Appendix B

Siting Report

WAASIGAN
TRANSMISSION LINE

hydro one

WAASIGAN TRANSMISSION LINE
TERMS OF REFERENCE, SITING REPORT

OCTOBER 2020

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1.0 Introduction

Hydro One Networks Inc. (Hydro One), the proponent, is completing an individual environmental assessment (referred to as an EA in this document) for the Waasigan Transmission Line (the Project or undertaking), a proposed new double-circuit 230 kilovolt (kV) transmission line between Lakehead Transformer Station (TS) in the Municipality of Shuniah and Mackenzie TS in the Town of Atikokan, and a new single-circuit 230 kV transmission line between Mackenzie TS and Dryden TS in the City of Dryden. The length of the new transmission line will be approximately 350 kilometres (km) and will be dependent on the selected preferred route.

The location of the Project and the area of focus for the identification of alternative routes for the transmission line is shown in **Figure 1-1**. This Study Area (also referred to as the Route Selection Study Area or RSSA) was identified based on several factors. These factors include pre-determined start and end points (connection points) as specified by the Independent Electricity System Operator (IESO) in their 2018 letter to Hydro One, having sufficient geographical area that would allow for a range of potential alternatives and consideration of key physical, and natural and socio-economic features in the area.

The EA will be carried out in accordance with the requirements of the Ontario *Environmental Assessment Act, 1990* (EA Act). An EA is designed to assess the existing environment and mitigate potential effects before decisions are made about proceeding with a project. The first step of the EA process is the preparation of a Terms of Reference (ToR) for review and decision by the Minister of the Environment, Conservation and Parks (the Minister). The ToR is a document prepared by the project proponent (Hydro One) to establish the framework for the planning, including an outline of studies and consultation activities that will be carried out, and decision-making process to be followed by the proponent during the EA.

In association with the development of the ToR, Hydro One undertook a siting process to identify alternative routes for the planned new transmission facility. This report documents the results of this alternative route siting process and has been prepared as a supporting appendix to the ToR.

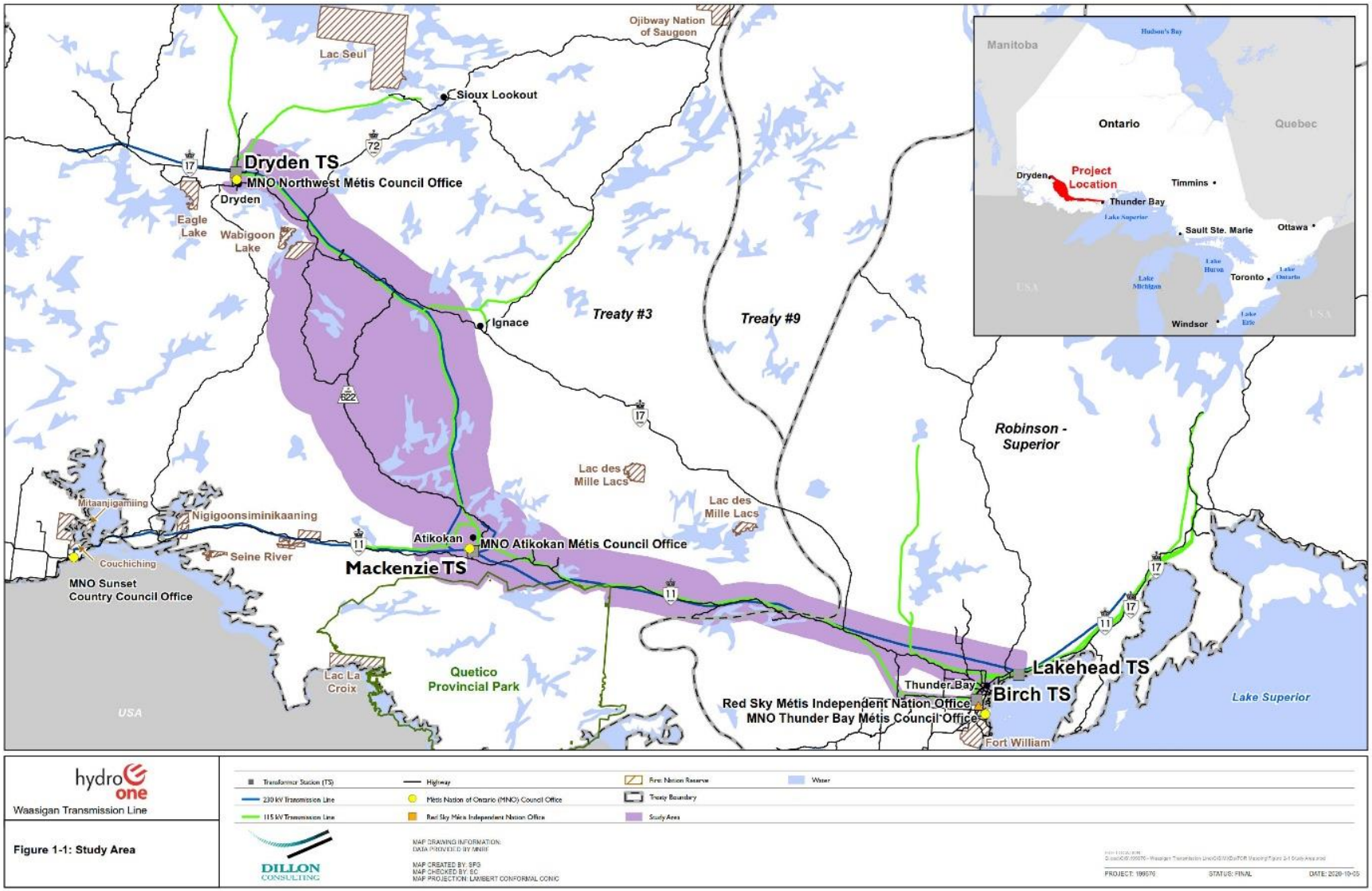

Figure 1-1: Project Location/Study Area

2.0 Identification of Alternative Routes

This section describes the approach to the identification of alternative routes that was undertaken in association with ToR development.

The main steps completed to identify alternative routes for the transmission line during the ToR phase, include the following:

ToR Step 1: Identification of Alternative Corridors
ToR Step 2: Identification of Alternative Routes

The main steps to be completed during the future EA phase to identify the preferred route include the following:

EA Step 1: Confirmation of Alternative Routes
EA Step 2: Comparative Alternative Route Evaluation and Selection of a Preferred Route
EA Step 3: Net Effects Assessment of Preferred Route

The following is a detailed description of the process undertaken to complete ToR Step 1 (Section 2.1 Identification of Alternative Corridors) and ToR Step 2 (Section 2.2 Identification of Alternative Routes). A summary of these processes can be found in Section 6.2 of the ToR. The steps to be undertaken in the future EA phase to select a preferred route are described in Section 6.3 of the ToR.

2.1 Identification of Alternative Corridors

Alternative corridors are areas within the RSSA considered to be more suitable for a future transmission facility and provided an area of focus for the identification of alternative routes. The following sub-sections describe the process followed to identify the alternative corridors.

2.1.1 EPRI-GTC Overhead Electric Transmission Line Siting Methodology

In the interest of making the route identification process more transparent, consensus-based, and allow for input to be taken into account early in the process, Hydro One elected to use the Electric Power Research Institute-Georgia Transmission Corporation Overhead Electric Transmission Line Siting Methodology (EPRI-GTC Siting Methodology) as a framework.

GTC is a transmission cooperative based in the southeastern United States. EPRI is an international non-profit industry organization that provides leadership, industry expertise, and collaborative value to help the electricity sector identify issues, technology gaps, and broader needs that can be addressed through effective research and development programs for the benefit of society (Utility Arborist Association, 2018). In 2003, EPRI and GTC co-sponsored a research project to develop a standardized method for siting transmission lines based on the GIS-based siting process being used at GTC. In 2006, EPRI published a report describing this methodology. Since that time, the methodology has been implemented on several electric transmission siting projects throughout the United States and Canada.

Hydro One selected the EPRI-GTC Siting Methodology as the basis for identification and selection of alternative routes because it is a proven methodology that offers a structured decision-making process and allows transparent documentation of the reasons for the decisions that were made, as well as input from Indigenous communities, government officials and agencies, and interested persons and organizations, to be factored in early on in the planning process.

The Methodology is analogous to a funnel used to process information. Into the funnel goes geographic information which is calibrated with community or socio-economic considerations, natural environment considerations, and engineering or technical considerations. Each phase of the process is like a filter in the funnel which is used to refine the area of consideration. As the area of focus is refined, users are able to invest more effort into studying the area at a greater level of detail. More detailed information is collected as one proceeds through the funnel.

In order to implement the EPRI-GTC Siting Methodology, input-gathering sessions, called Corridor Workshops, were held with Indigenous communities, government agency and municipal representatives, and organizations, in order to identify and consider the suitability of specific values when siting a transmission line. This input was then compiled into a GIS-based siting model, along with other desktop data, including secondary source information, such as official plans, mapping (including Land Information Ontario data), orthophotos, and data provided by government agencies and other existing published literature (see **Section 2.2**).

The EPRI-GTC Siting Methodology requires "model calibration" which involves determining the siting criteria and their relative importance or "weights".

The following describes the process that was followed to develop and calibrate the siting model.

2.1.2 Calibrating the Siting Model with Internal and External Input

The EPRI-GTC Siting Methodology requires input for the purposes of calibrating the Project siting model. An initial internal (Hydro One) workshop session was held to receive input from Hydro One regarding the technical requirements of the proposed facility. Input from this session was used to develop preliminary model siting criteria to be used as a starting point for stakeholder and Indigenous community input. The main activity held to receive external input on the siting model were the Corridor Workshop sessions held in the City of Thunder Bay over three days in June 2019. Government agency and municipal representatives, organizations and Indigenous communities were invited to these workshops. Further detail on these external sessions is provided below.

June 2019 Corridor Workshops

The main activity held to calibrate the siting model was a three-day workshop held from June 24 to 26, 2019. The workshops were hosted by Hydro One and held in the City of Thunder Bay. Each day of the workshop was focused on a different perspective: Natural Environment, Socio-Economic, and Technical (Engineering).

To plan for the workshops, following a Project introduction conference call and presentation with provincial agencies in late March 2019, Hydro One and the consulting team identified the key technical knowledge holders to be invited to the workshops to represent the draft model siting criteria list. An invitation package was prepared and distributed to invitees in May 2019 which provided a description of the Project, an outline of the workshop and its purpose, and a draft model siting criteria list. A list of invitees is provided in **Table 2-1.**

Table 2-1: June 2019 Workshop Invitees

• Canadian Nuclear Safety Commission	• Ministry of Natural Resources and Forestry (MNRF)
• Canadian Pacific Railway	• Ministry of Heritage, Sport, Tourism and Culture Industries
• City of Dryden	• Ministry of Transportation Ontario
• City of Thunder Bay	• Municipality of Oliver Paipoonge
• Canadian National Railway	• Municipality of Shuniah
• Fisheries and Oceans Canada	• Nigigoonsiminikaaning First Nation
• Fort William First Nation	• Nuclear Waste Management Organization
• Grand Council Treaty #3	• Ontario Federation of Snowmobile Clubs
• Infrastructure Ontario	• Ontario Mining Association
• Lac des Mille Lacs First Nation	• Ontario Parks
• Lac La Croix First Nation	• Ontario Power Generation
• Lac Seul First Nation	• Red Sky Métis Independent Nation
• Lakehead Region Conservation Authority	• Ojibway Nation of Saugeen
• Lakehead Roads Board	• Seine River First Nation
• Métis Nation of Ontario – Region 1	• Town of Atikokan
• Métis Nation of Ontario – Region 2	• Township of Conmee
• Migisi Sahgaigan (Eagle Lake First Nation)	• Township of Ignace
• Ministry of Agriculture, Food and Rural Affairs	• Township of O'Connor
• Ministry of Energy, North Development and Mines	• TransCanada Pipelines
• Ministry of the Environment, Conservation and Parks	• Union Gas
• Ministry of Municipal Affairs and Housing	• Wabigoon Lake Ojibway Nation

Follow-up calls were then made to invitees to answer questions and to confirm if they would be interested in sending representatives to the sessions. Conference calls were also held with the Ministry of Natural Resources and Forestry (MNRF) and the Ministry of the Environment, Conservation and Parks (MECP) who had more detailed questions about the sessions. Once interest was confirmed, specific calendar invites were sent to the individuals. Invitees were given the option of being either participants (e.g., actively provide input into the session) or observers (e.g., attend but would not provide input) for the sessions.

Representatives that attended the workshop are listed in **Table 2-2**, and it is indicated whether they were a participant or observer. It is noted that the MNRF was not comfortable in providing

input to the relative weights among the values groupings and, as such, they provided input to the values related to their legislated mandate only.

Table 2-2: June 2019 Workshop Attendees

Technical Perspective* (June 24, 2019)	Socio-economic Perspective* (June 25, 2019)	Natural Environment Perspective* (June 26, 2019)
• Hydro One (P) • City of Dryden (P) • Eagle Lake First Nation (O) • Grand Council Treaty #3 (P) • Lakehead Region Conservation Authority (P) • Ministry of Energy and Northern Development and Mines (P) • Ministry of Natural Resources and Forestry (P) • Ministry of the Environment, Conservation and Parks (O) • Ministry of Transportation (P) • TC Energy (TransCanada) (P) • Township of Ignace (P) • Township of O'Connor (P) • Wabigoon Lake Ojibway Nation (O)	• City of Dryden (P) • Eagle Lake First Nation (O) • Grand Council Treaty #3 (P) • Métis Nation of Ontario – Region 2 (O) • Ministry of Energy and Northern Development and Mines (P) • Ministry of Municipal Affairs and Housing (P) • Ministry of Natural Resources and Forestry (P) • Ministry of the Environment, Conservation and Parks (incl. Ontario Parks) (O) • Ministry of Heritage, Sport, Tourism and Culture Industries (O) • Nuclear Waste Management Organization (P) • Ontario Federation of Snowmobile Clubs (Northwest Ontario Snow Trail Association) (P) • Red Sky Métis Independent Nation (O) • Township of Ignace (P) • Wabigoon Lake Ojibway Nation (O)	• Eagle Lake First Nation (O) • Grand Council Treaty #3 (P) • Lakehead Region Conservation Authority (P) • Ministry of Energy and Northern Development and Mines (O) • Ministry of Natural Resources and Forestry (P) • Ministry of the Environment, Conservation and Parks (inclu. Ontario Parks) (P) • Ontario Nature (O) • Wabigoon Lake Ojibway Nation (O)

**Those who participated are indicated with a "P" and those who observed are indicated with an "O."*

Web hosting facilities were also available during the sessions for representatives to observe workshop proceedings through online viewing portals. Representatives from the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) and MECP also observed the workshop remotely. MHSTCI provided preliminary comments via email following the workshop sessions for consideration into the routing process.

Corridor Workshop Process

Corridor Workshop session participants first reviewed the preliminary list of model siting criteria and indicators which the Project team had developed prior to the workshop. The siting criteria represent different land based features or uses in the study area. As an example, for the criterion "Slope", three indicators were identified ranging from 0% to 30% slope. The participants provided input and the list of model siting criteria was modified and confirmed.

The participants then completed surveys where they ranked each criterion from 1 (best) to 9 (worst) based on the relative suitability for constructing a transmission line in proximity to these criteria/features. Most participants then completed pairwise comparisons of each group of criteria or features, to determine the relative importance of these features when siting a transmission line. This resulted in a weight being established for each criterion which is represented by a percentage. The higher the percentage, the more important that the criterion is to the participants when siting the transmission line.

After the first round of input, the group discussed the results and statistically evaluated the data, reviewing the minimum, maximum, median and mean values of the group and the standard deviation. The participants discussed the results and, at times, made a case for the group to assign importance to certain criteria differently based on their point of view. After the group discussion, the participants completed another survey and the results were reviewed by the group. The purpose of the follow-up rounds was to achieve a higher level of consensus among the participants in regards to the criteria weightings (i.e., to reduce the standard deviation of the scores). Ultimately, the average scores of the participants input from the final round is to be used in the siting model.

June 2019 Workshop Results

For each perspective (Natural, Socio-economic and Technical), a set of model siting criteria that represent values deemed important by the participants and their relative importance was developed. These results are presented in **Tables 2.3 to 2.5** below. For the Technical perspective, the model siting criteria determined to be of most importance are the paralleling of existing linear infrastructure (35.7%) and geotechnical considerations (30.5%). For the Socio-economic

perspective, the model siting criteria determined to be of most importance are the paralleling of existing linear infrastructure (24%) and land use (18.8%). And for the Natural Environment perspective, the model siting criteria determined to be of most importance are the paralleling of existing linear infrastructure (28.8%) and designated natural areas (20.6%).

Table 2-3: Technical Perspective Siting Criteria and Weights

Technical	
Linear Infrastructure	35.70%
Parallel Existing Transmission Lines	1
Parallel Provincial Highway ROW	1.9
Parallel Roads ROW	2.9
Parallel Railway ROW	3.1
Parallel Pipeline	4.5
Within Road, Railroad, or Utility ROW	5.1
Within Future MTO Expansion (Designated ROW)	6.8
No Linear Infrastructure	9
Geotechnical Considerations	30.50%
Surface Bedrock	1
No Special Geotechnical Considerations	3
Regulated Floodplain	7.1
Organic Soils (Peatland, muck, marl)	9
Slope	10.20%
Slope 0 - 15%	1
Slope 15 - 30%	2.6
Slope > 30%	9
Spannable Waterbodies	23.60%
Spannable Waterbody (Standard Structure)	3.9
Spannable Waterbody (Speciality Structure)	8.2
Non Spannable Waterbodies	9
No Waterbodies	1
Area of Least Preference	
Former Steep Rock Mine Site	

Table 2-4: Socio-Economic Perspective Siting Criteria and Weights

Socio-Economic					
Proximity to Buildings	**12.90%**	**Land Use**	**18.80%**	**Land Ownership**	**9.80%**
>1 km	1.0	Abandoned Mines	1.0	Provincial Crown Land	1.0
500m - 1km	3.3	MTO Aggregate Quarries	2.1	Municipally Owned Lands	2.8
100 - 500m	6.3	Rural	2.2	Provincially Owned Private Land (IO)	5.7
<100 m	9.0	Planned Forest Operations	2.4	Mining Act Land Use	4.9
Building Density	**10.90%**	Aggregate Pits	2.6	Public Lands Act Tenure	4.9
Lowest Building Density	1	Industrial (Zoning Maps where available)	2.7	Private Land	5.8
Highest Building Density	9	Forest Aggregate Pits	3.3	Lands Allented by the Crown	9.0
Future Development	**4.50%**	Active Forest Operations	3.7	**Non-Indigenous Known Cultural Resources**	**11.10%**
No Approved / Future Development	1.0	Completed Forest Operations	3.7	> 300 m of known Cultural Resources	1.0
Mining Early Exploration	1.1	Mining Claim Areas	3.7	< 300 m of Cultural Heritage Landscapes (Municipal or Provincial)	7.7
Approved Industrial Development	2.3	Agricultural (Crops)	3.8	< 300 m of Archaeological Sites	7.9
Mineral Advanced Exploration	2.8	MTO Aggregate Pits	4.0	< 300 m of Built Heritage Resources (Municipal or Provincial)	9.0
Identified Aggregate Resource Areas	3.1	Agricultural (Forage)	4.0	**Landscape Character (Viewshed)**	**8.00%**
Approved Resource Extraction (mine/pit/quarry)	3.5	Commercial (Zoning Maps where available)	4.3	Other	1.0
Approved Commercial Development	3.6	Aggregate Quarries	4.9	Commercial Outpost Camps	6.7
Mineral Occurrence	3.8	Active Underground Mines	5.6	Remote Campsite	7.1
Approved Residential Development	7.6	Institutional (Zoning Maps where available)	5.8	Escarpements (Timeless Topography)	6.1
Protected Areas (Provincial Parks, Conservation Reserves, Forest Reserve, ANSI)	9.0	Active Open Pit Mine	6.4	Scenic Provisional Trails and Roads	7.5
Linear Infrastructure	**24.00%**	Recreational (Zoning Maps where available)	7.0	Residential	7.7
Existing Infrastructure	1	Water	7.1	Canoe Routes/Trails	7.7
No Existing Infrastructure	9	Hunting / Trapping Line Locations	7.1	Restricted Access Lakes + Specified Buffer (100-600m determined by MNRF)	5.5
		Settlement Area/City	7.4	Known Cultural Resources (See Above)	7.6
		Residential (Zoning Maps where available)	7.5	Resort Lodges & Campgrounds	8.1
		Existing & Planned Trails (Land and Water)	8.1	Cottage Areas	9.0
		Cottage Areas	8.4		
		Tourism Resorts	9.0		

Table 2-5: Natural Environment Perspective Siting Criteria and Weights

Natural Environment					
Wildlife Habitat & Occurrences	6.4%	**Land Cover**	4.5%	**Designated Natural Areas**	20.6%
No Sensitive Wildlife Habitat	1.0	Cropland	1.0	No Special Land Designations	1.0
Other Significant Wildlife Habitat	5.7	Brush and Alder	1.6	LRCA Conservation Area	6.4
Moose Calving Areas	6.2	Developed Land	1.7	ANSI (Areas of Natural and Scientific Interest)	6.8
Reoccurring Nesting Observations	6.0	Grass and Meadow	2.4	Recommended Protected Areas	6.5
Wintering Areas (Non-Sensitive)	6.3	Rock	2.4	NGO Nature Reserve	6.6
Mineral Licks	6.3	Productive Forest	3.2	Forest Reserve	7.0
Moose Emphasis Areas	7.0	Treed Wetland	8.0	Enhanced Management Area	7.3
Aquatic Feeding Area	7.3	Water	8.8	Wilderness Area	8.1
S1-S3 Conservation Concern Species Occurrence and Observations	7.5	Small Island	9.0	Regulated Wetland	8.4
Unique Plant Community Occurrence and Observations	7.5	Open Wetland	9.0	Provincial Park and Conservation Reserves	8.9
Wild Rice	8.2	**Aquatic Habitat**	7.2%	Provincially Significant Wetland	9.0
Significant Ecological Area	8.3	No Aquatic Feature	1.0	**Biodiversity Gap Analysis**	4.7%
Winter Concentration Areas (Sensitive)	9.0	Unknown Thermal Regime	2.8	Well Represented in Protected Areas	1
Linear Infrastructure	28.8%	Warm Thermal Regime	4.5	Poorly Represented in Protected Areas	9
Parallel Existing Permanent Infrastructure	1	Cool Thermal Regime	4.7	**Wildlife Connectivity Index**	6.3%
No Existing Infrastructure	9	Cold Thermal Regime	6.0	Low Connectivity	1
Species at Risk	17.3%	Other Significant Aquatic Habitat	7.8	High Connectivity	9
No Species at Risk	1	Lake Trout Lakes	8.2	**Abandoned Mines of Environmental Concern**	4.2%
Special Concern Species Occurrence and Observations	5	Fish Sanctuary	8.5	No Abandoned Mines of Environmental Concern	1
Threatened Species Occurrence and Observations	7.3	Brook Trout Waters	8.5	Historic Mine Workings	5.3
T&E Regulated Habitat (Mapped)	7.7	Nursery Area	8.5	Historic Tailing Areas	9
Endangered Species Occurrence and Observations	9	Spawning Area	9.0		

Indigenous Community Workshop Sessions

As previously discussed, invitation packages for the June 2019 workshops were sent to Indigenous communities in May 2019 (see **Section 2.1.2**). In addition to the June 2019 workshops, Hydro One offered Indigenous communities the opportunity to hold community-specific sessions. As documented in the Record of Consultation, Indigenous communities were sent various correspondence inviting them to participate in community-specific siting workshops. In July and August 2019, phone calls, emails and correspondence took place to arrange with Indigenous communities their own corridor workshops. Offers to hold workshops continued through to the end of 2019. Further, eight workshops were scheduled with Indigenous communities to be held in March/April 2020; however, following the provincial COVID-19 emergency declaration, all events were postponed. From April to summer 2020, Hydro One continued to connect with the communities to explore the potential to hold virtual workshops. The following documents the additional sessions that were held.

Mitaanjigamiing First Nation Workshop Sessions

An initial session was held with members of Mitaanjigamiing First Nation Chief and Council on December10, 2019 and then a second session was held with the members of the larger community on January 26, 2020. Both sessions were held in the community. At each of the workshops, Hydro One began the sessions by providing an overview presentation of the Project, study area, and the EA process being followed. Dillon Consulting then delivered an overview of the siting methodology used on the Project, the EPRI-GTC Siting Methodology, and discussed how participant input is used to develop a project-specific model to identify alternative route options. Participants were provided the opportunity to ask questions about the Project, routing process and/or the workshop. No specific questions were asked about the general approach as presented.

The participants then discussed the various types of places that the transmission line could be located. They reviewed the preliminary siting model (siting criteria) that was generated from the June 2019 workshops. Participants then made a list of model siting criteria that are important to their community. At the second January 2020 session, participants recommended additional siting model criteria and provided input on the relative importance of the siting criteria. The siting criteria weights developed at these workshops are being treated as confidential information and are not documented in this report.

Métis Nation of Ontario Workshops

Hydro One provided the MNO capacity support to facilitate their own sessions to provide input into the siting model. Hydro One attended the beginning of these sessions to provide an overview presentation of the Project, study area, and the EA process being followed. MNO Region 1 and Region 2 provided Hydro One with workshop summary reports (September 2019) that documented the results of sessions that were held in Atikokan (Region 1), Dryden (Region 1) and Thunder Bay (Region 2) with the MNO's consultant MNP Consultants facilitating the process. This input was considered in the process to identify alternative routes for the new transmission line. These MNO reports are not included in the ToR documentation package as they are being treated as confidential information.

These reports provided data that outlined areas of interest, value and/or concern, as well as recommended siting criteria. Using the input in these reports, Hydro One's consulting team developed a set of siting criteria and assigned relative importance of these criteria. Some interpretation of the data was required. A report was prepared to explain this and submitted to the MNO for their review. A follow-up call was then held with the MNO to ensure that Hydro

One understood the information as provided. The siting criteria weights developed at these workshops are being treated as confidential information and are not documented in this report.

Red Sky Métis Independent Nation Workshop

Hydro One held a Corridor Workshop session with Red Sky Métis Independent Nation (RSMIN) on June 4, 2020. The workshop focused on creating a siting model of the RSMIN perspective. To plan for the session, Hydro One made calls to RSMIN to confirm their interest in participating in the workshop and to set a mutually agreeable day and time for the session. The community determined themselves who would participate in the event. Because of the COVID-19 pandemic, the session was held remotely using the Webex online meeting platform. Participants were provided the link to join the session as part of the meeting invitation. Two representatives from the community attended the session.

Hydro One began the session by providing an overview presentation of the Project, study area, and the EA process being followed. Participants were able to see the presentation on the Webex online platform. Dillon Consulting then delivered an overview of the siting methodology used on the Project, the EPRI-GTC Siting Methodology, and discussed how participant input is used to develop a project-specific model to identify alternative route options. Participants were provided the opportunity to ask questions about the Project, routing process and/or the workshop. No specific questions were asked about the general approach as presented.

The bulk of the session was focused on participants refining the factors that they thought should be considered when developing alternative routes for the Project and providing input on the relative importance (weighting) of those factors. The criteria weights developed at this workshop are being treated as confidential information and are not documented in this report.

Lac des Mille Lacs First Nation Workshop

Hydro One Networks Inc. (Hydro One) held a Corridor Workshop session with Lac Des Mille Lacs (LDML) First Nation on June 25, 2020. Hydro One began the session by providing an overview presentation of the Project, study area, and the EA process being followed. Participants were able to see the presentation on the Webex online platform. Dillon Consulting then delivered an overview of the siting methodology used on the Project, the EPRI-GTC Siting Methodology, and discussed how participant input is used to develop a project-specific model to identify alternative route options. The presentation included a map of the Refined Route Selection Study Area and the preliminary alternative routes that were included in the draft ToR. Also presented was an initial list

of siting factors that may be of interest to LDML First Nation and was based on input received from other Indigenous communities.

No specific comments were provided on the alternatives routes as shown and as presented in the draft ToR. It was also noted that an interactive map would be posted on the Project website for more detailed viewing of the alternative routes. LDML was asked if they have any comments on the initial set of preliminary siting factors as outlined in the presentation. LDML advised that they expect they would recommend other factors and that they could provide these at a future date. LDML noted that they were not ready to provide feedback at that time and would go back to review the materials and then provide Hydro One with their feedback. No specific input was provided by LDML by the time of the submission of the ToR.

Summary of Developed Siting Model

Considering the input of the various interests as previously described, a siting model was developed, which included the results of the June 2019 workshops which led to the development of siting criteria for Technical, Socio-Economic and Natural Environment perspectives and the development of an Indigenous perspective that recognized the input received from the additional workshops.

Overall, the results of the workshops and input received indicate that there is a strong preference to co-locate the new transmission facility close to existing infrastructure. The preference to locate the new transmission facility close to existing infrastructure corridors is also supported in Section 1.6.8.5 of the recently updated Provincial Policy Statement (PPS, 2020) released under the *Planning Act,* 1990, which states that "the co-location of linear infrastructure should be promoted, where appropriate." The preference for co-location has been further supported based on past environmental hearing decisions by the Ontario Energy Board (OEB), such as the East-West Tie Transmission line (currently under construction), Wataynikaneyap Transmission Project (currently under construction), and the Bruce to Milton Transmission Reinforcement (December, 2008).

Co-locating with existing linear facilities has the potential to offer several advantages that were identified by stakeholders and Indigenous communities as part of the engagement activities held during the development of the ToR. Many of these advantages are greater if co-locating with a transmission line, and in particular, offer the potential to minimize:

- New access to previously inaccessible natural areas, such as undisturbed lakes and/or other natural areas, by using existing rights-of-way (ROWs) and access roads;
- Disturbance to potentially sensitive interior forest wildlife and/or habitat;

- The amount of new ROW required (as overlap with the existing ROW may be possible);
- Overall line length and angles (corners) as existing transmission lines are generally shorter and straighter than other types of infrastructure and greenfield routes;
- Visual effects; and,
- Overall operational costs as there may be efficiencies in ROW maintenance if two transmission lines are located together.

2.2 Datasets Used in Model

Baseline data collection activities were undertaken for all relevant components of the environment within the RSSA in order to feed into the identification of alternative corridors and routes. A focus of this effort was on the collection of spatial or GIS-based data that was used in the route identification process.

The model was based on the use of a variety of available secondary spatial/geographic data sources. These included municipal, Ministry of Energy, Development and Mines (ENDM), MNRF (e.g., Lands Information Ontario data), and other provincial agencies. Discussions were held with some agencies regarding accessing the data that was in their possession. The full list of data utilized is presented in **Appendix A** to this report.

While primary data collection was not undertaken to support alternative corridor identification, air photo interpretation was undertaken to identify building locations within the RSSA.

Also considered was some spatial data submitted by the MNO that identified areas if importance to them within the study area. It is understood that the information provided by the MNO is approximate and preliminary.

The route identification analysis work was performed at a 10-metre (m) resolution. This means every 10 square metres in the study area were evaluated using all criteria in the model. Each 10 square metre area was classified based on its relative suitability to support a new transmission line according to input from agencies and Indigenous communities. **Figure 2.1** provides an example of the mapping developed for each criterion that illustrates the location of the feature within the Study Area. For some of the mapped features, some data manipulation was required. **Table 2.6** provides notes to explain how some of the siting criteria were developed/applied.

As the routing work progresses into the EA, additional datasets will be obtained to support the route evaluation and effects assessment work, including information obtained from field surveys and Indigenous knowledge.

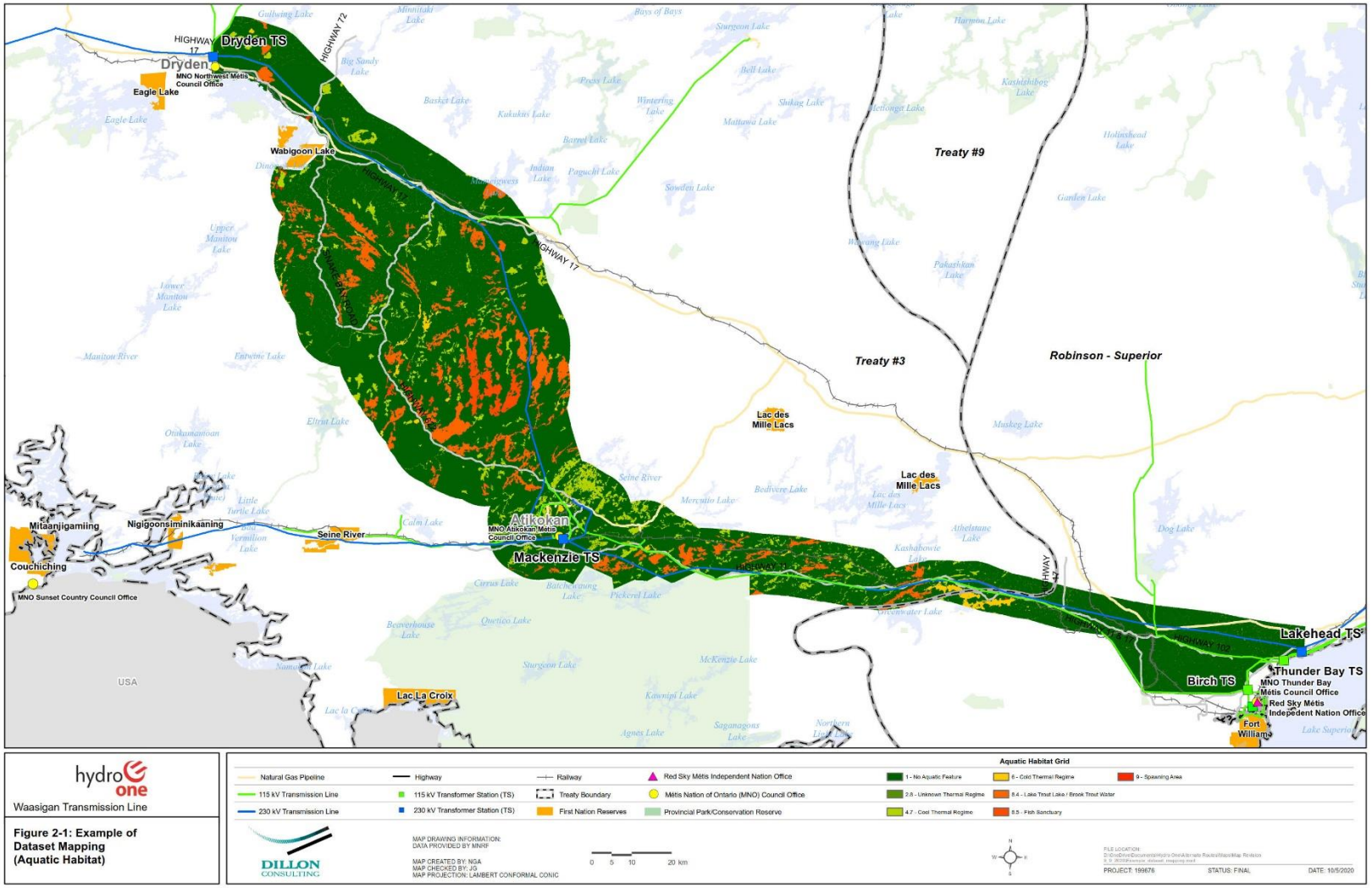

Figure 2-1: Example of Dataset Mapping

Table 2-6: Siting Criteria Notes	
Building Density	The Building Density layer is classified by the number of buildings per acre. The higher the density, the less suitable that location is for a potential transmission line.
Building Proximity	The Building Proximity layer considers the most suitable location for a new transmission line is beyond 1 km from a building. The least suitable areas are within 100 m of a building.
Linear Infrastructure	The Linear Infrastructure layer is characterized by two options; either the location is parallel to existing infrastructure or the location is not. The areas that are parallel to existing linear infrastructure are more suitable for a new transmission line.
Non-Indigenous Known Cultural Resources	The Non-Indigenous Known Cultural Resources layer considers cultural resources that have been identified from non-indigenous sources.
Landscape Character (Visual Sensitivity)	The Landscape Character (Visual Sensitivity) layer is a weighted average of the following visual indices: Commercial Outpost Camps (6.7), Remote Campsite (7.1), Residential Land (7.7), Canoe Routes/Trails (7.7), Restricted Access Lakes (5.5), Known Cultural Resources (7.6), Resort Lodges and Campgrounds (8.1), and Cottage Areas (9). A visual analysis was performed on each of these features and normalized on a value of 1 to 9 with 9 being the most visible and 1 is not visible. The visual indices were then combined using a weighted average. Any location on the map that was beyond 5.6 km is judged to be beyond a visual impact for this analysis.
Biodiversity Gap Analysis	A Biodiversity Gap Analysis layer is utilized in the Natural Perspective to analyze the probability of each are to have a good representation of biodiversity as opposed to poor representation. Areas with a good representation are considered less suitable. The biodiversity gap analysis was performed by MNRF.
Wildlife Connectivity Index	The Wildlife Connectivity Index layer resulted from the analysis of areas to determine the probability of wildlife utilization. The lower the connectivity, the less likely the wildlife will utilize the location and the higher the connectivity the more likely wildlife will use that location. Areas with higher the connectivity are considered less suitable for a transmission line. The index was created by MNRF.
Linear Infrastructure	The Linear Infrastructure layer considers co-locating with roads, railroads, pipelines, provincial highways, and transmission lines. Least suitable are locations where there is no opportunity to parallel existing linear infrastructure. Areas parallel to existing transmission lines are considered the most suitable areas within this layer.
Spannable Waterbodies	The Spannable Waterbodies layer categorizes waterbodies based on the distance it would take for a transmission line to span them. This layer assumes a standard structure span would be 330 m and a specialty structure can span 420 m. Waterbodies than span further than 420 m would fall into the "Non Spannable Waterbodies" category. These are the least suitable locations for a transmission line. The most suitable location is an area without waterbodies.

2.3 Alternative Corridor Identification

Considering the developed siting model and the collected GIS data, a suitability map representing the simple average of all perspectives was created. As presented in **Figure 2-2**, lands in green followed by those in yellow are most suitable and lands in red are least suitable based on the Project siting model that considers input received to date from stakeholders and Indigenous communities.

The generated suitability map was used to develop alternative corridors for each perspective which were created by calculating the top three percent of all routes to connect the three transformer station sites. A composite of the alternative corridors was created and is presented in **Figure 2-3**.

More current and detailed building information was also collected to support corridor identification.

During the corridor identification process, Hydro One identified that there is a potential long-term need to provide an additional transmission connection to Birch TS, which is located in the City of Thunder Bay. As a result, the initial study area included areas that would enable the Project to be brought closer to Birch TS. The areas near Birch TS were examined. Through this process it was determined that connecting the transmission facility to Birch TS would require a route that passes in close proximity to dense residential development and would add about 15 km to the overall route length, adding cost and potential effects. Considering the additional cost, potential effects, and that the connection to Birch TS is not an immediate requirement, an alternative corridor extending southwest to the vicinity of Birch TS was not identified.

Refined Route Selection Study Area

Considering the generated suitability map and alternative corridors, a Refined Route Selection Study Area (RRSSA) was identified on the project website in May 2020 to present to the public as an update to the route selection process prior to the release of the draft ToR. The RRSSA excludes some designated sensitive areas that were previously included in the RSSA (e.g., Turtle River-White Otter Lake Provincial Park, Campus Lake Conservation Reserve, White Otter Enhanced Management Area, etc.) and includes additional egress/ingress routes from Lakehead TS (e.g., TransCanada/TC Energy pipeline north of Lakehead TS).

In general, the RRSSA includes those lands considered to be more suitable for a new transmission line and, as noted previously, was shaped by the high importance placed on co-location with existing infrastructure by workshop participants.

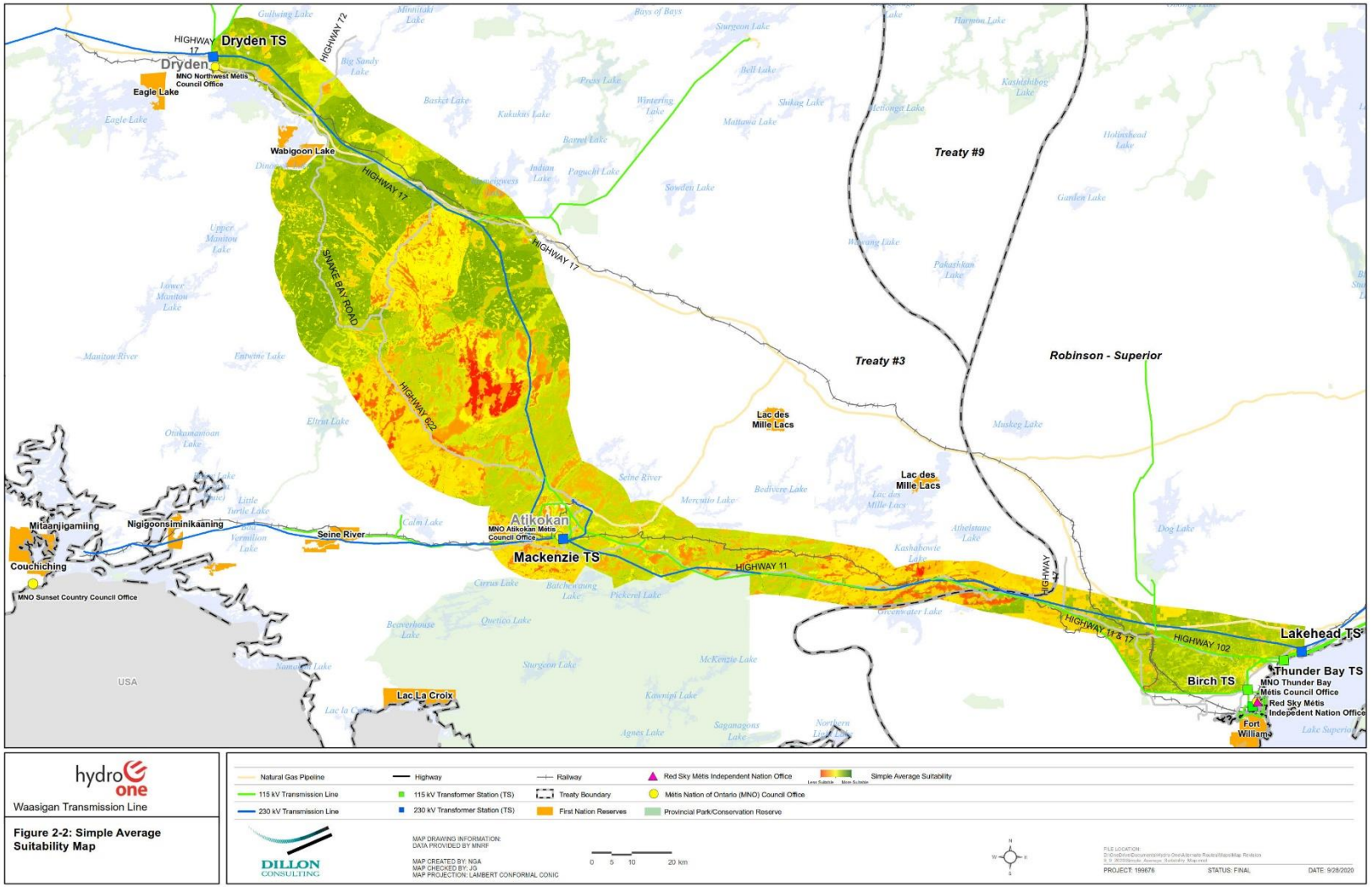

Figure 2-2: Simple Average Suitability Map

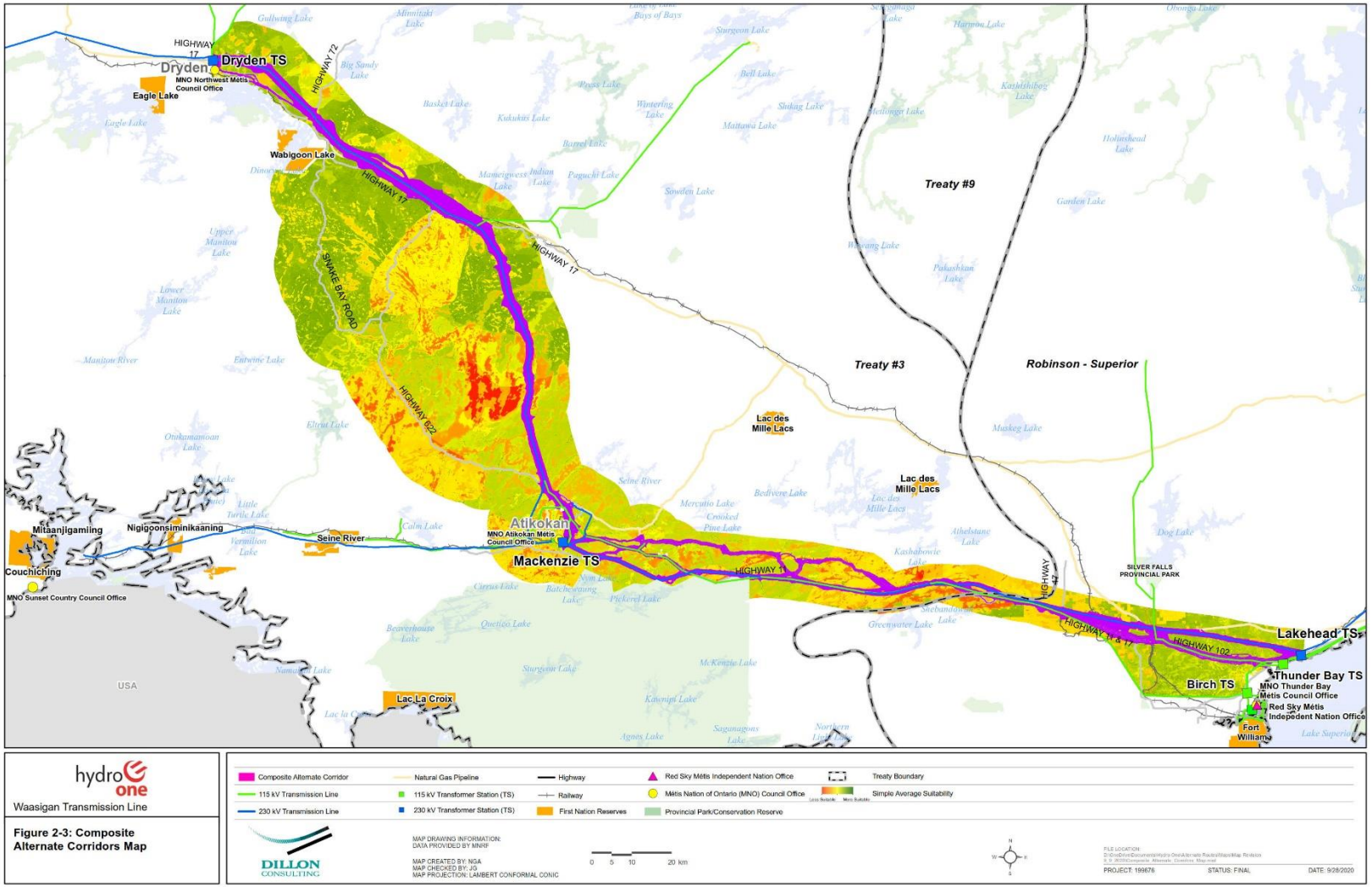

Figure 2-3: Composite Alternatives Corridors Map

2.4 Identification of Alternative Routes

Once the composite corridor was identified (Figure 2.3), the next step was to identify alternative routes within it. The following provides a summary of the alternative route identification process. To characterize the preliminary alternative routes, it was assumed that, for modelling purposes, an average 45 m ROW would be required for a greenfield route and an average 40 m ROW when paralleling an existing transmission line would be required.

Decisions related to identifying alternative routes were based on a variety of factors, including consultation, input and data received during the Corridor Workshops (e.g., overwhelming consensus to co-locate with existing similar infrastructure in the area in all three perspectives), the general character of the area (e.g., land use and location of sensitive features), the type and location of existing, previously disturbed ROWs that could potentially be paralleled (e.g., many are located very close to each other thus not providing any material difference), and a preference for co-location with existing infrastructure when possible, as outlined in the PPS (2020).

Also considered in alternative route identification (and to be further considered during the EA, as warranted), as referenced in the Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario (MECP, 2014), were the following screening criteria:

- Do they provide a viable solution to the problem or opportunity to be addressed?
- Are they proven technologies?
- Are they technically feasible?
- Are they consistent with other relevant planning objectives, policies and decisions (e.g., PPS)?
- Are they consistent with provincial government priority initiatives (e.g., waste diversion, energy efficiency, source water protection, reducing greenhouse gas emissions)?
- Could they affect any sensitive environmental features (e.g., provincially significant wetlands, prime agricultural area, endangered species habitat, floodplains, archaeological resources, built heritage resources or cultural heritage landscapes)?
- Are they practical, financially realistic and economically viable?
- Are they within the ability of the proponent to implement?
- Can they be implemented within the study area?
- Are they appropriate to the proponent doing the study?
- Are they able to meet the purpose of the EA Act?

The Project team also took into account several general routing considerations when identifying alternative routes organized on the basis of: natural environment, socio-economic, technical (including constructability and typical costs) and Indigenous considerations. These considerations were developed using input received from the Corridor Workshops and other engagement activities as well as technical expertise of the Project team. Natural environment routing considerations generally included those that minimize effects to natural environment features, such as avoidance of wetlands, waterbodies, wildlife and protected areas, to the extent possible. Socio-economic routing considerations included those that minimize effects to land use features, such as residences, camps, recreational properties, commercial and industrial developments, built-up areas, mines and other infrastructure, and constrained infrastructure ROWs. Technical routing considerations included those that minimize the overall length of the transmission facility, minimize crossing of existing transmission facilities which reduces overall system security, reduce the number of angles or corners which require larger and more specialized tower structures, and avoidance of rugged topography which may be unstable, challenging to access and result in higher cost. Indigenous routing considerations include those that would minimize potential effects on features that had been identified as important to Indigenous communities to date, such as cultural/spiritual areas and landscapes of importance. These considerations, among others, contributed to the identification of potential alternative routes.

Table 2-7 provides the general routing considerations that were taken into account when identifying potential routes and selection of alternative routes.

Table 2-7: General Routing Selection Considerations

Factor	Rule
Natural	Minimize potential disturbance to significant natural features (e.g., Areas of Natural and Scientific Interest [ANSIs], species at risk [SAR], SAR habitat, environmentally sensitive areas, wetlands, waterbodies, Significant Wildlife Habitat), critical Landform/Vegetation types and adhere to appropriate setback requirements. Minimize potential disturbance to significant natural features (e.g., ANSIs, SAR, environmentally sensitive areas, wetlands and waterbodies), critical Landform/Vegetation types and adhere to appropriate setback requirements.
	Minimize watercourse crossings and reduce potential for effects to woodlands, wetlands, fish and wildlife habitats, and natural areas. Minimize use of areas with unstable slopes.
Socio-Economic	Maximize the distance from cultural heritage resources (i.e., archaeological, built heritage resources and cultural heritage landscapes).
	Minimize incompatibility with existing sensitive land uses (e.g., First Nation reserves, residences and built-up areas, agricultural lands, forest management areas, mining claims).
	Minimize the use of private properties (e.g., use of existing ROW is favoured to minimize disruption to property owners, primarily dwellings).
	Minimize potential disturbance to adjacent residences (and known traditional lands) which may be affected by construction activities.
	Minimize potential disturbance to adjacent commercial and industrial properties which may be affected by construction activities.
	Minimize potential disturbance to adjacent institutional and recreational properties which may be affected by construction activities, including tourism areas.
	Maximize conformity with local land use policy.
Technical	Minimize potential disruption to local traffic.
	Minimize potential effects to water wells, aquifer recharge areas and active mining/aggregate operations.
	Find the shortest and most direct routes.
	Minimize rail and road crossings.
	Minimize use of areas with an insufficient amount of construction work space or uneven terrain.
	Minimize the number of overhead transmission line crossings.
	Maximize use of existing roads and infrastructure corridors (where appropriate) in order to minimize potential environmental effects.
	Select the best topographical/terrain areas for the route (dry, flat and stable ground is favourable).
Indigenous	Minimize effects to traditional use of land and resources.
	Minimize potential disturbance to cultural and/or spiritual areas and sites.
	Minimize potential disturbance to landscapes of importance.

Other considerations taken into account in the identification of alternative routes are described below.

In regards to the paralleling of pipelines, the proximity of transmission lines to a pipeline has the potential to cause increased corrosion on metal. As a result, increased corrosion protection is generally required for pipelines located near transmission lines, and retrofitting an existing pipeline can be more difficult than installing cathodic protection on a new pipeline.

Rail lines typically have curves and bends that are not conducive to the straight lines that are favourable for electric transmission lines. Electrical effects associated with transmission lines could also create issues for the electrical switching used by rail lines. From an infrastructure security standpoint, transmission lines should be setback some distance from rail lines in the event of an incident, or collision, to minimize potential interference and/or facility damage.

Similarly, MTO requires that new transmission lines be setback from provincial highways to accommodate future highway expansions and to protect travellers from incidents and collisions (minimum distance of 14 m). In cases to accommodate expansion plans, the setback distance could be greater. As well, the highways in the RSSA also have several curves and bends that are not generally favourable for transmission line routing which tend to prefer straighter runs.

Generally, the more a transmission line meanders, the less technically feasible it becomes. Meandering transmission lines are also less practical, financially realistic and economically viable as this typically increases their total length and design complexity, and requires more dead-end structures, angle towers or corners, which generally increases overall cost and potential effects to the natural and socio-economic environment.

Finally, greenfield routes tend to have greater potential for increased natural and socio-economic effects, primarily during the construction period when compared to widening an existing, previously disturbed ROW. Required new access for construction can also adversely affect the natural and socio-economic environment.

Considering the above, alternative routes were identified for the following study area sections and are described below.

- Section 1 – City of Thunder Bay (Lakehead TS) to the Town of Atikokan (Mackenzie TS);
- Section 2 – Town of Atikokan;
- Section 3 – North Atikokan to Wabigoon Lake; and,
- Section 4 – Wabigoon Lake to the City of Dryden (Dryden TS).

2.4.1 Section 1 – City of Thunder Bay (Lakehead TS) to the Town of Atikokan (Mackenzie TS)

The area between the City of Thunder Bay and Town of Atikokan is generally characterized by rugged topography, waterbodies and watercourses, wetlands, forested areas, protected areas (e.g., Kashabowie Provincial Park, Quetico Provincial Park) and sporadic residential and commercial development. Some of the more densely settled areas in the RSSA are located immediately west of the City of Thunder Bay.

There are also several existing, previously disturbed ROWs in this area that are all located in close proximity to each other, including an existing 230 kV transmission line, a 115 kV transmission line, Highway 11/17, a small section of a natural gas pipeline (TransCanada/TC Energy) and a Canadian National Railway (CNR) rail line.

The following alternative routes, as illustrated in **Figures 2-4** to **2-6**, have been identified.

- Alternative Route 1, 230 kV Transmission Line (**Figure 2-4**)
  - This route starts at Lakehead TS in the Municipality of Shuniah and travels northwest along the existing 230 kV transmission line before terminating at Mackenzie TS in the Town of Atikokan. Both sides of the existing 230 kV transmission line ROW will be considered in the EA.
- Alternative Route 1A, TransCanada/TC Energy Pipeline (**Figure 2-4**)
  - As an alternative to following the 230 kV transmission line directly out of Lakehead TS, this route follows the existing TC Energy (TransCanada) pipeline for a distance of approximately 35 km before joining the 230 kV transmission line and then continuing along it in a westerly direction. Both sides of the existing pipeline will be considered in the EA.
- Alternative Route 1B, 115 kV Transmission Line (**Figure 2-5**)
  - As an alternative to following the 230 kV transmission line directly out of Lakehead TS, this route follows the existing 115 kV line for a distance of approximately 40 km. Both sides of the existing 115 kV transmission line ROW will be considered in the EA.
- Alternative Route 1C, 115 kV Transmission Line (**Figure 2-6**)
  - At the west end of this section, this route runs to the north of Alternative Route 1 (which follows the 230 kV Transmission Line) to follow an existing 115 kV line starting south of Eva Lake and then extends into Mackenzie TS. Based on information collected to date, this route appears to come into proximity to a greater number of buildings and recreation properties than Alternative Route 1 but there may be opportunities to reduce this. Both sides of the existing 115 kV transmission line ROW will be considered in the EA.

Between Thunder Bay to Atikokan, particularly from Eva Lake to the Kaministiquia River, the siting model identified a single route that runs along the existing 230 kV line transmission line. The section along the north side of Shebandowan Lake, just south of Kashabowie Provincial Park, has been identified as a sensitive area. It is an area governed by CLUPA and the Shebandowan Lake Management Plan. The potential for other alternative routes around this area was reviewed; however, the presence of large waterbodies north and south of this area limits the feasibility of alternatives routes. To the north is Kashabowie Lake and the larger Lac des Mille Lacs Lake, including the lands dedicated to the LDML First Nation. To the south is Greenwater Lake which is also a lake of considerable size. To avoid these large water bodies would require the development of a new "greenfield" route that would need to be located a considerable distance away from the existing 230 kV transmission line. This would add to the route length and increase potential effects, including the creation of new access into more remote lands. For these reasons, alternative routes in the Shebandowan Lake area were not identified.

From the Shebandowan Lake area to Eva Lake, there is a rail line located to the north of the existing 230 kV transmission line ROW which was also examined. Following rail lines tends to be more challenging due to their winding nature. To minimize the length of the route, straighter sections of greenfield route would be required which would be located away from the rail line and which would contribute to greater impact. Considering that no major significant natural features have been identified along the existing 230 k V transmission line ROW, following the rail line was not explored further as an alternative route.

During the EA, Hydro One will consult with the MNRF, Indigenous communities, and local stakeholders, including local cottager associations and individual cottagers to gather feedback, identify concerns, and make effort to minimize, if not avoid, adverse potential effects.

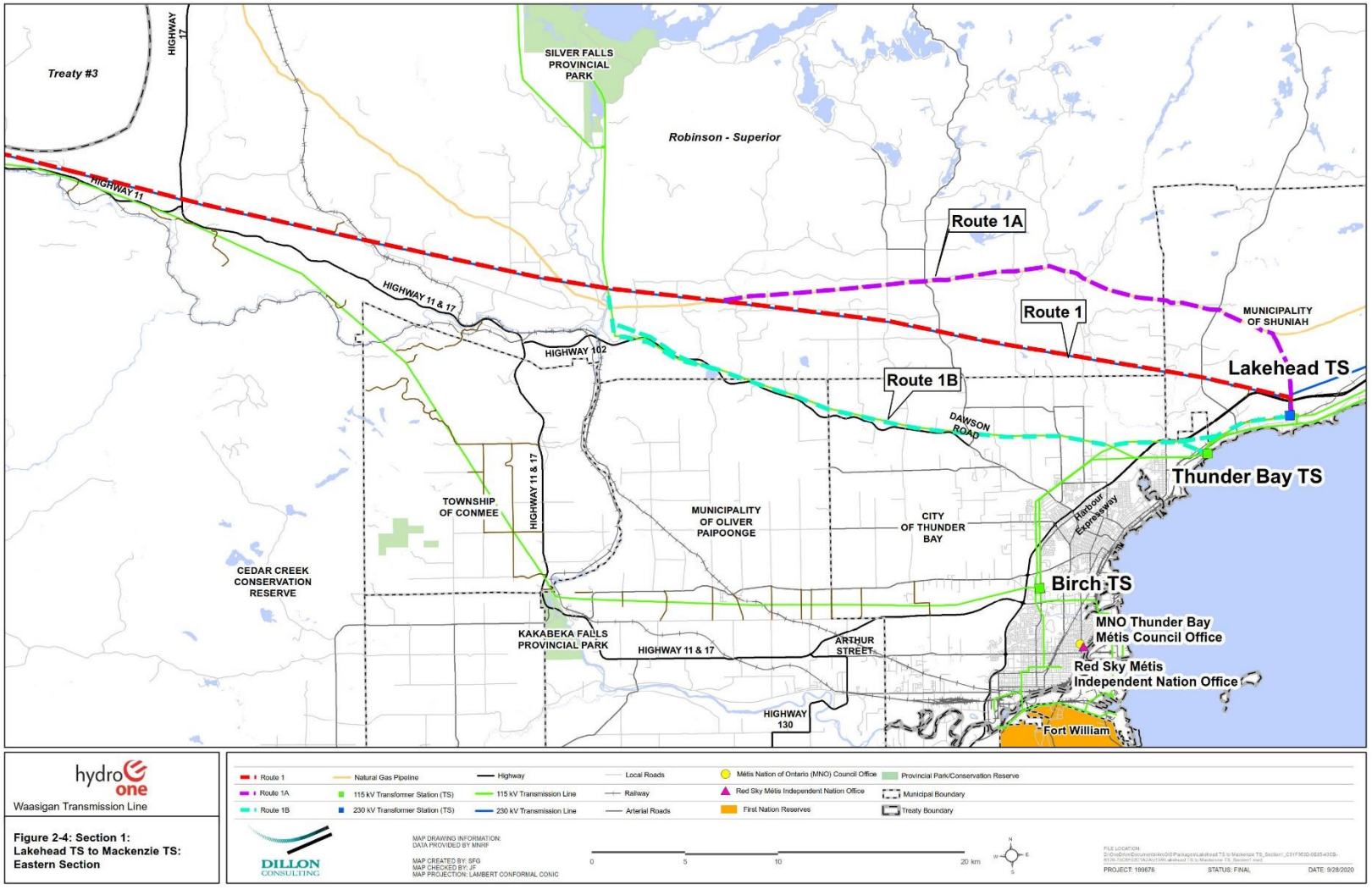

Figure 2-4: Section 1: Lakehead TS to Mackenzie TS- Eastern Section

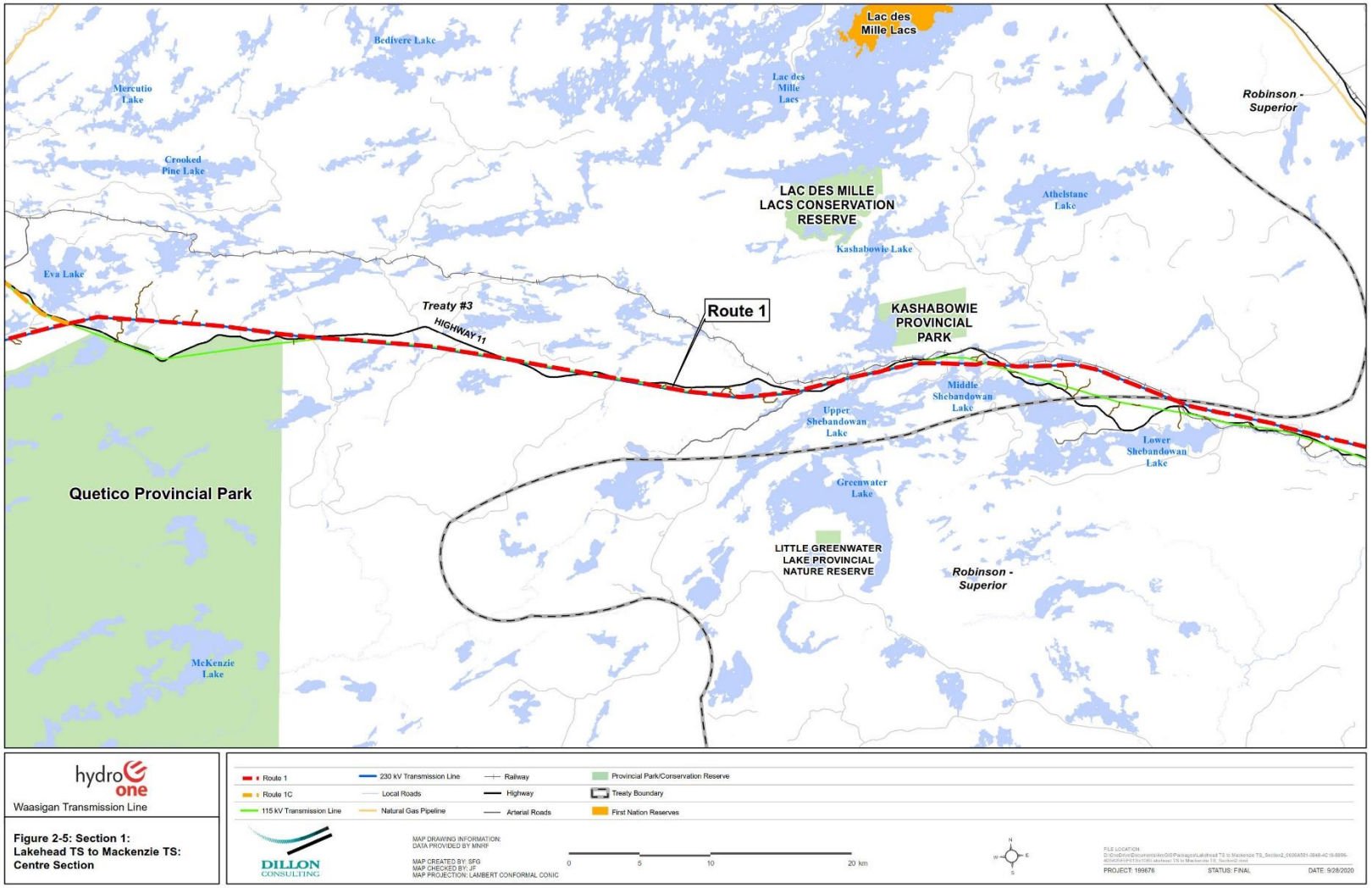

Figure 2-5: Section 1: Lakehead TS to Mackenzie TS - Centre Section

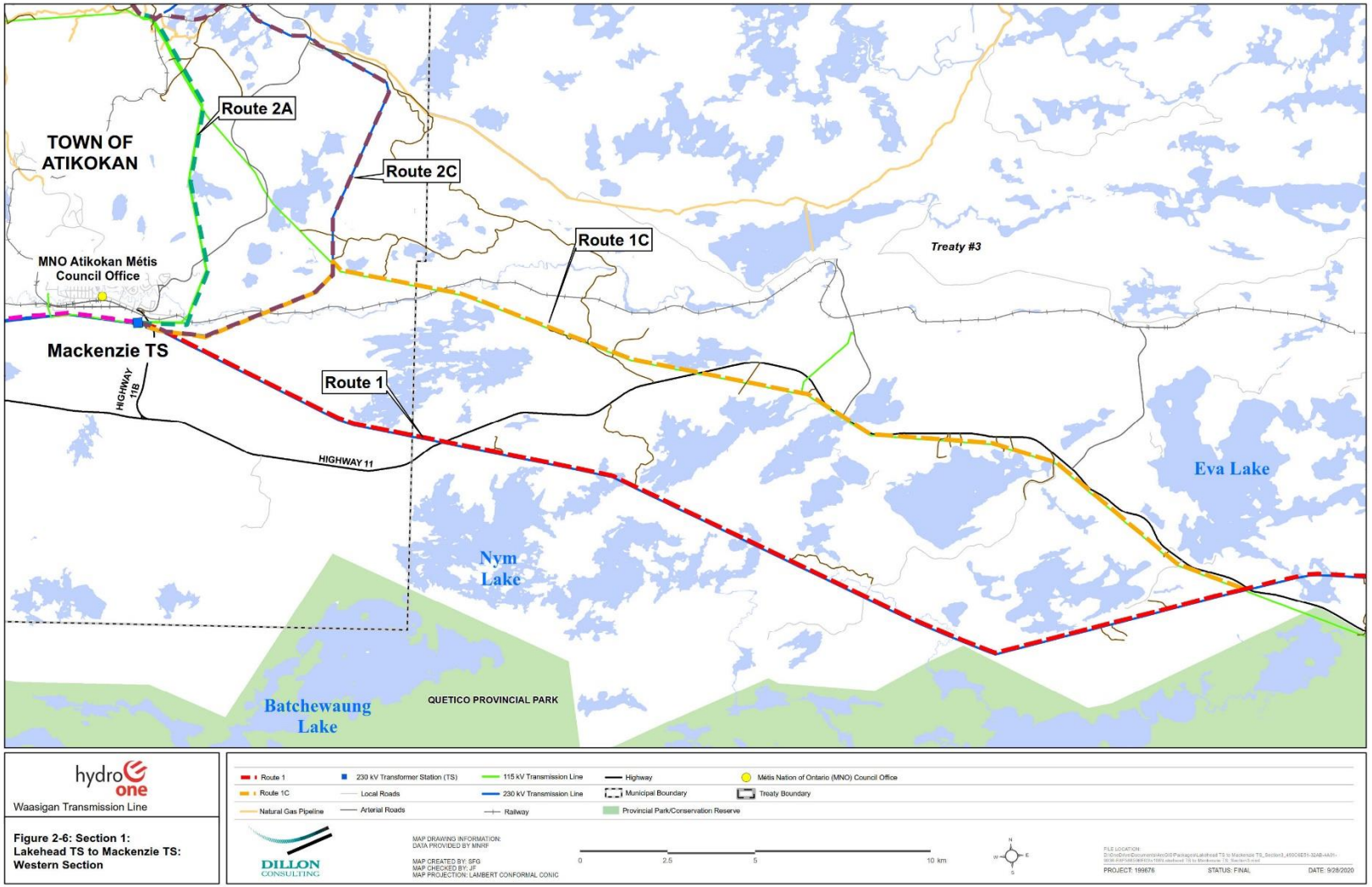

Figure 2-6: Section 1: Lakehead TS to Mackenzie TS - Western Section

2.4.2 Section 2 – Town of Atikokan

The Town of Atikokan includes a populated area located close to the south end of the town limits near the Mackenzie TS and Highway 11, a small municipal airport, as well as natural features, such as waterbodies and watercourses, and forested areas.

The Atikokan Generating Station is located along Highway 622 at the northeast limit of the town with a 230 kV transmission line connection south to Mackenzie TS, a 230 kV transmission line along the west end of the towns limit, as well as several 115 kV transmission lines located along the east end of the town limit and another that bisects it. A CNR rail line and a natural gas line cross through the centre of the town. The Atikokan pellet plant operated by BioPower Sustainable Energy Corporation is located at the west end of Atikokan.

The former Steep Rock mine property is also in the Study Area just north of the populated area of Atikokan near the CNR rail line. According to information provided by the Town of Atikokan, these mines were first opened in 1943 and supplied raw materials for everything from World War Two Hawker Hurricanes (made in Thunder Bay) to toasters and nails in the late 1970s. This mine has been abandoned and is currently following a rehabilitation plan to address the potential for overflow impacts.

The alternative routes identified in Section 2 are discussed below and illustrated in **Figure 2-7.**

- Alternative Route 2A, 115 kV Transmission Line
  - This route starts at the south end of the Town of Atikokan at Mackenzie TS and travels north along an existing 115 kV transmission line to the north end of the town where it terminates. This route avoids the more heavily populated areas and abandoned mines in the area. Both sides of the existing 115 kV transmission line ROW will be considered in the EA.
- Alternative Route 2B, 230 kV Transmission Line
  - This route starts at the south end of the Town of Atikokan and travels west along the existing 230 kV transmission line and then north to the north end of the town where it terminates. This route avoids the more heavily populated areas and abandoned mines in the area. Both sides of the existing 230 kV transmission line ROW will be considered in the EA.
- Alternative Route 2C, 230 kV Transmission Line (Atikokan Generating Station)
  - This route follows the existing 230 kV transmission line ROW that extends to the Atikokan Generating Station and would require an approximate 500 m greenfield section to

connect back with the existing main 230 kV transmission line ROW. Both sides of the existing 230 kV transmission line ROW will be considered in the EA.

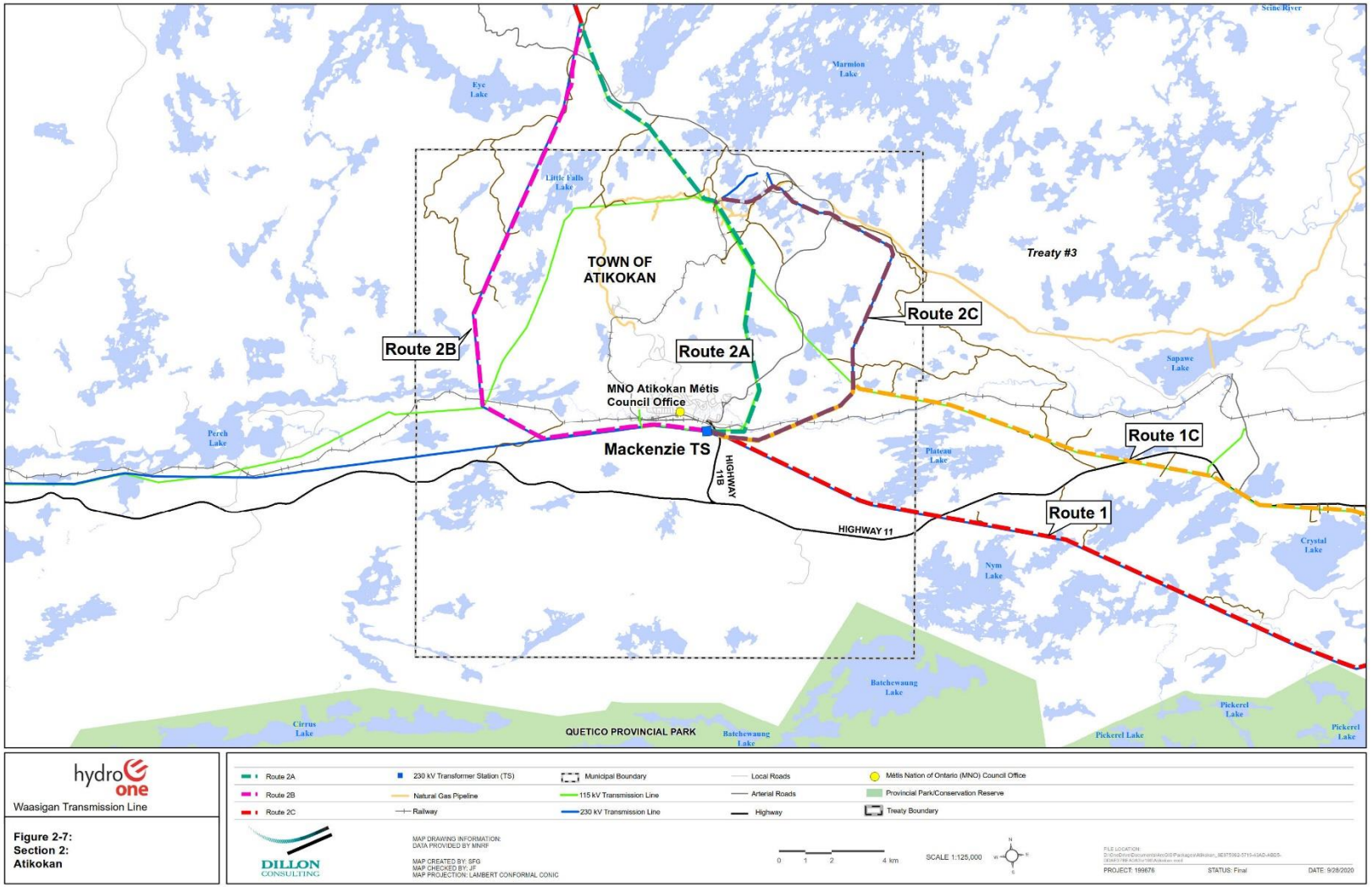

Figure 2-7: Section 2: Atikokan

2.4.3 Section 3 – North Atikokan to Wabigoon Lake

This section includes the area between the north end of the Town of Atikokan and Wabigoon Lake to the north. The area is characterized primarily by rugged topography, waterbodies and watercourses, wetlands, forested areas, protected areas (e.g., Turtle River-White Otter Lake Provincial Park, Campus Lake Conservation Reserve, White Otter Enhanced Management Area, East Wabigoon River Conservation Reserve, etc.), and includes mines in various stages of development, areas with mining claims, and logging and tourism-based activities (e.g., outpost camps).

Existing, previously disturbed ROWs in this area that travel north from the Atikokan area to Wabigoon Lake include a 230 kV transmission line and a 115 kV transmission line. Non-transmission line ROWs, including Highway 622 and Snake Bay Road, are also present west of the 230 kV and 115 kV transmission lines that avoid some of the protected areas mentioned above, but still cross the Turtle River-White Otter Lake Provincial Park. Farther north of this section, additional ROWs are present in close proximity to each other and the 230 kV transmission line, including Highway 17, a natural gas pipeline, and a CPR rail line.

The alternative routes identified in Section 3 are discussed below and illustrated in **Figure 2-8**. It is noted that for this section, some alternative routes were identified that are located outside of the composite corridor presented previously in **Figure 2-3.** The corridors represent the top three percent of all possible routes that the siting model generates. The corridors are intended to be used as a starting point to guide the Project team in route identification and selection. While the Highway 622/Snake Bay Road corridor did not show up in composite corridor map, it did present strongly from a natural heritage perspective and also provide an additional crossing location of the potentially sensitive Turtle River-White Otter Lake Provincial Park. These routes also avoid the crossing of the Campus Lake Conservation Reserve and the White Otter Enhanced Management Area.

As such, to avoid potentially sensitive areas and to offer additional route alternatives for more detailed consideration in the EA, alternative routes along this road system were identified as described below.

- Alternative Route 3A, 115/230 kV Transmission Line
  - This route starts at the north end of the Town of Atikokan and travels in a northwestern direction along the existing 115/230 kV transmission line ROW to the Wabigoon Lake area where it terminates. The 115/230 kV transmission line ROW was identified as an existing, previously disturbed ROW that is direct and could take advantage of existing

access roads. Both sides of the 115/230 kV transmission line ROW will be considered in the EA.

- Alternative Route 3B, Highway 622/Snake Bay Road
  - This route starts at the north of the Town of Atikokan and follows Highway 622 and Snake Bay Road until it terminates in the Wabigoon Lake area. This route provides an additional crossing alternative of the Turtle River-White Otter Lake Provincial Park, and avoids crossing the Campus Lake Conservation Reserve and White Otter Enhanced Management Area; however, would require a crossing of the East Wabigoon Conservation Reserve.

- Alternative Route 3C, Highway 622/230 kV Transmission Line
  - This route starts in the vicinity of Highway 622 and Snake Bay Road and follows Highway 622 until it terminates at the 230 kV transmission line. This route provides an additional crossing alternative of the Turtle River-White Otter Lake Provincial Park, and avoids crossing the Campus Lake Conservation Reserve and White Otter Enhanced Management Area.

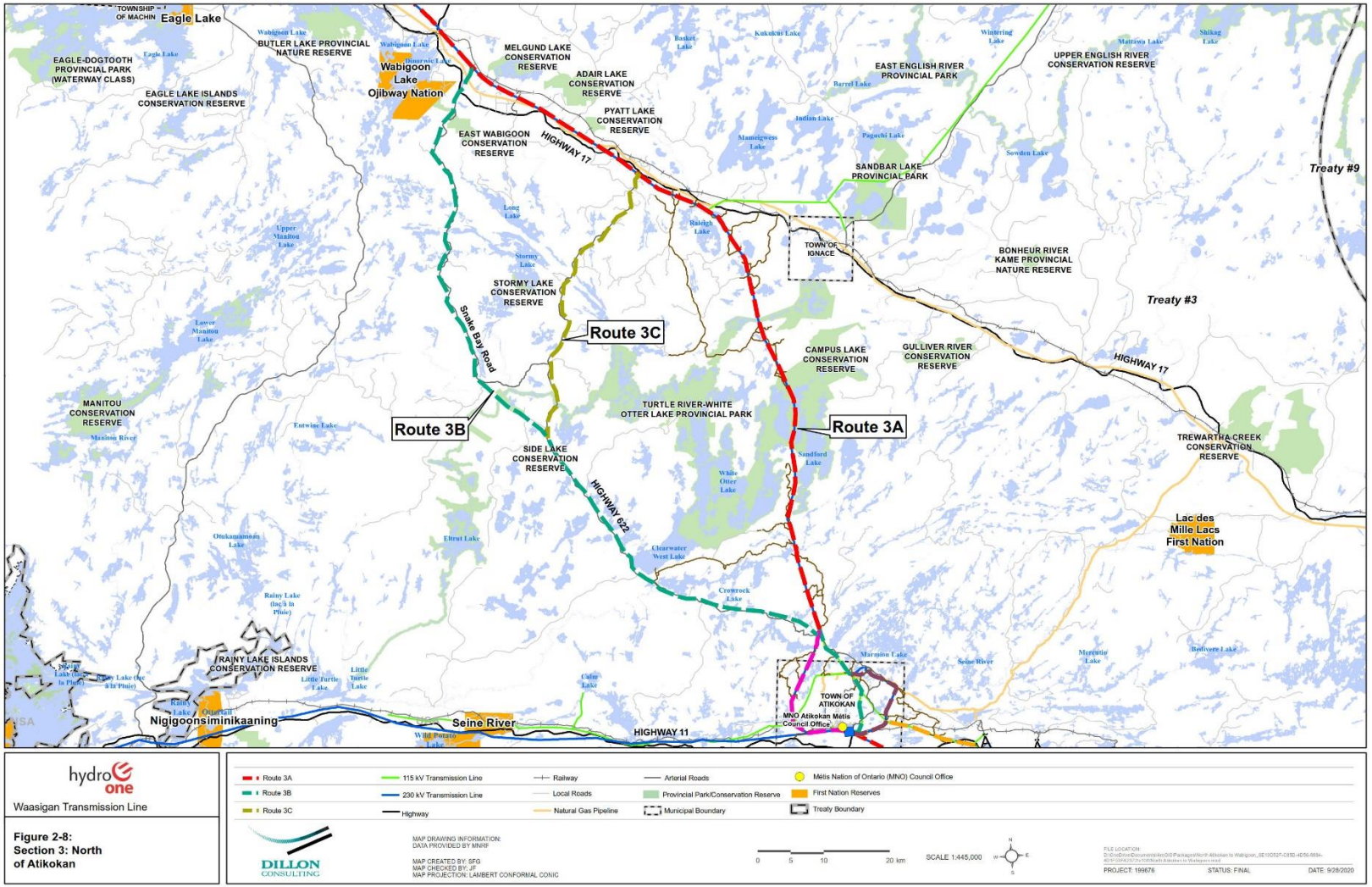

Figure 2-8: Section 3: North of Atikokan

2.4.4 Section 4 – Wabigoon Lake to the City of Dryden (Dryden TS)

This section includes the area from north Wabigoon Lake to the City of Dryden. The area is naturally characterized primarily by rugged topography, large waterbodies (e.g., Wabigoon Lake, Thunder Lake), watercourses, wetlands, and forested areas.

There are several existing, previously disturbed ROWs in this area that are grouped in two distinct areas. The first is an existing side-by-side 230 kV and 115 kV transmission line ROW that travels northwest towards Thunder Lake and then west to the City of Dryden. The second area of infrastructure ROWs is located on the south side of Thunder Lake (between Thunder Lake and Wabigoon Lake) and contains Aaron Provincial Park, a CPR rail line, natural gas pipeline, and Highway 17; however, this area is fairly congested (both from an infrastructure and residential perspective), travels directly towards Aaron Provincial Park and the City of Dryden, and infrastructure is significantly less linear than the 230/115 kV transmission lines on the north side of Thunder Lake. For these reasons, an alternative route was not identified for this second area located south of Thunder Lake.

The alternative route identified in Section 4 is discussed below and illustrated in **Figure 2-9**.

- Alternative Route 4, 115/230 kV Transmission Line
  - This route starts in the Wabigoon Lake area and travels northwest along the existing 115/230 kV transmission line ROW until it terminates at Dryden TS. This route was identified as an existing, previously disturbed ROW in this area and could take advantage of existing access roads. Both sides of the 115/230 kV transmission line ROW will be considered in the EA.

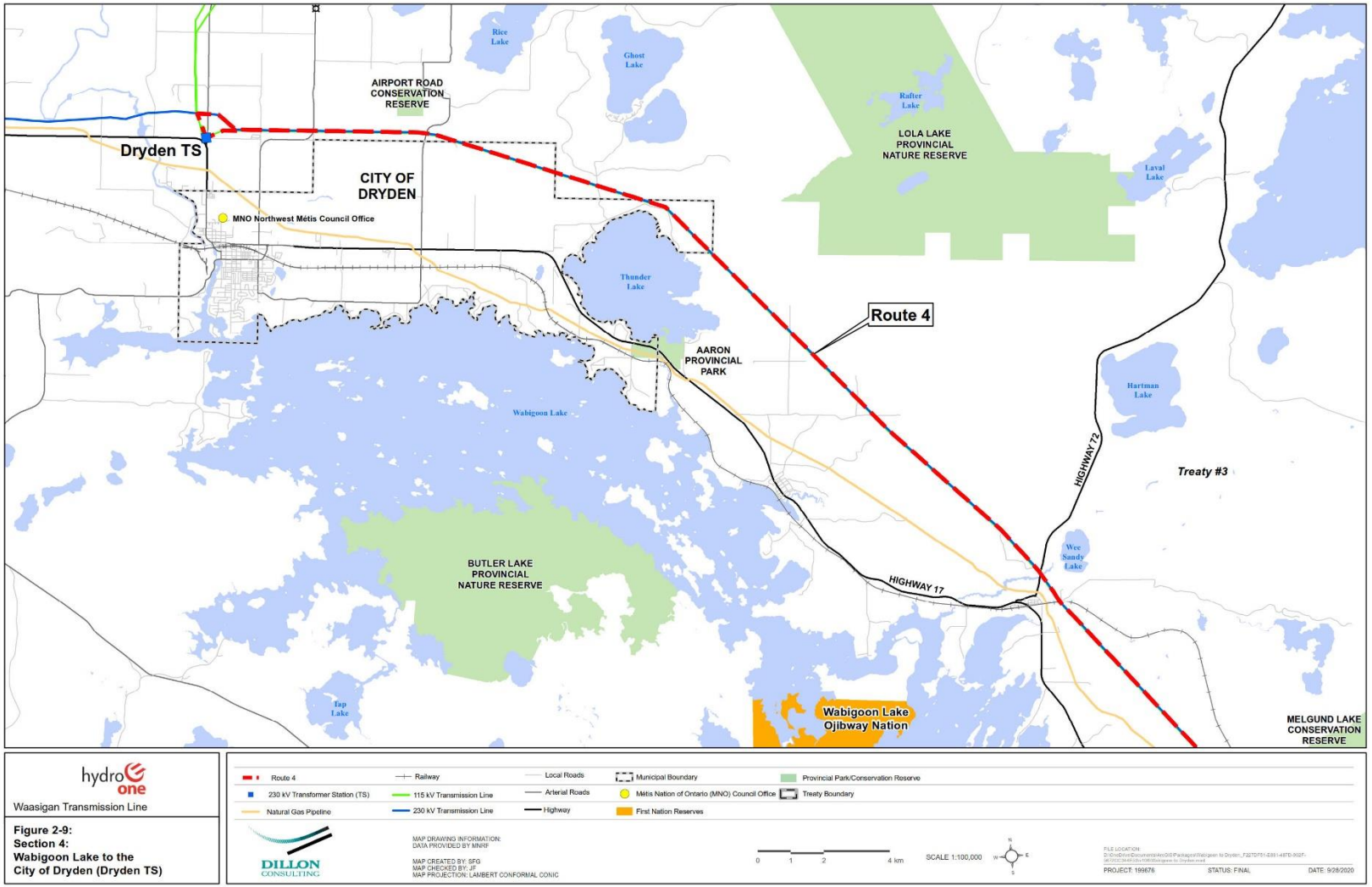

Figure 2-9: Section 4: Wabigoon Lake to the City of Dryden (Dryden TS)

2.4.5 Separating Circuits F25A and D26A

As previously noted, the Project includes the separation of two existing 230 kV transmission circuits out of Mackenzie TS in Atikokan (circuits F25A and D26A). Approximately 2.5 km of these two circuits located west of Mackenzie TS currently share one set of structures.

Approximately 1 km of this double-circuit section of transmission line will need to be separated into two single-circuit sections (without sharing structures), as required by the North American Electric Reliability Corporation (NERC) transmission planning standard. **Figure 2-10** illustrates the location and extent of the line to be separated. It is anticipated that the existing ROW will be widened to accommodate the new single-circuit line and support towers. The side of the ROW that is to be widened will be determined in the EA, taking into account natural and socio-economic features, as well as technical and Indigenous considerations.

2.5 Consultation on the Alternative Routes

The alternative routes described above were included in the draft ToR that was released in June 2020 to Indigenous communities, government officials and agencies, the public and interested persons. The alternative routes were also presented in an interactive map made available on the Project website that allowed for a more detailed examination of the alternative routes.

No specific comments were received on the alternative routes that resulted in their adjustment. Comments were received from property owners located along existing infrastructure corridors which the alternative routes follow expressing concern about property impacts should the preferred route be selected in these areas. The comments are included in the Record of Consultation. Concerns of these landowners will be considered in the route evaluation to be undertaken in the EA.

Ontario Parks expressed concern about the potential for the routes and other Project components being located within provincial parks or conservation reserves. Hydro One acknowledges this concern and will take this into account in the future route evaluation work to be conducted in the EA.

There were no comments received from Indigenous communities about specific sections of the alternative routes presented in the draft ToR. Concerns expressed were of a general nature, such as the MNO expressing concern about the use/preference for crown land for the transmission line.

Hydro One did receive a request from LDML to consider an additional alternative route which would follow Sapawe Road north to LDML Reserve 22A2. As discussed with Hydro One on September 3, 2020, LDML Chief and Council would like this route considered as they believe it would reduce environmental impacts by following an existing road and it would provide economic opportunities to the community to have the new transmission line close to this reserve.

Hydro One responded to LDML in a letter that it had received direction from the IESO to develop a new transmission line that connects Thunder Bay, Atikokan and Dryden. The route proposed by LDML would deviate significantly from these connection points. In addition, the proposed new line between Thunder Bay and Atikokan will be 230 kV, or high-voltage, which would not be capable of supplying electricity directly to the reserve as a low-voltage distribution line would be required. It was further noted that if the community has concerns with the current electricity supply to this area, or would like to request a connection, that Hydro One could have this discussion which would take place out of the scope of the Project.

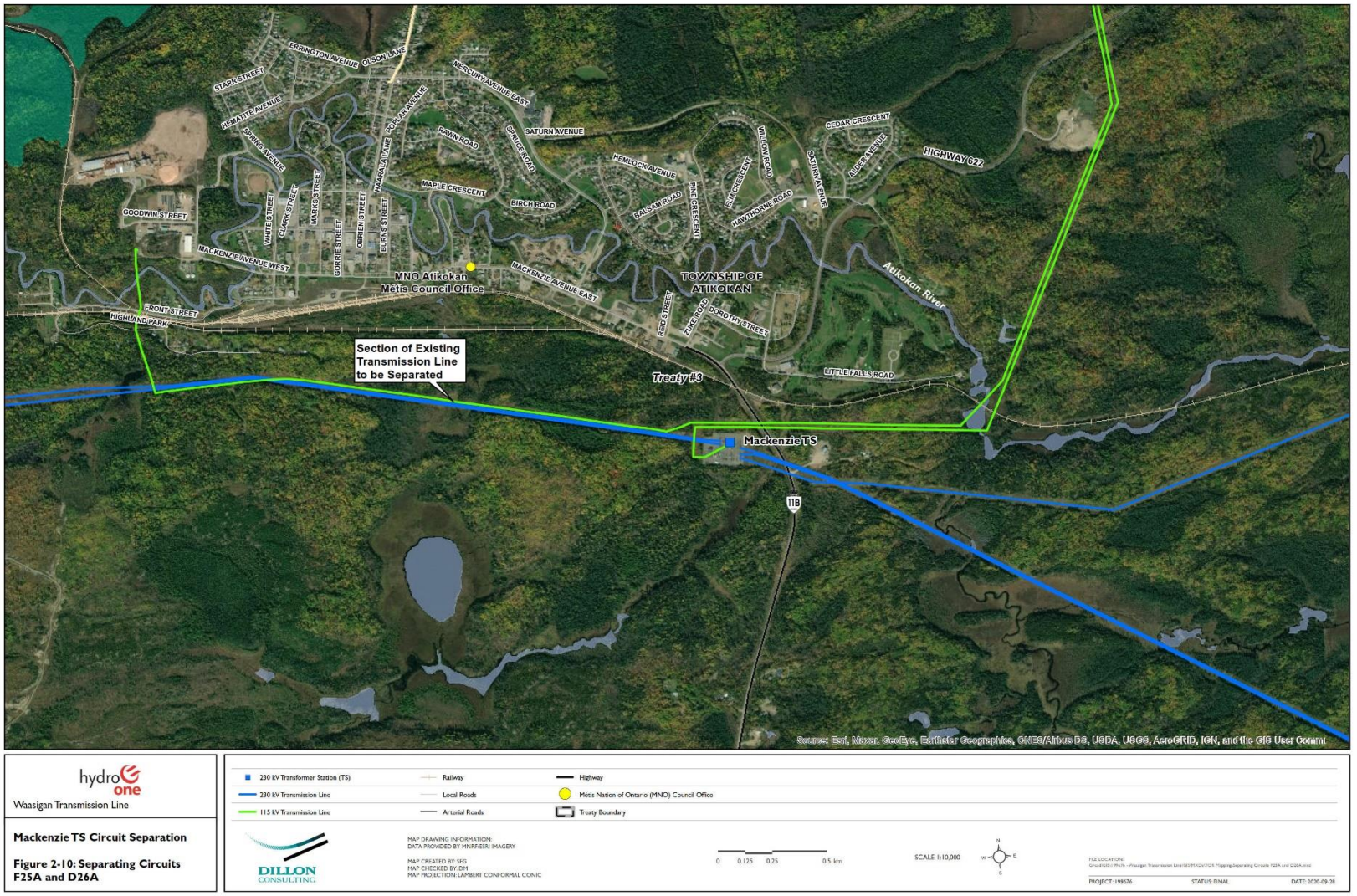

Figure 2-10: Separating Circuits F25A and D26A

Appendix A

Data Sources Used in Alternative Route Identification

Data Source Used in Alternative Route Identification

Source	Description	Layer Name (or report referenced) and Date Layer was Last Updated	Data Processing Completed (e.g., buffers, updated based on aerial imagery)
Agri_Foods_Canada	Agricultural (Forage)	Agricultural_Forage (July 2019)	N/A
City of Drden	Fish Sanctuary	Environmentally_Sensitive_Areas_Dryden/Fish_Sanctuary_Polygon_Dryden (July 2019)	N/A
City of Dryden	< 300 m of Cultural Heritage Landscapes (Municipal or Provincial)	Waverly_Park_Heritage_Conservation_District_300mBuffer/Candidate_Heritage_Conservation_Areas_300mBuffer (July 2019)	300 m Buffer Applied to Cultural Heritage Sites
City of Dryden	Existing & Planned Trails (Land and Water)	SnomobileTrails & Trails/Ont_Trail_Segment & Trail_Segment (July 2019)	N/A
City of Dryden/City of Thunder Bay/Town of Atikokan	< 300 m of Built Heritage Resources (Municipal or Provincial)	Built_Heritage_Resource_300mBuffer/Desingated_Heritage_Properties_300mBuffer/Listed_Heritage_Properties_Not_Formally_Desingated_300mBuffer/Cultural_Heritage_Built_Features_300mBuffer (July 2019)	300 m Buffer Applied to Cultural Heritage Sites
District of Fort Francis	Restricted Access Lakes + Specified Buffer (100-600m determined by MNRF) **	Tourism_Lakes (July 2019)	N/A
District of Fort Francis	Tourism Lakes	Toursim Lakes (July 2019)	N/A
ECOPIA	Buildings	Building (February 2020)	Yes/Data Check
ENDM	Abandoned Mines	ENDM_AMIS_FEATURES_NOV2018_200mBuffer (November 2018)	200 m Buffer
ENDM	Approved Resource Extraction (mine/pit/quarry)	Mineral_Deposits_MDI_ProducingMine1km (July 2019)	1 km buffer
ENDM	Former Steep Rock Mine Site	Steep_Rock_Mine_Site_Generalized (July 2019) (*Generalized 1kmx1km around AMIS Abandoned site)	1 km x 1km
ENDM	Historic Mine Workings	ENDM_AMIS_FEATURES_NOV2018_200mBuffer (July 2019)	N/A
ENDM	Historic Tailing Areas	ENDM_AMIS_FEATURES_NOV2018_1kmBuffer_HistoricTailings (July 2019)	N/A
ENDM	Lands Aliented by the Crown	Operational_Alienations_062619 (June 2019)	N/A
ENDM	Mineral Advanced Exploration	Advanced_Exporation_Permits_060619/Advanced_Exporation_Plans_060619 (June 2019)	N/A

Source	Description	Layer Name (or report referenced) and Date Layer was Last Updated	Data Processing Completed (e.g., buffers, updated based on aerial imagery)
ENDM	Mineral Deposits (e.g., Mineral Occurrence, Identified Aggregate Resource Areas)	Mineral_Deposits_MDI_300mBuffer (July 2019)	300 m Buffer
ENDM	Mining Act Land Use	Mining_Land_Tenure_062619 (June 2019)	N/A
ENDM	Mining Claim Areas	Operational_Cell_Claims (July 2019)	N/A
ENDM	Mining Early Exploration	OAFD_EarlyMiningExploration (July 2019)	N/A
Teranet	Municipally Owned Lands	NWTE_Parcel_x_StudyArea (July 2019)	N/A
Teranet	Private Land	NWTE_Parcel_x_StudyArea (July 2019)	N/A
Teranet	Provincially Owned Private Land (IO)	NWTE_Parcel_x_StudyArea (July 2019)	N/A
HONI	Transmission Lines	TxLine_x_WaasiganStudyArea (July 2019)	N/A
HONI	Transmission Lines	TxLine_x_WaasiganStudyArea_ROW (July 2019)	
LRCA	LRCA Regulated Floodplain	LRCA_Flood_Fill (July 2019)	N/A
LRCA	LRCA Regulated Wetland	Neebing_Evaluated_Wetlands (July 2019)	N/A
MNRF	Tourism Resorts	Tourism_Establishment_Resort (July 2019)	N/A
MNRF	Wildlife Connectivity Index	Landscape Connectivity - Raster Datasets (October 2019)	N/A
MNRF_Forest_Management_Plans	Active Forest Operations	Active_Harvest (August 2019)	N/A
MNRF_Forest_Management_Plans	Completed Forest Operations	Completed_Forest_Operations (August 2019)	N/A
MNRF_Forest_Management_Plans	Forest Aggregate Pits	Forest_Aggregate_Pits (August 2019)	N/A
MNRF_Forest_Management_Plans	Planned Forest Operations	Planned _Harvest (August 2019)	N/A
MNRF_Forest_Management_Plans	Moose Emphasis Areas	Moose_Emphasis_Areas_DRAFT (August 2019)	N/A
MNRF_LIO	Aggregate Pits/Quarries	Active_Aggregate_Pit_Site (July 2019)	N/A
MNRF_LIO	ANSI (Areas of Natural and Scientific Interest)	ANSI (July 2019)	N/A
MNRF_LIO	Aquatic Feeding Area	AQUATIC_FEEDING_AREA (July 2019)	N/A
MNRF_LIO	Aquatic Habitat Thermal Regime (e.g., cold, warm, unknown)	ARA_Water_Polygon/ARA_Water_Polyline (July 2019)	N/A

Source	Description	Layer Name (or report referenced) and Date Layer was Last Updated	Data Processing Completed (e.g., buffers, updated based on aerial imagery)
MNRF_LIO	Canoe Routes/ Land Trails	Ont_Trail_Segment/Trail_Segment (July 2019)	N/A
MNRF_LIO	CLUPA (e.g., Protected Areas, Recommended Protected Areas, Forest Reserve, Enhanced Management Area, Provincial Park and Conservation Reserves)	CLUPA_Provincial (July 2019)	N/A
MNRF_LIO	Commercial Outpost Camps	Tourism_Establishment_Area (July 2019)	N/A
MNRF_LIO	Cottage Areas	COTTAGE_RESIDENTIAL_SITE (July 2019)	N/A
MNRF_LIO	Existing & Planned Trails (Land and Water)	Ont_Trail_Segment & Trail_Segment (July 2019)	N/A
MNRF_LIO	Forest Resource Inventory (e.g., Agricultural (Crops), Settlement Area/City, Land Cover)	FRI_Forest_Resource_Inventory_MNRF (July 2019)	N/A
MNRF_LIO	Lake/Brook Trout Lakes	Lake_Trout_Lake_Join (July 2019)	N/A
MNRF_LIO	LRCA Conservation Area	Conservation_Authority (July 2019)	N/A
MNRF_LIO	Moose Calving Areas	CALVING_FAWNING_SITE (July 2019)	N/A
MNRF_LIO	Natural Gas Pipeline ROW	Natural_Gas_Pipeline (July 2019)	N/A
MNRF_LIO	NGO Nature Reserve	NGO_Nature_Reserve (July 2019)	N/A
MNRF_LIO	Railway ROW	Railway_Centreline (July 2019)	N/A
MNRF_LIO	Remote Campsite	COTTAGE_RESIDENTIAL_SITE (July 2019)	N/A
MNRF_LIO	Resort Lodges & Campgrounds	Tourism_Esatblisment_Area (July 2019)	N/A
MNRF_LIO	Restricted Access Lakes + Specified Buffer (100-600m determined by MNRF)	Lake_Trout_Lakes_Join (July 2019)	N/A
MNRF_LIO	Roads/Highway ROWs	Street_Centreline (July 2019)	N/A
MNRF_LIO	Significant Ecological Area	Significant_Ecological_Area (July 2019)	N/A
MNRF_LIO	Slope Percentage	Slope_Percent (July 2019)	N/A
MNRF_LIO	Soils	Soil_Survey_Complex (July 2019)	N/A
MNRF_LIO	Water	Waterbody (July 2019)	N/A
MNRF_LIO	Wetlands	Wetlands (July 2019)	N/A
MNRF_LIO	Wild Rice	WILD_RICE_STAND (July 2019)	N/A

Source	Description	Layer Name (or report referenced) and Date Layer was Last Updated	Data Processing Completed (e.g., buffers, updated based on aerial imagery)
MNRF_LIO	Wilderness Area	Wilderness_Area (July 2019)	N/A
MNRF_OGDE	Commercial Outpost Camps	CL_NON_FREEHOLD_DISPOSITION (July 2019)	N/A
MNRF_OGDE	Municipally Owned Lands	PATENT_LAND_EXTERNAL (July 2019)	N/A
MNRF_OGDE	Private Land	PATENT_LAND_EXTERNAL	N/A
MNRF_OGDE	Provincially Owned Private Land (IO)	PATENT_LAND_EXTERNAL (July 2019)	N/A
MNRF_OGDE	Public Lands Act Tenure	CL_PATENT_LAND (July 2019)	N/A
MNRF_OGDE	Remote Campsite	CL_NON_FREEHOLD_DISPOSITION (July 2019)	N/A
MNRF_Restricted	Biodiversity Gap Analysis	Biodiversity_Inex_Gap_Tool (July 2019)	N/A
MNRF_Restricted	Mineral Licks	Mineral_Lick_Low_Sensitivity/Mineral_Lick_Non_Sensitivity (July 2019)	N/A
MNRF_Restricted	Nursery Area	Nursery_Area_Fish_Low_Sensitivity/Nursery_Area_Fish_Non_Sensitive (July 2019)	N/A
MNRF_Restricted	Spawning Area	Spawning_Area_Low_Sensitivity/Spawning_Area_Non_Sensitive (July 2019)	N/A
MNRF_Restricted	Wintering Areas (Non-Sensitive)	Wintering_Area_Non_Sensitive (July 2019)	N/A
MTCS	> 300 m of known Archaeological/Cultural Resources	MTCS ArchPotentialZones_within_StudyArea (June 2019)	Buffer of Sites Provided
MTCS/ City of Dryden	Known Cultural Resources (See Above)	Lake_Trout_Lakes_Join/Tourism_Lakes (July 2019)	N/A
MTO	MTO Aggregate Pits/Quarries	MTO_Aggregate_Sites (July 2019)	N/A
MTO	MTO Designated ROW	MTO_Lands_JUR_CUT/MTO_Lands_ORN_Cut (October 2019)	N/A
NHIC	Reoccuring Nesting Observations	PC_OCCURRENCE/Nesting_Site_Low_Sensitivity, Med and Non (3 Feature Classes) (July 2019	N/A
NHIC	S1-S3 Conservation Concern Species Occurrence and Observations	PTSOBS_Waasigan/EOs_Waasigan (June 2019)	N/A
NHIC	Species at Risk (e.g., special concern, threatenend, endangered)	PTSOBS_Waasigan/EOs_Waasigan/Species_at_Risk (June 2019)	N/A
NHIC	Unique Plant Community Occurrence and Observations	PC_OCCURRENCE_Waasigan/PC_OBSERVATION_Waasigan (June 2019)	N/A
NHIC	Winter Concentration Areas (Sensitive)	WCA_Observation_Waasigan (July 2019)	N/A

Source	Description	Layer Name (or report referenced) and Date Layer was Last Updated	Data Processing Completed (e.g., buffers, updated based on aerial imagery)
NOEGGTS	Soils	Surficial_GeologyNOEGTSMRD160_GeneralLandform (July 2019)	N/A
NOEGGTS	Surficial Geology	Surficial_GeologyNOEGTSMRD160_GeneralLandform (July 2019)	N/A