14 U 595629 5525762).

Table 4: Number of Species Observations during the Birds of Prey Survey

Site	Species	Number of Observations
Northern	American crow	1
	blue jay	1
	European starling	1
	mallard	1
	ring-billed gull	1
	song sparrow	1
Southern	American crow	1
	American robin	2
	black-capped chickadee	1
	blue jay	1
	Brewer's blackbird	9
	brown-headed cowbird	1
	Canada goose	2
	common grackle	35
	downy woodpecker	1
	eastern phoebe	1
	Franklin's gull	3
	hairy woodpecker	1
	hooded merganser	2
	killdeer	1
	mallard	19
	purple martin	1
	ring-billed gull	5
	rough-legged hawk	2
	ruby-crowned kinglet	1
	song sparrow	1
palm warbler	6	
white-breasted nuthatch	1	
white-throated sparrow	1	
yellow-rumped warbler	10	
northern flicker	1	

* species in bold-face fonts are spring migrants unlikely to breed in the study area

Eleven individuals of six mammal species were observed during the bird surveys and include red squirrel, muskrat, beaver, racoon, coyote, and white-tailed deer. None of the mammal species observed is a species at risk.

Four amphibian species, and sixteen individuals, were recorded incidentally during the bird surveys. Boreal chorus frogs were the most commonly observed, followed by northern leopard frogs, listed as Special Concern under the Species at Risk Act and the

COSEWIC. Other amphibian species observed includes American toad, Canadian toad, wood frog and gray treefrog.

A single red-sided garter snake was observed during vegetation field studies.

4.2 BIRD HABITAT CAPABILITY ASSESSMENT

A total of 37.62 km², or 3.54% of the study area, was identified as having higher quality capability for most bird species such as songbirds and birds of prey (Map 4). Excluding waterfowl, high quality native habitat for birds includes forest, grasslands, wetlands and riparian areas. The majority of the native landcover types including broadleaf and grassland are found primarily west of the town of Elie, Manitoba. The Assiniboine River is the exception, as it also has high quality capability for birds. Waterfowl habitat is found mainly along the Assiniboine River and eastward, with the quality of waterfowl capability generally decreasing westward across the study area. The quality of capability surrounding the La Salle River is the lowest in the study area for waterfowl. Only 12.07 km², or 1.14% of the study area, was identified as habitat for waterfowl when assessing cover types found in the areas with a class 3 or 4 CLI land capability value.

Field observations confirmed that native bird habitat, and in particular for songbirds, waterfowl, and birds of prey, appeared to be very limited in the D83P study area as agricultural croplands dominate the landscape. Field studies that focused on native habitat for birds occasionally encountered small habitat patches in agricultural cropland and developed areas that were not captured by LCCEB cover types. Stand-level native habitat, and other non-native tree, shrub and grass habitat patches that are suitable for birds and other wildlife was present in small woodlots and shelterbelts on rural farmyards, and for some private properties along the Assiniboine and La Salle Rivers. Overall, the D83P study area is heavily fragmented with low vegetation diversity and habitat capability for most bird species; a few potential bird movement corridors are connected with the exception northwest along the Assiniboine River, and generally east-west along the La Salle River.

4.3 MAMMAL HABITAT CAPABILITY ASSESSMENT

The highest quality habitat capability is found in the western portion of the study area and along the La Salle and Assiniboine Rivers (Map 5). There is very limited mammal habitat east of the town of Elie, Manitoba, with the exception of the Assiniboine River area. A total of 37.62 km², or 3.54% of the study area, was identified as having higher quality habitat capabilities for most mammal species. For ungulates in particular, 21.68 km², or 2.04% of the study area, was identified as higher quality habitat capability when assessing cover types only found in the areas with a class 3, 3W or 4 CLI land capability value.

Field observations confirmed that undisturbed and native mammal habitat appeared to be very limited in the D83P study area as agricultural croplands dominate the landscape (Table 1). Similar to birds, site-specific native mammal habitat tends to be distributed

around rural farmyards, pastures, and along the Assiniboine and La Salle Rivers. Some of the small habitat patches are not always captured at the mapping scale represented by the LCCEB. The study area is heavily fragmented and very few potential wildlife movement corridors are connected with native vegetation with the possible exception northwest along the Assiniboine River, and generally east-west along portions of the La Salle River and adjacent creeks.

4.4 AMPHIBIAN AND REPTILE HABITAT CAPABILITY ASSESSMENT

The highest quality amphibian and reptile habitat capability is found along the La Salle River and, to a lesser extent, Assiniboine River (Map 6). In addition, there appears to be a concentration of habitat on the western portion of the study area, where there is a series of remnant naturalized areas including streams, creeks and small water bodies. A total of 39.99 km², or 3.76%, of the study area, with an additional 492.58 km of streams, irrigation channels, and small rivers, was identified as having higher habitat capabilities for amphibians and reptiles that may be found in the D83P study area.

Other than anthropogenic habitat, field observations confirmed that native amphibian and reptile habitat appeared to be very limited in the D83P study area as agricultural croplands dominate the landscape. With the exception of some amphibian and reptile habitat provided by roadside ditches, and channelized creeks for boreal chorus frog, wood frog, and possibly, for red-sided garter snake, the area is heavily fragmented. Few marshes remain in the study area. Overwintering habitat for northern leopard frog is considered sparse in the study area, and it is likely limited to a few ponds, drainage channels, and to the Assiniboine and La Salle Rivers. Large snake hibernacula are unlikely to occur, and are most likely to be limited to small rock formations and small mammal burrows.

4.5 ENVIRONMENTALLY SENSITIVE SITES

The Assiniboine River and La Salle River areas have relatively uncommon forest types located adjacent to a water features, and are considered as having higher bird habitat values relative to the rest of the D83P study area; three of these sites are located where different route options cross the Assiniboine River. The fourth site is located where Route A crosses the La Salle River (Map 7).

Although short-eared owls were not detected during field surveys, this species has been recorded in the area by others (Carey *et al.* 2003). Grasslands, wetlands and hayfields in the D83P study areas that are important for nesting and movements of short-eared owls qualify as environmentally sensitive areas. Similarly, yellow rail wetland habitat is considered an environmentally sensitive area. Other environmentally sensitive sites for COSEWIC-listed species include alfalfa fields and grasslands, which are important for bobolink nesting (Kauffman 1996), and structures, such as bridges and barns, near water, which are important for barn swallow nesting (Kauffman 1996).

The Assiniboine River and La Salle River areas have uncommon forest types located adjacent to a water features, and is considered as having higher mammal habitat values relative to the rest of the D83P study area. No other environmentally sensitive sites for mammals have been identified to date. Although white-tailed deer wintering yards are not expected to occur regularly in the study area, these may occur in heavily wooded areas along the Assiniboine River, and possibly elsewhere. Mammal dens could also be considered potentially sensitive sites; however these sites can vary year to year, tend to be very site-specific if they occur, and would require further field investigations to identify potential locations.

Environmentally sensitive sites for amphibians and reptiles include high-quality wetlands and snake hibernacula; however, none have been identified in the D83P study area to date. The Assiniboine River and La Salle River areas, which have an uncommon forest type adjacent to water, are considered to have high amphibian and reptile habitat values relative to the rest of the D83P study area.

4.6 ALTERNATIVE ROUTE ASSESSMENT

Cultivated agricultural land is the most common cover type in all three concept route options, followed by developed and annual crops (Table 5). Only minor differences are apparent among the options. Route C contains the greatest amount of broadleaf forest, which has important values as wildlife habitat. Route B has the greatest amount of grassland. All potential transmission line routes would cross at least two environmentally sensitive features, including the Assiniboine River and the La Salle River.

Table 5: LCCEB Cover Types Found in Three Potential Routes for the D83P Transmission Line

Cover Type	Area (Km ²)		
	Route A	Route B	Route C
annual crops	0.83	0.87	0.96
broadleaf	0.10	0.16	0.17
cultivated agricultural land	23.75	23.23	24.18
developed	1.28	1.66	0.96
exposed land	0	0	0.03
grassland	0.55	0.76	0.58
herb	0.04	0.00	0.03
shrub tall	0.00	0	0.03
water	0.05	0.05	0.06
Total	26.71	26.88	27.17

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- - - Alternative Route A1 + A2
- - - Alternative Route B
- - - Alternative Route C
- Project Study Area

Existing Infrastructure

- Converter Station
- Transformer Station
- Transmission Line

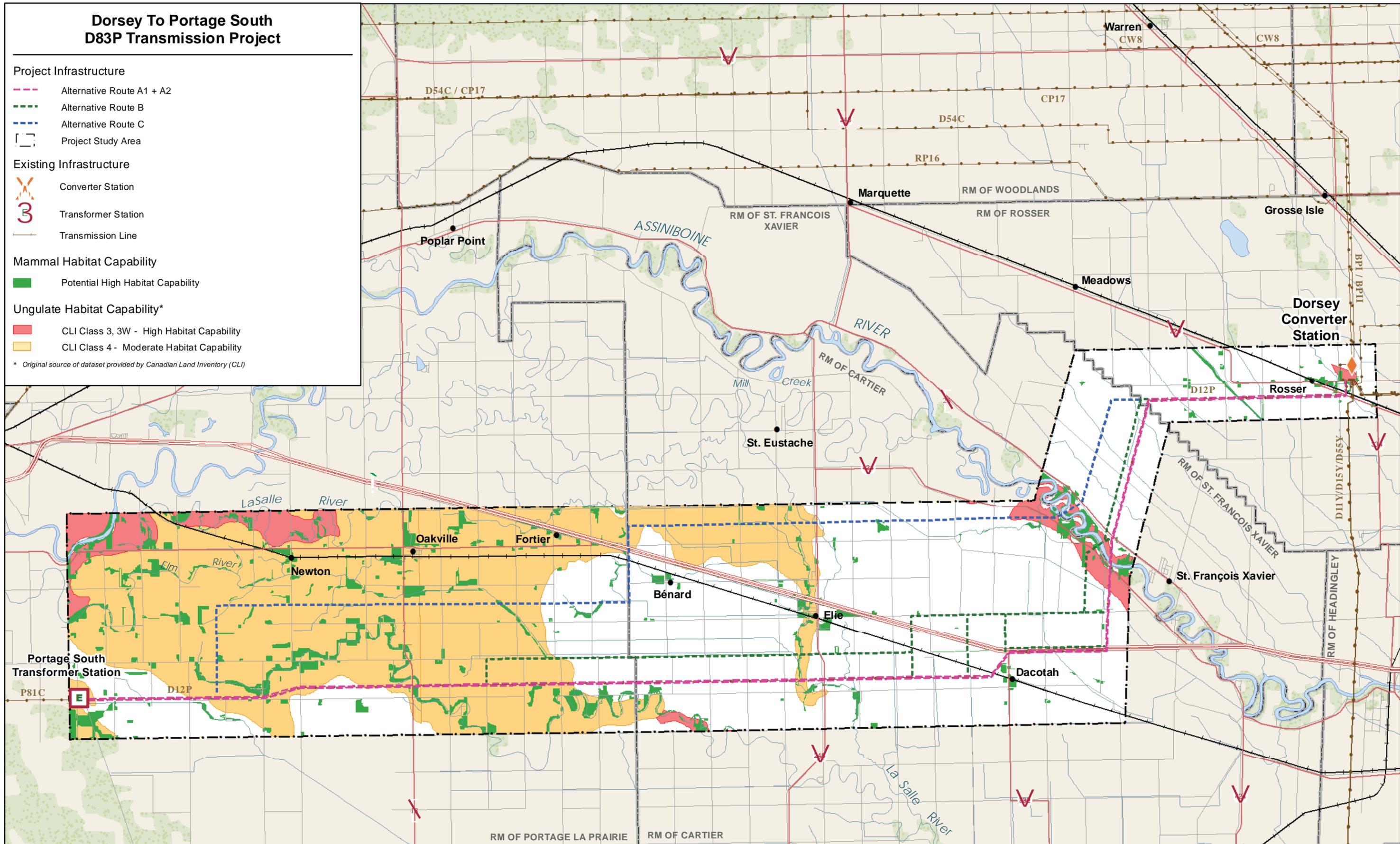
Mammal Habitat Capability

- Potential High Habitat Capability

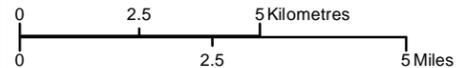
Ungulate Habitat Capability*

- CLI Class 3, 3W - High Habitat Capability
- CLI Class 4 - Moderate Habitat Capability

* Original source of dataset provided by Canadian Land Inventory (CLI)



Coordinate System: UTM Zone 14 NAD 83
 Data Source: MBHydro, Stantec, ProvMB, NRCan, WRCS
 Date Created: October 28, 2011



1:150,000

Mammal Habitat Capability Assessment Within Project Study Area

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- - - Alternative Route A1 + A2
- - - Alternative Route B
- - - Alternative Route C
- Project Study Area

Existing Infrastructure

- X Converter Station
- 3 Transformer Station
- Transmission Line

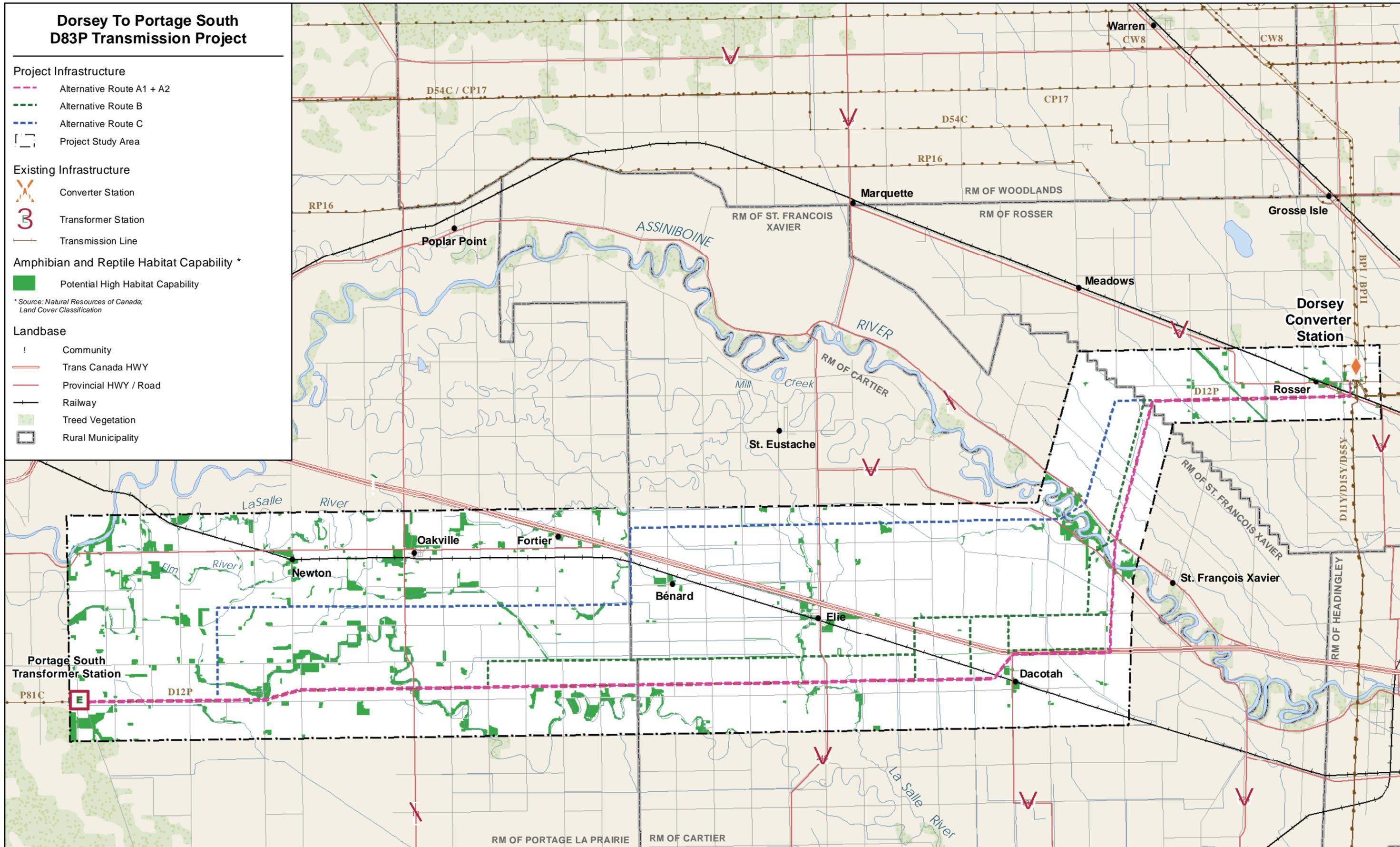
Amphibian and Reptile Habitat Capability *

- Potential High Habitat Capability

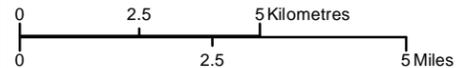
* Source: Natural Resources of Canada:
Land Cover Classification

Landbase

- | Community
- Trans Canada HWY
- Provincial HWY / Road
- Railway
- Treed Vegetation
- Rural Municipality



Coordinate System: UTM Zone 14 NAD 83
 Data Source: MBHydro, Stantec, ProvMB, NRCan, WRCS
 Date Created: October 28, 2011



1:150,000

Amphibian & Reptile Habitat Capability Assessment Within Project Study Area

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- - - Alternative Route A1 + A2
- - - Alternative Route B
- - - Alternative Route C
- Project Study Area

Existing Infrastructure

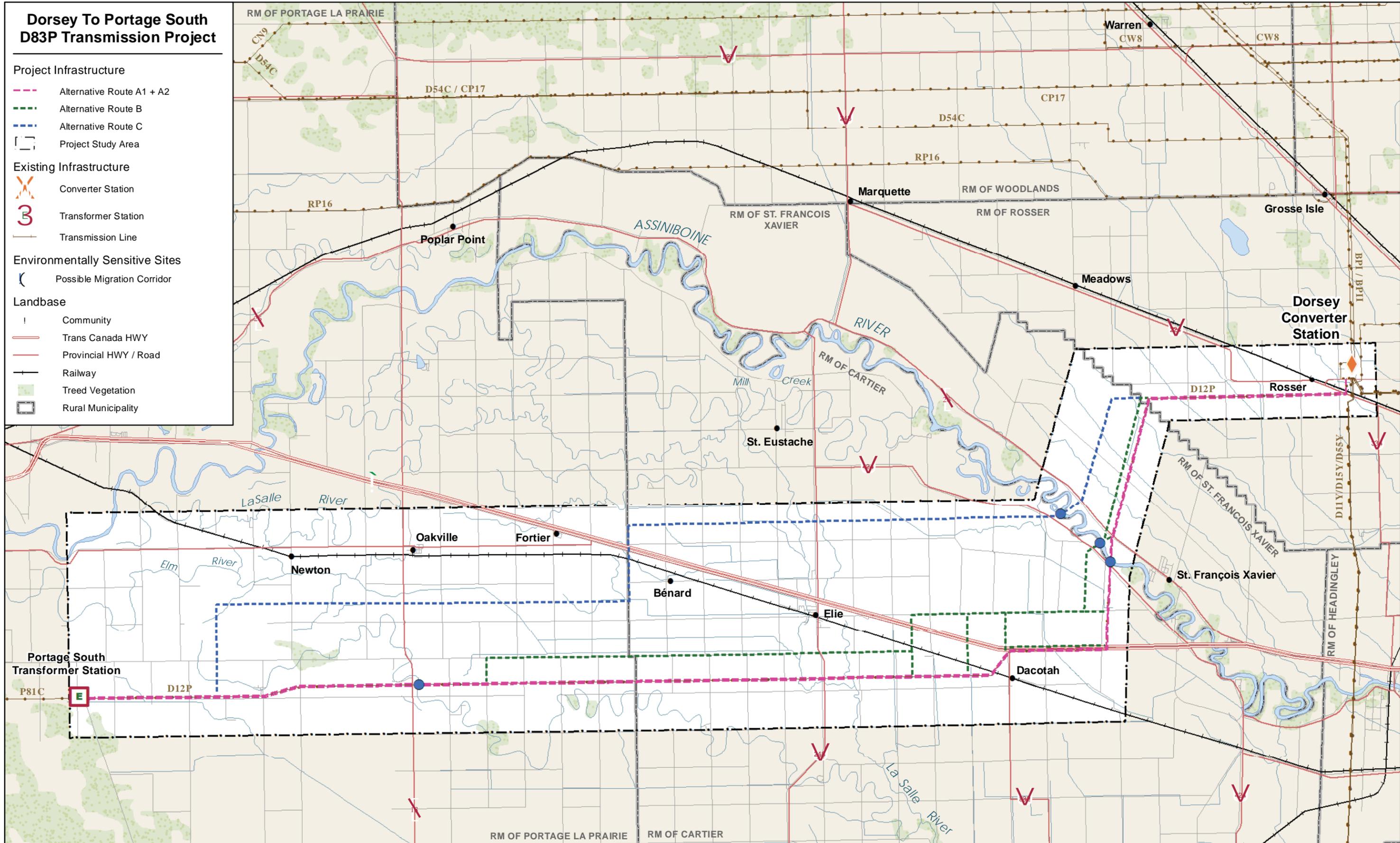
- Converter Station
- Transformer Station
- Transmission Line

Environmentally Sensitive Sites

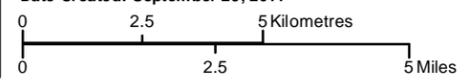
- Possible Migration Corridor

Landbase

- Community
- Trans Canada HWY
- Provincial HWY / Road
- Railway
- Treed Vegetation
- Rural Municipality



Coordinate System: UTM Zone 14 NAD 83
 Data Source: MBHydro, Stantec, ProvMB, NRCan, WRCS
 Date Created: September 29, 2011



1:150,000

Environmentally Sensitive Sites Within Project Study Area

5.0 REFERENCES

- Banfield, A.F.W. 1987. *The Mammals of Canada*. University of Toronto Press. Toronto, Ontario. 438pp.
- Baydack, R., and P. Taylor. 2003. Mallard. *In The Birds of Manitoba*, Manitoba Avian Research Committee. *Edited by P. Taylor*. Manitoba Naturalists Society, Winnipeg, Manitoba. pp. 107-108.
- Canada Land Inventory (CLI). 1998a. Land Capability for Wildlife – Waterfowl. National Archives of Canada, Ottawa, Ontario.
- Canada Land Inventory (CLI). 1998b. Land Capability for Wildlife – Ungulates. National Archives of Canada, Ottawa, Ontario.
- Carey, B., W. Christianson, C.E. Curtis, L.D. March, G.E. Holland, R.F. Koes, R.W. Nero, R.J. Parsons, P. Taylor, M. Waldron, and G. Walz. 2003. *The Birds of Manitoba*. Manitoba Avian Research Committee, Manitoba Naturalists Society, Winnipeg, Manitoba.
- Cook, F.R. 1984. *Introduction to Canada amphibians and reptiles*. National Museum of Natural Sciences, National Museums of Canada. Ottawa, Ontario.
- Dunster, J. and K. Dunster. 1996. *Dictionary of natural resource management*. UBC Press, Vancouver, British Columbia. 363pp.
- Elzinga, C.L., D.W. Salzer, J.W. Wiloughby, and J.P. Gibbs. 2001. *Monitoring plant and animal populations*. Blackwell Science, Oxford. 360 pp.
- Geobase. 2009. Land Cover, circa 2000-Vector Feature Catalogue. Center for Topographic Information, Earth Sciences Sector, Natural Resources Canada. Sherbrooke. 6pp.
- Gates, J.E., and N.R. Giffen. 1991. Neotropical migrant birds and edge effects at a forest-stream ecotone. *Wilson Bulletin* 103:204-217.
- Kaufman, K. 1996. *Lives of North American Birds*. Houghton Mifflin Company: United States of America. 675 pp.
- La Salle Redboine Conservation District. 2007. *La Salle River Watershed: State of the Watershed Report*.
- Manitoba Conservation. 2011. *Manitoba Conservation Migratory Game Bird Hunting website: www.gov.mb.ca/conservation/wildlife/hunting/gamebird/migratory/glmha.html*. Accessed September 14, 2011.
- Newman, K.E., T.L. Mansell, and R.E. Jones. 2000. *Biodiversity inventory of the Lakeveiw and Westbourne Community Pastures*. Wildlife Branch, Manitoba Conservation, Winnipeg, Manitoba. 86pp.

- Power, D.M. 1971. Warbler ecology: Diversity, similarity, and seasonal differences in habitat segregation. *Ecology* 52:434-443.
- Preston, W.B. 1982. *The Amphibians and Reptiles of Manitoba*. Manitoba Museum of Man and Nature: Winnipeg, Manitoba. 128 pp.
- Rotella, J.J., and J.T. Ratti. 1992. Mallard brood movements and wetland selection in southwestern Manitoba. *Journal of Wildlife Management* 56:508-515.
- Smith, R. E., H. Veldhuis, G.F. Mills, R.G. Eilers, W.R. Fraser, and G.W. Lelyk. 1998. *Terrestrial Ecozones, Ecoregions, and Ecodistricts of Manitoba: An Ecological Stratification of Manitobas Natural Landscapes*. Technical Bulletin 1998-9E. Land Resource Unit, Brandon Research Centre, Research Branch, Agriculture and Agri-Food Canada, Winnipeg, Manitoba. Report and map at 1:1 500 000 scale.
- Smith, R.N., S. H. Anderson, S.L. Cain, and J.R. Dunk. 2003. Habitat and nest-site use by red-tailed hawks in northwestern Wyoming. *Journal of Raptor Research*. 37:219-227.
- Snyder, H. 2001a. Hawks and allies. In *The Sibley Guide to Bird Life and Behavior*. Edited by Elphick C., J.B. Dunning Jr., and D.A. Sibley. The National Audubon Society. Random House of Canada Limited, Toronto, Ontario. Pp. 212-224.
- Snyder, H. 2001b. Falcons and caracaras. In *The Sibley Guide to Bird Life and Behavior*. Edited by Elphick C., J.B. Dunning Jr., and D.A. Sibley. The National Audubon Society. Random House of Canada Limited, Toronto, Ontario. Pp. 225-229.
- Stebbens, R.C. 1985. *A Field Guide to Western Reptiles and Amphibians*. 2nd Edition. Houghton Mifflin Company: Boston. 336pp.
- Yahner, R.H., R.J. Hutnik, and S.A. Liscinsky. 2002. Bird populations associated with an electric transmission right-of-way. *Journal of Arboriculture* 28:123-130

APPENDIX A – LIST OF POTENTIAL SPECIES FOUND IN THE D83P STUDY

List of Potential Species Found in the D83P Study

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Greater White-fronted Goose	<i>Anser</i>	<i>albifrons</i>	Bird	N/A	N/A	Regular migrant
Snow Goose	<i>Chen</i>	<i>caerulescens</i>	Bird	N/A	N/A	Regular migrant
Ross's Goose	<i>Chen</i>	<i>rossii</i>	Bird	N/A	N/A	Regular migrant
Canada Goose	<i>Branta</i>	<i>canadensis</i>	Bird	N/A	N/A	Breeding populations
Trumpeter Swan	<i>Cygnus</i>	<i>buccinator</i>	Bird	Extirpated	N/A	Rare migrant or visitor
Tundra Swan	<i>Cygnus</i>	<i>columbianus</i>	Bird	N/A	N/A	Regular migrant
Wood Duck	<i>Aix</i>	<i>sponsa</i>	Bird	N/A	N/A	Breeding populations
Gadwall	<i>Anas</i>	<i>strepera</i>	Bird	N/A	N/A	Breeding populations
American Wigeon	<i>Anas</i>	<i>americana</i>	Bird	N/A	N/A	Breeding populations
American Black Duck	<i>Anas</i>	<i>rubripes</i>	Bird	N/A	N/A	Breeding populations
Mallard	<i>Anas</i>	<i>platyrhynchos</i>	Bird	N/A	N/A	Breeding populations
Blue-winged Teal	<i>Anas</i>	<i>discors</i>	Bird	N/A	N/A	Breeding populations
Cinnamon Teal	<i>Anas</i>	<i>cyanoptera</i>	Bird	N/A	N/A	Rare migrant or visitor
Northern Shoveler	<i>Anas</i>	<i>clypeata</i>	Bird	N/A	N/A	Breeding populations
Northern Pintail	<i>Anas</i>	<i>acuta</i>	Bird	N/A	N/A	Breeding populations
Green-winged Teal	<i>Anas</i>	<i>crecca</i>	Bird	N/A	N/A	Breeding populations
Canvasback	<i>Aythya</i>	<i>valisineria</i>	Bird	N/A	N/A	Breeding populations
Redhead	<i>Aythya</i>	<i>americana</i>	Bird	N/A	N/A	Breeding populations
Ring-necked Duck	<i>Aythya</i>	<i>collaris</i>	Bird	N/A	N/A	Breeding populations
Greater Scaup	<i>Aythya</i>	<i>marila</i>	Bird	N/A	N/A	Regular migrant
Lesser Scaup	<i>Aythya</i>	<i>affinis</i>	Bird	N/A	N/A	Breeding populations
Harlequin Duck	<i>Histrionicus</i>	<i>histrionicus</i>	Bird	N/A	N/A	Rare migrant or visitor
Surf Scoter	<i>Melanitta</i>	<i>perspicillata</i>	Bird	N/A	N/A	Rare migrant or visitor
White-winged Scoter	<i>Melanitta</i>	<i>fusca</i>	Bird	N/A	N/A	Breeding populations
Black Scoter	<i>Melanitta</i>	<i>americana</i>	Bird	N/A	N/A	Rare migrant or visitor
Long-tailed Duck	<i>Clangula</i>	<i>hyemalis</i>	Bird	N/A	N/A	Rare migrant or visitor
Bufflehead	<i>Bucephala</i>	<i>albeola</i>	Bird	N/A	N/A	Breeding populations

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Common Goldeneye	<i>Bucephala</i>	<i>clangula</i>	Bird	N/A	N/A	Breeding populations
Barrow's Goldeneye	<i>Bucephala</i>	<i>islandica</i>	Bird	N/A	N/A	Occasional visitor
Hooded Merganser	<i>Lophodytes</i>	<i>cucullatus</i>	Bird	N/A	N/A	Breeding populations
Common Merganser	<i>Mergus</i>	<i>merganser</i>	Bird	N/A	N/A	Breeding populations
Red-breasted Merganser	<i>Mergus</i>	<i>serrator</i>	Bird	N/A	N/A	Breeding populations
Ruddy Duck	<i>Oxyura</i>	<i>jamaicensis</i>	Bird	N/A	N/A	Breeding populations
Gray Partridge	<i>Perdix</i>	<i>perdix</i>	Bird	N/A	N/A	Year-round inhabitant
Ring-necked Pheasant	<i>Phasianus</i>	<i>colchicus</i>	Bird	N/A	N/A	Rare migrant or visitor
Ruffed Grouse	<i>Bonasa</i>	<i>umbellus</i>	Bird	N/A	N/A	Year-round inhabitant
Sharp-tailed Grouse	<i>Tympanuchus</i>	<i>phasianellus</i>	Bird	N/A	N/A	Year-round inhabitant
Wild Turkey	<i>Meleagris</i>	<i>gallopavo</i>	Bird	N/A	N/A	Year-round inhabitant
Red-throated Loon	<i>Gavia</i>	<i>stellata</i>	Bird	N/A	N/A	Migrant
Common Loon	<i>Gavia</i>	<i>immer</i>	Bird	N/A	N/A	Breeding populations
Pied-billed Grebe	<i>Podilymbus</i>	<i>podiceps</i>	Bird	N/A	N/A	Breeding populations
Horned Grebe	<i>Podiceps</i>	<i>auritus</i>	Bird	N/A	N/A	Breeding populations
Red-necked Grebe	<i>Podiceps</i>	<i>grisegena</i>	Bird	N/A	N/A	Breeding populations
Eared Grebe	<i>Podiceps</i>	<i>nigricollis</i>	Bird	N/A	N/A	Breeding populations
Western Grebe	<i>Aechmophorus</i>	<i>occidentalis</i>	Bird	N/A	N/A	Breeding populations
Clark's Grebe	<i>Aechmophorus</i>	<i>clarkii</i>	Bird	N/A	N/A	Occasional visitor
Double-crested Cormorant	<i>Phalacrocorax</i>	<i>auritus</i>	Bird	N/A	N/A	Breeding populations
American White Pelican	<i>Pelecanus</i>	<i>erythrorhynchos</i>	Bird	N/A	N/A	Breeding populations
American Bittern	<i>Botaurus</i>	<i>lentiginosus</i>	Bird	N/A	N/A	Breeding populations
Least Bittern	<i>Ixobrychus</i>	<i>exilis</i>	Bird	N/A	Threatened	Rare migrant or visitor
Great Blue Heron	<i>Ardea</i>	<i>herodias</i>	Bird	N/A	N/A	Breeding populations
Great Egret	<i>Ardea</i>	<i>alba</i>	Bird	N/A	N/A	Rare migrant or visitor
Snowy Egret	<i>Egretta</i>	<i>thula</i>	Bird	N/A	N/A	Occasional visitor
Little Blue Heron	<i>Egretta</i>	<i>caerulea</i>	Bird	N/A	N/A	Rare migrant or visitor
Tricolored Heron	<i>Egretta</i>	<i>tricolor</i>	Bird	N/A	N/A	Rare migrant or visitor
Cattle Egret	<i>Bubulcus</i>	<i>ibis</i>	Bird	N/A	N/A	Rare migrant or visitor

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Green Heron	<i>Butorides</i>	<i>virescens</i>	Bird	N/A	N/A	Rare migrant or visitor
Black-crowned Night-Heron	<i>Nycticorax</i>	<i>nycticorax</i>	Bird	N/A	N/A	Breeding populations
Yellow-Crowned Night-Heron	<i>Nyctanassa</i>	<i>violacea</i>	Bird	N/A	N/A	Occasional visitor
Turkey Vulture	<i>Cathartes</i>	<i>aura</i>	Bird	N/A	N/A	Breeding populations
Osprey	<i>Pandion</i>	<i>haliaetus</i>	Bird	N/A	N/A	Breeding populations
Bald Eagle	<i>Haliaeetus</i>	<i>leucocephalus</i>	Bird	N/A	N/A	Breeding populations
Northern Harrier	<i>Circus</i>	<i>cyaneus</i>	Bird	N/A	N/A	Breeding populations
Sharp-shinned Hawk	<i>Accipiter</i>	<i>striatus</i>	Bird	N/A	N/A	Breeding populations
Cooper's Hawk	<i>Accipiter</i>	<i>cooperii</i>	Bird	N/A	N/A	Breeding populations
Northern Goshawk	<i>Accipiter</i>	<i>gentilis</i>	Bird	N/A	N/A	Year-round inhabitant
Red-shouldered Hawk	<i>Buteo</i>	<i>lineatus</i>	Bird	N/A	N/A	Rare migrant or visitor
Broad-winged Hawk	<i>Buteo</i>	<i>platypterus</i>	Bird	N/A	N/A	Breeding populations
Swainson's Hawk	<i>Buteo</i>	<i>swainsoni</i>	Bird	N/A	N/A	Breeding populations
Red-tailed Hawk	<i>Buteo</i>	<i>jamaicensis</i>	Bird	N/A	N/A	Breeding populations
Ferruginous Hawk	<i>Buteo</i>	<i>regalis</i>	Bird	Threatened	N/A	Rare migrant or visitor
Rough-legged Hawk	<i>Buteo</i>	<i>lagopus</i>	Bird	N/A	N/A	Regular migrant
Golden Eagle	<i>Aquila</i>	<i>chrysaetos</i>	Bird	N/A	N/A	Rare migrant or visitor
American Kestrel	<i>Falco</i>	<i>sparverius</i>	Bird	N/A	N/A	Regular migrant
Merlin	<i>Falco</i>	<i>columbarius</i>	Bird	N/A	N/A	Year-round inhabitant
Gyr Falcon	<i>Falco</i>	<i>rusticolus</i>	Bird	N/A	N/A	Rare migrant or visitor
Peregrine Falcon	<i>Falco</i>	<i>peregrinus</i>	Bird	Endangered	Threatened	Regular migrant
Prairie Falcon	<i>Falco</i>	<i>mexicanus</i>	Bird	N/A	N/A	Rare migrant or visitor
Yellow Rail	<i>Coturnicops</i>	<i>noveboracensis</i>	Bird	N/A	Special Concern	Breeding populations
Virginia Rail	<i>Rallus</i>	<i>limicola</i>	Bird	N/A	N/A	Breeding populations
Sora	<i>Porzana</i>	<i>carolina</i>	Bird	N/A	N/A	Breeding populations
American Coot	<i>Fulica</i>	<i>americana</i>	Bird	N/A	N/A	Breeding populations
Sandhill Crane	<i>Grus</i>	<i>canadensis</i>	Bird	N/A	N/A	Breeding populations
Whooping Crane	<i>Grus</i>	<i>americana</i>	Bird	Endangered	Endangered	Rare migrant or visitor
Black-bellied Plover	<i>Pluvialis</i>	<i>squatarola</i>	Bird	N/A	N/A	Regular migrant

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
American Golden-Plover	<i>Pluvialis</i>	<i>dominica</i>	Bird	N/A	N/A	Regular migrant
Semipalmated Plover	<i>Charadrius</i>	<i>semipalmatus</i>	Bird	N/A	N/A	Breeding populations
Piping Plover	<i>Charadrius</i>	<i>melodus</i>	Bird	Endangered	Endangered	Breeding populations
Killdeer	<i>Charadrius</i>	<i>vociferus</i>	Bird	N/A	N/A	Breeding populations
American Avocet	<i>Recurvirostra</i>	<i>americana</i>	Bird	N/A	N/A	Breeding populations
Spotted Sandpiper	<i>Actitis</i>	<i>macularius</i>	Bird	N/A	N/A	Breeding populations
Solitary Sandpiper	<i>Tringa</i>	<i>solitaria</i>	Bird	N/A	N/A	Breeding populations
Greater Yellowlegs	<i>Tringa</i>	<i>melanoleuca</i>	Bird	N/A	N/A	Breeding populations
Willet	<i>Tringa</i>	<i>semipalmata</i>	Bird	N/A	N/A	Breeding populations
Lesser Yellowlegs	<i>Tringa</i>	<i>flavipes</i>	Bird	N/A	N/A	Breeding populations
Upland Sandpiper	<i>Bartramia</i>	<i>longicauda</i>	Bird	N/A	N/A	Breeding populations
Eskimo Curlew	<i>Numenius</i>	<i>borealis</i>	Bird	Endangered	Endangered	Extirpated Breeder
Whimbrel	<i>Numenius</i>	<i>phaeopus</i>	Bird	N/A	N/A	Rare migrant or visitor
Long-billed Curlew	<i>Numenius</i>	<i>americanus</i>	Bird	Endangered	Endangered	Extirpated Breeder
Hudsonian Godwit	<i>Limosa</i>	<i>haemastica</i>	Bird	N/A	N/A	Regular migrant
Marbled Godwit	<i>Limosa</i>	<i>fedoa</i>	Bird	N/A	N/A	Breeding populations
Ruddy Turnstone	<i>Arenaria</i>	<i>interpres</i>	Bird	N/A	N/A	Regular migrant
Red Knot	<i>Calidris</i>	<i>canutus</i>	Bird	N/A	Endangered	Regular migrant
Sanderling	<i>Calidris</i>	<i>alba</i>	Bird	N/A	N/A	Regular migrant
Semipalmated Sandpiper	<i>Calidris</i>	<i>pusilla</i>	Bird	N/A	N/A	Regular migrant
Least Sandpiper	<i>Calidris</i>	<i>minutilla</i>	Bird	N/A	N/A	Regular migrant
White-rumped Sandpiper	<i>Calidris</i>	<i>fuscicollis</i>	Bird	N/A	N/A	Regular migrant
Baird's Sandpiper	<i>Calidris</i>	<i>bairdii</i>	Bird	N/A	N/A	Regular migrant
Pectoral Sandpiper	<i>Calidris</i>	<i>melanotos</i>	Bird	N/A	N/A	Regular migrant
Purple Sandpiper	<i>Calidris</i>	<i>maritima</i>	Bird	N/A	N/A	Occasional visitor
Dunlin	<i>Calidris</i>	<i>alpina</i>	Bird	N/A	N/A	Regular migrant
Stilt Sandpiper	<i>Calidris</i>	<i>himantopus</i>	Bird	N/A	N/A	Regular migrant
Buff-breasted Sandpiper	<i>Tryngites</i>	<i>subruficollis</i>	Bird	N/A	N/A	Regular migrant
Short-billed Dowitcher	<i>Limnodromus</i>	<i>griseus</i>	Bird	N/A	N/A	Regular migrant

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Long-billed Dowitcher	<i>Limnodromus</i>	<i>scolopaceus</i>	Bird	N/A	N/A	Regular migrant
Wilson's Snipe	<i>Gallinago</i>	<i>delicata</i>	Bird	N/A	N/A	Breeding populations
American Woodcock	<i>Scolopax</i>	<i>minor</i>	Bird	N/A	N/A	Breeding populations
Wilson's Phalarope	<i>Phalaropus</i>	<i>tricolor</i>	Bird	N/A	N/A	Breeding populations
Red-necked Phalarope	<i>Phalaropus</i>	<i>lobatus</i>	Bird	N/A	N/A	Regular migrant
Bonaparte's Gull	<i>Chroicocephalus</i>	<i>philadelphia</i>	Bird	N/A	N/A	Breeding populations
Little Gull	<i>Hydrocoloeus</i>	<i>minutus</i>	Bird	N/A	N/A	Rare migrant or visitor
Franklin's Gull	<i>Leucophaeus</i>	<i>pipixcan</i>	Bird	N/A	N/A	Breeding populations
Ring-billed Gull	<i>Larus</i>	<i>delawarensis</i>	Bird	N/A	N/A	Breeding populations
California Gull	<i>Larus</i>	<i>californicus</i>	Bird	N/A	N/A	Breeding populations
Herring Gull	<i>Larus</i>	<i>argentatus</i>	Bird	N/A	N/A	Breeding populations
Thayer's Gull	<i>Larus</i>	<i>thayeri</i>	Bird	N/A	N/A	Rare migrant or visitor
Glaucous Gull	<i>Larus</i>	<i>hyperboreus</i>	Bird	N/A	N/A	Rare migrant or visitor
Great Black-backed Gull	<i>Larus</i>	<i>marinus</i>	Bird	N/A	N/A	Rare migrant or visitor
Caspian Tern	<i>Hydroprogne</i>	<i>caspia</i>	Bird	N/A	N/A	Breeding populations
Black Tern	<i>Chlidonias</i>	<i>niger</i>	Bird	N/A	N/A	Breeding populations
Common Tern	<i>Sterna</i>	<i>hirundo</i>	Bird	N/A	N/A	Breeding populations
Forster's Tern	<i>Sterna</i>	<i>forsteri</i>	Bird	N/A	N/A	Breeding populations
Parasitic Jaeger	<i>Stercorarius</i>	<i>parasiticus</i>	Bird	N/A	N/A	Rare migrant or visitor
Rock Pigeon	<i>Columba</i>	<i>livia</i>	Bird	N/A	N/A	Year-round inhabitant
Mourning Dove	<i>Zenaida</i>	<i>macroura</i>	Bird	N/A	N/A	Breeding populations
Yellow-billed Cuckoo	<i>Coccyzus</i>	<i>americanus</i>	Bird	N/A	N/A	Occasional visitor
Black-billed Cuckoo	<i>Coccyzus</i>	<i>erythrophthalmus</i>	Bird	N/A	N/A	Breeding populations
Eastern Screech-Owl	<i>Megascops</i>	<i>asio</i>	Bird	N/A	N/A	Year-round inhabitant
Great Horned Owl	<i>Bubo</i>	<i>virginianus</i>	Bird	N/A	N/A	Year-round inhabitant
Snowy Owl	<i>Bubo</i>	<i>scandiacus</i>	Bird	N/A	N/A	Regular in winter
Northern Hawk Owl	<i>Surnia</i>	<i>ulula</i>	Bird	N/A	N/A	Year-round inhabitant
Burrowing Owl	<i>Athene</i>	<i>cunicularia</i>	Bird	Endangered	Endangered	Breeding populations
Barred Owl	<i>Strix</i>	<i>varia</i>	Bird	N/A	N/A	Year-round inhabitant

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Great Gray Owl	<i>Strix</i>	<i>nebulosa</i>	Bird	N/A	N/A	Year-round inhabitant
Long-eared Owl	<i>Asio</i>	<i>otus</i>	Bird	N/A	N/A	Breeding populations
Short-eared Owl	<i>Asio</i>	<i>flammeus</i>	Bird	N/A	Special Concern	Breeding populations
Boreal Owl	<i>Aegolius</i>	<i>funereus</i>	Bird	N/A	N/A	Year-round inhabitant
Northern Saw-whet Owl	<i>Aegolius</i>	<i>acadicus</i>	Bird	N/A	N/A	Breeding populations
Common Nighthawk	<i>Chordeiles</i>	<i>minor</i>	Bird	N/A	Threatened	Breeding populations
Eastern Whip-poor-will	<i>Caprimulgus</i>	<i>vociferus</i>	Bird	N/A	N/A	Breeding populations
Chimney Swift	<i>Chaetura</i>	<i>pelagica</i>	Bird	N/A	Threatened	Breeding populations
Ruby-throated Hummingbird	<i>Archilochus</i>	<i>colubris</i>	Bird	N/A	N/A	Breeding populations
Belted Kingfisher	<i>Megaceryle</i>	<i>alcyon</i>	Bird	N/A	N/A	Breeding populations
Lewis's Woodpecker	<i>Melanerpes</i>	<i>lewis</i>	Bird	N/A	N/A	Occasional visitor
Red-headed Woodpecker	<i>Melanerpes</i>	<i>erythrocephalus</i>	Bird	N/A	Threatened	Breeding populations
Red-bellied Woodpecker	<i>Melanerpes</i>	<i>carolinus</i>	Bird	N/A	N/A	Rare migrant or visitor
Yellow-bellied Sapsucker	<i>Sphyrapicus</i>	<i>varius</i>	Bird	N/A	N/A	Breeding populations
Downy Woodpecker	<i>Picoides</i>	<i>pubescens</i>	Bird	N/A	N/A	Year-round inhabitant
Hairy Woodpecker	<i>Picoides</i>	<i>villosus</i>	Bird	N/A	N/A	Year-round inhabitant
American Three-toed Woodpecker	<i>Picoides</i>	<i>dorsalis</i>	Bird	N/A	N/A	Year-round inhabitant
Black-backed Woodpecker	<i>Picoides</i>	<i>arcticus</i>	Bird	N/A	N/A	Year-round inhabitant
Northern Flicker	<i>Colaptes</i>	<i>auratus</i>	Bird	N/A	N/A	Breeding populations
Pileated Woodpecker	<i>Dryocopus</i>	<i>pileatus</i>	Bird	N/A	N/A	Year-round inhabitant
Olive-sided Flycatcher	<i>Contopus</i>	<i>cooperi</i>	Bird	N/A	Threatened	Breeding populations
Western Wood-Pewee	<i>Contopus</i>	<i>sordidulus</i>	Bird	N/A	N/A	Breeding populations
Eastern Wood-Pewee	<i>Contopus</i>	<i>virens</i>	Bird	N/A	N/A	Breeding populations
Yellow-bellied Flycatcher	<i>Empidonax</i>	<i>flaviventris</i>	Bird	N/A	N/A	Breeding populations
Alder Flycatcher	<i>Empidonax</i>	<i>alnorum</i>	Bird	N/A	N/A	Breeding populations
Willow Flycatcher	<i>Empidonax</i>	<i>traillii</i>	Bird	N/A	N/A	Rare migrant or visitor
Least Flycatcher	<i>Empidonax</i>	<i>minimus</i>	Bird	N/A	N/A	Breeding populations
Eastern Phoebe	<i>Sayornis</i>	<i>phoebe</i>	Bird	N/A	N/A	Breeding populations
Say's Phoebe	<i>Sayornis</i>	<i>saya</i>	Bird	N/A	N/A	Rare migrant or visitor

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Great Crested Flycatcher	<i>Myiarchus</i>	<i>crinitus</i>	Bird	N/A	N/A	Breeding populations
Western Kingbird	<i>Tyrannus</i>	<i>verticalis</i>	Bird	N/A	N/A	Breeding populations
Eastern Kingbird	<i>Tyrannus</i>	<i>tyrannus</i>	Bird	N/A	N/A	Breeding populations
Scissor-tailed Flycatcher	<i>Tyrannus</i>	<i>forficatus</i>	Bird	N/A	N/A	Rare migrant or visitor
Loggerhead Shrike	<i>Lanius</i>	<i>ludovicianus</i>	Bird	Endangered	Threatened	Breeding populations
Northern Shrike	<i>Lanius</i>	<i>excubitor</i>	Bird	N/A	N/A	Regular in winter
Yellow-throated Vireo	<i>Vireo</i>	<i>flavifrons</i>	Bird	N/A	N/A	Breeding populations
Blue-headed Vireo	<i>Vireo</i>	<i>solitarius</i>	Bird	N/A	N/A	Breeding populations
Warbling Vireo	<i>Vireo</i>	<i>gilvus</i>	Bird	N/A	N/A	Breeding populations
Philadelphia Vireo	<i>Vireo</i>	<i>philadelphicus</i>	Bird	N/A	N/A	Breeding populations
Red-eyed Vireo	<i>Vireo</i>	<i>olivaceus</i>	Bird	N/A	N/A	Breeding populations
Gray Jay	<i>Perisoreus</i>	<i>canadensis</i>	Bird	N/A	N/A	Breeding populations
Blue Jay	<i>Cyanocitta</i>	<i>cristata</i>	Bird	N/A	N/A	Year-round inhabitant
Clark's Nutcracker	<i>Nucifraga</i>	<i>columbiana</i>	Bird	N/A	N/A	Occasional visitor
Black-billed Magpie	<i>Pica</i>	<i>hudsonia</i>	Bird	N/A	N/A	Year-round inhabitant
American Crow	<i>Corvus</i>	<i>brachyrhynchos</i>	Bird	N/A	N/A	Year-round inhabitant
Common Raven	<i>Corvus</i>	<i>corax</i>	Bird	N/A	N/A	Year-round inhabitant
Horned Lark	<i>Eremophila</i>	<i>alpestris</i>	Bird	N/A	N/A	Breeding populations
Purple Martin	<i>Progne</i>	<i>subis</i>	Bird	N/A	N/A	Breeding populations
Tree Swallow	<i>Tachycineta</i>	<i>bicolor</i>	Bird	N/A	N/A	Breeding populations
Northern Rough-winged Swallow	<i>Stelgidopteryx</i>	<i>serripennis</i>	Bird	N/A	N/A	Breeding populations
Bank Swallow	<i>Riparia</i>	<i>riparia</i>	Bird	N/A	N/A	Breeding populations
Cliff Swallow	<i>Petrochelidon</i>	<i>pyrrhonota</i>	Bird	N/A	N/A	Breeding populations
Barn Swallow	<i>Hirundo</i>	<i>rustica</i>	Bird	N/A	N/A	Breeding populations
Black-capped Chickadee	<i>Poecile</i>	<i>atricapillus</i>	Bird	N/A	N/A	Year-round inhabitant
Boreal Chickadee	<i>Poecile</i>	<i>hudsonicus</i>	Bird	N/A	N/A	Year-round inhabitant
Red-breasted Nuthatch	<i>Sitta</i>	<i>canadensis</i>	Bird	N/A	N/A	Year-round inhabitant
White-breasted Nuthatch	<i>Sitta</i>	<i>carolinensis</i>	Bird	N/A	N/A	Year-round inhabitant
Brown Creeper	<i>Certhia</i>	<i>americana</i>	Bird	N/A	N/A	Breeding populations

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Rock Wren	<i>Salpinctes</i>	<i>obsoletus</i>	Bird	N/A	N/A	Occasional visitor
Carolina Wren	<i>Thryothorus</i>	<i>ludovicianus</i>	Bird	N/A	N/A	Occasional visitor
House Wren	<i>Troglodytes</i>	<i>aedon</i>	Bird	N/A	N/A	Breeding populations
Winter Wren	<i>Troglodytes</i>	<i>hiemalis</i>	Bird	N/A	N/A	Breeding populations
Sedge Wren	<i>Cistothorus</i>	<i>platensis</i>	Bird	N/A	N/A	Breeding populations
Marsh Wren	<i>Cistothorus</i>	<i>palustris</i>	Bird	N/A	N/A	Breeding populations
Golden-crowned Kinglet	<i>Regulus</i>	<i>satrapa</i>	Bird	N/A	N/A	Breeding populations
Ruby-crowned Kinglet	<i>Regulus</i>	<i>calendula</i>	Bird	N/A	N/A	Breeding populations
Eastern Bluebird	<i>Sialia</i>	<i>sialis</i>	Bird	N/A	N/A	Breeding populations
Mountain Bluebird	<i>Sialia</i>	<i>currucoides</i>	Bird	N/A	N/A	Breeding populations
Townsend's Solitaire	<i>Myadestes</i>	<i>townsendi</i>	Bird	N/A	N/A	Rare migrant or visitor
Veery	<i>Catharus</i>	<i>fuscescens</i>	Bird	N/A	N/A	Breeding populations
Gray-cheeked Thrush	<i>Catharus</i>	<i>minimus</i>	Bird	N/A	N/A	Breeding populations
Swainson's Thrush	<i>Catharus</i>	<i>ustulatus</i>	Bird	N/A	N/A	Breeding populations
Hermit Thrush	<i>Catharus</i>	<i>guttatus</i>	Bird	N/A	N/A	Breeding populations
Wood Thrush	<i>Hylocichla</i>	<i>mustelina</i>	Bird	N/A	N/A	Rare migrant or visitor
American Robin	<i>Turdus</i>	<i>migratorius</i>	Bird	N/A	N/A	Year-round inhabitant
Varied Thrush	<i>Ixoreus</i>	<i>naevius</i>	Bird	N/A	N/A	Rare migrant or visitor
Gray Catbird	<i>Dumetella</i>	<i>carolinensis</i>	Bird	N/A	N/A	Breeding populations
Northern Mockingbird	<i>Mimus</i>	<i>polyglottos</i>	Bird	N/A	N/A	Extralimital breeding record
Sage Thrasher	<i>Oreoscoptes</i>	<i>montanus</i>	Bird	N/A	Endangered	Occasional visitor
Brown Thrasher	<i>Toxostoma</i>	<i>rufum</i>	Bird	N/A	N/A	Breeding populations
European Starling	<i>Sturnus</i>	<i>vulgaris</i>	Bird	N/A	N/A	Year-round inhabitant
American Pipit	<i>Anthus</i>	<i>rubescens</i>	Bird	N/A	N/A	Regular migrant
Sprague's Pipit	<i>Anthus</i>	<i>spragueii</i>	Bird	Threatened	Threatened	Breeding populations
Bohemian Waxwing	<i>Bombycilla</i>	<i>garrulus</i>	Bird	N/A	N/A	Year-round inhabitant
Cedar Waxwing	<i>Bombycilla</i>	<i>cedrorum</i>	Bird	N/A	N/A	Year-round inhabitant
Lapland Longspur	<i>Calcarius</i>	<i>lapponicus</i>	Bird	N/A	N/A	Regular migrant
Chestnut-collared Longspur	<i>Calcarius</i>	<i>ornatus</i>	Bird	N/A	N/A	Occasional visitor

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Smith's Longspur	<i>Calcarius</i>	<i>pictus</i>	Bird	N/A	N/A	Regular migrant
Snow Bunting	<i>Plectrophenax</i>	<i>nivalis</i>	Bird	N/A	N/A	Regular migrant
Ovenbird	<i>Seiurus</i>	<i>aurocapilla</i>	Bird	N/A	N/A	Breeding populations
Northern Waterthrush	<i>Parkesia</i>	<i>noveboracensis</i>	Bird	N/A	N/A	Breeding populations
Golden-winged Warbler	<i>Vermivora</i>	<i>chrysoptera</i>	Bird	N/A	Threatened	Breeding populations
Blue-winged Warbler	<i>Vermivora</i>	<i>cyanoptera</i>	Bird	N/A	N/A	Occasional visitor
Black-and-white Warbler	<i>Mniotilta</i>	<i>varia</i>	Bird	N/A	N/A	Breeding populations
Tennessee Warbler	<i>Oreothlypis</i>	<i>peregrina</i>	Bird	N/A	N/A	Breeding populations
Orange-crowned Warbler	<i>Oreothlypis</i>	<i>celata</i>	Bird	N/A	N/A	Breeding populations
Nashville Warbler	<i>Oreothlypis</i>	<i>ruficapilla</i>	Bird	N/A	N/A	Breeding populations
Connecticut Warbler	<i>Oporornis</i>	<i>agilis</i>	Bird	N/A	N/A	Breeding populations
Mourning Warbler	<i>Geothlypis</i>	<i>philadelphia</i>	Bird	N/A	N/A	Breeding populations
Kentucky Warbler	<i>Geothlypis</i>	<i>formosa</i>	Bird	N/A	N/A	Occasional visitor
Common Yellowthroat	<i>Geothlypis</i>	<i>trichas</i>	Bird	N/A	N/A	Breeding populations
Hooded Warbler	<i>Setophaga</i>	<i>citrina</i>	Bird	N/A	N/A	Occasional visitor
American Redstart	<i>Setophaga</i>	<i>ruticilla</i>	Bird	N/A	N/A	Breeding populations
Cape May Warbler	<i>Setophaga</i>	<i>tigrina</i>	Bird	N/A	N/A	Breeding populations
Northern Parula	<i>Setophaga</i>	<i>americana</i>	Bird	N/A	N/A	Rare migrant or visitor
Magnolia Warbler	<i>Setophaga</i>	<i>magnolia</i>	Bird	N/A	N/A	Breeding populations
Bay-breasted Warbler	<i>Setophaga</i>	<i>castanea</i>	Bird	N/A	N/A	Breeding populations
Blackburnian Warbler	<i>Setophaga</i>	<i>fusca</i>	Bird	N/A	N/A	Breeding populations
Yellow Warbler	<i>Setophaga</i>	<i>petechia</i>	Bird	N/A	N/A	Breeding populations
Chestnut-sided Warbler	<i>Setophaga</i>	<i>pennsylvanica</i>	Bird	N/A	N/A	Breeding populations
Blackpoll Warbler	<i>Setophaga</i>	<i>striata</i>	Bird	N/A	N/A	Breeding populations
Black-throated Blue Warbler	<i>Setophaga</i>	<i>caerulescens</i>	Bird	N/A	N/A	Breeding populations
Palm Warbler	<i>Setophaga</i>	<i>palmarum</i>	Bird	N/A	N/A	Breeding populations
Pine Warbler	<i>Setophaga</i>	<i>pinus</i>	Bird	N/A	N/A	Rare migrant or visitor
Yellow-rumped Warbler	<i>Setophaga</i>	<i>coronata</i>	Bird	N/A	N/A	Breeding populations
Yellow-throated Warbler	<i>Setophaga</i>	<i>dominica</i>	Bird	N/A	N/A	Occasional visitor

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Black-throated Green Warbler	<i>Setophaga</i>	<i>virens</i>	Bird	N/A	N/A	Breeding populations
Canada Warbler	<i>Cardellina</i>	<i>canadensis</i>	Bird	N/A	Threatened	Breeding populations
Wilson's Warbler	<i>Cardellina</i>	<i>pusilla</i>	Bird	N/A	N/A	Breeding populations
Eastern Towhee	<i>Pipilo</i>	<i>erythrophthalmus</i>	Bird	N/A	N/A	Breeding populations
American Tree Sparrow	<i>Spizella</i>	<i>arborea</i>	Bird	N/A	N/A	Regular migrant
Chipping Sparrow	<i>Spizella</i>	<i>passerina</i>	Bird	N/A	N/A	Breeding populations
Clay-colored Sparrow	<i>Spizella</i>	<i>pallida</i>	Bird	N/A	N/A	Breeding populations
Field Sparrow	<i>Spizella</i>	<i>pusilla</i>	Bird	N/A	N/A	Extralimital breeding record
Vesper Sparrow	<i>Pooecetes</i>	<i>gramineus</i>	Bird	N/A	N/A	Breeding populations
Lark Sparrow	<i>Chondestes</i>	<i>grammacus</i>	Bird	N/A	N/A	Breeding populations
Lark Bunting	<i>Calamospiza</i>	<i>melanocorys</i>	Bird	N/A	N/A	Rare migrant or visitor
Savannah Sparrow	<i>Passerculus</i>	<i>sandwichensis</i>	Bird	N/A	N/A	Breeding populations
Grasshopper Sparrow	<i>Ammodramus</i>	<i>savannarum</i>	Bird	N/A	N/A	Breeding populations
Baird's Sparrow	<i>Ammodramus</i>	<i>bairdii</i>	Bird	Endangered	N/A	Rare migrant or visitor
Le Conte's Sparrow	<i>Ammodramus</i>	<i>leconteii</i>	Bird	N/A	N/A	Breeding populations
Nelson's Sparrow	<i>Ammodramus</i>	<i>nelsoni</i>	Bird	N/A	N/A	Breeding populations
Fox Sparrow	<i>Passerella</i>	<i>iliaca</i>	Bird	N/A	N/A	Breeding populations
Song Sparrow	<i>Melospiza</i>	<i>melodia</i>	Bird	N/A	N/A	Breeding populations
Lincoln's Sparrow	<i>Melospiza</i>	<i>lincolnii</i>	Bird	N/A	N/A	Breeding populations
Swamp Sparrow	<i>Melospiza</i>	<i>georgiana</i>	Bird	N/A	N/A	Breeding populations
White-throated Sparrow	<i>Zonotrichia</i>	<i>albicollis</i>	Bird	N/A	N/A	Breeding populations
Harris's Sparrow	<i>Zonotrichia</i>	<i>querula</i>	Bird	N/A	N/A	Breeding populations
White-crowned Sparrow	<i>Zonotrichia</i>	<i>leucophrys</i>	Bird	N/A	N/A	Breeding populations
Golden-crowned Sparrow	<i>Zonotrichia</i>	<i>atricapilla</i>	Bird	N/A	N/A	Occasional visitor
Dark-eyed Junco	<i>Junco</i>	<i>hyemalis</i>	Bird	N/A	N/A	Year-round inhabitant
Summer Tanager	<i>Piranga</i>	<i>rubra</i>	Bird	N/A	N/A	Occasional visitor
Scarlet Tanager	<i>Piranga</i>	<i>olivacea</i>	Bird	N/A	N/A	Breeding populations
Western Tanager	<i>Piranga</i>	<i>ludoviciana</i>	Bird	N/A	N/A	Occasional visitor
Northern Cardinal	<i>Cardinalis</i>	<i>cardinalis</i>	Bird	N/A	N/A	Extralimital breeding record

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Rose-breasted Grosbeak	<i>Pheucticus</i>	<i>ludovicianus</i>	Bird	N/A	N/A	Breeding populations
Black-headed Grosbeak	<i>Pheucticus</i>	<i>melanocephalus</i>	Bird	N/A	N/A	Rare migrant or visitor
Lazuli Bunting	<i>Passerina</i>	<i>amoena</i>	Bird	N/A	N/A	Occasional visitor
Indigo Bunting	<i>Passerina</i>	<i>cyanea</i>	Bird	N/A	N/A	Breeding populations
Dickcissel	<i>Spiza</i>	<i>americana</i>	Bird	N/A	N/A	Rare migrant or visitor
Bobolink	<i>Dolichonyx</i>	<i>oryzivorus</i>	Bird	N/A	N/A	Breeding populations
Red-winged Blackbird	<i>Agelaius</i>	<i>phoeniceus</i>	Bird	N/A	N/A	Breeding populations
Western Meadowlark	<i>Sturnella</i>	<i>neglecta</i>	Bird	N/A	N/A	Breeding populations
Yellow-headed blackbird	<i>Xanthocephalus</i>	<i>xanthocephalus</i>	Bird	N/A	N/A	Breeding populations
Rusty Blackbird	<i>Euphagus</i>	<i>carolinus</i>	Bird	N/A	Special Concern	Breeding populations
Brewer's Blackbird	<i>Euphagus</i>	<i>cyancephalus</i>	Bird	N/A	N/A	Breeding populations
Common Grackle	<i>Quiscalus</i>	<i>quiscula</i>	Bird	N/A	N/A	Breeding populations
Brown-headed Cowbird	<i>Molothrus</i>	<i>ater</i>	Bird	N/A	N/A	Breeding populations
Orchard Oriole	<i>Icterus</i>	<i>spurius</i>	Bird	N/A	N/A	Breeding populations
Baltimore Oriole	<i>Icterus</i>	<i>galbula</i>	Bird	N/A	N/A	Breeding populations
Brambling	<i>Fringilla</i>	<i>montifringilla</i>	Bird	N/A	N/A	Occasional visitor
Pine Grosbeak	<i>Pinicola</i>	<i>enucleator</i>	Bird	N/A	N/A	Year-round inhabitant
Purple Finch	<i>Carpodacus</i>	<i>purpureus</i>	Bird	N/A	N/A	Breeding populations
House Finch	<i>Carpodacus</i>	<i>mexicanus</i>	Bird	N/A	N/A	Year-round inhabitant
Red Crossbill	<i>Loxia</i>	<i>curvirostra</i>	Bird	N/A	N/A	Year-round inhabitant
White-winged Crossbill	<i>Loxia</i>	<i>leucoptera</i>	Bird	N/A	N/A	Year-round inhabitant
Common Redpoll	<i>Acanthis</i>	<i>flammea</i>	Bird	N/A	N/A	Year-round inhabitant
Hoary Redpoll	<i>Acanthis</i>	<i>hornemanni</i>	Bird	N/A	N/A	Regular in winter
Pine Siskin	<i>Spinus</i>	<i>pinus</i>	Bird	N/A	N/A	Year-round inhabitant
American Goldfinch	<i>Spinus</i>	<i>tristis</i>	Bird	N/A	N/A	Breeding populations
Evening Grosbeak	<i>Coccothraustes</i>	<i>vespertinus</i>	Bird	N/A	N/A	Year-round inhabitant
House Sparrow	<i>Passer</i>	<i>domesticus</i>	Bird	N/A	N/A	Year-round inhabitant
Eurasian Tree Sparrow	<i>Passer</i>	<i>montanus</i>	Bird	N/A	N/A	Extralimital breeding record
Masked Shrew	<i>Sorex</i>	<i>cinereus</i>	Mammal	N/A	N/A	Year-round inhabitant

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Northern Water Shrew	<i>Sorex</i>	<i>palustris</i>	Mammal	N/A	N/A	Year-round inhabitant
Arctic Shrew	<i>Sorex</i>	<i>arcticus</i>	Mammal	N/A	N/A	Year-round inhabitant
Pygmy Shrew	<i>Microsorex</i>	<i>hoji</i>	Mammal	N/A	N/A	Year-round inhabitant
Little Brown Myotis	<i>Myotis</i>	<i>lucifugus</i>	Mammal	N/A	N/A	Regular Migrant; Breeding Populations
Northern Myotis	<i>Myotis</i>	<i>septentrionalis</i>	Mammal	N/A	N/A	Year-round inhabitant
Silver-haired Bat	<i>Lasionycteris</i>	<i>noctivagans</i>	Mammal	N/A	N/A	Regular Migrant; Breeding Populations
Big Brown Bat	<i>Eptesicus</i>	<i>fuscus</i>	Mammal	N/A	N/A	Year-round inhabitant
Red Bat	<i>Lasiurus</i>	<i>borealis</i>	Mammal	N/A	N/A	Regular Migrant; Breeding Populations
Hoary Bat	<i>Lasiurus</i>	<i>cinereus</i>	Mammal	N/A	N/A	Regular Migrant; Breeding Populations
Eastern Cottontail	<i>Sylvilagus</i>	<i>floridanus</i>	Mammal	N/A	N/A	Year-round inhabitant
Snowshoe Hare	<i>Lepus</i>	<i>americanus</i>	Mammal	N/A	N/A	Year-round inhabitant
White-tailed Jackrabbit	<i>Lepus</i>	<i>townsendii</i>	Mammal	N/A	N/A	Year-round inhabitant
Eastern Chipmunk	<i>Tamias</i>	<i>striatus</i>	Mammal	N/A	N/A	Year-round inhabitant
Least Chipmunk	<i>Tamias</i>	<i>minimus</i>	Mammal	N/A	N/A	Year-round inhabitant
Woodchuck	<i>Marmota</i>	<i>monax</i>	Mammal	N/A	N/A	Year-round inhabitant
Richardson's Ground Squirrel	<i>Spermophilus</i>	<i>richardsonii</i>	Mammal	N/A	N/A	Year-round inhabitant
Thirteen-lined Ground Squirrel	<i>Spermophilus</i>	<i>tridecemlineatus</i>	Mammal	N/A	N/A	Year-round inhabitant
Franklin's Ground Squirrel	<i>Spermophilus</i>	<i>franklinii</i>	Mammal	N/A	N/A	Year-round inhabitant
Eastern Grey Squirrel	<i>Sciurus</i>	<i>carolinensis</i>	Mammal	N/A	N/A	Year-round inhabitant
Eastern Fox Squirrel	<i>Sciurus</i>	<i>niger</i>	Mammal	N/A	N/A	Year-round inhabitant
Red Squirrel	<i>Tamiasciurus</i>	<i>hudsonicus</i>	Mammal	N/A	N/A	Year-round inhabitant
Northern Flying Squirrel	<i>Glaucomys</i>	<i>sabrinus</i>	Mammal	N/A	N/A	Year-round inhabitant
Deer Mouse	<i>Peromyscus</i>	<i>maniculatus</i>	Mammal	N/A	N/A	Year-round inhabitant
Boreal Red-backed Vole	<i>Clethrionomys</i>	<i>gapperi</i>	Mammal	N/A	N/A	Year-round inhabitant
Meadow Vole	<i>Microtus</i>	<i>pennsylvanicus</i>	Mammal	N/A	N/A	Year-round inhabitant
Prairie Vole	<i>Microtus</i>	<i>ochrogaster</i>	Mammal	N/A	N/A	Year-round inhabitant
Muskrat	<i>Ondatra</i>	<i>zibethica</i>	Mammal	N/A	N/A	Year-round inhabitant
Norway or Brown Rat	<i>Rattus</i>	<i>norvegicus</i>	Mammal	N/A	N/A	Year-round inhabitant
House Mouse	<i>Mus</i>	<i>musculus</i>	Mammal	N/A	N/A	Year-round inhabitant

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Meadow Jumping Mouse	<i>Zapus</i>	<i>hudsonius</i>	Mammal	N/A	N/A	Year-round inhabitant
Western Jumping Mouse	<i>Zapus</i>	<i>princeps</i>	Mammal	N/A	N/A	Year-round inhabitant
Porcupine	<i>Erethizon</i>	<i>dorsatum</i>	Mammal	N/A	N/A	Year-round inhabitant
Beaver	<i>Castor</i>	<i>canadensis</i>	Mammal	N/A	N/A	Year-round inhabitant
Northern Pocket Gopher	<i>Thomomys</i>	<i>talpoides</i>	Mammal	N/A	N/A	Year-round inhabitant
Coyote	<i>Canis</i>	<i>latrans</i>	Mammal	N/A	N/A	Year-round inhabitant
Red Fox	<i>Vulpes</i>	<i>vulpes</i>	Mammal	N/A	N/A	Year-round inhabitant
Swift Fox	<i>Vulpes</i>	<i>velox</i>	Mammal	Extirpated	Threatened	Extirpated
Gray Fox	<i>Urocyon</i>	<i>cinereoargenteus</i>	Mammal	Extirpated	Threatened	Occasional visitor
American Black Bear	<i>Ursus</i>	<i>americanus</i>	Mammal	N/A	N/A	Year-round inhabitant
Plains Grizzly Bear	<i>Ursus</i>	<i>arctos</i>	Mammal	Extirpated	Extirpated	Extirpated
Raccoon	<i>Procyon</i>	<i>lotor</i>	Mammal	N/A	N/A	Year-round inhabitant
Marten	<i>Martes</i>	<i>americana</i>	Mammal	N/A	N/A	Year-round inhabitant
Fisher	<i>Martes</i>	<i>pennanti</i>	Mammal	N/A	N/A	Year-round inhabitant
Short-tailed Weasel	<i>Mustela</i>	<i>erminea</i>	Mammal	N/A	N/A	Year-round inhabitant
Least Weasel	<i>Mustela</i>	<i>rixosa</i>	Mammal	N/A	N/A	Year-round inhabitant
Long-tailed Weasel	<i>Mustela</i>	<i>frenata</i>	Mammal	N/A	N/A	Year-round inhabitant
Mink	<i>Mustela</i>	<i>vison</i>	Mammal	N/A	N/A	Year-round inhabitant
American Badger	<i>Taxidea</i>	<i>taxus</i>	Mammal	N/A	N/A	Year-round inhabitant
Striped Skunk	<i>Mephitis</i>	<i>mephitis</i>	Mammal	N/A	N/A	Year-round inhabitant
River Otter	<i>Lutra</i>	<i>canadensis</i>	Mammal	N/A	N/A	Year-round inhabitant
Cougar	<i>Puma</i>	<i>concolor</i>	Mammal	N/A	N/A	Occasional; Year-round inhabitant?
Lynx	<i>Lynx</i>	<i>lynx</i>	Mammal	N/A	N/A	Year-round inhabitant
Bobcat	<i>Lynx</i>	<i>rufus</i>	Mammal	N/A	N/A	Year-round inhabitant
Elk	<i>Cervus</i>	<i>elaphus</i>	Mammal	N/A	N/A	Year-round inhabitant
Mule Deer	<i>Odocoileus</i>	<i>hemionus</i>	Mammal	Threatened	N/A	Year-round inhabitant
White-tailed Deer	<i>Odocoileus</i>	<i>virginianus</i>	Mammal	N/A	N/A	Year-round inhabitant
Moose	<i>Alces</i>	<i>alces</i>	Mammal	N/A	N/A	Year-round inhabitant
Pronghorn antelope	<i>Antilocapra</i>	<i>americana</i>	Mammal	Extirpated	N/A	Extirpated

English Name	Genus	Species	Family	Provincial Listing	Federal Listing	Occurrence Type
Bison	<i>Bison</i>	<i>bison</i>	Mammal	Extirpated	N/A	Extirpated
Mudpuppy	<i>Necturus</i>	<i>maculosus</i>	Amphibian	N/A	N/A	Uncommon
Gray tiger salamander	<i>Ambystoma</i>	<i>tigrinum</i>	Amphibian	N/A	N/A	Common
American toad	<i>Bufo</i>	<i>americanus</i>	Amphibian	N/A	N/A	Common
Canada toad	<i>Bufo</i>	<i>hemiphrys</i>	Amphibian	N/A	N/A	Common
Cope's gray treefrog	<i>Hyla</i>	<i>chrysoscelis</i>	Amphibian	N/A	N/A	Common
Boreal chorus frog	<i>Pseudacris</i>	<i>triseriata</i>	Amphibian	N/A	N/A	Common
Wood frog	<i>Rana</i>	<i>sylvatica</i>	Amphibian	N/A	N/A	Common
Northern leopard frog	<i>Rana</i>	<i>pipens</i>	Amphibian	N/A	Special concern	Uncommon
Common snapping turtle	<i>Chelydra</i>	<i>serpentina</i>	Amphibian	N/A	Special concern	Uncommon
Western painted turtle	<i>Chrysemys</i>	<i>picta</i>	Amphibian	N/A	N/A	Common
Northern prairie skink	<i>Eumeces</i>	<i>septentrionalis</i>	Reptile	N/A	Endangered	Uncommon
Northern redbelly snake	<i>Storeria</i>	<i>occipitamaculata</i>	Reptile	N/A	N/A	Locally common
Western plains garter snake	<i>Thamnophis</i>	<i>radix</i>	Reptile	N/A	N/A	Common
Red-sided garter snake	<i>Thamnophis</i>	<i>sirtalis</i>	Reptile	N/A	N/A	Common
Plains hognose snake	<i>Heterodon</i>	<i>nasicus</i>	Reptile	N/A	N/A	Uncommon
Smooth green snake	<i>Opheodrys</i>	<i>vernalis</i>	Reptile	N/A	N/A	Uncommon

APPENDIX B – LAND COVER CLASSIFICATION

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- Alternative Route A1 + A2
- Alternative Route B
- Alternative Route C
- Project Study Area

Existing Infrastructure

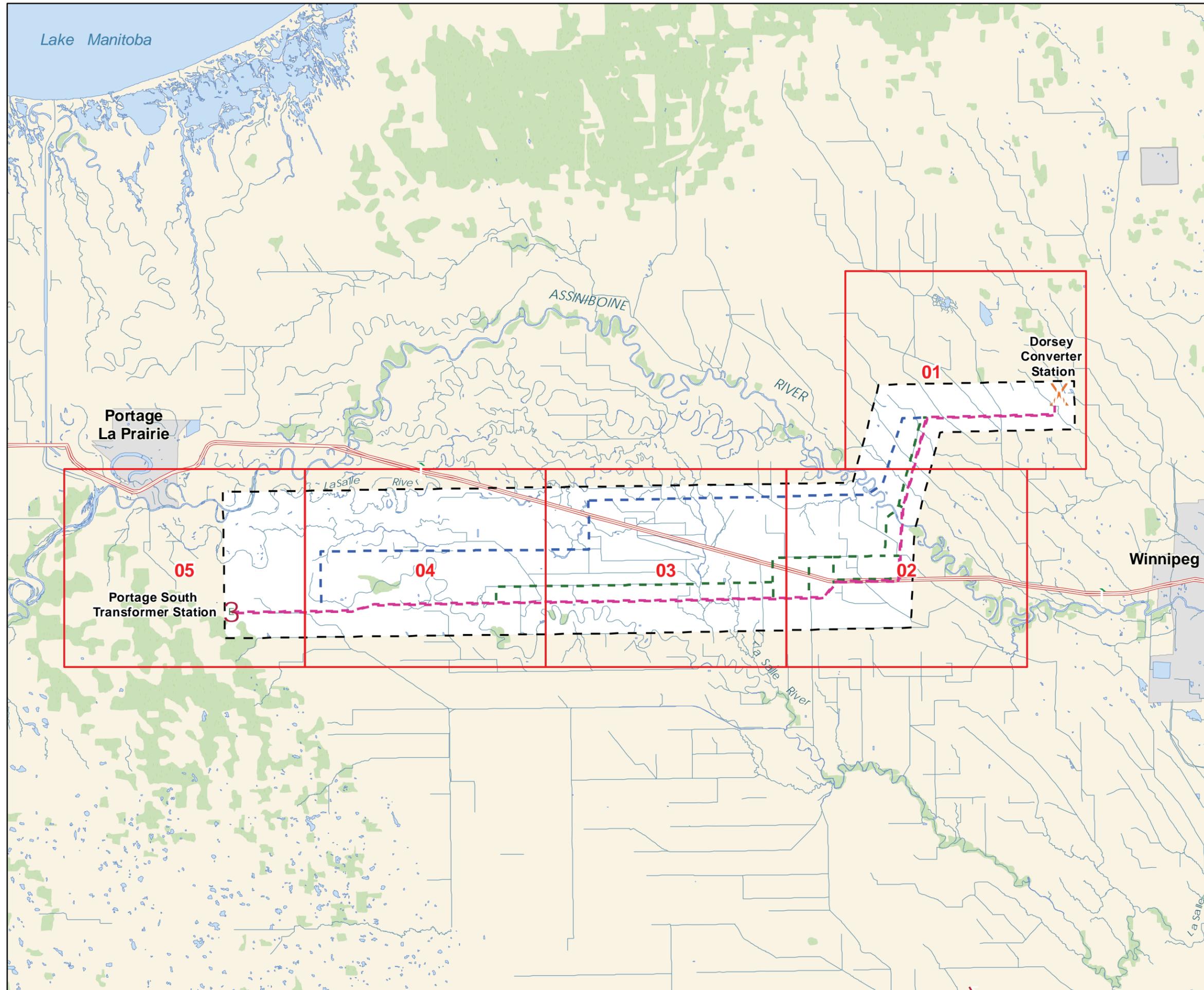
- Converter Station
- Transformer Station

Map Tile Index - 1:250,000

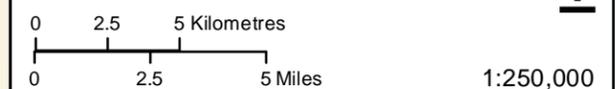
- Map Series Tile

Landbase

- Trans Canada HWY
- Watercourse
- Waterbody
- City / Town
- Treed Vegetation



Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, Stantec, ProvMB, NRCAN
 Date Created: September 29, 2011



Index of Map Series Land Cover Classification

Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- Alternative Route A1 + A2
- Alternative Route B
- Alternative Route C
- Project Study Area

Existing Infrastructure

- Transformer Station
- Converter Station
- Transmission Line

Land Cover Classification *

- Annual Crops
- BroadLeaf
- BroadLeaf Dense
- BroadLeaf Open
- Cultivated Agricultural Land
- Developed
- Exposed Land
- Grassland
- Herb
- Shrub Tall
- Shrubland
- Water
- Wetland
- Wetland Shrub
- Missing Data

* Source: Natural Resources of Canada; Land Cover Classification

Landbase

- Community
- Provincial HWY / Road
- Municipal Road
- City / Town
- First Nation
- Treed Vegetation

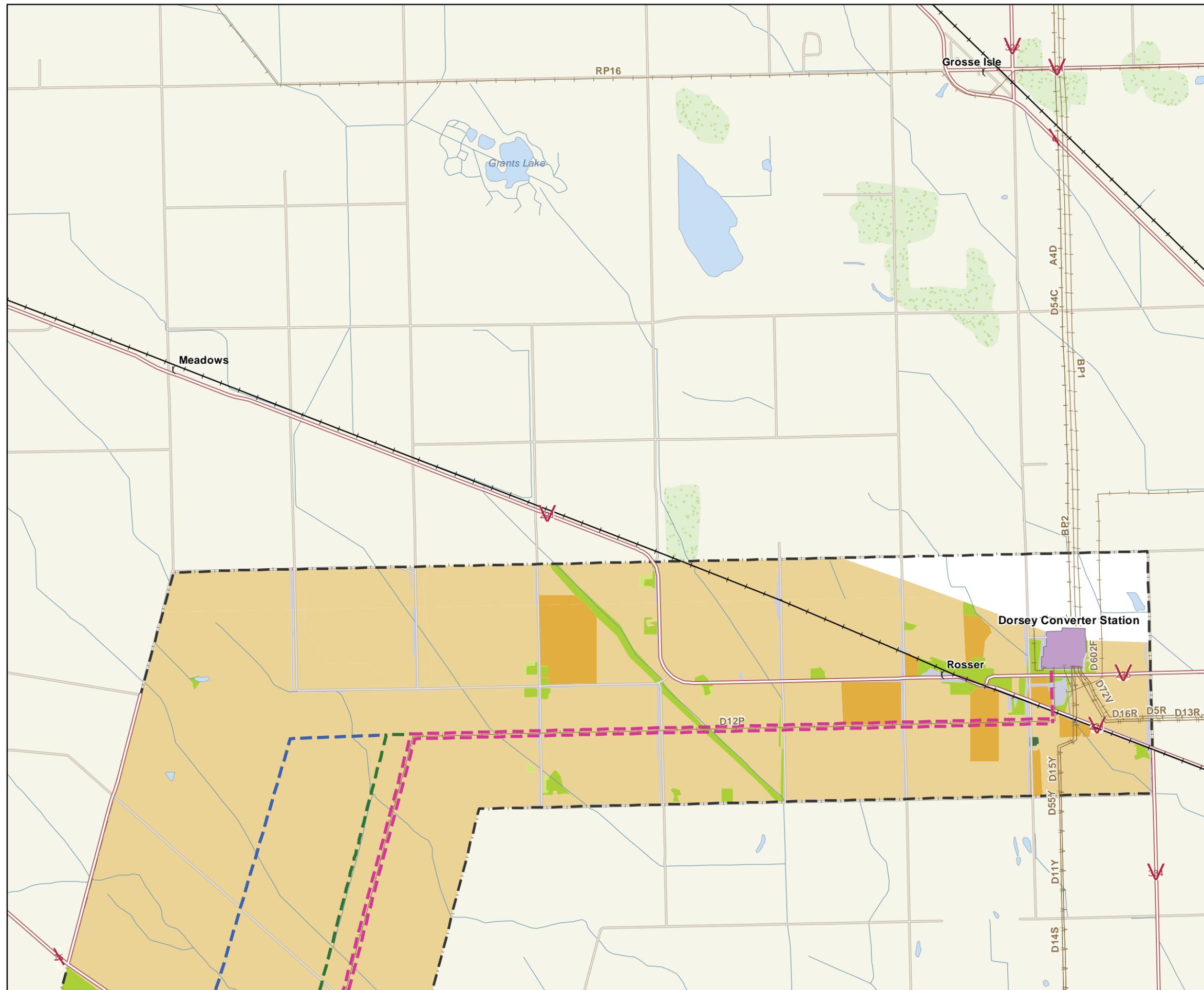
Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, Stantec, ProvMB, NRCAN
Date Created: September 29, 2011



1:50,000

Land Cover Classification

Within Project Study Area



Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- Alternative Route A1 + A2
- Alternative Route B
- Alternative Route C
- Project Study Area

Existing Infrastructure

- 3 Transformer Station
- Converter Station
- Transmission Line

Land Cover Classification *

- Annual Crops
- BroadLeaf
- BroadLeaf Dense
- BroadLeaf Open
- Cultivated Agricultural Land
- Developed
- Exposed Land
- Grassland
- Herb
- Shrub Tall
- Shrubland
- Water
- Wetland
- Wetland Shrub
- Missing Data

* Source: Natural Resources of Canada; Land Cover Classification

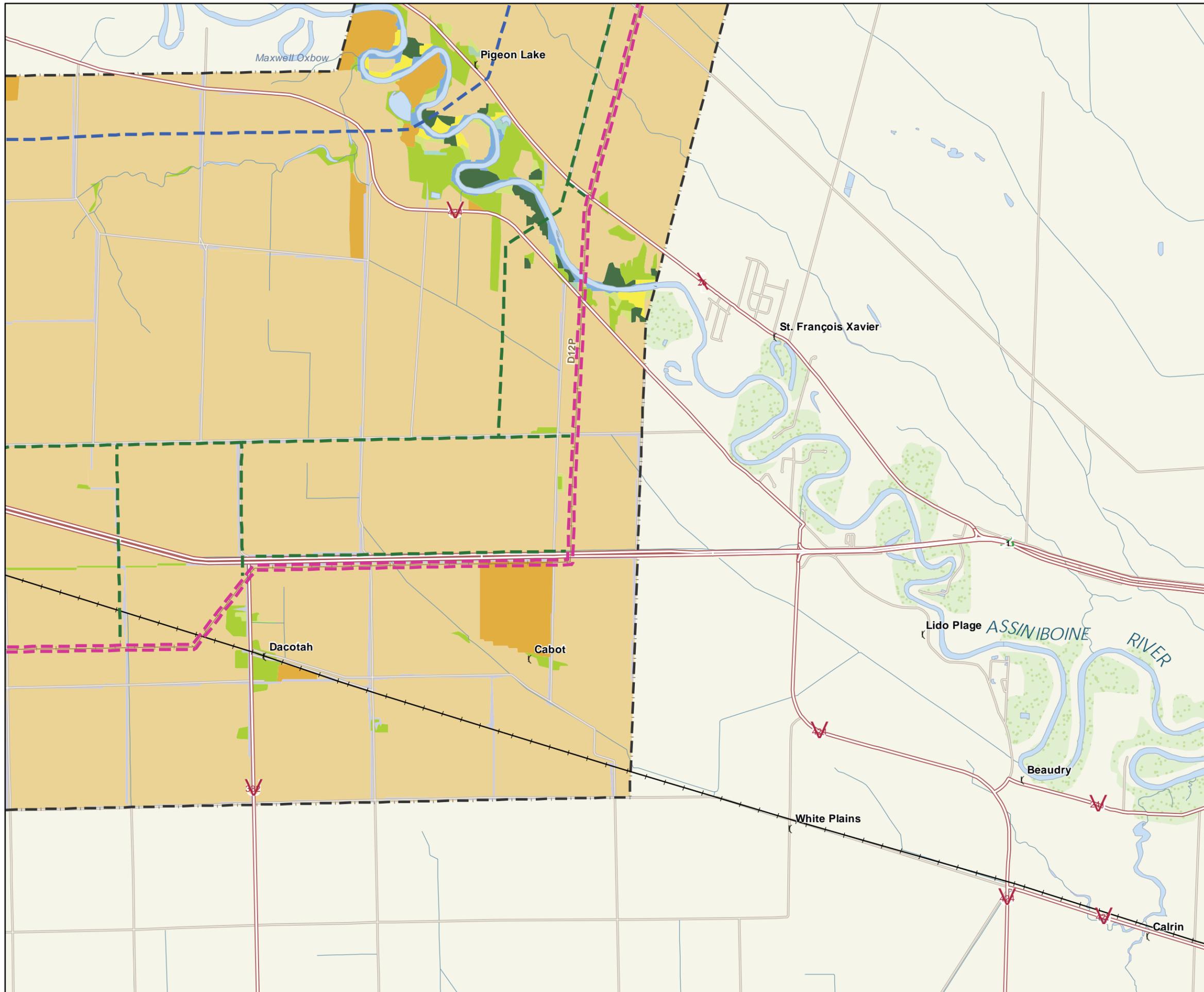
Landbase

- Community
- Provincial HWY / Road
- Municipal Road
- City / Town
- First Nation
- Treed Vegetation

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, Stantec, ProvMB, NRCAN
Date Created: September 29, 2011



Land Cover Classification Within Project Study Area



Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- Alternative Route A1 + A2
- Alternative Route B
- Alternative Route C
- Project Study Area

Existing Infrastructure

- Transformer Station
- Converter Station
- Transmission Line

Land Cover Classification *

- Annual Crops
- BroadLeaf
- BroadLeaf Dense
- BroadLeaf Open
- Cultivated Agricultural Land
- Developed
- Exposed Land
- Grassland
- Herb
- Shrub Tall
- Shrubland
- Water
- Wetland
- Wetland Shrub
- Missing Data

* Source: Natural Resources of Canada; Land Cover Classification

Landbase

- Community
- Provincial HWY / Road
- Municipal Road
- City / Town
- First Nation
- Treed Vegetation

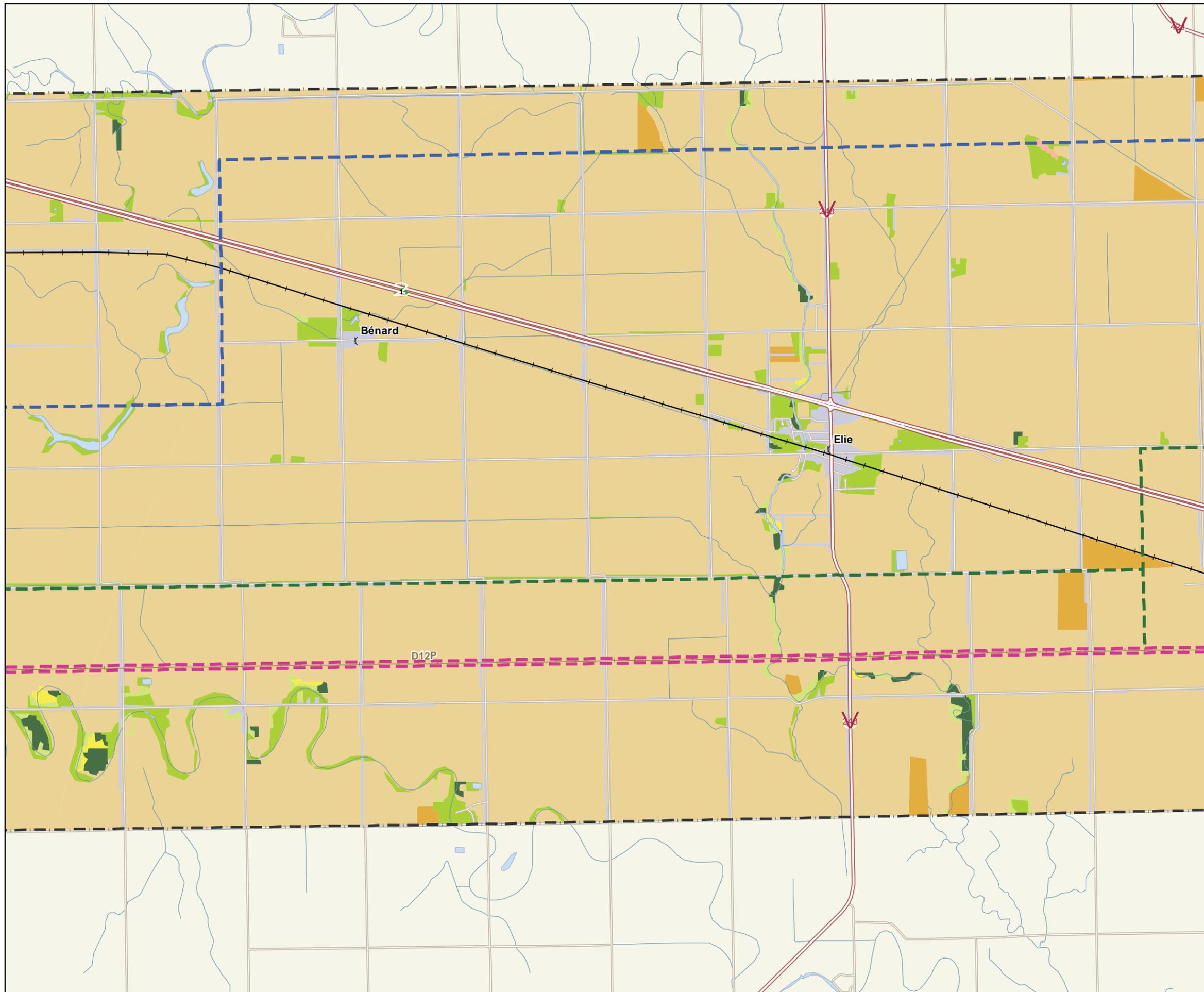
Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, Stantec, ProvMB, NRCAN
Date Created: September 29, 2011



1:50,000

Land Cover Classification

Within Project Study Area



Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- Alternative Route A1 + A2
- Alternative Route B
- Alternative Route C
- Project Study Area

Existing Infrastructure

- Transformer Station
- Converter Station
- Transmission Line

Land Cover Classification *

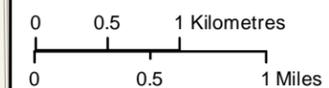
- Annual Crops
- BroadLeaf
- BroadLeaf Dense
- BroadLeaf Open
- Cultivated Agricultural Land
- Developed
- Exposed Land
- Grassland
- Herb
- Shrub Tall
- Shrubland
- Water
- Wetland
- Wetland Shrub
- Missing Data

* Source: Natural Resources of Canada; Land Cover Classification

Landbase

- Community
- Provincial HWY / Road
- Municipal Road
- City / Town
- First Nation
- Treed Vegetation

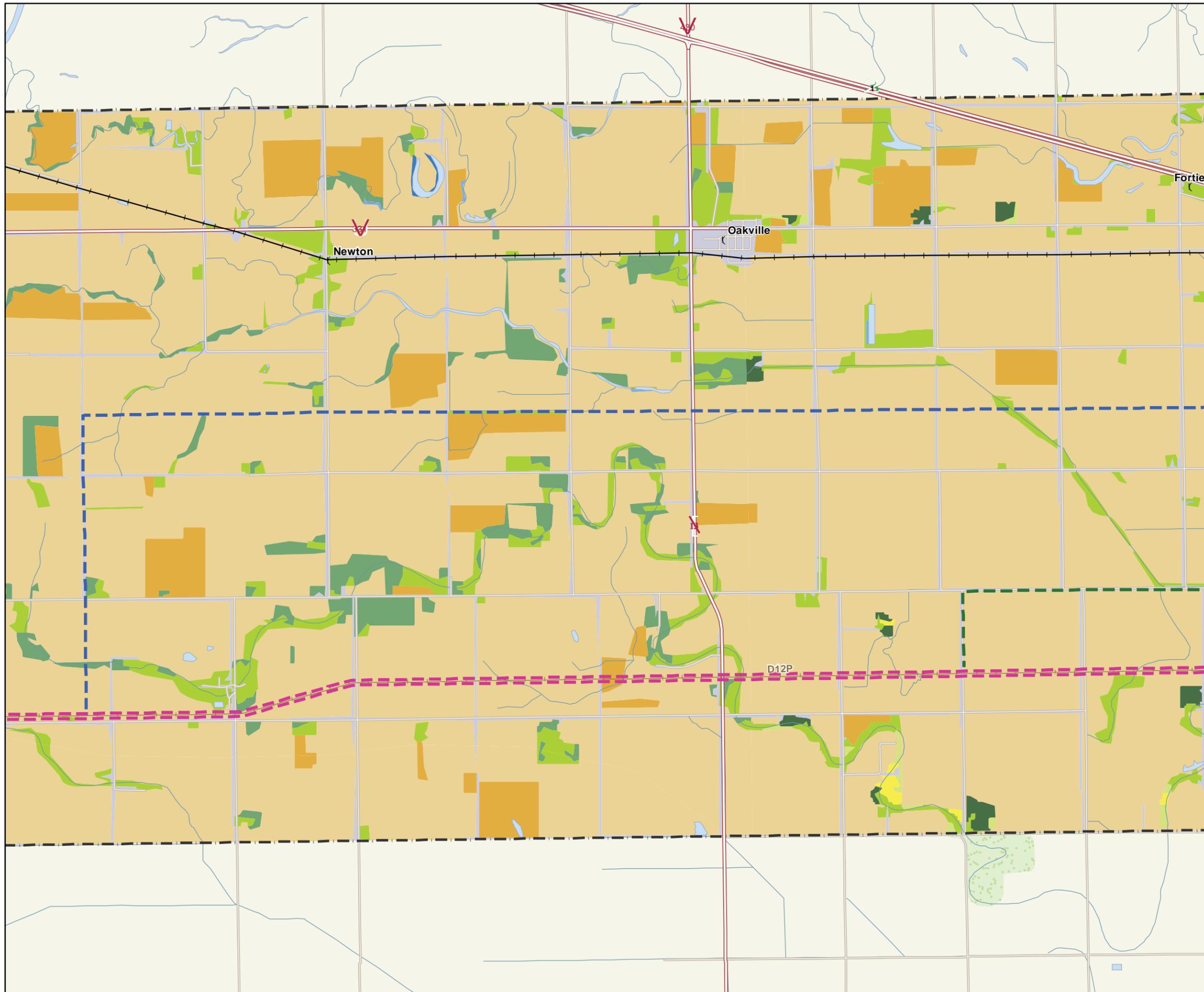
Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, Stantec, ProvMB, NRCAN
Date Created: September 29, 2011



1:50,000

Land Cover Classification

Within Project Study Area



Dorsey To Portage South D83P Transmission Project

Project Infrastructure

- Alternative Route A1 + A2
- Alternative Route B
- Alternative Route C
- Project Study Area

Existing Infrastructure

- Transformer Station
- Converter Station
- Transmission Line

Land Cover Classification *

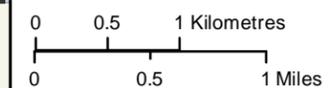
- Annual Crops
- BroadLeaf
- BroadLeaf Dense
- BroadLeaf Open
- Cultivated Agricultural Land
- Developed
- Exposed Land
- Grassland
- Herb
- Shrub Tall
- Shrubland
- Water
- Wetland
- Wetland Shrub
- Missing Data

* Source: Natural Resources of Canada; Land Cover Classification

Landbase

- Community
- Provincial HWY / Road
- Municipal Road
- City / Town
- First Nation
- Treed Vegetation

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, Stantec, ProvMB, NRCAN
Date Created: September 29, 2011



1:50,000

Land Cover Classification Within Project Study Area

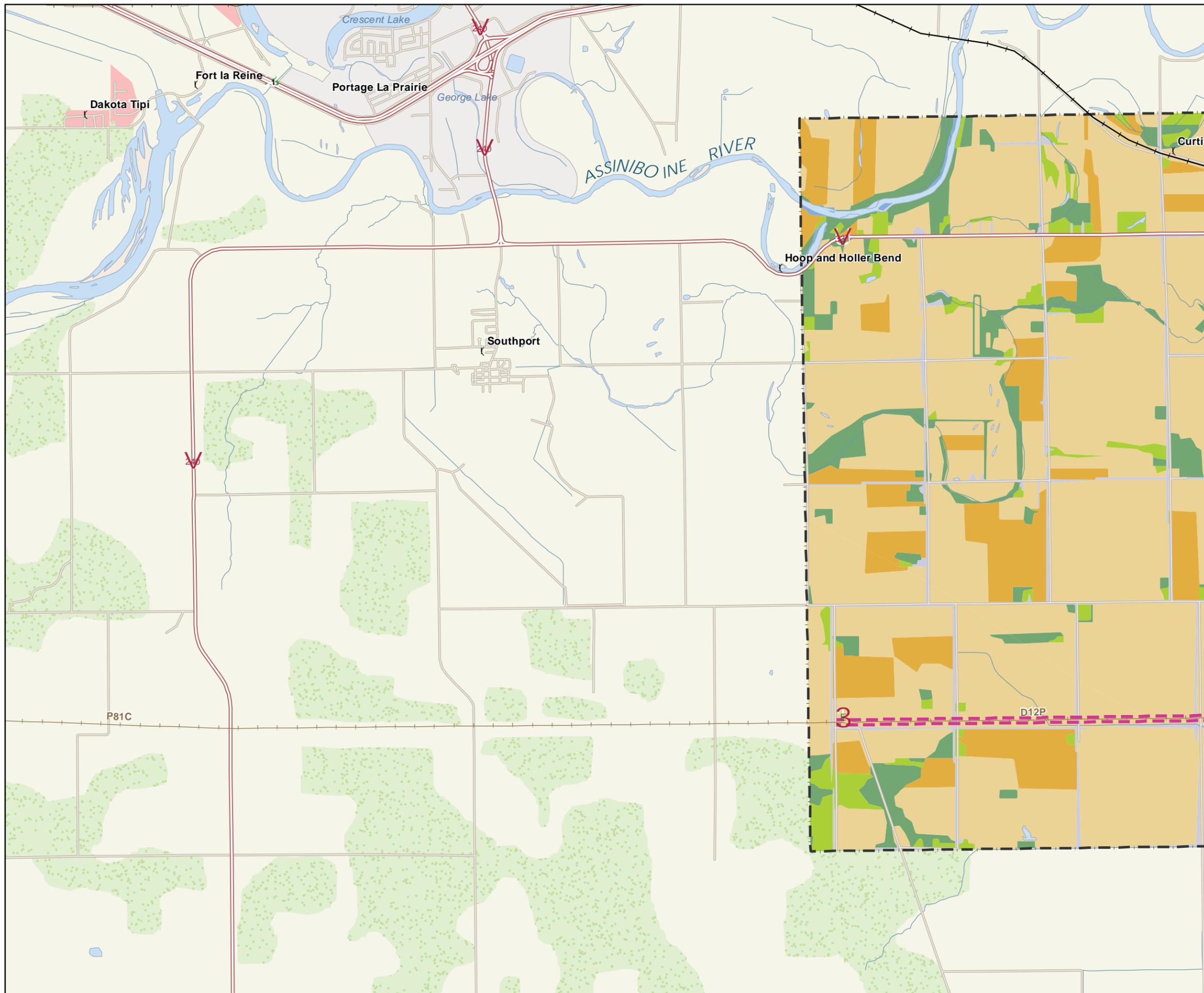




Photo 1: Cultivated Agricultural Land Cover Type

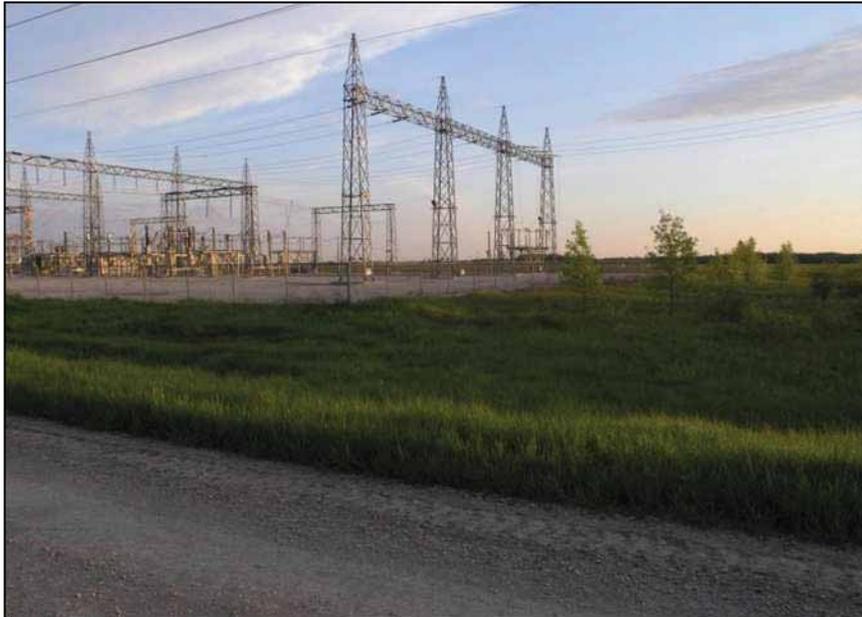


Photo 2: Developed Cover Type



Photo 3: Grassland Cover Type



Photo 4: Broadleaf Cover Type



Photo 5: Water Cover Type



Photo 6: Shrub Tall Cover Type (flooded)

APPENDIX C – INCIDENTAL BIRD OBSERVATIONS

Incidental Bird Observations

Species	
American crow	great horned owl
American goldfinch	greater yellowlegs
American green-winged teal	hairy woodpecker
American kestrel	hooded merganser
American robin	horned lark
American white pelican	house wren
bald eagle	killdeer
Baltimore oriole	least flycatcher
bank swallow	mallard
barn swallow	marbled godwit
black-and-white warbler	mourning dove
black-billed magpie	northern harrier
blue jay	red-eyed vireo
blue-winged teal	red-tailed hawk
bobolink	red-winged blackbird
Brewer's blackbird	ring-billed gull
brown-headed cowbird	ring-necked duck
Canada goose	rock pigeon
cedar waxwing	rose-breasted grosbeak
chestnut-sided warbler	savannah sparrow
chipping sparrow	song sparrow
clay-colored sparrow	Swainson's hawk
common grackle	tree swallow
common raven	upland sandpiper
common yellowthroat	warbling vireo
double-crested cormorant	western meadowlark
eastern bluebird	wild turkey
eastern kingbird	wood duck
eastern wood-pewee	yellow warbler
Franklin's gull	yellow-headed blackbird
gray partridge	yellow-throated vireo
great crested flycatcher	