LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

CLASS ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL STUDY REPORT

Report Number: 590-CLEA-17- -11

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2017

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Hydro One Networks Inc.
Environmental Engineering & Project Support
483 Bay Street, North Tower, 14th Floor
Toronto, ON, M5G 2P5

EXECUTIVE SUMMARY

Hydro One Networks Inc. (Hydro One) has prepared this Environmental Study Report (ESR) for the upgrade of existing underground transmission infrastructure located in the eastern area of downtown Toronto. Specifically, Hydro One is planning to refurbish two sections of underground 115 kilovolt (kV) transmission cable of the existing H7L/H11L Circuit located between the following transmission facilities:

- Leaside Transformer Station (TS) and Todmorden Junction (JCT); and,
- Lumsden JCT and Main TS.

The refurbishment of this transmission infrastructure is referred to as the Leaside to Main Infrastructure Refurbishment Project (herein referred to as "the proposed project"). The proposed project is required to refurbish the aging underground transmission infrastructure to ensure a continued safe and reliable supply of power to Toronto Hydro-Electric System Limited customers in the area and minimize the risk of future power interruptions.

Hydro One initially planned to replace and upgrade the overhead shield wire between Todmorden JCT and Lumsden JCT at approximately the same time as the underground cable replacement work. Although this upgrade of the shield wire is not subject to the Ontario *Environmental Assessment Act*, it was originally included as part of the Class EA study area and communication strategy due to its close proximity and parallel schedule. This shield wire work has now been postponed and is currently being re-evaluated by Hydro One to determine if there are additional opportunities to combine this work with future refurbishment activities. First Nations, nearby residents and stakeholders will be notified when more information about this overhead work is available. This ESR focuses on the underground cable replacement portion of the proposed project.

The proposed refurbishment of the two underground transmission cable sections is subject to the *Class Environmental Assessment for Minor Transmission Facilities* (Class EA; Ontario Hydro 1992), in accordance with the Ontario *Environmental Assessment Act*. This ESR has been prepared in accordance with the requirements of the *Environmental Assessment Act* and describes the Class EA process that has been undertaken for the proposed project.

At the onset of the study, the technical specifications and system requirements of the proposed project were determined. Based upon these requirements a study area was defined. Subsequently, the Class EA process for the proposed project included baseline studies of the environmental features within the study area. Resources were identified from literature reviews, reports (i.e., Stage 1 and Stage 2 archaeological assessment reporting) and technical memos commissioned by Hydro One, databases, mapping, consultation and/or field surveys.

Since late 2015, Hydro One has conducted comprehensive consultation regarding the proposed project with municipal and provincial government officials and agencies, First Nations communities, potentially affected and interested persons and interest groups to inform them of the proposed project as well as to identify and resolve potential concerns. The consultation program included Public Information Centres, which provided opportunities for interested parties to discuss with and pose questions to the Hydro One project team and complete comment forms; individual meetings with First Nations representatives; meetings with key stakeholders, including municipal coordination meetings; individual face-to-face meetings with business owners, to address specific concerns and considerations; community "Power Walks" through the study area for interested stakeholders, led by the Hydro One project team, to allow for better understanding of the proposed project; and establishment and maintenance of a project website.

Route options were identified for the underground replacement section between Leaside TS and Todmorden JCT within the study area. Criteria were established for the selection of the preferred route. After evaluation, the preferred route for the underground cable replacement section between Leaside TS and Todmorden JCT was selected (i.e., route option 2). This selection was made on the basis of potential effects to identified resources within the environment (natural and socio-economic), First Nations interests, as well as technical considerations and cost for each route option. No feasible alternate route options were identified for the underground cable replacement section between Lumsden JCT and Main TS.

Potential environmental effects resulting from the project have been identified on certain environmental features, and avoidance and/or mitigation measures have been proposed accordingly. There may be instances where residual environmental effects remain even with

the application of mitigation measures; the residual effects identified to date are primarily temporary (e.g., will only occur throughout the construction period) and are not significant.

The draft ESR was available for public review and comment for 47 calendar days, from September 29, 2016 until November 14, 2016.

Comments received from municipal, provincial and federal government officials, government agencies, First Nations communities, potentially affected and interested persons and interest groups during this period were addressed and are documented in this ESR as required by the Class EA process. No Part II Order requests were received to elevate the project from a Class EA to an Individual EA.

Through filing of this ESR with the Ministry of the Environment and Climate Change, Hydro One has satisfied the requirements of the provincial *Environmental Assessment Act*. The proposed project outlined in the ESR is considered acceptable.

The proposed project will be implemented in full compliance with the requirements of the Class EA process as outlined in this ESR, incorporating input obtained throughout the planning process including the consultation program. Hydro One will obtain the necessary environmental approvals and permits required for the proposed project.

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AAQC	Ambient Air Quality Criteria
AEIC	Association of Edison Illuminating Companies
ANSI	Area of Natural and Scientific Interest
AVI	Aquifer Vulnerability Index
BBTCA	Billy Bishop Toronto City Airport
BIA	Business Improvement Area
CAAQS	Canadian Ambient Air Quality Standards
Class EA	*Class Environmental Assessment for Minor Transmission Facilities*, 1992
CN Rail	Canadian National Railway
CO	Carbon Monoxide
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
COSSARO	Committee on the Status of Species at Risk in Ontario
CP Rail	Canadian Pacific Railway
CTC	Credit Valley-Toronto and Region-Central Lake Ontario
DOCA	Department of Consultation & Accommodation (Mississaugas of the New Credit First Nation)
EA	Environmental Assessment
EA Act	*Environmental Assessment Act*
EASR	Environmental Activity and Sector Registry
ECCC	Environment and Climate Change Canada
ELC	Ecological Land Classification
EMS	Emergency Medical Services
ESA	Environmentally Significant Area
ESR	Environmental Study Report
FLRs	Field Liaison Representatives
GGH	Greater Golden Horseshoe
GTA	Greater Toronto Area
HCCC	Haudenosaunee Confederacy Chiefs Council
HDI	Haudenosaunee Development Institute

Hydro One	Hydro One Networks Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IO	Infrastructure Ontario
JCT	Junction
LCP	The Living City Policies for Planning and Development in the Watershed of the Toronto and Region Conservation Authority
LIO	Land Information Ontario
LOIs	Letters of Interest
LPOF	Low Pressure Oil-filled
MBCA	*Migratory Birds Convention Act*, 1994
MMAH	Ministry of Municipal Affairs and Housing
MNCFN	Mississaugas of the New Credit First Nation
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of the Environment and Climate Change
MPP	Member of Provincial Parliament
MTCS	Ministry of Tourism, Culture and Sport
MTO	Ministry of Transportation
NAAQS	National Ambient Air Quality Standards
NAPS	National Air Pollution Surveillance
NHIC	Natural Heritage Information Centre
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
O. Reg.	Ontario Regulation
OTN	Ontario Trail Network
PFR	City of Toronto Parks, Forestry and Recreation division
PIC	Public Information Centre
PM_{10}	Particles of 10 micrometres or less
$PM_{2.5}$	Particles of 2.5 micrometres or less
POR	Point of Reception
PPS	*Provincial Policy Statement*, 2014

PTTW	Permit to Take Water
RNFP	City of Toronto Ravine and Natural Feature Protection department
RoW	Right-of-way
RWMN	Regional Watershed Monitoring Network
SAR	Species at Risk
SARO	Species at Risk in Ontario
SO_2	Sulphur Dioxide
SPM	Suspended Particulate Matter
TFS	Toronto Fire Services
TMHC	Timmins Martelle Heritage Consultants
Toronto Hydro	Toronto Hydro-Electric System Limited
TPS	Toronto Police Services
TRCA	Toronto and Region Conservation Authority
TS	Transformer Station
TTC	Toronto Transit Commission
VPR	Voluntary Project Review
WMO	World Meteorological Organization
WSC	Water Survey of Canada
WWIS	Water Well Information System
XLPE	Cross Linked Polyethylene

1 Introduction

Hydro One Networks Inc. (Hydro One) is planning to upgrade existing underground transmission infrastructure located in the eastern area of downtown Toronto. Specifically, Hydro One is planning to refurbish two sections of underground 115 kilovolt (kV) transmission cable of the existing H7L/H11L Circuit located between the following transmission facilities:

- Leaside Transformer Station (TS) and Todmorden Junction (JCT); and,
- Lumsden JCT and Main TS.

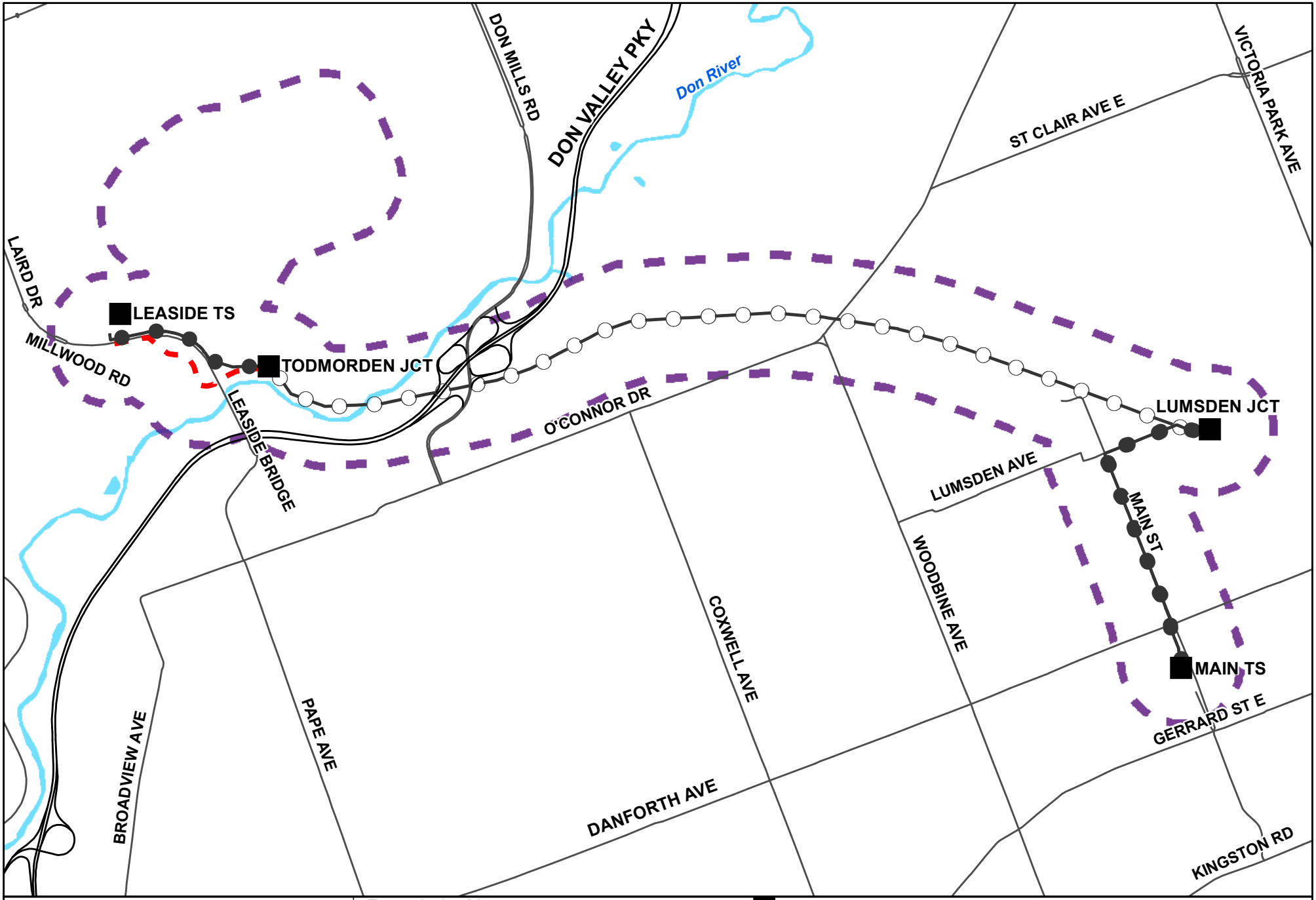
The refurbishment of this underground transmission infrastructure is referred to as the Leaside to Main Infrastructure Refurbishment Project (herein referred to as "the proposed project"). The location of the proposed project is shown on Figure 1-1.

A Class Environmental Assessment (EA) was carried out to assess the potential environmental effects of the proposed project. This Environmental Study Report (ESR) has been prepared in accordance with the requirements of the Ontario *Environmental Assessment Act (EA Act)*. The refurbishment of the two underground transmission cable sections is subject to the *Class Environmental Assessment for Minor Transmission Facilities* (Class EA; Ontario Hydro, 1992).

Hydro One initially planned to replace and upgrade the overhead shield wire between Todmorden JCT and Lumsden JCT at approximately the same time as the underground cable replacement work. Although this upgrade of the shield wire is not subject to the *EA Act*, it was originally included as part of the Class EA study area and communication strategy due to its close proximity and parallel schedule. This shield wire work has now been postponed and is currently being re-evaluated by Hydro One to determine if there are additional opportunities to combine this work with future refurbishment activities. First Nations, nearby residents and stakeholders will be notified when more information about this overhead work is available. This ESR focuses on the underground cable replacement portion of the proposed project.

The Class EA was developed as a streamlined process to ensure that minor transmission projects that have a predictable range of effects are planned and carried out in an environmentally acceptable manner. This ESR has been prepared in accordance with the

requirements of the *EA Act* and the Class EA, and describes the Class EA process that has been undertaken for the proposed project.



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Map14-117_Leaside x Main_General

Transmission Lines
Circuits H7L/H11L (115 kV)

- Existing Overhead Lines and Shield Wire
- Existing Underground Cables (115kV)
- Preferred Route for Underground Cable Replacement
- Highways
- Roads
- Station or Junction
- Class EA Study Area
- Water

1:21,000

0 150 300 600 m

Figure 1-1: Project Location Map and Study Area

1.1 Need for the Undertaking

The existing underground low pressure oil-filled (LPOF) cables between Leaside TS and Todmorden JCT, and between Lumsden JCT and Main TS, were installed in the 1950s and are approaching their end of life. Hydro One has identified the need to refurbish this aging underground transmission infrastructure to ensure a continued safe and reliable supply of power to Toronto Hydro-Electric System Limited (Toronto Hydro) customers in the area, and to minimize the risk of future power interruptions. This underground transmission infrastructure is a critical component of Ontario's electricity grid.

1.2 Purpose of the Undertaking

The purpose of the proposed project is to strengthen and modernize the electricity grid in the area. Specifically, the purpose of the undertaking is to replace the existing underground 115 kV transmission cable in the eastern area of downtown Toronto, located between Leaside TS and Todmorden JCT, and between Lumsden JCT and Main TS, through the installation of new cross linked polyethylene (XLPE) cables within a concrete duct bank.

1.3 Description of the Undertaking

To modernize transmission infrastructure in the eastern area of downtown Toronto, Hydro One is proposing to replace the existing aging 115 kV underground transmission cables between Leaside TS and Todmorden JCT, and between Lumsden JCT and Main TS, over a distance of approximately 0.8 kilometres (km) and approximately 1.5 km, respectively.

The undertaking includes the replacement of the existing 115 kV LPOF cables with new XLPE cables. The new XLPE cables will be installed in concrete duct banks that provide additional protection for the cables and easier access for future maintenance. Unlike the existing LPOF cables, the XLPE cables do not contain insulating oil and will not be directly buried. In the Leaside TS to Todmorden JCT section, where the existing cables will not be removed, the existing cables will be drained of oil, capped, and decommissioned in situ.

The underground cable replacement will involve surface trenching and the installation of a concrete duct bank for the new cables.

Temporary laydown areas will be set up during construction for the proposed project, and will consist of crushed stone overlain atop a geotextile fabric. A laydown area with vehicle access to the RoW will be set up north of Leaside TS. A laydown area will also be set up adjacent to Lumsden JCT on the existing overhead transmission corridor, part of which is leased by True Davidson Acres Home for the Aged. Old junction components within the fence line at Lumsden JCT will also be replaced and removed as part of the proposed project. A small temporary laydown area will also be constructed adjacent to Todmorden JCT.

The proposed project is similar to other projects completed by Hydro One. Figure 1-2 and Figure 1-3 show a schematic layout of the existing and proposed cable configuration. Photographs of the existing transmission infrastructure are provided on Figures 1-4 to 1-7. Figure 1-8 provides an example of the XLPE cable.

Detailed design of the proposed project will take place following submission of this ESR, as discussed in section 6.1. Upon the successful completion of the approval process, construction could begin in mid-2017 and be completed by December 2018.

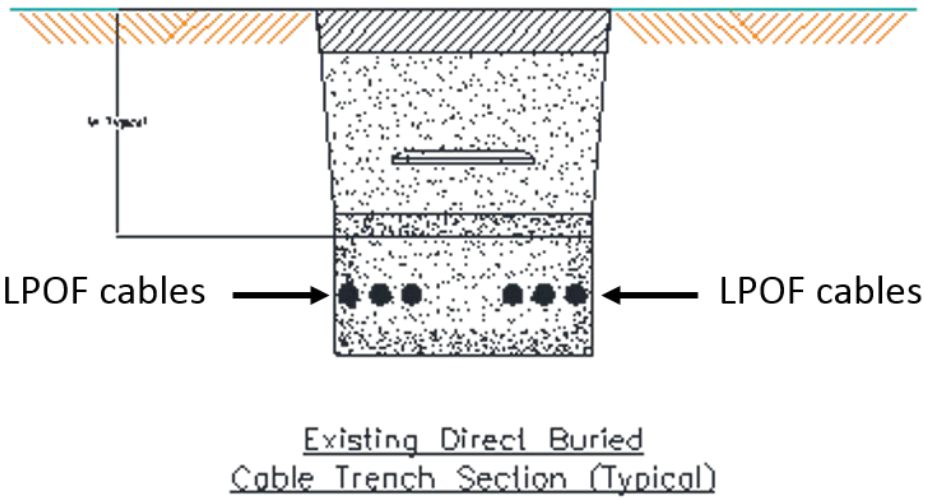


Figure 1-2: Schematic Layout of the Existing Cable Configuration

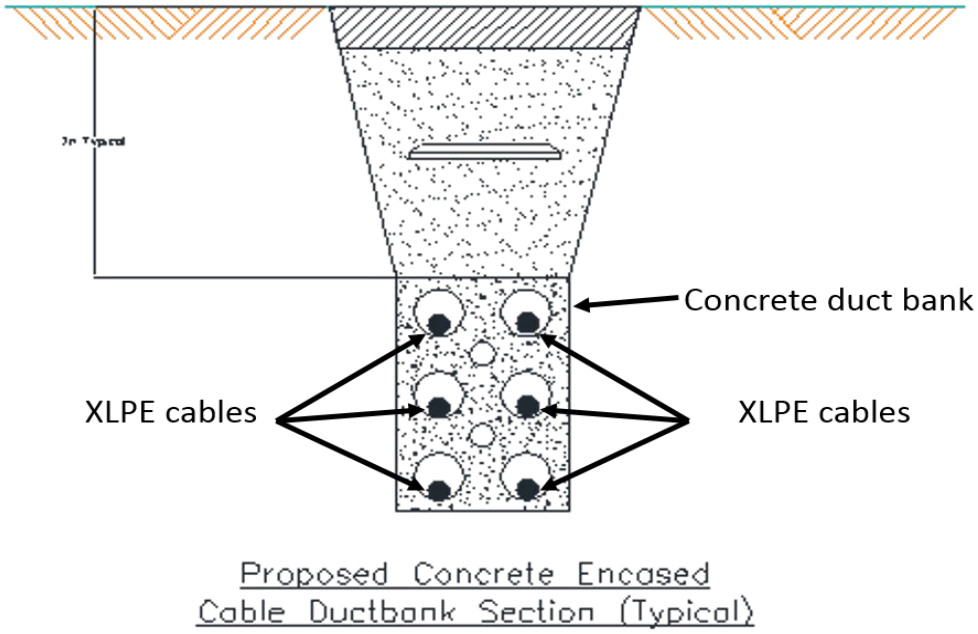


Figure 1-3: Schematic Layout of the Proposed Cable Configuration

Figure 1-4: Photograph of Leaside TS

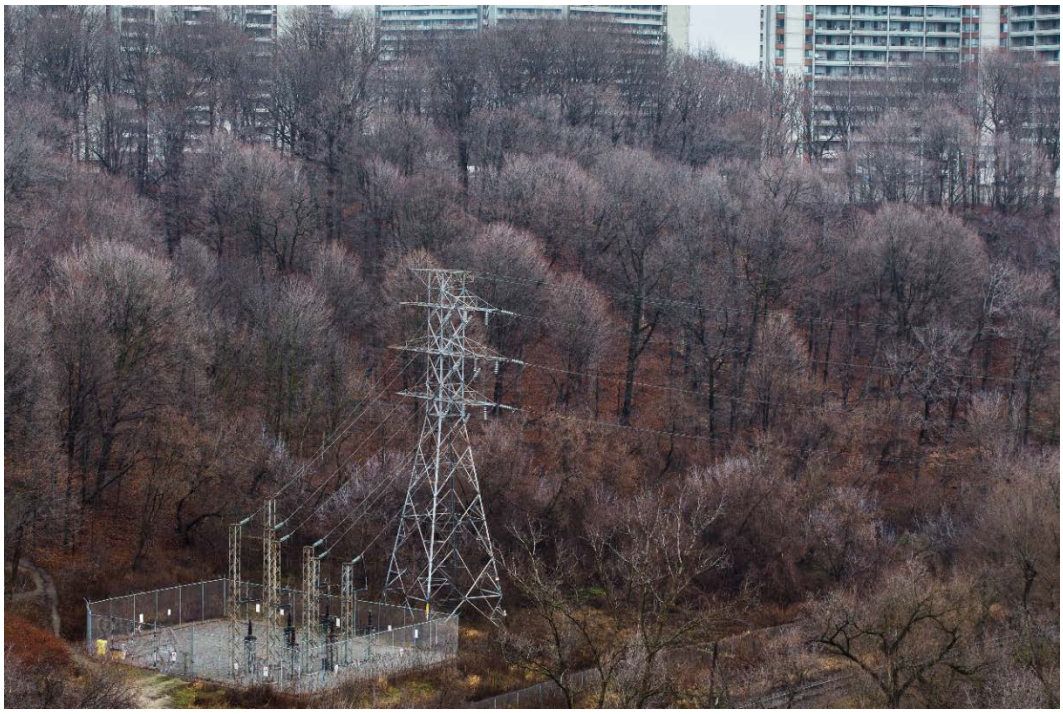


Figure 1-5: Photograph of Todmorden JCT

Figure 1-6: Photograph of Lumsden JCT

Figure 1-7: Photograph of Main TS

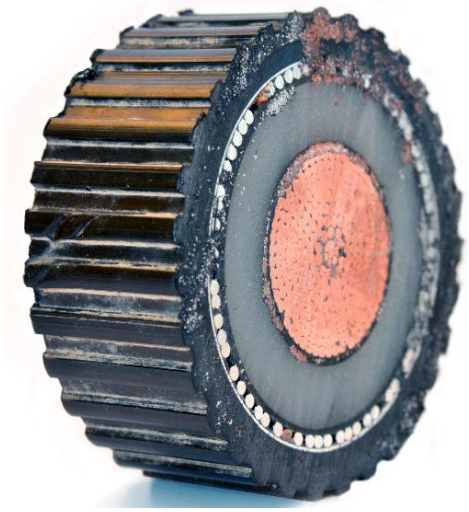


Figure 1-8: Example of an XLPE Cable

1.4 Alternatives to the Undertaking

The *EA Act* and the Class EA process require identification and evaluation of alternatives to the undertaking. These alternatives must be reasonable from a technical, economic and environmental perspective and must fall within the mandate of the proponent.

The only alternative to the undertaking that was explored by Hydro One was the "Do Nothing" alternative. Hydro One must refurbish the aging underground cables to ensure a continued safe and reliable supply of power in the area; the "Do Nothing" alternative is not feasible and was not carried forward as an alternative for further consideration in this ESR.

The Ontario *Provincial Policy Statement* (PPS) (Ministry of Municipal Affairs and Housing [MMAH], 2014) states that:

"Before consideration is given to developing new infrastructure and public service facilities:

- the use of existing infrastructure and public service facilities should be optimized; and
- opportunities for adaptive re-use should be considered, wherever feasible."

The proposed project involves the replacement of existing transmission infrastructure which will occupy the same space as the existing underground cable section from Lumsden JCT to Main TS. Between Leaside TS and Todmorden JCT, the new underground cables and duct bank will be installed along Millwood Road, on an existing overhead right-of-way (RoW) and along an existing access road into Todmorden JCT, thereby minimizing surface disruption and reducing construction time (see Figure 1-1). The new underground transmission cables will provide safe and reliable service, serving well into the future. This is the most efficient and cost-effective alternative.

1.5 Approval Process and Regulatory Requirements

This section outlines the approval process as required under the Class EA process as well as other regulatory requirements.

1.5.1 Ontario Environmental Assessment Act

This ESR has been prepared in accordance with the Class EA (Ontario Hydro, 1992), which was approved under the *EA Act*. The Class EA defines an environmental planning process which meets the requirements of the *EA Act*, including:

- Establish need (section 1.1);
- Identify and evaluate alternatives to the undertaking (section 1.4);

- Define study area (section 2.1);
- Issue initial notification (section 2.2);
- Conduct environmental inventory (section 3);
- Identify and evaluate alternative methods (section 5.1);
- Select preferred alternative method (section 5.2) and prepare draft ESR;
- Issue final notification (section 4.8) and commence associated draft ESR Review Period (section 4.9);
- File Statement of Completion with the Ministry of the Environment and Climate Change (MOECC) and proceed with the undertaking (section 4.10); and,
- Conduct consultation throughout the process (section 4).

1.5.2 Class Environmental Assessment Process

This ESR was prepared in accordance with the Class EA (Ontario Hydro, 1992). The Class EA describes the process that must be followed for a defined class of projects/undertakings in order to meet the requirements of the *EA Act*. The Class EA process is illustrated on Figure 1-9.

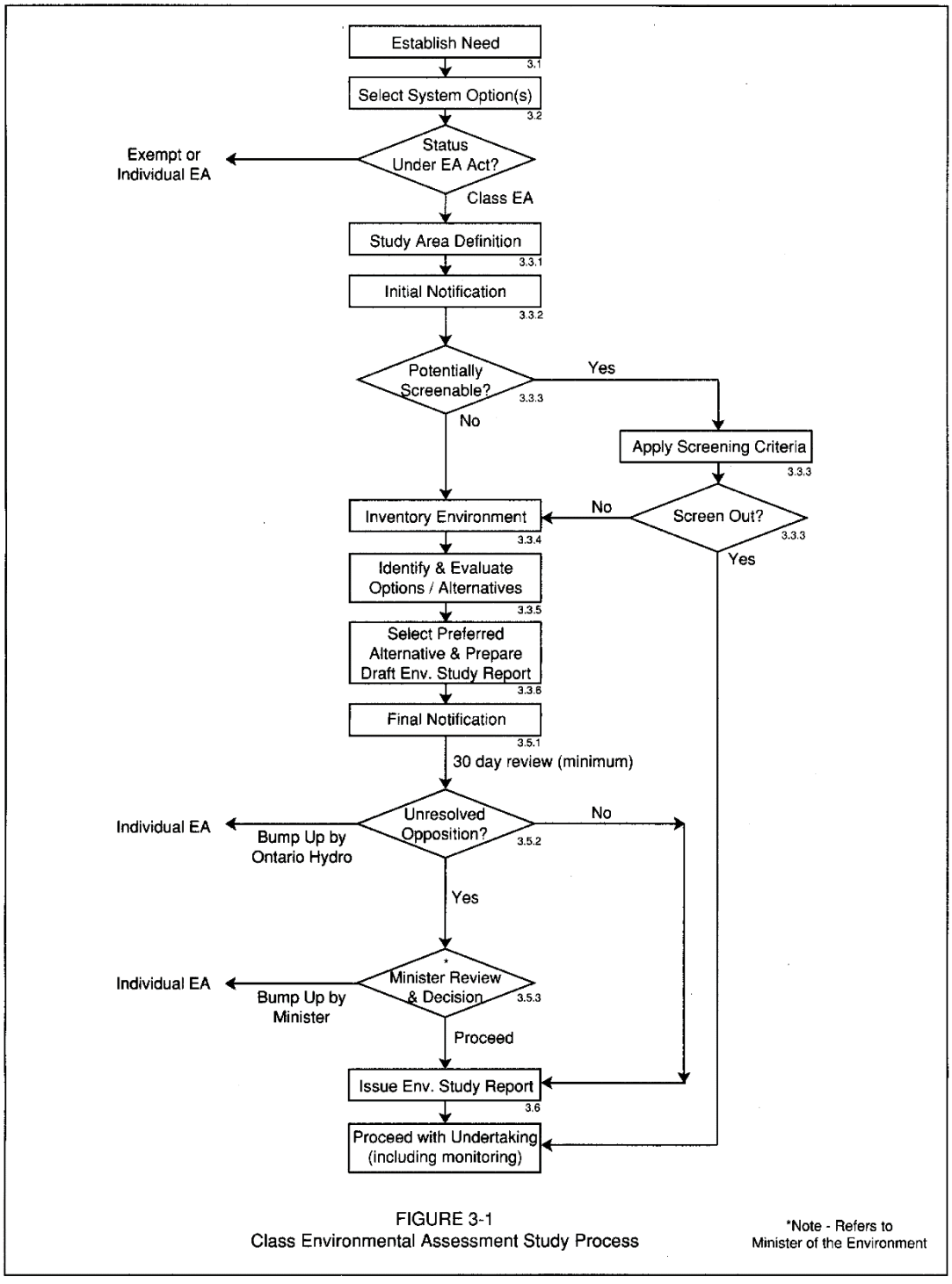


Figure 1-9: Class Environmental Assessment Process

The Class EA process is equivalent to the Environmental Screening Process described in sections A.5.1 and A.5.2 of the *Guide to Environmental Assessment Requirements for Electricity Projects* (MOECC, 2011). The Class EA applies to Category B transmission projects that are not associated with Category B generation projects.

Transmission facilities covered under the Class EA include:

a. The planning of, the acquisition of property for, and the design and construction of minor transmission lines and/or transformer stations and/or distributing stations and/or telecommunication towers, and the subsequent operation, maintenance and retirement of these facilities.

   Minor transmission lines include all transmission line projects involving greater than 2 km of line, which:

   i. Are capable of operating at a nominal voltage equal to 115 kV.

   ii. Are capable of operating at a nominal voltage level higher than 115 kV and less than 500 kV, and which involve less than 50 km of line.

b. The planning, property acquisition, design and construction required to modify or upgrade a transmission line, and the subsequent operation, maintenance and retirement of the revised line where:

   i. The work requires replacement of poles or towers (other than angle poles and towers) and/or changes in the RoW for existing transmission lines capable of operating at a nominal voltage of 115 kV or higher and no more than 500 kV.

   ii. The upgraded existing lines would operate at a nominal voltage of 115 kV or higher, and not greater than 500 kV.

c. The planning, property acquisition, design and construction required to modify or expand a transformer station, and the subsequent operation, maintenance and retirement of the revised station where:

i. An extension of the site is necessary; and,

ii. the revised station is capable of operating at a nominal voltage level of not less than 115 kV and not more than 500 kV. (Where a station has more than one voltage level, the highest level is used in defining the station's nominal operating voltage.)

Should there be substantive issues or potential effects raised by a concerned party regarding the proposed project that cannot be resolved by the proponent, the Class EA process allows that concerned parties may request that the level of assessment for the project to be elevated to an Individual EA (referred to as a Part II Order request). See section 4.9 for more information on Part II Order requests.

Upon completion of the draft ESR, Hydro One issued a final notification to interested parties including First Nations communities, municipal and provincial government officials and agencies, potentially affected and interested persons and interest groups. The draft ESR was made available for public review and comment for a period of 47 calendar days, from September 29 to November 14, 2016. Hydro One responded to and made best efforts to resolve issues raised by concerned parties during the review period. These issues are documented and the resolutions summarized in this ESR.

Once the review period of the draft ESR was complete, comments raised during the review period were incorporated into the report and the ESR was finalized. A copy of this ESR is available on the Hydro One website, and a copy was sent to the Environmental Approvals Branch and the appropriate Regional EA Coordinator at the MOECC for filling. The Statement of Completion was submitted to the MOECC along with this ESR on March 27, 2017. The proposed project is now considered acceptable and will proceed as outlined in this ESR.

1.5.3 Other Permits, Licenses and Approvals

In addition to meeting *EA Act* requirements, there are a number of necessary permits, licenses and approvals that may be required under federal and provincial legislation. Permits, licenses and approvals potentially required for the proposed project are presented in Table 1-1.

Hydro One will contact regulatory agencies to ensure that the proposed project meets applicable requirements and that approvals are obtained as necessary. This project does not meet the conditions which would require a federal environmental assessment under the *Canadian Environmental Assessment Act, 2012*.

Hydro One electricity transmission and distribution projects are exempt from municipal approvals as authorized under section 62 of the *Planning Act* if approval is obtained under the *EA Act*. However, Hydro One has consulted and will continue to consult with the City of Toronto regarding construction planning, schedules and local traffic management. Transmission facilities are also a permitted use in public road allowances in accordance with the Ontario *Electricity Act, 1998*, s. 41 (1).

Table 1-1: Potentially Required Permits, Licenses and Approvals and Review Processes

PERMIT, LICENSE, OR APPROVAL	PRIMARY AGENCY	DESCRIPTION
Temporary Street Occupation Permit	City of Toronto	Required for temporary occupancy of any portion of the public RoW with equipment and/or materials.
Noise Bylaw Exemption	City of Toronto	An exemption may be required if the operation of construction equipment occurs outside of the noise bylaw curfew.
Temporary Laydown and Access Road License(s)	City of Toronto	Required for access and occupation during construction.
Tree Removal Permits	City of Toronto	Permit may be required for tree removal in ravine and private areas.
Utility Cut Permit	City of Toronto	A permit is required for trenching activities.
Archaeological Acceptance Letters	Ministry of Tourism, Culture and Sport (MTCS)	Acceptance is required prior to undertaking new ground disturbance in areas with archaeological potential.
Permit to Take Water (PTTW)	MOECC	PTTW may be required for construction dewatering.
Approvals and/or Permits under the *Endangered Species Act, 2007*	Ministry of Natural Resources and Forestry (MNRF)	A permit may be required for planned works that might affect species at risk protected under the *Endangered Species Act, 2007*.
Permission to Enter	Toronto and Region Conservation Authority (TRCA)	Permission to enter is required for work on lands owned by the TRCA, including access.
Voluntary Project Review (VPR)	TRCA	Process that Hydro One will follow to consult with TRCA during the detailed design phase.
Clearance Letter	Utility and railway companies	Required to cross utilities (e.g., natural gas or oil pipelines) or railways.

In addition to the necessary permits and approvals, Hydro One will also consult with the City of Toronto and the TRCA to finalize site restoration plans.

2 Project Assessment Process

This section presents a summary of the project-specific requirements of the Class EA process as they pertain to this ESR.

2.1 Study Area Definition

A study area is delineated to encompass the potential area of project effects, including locations of proposed alternatives. The boundaries of the study area are established by considering proposed alternatives in relation to the occurrence of known potential environmental and technical constraints, as well as constraints associated with relevant legislation and land use policies.

At the onset of the Class EA, the technical specifications and system requirements for the proposed replacement of the existing transmission infrastructure were determined, and criteria and guidelines were established to assist in identifying both a study area and alternate route options.

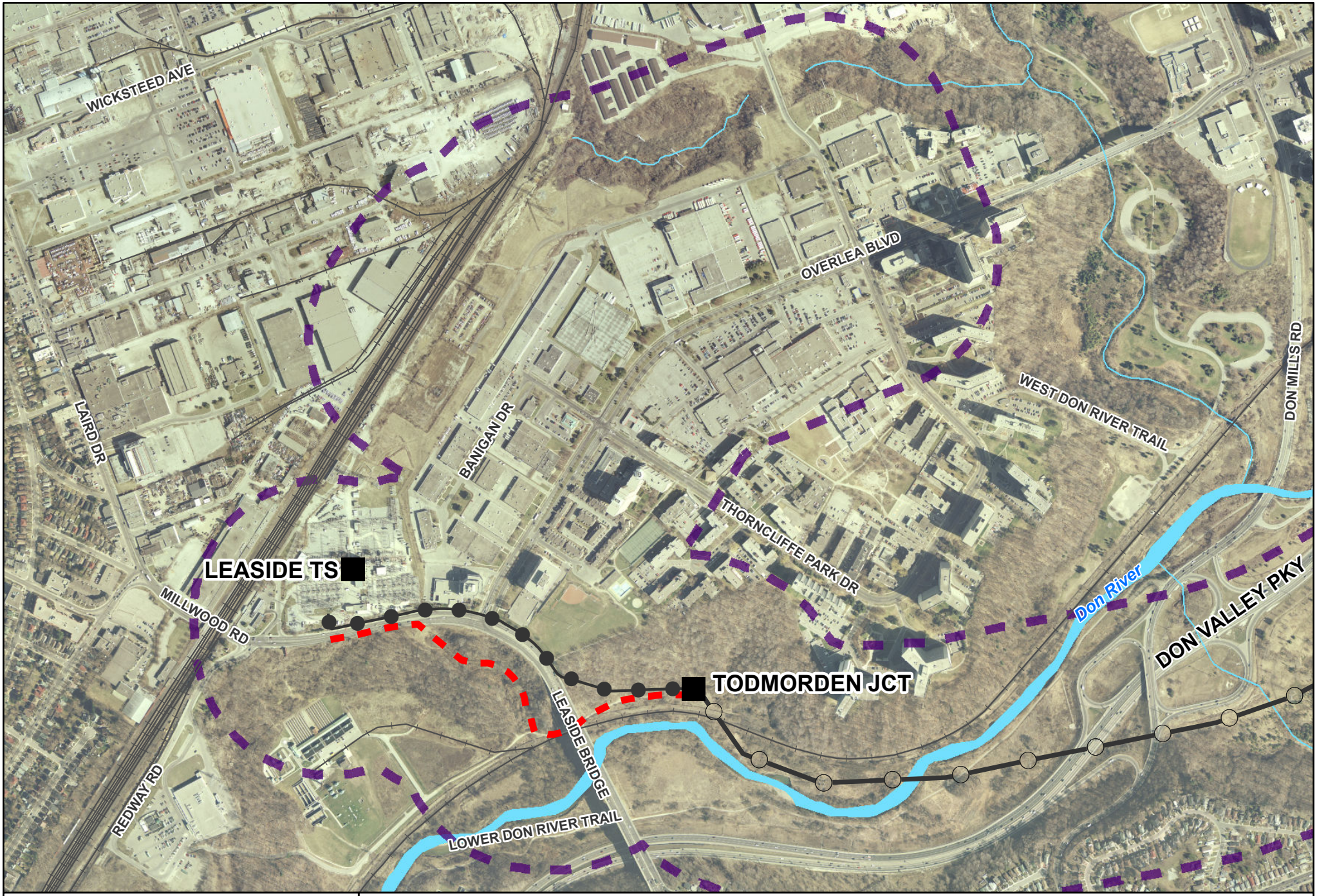
The study area for this particular EA (herein referred to as "the study area") was determined by the location of the following project components (see Figure 1-1):

- the existing 115 kV underground transmission cable system connecting Leaside TS and Todmorden JCT, and Lumsden JCT and Main TS;
- the route options that were considered for the underground cable replacement section between Leaside TS and Todmorden JCT;
- the existing overhead shield wire connecting Todmorden JCT and Lumsden JCT; and,
- the proposed temporary laydown areas.

The study area extends northeast of Leaside TS, which is located on Millwood Road. The study area captures the proposed laydown area to the northeast of Leaside TS, equipment access from this proposed laydown area to the overhead RoW, and extends from Leaside TS eastward past the Leaside Bridge, and towards Todmorden JCT. The study area then continues from Todmorden JCT eastward across the Don Valley Parkway, relatively parallel to O'Connor Drive, and then across O'Connor Drive north of the intersection with

Woodbine Avenue. The study area then continues east to Lumsden JCT, west along Lumsden Avenue and then south along Main Street to Main TS. The entire study area extends over approximately 411.1 hectares (ha). An expanded view of the study area is provided on Figure 2-1, Figure 2-2, and Figure 2-3.

The study area described above was originally meant to include the shield wire replacement on the overhead transmission line between Todmorden JCT and Lumsden JCT. Although refurbishment of existing shield wire is not subject to the *EA Act*, this work area was originally included as part of the Class EA study area, and the work was included in the communication strategy, due to its close proximity and parallel schedule. This refurbishment of the shield wire has now been delayed and is currently being re-evaluated by Hydro One to explore opportunities to combine with future refurbishment projects in the area. Therefore, this work was not further assessed in this ESR, although the study area does still reflect this overhead transmission line corridor to present the background information and field survey results that have been collected to date, and to inform future conversations and construction planning in this area.



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Map14-117_LeasidexMain_Leaside_Todmorden_Zoomedout

inergi

Transmission Lines
Circuits H7L/H11L (115 kV)

- Existing Overhead Lines and Shield Wire
- Existing Underground Cables (115 kV)
- Preferred Route for Underground Cable Replacement

- Highways
- Roads
- Railway

- Station or Junction
- Water
- Class EA Study Area

Figure 2-1: Study Area Map (Leaside TS to Todmorden JCT)

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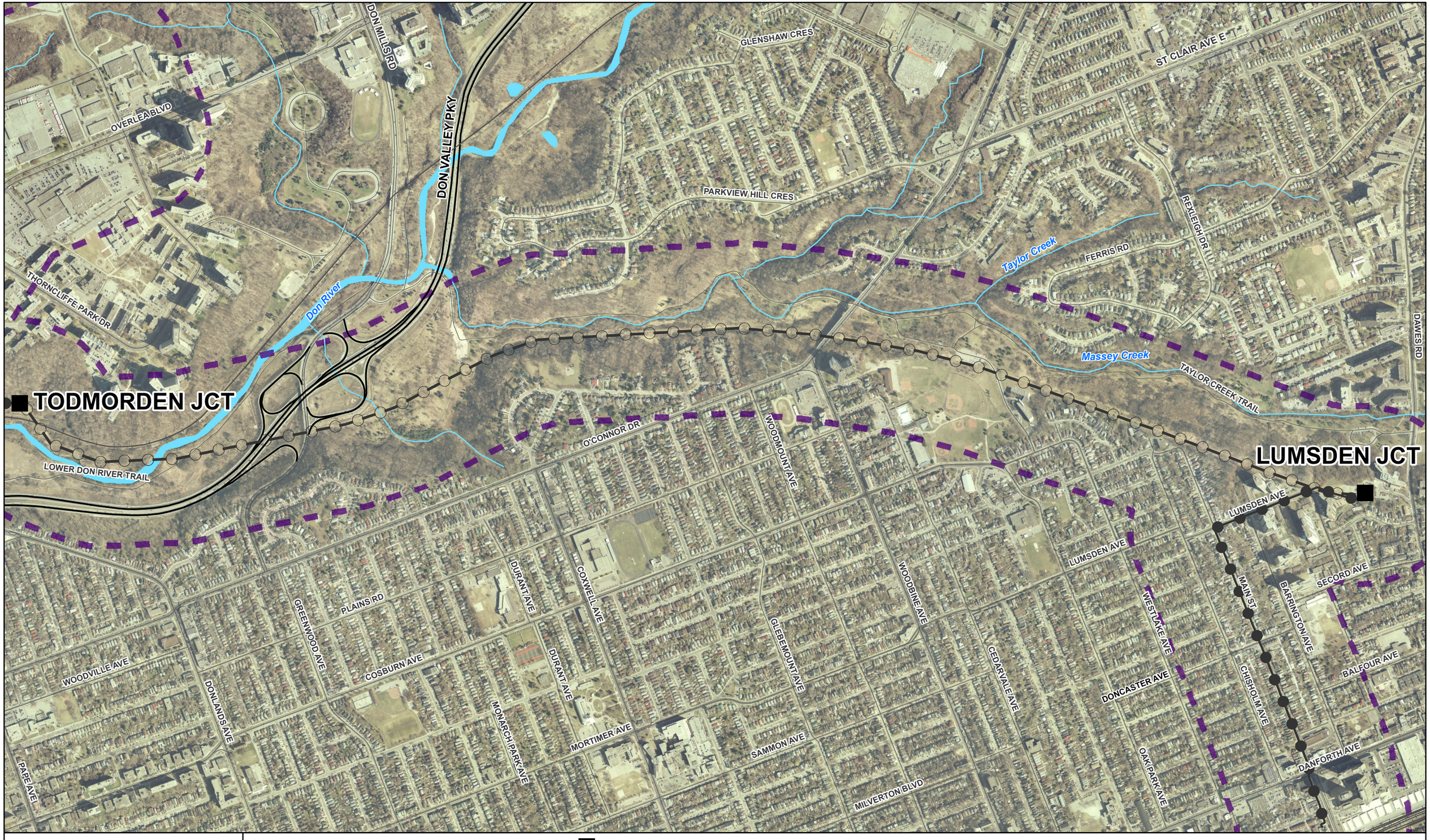
0 50 100 200 m



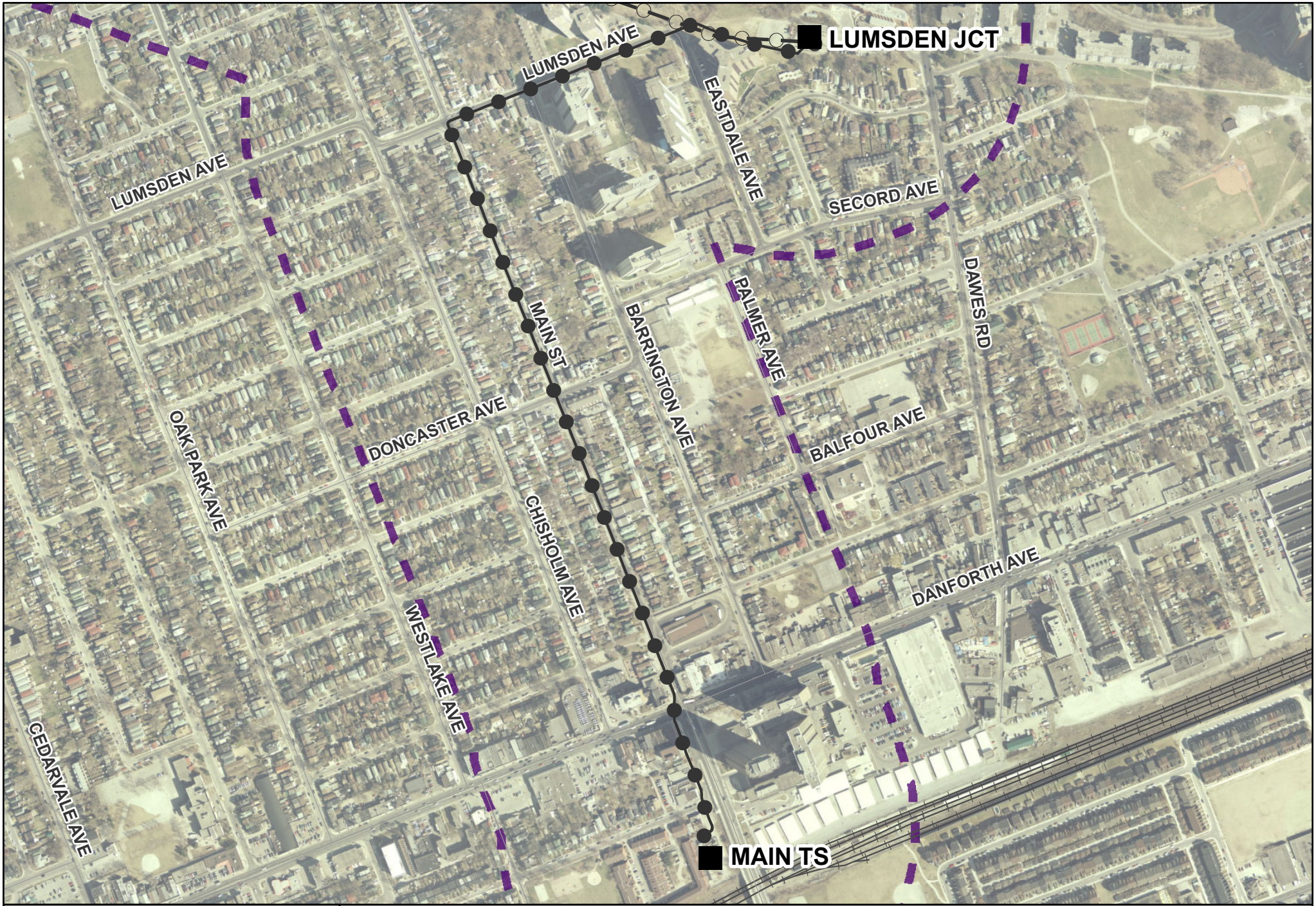
Transmission Lines
Circuits H7L/H11L (115 kV)

- Existing Overhead Lines and Shield Wire
- Existing Underground Cables (115 kV)
- Highways
- Roads
- Railway
- Station or Junction
- Class EA Study Area
- Water

Figure 2-2: Study Area Map (Todmorden JCT to Lumsden JCT)

1:10,000

0 50 100 200 m



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Map14-117_Leaside x Main_Lumsden_Main

Transmission Lines
Circuits H7L/H11L (115 kV)

- Existing Overhead Lines and Shield Wire
- Existing Underground Cables (115 kV)
- Roads
- Railway
- Station or Junction
- Class EA Study Area

1:6,000

0 50 100 200 m

Figure 2-3: Study Area Map (Lumsden JCT to Main TS)

2.2 Initial Notification

Pre-consultation with municipal elected officials took place early in the planning process, as introductory meetings were held with the four City Councillors in the project area. Initial contact on a broader level to one federal agency (Transport Canada), municipal and provincial government officials and agencies, First Nations communities, potentially affected and interested persons, and interest groups was made by Hydro One in January 2016 through the Notice of Commencement and invitation to the first round of Public Information Centres (PICs). The Notice of Commencement and PIC invitation letters were distributed via email, mailed letters, hand delivered letters and newspaper advertisements.

Stakeholders were notified of the need for the proposed project and the study area, and were invited to attend the first round of PICs held for the proposed project on February 8 and 10, 2016 in east Toronto. Hydro One informed stakeholders that the first round of PICs would present:

- information about the proposed project;
- route options for the replacement of the cable section between Leaside TS and Todmorden JCT;
- environmental considerations;
- the anticipated timeline; and,
- the approvals process.

Hydro One encouraged stakeholders to attend one or both of the PIC events to provide input and discuss issues or concerns.

Section 4 provides additional information on the consultation activities undertaken for the proposed project and Appendix C provides consultation-related documents.

2.3 Environmental Inventory

As prescribed in the Class EA process (Ontario Hydro, 1992), environmental information was collected, summarized, mapped and assessed for the following environmental factors:

- Agricultural Resources;
- Forestry Resources;
- Cultural Heritage Resources;
- Human Settlements;
- Mineral Resources;
- Natural Environment Resources;
- Recreational Resources; and,
- Visual and Aesthetic Resources.

Information pertaining to each of the factors and resources was obtained from literature, reports commissioned by Hydro One (i.e., Stage 1 and Stage 2 archaeological assessment reporting), databases, mapping, consultation and/or field surveys. The environmental baseline conditions are summarized in section 3 of this ESR. Site-specific information was considered in evaluating the alternatives (section 5.2) and for identifying and assessing the potential environmental effects of the proposed project (section 7).

2.4 Identification and Evaluation of Alternative Methods

The *EA Act* and the Class EA process require identification and evaluation of alternative methods of carrying out the undertaking. Alternative methods of carrying out the undertaking are distinct from alternatives to the undertaking. Alternatives to the undertaking are functionally different approaches to achieving the purpose of the undertaking and are presented in section 1.4.

Alternative methods refer to different means of carrying out the same task to achieve the purpose of the undertaking (e.g., different routes or sites). Potential alternative methods are identified based on presence of environmental features, technical and cost factors, and input received during the consultation process, and follow the recommendations of the PPS (2014). Following the identification of alternative methods for the undertaking, evaluation criteria are

established, and evaluation and selection of the preferred alternative occurs. Section 5 describes this process in detail.

As indicated in section 1.3, Hydro One elected to replace existing infrastructure and follow existing underground cable routes and overhead RoWs, where feasible, consistent with the PPS (2014). Three route options were explored by Hydro One as alternative methods for the underground replacement section between Leaside TS and Todmorden JCT, as follows (also shown on Figure 1-1):

- Route option 1: Cable replacement to occur along the existing cable route via open trenching from Leaside TS to Todmorden JCT. Due to the steep slope from Leaside Park down the Don Valley and towards Todmorden JCT, this option was later revised to consist of open trenching from Leaside TS to Leaside Park, microtunnel/pushpipe from within Leaside Park to the bottom of the Don Valley slope, and open trenching along the existing Hydro One access road to Todmorden JCT.
- Route option 2: Alternate cable route identified by Hydro One that crosses Millwood Road to follow an existing Hydro One transmission line RoW located on the southwest side of the Leaside Bridge and an existing access road running east to Todmorden JCT. This option would consist of open trenching from Leaside TS to Todmorden JCT.
- Route option 3: Alternate cable route proposed by an attendee at the first round of PICs. This option runs along the existing cable route via open trench and descends the Don Valley parallel to the Leaside Bridge on its east side. Due to the steep slope from Leaside Park down the Don Valley and towards Todmorden JCT, this option was deemed not feasible (as this option with a microtunnel/pushpipe component for the Don Valley slope area is effectively the same as route option 1).

Hydro One considered an array of route evaluation criteria during the route option evaluation process (see section 5). Based on the route evaluation completed by Hydro One, which incorporated feedback gathered through consultation completed for the proposed project to date (see section 4), the preferred route for the underground cable section between Leaside TS

and Todmorden JCT is **route option 2.** The route options and route evaluation criteria that were considered, and the process of route selection, are discussed in detail in section 5.

No feasible alternate route options that had substantial benefits were identified for the underground cable replacement section between Lumsden JCT and Main TS. Several of the potential alternate route options that were initially considered by Hydro One for this portion of the proposed project had major technical constraints (e.g., 90-degree turns of the duct bank, which would make cable pulling and maintenance more difficult).

2.5 Draft Environmental Study Report and Final Notification

The draft ESR describes and documents the Class EA process undertaken for the planning of the proposed project. The information contained within the draft ESR consisted of the following:

a. Name and description of the proposed project (section 1);

b. A description of the need for the proposed project (section 1.1);

c. A description of the alternatives to the undertaking and the preferred alternative (section 1.4);

d. A description of a study area for the proposed project and the existing environment (section 3);

e. A description of the potential environmental effects (positive and negative) (section 7);

f. A description of the alternative methods considered for the project (section 5.1);

g. A description of the preferred alternative (section 5.2);

h. A description of the consultation that was undertaken (section 4);

i. A description of other applicable permits and approvals required for the proposed project (section 1.5.3);

j. A description of mitigation measures and predicted net effects (section 7); and,

k. A description of required environmental monitoring (section 8).

Upon completion of the draft ESR, a Final Notification (i.e., Notice of Completion) was distributed to all interested parties including First Nations communities, municipal and provincial government officials and agencies, and potentially affected and interested persons that the report is complete and the review period is commencing. Details regarding the Final Notification and the draft ESR review period can be found in section 4.9.

Issues and concerns received by Hydro One during the draft ESR review period were recognized, considered, addressed and documented. This ESR was prepared for the proposed project in accordance with the Class EA process. Upon completion of the Class EA process, the ESR was filed with the MOECC on March 27, 2017. Copies of the report were forwarded to organizations or individuals upon request.

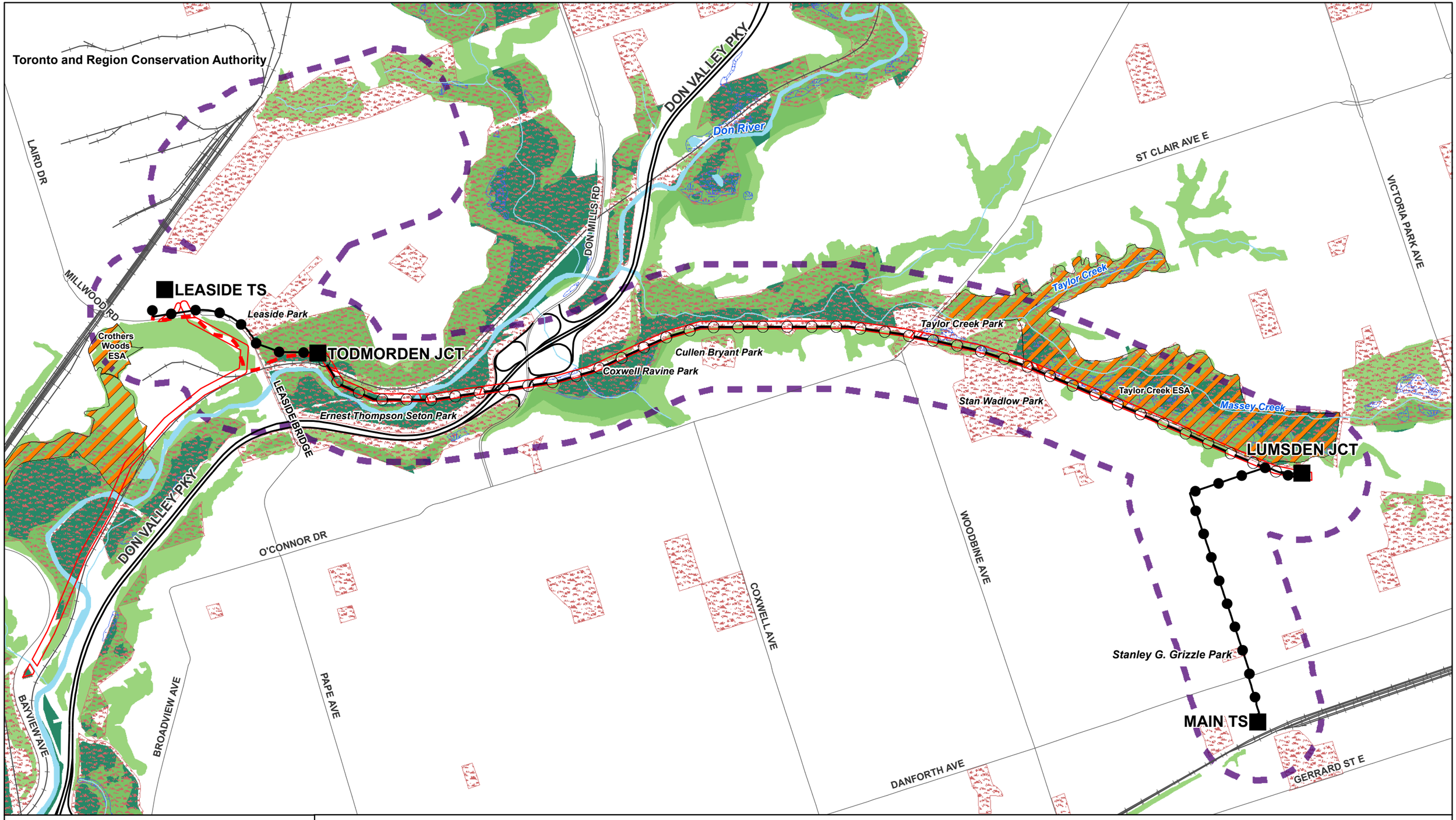
3 Environmental Features in the Study Area

As described in the Class EA process, information was collected for the factors listed below:

- Agricultural Resources;
- Forestry Resources;
- Cultural Heritage Resources (i.e., built heritage resources, cultural heritage landscapes and archeological resources);
- Human Settlements;
- Mineral Resources;
- Natural Environment Resources (e.g., air, land, water, wildlife);
- Recreational Resources; and,
- Visual and Aesthetic Resources (i.e., appearance of the landscape).

The following sections summarize the environmental baseline conditions in the study area. Information for the above factors was obtained based on literature review, reports commissioned by Hydro One, databases, mapping, consultation and field surveys completed in 2015 and 2016. Golder Associates Ltd. and Timmins Martelle Heritage Consultants Inc. (TMHC) were retained by Hydro One on this project to provide support and carry out technical studies. Field Liaison Representatives (FLRs) from the Mississaugas of the New Credit First Nation (MNCFN) observed and participated in archaeological and natural heritage field surveys in the Spring and Summer of 2016. Figure 3-1 and Appendix A1 present known natural features within the study area.

The study area was originally meant to include the shield wire replacement on the overhead transmission line between Todmorden JCT and Lumsden JCT. This refurbishment of the shield wire has now been postponed and is currently being re-evaluated by Hydro One to explore opportunities to combine with future refurbishment projects on the Todmorden JCT to Lumsden JCT transmission line corridor. Although this work will not be further assessed in the ESR, the study area still reflects this overhead transmission line corridor to present the background information and field survey results that have been collected to date, to inform future conversations and construction planning in this area.



hydro one

Produced By: Inergi LP, GIS Services
Date: Dec 12, 2014/Revision Jul 29, 2016
Map14-117_Leaside xMain_NF

inergi

Transmission Lines
Circuits H7L/H11L

- Existing Overhead Lines and Shield Wire
- Existing Underground Cables (115kV)
- Preferred Route for Underground Cable Replacement
- Highways
- Roads
- Railway
- Class EA Study Area
- Station or Junction
- Wetlands
- Wooded Area
- Conservation Authority Lands
- Parks
- Environmentally Sensitive Area
- Area of Natural and Scientific Interest
- Water
- RoW

1:14,000

0 125 250 500 m

Figure 3-1: Natural Features in the Study Area

3.1 Agricultural Resources

The study area is situated within the City of Toronto (see Figure 3-1). Based on a spatial review of the Ontario Agricultural Resource Inventory, there are no classified agricultural resources overlapping the study area (Ministry of Natural Resources and Forestry [MNRF], 2016a). Therefore, there is no potential for the proposed project to affect either the productivity of the land or the utilization of the land for agricultural purposes. Agricultural resources are not discussed further and are not carried through for assessment.

3.2 Forestry Resources

Based on a review of the Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) database, no Forestry Management Units, Agreement Forest Areas, Forest Cover Units, Forest Resource Inventory Areas, or Wood Use Areas Forest Resources (as identified through the MNRF Forest Resource Inventory) overlap the study area (MNRF, 2016b). Consequently, there is no potential for the proposed project to affect the productivity or utilization of the land for forestry harvesting. Forestry resources are not discussed further and are not carried through for assessment.

3.3 Cultural Heritage Resources

A licensed archaeologist was retained to conduct a Stage 1 Archaeological Assessment in accordance with the MTCS's *Standards and Guidelines for Consultant Archaeologists* (2011). The results of the Stage 1 Archaeological Assessment were provided to the MTCS and entered into the Ontario Public Register of Archaeological Reports. Based on the findings of the Stage 1 Archaeological Assessment (TMHC, 2016), it was determined that the project study area contains lands with archaeological potential.

A Stage 2 Archaeological Assessment (TMHC, 2016) was conducted on June 17, 2016 for the land to be affected by the proposed project activities. A field representative from the MNCFN accompanied the licensed archaeologists during the majority of the Stage 2 assessment. In accordance with the MTCS's *Standards and Guidelines for Consultant Archaeologists* (2011), the Stage 2 Archaeological Assessment included photo-documentation and test pitting within the project area. The Stage 2 Archaeological Assessment did not result in the identification of any

archaeological materials; therefore, this area is considered free of archaeological concern. The final report for the archaeological assessment was submitted to the MTCS on August 3, 2016.

In accordance with TRCA policy, archaeological work on TRCA property must be undertaken by archaeologists and staff from the TRCA's Archaeology Resource Management Services department. TRCA staff undertook a Stage 2 Archaeological Assessment of the areas of TRCA property within the study area that were identified in the Stage 1 Archaeological Assessment report as having archaeological potential (i.e., the area between the Leaside Bridge and Todmorden JCT) on June 16, 2016. A field representative from the MNCFN and a representative of TMHC accompanied the TRCA archaeologists during the majority of the Stage 2 assessment in this area. During the survey, a single small quartz flake was identified. TRCA Archaeology Resource management Services staff confirmed in an email dated June 20, 2016 that they had no further archaeological concerns for this area, and that TRCA staff would be submitting a report to the MTCS detailing the results of the TRCA Stage 2 Archaeological Assessment.

A Built Heritage Resource Background Review (TMHC, 2015) identified two built heritage resources within the project study area (i.e., the Leaside Bridge and a house on Midburn Avenue) and three built heritage resources within 50 m of the project study area (i.e., a house on Dawes Road, a house on Gerrard Street East, and a house on Glenwood Crescent). No cultural heritage landscapes were identified.

Potential effects of the proposed project on cultural heritage resources are discussed in section 7.

3.4 Human Settlements

The following section describes land use, population and demographics, First Nations lands and territory, buildings and built-up areas, services and infrastructure, and labour market and economy in the study area.

3.4.1 Land Use Planning

With respect to existing land use designations, land use in the study area is guided by the *Provincial Policy Statement* (PPS)*, 2014*, the *Growth Plan for the Greater Golden Horseshoe*, *2006* (Ministry of Infrastructure, 2013), and the *City of Toronto Official Plan* (2015).

The PPS (2014) provides the Government of Ontario's policy direction on land use planning (e.g., efficient management of land and infrastructure, the protection of resources, and appropriate employment and residential development), in order to promote strong communities, a strong economy, and a clean and healthy environment. The City of Toronto (2015) was required to use the PPS (2014) to guide and inform the development of their Official Plan and other land use planning documents, in order to ensure consistency.

The *Growth Plan for the Greater Golden Horseshoe*, *2006* established a long-term framework for where and how the Greater Golden Horseshoe (GGH) region (inclusive of the City of Toronto) will grow (Ministry of Municipal Affairs and Housing [MMAH], 2016). The plan's land use planning provisions work to foster a clean economy, a clean and healthy environment, and social equity with thriving, livable and productive urban centres. The guiding principles in the plan regarding land use development, management and protection are based on the following:

- design complete communities to meet people's needs for daily living throughout an entire lifetime;
- support healthy and active living;
- prioritize intensification and higher densities to make efficient use of land and infrastructure and support transit viability;
- provide flexibility to capitalize on new economic and employment opportunities as they emerge;
- provide for a mix and range of housing types to serve all sizes, incomes and ages of households;
- improve the integration of land use planning with planning and investment in infrastructure and public service facilities;

- provide for different approaches to manage growth that recognize the diversity of communities in the GGH;
- protect and enhance natural heritage, hydrologic and landform features and functions;
- conserve and promote cultural heritage resources to support the social, economic, and cultural well-being of all communities; and,
- integrate climate change considerations into planning and growth management.

The *Proposed Growth Plan for the Greater Golden Horseshoe, 2016* is currently available for public review and comment, as the provincial government seeks to update the plan (MMAH, 2016). The *City of Toronto Official Plan* (2015) considers the tenets of the Growth Plan for the GGH.

Municipal land use in the study area is designated by the City of Toronto's Official Land Use Plan, Maps 17, 20 and 21 (see Appendix B4). While natural areas, neighbourhoods and employment areas represent the predominant land uses in the study area, the study area overlaps numerous formal land use designations, as presented below:

- Parks, natural areas and other open spaces: "Parks and Open Space Areas are the parks and open spaces, valleys, watercourses and ravines, portions of the waterfront, golf courses and cemeteries that comprise a green open space network in Toronto" (City of Toronto, 2015, p.4-7). Within these land use designations, the study area overlaps greenspace system areas, city parklands and natural heritage areas (as identified in the Official Plan's Urban Structure Map [Map 2], Natural Heritage Map [Map 9], and City Parkland Map [Map 8a], see Appendix B4) (City of Toronto, 2015).
- Neighbourhoods: "Neighbourhoods are considered physically stable areas made up of residential uses in lower scale buildings such as detached houses, semi-detached houses, duplexes, triplexes and townhouses, as well as interspersed walk-up apartments that are no higher than four storeys. Parks, low scale local institutions, home occupations, cultural and recreational facilities and small-scale retail, service and office use are also provided for in Neighbourhoods. Physical changes to established neighbourhoods must be sensitive, gradual and generally 'fit' the existing physical character" (City of Toronto, 2015, p.4-3).

- Apartment Neighbourhoods: "Apartment Neighbourhoods are made up of apartment buildings and parks, local institutions, cultural and recreational facilities, and small-scale retail, service and office uses that serve the needs of area residents. All land uses provided for in the Neighbourhoods designation are also permitted in Apartment Neighbourhoods" (City of Toronto, 2015, p. 4-6).
- Employment Areas: "Employment Areas are places of business and economic activity. Uses that support this function consist of: offices, manufacturing, warehousing, distribution, research and development facilities, utilities, media facilities, parks, hotels, retail outlets ancillary to the preceding uses, and restaurants and small scale stores and services that serve area businesses and workers" (City of Toronto, 2015, p.4-12).
- Mixed Use Areas: "Mixed Use Areas are made up of a broad range of commercial, residential, and institutional uses, in single use or mixed use buildings, as well as parks and open spaces and utilities" (City of Toronto, 2015, p. 4-10).
- Utility Corridors: "Utility Corridors are hydro and rail corridors primarily used for the movement and transmission of energy, information, people and goods" (City of Toronto, 2015, p. 4-9).

There are no *City of Toronto Official Plan* (2015) secondary plan areas or special policy areas that overlap the proposed project or the study area. There are 1,034 parcels of private land in the study area, but no freehold Crown land or unpatented Crown land (Teranet Incorporated, 2016).

Based on the City of Toronto's 'Higher Order Transit Corridor' depictions (Official Plan, Map 4, see Appendix B4), the study area overlaps potential transit corridor expansion elements in the areas of Millwood Road, Overlea Boulevard and Don Mills Road, which are identified as transit priority segments (City of Toronto, 2015).

Section 1.6.8.1 of the PPS (2014) states that "planning authorities shall plan for and protect corridors and rights-of-way for infrastructure, including… electricity generation facilities and transmission systems to meet current and projected needs." Section 1.6.11.1 further states that "Planning authorities should provide opportunities for the development of energy supply including electricity generation facilities and transmission and distribution systems, to accommodate current and projected needs."

A review of the proposed project's land use designation compatibility and conformance with the City of Toronto Official Plan also confirms that there are no issues regarding conformance. As described above, the study area overlaps a range of land use designations, including neighbourhoods, apartment neighbourhoods, parks and open space areas, employment areas and mixed use areas. Chapter 4 of the Official Plan (Land Use Designations) identifies that hydro/utility infrastructure is permitted in all of these land use designations, with no required designation amendments. Only one land use designation, Parks and Open Space Areas, notes that public works and utilities should be permitted only where no reasonable alternatives are available, and where projects are designed to have only minimal adverse impacts on natural features and functions (City of Toronto, 2015). Therefore, there is no potential for the proposed project to affect land use compatibility. Land use planning is not discussed further and is not carried through for assessment.

3.4.2 Population and Demographics

The study area is located within the City of Toronto, a single tier municipality and the provincial capital of Ontario. The City of Toronto extends over 63,021 hectares (ha) and represents the most populous urban centre in Canada. It is the epicentre of the Greater Toronto Area (GTA), which includes the City of Toronto and the surrounding regional municipalities of York, Peel, Durham and Halton, and is part of the GGH region of Southern Ontario.

The study area covers 411.1 ha, overlapping 11 neighbourhoods (defined by the City of Toronto) and 18 spatial census tracts[1] delineated by Statistics Canada (City of Toronto, 2016a; Statistics Canada, 2015). The study area overlaps segments of the East End-Danforth, Thorncliffe Park, Taylor-Massey, O'Connor-Parkview, Old East York, Broadview North,

1 Census tracts are defined as "small, relatively stable geographic areas that have a population between 2,500 and 8,000 persons. They are located in census metropolitan areas and in census agglomerations that have a core population of 50,000 or more. A committee of local specialists delineates census tracts in conjunction with Statistics Canada. Statistics Canada census tracts that overlap the proposed project include: 5350025.00; 5350026.00; 5350079.00; 5350080.01; 5350080.02; 5350180.00; 5350181.01; 5350181.02; 5350182.00; 5350185.02; 5350186.00; 5350187.00; 5350188.00; 5350189.00; 5350193.00; 5350194.02; 5350194.03; and 5350194.04.

Danforth East York, Greenwood-Coxwell, Leaside-Bennington, Woodbine Corridor and Woodbine-Lumsden neighbourhoods. In order to focus specifically on the study area, the 18 Statistics Canada census tracts have been used as the basis for all socio-economic data in this ESR. Figures presenting each census tract and neighbourhood are presented in Appendix B4.

According to the most recent national census (2011), there are 79,160 inhabitants in the 18 census tracts overlapping the study area (Statistics Canada, 2013). This represents approximately 3.0% of the City of Toronto's total population (Statistics Canada, 2013). The median age of the area is 39.9 years. A higher proportion of residents are of working age than city or provincial levels, with 59.2% of the population being between 25 and 64 years of age. Self-identified immigrants represent 38.5% of the population and 38.0% of the population self-identifies as visible minorities, which are both lower than the average for the City of Toronto (48.6% and 49.1% respectively). Self-identified First Nations and Métis residents represent 0.8% and 0.5% of inhabitants of census tracts overlapping the study area, respectively. Population data are presented in Table 3-1.

Table 3-1: Population of the Study Area Census Tracts (2011)

Indicator	Study Area Census Tracts	City of Toronto	Province of Ontario
Population	79,160	2,615,060	12,851,821
Working age (25 to 64 years of age) (%)	59.2	57.5	55.1
Median Age	39.9	39.2	40.4
Immigrants (self-identified) (%)	38.5	48.6	28.5
Visible Minority (self-identified) (%)	38.0	49.1	25.9
First Nations (self-identified) (%)	0.8	0.5	1.6
Métis (%)(self-identified)	0.5	0.2	0.7

Source: Statistics Canada, 2013

English is the most commonly spoken language in the City of Toronto and within the census tracts overlapping the study area. Approximately 21.2% of study area residents speak a language other than English or French at home, compared to 28.3% city-wide. A breakdown of language use in the census tracts overlapping the study area, the City of Toronto and the Province of Ontario is presented in Table 3-2.

Table 3-2: Language Profile of the Study Area Census Tracts (2011)

Indicator	Study Area Census Tracts	City of Toronto	Province of Ontario
Detailed language spoken most often at home - Total respondents	78,360	2,589,085	12,722,065
Home language – English or French (%)	72.6	64.6	81.2
Home language – not English or French (%)	21.2	28.3	14.4

Source: Statistics Canada, 2013

Project construction is expected to include a maximum of 60 workers, representing 0.08% of the study area population and 0.002% of the City of Toronto's population. The workforce during the maintenance and operation of the proposed project will be smaller than the construction workforce and comprised of existing Hydro One employees. As the addition of the temporary workforce to the local population during the construction phase is expected to be indiscernible, potential effects on population are not discussed further and are not carried through for assessment.

3.4.3 First Nations Lands and Territory

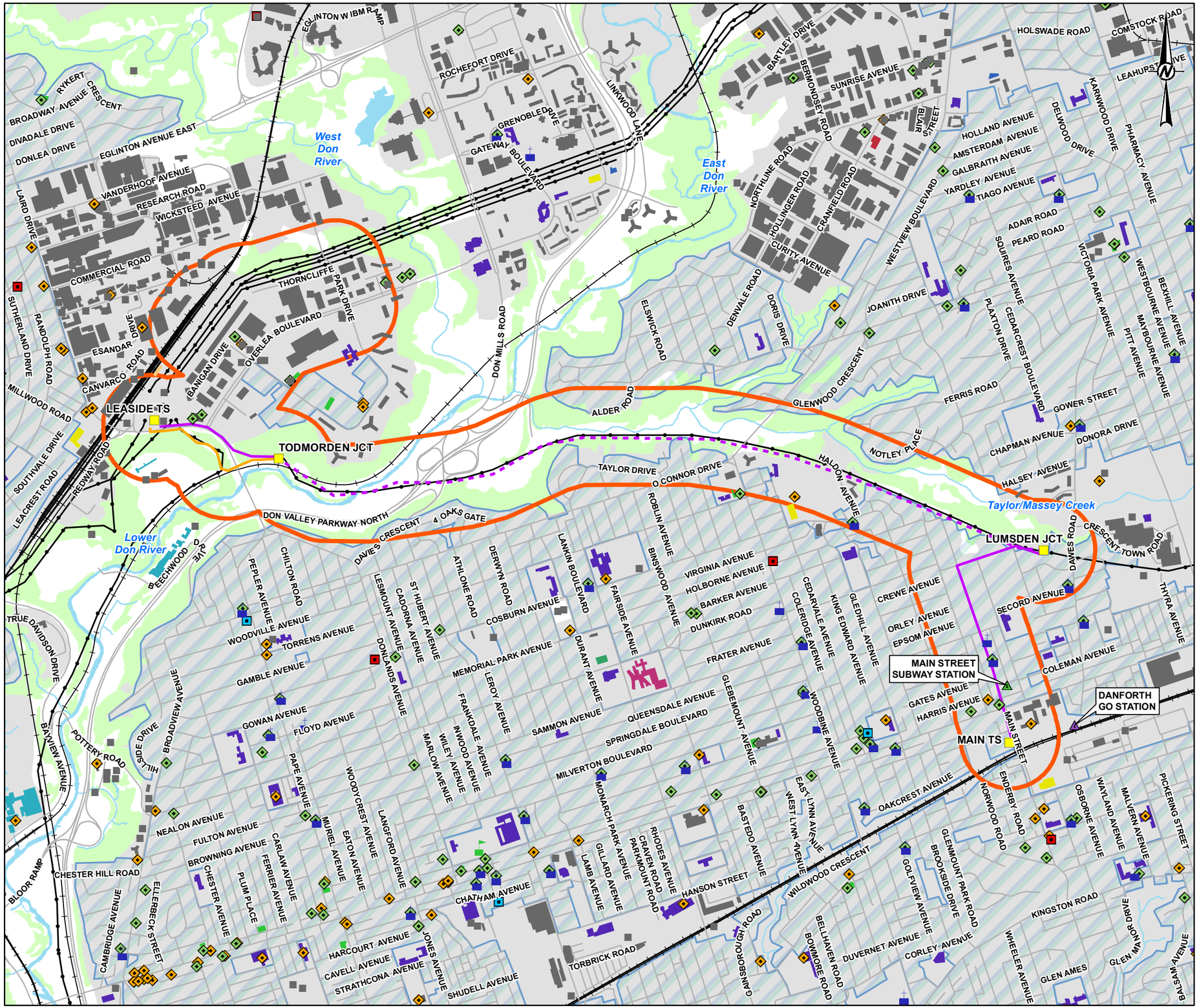
Aboriginal land in closest proximity to the proposed project are the reserve lands of the Mississaugas of Scugog Island First Nation (approximately 62.2 km from the study area) and the Chippewas of Georgina Island First Nation (two reserve territories located approximately 67.8 km and 69.5 km from the study area) (MNRF, 2016c). However, the proposed project falls within the traditional territory of the MNCFN (MNCFN, 2014). The MNCFN reserve is located southeast of Brantford, approximately 85 km from the study area (MNRF, 2016d). The study area is overlapped by the boundaries of Treaty 13 and the Johnson and Butler Williams Treaty of 1923 (MNRF, 2016c). These lands overlapped by the study area were associated with the Toronto Purchase (1787) and were later clarified with the establishment of Treaty 13 in 1805 (Ministry of Aboriginal Affairs, 2014; MNCFN, 2014). In 2010, Canada and MNCFN completed the final settlement of the MNCFN's Brant Tract and Toronto Purchase specific claims, resolving the outstanding dispute related to the lands now forming the City of Toronto.

Potential effects of the proposed project on First Nations lands and territories are discussed in section 7.

3.4.4 Buildings and Built-Up Areas

There are nine built-up areas[2] overlapping the study area, covering 274.4 ha (Natural Resources Canada [NRCan], 2016). These built-up areas include four residential areas, spanning 111.4 ha. NRCan's (2016) CANVEC database identifies 26 building points[3] and 67 building polygons[4] in the study area. Among the building polygons, there is one industrial building, one arena, three places of worship, three educational buildings, and one railway station. The remaining 58 building polygons are identified as "other". Buildings and built-up areas are presented on Figure 3-2.

2 The MNRF considers an area built-up when linear frequencies of structures are above 10 per 500 metres or 4 per 1 hectare. Areas with buildings, pavement and most other anthropogenic features are classified as built-up impervious. These features are found in urban areas.
3 Building points are defined by the MNRF as structures with no side larger than 50 metres for 1:20,000 scale data or no side larger than 30 metres for 1:10,000 scale data.
4 Building polygons are defined by the MNRF as structures with one side larger than 50 metres for 1:20,000 scale data or one side larger than 30 metres for 1:10,000 scale data.



LEGEND

- BUILDING (RELIGIOUS BUILDING)
- BUILDING (EDUCATIONAL BUILDING)
- EMERGENCY MEDICAL SERVICES STATION
- FIRE STATION
- PLACE OF WORSHIP
- MAKE SPACE FOR CULTURE
- DANFORTH GO STATION
- MAIN STREET SUBWAY STATION
- ROAD
- RAILWAY
- TRANSMISSION LINE
- WATERBODY
- WOODED AREA
- BUILT-UP AREA
- BUILDING (OTHER)
- BUILDING (EDUCATIONAL BUILDING)
- BUILDING (ARENA)
- BUILDING (INDUSTRIAL BUILDING)
- BUILDING (HOSPITAL)
- BUILDING (RELIGIOUS BUILDING)
- BUILDING (COMMUNITY CENTRE)
- BUILDING (CITY HALL)
- BUILDING (POLICE STATION)
- BUILDING (RAILWAY STATION)
- RESIDENTIAL AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- PREFERRED ROUTE FOR UNDERGROUND CABLE REPLACEMENT
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA

0 500 1,000

1:20,000 METRES

REFERENCE(S)

BASE DATA - CITY OF TORONTO, 2016; CANVEC, 2015; MNRF LIO, OBTAINED 2016
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
BUILT INFRASTRUCTURE IN THE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR
REVIEWED	SV
APPROVED	LH

PROJECT NO.	CONTROL	REV.	FIGURE
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The Toronto Community Housing Corporation maintains twelve properties in the study area, including the Agnes MacPhail townhouse multiplexes (2) and high-rise buildings (2), the Overlea high-rise apartment building, the East York Acres mid-rise apartment building, and six townhouses on Stephenson Avenue (City of Toronto, 2016b).

The City of Toronto identifies 11 places of worship within the study area (Figure 3-2). These include Hope United Church, Christadelphian Ecclesia, the Church of the Nazarene, the Faith Presbyterian Community Church, Chapel in the Park, Legion of Mary, the St. Clement of Orhid-Macedonian Orthodox Church, the Salvation Army, Thorncliffe Park United Church, Masjid Dar Al Salam and the Thorncliffe Mosque. The City of Toronto also identifies 'Makespaces for Culture' within the study area. In addition to places of worship above, Makespaces for Culture include the Main Square Community Centre, the Macedonian Cultural Centre, the Stan Wadlow Clubhouse, the Cypriot Community Centre, and the East Toronto Masonic Temple (Figure 3-2). There are several senior-supportive housing locations or retirement homes in the study area: True Davidson Acres (200 Dawes Road); the Hope Centre (2526 Danforth Avenue); Community Care East York (9 Halden Avenue) and Leaside Retirement Residence (10 William Morgan Drive). There are no City of Toronto-identified shelters or hotels within the study area. Heyworth House, a 79-bed emergency shelter, is located adjacent to the study area. Heyworth House is operated by Dixon Hall Neighbourhood Services (Dixon Hall Neighbourhood Services, 2016).

No buildings fall within the proposed cable route for either the Leaside TS to Todmorden JCT or Lumsden JCT to Main TS sections of the proposed project. Consequently, there is no potential for the proposed project to affect buildings. Buildings and built up areas are not discussed further and are not carried through for assessment.

3.4.5 Services and Infrastructure

Transportation and Traffic

As a key population and economic centre, the City of Toronto has extensive transportation infrastructure that connects the City with the GTA, the GGH region, and beyond. The City of Toronto is served by two main airports: Billy Bishop Toronto City Airport (BBTCA) and Toronto Pearson International Airport. VIA Rail and Metrolinx (GO Transit) provide inter-

and intra-city passenger rail service respectively, while Canadian Pacific (CP) Rail and Canadian National (CN) Rail operate freight rail service across the City and the Province of Ontario. The City of Toronto features major road infrastructure such as the Gardiner Expressway, the Don Valley Parkway, and Highways 400, 401, 404, 409 and 427. Intra-city subway, streetcar, bus and Wheel-trans travel services are available through the Toronto Transit Commission (TTC), and many intercity bus travel options are available, including (but not limited to) Greyhound Bus lines, GO Transit, Megabus, and Ontario Northland.

Within the study area, there are no airports, airport runways or towers. There are 28 operational railway segments[5] in the study area, extending a cumulative 10.6 km. Four railway segments are operated by GO Transit, one railway segment is operated by Canadian National Railway (CN Rail), and 23 segments are operated by Canadian Pacific Railway (CP Rail). Rail tracks include (but are not limited to) the Leaside track, the Richmond Hill track and the Industrial Street Lead track[6]. Among these 28 operational railway segments, the MNRF (2016e) identifies two crossover tracks, 13 main tracks, one railway spur and 12 railway yards. All of these railway segments are used for freight transport, while four tracks have dual usage for freight and passenger railway traffic. None of these railway segments are transected by the proposed project (MNRF, 2016e) (Figure 3-2).

With respect to public transportation, the study area is mainly served by the TTC's east-west Line 2 Bloor-Danforth subway line and the Main Street subway station in particular (TTC, 2016).

In 2014, 535,600[7] customers travelled on Line 2 Bloor-Danforth on an average weekday, of which 25,580[8] customers travelled to and from Main Street Station (TTC, 2014a). The study area is also serviced by the TTC 506 Carlton streetcar route, which also travels generally east-west between High Park and Main Street Station. As of April 2014, the 506 Carlton

5 Refers to an area of rail track with uniform characteristics.
6 The remainder of the CPR tracks are unnamed, according to the MNRF LIO database.
7 Typical number of customer-trips made on the subway on an average weekday (TTC, 2014).
8 Typical number of customers travelling to and from the station platform on an average weekday (TTC, 2014).

streetcar route serviced 39,700 customers per day during the weekdays, and 25,800 and 16,900 customers on Saturday and Sunday, respectively (TTC, 2014b).

Active express, regular and limited service bus routes also operate across the study area (TTC, 2016). Bus routes that service the study area and the ridership statistics associated with these routes are listed in Table B4-1, Appendix B4. Bus routes 20 Cliffside, 23 Dawes, 62 Mortimer, 64 Main, 87 Cosburn, 113 Danforth, and 135 Gerrard connect the study area and adjacent areas to Main Street Station. In terms of passenger rail, the GO Transit Lakeshore East Line serves the study area through the Danforth GO station, located near Main Street and Danforth Avenue (adjacent to the study area).

The study area is roughly bordered by Eglinton Avenue to the north, Victoria Park Avenue to the east, Laird Drive to the west, and Gerrard Street East to the south (Figure 3-2). The Don Valley Parkway operates as the only freeway connecting to this area of the City of Toronto. The study area overlaps 281 road segments[9]. Thirteen of these road segments (belonging to 10 municipal roads) are transected by the proposed project alignment (Figure 3-2).

Table 3-3 provides a description of the road segments transected by the study area. Main Street and a portion of Danforth Avenue are among the roads in the study area that have recently been resurfaced.

9 A road segment is the specific representation of a portion of a road with uniform characteristics (NRCan, 2016).

Table 3-3: Roads Transected by the Project

Road Description	Type of Road
Lumsden Avenue	Local Street
Danforth Avenue	Arterial
Doncaster Avenue	Local Street
Laneway north of Danforth and west of Main Street	Alleyway/Laneway
Barrington Avenue	Local Street
Main Street	Collector
Stephenson Avenue	Local Street
Overlea Boulevard	Collector
Leaside Bridge	Arterial
Millwood Road	Arterial

Source: MNRF, 2016a

Eight-hour turning movement traffic counts were completed at five key intersections in the vicinity of the proposed project within the study area, at the following locations:

- Main Street at Danforth Avenue;
- Main Street at Doncaster Avenue;
- Main Street at Lumsden Avenue;
- Millwood Road at Overlea Boulevard; and,
- Overlea Boulevard south of Thorncliffe Park Drive.

Traffic counts at these intersections are presented in Table 3-4.

Table 3-4: Traffic Counts in the Study Area (2016)

Municipal Intersection	Vehicle a.m. Peak	Midday Peak	Vehicle p.m. Peak	Total Vehicles per day	Pedestrian Crossings a.m. Peak	Pedestrian Crossings Midday Peak	Pedestrian Crossings p.m. Peak	Total Pedestrian Crossings
Main Street at Danforth Avenue	785	541	783	20,025	220	207	282	6,325
Main Street at Doncaster Avenue	156	127	172	3,873	25	11	43	464
Main Street at Lumsden Avenue	227	156	253	5,418	23	20	27	399
Millwood Road at Overlea Boulevard	759	628	828	21,092	13	12	22	250
Overlea Boulevard south of Thorncliffe Park Drive	329	303	377	9,469	0	0	0	0

Accommodating local vehicle traffic are four on-street permit parking areas in the study area, identified as 9A, 9C, 9H and 9J by the City of Toronto (City of Toronto, 2016b). These

permitted parking areas cover 76.6 ha of land. In the portion of the study area between Lumsden JCT and Main TS, including along Main Street, many of the houses feature a laneway with access to backyard garages, which can be accessed from Doncaster Avenue.

Potential effects of the proposed project on transportation and traffic are discussed in section 7.

Water, Wastewater and Waste Services and Infrastructure

Toronto Water manages four water treatment plants in the City of Toronto: the R.C. Harris Water Treatment Plant; the F.J. Horgan Water Treatment Plant; the R.L. Clark Water Treatment Plant; and the Island Water Treatment Plant. The City of Toronto also manages pumping stations, underground reservoirs, elevated tanks and hundreds of kilometres of water mains (City of Toronto, 2016c). The City of Toronto sources water from Lake Ontario before cleaning, treatment, and distribution to residents. None of the water treatment plants listed above are located in the study area.

Toronto Water manages four wastewater treatment plants that service the City of Toronto: the Ashbridges Bay Wastewater Treatment Plant; the Highland Creek Wastewater Treatment Plant; the Humber Wastewater Treatment Plant; and the North Toronto Wastewater Treatment Plant (City of Toronto, 2016d). The North Toronto Wastewater Treatment Plant is partly located in the study area, at 21 Redway Road in the Don Valley. It serves approximately 55,000 Toronto residences, operating with a maximum capacity of 40 ML/day, discharging effluent into the Don River (Toronto Water, 2016).

With respect to solid waste management, there are no MOECC-regulated landfills in the City of Toronto, nor are there any waste transfer stations in the study area. The Green Lane Landfill in Southwold Township, near London, Ontario, has been Toronto's primary waste disposal centre since 2011 (City of Toronto, 2016e).

Potential effects of the proposed project on water, wastewater and waste services are discussed in section 7.

Healthcare, Emergency Medical, Fire Suppression and Protective Services

Fourteen hospitals provide emergency services in the City of Toronto (City of Toronto, 2016f). The study area is serviced primarily by Michael Garron Hospital (formerly known as Toronto East General Hospital) and Sunnybrook Health Sciences Centre, which are located within 5 km of most residential postal codes in the study area. Michael Garron Hospital is a high-volume, full-service community hospital located at 825 Coxwell Avenue. The hospital receives over 70,000 emergency visits annually. Sunnybrook Health Sciences Centre is the largest single-site hospital in Canada, located at 2075 Bayview Avenue. Sunnybrook received 57,155 emergency room visits in 2014 (Sunnybrook Health Sciences Centre, 2016). Average Emergency Room wait times at both Sunnybrook and Michael Garron hospitals are higher than the provincial average, for both complex conditions (5.5 hour provincial average) and uncomplicated conditions (2.2 hour provincial average) (Ministry of Health and Long-Term Care, 2016).

Emergency medical services (EMS) across the City of Toronto are provided by the Toronto Paramedic Services. Toronto Paramedic Services is the largest municipal paramedic ambulance service in Canada, offering 24-hour EMS response through 45 ambulance stations across the City of Toronto (Toronto Paramedic Services, 2014). In 2014, Toronto Paramedic Service completed 202,469 emergency patient transports (Toronto Paramedic Service, 2015). No ambulance facilities are located in the study area. The ambulance service locations closest to the study area are Station 41 (1300 Pape Avenue) and Station 46 (105 Cedarvale Avenue).

The City of Toronto is served by Toronto Fire Services (TFS). The TFS is the largest fire service in Canada (TFS, 2016). In 2015, TFS responded to 115,667 calls for service. The TFS divides its fire suppression resources into South, East, West and North Commands. The study area overlaps District 22 in the Eastern Command and District 32 in the Southern Command. There are no fire stations within the study area. Fire stations 224 (1313 Woodbine Avenue), 332 (256 Cosburn Avenue) and 226 (87 Main Street) are closest to the study area (Figure 3-2) (City of Toronto, 2016b).

The Toronto Police Service (TPS) is the largest municipal police force in Canada. The force received 1,150,857 emergency calls for service and 858,250 non-emergency calls for service in 2013, resulting in dispatches to 894,755 incidents (TPS, 2013). The study area overlaps the

service areas of three TPS divisions within TPS' Central Field Command: Division 53 (75 Eglinton Avenue West); Division 54 (41 Cranfield Road); and Division 55 (101 Coxwell Avenue) (Figure 3-2) (TPS, 2016).

Potential effects of the proposed project on healthcare, emergency medical, fire suppression and protective services are discussed in section 7.

Educational Services and Infrastructure

Primary and secondary education in the City of Toronto is provided primarily by two school boards: the Toronto District School Board (TDSB) (public, English-language) and the Toronto Catholic District School Board (TCDSB) (Catholic, English-language). Three TDSB institutions, Thorncliffe Park Public School, Secord Elementary School, and Parkside Elementary School, are located in the study area. The TDSB-run 'Language Instruction for Newcomers to Canada' location on Overlea Boulevard is also located within the study area. No TCDSB schools, public libraries or post-secondary institutions are located within the study area.

It is not expected that the construction workforce (consisting of approximately 60 workers), or the operations workforce (consisting of existing Hydro One staff) for the proposed project would relocate closer to the study area as a result of the proposed project, and create an increased burden on educational services or infrastructure. The proposed project is not predicted to have a discernible effect on demand for educational services during construction or operation. Therefore, educational services and infrastructure are not discussed further and are not carried through for assessment.

Housing

Based on the 2011 National Household Survey, there are 32,945 private households in the census tracts overlapping the study area, split between owners (50.9%) and renters (49.1%) (Statistics Canada, 2015). Residents most commonly live in high-rise apartment buildings (35.6%), followed by single detached houses (29.7%) and low-rise apartment buildings (15.2%). In 2011, the median home value in census tracts overlapping the study area is $419,625, higher than Toronto as a whole (Statistics Canada, 2013). Conversely, the median monthly rental cost in census tracts overlapping the study area is $928, lower than the City as

a whole. Project fieldwork also identified potential informal settlement (i.e., tent-like structures) within 50 m of the proposed project RoW, west of the Leaside Bridge.

It is not expected that the proposed project's construction workforce (approximately 60 workers) or the operational workforce (comprised of existing Hydro One staff) would relocate closer to the study area as a result of the proposed project, and generate an additional demand for temporary or permanent housing in the study area. As the proposed project is not predicted to have a discernible effect on demand for housing during construction or operation, housing is not discussed further and is not carried through for assessment.

3.4.6 Labour Market and Economy

The City of Toronto is the business and financial capital of Canada, rated to be "one of the top four global cities with economic clout" (City of Toronto, 2016g). The City of Toronto maintains a highly diversified economy, bolstered by eleven key sectors: financial services; education services; technology; tourism; food and beverage; green economy; life sciences; film and television; music; design; and fashion and apparel (City of Toronto, 2016h).

There are more than 89,800 businesses within municipal borders (City of Toronto, 2016g). Within the study area, the City of Toronto has established the Danforth Village Business Improvement Area (BIA), an association of business people who are focused on stimulating local business. Established in 2006, the Danforth Village BIA includes 200 storefronts on Danforth Avenue, from Westlake Avenue to Victoria Park Avenue. The BIA is "dedicated to improving the area's physical appearance, convenience and economic vitality" (City of Toronto, 2016i).

Based on Statistics Canada's (2013) assessment of employment by industry under the North American Industry Classification System, top industries of employment in the census tracts overlapping the study area are professional, scientific and technical services (11.3%); retail trade (10.4%); and healthcare and social assistance (10.1%).

The City of Toronto has a labour force of 1,399,985 workers, 42,385 of which live within the census tracts overlapping the study area (Statistics Canada, 2013). The study area has a participation rate of 65.9%, slightly higher than that of the City of Toronto as a whole (64.3%)

or the Province of Ontario (65.5%). The unemployment rate, however, is also higher in the census tracts overlapping the study area at 9.8%, compared to the City of Toronto as a whole (9.3%) or the Province of Ontario (8.3%) (Statistics Canada, 2013).

The median individual income across the study area census tracts is $29,213, higher than that of the City of Toronto as a whole ($26,828) and the Province of Ontario ($27,319) (Statistics Canada, 2013). Median family incomes in the study area census tracts ($82,105) are higher than those in the City of Toronto as a whole ($72,890) and the Province of Ontario ($80,987) (Statistics Canada, 2013).

In 2014, the City of Toronto's *Strong Neighbourhoods Strategy 2020* noted 31 neighbourhoods "falling below the Neighbourhood Equity Score[10] and requiring special attention" (City of Toronto, 2016j; City of Toronto, 2014). These neighbourhoods are now supported by City of Toronto Neighbourhood Action teams, and include the Thorncliffe Park and Taylor-Massey Neighbourhood Improvement Areas that overlap the study area (City of Toronto, 2016j). The Thorncliffe Park and Taylor-Massey Improvement Areas are located within the study area and remain part of this program. In 2011, 32.7% of the population of the Thorncliffe Park neighbourhood was categorized as low income (City of Toronto, 2016j). In the same year, 35% of Taylor-Massey residents were categorized as low income (City of Toronto, 2011).

Potential effects of the proposed project on labour market and economy are discussed in section 7.

3.5 Trapping

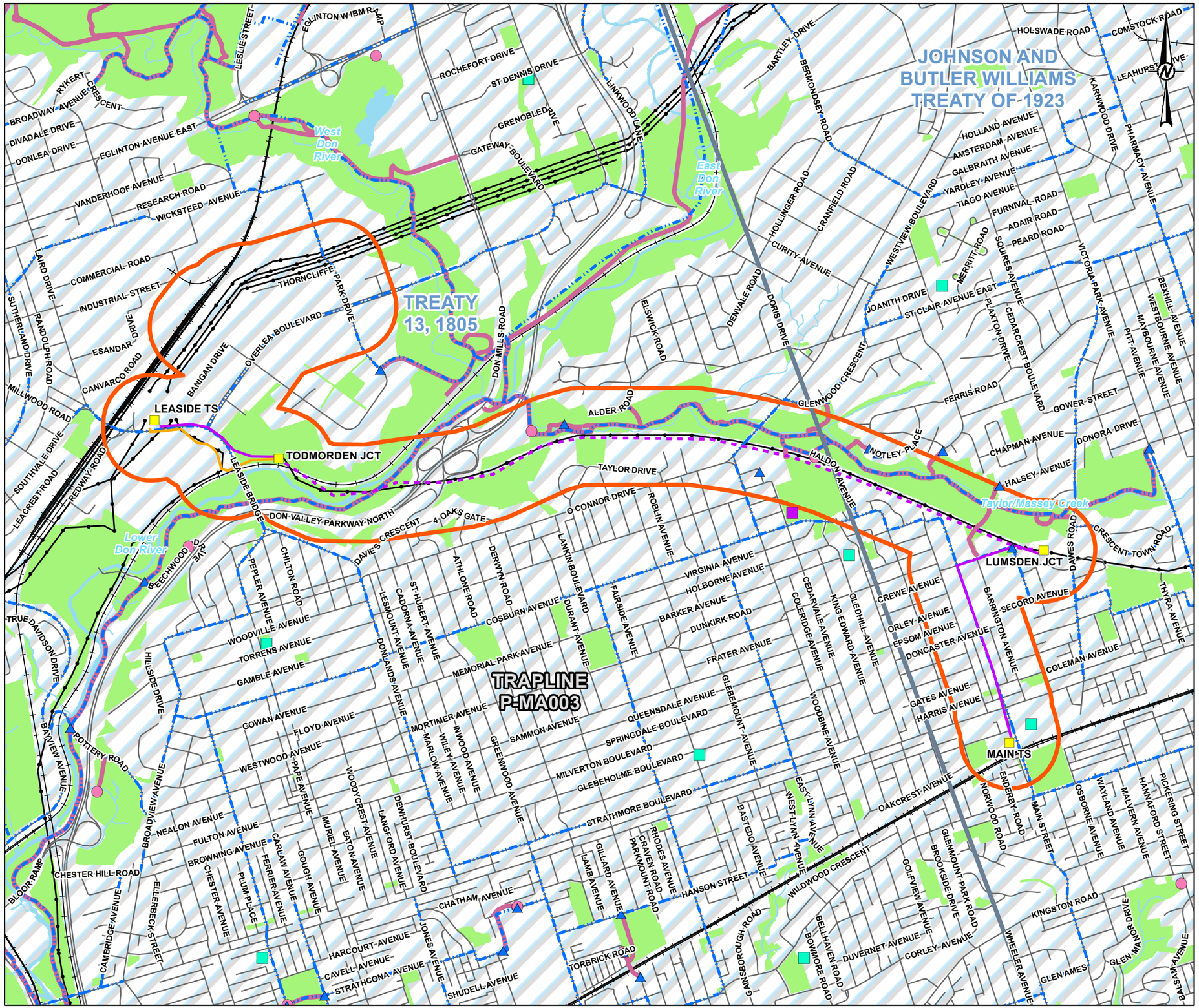
The study area overlaps trap line management area P-MA003, which consists of 130,675.4 ha extending over the City of Toronto, the City of Vaughan, the town of Richmond Hill, the Town of Markham and the Town of Whitchurch-Stouffville (Figure 3-3). Trapline area

[10] The City of Toronto identifies Neighbourhood Equity Score for each of Toronto's 140 neighbourhoods. This score is derived from 15 indicators of neighbourhood inequity across five thematic domains and describes how neighbourhoods in Toronto are faring relative to others. These indicators were provided to the City of Toronto by the Urban HEART@Toronto research initiative (City of Toronto, 2014).

P-MA003 is currently categorized as 'in use' (MNRF, 2016f). The study area, however, is located in a densely populated urban area; biophysical fieldwork conducted throughout the study area did not identify any evidence of active trapping activity. As there are no known trapping activities occurring in the study area, there is low potential for the proposed project to affect trapping and it will not be discussed further.

3.6 Mineral Resources

The proposed project is located in an urban area. Based on a review of the MNRF (2016g) LIO and NRCan (2016) CANVEC databases, there are no active aggregate authorized sites in the study area. Therefore, there is no potential for the proposed project to affect mineral resource development and it will not be discussed further.



LEGEND

- CITY OF TORONTO BICYCLE TRAIL ENTRANCE
- LEISURE SKATING FACILITY
- SWIMMING FACILITY
- ONTARIO TRAIL NETWORK TRAILHEAD
- ROAD
- RAILWAY
- TRANSMISSION LINE
- CITY OF TORONTO BICYCLE NETWORK
- ONTARIO TRAIL NETWORK TRAIL
- WATERBODY
- CITY OF TORONTO GREENSPACE
- TREATY AREA
- TRAPLINE AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- PREFERRED ROUTE FOR UNDERGROUND CABLE REPLACEMENT
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA

REFERENCE(S)

BASE DATA - CITY OF TORONTO, 2016; CANVEC, 2015; MNRF LIO, OBTAINED 2016
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
RESOURCE USE AND RECREATIONAL USE IN THE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR
REVIEWED	SV
APPROVED	LH

PROJECT NO.	CONTROL	REV.	FIGURE
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3.7 Natural Environment Resources

This factor considers areas of environmental sensitivity including the air, land, water and wildlife resources and features within the study area. The assessment is based on the requirements outlined in the PPS (2014) and following the *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement* (MNR, 2010).

Baseline information regarding the following physical and biological features in the study area is discussed. These features include the following:

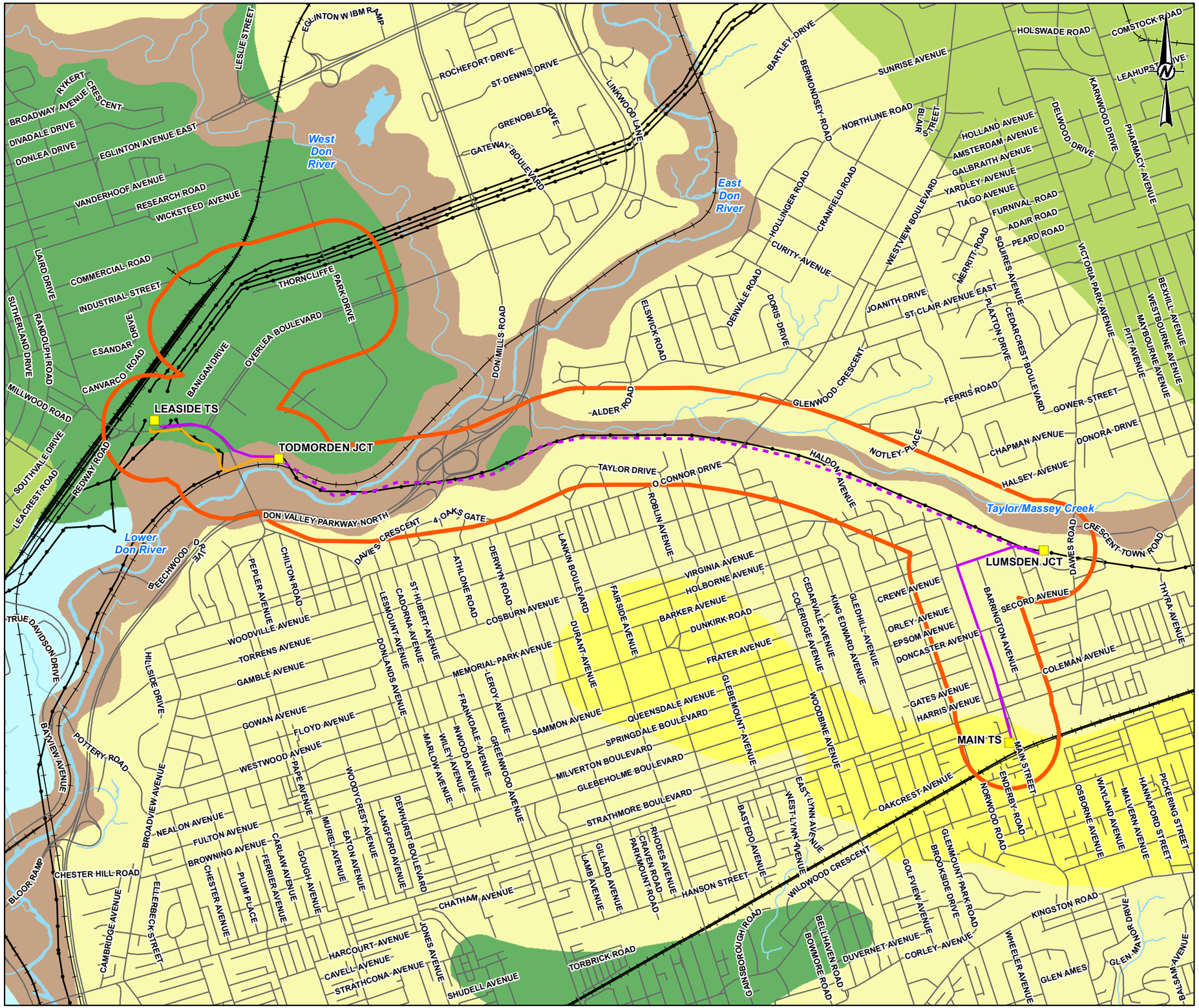
- physical environment;
- atmospheric environment;
- surface and groundwater resources;
- designated or special natural areas; and,
- natural heritage features.

3.7.1 Physical Environment

Geology

The study area is located in the Iroquois Plain physiographic region of Ontario as defined by Chapman and Putnam (1984). The Iroquois Plain formed beneath and adjacent to ancient Lake Iroquois, resulting in the deposition of gravel, sands and clays. As shown on (Figure 3-4), the surficial geology of the study area is dominated in the south, east, and north-centre by coarse-textured glaciolacustrine deposits (foreshore and basinal deposits) comprised of sand, gravel, and minor silt and clay. Modern alluvial deposits comprised of clay, silt, sand, gravel, and which may contain organic remains, are associated with the Lower Don River and Taylor-Massey Creek which traverse the study area. The northwestern portion of the study area is underlain by undifferentiated older till and stratified deposits (comprising the Halton Till). The area of similar material (i.e., undifferentiated older till and stratified deposits) near the center of the study area, adjacent to the Don Valley Parkway (Figure 3-4), was likely isolated due to erosion caused by the Don River.

The bedrock in this area is comprised of interbedded limestone and shale of the Upper Ordivician Georgian Bay Formation (Ministry of Northern Development and Mines, 2006).



LEGEND

- ROAD
- TRAIL
- RAILWAY
- TRANSMISSION LINE
- WATERCOURSE
- WATERBODY
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- PREFERRED ROUTE FOR UNDERGROUND CABLE REPLACEMENT
- EXISTING OVERHEAD SHEILD WIRE
- STUDY AREA

SURFICIAL GEOLOGY

- 5E: UNDIFFERENTIATED OLDER TILL AND STRATIFIED SEDIMENT
- 5B: STONE-POOR, CARBONATE-DERIVED SILTY TO SANDY TILL

FINE-TEXTURED GLACIOLACUSTRINE DEPOSITS

- 8A: MASSIVE-WELL LAMINATED

COARSE-TEXTURED GLACIOLACUSTRINE DEPOSITS

- 9B: LITTORAL-FORESHORE DEPOSITS
- 9C: FORESHORE-BASINAL DEPOSITS
- 19: MODERN ALLUVIAL DEPOSITS

REFERENCE(S)

BASE DATA - MNRF LIO, OBTAINED 2016
SURFICIAL GEOLOGY - MNDM, 2006
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CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
SURFICIAL GEOLOGY

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	ME
PREPARED	JR
REVIEWED	SW
APPROVED	PM

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	**3-4**

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3.7.2 Atmospheric Environment

Climate

Toronto is located in the Great Lakes-St. Lawrence Lowlands climate zone, classified as a modified continental, temperate region, and in an area that experiences four distinct seasons per year. The climate is moderated by the proximity of the Great Lakes, especially Lake Ontario, which results in mild snowy winters and warm to hot humid summers. Most precipitation falls as rainfall in the April through November period, but it can rain twelve months of the year. Typically, there is snow for the months of November, December, and January through April. The area can be affected by storm tracks consisting of warm moist air coming northeast from the Gulf of Mexico, as well as cold dry air from the Arctic, and prevailing dry westerly winds from Central Canada. Ontario's climate features a regular progression of settled and stormy weather throughout the year. Specifically, high pressure systems, resulting in clear settled weather, are typically followed by low pressure systems soon thereafter, bringing storms and regular precipitation throughout the year.

The closest meteorological station to the proposed project for which climate normal data is available is the Toronto Meteorological Station located in downtown Toronto, approximately 4.8 km southwest of the proposed project (World Meteorological Organization [WMO] Station Identifier [ID] 71266). Climate Normals and Averages are used to summarize or describe the average climatic conditions of a particular location. At the completion of each decade, Environment and Climate Change Canada (ECCC) updates its Climate Normals for as many locations and as many climatic characteristics as possible. The most recent Climate Normal data available is from 1981-2010. Data presented in this baseline climate section is based on the 1981-2010 Climate Normal data.

The mean annual temperature at the Toronto Meteorological Station is 9.4°C. Climate Normal monthly precipitation varies between 29.1 mm in January and 84.7 mm in September. Total annual precipitation is approximately 831 mm, with 741 mm falling as rain and 121 cm falling as snow (see Appendix B5).

Based on the Climate Normal data for 1981-2010 at the Toronto Meteorological Station, the average length of the frost-free period is 203 days. Frozen ground conditions usually occur between early November and mid-April (see Appendix B5).

Climate Normal data for prevailing wind direction are not available for the Toronto Meteorological Station. The next closest stations are the Billy Bishop Toronto City Centre Airport (BBTCA) Meteorological Station (WMO ID: 71265) and Toronto Pearson Airport Meteorological Station (WMO Station ID 71624). The BBTCA station is the closer of the two stations; however, it is located on Toronto Island and is therefore notably impacted by lake effects, including onshore breezes. This station has also not been in operation for the required 30 year period for Climate Normal data to be established. Toronto Pearson Airport Meteorological station is located farther from the lake and is therefore less influenced by lake effects. At this location, winds are primarily from a westerly direction, with average annual wind speeds of 15 km/h (see Appendix B5).

Air Quality

Background air quality in the vicinity of the proposed project has been described by considering regional concentrations, based on publicly available monitoring data. Background air quality represents the existing conditions of air quality before the construction and operation of the proposed project. Sources that contribute to background air quality in the vicinity of the proposed project include vehicles travelling on roads and highways, long range transboundary air pollution, small regional sources and large industrial sources.

The assessment of background air quality is focused on criteria air contaminants, in particular:

- particulate matter, including suspended particulate matter (SPM), particles nominally smaller than 10 micrometres (μm) in diameter (PM_{10}), and particles nominally smaller than 2.5 μm in diameter ($PM_{2.5}$);
- nitrogen oxides (NOx) (expressed as nitrogen dioxide [NO_2]);
- sulphur dioxide (SO_2); and,
- carbon monoxide (CO).

In Ontario, regional air quality is monitored through a network of air quality monitoring stations operated by the MOECC and ECCC's National Air Pollution Surveillance (NAPS) program. Existing air quality in the study area was characterized using background air concentrations from monitoring stations located close to the proposed project. Three stations were identified as being most relevant to the proposed project. Air monitoring data from these stations represent the combined effect of emissions from sources near each monitoring station, as well as the effect of emissions transported into the region (see Table 3-5 for details on these stations).

The 90th percentile of the available monitoring data is typically considered a conservative estimate of background air quality. The mean of the 90th percentile of the measured concentrations was used to represent background air quality for parameters with shorter averaging periods (i.e., 1-hour and 24-hour). Overall annual background values were based on the mean of the available data.

Air quality criteria used for assessing ambient air quality in the study area include provincial criteria and federal standards and objectives where provincial criteria are not available. Specifically, the MOECC has issued guidelines related to ambient air concentrations, which are summarized in *Ontario's Ambient Air Quality Criteria* (AAQC) (MOECC, 2012). Where possible, monitoring data have been compared to the AAQC; however, for contaminants which do not have an AAQC, the federal *Canadian Ambient Air Quality Standards* (CAAQS) have been used for comparison. The CAAQS, formerly *National Ambient Air Quality Standards* (NAAQS), were developed under the *Canadian Environmental Protection Act, 1999*, and include standards for $PM_{2.5}$ and ozone that must be achieved by 2020. The approach to implementing the CAAQS is to phase in an initial set of more achievable targets in 2015, before more stringent standards are phased in during 2020 (Government of Canada, 2013).

For all compounds, background concentrations are below the relevant criteria at all three of the monitoring stations (Table 3-6).

Table 3-5: Ambient Monitoring Parameters

Station Name	NAPS Station ID	Monitoring Period Available					Distance from Project
		NO	NO_2	$PM_{2.5}$	CO	SO_2	
Toronto North	60421	2000 to 2013	2000 to 2013	2000 to 2013	—	—	9.19 km north-northwest
Toronto East	60410	2000 to 2013	2000 to 2013	2002 to 2013	—	—	6.0 km northeast
Toronto Downtown	60433	2003 to 2013	2003 to 2013	2003 to 2013	2006 to 2013	2006 to 2013	4.56 km southwest

Source: Environment and Climate Change Canada (2016c)
Note: "-" = parameter not measured at the monitoring station. All values, with the exception of annual averages, are based on 90th percentile of the data.

Table 3-6: Ambient Air Quality Monitoring Data Summary

Criteria Air Contaminant	Averaging Period	Monitored Data [µg/m³]			Regulatory Criteria [µg/m³]	Maximum Percentage of Regulatory Criteria
		Toronto North	Toronto East	Toronto Downtown		
SPM	24-Hour	59.36	51.52	50.67	120	49%
	Annual	34.54	32.62	33.08	60	58%
PM_{10}	24-Hour	29.68	25.76	25.33	50	59%
$PM_{2.5}$	24-Hour	14.84	12.88	12.67	27	55%
	Annual	8.64	8.16	8.27	8.8	98%
NO_2	1-Hour	52.67	52.67	50.79	400	13%
	24-Hour	45.00	43.11	43.42	200	22%
	Annual	29.63	28.62	31.02	60	52%
CO	1-Hour	—	—	458.10	36,200	1%
	8-hour	—	—	501.04	15,700	3%
SO_2	1-Hour	—	—	5.24	690	1%
	24-Hour	—	—	5.57	275	2%
	Annual	—	—	7.86	55	14%

Source: Environment and Climate Change Canada (2016c)
Note: "-" = parameter not measured at the monitoring station. All values, with the exception of annual averages, are based on 90th percentile of the data.

Particulate Matter

Particulate emissions occur due to anthropogenic activities, such as agricultural, industrial and transportation activities, as well as natural sources. Particulate matter is classified based on its aerodynamic particle size, primarily due to the different health effects associated with particles of different diameters. Fine particulate matter (i.e., $PM_{2.5}$) is of primary concern as these particles can penetrate deep into the respiratory system and cause health effects

(MOECC, 2015). In Ontario, fine particulate emissions have shown a steady decline since 2003 (MOECC, 2015).

For the area surrounding the proposed project, no monitoring data are available for SPM or PM_{10}; however, an estimate of the background SPM and PM_{10} concentrations can be determined from the available $PM_{2.5}$ monitoring data. Fine particulate matter is a subset of PM_{10}, and PM_{10} is a subset of SPM. Therefore, it is reasonable to assume that the ambient concentrations of SPM will be greater than corresponding PM_{10} levels, and PM_{10} concentrations will be greater than the corresponding levels of $PM_{2.5}$. Overall levels of $PM_{2.5}$ in Canada have been found to be about 50% of the PM_{10} concentrations and about 25% of the SPM concentrations (*Canadian Environmental Protection Act*/Federal-Provincial Advisory Committee, 1988). By applying this ratio, background SPM and PM_{10} concentrations were estimated for the region.

For 24-hour $PM_{2.5}$, measurements meet the AAQC of 30 μg/m³, which applies to the 98th percentile of data and the pending CAAQS value of 27 μg/m³ (2020 phase-in date). The annual average $PM_{2.5}$ values are below the pending CAAQS of 8.8 μg/m³ (2020 phase-in date). A summary of the fine particulate matter monitoring data is presented in Appendix B5.

Larger particles (i.e., SPM) can result in nuisance effects, such as soiling (dust) or reduced visibility and, therefore, must be taken into consideration. The derived SPM and PM_{10} values for each of the three stations are below the relevant Ontario AAQC and NAAQOs.

Nitrogen Oxides

NO_X is emitted in two primary forms: nitric oxide (NO) and NO_2. NO reacts with ozone in the atmosphere to create NO_2. The primary source of NO_X in the region is the combustion of fossil fuels. Emissions of NO_X result from the operation of stationary equipment such as incinerators, boilers and generators, as well as the operation of mobile sources such as vehicles, trains and other transportation sources.

The presence of NO_2 in the atmosphere has known health effects (e.g., lung irritation) and environmental effects (e.g., acid precipitation, ground-level ozone formation) (MOECC, 2015). As a result, regulatory guideline levels are based on NO_2 emissions and concentrations.

Emissions of NO_2 in Ontario have shown a steady decline from 2002 (MOECC, 2015). Over the monitored period, no exceedances of the 1-hour or 24-hour AAQC for NO_2 were recorded at the three monitoring stations near the proposed project (see Appendix B5).

Sulphur Dioxide

Sulphur dioxide is a colourless gas and at high concentrations can cause adverse health effects including breathing problems and respiratory illness. It can be oxidized to form sulphur trioxide, which in the presence of water vapour can transform into sulphuric acid mist. Sulphur dioxide is produced primarily by smelters and diesel fueled utilities (MOECC, 2015). The monitoring data assessed indicates that no exceedances of the 1-hour, 24-hour or annual AAQC for SO_2 were recorded during the available monitoring period (see Appendix B5).

Overall, the air quality monitoring data indicates that air quality in the surrounding area is below the relevant regulatory criteria. Additionally, where data were available for more than one air quality monitoring station, the data showed similar concentrations and correlation, thus indicating that air quality within the study area is not dissimilar to air quality across the GTA.

Noise

A desktop review of publicly available data was completed to identify noise-sensitive receptors within the study area, and to establish existing noise conditions.

The purpose of the noise assessment is to characterize potential noise effects associated with the proposed project on human receptors. As part of the assessment, existing noise-sensitive receptors within the study area were identified. Existing land uses within the study area consist of a mixture of employment industrial, commercial, residential, utility and transportation and open space (see sections 3.1 through 3.5 and section 3.8 for more details about land and resource use in the study area). In accordance with the MOECC (2013) publication NPC-300 *"Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning*", noise-sensitive receptors (or Points of Reception [PORs]) are defined as sensitive land uses, which include: dwellings; campsites or campgrounds; sensitive institutional uses (educational, nursery, hospital, health care facility, community center, place of worship or detention center); and sensitive commercial uses (hotel or motel).

A number of PORs were identified to represent the noise-sensitive receptors in the vicinity of the study area, with the greatest density of PORs located in the central and eastern portions of the study area.

Ambient noise conditions within the study area were established through a review of publicly available information and the professional opinion of Hydro One's environmental consultant based on experience on similar projects. Ambient noise conditions within the study area are generally expected to be dominated by anthropogenic activities. These activities include, but are not limited to: transportation (road, rail and distant air traffic); industrial activities; commercial activities; institutional activities; and residential activities. The actual ambient noise levels at a given POR depend on a number of factors, including type of noise source, distance to the noise source, and influences from intervening areas (e.g., structures, woodlots, topography) that could provide shielding between the noise source and POR. Ambient noise levels are expected to vary throughout the various periods of the day (i.e., Daytime [07:00-19:00], Evening [19:00-23:00], and Nighttime [23:00-07:00]), days of the week, and seasons of the year.

Ambient noise levels in the study area between Leaside TS and Todmorden JCT are likely influenced by noise emissions from Leaside TS, the North Toronto Wastewater Treatment Plant, rail traffic on the rail corridor west of Leaside TS and the smaller rail corridor south of Todmorden JCT, local and distant road traffic (e.g., on the Don Valley Parkway), and institutional, commercial and residential activities. Noise emissions from the existing underground cables are not expected to be a source of ambient noise.

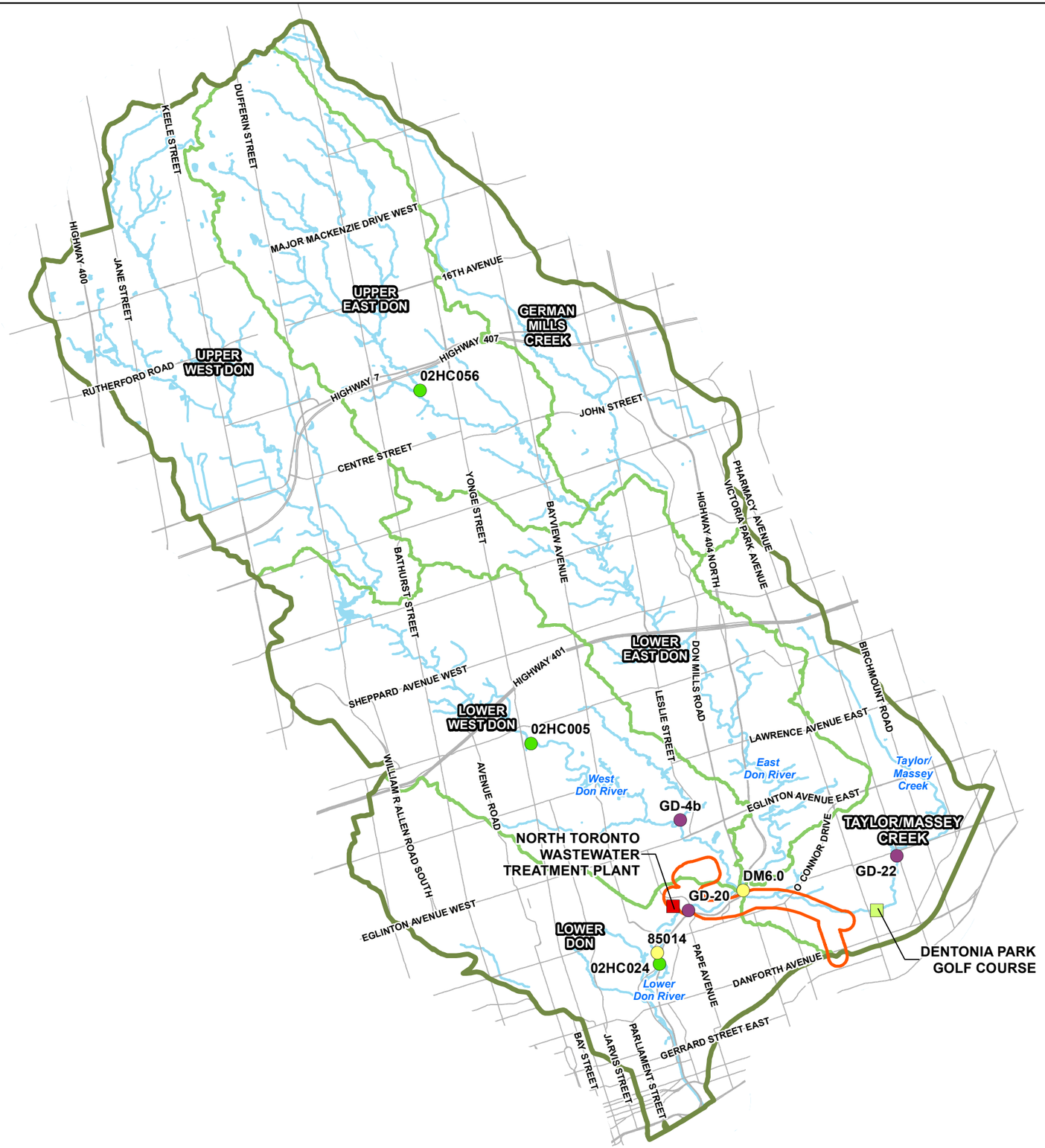
Ambient noise levels in the study area between Todmorden JCT and Lumsden JCT are likely influenced by noise emissions from existing Hydro One infrastructure including the existing overhead wires, rail traffic to the north (in the western portion of the segment), local and distant road traffic, and institutional, commercial and residential activities. In the western portion of the segment, noise emissions from the Don Valley Parkway are likely to dominate ambient conditions, while the ambient conditions of the central and eastern portions of this segment are likely dominated by local and distant road traffic.

Ambient noise levels in the study area between Lumsden JCT and Main TS are likely influenced by noise emissions from Main TS, Main Street TTC station, rail traffic on the rail corridor located south of Main TS, local road traffic, TTC streetcar traffic at Main Street and Danforth Avenue, and institutional, commercial and residential activities. The noise emissions from the existing underground cables are not expected to be a source of ambient noise.

3.7.3 Surface Water Resources

Watershed Characteristics

The study area is located in the Don River watershed, immediately downstream of the confluence of the west and east branches of the Don River (Figure 3-5). Approximately two-thirds of the study area is located in the lower Taylor-Massey Creek subwatershed. The remaining one-third of the study area is located mainly in the upper Lower Don River subwatershed, with a small portion extending into the lower portion of the Lower West Don River subwatershed (Figure 3-5).



LEGEND

- REGIONAL WATERSHED MONITORING PROGRAM FLUVIAL GEOMORPHOLOGY STATION
- REGIONAL WATERSHED MONITORING NETWORK SURFACE WATER QUALITY STATION
- WATER SURVEY OF CANADA STREAM GAUGE
- DENTONIA PARK GOLF COURSE
- NORTH TORONTO WASTEWATER TREATMENT PLANT
- ROAD
- WATERCOURSE
- WATERBODY
- STUDY AREA
- DON RIVER SUBWATERSHED
- DON RIVER WATERSHED

0 5 10

1:120,000 KILOMETRES

REFERENCE(S)

BASE DATA - MNRF LIO, OBTAINED 2016
WATERSHEDS - TORONTO AND REGION CONSERVATION AUTHORITY, 2014
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
LOCATION OF THE STUDY AREA IN THE DON RIVER WATERSHED AND SURFACE WATER AND FLUVIAL GEO-MORPHOLOGY MONITORING STATIONS

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	CC/JR
PREPARED	JR
REVIEWED	CC
APPROVED	AF

PROJECT NO.	CONTROL	REV.	FIGURE
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The Don River drains a watershed of approximately 360 km² that stretches almost 38 km in length from the river's headwaters in the City of Vaughan and Town of Richmond Hill to its mouth in the Toronto Harbour on Lake Ontario (Toronto and Region Conservation Authority [TRCA], 2009a; TRCA, 2009b). The Don River exhibits a somewhat dendritic drainage pattern with two major tributaries, the West Don River and the East Don River, which confluence near Todmorden Village immediately north of the study area (TRCA, 2009b). The Don River has a total stream length of 272.3 km and represents a low gradient fifth order[11] stream in its lowest reach, the Lower Don River (TRCA, 2009b). Approximately 80% of the Don River watershed is urbanized, 4% is rural, and 16% is under natural cover (TRCA, 2009b). Approximately 35% of the Don River watershed has impervious cover (TRCA, 2009b).

The West Don River originates in the City of Vaughan and flows southward to its confluence with the East Don River near Todmorden Village. It drains an area of approximately 125 km² stretching approximately 30 km from its headwaters to its mouth, and encompasses the Upper and Lower West Don River subwatersheds (TRCA, 2009b). The West Don River has a total stream length of 109.6 km and is a fourth order stream in its lowest reach (TRCA, 2009b).

The combined Upper and Lower West Don River subwatersheds are approximately 77% urbanized, 6% rural, and 17% under natural cover (TRCA, 2009b). The level of impervious cover in the Upper and Lower West Don River subwatersheds is 36% (TRCA, 2009b).

The Taylor-Massey Creek is an east tributary of the East Don River. It is one of the steepest watercourses in the Don River watershed (TRCA, 2009b), flowing southwards from its headwaters in the Town of Richmond Hill to the neighbourhood of Oakridge in the City of Toronto and then westwards to enter the East Don River, immediately upstream of its confluence with the West Don River. Taylor-Massey Creek drains an area of approximately 29 km² and has a total stream length of 19.7 km (TRCA, 2009b). It is a third order stream in its

11 Stream order is a measure of the relative size of a stream or river system. The smallest tributaries in the system are referred to as first order streams, recognizing that these channels are typically located in the headwaters of a watershed. The stream order of a channel will increase in the downstream direction as it joins another channel of similar stream order (e.g. a first order stream that confluences with another first order stream will form a second order stream). Stream sizes range from a first order stream to a 12th order stream.

lowest reach (TRCA, 2009b). The Taylor-Massey Creek subwatershed is the most urbanized of the Don River subwatersheds, with approximately 91% of its drainage area urbanized, and 9% under natural cover (TRCA, 2009b). The level of impervious cover in the Taylor-Massey Creek subwatershed is 43% (TRCA, 2009b).

Streamflow Conditions

Due to the high level of impervious cover in the watershed, streamflow in the Don River exhibits a flashy response to rainfall events. Times to peak[12] range from under one hour in Taylor-Massey Creek to six to ten hours on the main stem of the Don River. A number of flood vulnerable areas are located throughout the watershed. Two flood vulnerable areas of relevance to the proposed project include the North Toronto Wastewater Treatment Plant located partly within the study area, and the Evergreen Brickworks located downstream of the study area west of Pottery Road. Both areas are low-lying and are identified as "known flood prone locations in the Don River watershed" (TRCA, 2009b).

The Water Survey of Canada (WSC) currently operates three stream gauging stations on the Don River, one at the West Don River, one at the East Don River and one at the Lower Don River (

[12] The time from the start of surface runoff in response to a precipitation event to its maximum value.

Table 3-7 and Figure 3-5). Streamflow in the West Don River and the Lower Don River under high water conditions is controlled by the G. Ross Lord Dam and Reservoir, located on the West Don River. Streamflow in the Lower Don River is augmented with discharges from the North Toronto Wastewater Treatment Plant, which is located in the western portion of the study area south of the underground transmission cable section between Leaside TS and Todmorden JCT.

Table 3-7: Water Survey of Canada Stream Gauging Stations

Station ID	Station Name	Latitude °N	Longitude °W	Drainage Area (km²)	Years of Record
02HC024	Don River at Todmorden (Lower Don River)	43° 41′ 09″	79° 21′ 41″	318.5	1962 to 2014
02HC005	Don River at York Mills (West Don River)	43° 44′ 24″	79° 24′ 11″	88.1	1945 to 2014
02HC056	Don River East Branch near Thornhill (East Don River)	43° 49′ 35″	79° 26′ 17″	37.31	2005 to 2014

Table 3-8 and Figure 3-6 present streamflow at WSC stream gauging stations 02HC024, 02HC005 and 02HC056 between 2006 and 2014. Streamflow data for 2015 and 2016 are currently unavailable. Average annual unit runoff[13] ranged from 444 mm to 468 mm which, when compared to average annual precipitation recorded at Toronto Pearson International Airport over the same time period (834 mm), suggests that surface runoff at these gauge stations accounted for 53% to 56% of precipitation. For comparison, TRCA (2009a) estimated that the Don River watershed receives an average of 821 mm of precipitation per year. The TRCA presented a preliminary water budget for the watershed representing 2002 conditions which indicated surface runoff represents approximately 40% of total precipitation, while evapotranspiration and groundwater infiltration account for approximately 45% and 15%, respectively. Linear regression of annual mean streamflow between 1962 and 2005 showed a trend of increasing annual mean streamflow at an average rate of 0.44% per year (TRCA, 2009b), which could explain the higher percentage of precipitation occurring as surface runoff at the WSC stream gauging stations in 2006 through 2014 compared to TRCA's preliminary water budget representing 2002 conditions.

[13] Annual unit runoff is the annual runoff yield from a watershed reported as an average depth across the watershed.

Table 3-8: Streamflow in the Don River at Water Survey of Canada Gauging Stations (2006 to 2014)

Station ID	Station Name	Annual Mean Streamflow (m^3/s)	Annual Unit Runoff (mm)
02HC024	Don River at Todmorden (Lower Don River)	4.73	468
02HC005	Don River at York Mills (West Don River)	1.29	462
02HC056	Don River East Branch near Thornhill (East Don River)	0.526	444

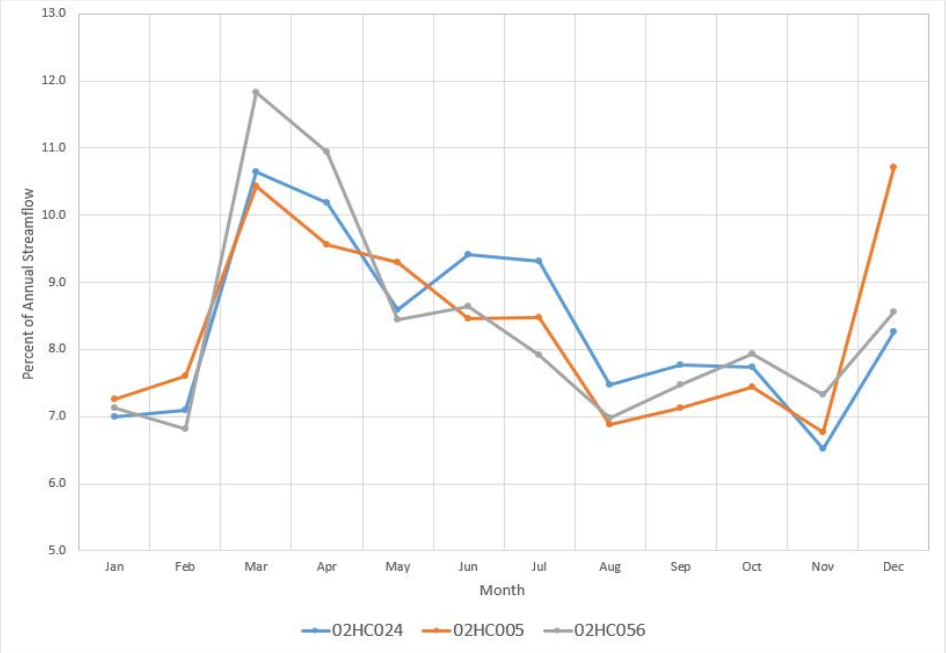


Figure 3-6: Streamflow in the Don River at Water Survey of Canada Gauging Stations (2006 to 2014)

As shown on Figure 3-6, monthly surface water runoff at WSC gauge stations 02HC024, 02HC005 and 02HC056 was highest in March and April, with each of these months accounting for approximately 9% to 12% of the annual total, respectively. In contrast, surface water runoff at these gauge stations was lowest in the month of November, representing only 6% to 8% of the annual value.

The TRCA (2009b) estimated that the proportion of annual mean streamflow occurring as baseflow ranged from 0.47 to 0.53. Baseflow represents the portion of streamflow consisting mostly of groundwater discharge, as well as discharge from wastewater treatment plants, leaky sanitary sewers, and stormwater facilities with long retention times. The TRCA (2009b)

reported that discharge from the North Toronto Wastewater Treatment Plant accounted for approximately 11% of streamflow in the Lower Don River annually. Annual unit runoff at WSC stream gauging stations 02HC024, 02HC005 and 02HC056 between 2006 and 2014 was used to estimate streamflow in the Don River, the West Don River and Taylor-Massey Creek in the study area. Drainage area and annual mean streamflow in these streams are provided in Table 3-9.

Table 3-9: Streamflow in the Don River in the Study Area (2006 to 2014)

Location	Drainage Area (km^2)	Annual Mean Streamflow (m^3/s)
Don River at confluence of West and East Branches	310.5	4.61
West Don River at confluence with East Don River	124.9	1.83
Taylor-Massey Creek at confluence with East Don River	28.59	0.403

The WSC stream gauging station at 02HC024 is located on the Lower Don River approximately 2 km downstream of the study area. There are no substantial inflows to the river system between the study area and the gauging station apart from discharges from the North Toronto Wastewater Treatment Plant. Water levels are also recorded at 02HC024 relative to an arbitrary datum. Daily mean water level data recorded between 2006 and 2014 were corrected to a datum approximating the bottom of the channel at the gauge, by subtracting an estimate of the height of the channel bottom above the arbitrary datum. The 25^{th} and 75^{th} percentile daily water levels were 0.14 m and 0.27 m, respectively, representing a typical range of water levels in the Lower Don River at the gauge between 2006 and 2014. However, a minimum daily water level of 0.08 m was observed on August 18, 2007, and a maximum daily water level of 1.54 m was recorded on February 12, 2009. The annual variation in daily water levels at the gauge ranged from 0.62 m in 2007 to 1.45 m in 2009.

Vulnerability to Flooding

As previously described, streamflow at the Don River is highly responsive to rainfall and snowmelt-generated runoff events due to the highly urbanized nature of the watershed (i.e., high level of impervious cover), meaning that even small amounts of precipitation in the catchment can have a large influence on surface water levels and flows at the Don River.

The TRCA maintains both a hydrologic model (a model that estimates the quantity of precipitation-generated runoff and associated streamflow) and a hydraulic model (a model that

describes the mechanics of flow – in this case to determine the water levels caused by the quantity of streamflow) for the Don River. Flood frequency in the Don River watershed has been predicted by the TRCA based on the 2004 update of the hydrologic model (TRCA 2009). The results of the flood frequency analysis for the Don River at Todmorden Gauge Station are shown in Table 3-10, noting that the modelled flood flows presented herein range from the 2-year event to the regional storm (Hurricane Hazel). The floodplain under the regional storm is shown on Figure 3-7.

Table 3-10: Modeled Design Storm Peak Flows at the Don River at Todmorden Gauge Station (Station ID 02HC024)

Return Period (years)	Peak Flows (m^3/s)
2	139.8
5	210.4
10	263.7
25	339.7
50	395.4
100	458.7
Regional Storm	2,043.8

Source: TRCA, 2009b

A review of the Don River hydraulic model indicates that a flow of 140 m^3/s or greater would cause flooding of the low lying area around the North Toronto Wastewater Treatment Plant – recognizing that a flow of 140 m^3/s is roughly equivalent to a 2-year or bankfull event (as shown in Table 3-10). Select peak recorded flows in the Don River that resulted in flood inundation of the low lying area around the North Toronto Wastewater Treatment Plant over the past 15 years are shown in Table 3-11. Based on the hydraulic model estimates, these events would have flooded the area to an estimated water depth of 0.5 to 1.4 m. The causes of many of the identified flood flows are high intensity, short duration storms during the summer months, noting that these high intensity events tend to overwhelm stormwater management systems (i.e., the facilities are unable to handle the rapid influx of stormwater). The selected events include the thunderstorm/tornado event of August 19, 2005 that resulted in rainfall accumulations of 100 to 130 mm in the Don River watershed over a one hour period, and a similar rainfall event in 2013 that comprised 97 mm of rainfall in Toronto over a two hour period (compounded by rainfall accumulations of almost 40 mm the day before that significantly reduced the area's stormwater storage capacity). In four of the past five years of available record from 2011 to 2015, a flood event larger than the bankfull condition has been

observed at the low-lying area around the North Toronto Wastewater Treatment Plant. The return period for these flood events ranged from 2.6 to 6.8 years (excluding 2013, where the peak flow was not recorded and therefore the return period is not known).

With the positive trend in impervious cover in the Don River watershed, and the potential increase in extreme, high intensity precipitation events due to climate change, the Don River watershed will likely see an increase in flooding events.

A memorandum regarding flood vulnerability of the project site at Todmorden JCT is presented in Appendix B6.

Table 3-11: Peak Flows in the Don River Resulting in Flood Inundation around the North Toronto Wastewater Treatment Plant

Year	Month of Peak Flow	Peak Annual Recorded Flow at Don River at Todmorden Station (m3/s) [1]	Modelled Flood Depth at the Water Treatment Plant (m) [2]	Event Return Period (years) [3]
2005	August	178	0.76	3.34
2012	July	216	1.12	5.33
2013	July	-4	-	-
2014	June	236	1.34	6.82
2015	June	159	0.53	2.64

1. Source: values recorded for the Don River at Todmorden Station.
2. Derived based on results from running the hydraulic model.
3. Derived based on the modelled peak flows presented in Table 3-10.
4. Although a documented flooding event occurred in July 2013, peak flow data at the Todmorden Gauge Station for this event is not available in the station record.

Fluvial Geomorphology

The Don River and its tributaries are semi-alluvial in nature and the morphology of the stream channels is controlled by the characteristics of the alluvium[14] transported from upstream, as well as the underlying glacial deposits. The study area is located in the Iroquois Sand Plain physiographic region, which contains sand, silt and clay deposits of the glacial Lake Iroquois occurring immediately north of Lake Ontario. The more permeable sediments in the plain occur in the lower reaches of the Don River (TRCA, 2009b).

[14] Sediment such as sand, silt, clay, gravel, or other material deposited by flowing water.

Channelization and installation of engineered bed and bank stabilization techniques are widespread throughout the Don River system. Many of these engineered works are currently failing and in need of maintenance. Due to the Lower Don River's low gradient, sediment from ongoing degradation and erosion in the upstream watershed is deposited, creating irregular accumulation patterns. The Lower Don River has been entirely channelized and hardened to prevent undermining of critical infrastructure. However, engineered works in some areas have caused downcutting[15] of the river channel and irregular channel migration patterns, resulting in failure of the engineered works and the requirement for new works elsewhere. A steep gradient and highly erodible substrate in Taylor-Massey Creek and the low level of stormwater runoff controls in its highly urbanized subwatershed have resulted in extreme examples of channel degradation with subsequent impacts to infrastructure and property. Erosion protection works in Taylor-Massey Creek have been constructed but require constant effort to maintain and replace (TRCA, 2009b).

TRCA (2009b) identified that only 57% of the total riparian area in the Lower Don River subwatershed contained natural riparian vegetation, and that natural riparian vegetation covered only 56% of the total riparian area in the Taylor-Massey Creek subwatershed. These results suggest that a substantial proportion of streambanks in both subwatersheds lack the stabilizing influence and protection that natural riparian vegetation provides (TRCA, 2009b).

The TRCA carries out geomorphic monitoring at sites representative of conditions within the watershed, as part of its Regional Watershed Monitoring Program. Figure 3-5 shows the fluvial geomorphology stations closest to the study area, and Table 3-12 provides stream morphological characteristics at these stations.

[15] Downward or vertical erosion that deepens the channel of a stream or valley by removing material from the stream's bed.

Table 3-12: Stream Morphological Characteristics and Stability Ratings at Regional Watershed Monitoring Program Fluvial Geomorphology Stations

Station ID	GD-20	GD-4b	GD-22
Station Name	Lower Don River	Lower West Don River	Taylor-Massey Creek
Stream Order	5	4	3
Drainage Area (km²)	316.0	98.2	18.2
Average Bankfull Width (m)	22.04	13.57	10.21
Average Bankfull Depth (m)	1.10	0.95	0.71
Bankfull Gradient (%)	0.14	0.11	1.94
Median Substrate (cm)	1.62	2.9	1.07
Critical Discharge (m³/s)	9.34	2.16	0.82
Average Bank Height (m)	2.9	2.6	2.4
Stability Index	Moderate	Moderate	Low

Surface Water Quality

Surface water quality in the Don River reflects a watershed that is heavily urbanized, has relatively few measures in place for stormwater runoff control (runoff control exists for only 20% of the watershed), and has occasional overflows of untreated sewage into its lower reaches from combined sewers (TRCA, 2009b). The TRCA monitors surface water quality in the Don River watershed under its Regional Watershed Monitoring Network (RWMN) ambient water sampling program. Surface water quality is monitored in the Lower Don River at Pottery Road approximately 1.3 km downstream of the study area, and in Taylor-Massey Creek just upstream of its confluence with the East Don River within the study area (Figure 3-5). Table 3-13 presents surface water quality data collected at these two stations between 2002 and 2005.

Table 3-13: Water Quality in the Don River (2002 to 2005)

Parameter	Units	Guideline Value	Lower Don River at Pottery Rd (Station ID 85014)		Taylor-Massey Creek under Don Valley Parkway Bridge (Station ID DM 6.0)	
			Average[1]	% meet guideline	Average[1]	% meet guideline
E. coli	CFU/ 100 mL	100[2]	434[3]	18	1,756[3]	0
Total suspended solids	mg/L	30[4]	12	79	6	94
Chloride	mg/L	250[5]	220	76	422	6
Total phosphorus	mg/L	0.03[2]	0.15	10	0.07	17
Nitrate	mg/L	1.0[6] 2.5[7]	1.5	13 89	2.3	6 65
Un-ionized ammonia	mg/L	0.02[2]	0.02	46	0	100
Aluminum	µg/L	75[2]	— [8]	38	— [8]	100
Copper	µg/L	5[2]	— [8]	52	— [8]	53
Iron	µg/L	300[2]	— [8]	34	— [8]	34
Zinc	µg/L	20[2]	— [8]	57	— [8]	72
Lead	µg/L	5[2]	— [8]	68	— [8]	94

Notes:
(1) Median value unless noted otherwise, (2) OMOE, 1999 - Provincial Water Quality Objective, (3) Geometric mean, (4) CCME, 1999 - Canadian Water Quality Guideline, (5) Environment Canada and Health Canada, 2001, (6) CAST, 1992 - to avoid excess growth of aquatic plants, (7) Rouse et al, 1999 - for protection of amphibians, (8) Average not provided.

Exceedances of guideline values for *E. coli*, total phosphorus, nitrate, unionized ammonia, and trace metals were observed in the Lower Don River at the Pottery Road station between 2002 and 2005. The East Don River (including Taylor-Massey Creek), which flows into the Lower Don River, was identified as having the highest number of exceedances of *E. coli*. The source of *E. coli* in Taylor-Massey Creek is likely discharges from combined sewers but the source of *E. coli* in the East Don River is unclear. Discharges from the North Toronto Wastewater Treatment Plant, a short distance upstream of the Pottery Road station, are likely the source of elevated phosphorus, nitrate, and unionized ammonia concentrations in the Lower Don River. Low levels of stormwater runoff controls within the watershed are likely responsible for high levels of trace metals in the Lower Don River. Trace metals originate from urban and industrial land use activities and are common contaminants in road runoff (TRCA, 2009b).

Exceedances of guideline values for *E. coli*, total phosphorus, nitrate, chloride, and trace metals were observed in Taylor-Massey Creek from 2002 to 2005. Taylor-Massey Creek had the highest number of exceedances of *E. coli* of the four RWMN ambient water sampling locations in the Don River watershed. In 2005 and 2006, the City of Toronto identified 28 sewer outfalls discharging to the creek with elevated levels of bacteria and other contaminants. Contaminated dry weather flows[16] from these sewer outfalls may also be the source of elevated total phosphorus and nitrate concentrations in Taylor-Massey Creek. Elevated chloride levels are attributed to the use of road salt in the densely urbanized drainage area upstream of the Taylor-Massey Creek station, but may also be the result of leaching into the stream from closed landfills. There are 24 closed landfills within the Taylor-Massey Creek subwatershed, of which 16 are located in the Taylor-Massey Creek valley upstream of the station. Copper, zinc, and lead originate from urban and industrial land use activities, and are attributed to the low level of stormwater controls within the Taylor-Massey Creek subwatershed (TRCA, 2009b).

[16] Dry weather flow refers to the wastewater flow in a sewer system during periods of dry weather with minimum infiltration.

The TRCA (2009b) also identified construction activities, accidental oil and chemical spills, and use of fertilizers and pesticides by golf courses as potential concerns to surface water quality in the Don River watershed. High sediment loads are expected during the early part of rainfall events as soil from pervious areas and accumulated grit and dirt from hard surfaces are washed into streams. A maximum total suspended solids concentration of 313 mg/L was observed in the Don River at Pottery Road between 2002 and 2005. Data on reported spills between 1988 and 2000 indicated there were approximately 2,475 oil spills and 1,584 chemical spills in the 905 area code, of which roughly half drained into nearby rivers including the Don River. There are 12 golf courses in the Don River watershed, with one located in the Taylor-Massey Creek subwatershed approximately 500 m east of the study area between Victoria Park Avenue and Pharmacy Avenue (Dentonia Park Golf Course, shown on Figure 3-5).

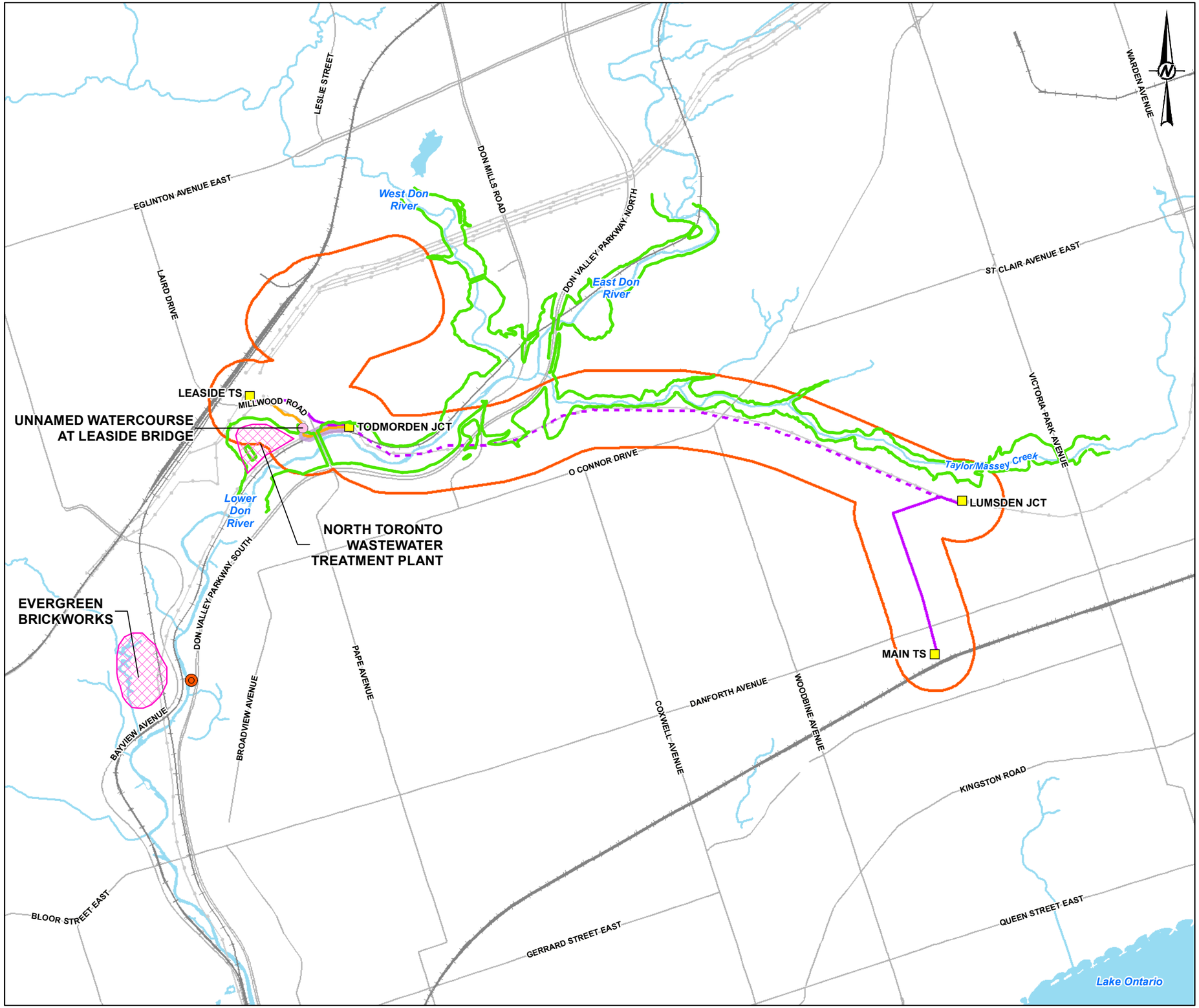
Water Crossing Locations

A small unnamed watercourse located on the west side of the Leaside Bridge may be crossed by the proposed project. This watercourse drains southwards to the Lower Don River, and is intersected by route option 2 for the underground transmission cable replacement between Leaside TS and Todmorden JCT (see Figure 3-7). In addition, portions of the proposed project extend into the riparian zones of the unnamed watercourse and Lower Don River (see Figure 3-7).

Table 3-14 summarizes key stream characteristics at the water crossing and in the affected riparian zones, based on the desktop review and fieldwork carried out in July 2015 and June 2016. Flow in the unnamed watercourse on the west side of the Leaside Bridge may be supported by groundwater discharge. During 2016 fieldwork, clean water was observed discharging from a culvert located approximately midway down the valley slope to the east of the watercourse despite little rainfall in the preceding days.

Table 3-14: Key Stream Characteristics at the Water Crossing and in the Affected Riparian Zones

Characteristic	Unnamed Drainage West of Leaside Bridge	Lower Don River
Drainage area (km^2)	< 1	310.5
Streamflow regime	Not Permanent	Permanent
Bankfull width (m)	< 5	15
Bankfull depth (m)	< 1	2
Substrate	Silt and sand, occasional cobbles and boulders	Silt/clay, boulders
Riparian vegetation	Trees	Trees, shrubs, grass
Remarks	Culvert discharges to drainage	None



LEGEND

- WATER SURVEY OF CANADA GAUGING STATION
- WATER CROSSING
- ROAD
- RAILWAY
- TRANSMISSION LINE
- WATERCOURSE
- WATERBODY
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- PREFERRED ROUTE FOR UNDERGROUND CABLE REPLACEMENT
- EXISTING OVERHEAD SHIELD WIRE
- TORONTO AND REGION CONSERVATION AUTHORITY (TRCA) FLOODPLAIN
- AFFECTED RIPARIAN ZONE
- STUDY AREA
- FLOOD PRONE AREA (BASED ON TRCA 2009)

0 500 1,000 1,500

1:25,000 METRES

REFERENCE(S)

BASE DATA - MNRF LIO, OBTAINED 2016
FLOODPLAIN - TRCA, 2016
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
PROPOSED WATER CROSSINGS AND WORK WITHIN RIPARIAN ZONES

CONSULTANT
Golder Associates

YYYY-MM-DD	2017-01-13
DESIGNED	CC/JR
PREPARED	JR
REVIEWED	CC/AC
APPROVED	AF

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	3-7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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3.7.4 Groundwater Resources

Hydrostratigraphic units influencing groundwater flow in the study area include the Scarborough Aquifer Complex, the much thinner Thorncliffe Aquifer Complex, and the Sunnybrook Aquitard (TRCA, 2009b). Low elevation portions of the study area within the Don River valley act as groundwater discharge points as the Scarborough Aquifer Complex is very shallow in this area. Areas with increasing distance from the Don River valley have increasing depths of the Sunnybrook Aquitard overlying the Scarborough Aquifer Complex. The presence of the Sunnybrook Aquitard varies considerably throughout the study area, and its occurrence imposes substantial control upon groundwater flow. The variations in topography within the study area, due to the presence of the Don River valley, also impose substantial controls upon groundwater flow and groundwater discharge in some areas to the Don River channel (TRCA, 2009b). Areas of higher elevation act as groundwater recharge zones; however, urbanization of these areas limits infiltration of precipitation. It is assumed that the presence of river and stream valleys in the study area provides the primary control on the direction of groundwater flow towards rivers and streams. Areas in the southeastern most extent of the study area, which are farther from river and stream valleys, may be more reflective of regional groundwater flow southeast towards Lake Ontario (TRCA, 2009b).

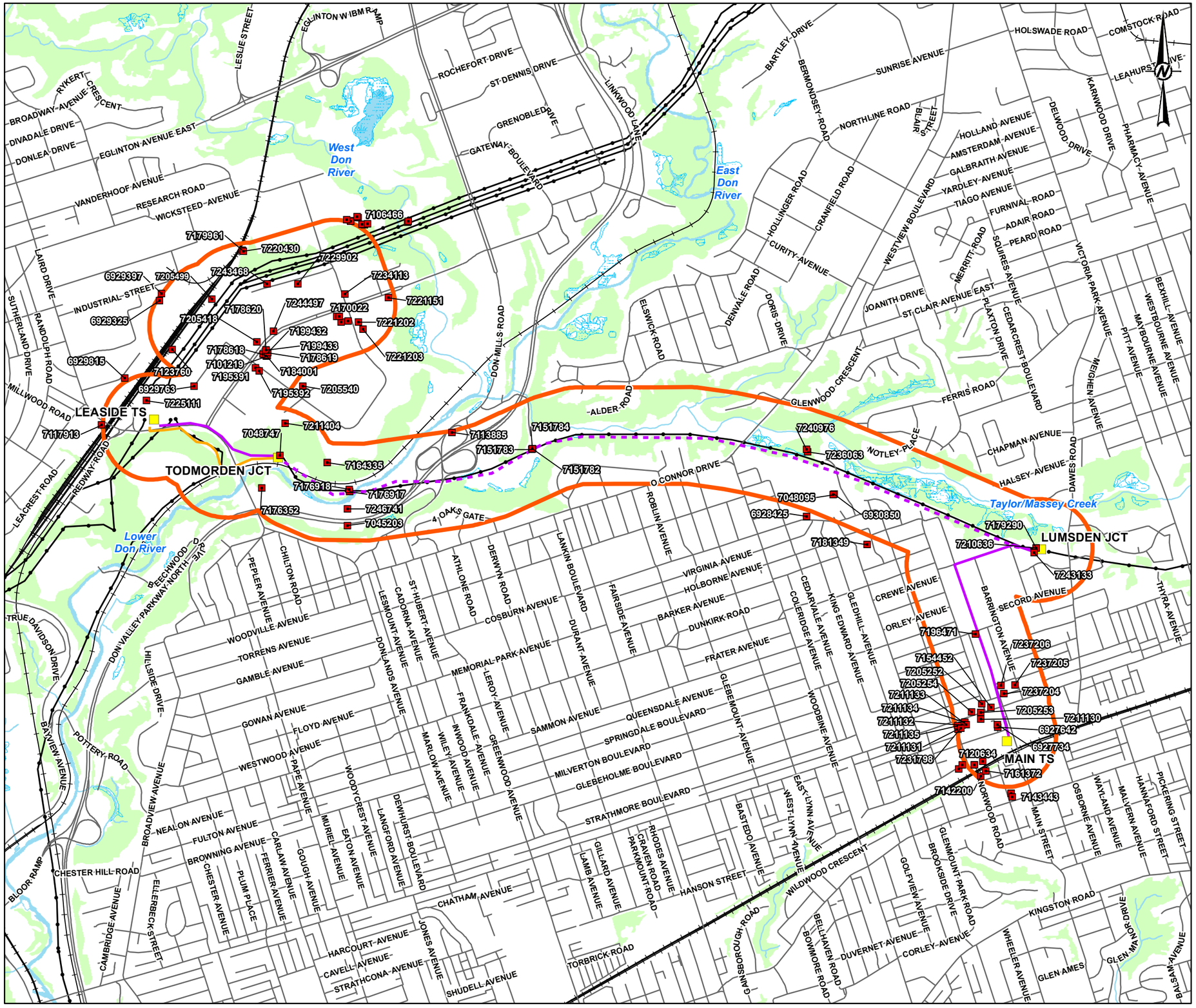
Seeps identified at several locations along the slope of the Taylor-Massey Creek ravine during the 2015 and 2016 field surveys may be indicative of a perched water table in the area. The 2015 and 2016 field surveys also identified cattail marshes in wet areas caused by groundwater seepage along the top of the bank, under the existing overhead transmission lines and in some locations along the slope.

Groundwater Levels and Use

Based on a review of the MOECC Water Well Information System (WWIS) database, there are 70 water well records within the study area, and an additional 18 records within 50 m of the study area boundary (Figure 3-8). All of these wells were drilled between 2004 and 2015 to depths of 1.9 to 71.6 metres below ground surface (mbgs). Only two of the wells (MOECC Wells 7151782 and 6927642) listed static water levels, which ranged from 1.8 to 12.2 mbgs (Appendix B7).

Given that the study area includes both the Don River valley and the Taylor-Massey Creek valley, groundwater elevations can be expected to vary considerably throughout the study area, generally following topography, and reaching the surface in some areas where river channels act as groundwater discharge areas.

None of the MOECC wells were listed for use as water supply; however, 56 of the wells were listed as being used for monitoring, dewatering, observation, or test holes, or have been abandoned. Well use was not listed for 14 wells. The study area lies within the Don River watershed in which municipal groundwater takings have been converted to surface water supplied systems. There is no municipal groundwater taking for potable water within the Don River watershed (TRCA, 2009b).



REFERENCE(S)

BASE DATA - MNRF LIO, OBTAINED 2015
MOECC WATER WELLS - WATER WELL INFORMATION SYSTEM, 2016
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY, © QUEENS PRINTER 2015

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE WATER WELLS

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	ME
PREPARED	JR
REVIEWED	SW
APPROVED	PM

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	**3-8**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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Groundwater Quality

There is a lack of available groundwater quality information in areas proximal to the study area, due to the urbanization of the surrounding lands and the provision of municipal drinking water supplies for domestic purposes within a considerable distance of the study area. A provincial groundwater monitoring network well (MOECC Water Well Record No. 69-25901), located approximately 8 km northwest of the study area, is installed in the Scarborough Aquifer Complex, which is the primary aquifer within the study area. Groundwater samples were collected from the well in October 2003, October 2004 and December 2004. The quality of groundwater from the samples taken at this location was found to exceed Ontario Drinking Water Standards for hardness, iron, total phosphorous, and manganese. With the exception of phosphorous, these results are not unusual for groundwater in deep overburden glacial aquifer systems. Phosphorous concentrations may be related to anthropogenic activities (TRCA, 2009b). Due to the extensive urbanization in and adjacent to the study area it is reasonable to believe that there is potential for anthropogenic influence on groundwater quality within the study area (e.g., winter road de-icing activities may result in elevated chloride concentration in shallow wells).

Groundwater Hydrology

The study area is located within the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Region, which is comprised of the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Areas. The CTC Source Protection Committee does not identify well head protection areas or intake protection zones in the vicinity of the study area (CTC Source Protection Region, 2015). Additionally, the study area was not identified as being a significant groundwater quantity threat area in the future (CTC Source Protection Region, 2015).

Based on TRCA (2009b) data, the western portion (Leaside TS to Todmorden JCT) and the eastern portion (Lumsden JCT to Main TS) of the study area are assigned a high/moderate aquifer vulnerability index (AVI), whereas the central portion of the study area, including the Taylor-Massey Creek and the northern portion of the study area between the railway and the West Don River, has been ascribed a low AVI. Areas of low AVI indicate that contaminants would take longer to reach the uppermost aquifer or water table. The travel time for a

contaminant to reach the aquifer or water table is faster in areas identified as having high/moderate AVI.

Based on groundwater simulations, the study area lies in an area of relatively low recharge, with low discharge to streams (TRCA, 2009b). Flow was observed in an unnamed watercourse on the west side of the Leaside Bridge that may be supported by groundwater discharge. Specifically, during 2016 fieldwork, clean water was observed discharging from a culvert located approximately midway down the valley slope to the east of the watercourse despite little rainfall in the preceding days. Additional information on the unnamed watercourse was not available from the City of Toronto or the TRCA.

3.7.5 Designated or Special Natural Areas

Designated or special natural areas are identified by federal or provincial agencies and municipalities through legislation, policies, or approved management plans. These areas typically have special or unique values that result in conservation land initiatives. Such areas may have a variety of ecological, recreational, and aesthetic features and functions that are highly valued.

Environmentally Significant Areas

Environmentally Significant Areas (ESAs) are designated areas within the City of Toronto's natural heritage system that are particularly sensitive due to their significant characteristics and which require additional protection to preserve their environmental qualities (City of Toronto, 2016k). The *City of Toronto Official Plan* (2015, map 12) does not identify any ESAs in the study area. However, since the development of the Official Plan in 2015, additional candidate areas have been officially designated as ESAs, including the Taylor Creek ESA, which is located near Lumsden JCT and is within the study area, and the Crothers Woods ESA, which is located west of the railway and overlaps slightly with the study area (City of Toronto, 2016k).

3.7.6 Natural Heritage Features

As defined in the PPS (2014), natural heritage features and areas include "significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valleylands south and east of the Canadian Shield, significant habitat of

endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest", which are important for their environmental and social values as a legacy of the natural landscapes of an area. Furthermore, section 2.1.8 of the PPS (2014) states that development and site alteration shall not be permitted on lands adjacent to natural heritage features "unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions".

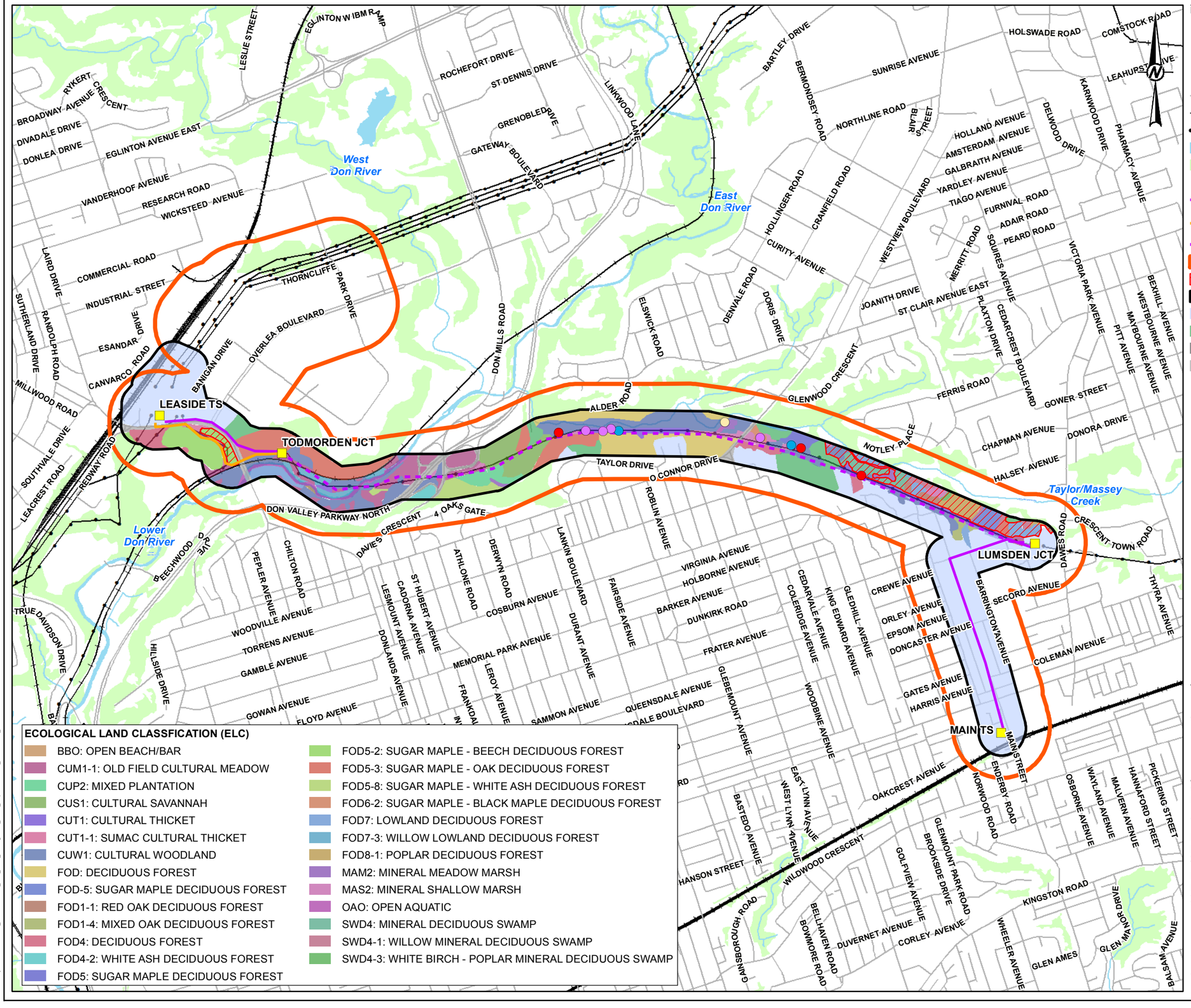
The key natural heritage features that are defined in the PPS (2014) are considered below. For the purposes of characterizing natural heritage features that may potentially be affected by the proposed project, a 120 m buffer around the existing underground cable routes, route option 2 for the underground cable replacement between Leaside TS and Todmorden JCT, and the existing overhead shield wire was used to define the study area for natural heritage (Figure 3-9 and Figure 3-10), referred to as the 'natural heritage study area', consistent with the requirements of the PPS (2014). Key natural heritage features were identified through a desktop review of the following databases, as well as data gathered during field surveys completed within the natural heritage study area (Table 3-15):

- Natural Heritage Information Centre (NHIC) database (NHIC, 2016);
- Atlas of Breeding Birds of Ontario (Cadman et al., 2007);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Royal Ontario Museum range maps (Royal Ontario Museum, 2010);
- Bat Conservation International range maps (Bat Conservation International, 2016);
- Ontario's Reptile and Amphibian Atlas (Ontario Nature, 2016);
- Land Information Ontario (LIO) (MNRF, 2016a – 2016i);
- City of Toronto Official Plan (City of Toronto, 2015)
- Toronto and Region Conservation Authority (TRCA); and,
- Existing aerial imagery.

Table 3-15 Field Surveys and Data Collection Dates (2015 and 2016)

Field Survey	Dates Completed
General field reconnaissance and species inventory	July 31, 2015 August 7, 2015 May 11, 2016 May 13, 2016
Ecological Land Classification (ELC)	July 31, 2015 August 7, 2015 May 19, 2016
Anuran (frog and toad) call count surveys	April 14, 2016 May 10, 2016 June 3, 2016
Reptile visual encounter surveys	April 20, 2016 May 9, 2016 May 19, 2016 May 26, 2016
Breeding bird surveys	May 26, 2016 June 17, 2016

Ecological land classification (ELC) mapping using the ELC system for southern Ontario (Lee et al., 1998; Lee, 2000) was completed to facilitate the identification of candidate natural heritage features in the natural heritage study area. Detailed results of the ELC mapping exercise and other baseline natural heritage field surveys conducted in the natural heritage study area are included in Appendix B8.



LEGEND

- DRAINAGE FEATURE
- PERCHED WETLAND
- POND
- SEEP
- ROAD
- RAILWAY
- TRANSMISSION LINE
- WATERBODY
- WOODED AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- PREFERRED ROUTE FOR UNDERGROUND CABLE REPLACEMENT
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA
- CONCENTRATIONS OF SNAGS AND CAVITY TREES
- NATURAL HERITAGE STUDY AREA
- COMMERCIAL / RESIDENTIAL
- PARK
- RAIL
- ROAD

ECOLOGICAL LAND CLASSFICATION (ELC)

- BBO: OPEN BEACH/BAR
- CUM1-1: OLD FIELD CULTURAL MEADOW
- CUP2: MIXED PLANTATION
- CUS1: CULTURAL SAVANNAH
- CUT1: CULTURAL THICKET
- CUT1-1: SUMAC CULTURAL THICKET
- CUW1: CULTURAL WOODLAND
- FOD: DECIDUOUS FOREST
- FOD-5: SUGAR MAPLE DECIDUOUS FOREST
- FOD1-1: RED OAK DECIDUOUS FOREST
- FOD1-4: MIXED OAK DECIDUOUS FOREST
- FOD4: DECIDUOUS FOREST
- FOD4-2: WHITE ASH DECIDUOUS FOREST
- FOD5: SUGAR MAPLE DECIDUOUS FOREST
- FOD5-2: SUGAR MAPLE - BEECH DECIDUOUS FOREST
- FOD5-3: SUGAR MAPLE - OAK DECIDUOUS FOREST
- FOD5-8: SUGAR MAPLE - WHITE ASH DECIDUOUS FOREST
- FOD6-2: SUGAR MAPLE - BLACK MAPLE DECIDUOUS FOREST
- FOD7: LOWLAND DECIDUOUS FOREST
- FOD7-3: WILLOW LOWLAND DECIDUOUS FOREST
- FOD8-1: POPLAR DECIDUOUS FOREST
- MAM2: MINERAL MEADOW MARSH
- MAS2: MINERAL SHALLOW MARSH
- OAO: OPEN AQUATIC
- SWD4: MINERAL DECIDUOUS SWAMP
- SWD4-1: WILLOW MINERAL DECIDUOUS SWAMP
- SWD4-3: WHITE BIRCH - POPLAR MINERAL DECIDUOUS SWAMP

REFERENCE(S)

BASE DATA - MNRF LIO, OBTAINED 2016
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CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
ECOLOGICAL LAND CLASSIFICATION AND NATURAL HERITAGE FEATURES IN THE NATURAL HERITAGE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR / CGE
REVIEWED	DM
APPROVED	RB

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	3-9

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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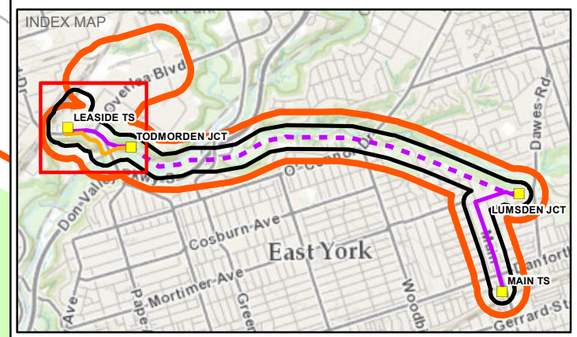
ESANDAR DRIVE
CANVARCO ROAD
BANIGAN DRIVE
OVERLEA BOULEVARD
THORNCLIFFE PARK DRIVE
LEASIDE PARK DRIVE
MILEPOST PLACE
VILLAGE STATION ROAD
LEASIDE TS
MILLWOOD ROAD
REDWAY ROAD
Commercial
Road
Park
Rail
TODMORDEN JCT
Commercial
LEASIDE BRIDGE
Lower Don River
CUT1-1
FOD4
FOD5-2
FOD5-3
FOD7
FOD7-3
CUM1-1
CUW1
OAO
BBO

ECOLOGICAL LAND CLASSIFICATION (ELC)
- BBO: OPEN BEACH/BAR
- CUM1-1: OLD FIELD CULTURAL MEADOW
- CUT1-1: SUMAC CULTURAL THICKET
- CUW1: CULTURAL WOODLAND
- FOD4: DECIDUOUS FOREST
- FOD5-2: SUGAR MAPLE - BEECH DECIDUOUS FOREST
- FOD5-3: SUGAR MAPLE - OAK DECIDUOUS FOREST
- FOD7: LOWLAND DECIDUOUS FOREST
- FOD7-3: WILLOW LOWLAND DECIDUOUS FOREST
- OAO: OPEN AQUATIC

LEGEND
- ROAD
- RAILWAY
- TRANSMISSION LINE
- WATERBODY
- WOODED AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- PREFERRED ROUTE FOR UNDERGROUND CABLE REPLACEMENT
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA
- NATURAL HERITAGE STUDY AREA
- COMMERCIAL / RESIDENTIAL
- PARK
- RAIL
- ROAD

INDEX MAP



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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
ECOLOGICAL LAND CLASSIFICATION AND NATURAL HERITAGE FEATURES IN THE NATURAL HERITAGE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR / CGE
REVIEWED	DM
APPROVED	RB

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	**3-10A**

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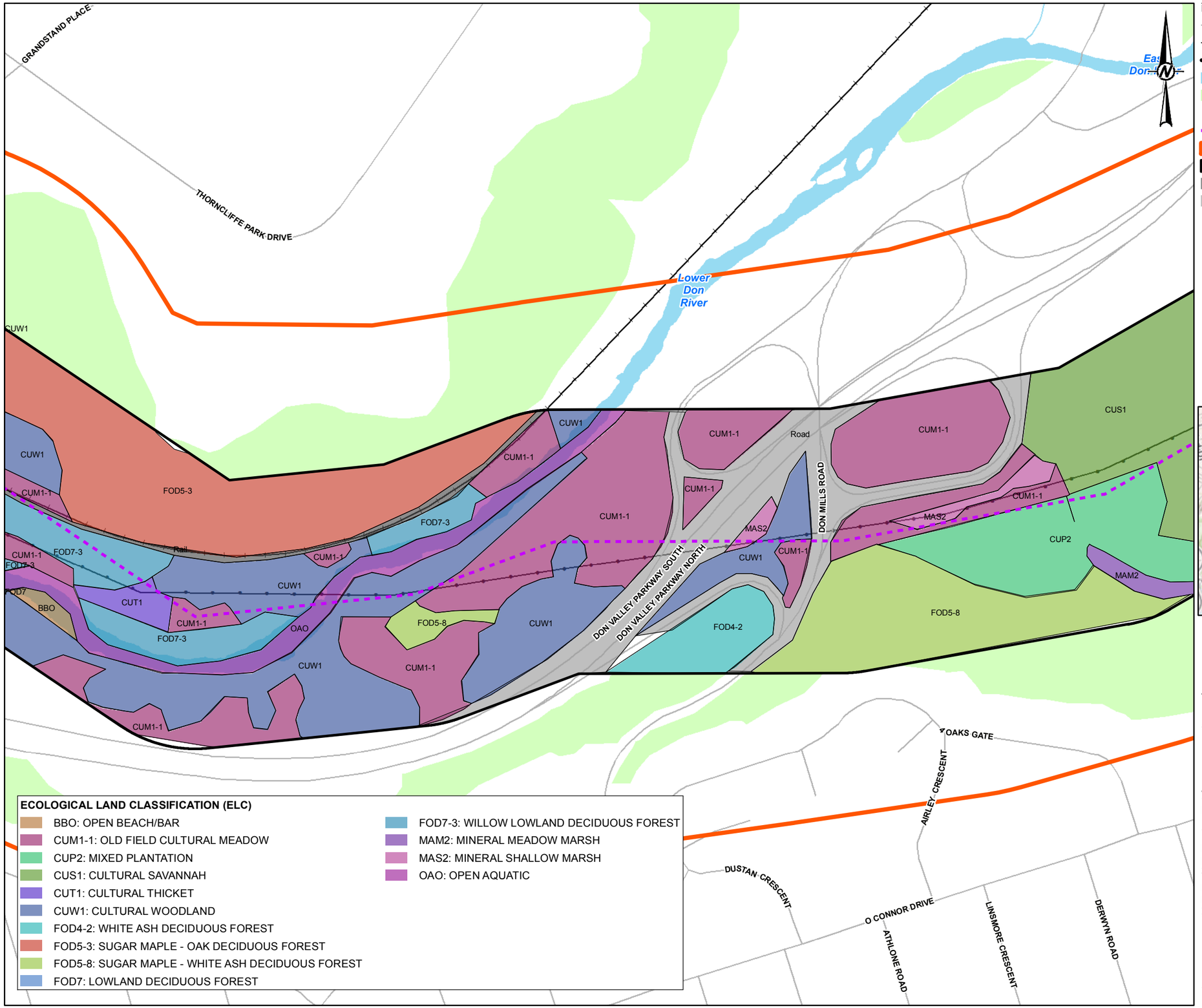


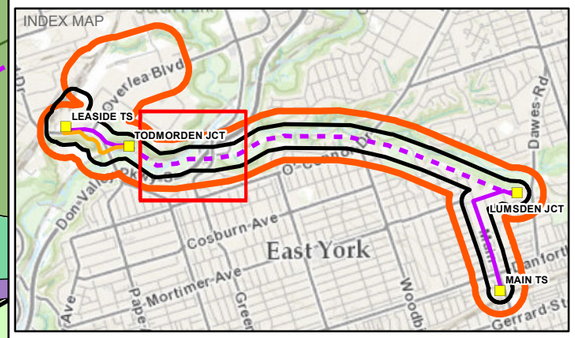
ECOLOGICAL LAND CLASSIFICATION (ELC)

- BBO: OPEN BEACH/BAR
- CUM1-1: OLD FIELD CULTURAL MEADOW
- CUP2: MIXED PLANTATION
- CUS1: CULTURAL SAVANNAH
- CUT1: CULTURAL THICKET
- CUW1: CULTURAL WOODLAND
- FOD4-2: WHITE ASH DECIDUOUS FOREST
- FOD5-3: SUGAR MAPLE - OAK DECIDUOUS FOREST
- FOD5-8: SUGAR MAPLE - WHITE ASH DECIDUOUS FOREST
- FOD7: LOWLAND DECIDUOUS FOREST
- FOD7-3: WILLOW LOWLAND DECIDUOUS FOREST
- MAM2: MINERAL MEADOW MARSH
- MAS2: MINERAL SHALLOW MARSH
- OAO: OPEN AQUATIC

LEGEND

- ROAD
- RAILWAY
- TRANSMISSION LINE
- WATERBODY
- WOODED AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA
- NATURAL HERITAGE STUDY AREA
- RAIL
- ROAD

INDEX MAP



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BASE DATA - MNRF LIO, OBTAINED 2016
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
ECOLOGICAL LAND CLASSIFICATION AND NATURAL HERITAGE FEATURES IN THE NATURAL HERITAGE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR / CGE
REVIEWED	DM
APPROVED	RB

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	**3-10B**

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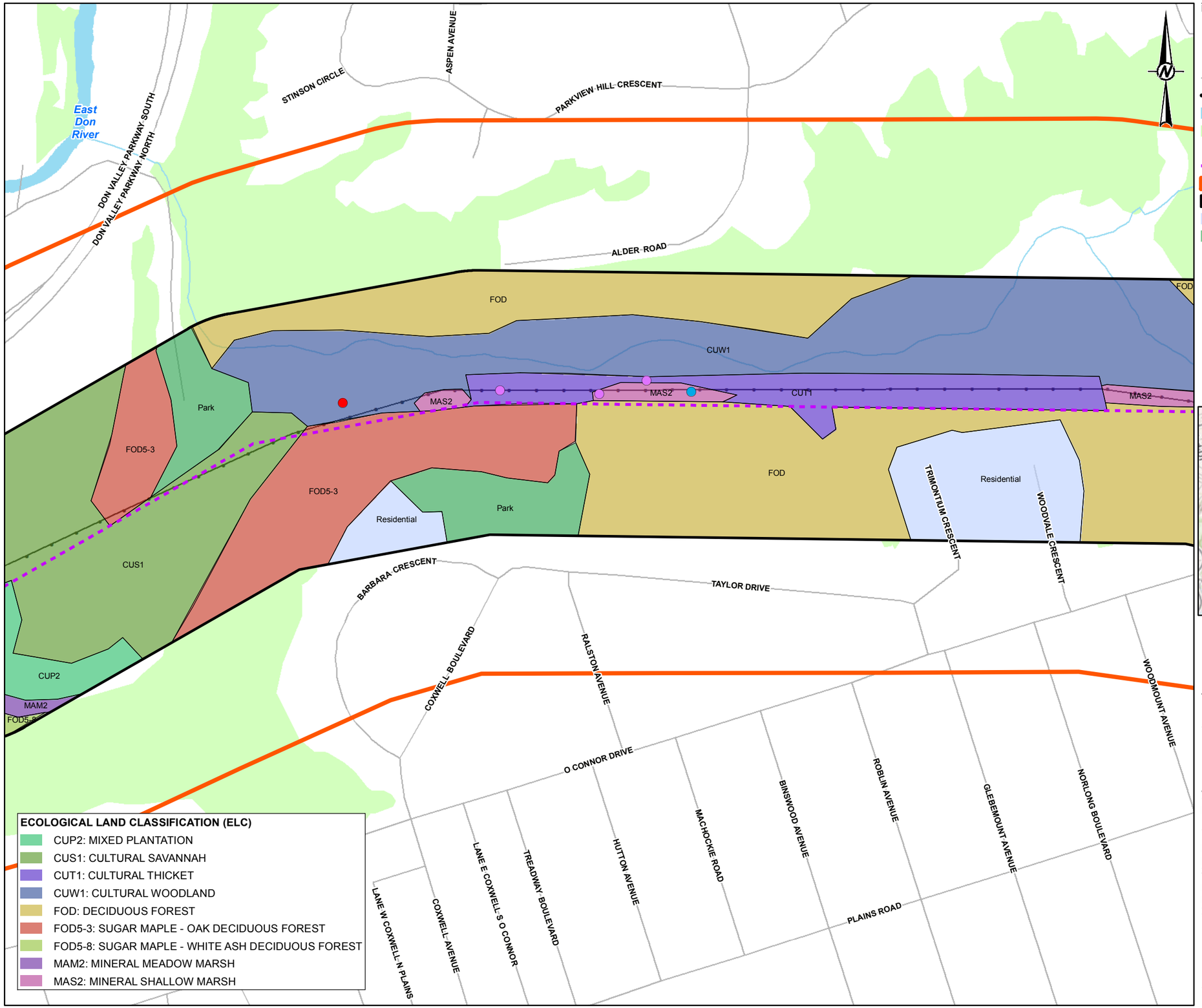
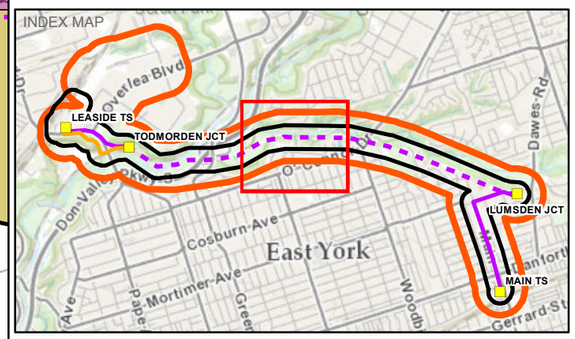


ECOLOGICAL LAND CLASSIFICATION (ELC)

- CUP2: MIXED PLANTATION
- CUS1: CULTURAL SAVANNAH
- CUT1: CULTURAL THICKET
- CUW1: CULTURAL WOODLAND
- FOD: DECIDUOUS FOREST
- FOD5-3: SUGAR MAPLE - OAK DECIDUOUS FOREST
- FOD5-8: SUGAR MAPLE - WHITE ASH DECIDUOUS FOREST
- MAM2: MINERAL MEADOW MARSH
- MAS2: MINERAL SHALLOW MARSH

LEGEND

- DRAINAGE FEATURE
- PERCHED WETLAND
- SEEP
- ROAD
- TRANSMISSION LINE
- WATERBODY
- WOODED AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA
- NATURAL HERITAGE STUDY AREA
- COMMERCIAL / RESIDENTIAL
- PARK



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BASE DATA - MNRF LIO, OBTAINED 2016
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
ECOLOGICAL LAND CLASSIFICATION AND NATURAL HERITAGE FEATURES IN THE NATURAL HERITAGE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR / CGE
REVIEWED	DM
APPROVED	RB

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	3-10C

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
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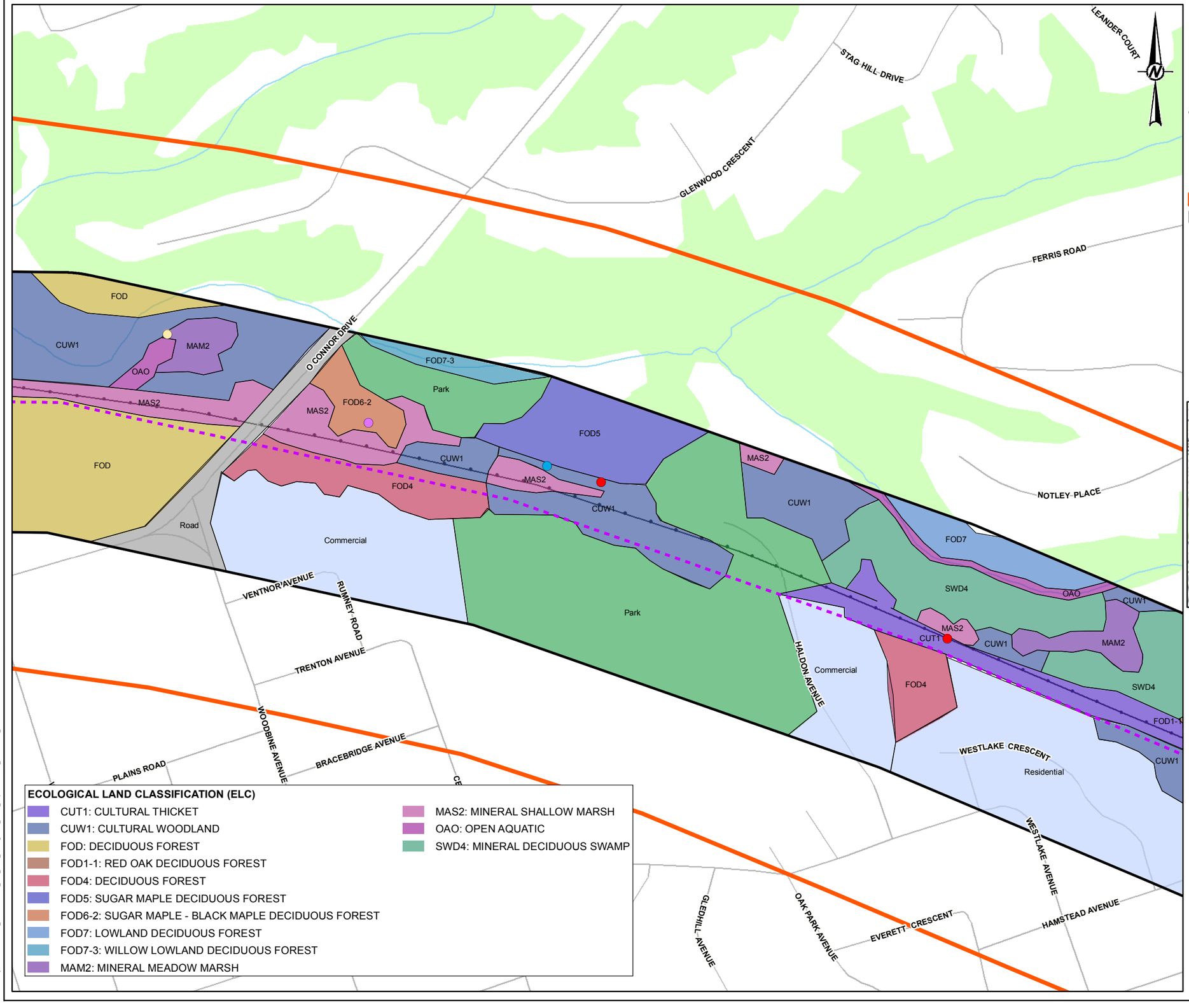
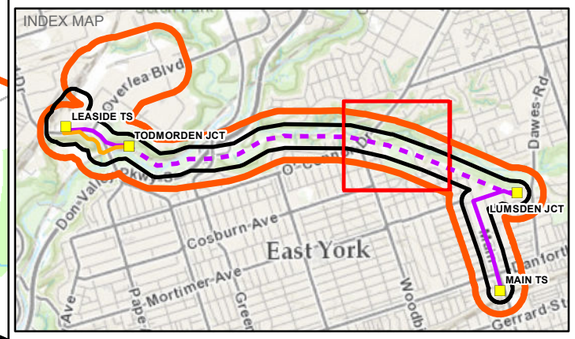


LEGEND

- DRAINAGE FEATURE
- PERCHED WETLAND
- POND
- SEEP
- ROAD
- TRANSMISSION LINE
- WATERBODY
- WOODED AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA
- NATURAL HERITAGE STUDY AREA
- COMMERCIAL / RESIDENTIAL
- PARK
- ROAD



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REFERENCE(S)

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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
ECOLOGICAL LAND CLASSIFICATION AND NATURAL HERITAGE FEATURES IN THE NATURAL HERITAGE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR / CGE
REVIEWED	DM
APPROVED	RB

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	**3-10E**

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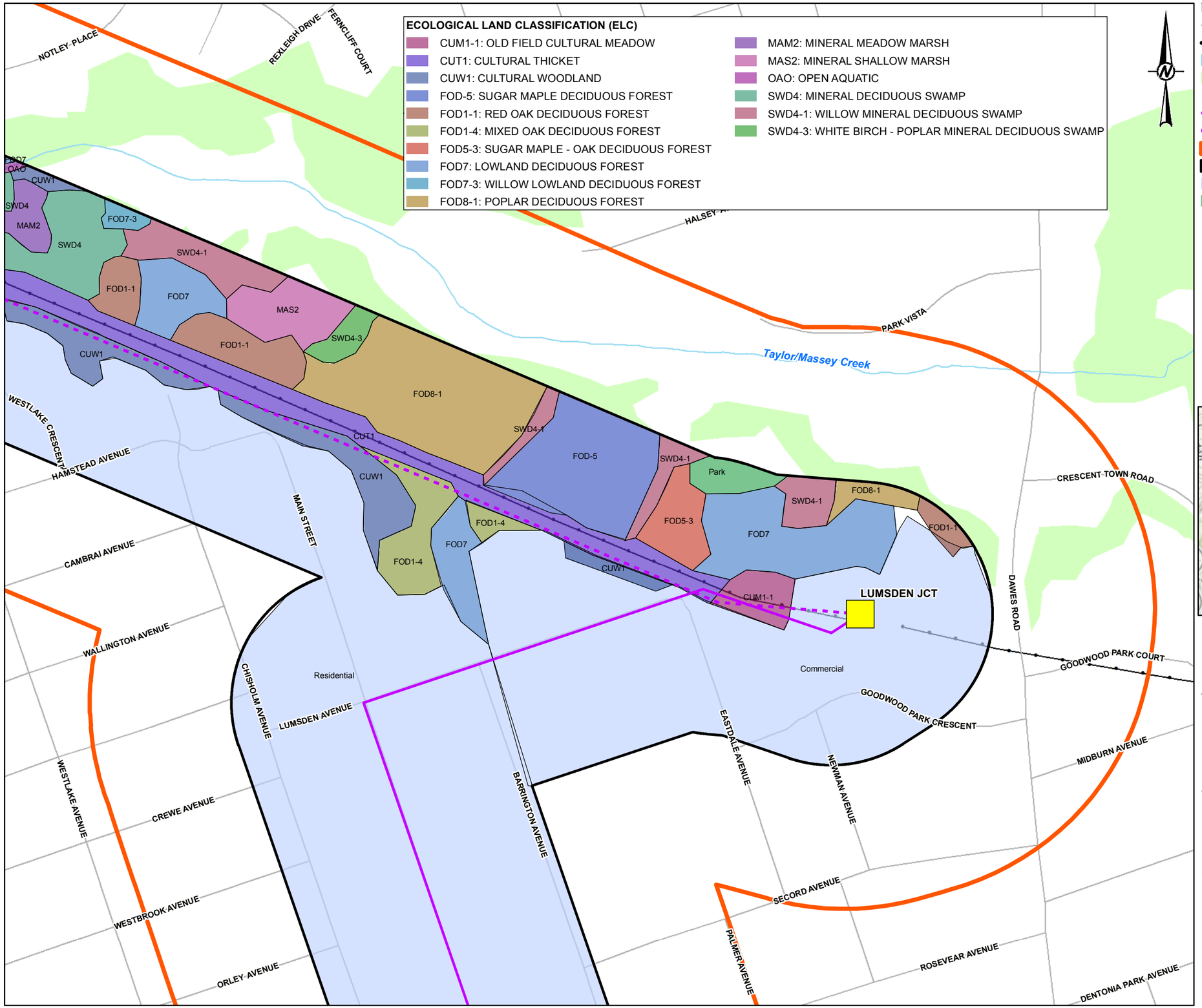
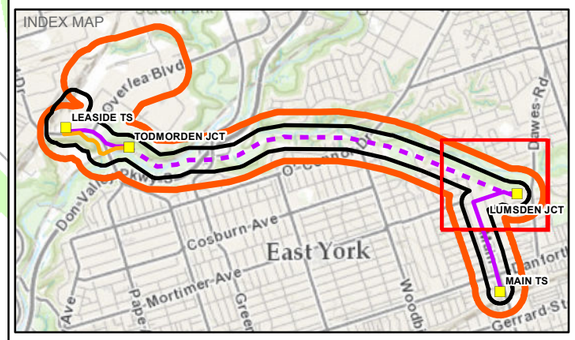


LEGEND

- ROAD
- TRANSMISSION LINE
- WATERBODY
- WOODED AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- EXISTING OVERHEAD SHIELD WIRE
- STUDY AREA
- NATURAL HERITAGE STUDY AREA
- COMMERCIAL / RESIDENTIAL
- PARK



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REFERENCE(S)

BASE DATA - MNRF LIO, OBTAINED 2016
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

PROJECT
LEASIDE TO MAIN INFRASTRUCTURE REFURBISHMENT PROJECT

TITLE
ECOLOGICAL LAND CLASSIFICATION AND NATURAL HERITAGE FEATURES IN THE NATURAL HERITAGE STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR / CGE
REVIEWED	DM
APPROVED	RB

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	**3-10F**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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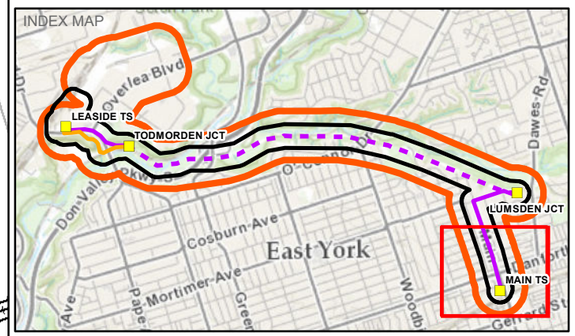
ORLEY AVENUE
EPSOM AVENUE
DONCASTER AVENUE
GATWICK AVENUE
NEWMARKET AVENUE
OAK PARK AVENUE
GATES AVENUE
HARRIS AVENUE
GLEDHILL AVENUE
IONA AVENUE
PATRICIA DRIVE
BECK AVENUE
KEYSTONE AVENUE
LANE S DANFORTH E MORTON
MORTON ROAD
OAKCREST AVENUE
WESTLAKE AVENUE
STEPHENSON AVENUE
NORWOOD TERRACE
CHISHOLM AVENUE
LANE W MAIN STREET S DONCASTER
LANE E MAIN STREET S DONCASTER
BARRINGTON AVENUE
Residential
MAIN STREET
DANFORTH AVENUE
MAIN TS
PALMER AVENUE
DENTONIA PARK AVENUE
BALFOUR AVENUE
COLEMAN AVENUE
LANE N DANFORTH W DAWES
DAWES ROAD
GUEST AVENUE
TRENT AVENUE
WHISTLE POST STREET
CROSSOVERS STREET
LANE N GERRARD E TED REEVE
TED REEVE DRIVE
GERRARD STREET EAST
MAIN BOULEVARD

LEGEND
- ROAD
- RAILWAY
- WATERBODY
- WOODED AREA
- TRANSFORMER STATION / JUNCTION
- EXISTING UNDERGROUND CABLE
- STUDY AREA
- NATURAL HERITAGE STUDY AREA
- COMMERCIAL / RESIDENTIAL

INDEX MAP



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REFERENCE(S)
BASE DATA - MNRF LIO, OBTAINED 2016
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE

CLIENT
HYDRO ONE NETWORKS INC.

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YYYY-MM-DD	2016-09-26
DESIGNED	JR
PREPARED	JR / CGE
REVIEWED	DM
APPROVED	RB

PROJECT NO.	CONTROL	REV.	FIGURE
1531167	-	1	**3-10G**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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Wetlands

The PPS (2014) requires that municipalities and others responsible for land use planning protect provincially significant wetlands (PSWs). A wetland is determined to be a PSW based on an evaluation by the MNRF using the Ontario Wetland Evaluation System (MNRF, 2014). The LIO database (MNRF, 2016h) was accessed in 2015 to determine the presence of PSWs or unevaluated wetlands in the natural heritage study area. No PSWs were identified in or adjacent to the natural heritage study area.

Wetlands observed during the 2015 and 2016 field surveys were investigated and classified using the ELC system for southern Ontario (Lee et al., 1998; Lee, 2000). Detailed results of the ELC mapping are included in Appendix B8. Wetlands compose approximately 4% (6.29 ha) of the natural heritage study area. Wetland types identified in the natural heritage study area were meadow marsh, shallow marsh and deciduous swamp. Some of the marshes are perched wetlands located on the slopes of the Taylor-Massey Creek ravine (Figure 3-9 and Figure 3-10). These wetlands are fed by a perched groundwater table that seeps out of the slope at the top of the ravine under the existing transmission lines, forming rivulets that run down the bank towards the creek. An approximately 50 m by 25 m dug pond located under the existing transmission line west of O'Connor Drive functions as open water wetland habitat (Figure 3-9 and Figure 3-10). All wetlands identified in the natural heritage study area occur to the east of the Don Valley Parkway.

Fish Habitat

During the 2015 field surveys, stream bank armoring was observed along portions of the Don River where it overlaps with the natural heritage study area. Armoring is applied to reduce bank erosion, but also limits plant growth and fish habitat potential. However, there were areas of riparian habitat observed along the Don River, and the river was deemed to provide fish habitat within the natural heritage study area. Boulders, overhanging trees and shrubs were observed along the Don River banks, which provide cover for fish. Small-bodied fish were observed in the river. Although the Don River watershed historically contained provincially endangered Redside Dace (*Clinostomus elongatus*), this species is currently restricted to areas of the East Don River outside of the natural heritage study area. There are no aquatic

Species at Risk (SAR) present in the reach of the Don River associated with the proposed project (TRCA, 2009a).

The small drainage feature running through Coxwell Ravine Park was dry and choked with cattails (*Typha latifola*) at the time of the 2015 field surveys and is unlikely to provide habitat for fish. Similarly, the small unnamed drainage west of Leaside Bridge does not flow permanently and is unlikely to provide habitat for fish. Taylor-Massey Creek runs roughly parallel to the overhead shield wire between Todmorden JCT and Lumsden JCT, with the nearest point being approximately 590 m west of O'Connor Drive. Taylor-Massey Creek is heavily armored with boulders, which reduces fish habitat potential. Nevertheless, small-bodied fish were observed in Taylor-Massey Creek during field studies in 2015 and presumably occur throughout the creeks within the natural heritage study area.

Fisheries data were requested from the TRCA, and data for 19 sampling locations within the natural heritage study area were provided in May 2016. Species recorded at sampling locations in Taylor-Massey Creek were comprised of commonly occurring resident species such as Blacknose Dace (*Rhinichthys atratulus*), Longnose Dace (*Rhinichthys cataractae*), White Sucker (*Catostomus commersonii*), Creek Chub (*Semotilus atromaculatus*), and Fathead Minnow (*Pimephales promelas*). Blacknose Dace, Longnose Dace, Brook Stickleback (*Culaea inconstans*), Bluntnose Minnow (*Pimephales notatus*), Northern Redbelly Dace (*Chrosomus eos*), Common Shiner (*Luxilus cornutus*), Creek Chub, Fathead Minnow, Johnny Darter (*Etheostoma nigrum*), Pumpkinseed (*Lepomis gibbosus*), Rainbow Darter (*Etheostoma caeruleum*), White Bass (*Morone chrysops*), and White Sucker were recorded at stations along the Don River. The Don River also provides seasonal habitat for migratory fish species such as Chinook Salmon (*Oncorhynchus tshawytscha*) and Steelhead (*Oncorhynchus mykiss*) who migrate into tributaries of the river to spawn. These same waters also provide nursery and rearing habitat for young of these species.

Woodlands

Woodlands are treed areas, woodlots and forested areas that provide various environmental and economic benefits to landowners and the general public (PPS, 2014). During the field surveys conducted on July 31 and August 7, 2015 and May 19, 2016, plant communities were broadly characterized and key natural features were noted. A number of woodland areas were identified in the natural heritage study area during these surveys and through desktop ELC

mapping. Deciduous forest composed most of the woodlands in the natural heritage study area (43.01 ha, approximately 68% of woodlands) with the remainder being cultural woodland (17.64 ha) and deciduous swamp (3.04 ha) (Figure 3-9 and Figure 3-10; Appendix B8). Altogether, woodlands composed approximately 38% of the natural heritage study area, noting that deciduous swamp is also representative of wetlands.

Significant woodlands are woodlands that are ecologically, functionally and/or economically important based on one or more features such as species composition, stand age, contribution to the broader landscape, site quality, or past management history (MNR, 2010). The designation of significant woodlands is deferred to local planning authorities. General guidelines for determining significance of a woodland area are also included in the *Natural Heritage Reference Manual* for Policy 2.3 of the PPS (MNR, 2010) if the local planning authorities have not provided criteria for significance. The City of Toronto Official Plan does not define significant woodlands and therefore the evaluation criteria and standards provided in Table 7.2 of the *Natural Heritage Reference Manual* (MNR, 2010) apply.

Natural cover mapping for the Don River watershed indicates woodland covers 5% to 15% of the watershed (TRCA, 2009, Figure 2). Where woodland cover falls within this range, the *Natural Heritage Reference Manual* (MNR, 2010) recommends that woodlands meeting the following criteria be considered significant woodlands:

- woodlands that are 4 ha in size or larger; and,
- woodlands that contain interior habitat, where interior habitat is defined as woodland habitat more than 100 m from the woodland edge.

Significant woodlands have not been identified and mapped in the *City of Toronto Official Plan* (2015). However, a contiguous tract of woodland greater than 4 ha in size that occurs within and extends beyond the natural heritage study area boundary between the Don Valley Parkway and the O'Connor Drive bridge may qualify as a significant woodland.

Valleylands

Valleylands are natural areas that occur in a valley or other landform depression in which water flows or stands for part of the year (PPS, 2014). Significant valleylands are valleylands that are

"ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system" (MNR, 2010). The designation of significant valleylands is deferred to local planning authorities. General guidelines for determining significance of a valleyland are also included in the *Natural Heritage Reference Manual* for Policy 2.3 of the PPS (MNR, 2010) if the local planning authorities have not provided criteria for significance. The *City of Toronto Official Plan* (2015) does not define significant valleylands and therefore the evaluation criteria and standards provided in Table 8.1 of the *Natural Heritage Reference Manual* (MNR, 2010) apply.

The Don River valley meets several of the criteria identified in the *Natural Heritage Reference Manual* (MNR, 2010) and therefore qualifies as a significant valleyland. The TRCA has been consulted throughout the Class EA process and Hydro One will continue to work with the TRCA throughout detailed design and construction to ensure that the TRCA is aware of and is able to provide input on all planned activities within the Don River valley. If it becomes apparent that significant clearing or alterations to the valley slopes or vegetation will occur, additional review by the MNRF may be required.

Species at Risk

Under the *Endangered Species Act, 2007*, SAR and their habitat are protected in Ontario. Based on information retrieved from the NHIC (2016) database, the following SAR designated as threatened or endangered under the *Endangered Species Act, 2007* have been identified as having potential to occur in the study area and/or have been identified in the natural heritage study area:

- Butternut (*Juglans cinerea*), designated as endangered under both the *Endangered Species Act, 2007* and the federal *Species at Risk Act*. Butternut was observed along the RoW of route option 2 in deciduous forest during the 2015 field surveys. Forests and forest edges in the natural heritage study area provide suitable habitat for this species.
- Blanding's Turtle (*Emydoidea blandingii*) – Great Lakes/St. Lawrence population, designated as threatened under both the *Endangered Species Act, 2007* and the federal *Species at Risk Act*, was last reported in the study area in 1989. This species was not observed in the natural heritage study area during the 2015 or 2016 field surveys. The

Don River, a small pond, and wetlands (meadow marsh, open aquatic) identified in the natural heritage study area may be suitable habitat for this species (Figure 3-9 and Figure 3-10), although nesting opportunities are limited.

- Spiny Softshell (*Apalone spinifera*), designated as threatened under both the *Endangered Species Act, 2007* and the federal *Species at Risk Act*, was reported in the study area historically (before 1995). This species was not observed during the 2015 or 2016 field surveys in the natural heritage study area. The Don River, a small pond, and wetlands (meadow marsh, open aquatic) identified in the natural heritage study area may be suitable habitat for this species (Figure 3-9 and Figure 3-10).
- Little Brown Myotis (*Myotis lucifugus*), designated as endangered under both the *Endangered Species Act, 2007* and the federal *Species at Risk Act*, has not been reported in the natural heritage study area, but there is an abundance of forest habitat and mature trees suitable for this species in the natural heritage study area. Some forested areas in the natural heritage study area contain numerous snags, decaying trees, and cavity trees that provide potential roosting habitat (Figure 3-9 and Figure 3-10). Watercourses and wetlands in the natural heritage study area provide foraging opportunities.
- Northern Myotis (*Myotis septentrionalis*), designated as endangered under both the *Endangered Species Act, 2007* and the federal *Species at Risk Act*, has not been reported in the natural heritage study area, but there is an abundance of forest habitat and mature trees suitable for this species in the natural heritage study area. Some forested areas in the natural heritage study area contain numerous snags, decaying trees, and cavity trees that provide potential roosting habitat (Figure 3-9 and Figure 3-10). Watercourses and wetlands in the natural heritage study area provide foraging opportunities.
- Barn Swallow (*Hirundo rustica*) – designated as threatened under the *Endangered Species Act, 2007* and by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), but not listed under the *Species at Risk Act*, has not been reported in the natural heritage study area historically. However, this species was observed in the natural heritage study area during the 2016 breeding bird surveys. No suitable nesting structures were identified in the natural heritage study area. The vehicular traffic bridge at O'Connor Drive did not have swallow nests despite its potential suitability as nesting

habitat for swallows. The individuals observed may have been foraging over the river and nesting outside the natural heritage study area.

- Chimney Swift (*Chaetura pelagica*) – designated as threatened under the *Endangered Species Act, 2007* and *Species at Risk Act*, has been reported historically in the broader landscape that includes the natural heritage study area, although specific nesting locations were not known. This species was observed as a fly-over in the natural heritage study area during the 2016 breeding bird surveys. No nest structures were confirmed during 2015 or 2016 field studies. Commercial and industrial areas of the natural heritage study area may provide suitable nesting and foraging habitat for this species (Figure 3-9 and Figure 3-10).

A full SAR screening is presented in Appendix B9.

Wildlife Habitat

The presence of significant wildlife habitat was assessed according to the *Significant Wildlife Habitat Technical Guide* (MNR, 2000) and the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015). Habitat types considered include: seasonal concentration areas of animals; rare vegetation communities or specialized habitat for wildlife; habitat for species of conservation concern; and animal movement corridors.

Seasonal Concentration Areas of Animals

Seasonal concentration areas of animals are considered to be areas where large numbers of a species gather together at one time of the year, or where several species congregate on an annual basis. Examples include: deer yards; amphibian breeding ponds; snake and bat hibernacula; waterfowl staging and moulting areas; raptor nesting habitat; bird nesting colonies; shorebird staging areas; and passerine migration concentration areas. Seasonal concentration areas identified in the natural heritage study area include the following:

- Bat maternity colonies – Areas of mature deciduous forest with concentrations of snags and tree cavities occur within the natural heritage study area, including near Leaside TS south of Millwood Road, in the Lower Don Parklands, and in Taylor Creek Park at the east end of the natural heritage study area (Figure 3-9 and Figure 3-10). These areas may support bat maternity colonies. Further assessment may be warranted

to confirm use. Big Brown Bats (*Eptesicus fuscus*) were recorded on handheld acoustic detectors at four locations during the amphibian surveys. Hoary Bats (*Lasiurus cinereus*) were recorded on handheld acoustic detectors at three locations during the amphibian surveys.

- Turtle wintering areas – The small man-made pond located under the existing transmission line west of O'Connor Drive may provide suitable habitat for turtles (Figure 3-9 and Figure 3-10). Based on observations made during the 2015 field surveys, the substrates of the pond appear to be soft organics and silt, which provide the soft bottoms required by hibernating turtles. One turtle, a Red-eared Slider (*Trachemys scripta elegans*), was observed at the pond during field surveys in 2016. The Red-eared Slider is a non-native turtle introduced to the wild through release of domestic pet turtles. As such, the small pond under the existing transmission line is not likely to be an important turtle wintering area.

Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities are vegetation communities that are considered rare in the province. Generally, communities assigned a provincial conservation rank of S1 to S3 (extremely rare to rare-uncommon) by the NHIC could qualify. It is assumed that these vegetation communities are at risk of disappearing from the landscape due to their current rarity and that they are more likely to support rare species and other features that are considered significant than other more common vegetation communities. Based on desktop review and the 2015 field surveys, it was determined that no vegetation community ranked S1 to S3 is within the natural heritage study area. All of the natural vegetation communities are ranked S4 or S5, or common and widespread provincially. Therefore, no further assessment is warranted.

Specialized habitat for wildlife is habitat that provides a critical resource for a group of wildlife. Examples include salt licks for ungulates and groundwater seeps for salamanders. Two specialized habitats for wildlife were identified within the natural heritage study area, and include the following:

- Seeps and springs – A perched groundwater table seeps out at several locations along the slope of the Taylor-Massey Creek ravine to the east and west of where O'Connor Drive crosses the study area (Figure 3-9 and Figure 3-10). The seeps form small rivulets that run down the bank towards the creek. Cattail marshes appear in wet areas caused by groundwater seepage along the top of the bank, under the existing transmission lines and in some locations along the slope. These features qualify as significant wildlife habitat. However, significant wildlife habitat is only a constraint if there is appreciable alteration or loss as a result of development, which is not anticipated to be the case with respect to the proposed project. Wildlife species associated with these features include White-tailed Deer (*Odocoileus virginianus*) and salamander species (MNRF, 2015).
- Amphibian breeding habitat (woodland) – The small man-made pond located under the existing transmission line west of O'Connor Drive and several of the marsh and swamp wetlands in the study area are greater than 500 m^2 in size. In addition, the man-made pond and most marsh wetlands in the study area are adjacent to deciduous forest (Figure 3-9 and Figure 3-10). Few amphibians were observed during amphibian call surveys in 2016. No frogs were recorded during surveys on April 14, 2016. Numerous American Toads (*Anaxyrus americanus*) were observed at one station on May 10, 2016; four Green Frogs (*Lithobates clamitans*) were recorded at one station on June 3, 2016; and six Gray Tree Frogs (*Hyla versicolor*) were recorded at one station on June 3, 2016. One Green Frog was incidentally observed during the May 9, 2016 basking turtle survey, and one Green Frog was incidentally observed during the June 17, 2016 breeding bird survey. Based on the field data, the swamps and deciduous forests adjacent to marshes and open water in the study area qualify as candidate significant wildlife habitat. Further assessment may be warranted to confirm breeding activity and designation of significant wildlife habitat. However, significant wildlife habitat is only a constraint if there is appreciable alteration or loss as a result of development, which is not anticipated to be the case with respect to the proposed project.

Invasive Species

Cultural vegetation communities (i.e., communities that have been anthropogenically disturbed and contain a large exotic component) do not have conservation rankings. Cultural communities are common in the natural heritage study area and often contain invasive exotic species. Large patches of Canada Thistle (*Cirsium arvense*), Dog Strangling Vine (*Cynanchum rossicum*), Garlic Mustard (*Alliaria petiolate*), and Japanese Knotweed (*Fallopia japonica*) occur along portions of the existing RoW, most notably near Todmorden JCT, in Coxwell Ravine Park and near Lumsden JCT. Common Reed (*Phragmites australis* ssp. *australis*) occurs in some pocket wetlands along the Taylor-Massey Creek ravine. Giant Hogweed (*Heracleum mantegazzianum*) was found on the trail south of the CN railway. These are only a few of the invasive or non-native plant species that occur in the area as a full assessment of the extent of vegetative species invasion was not conducted.

Habitat for Species of Conservation Concern

The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015) defines five habitats of species of conservation concern that may be considered significant wildlife habitat:

- marsh bird breeding habitat;
- open country bird breeding habitat;
- shrub/early successional bird breeding habitat;
- terrestrial crayfish habitat; and,
- special concern and rare wildlife species habitat.

Indicator species for marsh bird breeding habitat and open country bird breeding habitat were not identified in the natural heritage study area. In addition, cultural meadow occurs in patches that are too small to qualify as significant wildlife habitat for open country birds. Although there are meadow marshes in the natural heritage study area, the wetland vegetation community is disturbed and the location of these wetlands in a highly urbanized and fragmented landscape reduces their candidacy as significant wildlife habitat for marsh birds.

Indicator species for shrub/early successional bird breeding habitat were not identified in the natural heritage study area. However, there are several large patches of cultural thicket and

cultural savannah in the western half of the natural heritage study area (Figure 3-9 and Figure 3-10) that may qualify as significant wildlife habitat for shrub/early successional birds, although the location of these areas in a highly urbanized and fragmented landscape reduces their candidacy as significant wildlife habitat.

Terrestrial crayfish were not observed incidentally in the natural heritage study area; however, suitable marsh and swamp habitat was identified in the natural heritage study area (Figure 3-9 and Figure 3-10) and terrestrial crayfish are known to occur in the Don River (TRCA, 2009c). Further assessment may be warranted to confirm presence of terrestrial crayfish species and designation of significant wildlife habitat. However, significant wildlife habitat is only a constraint if there is appreciable alteration or loss as a result of development, which is not anticipated to be the case with respect to the proposed project.

Suitable habitat was identified in the natural heritage study area for 11 species of conservation concern (Appendix B8). Suitable habitat in the natural heritage study area for these species is as follows:

- Monarch (*Danaus plexippus*) – designated as special concern under the *Endangered Species Act, 2007* and *Species at Risk Act*. Cultural meadows (e.g., at Todmorden JCT), meadow marshes, forest edges and the Don River shoreline provide suitable foraging and possibly breeding habitat for monarch. Common milkweed (*Asclepias syriaca*), a preferred host plant, was observed in a cultural savannah in Coxwell Ravine Park, where one Monarch was also observed during the 2015 field surveys, and likely occurs in other open habitats in the natural heritage study area.
- Eastern Wood-pewee (*Contopus virens*) – designated as special concern under the *Endangered Species Act, 2007*. A SAR screening concluded that Eastern Wood-pewee has a high potential to occur in the natural heritage study area based on habitat availability and observation of this species in adjacent habitat. Deciduous forests in the natural heritage study area provide suitable habitat for this species, and an individual was heard singing near the east end of the natural heritage study area in mature deciduous forest on the slopes of the Taylor-Massey Creek ravine during the 2015 field surveys. Eastern Wood-pewees were also observed during breeding bird surveys in 2016.

- Red-headed Woodpecker (*Melanerpes erythrocephalus*) – designated as special concern under the *Endangered Species Act, 2007* and as threatened under the *Species at Risk Act*. Mature trees in cultural savannah and along the banks of the Don River, forests with sparse understory (e.g., in the Lower Don Parklands), and forest edges may provide suitable habitat for this species in the natural heritage study area. However, there are no historical records of Red-headed Woodpecker in the vicinity of the natural heritage study area and no Red-headed Woodpeckers were observed during field surveys in 2015 or 2016.
- Wood Thrush (*Hylocichia mustelina*) – designated as special concern under the *Endangered Species Act, 2007* and as threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), but not listed under the *Species at Risk Act*. Larger patches of deciduous forest in the natural heritage study area may provide suitable breeding habitat for this species, though extensive anthropogenic disturbance and forest fragmentation may reduce habitat appeal. There are no historical records of Wood Thrush in the vicinity of the natural heritage study area and no Wood Thrushes were observed during field surveys in 2015 or 2016.
- Common Nighthawk (*Chordeiles minor*) – designated as special concern under the *Endangered Species Act, 2007* and as threatened under the *Species at Risk Act*. There are no historical records of Common Nighthawk in the vicinity of the natural heritage study area, but one individual was observed incidentally during anuran call count surveys in 2016. This aerial forager typically requires areas with large expanses of open habitat. Open areas in the natural heritage study area are fragmented and subject to traffic and disturbance. However, gravel rooftops in commercial and industrial areas of the natural heritage study area may provide suitable nesting habitat.
- Eastern Ribbonsnake (*Thamnophis sauritius*) – designated as special concern under the *Endangered Species Act, 2007* and *Species at Risk Act*. Meadow marshes, open water and swamps provide suitable aquatic habitat for this species in the natural heritage study area. However, there are no recent (after 1995) records of Eastern Ribbonsnake in the vicinity of the natural heritage study area and no Eastern Ribbonsnakes were observed during field surveys in 2015 or 2016.

- Eastern Musk Turtle (*Sternotherus odoratus*) – designated as special concern under the *Endangered Species Act, 2007* and as threatened under the *Species at Risk Act*. The Don River, a small man-made pond and wetlands in the natural heritage study area may provide suitable habitat for this species, though nesting opportunities are limited. Only historical records (before 1995) exist for this species and no Eastern Musk Turtles were observed during field surveys in 2015 or 2016.
- Northern Map Turtle (*Graptemys geographica*) – designated as special concern under the *Endangered Species Act, 2007* and *Species at Risk Act*. The Don River, a small man-made pond and wetlands in the natural heritage study area may provide suitable habitat for this species, though nesting opportunities are limited. Only historical records (before 1995) exist for this species and no Northern Map Turtles were observed during field surveys in 2015 or 2016.
- Snapping Turtle (*Chelydra serpentina*) – designated as special concern under the *Endangered Species Act, 2007* and *Species at Risk Act*. The Don River, a small man-made pond and wetlands in the natural heritage study area may provide suitable habitat for this species, though nesting opportunities are limited. Snapping Turtle was last recorded in the natural heritage study area in 2009. No Snapping Turtles were observed during field surveys in 2015 or 2016.
- Western Chorus Frog (*Pseudacris triseriata*) – Great Lakes/St. Lawrence population, designated as threatened under the *Species at Risk Act*; provincially ranked S3 (rare-uncommon), but not listed under the *Endangered Species Act, 2007*. Wetlands in the natural heritage study area provide suitable breeding habitat for this species. However, there are no recent records (after 1995) of Western Chorus Frog in the vicinity of the natural heritage study area. No Western Chorus Frogs were observed during field surveys in 2015 or 2016.
- Tri-colored Bat (*Perimyotis subflavus*) – designated as endangered under the *Endangered Species Act, 2007* and *Species at Risk Act*. There is an abundance of forest habitat and mature trees for roosting in the natural heritage study area. Watercourses and wetlands in the natural heritage study area provide foraging opportunities. There are no historical records of this species in the vicinity of the natural heritage study area;

however, bats in general are not typically observed outside of targeted surveys. Tri-colored Bats were not recorded on acoustic monitors during surveys in 2016.

Animal Movement Corridors

The *Significant Wildlife Habitat Technical Guide* (MNR, 2000) defines animal movement corridors as elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. To qualify as significant wildlife habitat, these corridors need to be a critical link between habitats that are regularly used by wildlife. The Don River valley is an established movement corridor for wildlife within the City of Toronto that links various green spaces and provides an important source of cover, food and water for animals (TRCA, 2009c). However, significant wildlife habitat is only a constraint if there is appreciable alteration or loss as a result of development, which is not anticipated to be the case with respect to the proposed project.

Significant Areas of Natural and Scientific Interest

The natural heritage study area overlaps with natural areas identified as part of the City of Toronto's natural heritage system, which integrates various natural features and functions. These include: significant landforms and physical features; watercourses and hydrological features and functions; riparian zones; valley slopes and floodplains; natural habitat types; significant aquatic features and functions; species of concern; and significant biological features addressed by provincial policy (City of Toronto, 2015).

Areas of Natural and Scientific Interest (ANSIs) are designated by the MNRF based on the presence of unique natural landscapes or existing features that meet specific criteria as having life or earth science values related to protection, scientific study or education. No ANSIs were identified within the natural heritage study area (MNRF, 2015a).

3.8 Recreational Resources

The study area is located in an area with a range of urban recreational resources. Recreational resources are primarily managed through the City of Toronto Parks, Forestry and Recreation (PFR) division, whose mandate is to "deliver safe, welcoming and well-maintained parks and trails, a sustainable and expanding urban forest, and quality recreation facilities and programs

supporting diverse needs for active, healthy lifestyles and engaged communities" (City of Toronto, 2013).

3.8.1 Parklands

Parklands cover 109.3 ha, or 26.6% of the study area (Figure 3-3). Parklands overlapped by the study area are presented in Table 3-16, and include a range of parks, parkettes and athletic fields. Parklands overlapped by the study area that are greater than 3.0 ha in size are described below.

The study area in the vicinity of Leaside TS overlaps a portion of the Lower Don Parklands, a 28.3 ha park that extends from Taylor Creek to Lakeshore Boulevard, parallel to the Don River. Near Leaside TS, the study area also overlaps a portion of Leaside Park, a 3.4 ha park featuring a ball diamond (1), outdoor tennis courts (6), a children's playground and a multi-purpose field (City of Toronto, 2016l).

The study area in the vicinity of the proposed laydown yard to the northeast of Leaside TS overlaps a portion of E.T. Seton Park, a 3.5 ha park featuring bike trails, an archery range, a Frisbee golf course, a picnic site and ponds (6) (City of Toronto, 2016n). Between Todmorden JCT and Lumsden JCT lies Taylor Creek Park, a 52.2 ha linear park that extends from Don Mills Road to Dawes Road. Taylor Creek Park features a comprehensive cycling trail, firepits (4), picnic sites (2) and washroom facilities (2) (City of Toronto, 2016n). A community group, Friends of Taylor Creek Park, act as stewards of the park and its ravine ecosystem (East York Chronicle, 2016).

The study area between Todmorden JCT and Lumsden JCT also overlaps Stan Wadlow Park, an 8.5 ha park which features a dogs off-leash area, ball diamonds (6), a multi-purpose field, outdoor hand ball courts (2), a skateboard area, a children's playground and a splash pad (City of Toronto, 2016o). The study area between Todmorden JCT and Lumsden JCT also overlaps Coxwell Ravine Park, an 8.0 ha park featuring a picnic site.

Potential effects of the proposed project on parklands are discussed in section 7

Table 3-16: Parklands in the Study Area

Parkland Name		Area of Parks overlapped by the Study Area (ha)
Coleman Park		0.5
Coxwell Ravine Park		8.0
Cullen Bryant Park		1.9
E.T. Seton Park		3.5
East Toronto Athletic Field		2.0
Eastdale Parkette		0.2
Four Oaks Gate Park		0.3
Kildonan Park		0.04
Leaside Park		3.5
Little York Parkette		0.02
Lower Don Parklands		28.3
R.V. Burgess Park		0.03
Stan Wadlow Park		7.4
Stanley G. Grizzle Park		0.2
Stephenson Park		1.2
Taylor Creek Park		52.2
Total		109.3

Source: City of Toronto, 2016b

3.8.2 Trails

The Government of Ontario has established the Ontario Trail Network (OTN), a provincial, geospatial database of trail segments and trailheads in urban, rural and wilderness settings (MNRF, 2016i). These trails are used primarily for hiking, running, walking and cycling. The OTN trailheads for the Taylor Creek Trail and the Charles Sauriol Conservation Reserve Trail are located in the study area. Thirty-four OTN trail segments also overlap the study area, extending over 6.6 km in total (Figure 3-3). These are designated as non-motorized, hard surface trails.

The TRCA provides written guides for trails along the Don River that overlap the study area, including the Forks of the Don Trail and the Taylor-Massey Creek Trail (TRCA, 2012; TRCA, 2014). The Forks of the Don Trail connects E.T. Seton Park to the Lower Don River Trail, and also connect with Crothers Woods Park, among other parklands (TRCA, 2012). Crothers Woods is located partly within the study area, and features approximately 10 km of trails through mature woodlands adjacent to the Don River (City of Toronto, 2016p). These trails are used by mountain bikers, dog walkers, hikers and trail runners, among other users

(The Planning Partnership, 2007). Trails in the study area within the Lower Don Parklands connect to the Don Valley Brickworks, the Beltline Trail and the Martin Goodman Waterfront Trail (The Planning Partnership, 2007). The Taylor-Massey Creek Trail, which connects the Forks of the Don to Victoria Park Avenue, is heavily used by pedestrians, dog walkers and cyclists (TRCA, 2016).

Potential effects of the proposed project on trails are discussed in section 7.

3.8.3 Bicycle Trails

The City of Toronto designates bicycle trail entrances and bicycle lanes across the municipality. The City identifies seven bike trail entrances belonging to the Taylor Creek Trail in the study area. These entrances are found at Eastdale Avenue, Rumney Avenue, O'Connor Drive, Dawes Road, Notley Place, and Alder Road. The City has also established 12 segments of existing bike lanes, 20 segments of off-road bike trails, 2 existing park roads, 24 existing signed roads, and 28 proposed bike lanes and signed routes in the study area, managed by the City of Toronto PFR division (Table 3-17, Figure 3-3). There are also unofficial bike trails between Lumsden JCT and the Todmorden JCT. While there are 27 bike rack locations within the study area, there are no municipally-managed indoor bicycle stations or bicycle street parking within the study area; however, there is a bikeshare depot near Main Street and Danforth Avenue. The trails in the study area (particularly in the Todmorden JCT area) are known to be used by mountain bikers.

Potential effects of the proposed project on bicycle trails are discussed in section 7.

Table 3-17: City of Toronto Bicycle Network Trails in the Project Study Area (2016)

Bike Lane Type	Route Number	Number of Segments	Corresponding Roads / Trail Names	Jurisdiction	Length (m) within the Study Area
Existing bike lanes	51	5	Millwood Road, Leaside Bridge	City of Toronto Transportation	514.5
	59	6	Dawes Road	City of Toronto Transportation	426.5
	0	1	Crescent Town Road	City of Toronto Transportation	88.9
Existing off-road bike trails	45	5	Lower Don Trail	PFR Division	1,384.2
	22	13	Taylor Creek Trail	PFR Division	2938.4
	0	2	-	PFR Division	325.8
Existing park road	22	2	Taylor Creek Trail	PFR Division	303.3
Existing signed road	-	24	Cosburn Avenue, Main Street, Hamstead Avenue, Westlake Avenue, Lumsden Avenue, Eastdale Avenue, Secord Avenue	Transportation	2,900.1
Proposed bike lane	-	20	Overlea Boulevard, Thorncliffe Park Drive, O'Connor Drive, Millwood Road, Woodbine Avenue,	Transportation	2557.0
Proposed signed route	-	8	Beth Nealson Drive, Thorncliffe Park Drive, Millwood Road, Haldon Avenue	Transportation	976.5

Source: City of Toronto, 2016b
Note: "-" = Information not provided by the City of Toronto (2016b)

3.8.4 Waterways and Built Recreational Resources

The study area overlaps the Don River and the Taylor-Massey Creek. A community group, Friends of the Don River, acts as a steward of the Don River, including the segment of this waterbody within the study area (Friends of the Don East, n.d.). Although the proposed project falls within the administrative authority of the TRCA, there are no conservation areas or conservation reserves in the study area, nor are there any federal protection areas, provincial parks, non-governmental organization nature reserves, recreation camps, recreation points, tourism establishment areas, picnic sites, potential tourism areas or City-identified 'places of interest' in the study area.

With respect to built recreational infrastructure, there is one arena and one public swimming pool in the study area. The swimming pool is located at the Main Square Community Centre (245 Main Street). Potential effects of the proposed project on waterways and built recreational resources are discussed in section 7.

3.8.5 Community Gardens

The East York Community Garden is located within the study area, at 9 Haldon Avenue. The garden is approximately 0.9 ha in size and features about 54 plots. The plots are a mixture of communal and individual plots (Toronto Community Garden Network, 2016). Potential effects of the proposed project on community gardens are discussed in section 7.

3.9 Visual and Aesthetic Resources

The study area extends through a range of urban and natural landscapes. The portion of the route between Main Street TS and Lumsden JCT is a dense urban area, where older homes, churches and Main Street Subway station are found. Occasional high-rise apartment buildings represent the highest points on the landscape. To the north and west, the study area transects more natural wooded areas that make up parts of the City of Toronto greenspace network, as well as a portion of the Don Valley. Trails (e.g., the Lower Don River Trail and the Taylor Creek Trail), baseball diamonds, and other recreational development are visible in these parts of the study area, along with limited residential development. The proposed project between Leaside TS and Todmorden JCT would parallel the Leaside Bridge and the Don River. North of Todmorden JCT, the study area returns to a more urban landscape, featuring more extensive road infrastructure, with high-rise apartment and residential buildings, commercial buildings and shopping plazas populating the landscape. Large transmission lines are also visible and represent the highest points on the landscape in this part of the study area (i.e., along Overlea Boulevard).

Potential effects of the proposed project on recreational resources are discussed in section 7.

4 Consultation

Consultation is an important component of the EA process as it provides those who may be interested in, or potentially affected by, the proposed project with timely and adequate information and opportunities to participate in the planning process. Consultation also allows the proponent to gain information and knowledge related to social, cultural, economic and environmental considerations of direct relevance to the proposed project as well as the means to inform and explain the approach to and value of the proposed project.

The key principles that guide our approach to communication and consultation include the following:

- Early, ongoing and timely communications and consultation;
- Clear project information and documentation;
- An open, transparent, and flexible consultation process;
- Respectful dialogue with First Nations and Métis communities and project stakeholders;
- The provision of ongoing opportunities for interested parties to provide meaningful input on the proposed undertaking; and,
- Full and fair consideration by the proponent of all input received during the consultation process and incorporation of such input into decision-making and project documentation.

Consultation methods incorporated a two-way communication process involving: First Nations communities; one federal agency; provincial and municipal government officials and agencies; potentially affected and interested persons; and interest groups. Consultation methods were selected to promote a comprehensive, transparent and sufficient consultation approach.

To explain the project and better understand specific considerations for different groups, consultation methods for this project included:

- Letters, flyers, and newspaper ads to announce and provide updates on the project;
- Two rounds of Public Information Centres (PICs), which provided opportunities for interested parties to discuss with and pose questions to the Hydro One project team and complete comment forms;
- Individual meetings with the MNCFN;
- Individual meetings with local elected officials for Wards 26, 29, 31 and 32;
- Two municipal coordination meetings;
- Individual face-to-face meetings with business owners;
- Establishment of a project contact list, through which interested parties can receive project updates via email;
- Dedicated Community Relations representatives;
- Community "Power Walks" through the areas where underground cables will be replaced, led by the project team; and,
- Establishment and maintenance of a project website (www.hydrone.com/Projects/LeasidetoMain), which allows for the sharing of project information.

A contact list of government agencies was developed for the proposed project, based on the MOECC Government Review Team distribution list. First Nations communities, elected officials and interest groups were also included on the contact list for the project (Appendix C).

The results of the consultation program are summarized in the sections below. Sections 4.1 through 4.8 summarize consultation that took place prior to the draft ESR review period. Section 4.9 provides a summary of key issues raised during the draft ESR review period, and section 4.10 outlines publication of the Statement of Completion.

Input was considered by the project team and incorporated into the proposed project where appropriate. A copy of the project consultation log is provided in Appendix C. Copies of consultation materials, such as notices, notification letters, PIC displays and correspondence are included in Appendices C1 through C5.

4.1 Initial Notification

Hydro One contacted the Ministry of Energy early in the project planning process, on January 8, 2015, to confirm consultation requirements with regard to potentially interested First Nations and Métis communities. Additional information is presented in section 4.2 and section 4.4.1.

Beyond this preliminary outreach, initial contact to First Nations communities, one federal agency (Transport Canada), municipal and provincial government officials and agencies, potentially affected and interested persons, and interest groups was made by Hydro One in January 2016 through the Notice of Commencement and invitation to the first round of PICs. The proposed project's contact lists are provided in Appendix C.

The Notice of Commencement publicly announced the undertaking of the Class EA process for the proposed project. It also identified the project need, the route alternatives being considered between Leaside TS and Todmorden JCT, the proposed project study area and outlined opportunities to provide input and comments. In addition, the Notice of Commencement included an invitation to the first round of PICs on February 8 and 10, 2016. The Notice of Commencement and invitation to the first round of PICs were distributed via email, mailed letters and newspaper advertisements. Advertisements were published in local newspapers as follows: the Beach Metro on January 26 and February 9, 2016; the East York Mirror on January 28, 2016 and February 4, 2016; and the Hi-Rise Community Newspaper on January 30, 2016. Notices were also mailed out to the MNCFN and potentially interested stakeholders (i.e., agencies, municipal stakeholders, environmental groups,), and e-mailed to community groups and City Councillors for Wards 26, 29, 31 and 32.

In addition, notices were hand delivered to residential and commercial units and buildings located within an approximate distance of 250 m from the proposed project work areas between January 22 and January 28, 2016. Of the 2,430 buildings visited, 2,380 successful deliveries and 50 attempted deliveries were made. This included confirmed deliveries to 2,176 single-unit residences, 144 multi-unit residences (i.e., under 5 units), and 60 buildings (i.e., more than five units, including large apartment and commercial buildings).

Consultation-related documents, including the Notice of Commencement and invitation to PIC #1, can be found in Appendix C.

4.2 First Nations and Métis Communities

The consultation requirements of the Class EA process apply to First Nations and Métis communities. Hydro One contacted the Ministry of Energy early in the project planning process on January 8, 2015, and provided a description of the characteristics and location of the proposed project. Hydro One informed the Ministry of Energy that they had identified one First Nation community, the MNCFN, to be in proximity to the proposed project and requested confirmation that this was an accurate and exhaustive list of communities to consult with in relation to the project. In an email to Hydro One dated February 24, 2015, the Ministry of Energy confirmed Hydro One's list of First Nations communities to be exhaustive. The Ministry of Energy sent a letter to Hydro One on March 2, 2015 stating that they had determined that there was no appreciable risk that the project would affect the rights of nearby First Nations and Métis communities, therefore advising Hydro One that rights-based consultation with First Nations and Métis communities was not necessary at that time.

4.2.1 Mississaugas of the New Credit First Nation

Throughout the consultation program, the MNCFN was notified about the proposed project, regularly informed of project updates and given opportunities to provide input related to the proposed project. This was achieved by way of direct mailing of notifications, provision of information and updates about the proposed project, and meetings with the MNCFN's Department of Consultation & Accommodation (DOCA) staff.

Hydro One notified the MNCFN about the proposed project by sending a project notification letter via email and courier mail in January 2016. This preliminary engagement activity took place early in the project planning process to allow the MNCFN opportunity to provide input at an important stage in project planning.

An offer to have the Hydro One project team meet with staff from the First Nation on the reserve was made on February 5, 2016. A meeting was held on April 6, 2016 with the MNCFN's DOCA staff to present the project scope, location and opportunities to participate in the EA process. The DOCA requested FLRs from the community participate in

environmental and archaeological fieldwork to support the Class EA. Hydro One welcomed the request and coordinated the participation of two FLRs with Golder and TMHC in fieldwork, including natural environment surveys completed on April 20, 2016 and May 10, 2016.

On April 8, 2016, Hydro One provided the DOCA a copy of the TMHC Stage 1 (desktop) archaeological assessment report. FLRs from the MNCFN attended most sections of the Stage 2 (test pit) surveys, which were conducted by TMHC archaeological staff on June 17, 2016. An FLR also accompanied the TRCA archaeologists during the majority of the Stage 2 assessment of the areas of TRCA property within the study area that were identified in the Stage 1 Archaeological Assessment report as having archaeological potential on June 16, 2016.

The MNCFN was invited to attend the second round of PICs via email and courier mail on July 29, 2016, along with an offer from the Hydro One project team to meet with staff from the First Nation.

Hydro One and the DOCA had a meeting on July 7, 2016 to provide an update on the studies and analysis to date and to present the draft route evaluation matrix and to discuss the results. The DOCA staff and Hydro One staff both expressed that they felt the coordination of field surveys with the FLRs was largely successful. The DOCA staff were pleased with the analysis and the ability to review and comment on the draft evaluation matrix prior to its public release.

4.2.2 Haudenosaunee Development Institute / Haudenosaunee Confederacy Chiefs Council

TMHC received an email from the Haudenosaunee Development Institute (HDI)/Haudenosaunee Confederacy Chiefs Council (HCCC) on May 20, 2016 stating their awareness of TMHC's plan to undertake archaeological work in the Haudenosaunee 1701 Nanfan treaty lands on behalf of Hydro One. HDI/HCCC requested that TMHC cease and desist any and all activities. HDI/HCCC stated that TMHC and Hydro One has failed to engage the HDI/HCCC as recommended by the MTCS's technical standards and guidelines as these are the HDI/HCCC's traditional lands.

Hydro One responded to the HDI/HCCC on May 31, 2016, providing a brief description of the project and map of the Stage 2 archaeological assessment area. Hydro One informed the

HDI/HCCC that in March 2015, the Ministry of Energy advised that rights-based consultation with First Nations communities on this project was not necessary at this time. Hydro One requested that the HDI/HCCC provide information about the Treaty rights they are concerned may be negatively impacted by the work undertaken by Hydro One for this project that would then by shared with the Crown (Ministry of Energy). Should the Crown determine it to be necessary, it may delegate the procedural aspects of its duty to consult to Hydro One. Hydro One stated that unless otherwise advised by the Crown, Hydro One will proceed with the proposed project as planned. To date Hydro One has not received a response from the HDI/HCCC.

A table summarizing the issues and concerns raised by First Nations communities throughout the consultation process is presented in section 4.7.1 and Appendix C1. The table includes a summary of efforts to address concerns and mitigate potential effects, as well as agreements reached.

4.3 Federal Government Agencies

As part of the consultation program for the proposed project, the following federal government agency was contacted:

- Transport Canada – Ontario Region

Hydro One initiated consultation by sending a project notification letter and invitation to attend the first round of PICs to Transport Canada on January 26, 2016. The notice and invitation was provided early in the project planning process to allow the agency to provide early input.

Transport Canada responded and requested that Hydro One determine if the proposed project will potentially interact with federal property and if the proposed project requires approval and/or authorization under any acts administered by Transport Canada; otherwise, the agency asked to be removed from the distribution list.

Transport Canada noted that they do not require receipt of all Individual EA or Class EA related notifications and requested that project proponents self-assess if their project will interact with federal property and require approval and/or authorization under any acts

administered by Transport Canada. Transport Canada stated that Hydro One should review the Directory of Federal Real Property to verify if the proposed project will potentially interact with any federal property and/or waterway and also review the list of acts that Transport Canada administers and assists in administering that may apply to the project. Transport Canada stated that if the aforementioned does not apply, the EA program of Transport Canada should not be included in correspondence. Hydro One has self-assessed the project and determined that it does not interact with federal lands and does not require approval/authorization under any acts administered by Transport Canada.

4.4 Provincial Government Representatives and Agencies

As part of the consultation program for the proposed project, the following provincial government representatives and agencies were contacted:

- Ministry of Energy;
- MOECC – Central Region;
- MNRF – Aurora District Office;
- MTCS;
- Ministry of Transportation (MTO) – Central Region;
- Infrastructure Ontario (IO);
- Local Members of Provincial Parliament (MPPs);
- Metrolinx (GO Transit); and,
- TRCA.

Hydro One notified the above provincial government representatives and agencies between January 25 and 26, 2016 through the Notice of Commencement and invitation to attend the first round of PICs.

Subsequently, an invitation to attend the second round of PICs was emailed to the representatives and agencies listed above on July 29, 2016. The invitation included an update on the proposed project.

Additional details on correspondence with these provincial government agencies is provided in the following sections:

- Ministry of Energy (section 4.4.1);
- MOECC (section 4.4.2);
- MNRF (section 4.4.3);
- MTCS (section 4.4.4);
- IO (section 4.4.5); and,
- Metrolinx (GO Transit) (section 4.4.6).

A table summarizing the issues and concerns raised by provincial government agencies throughout the consultation process is presented in section 4.7.2 and Appendix C3. The table includes a summary of efforts to address concerns and mitigate potential effects, as well as agreements reached.

4.4.1 Ministry of Energy

On February 24, 2015, the Ministry of Energy confirmed that Hydro One's list of First Nation communities in proximity to the proposed project area is exhaustive. The Ministry of Energy noted that while the proposed project overlaps two different treaty areas, this does not alter the list of communities to be considered.

On March 2, 2015, the Ministry of Energy sent Hydro One a letter stating that they have determined there is no appreciable risk that the proposed project will affect the rights of nearby First Nation and Métis communities and advised that rights-based consultation with First Nation or Métis communities on the proposed project was not necessary at that time. The Ministry of Energy recommended that Hydro One maintain a record of interactions with communities about the proposed project if it engages any First Nation or Métis community on a basis of interests. The Ministry of Energy requested that they or the Environmental Approvals Branch of the MOECC be notified if a community provides Hydro One with information indicating a potential adverse impact of the proposed project on its Aboriginal or Treaty rights.

On February 3, 2016, Hydro One notified the Ministry of Energy that they had received notification from the MNCFN, asserting their rights within the project area. Hydro One informed the Ministry of Energy about a planned meeting with the MNCFN to present the project and discuss their interests.

On May 30, 2016, Hydro One emailed the Ministry of Energy informing them of an email received from the Two Row Archaeology, on behalf of HDI/HCCC, addressed to TMHC, on May 30, 2016. Two Row Archaeology's email, on behalf of HDI/HCCC, indicated potential impact of the proposed project on HDI/HCCC's Treaty Rights (i.e., Haudenosaunee 1701 Nanfan Treaty).

4.4.2 Ministry of the Environment and Climate Change

On March 10, 2016, the MOECC provided a guidance document regarding the MOECC's interests with respect to the Class EA process. The MOECC requested that Hydro One identify the areas of interest which are applicable to the proposed project and ensure they are addressed.

On April 5, 2016, Hydro One sent a letter in response to the MOECC, identifying the MOECC areas of interest that are applicable to the proposed project: Ecosystem Protection and Restoration; Air Quality, Dust, and Noise; Contamination and Soils; Mitigation and Monitoring; Planning and Policy; Class EA Process; and Aboriginal Communities. Hydro One stated that no adverse effects to Surface Water and Groundwater were anticipated. Hydro One requested to be notified if the MOECC had interest in meeting with the project team to discuss the undertaking or the Class EA. No additional comments have been received to date.

On June 1, 2016, Hydro One notified the MOECC of their correspondence with the HDI/HCCC and their request for TMHC to stop the planned archaeological work on 1701 Nanfan treaty lands. Hydro One summarized their previous correspondence with the Crown (Ministry of Energy) regarding Aboriginal consultation and informed the MOECC that the Crown was also notified of the HDI/HCCC's concerns. Hydro One noted that a response was sent to the HDI/HCCC on May 31, 2016, providing additional information on the proposed project and study area and inquiring about what specific concerns they had regarding the archaeology work or the proposed project in general.

On July 25, 2016, Hydro One notified the MOECC of the opportunity for Hydro One to possibly coordinate work with Toronto Hydro along Millwood Road, which would minimize environmental disturbance to this area. Hydro One provided details of the proposed coordination work and explained how this does not contravene the *EA Act* or the *Class Environmental Assessment for Minor Transmission Facilities* (Ontario Hydro, 1992). Hydro One stated that they will keep the MOECC notified on the status of the proposed project and efforts to coordinate this work with Toronto Hydro.

On August 12, 2016, the MOECC responded to Hydro One. The MOECC reminded Hydro One that the Class EA process is a proponent-driven process and it is up to the proponent to ensure that they meet their EA obligations. The MOECC thanked them for their rationale for coordinating work with Toronto Hydro and noted that however Hydro One proceeds, they request that it is documented in the ESR for transparency (see section 6). The MOECC also recommended that Hydro One ensure regular coordination with Toronto Hydro to seek opportunities to coordinate projects wherever possible.

4.4.3 Ministry of Natural Resources and Forestry

On March 21, 2016, the MNRF notified Hydro One that the MNRF had an interest in the proposed project and will potentially provide comments. The MNRF requested that Hydro One keep the MNRF informed as the proposed project progresses. No additional comments have been received to date.

4.4.4 Ministry of Tourism, Culture and Sport

On January 26, 2016, the MTCS notified Hydro One that the MTCS heritage planner will review EA documentation and will follow-up with any comments. The MTCS also stated that their archaeology team will review the archaeological assessment report and follow-up with Hydro One and their consultant archaeologist when the report has been accepted on the MTCS register of reports. No additional comments have been received to date.

4.4.5 Infrastructure Ontario

On January 28, 2016, IO responded by letter to Hydro One`s Notice of Commencement. The letter outlined IO's responsibilities and requested that Hydro One contact IO if ownership of

provincial government lands is known to occur within the study area and if the provincial government lands are proposed to be impacted. IO also stated that proponents are obligated to complete due diligence for any realty activity on IO managed lands and stated that this should be incorporated into project timelines. IO discussed potential negative impacts to IO tenants and lands and potential triggers related to the Ministry of Infrastructure *Public Work Class EA* (2012). If Ministry of Infrastructure owned lands are not anticipated to be impacted by the proposed project, IO requested that Hydro One remove IO from the circulation list.

On February 24, 2016, Hydro One responded to IO and stated that a portion of the proposed project appears to occur on IO lands, specifically the portion of the overhead transmission line between the Don River and Lumsden JCT. Bill 58 or the *Reliable Energy and Consumer Protection Act, 2002* transferred lands owned by Hydro One for its transmission system to the government of Ontario. Hydro One stated that appropriate mitigation measures will be planned, implemented and documented in the ESR. Hydro One stated that no long-term environmental effects are expected to occur as a result of the proposed project and no impacts to land holdings or triggers for the *Public Work Class EA* are anticipated.

On August 5, 2016, IO sent a letter via email to Hydro One, providing their response to Hydro One's Notice of Commencement. IO stated that based on the information provided by Hydro One, it was unclear if Hydro One's proposed project is to use lands under the control of the Minister of Economic Development, Employment and Infrastructure (MOI lands) and encouraged Hydro One to work with IO on identifying if any MOI lands would be required for the proposed project. IO provided instructions for Hydro One on how to proceed with working with the MOI on MOI lands. IO requested that Hydro One provide confirmation in writing of any MOI lands they propose to use for the proposed project and why the lands are required along with a copy of a title search for the MOI lands. IO provided an application package and requirements checklist for Hydro One's reference and noted that the transfer of interest in MOI lands to a proponent can take up to one year and there is no certainty that approval will be obtained.

On September 26, Hydro One emailed IO, noting that the two underground cable replacement sections of the proposed project are exempt and screened out from further requirements under the *Public Work Class EA*, as the project is subject to the *Class EA for Minor*

Transmission Facilities (Ontario Hydro, 1992). Hydro One informed IO that the draft ESR will be released on September 29, 2016 for a 45-day public review and comment period and that the IO office will be receiving a notification and link to the document prior to its release. The IO office will be formally notified once Hydro One has completed the Class EA process and has filed the ESR with the MOECC; thus satisfying the first screening question of the *Public Work Class EA*. In addition, Hydro One explained the reasoning for the delay of work on the overhead shield wire portion of the proposed project.

4.4.6 Metrolinx (GO Transit)

Hydro One contacted Metrolinx and the City of Toronto Planning Division on August 4, 2016 to discuss how to coordinate Hydro One's proposed project and Metrolinx's Danforth GO Station Redesign project so that there is minimum impact to the public. Hydro One stated that they are available for a teleconference or meeting and can share some conceptual plans.

Metrolinx emailed Hydro One on August 11, 2016 highlighting their understanding of key aspects of Hydro One's proposed project. Metrolinx stated that they will include Hydro One's proposed project as background in the Danforth GO Station Redesign project but noted that they do not anticipate it being a major consideration in their project planning due to the alignment of the H7L/H11L Circuit being maintained on the west side of Main Street.

4.4.7 Toronto and Region Conservation Authority

On February 3, 2016, the TRCA responded to the Notice of Commencement and invitation to the first round of PICs for the proposed project. The response outlined Areas of Interest for the TRCA within the project study area, which include TRCA Regulated Areas and Program and Policy Areas, and provided the EA requirements and program and policy concerns associated with each of the Areas of Interest. The TRCA noted that mapping and program information is available for the Areas of Interest, and asked Hydro One to confirm if there is interest to obtain these data. The TRCA requested Hydro One ensure that the status, potential impacts, and opportunities for enhancement related to these Areas of Interest are documented and assessed through a review of background material, technical studies, field assessment, and detailed evaluation, as appropriate. The TRCA requested Hydro One confirm

with the City of Toronto if there are program interests related to the proposed project for Environmentally Sensitive Areas. The TRCA also requested that relevant federal agencies are contacted to confirm if there are issues related to the Asian Long-horned Beetle Regulated Area and federally-listed endangered species.

The TRCA provided a list of criteria that the preferred alternative for the proposed project should consider, given the TRCA's *The Living City Policies for Planning and Development in the Watershed of the Toronto and Region Conservation Authority* (LCP) and other programs and policies. The TRCA recommended that the preferred alternative and preferred solutions meet the policies of section 7 and section 8 of the LCP, respectively. The TRCA also requested Hydro One to arrange a meeting to discuss issues that relate to TRCA Areas of Interest prior to selecting a preferred alternative solution and design.

The TRCA requested Hydro One forward a copy of handouts or display materials for the first round of PICs (February 8 and 10, 2016) for their files, and noted that TRCA staff would not be able to attend the first round of PICs. The TRCA outlined in their response the Class EA documentation required to expedite TRCA's review of the proposed project, along with the preferred document format. The TRCA also outlined a brief description of the Voluntary Project Review process for the detailed design phase. In March 2016, the TRCA requested that Hydro One undertake a NHIS to confirm existing conditions and identify potential impacts of all alternatives being examined.

Hydro One responded to the TRCA on March 15, 2016 in a letter via email. In the letter, Hydro One noted it will consider the TRCA Areas of Interest and potential effects to them through the Class EA process. Hydro One summarized the involvement of TMHC and Golder in undertaking archaeological and environmental surveys for the proposed project. Hydro One expressed interest in receiving additional digital mapping and program information offered by the TRCA and noted this will be incorporated into the Class EA where warranted. Hydro One noted the TRCA document and policies provided on February 3, 2016 would be taken into consideration during the selection of the preferred route and evaluation of alternative routes for the underground cable segment from Leaside TS to Todmorden JCT. Hydro One proposed meeting with the TRCA on March 24, 2016 to discuss coordinating the Class EA. Hydro One also provided a copy of the information panels from the first round of

PICs as requested. Hydro One and the TRCA met on March 24, 2016 to discuss the proposed project. There was a general discussion regarding the timing and components of construction. The TRCA noted concerns regarding work avoiding floodplain areas, avoiding grading or work that would contribute to erosion, natural features and species studies. The TRCA also expressed interest in future biodiversity initiatives. Hydro One noted it would provide a natural features map with aerial imagery to the TRCA. The TRCA noted it would provide Hydro One with ELC, regulated area, and floodplain mapping and datapoints for the overhead portion of the proposed project work. These maps and datapoints were provided to the appropriate parties as indicated.

Between April and May 2016, Hydro One and the TRCA discussed the logistics of the May 9 and 11, 2016 site visit in the Leaside TS to Todmorden JCT area. Hydro One and the TRCA also discussed the logistics of obtaining the TRCA datasets as well as obtaining access permission for some of the upcoming Stage 2 archaeological assessment studies. Representatives from Hydro One, the City of Toronto and the TRCA conducted site visits on May 9 and 11, 2016. Representatives discussed the route alternatives for the proposed project. Additional detailed information can be found in Appendix C1.

On May 27, 2016, the TRCA informed Hydro One that their mandate is to have TRCA archaeologists conduct all archaeology field surveys on TRCA property. The TRCA stated that they could coordinate with First Nation FLRs and make arrangements to have them on site. The TRCA noted that a separate report would need to be filed and the TRCA can grant acceptance immediately following the assessment. On June 20, 2016, the TRCA stated that they had completed a Stage 2 archaeological assessment of the proposed project area on TRCA property and with the exception of a single, small quartz flake identified, they had no further archaeological concerns. The TRCA stated that if there is any deviation from the agreed upon project area, additional assessment may be necessary. The TRCA notified Hydro One that if deeply buried deposits or human remains are found, all activities must cease and the TRCA Archaeology Resource Management Services and the proper authorities must be contacted immediately. The TRCA stated that a final, formal report regarding the archaeological assessment on TRCA property will be forthcoming following MTCS acceptance.

4.5 Municipal Government Representatives and Agencies

As part of the consultation program for the proposed project, the following municipal government representatives and agencies were contacted:

- Local Members of Toronto City Council (Wards 26, 29, 31 and 32);
- City of Toronto:
    - City Manager and Deputy City Manager;
    - Major Capital Infrastructure Coordination (MCIC) Office
    - City Planning Division;
    - Community Planning – Toronto and East York District and Scarborough District;
    - Long-Term Care Homes and Service Division;
    - Major Capital Infrastructure;
    - Transportation Services;
    - Utility Cut Operations;
    - PFR Division;
    - Strategic Communications;
    - Toronto Water;
- Toronto Hydro; and,
- TTC.

Hydro One initiated formal consultation with the municipal government representatives and agencies listed above via a project notification letter and invitation to attend the first round of PICs. These representatives were also invited to attend municipal coordination meeting #1 which was held on February 26, 2016. These engagement activities were hosted early in the project planning process to allow these stakeholders to provide early input.

The municipal government representatives and agencies listed above were invited to municipal coordination meeting #2, which was held on July 14, 2016, and the second round of PICs by email.

A table summarizing the issues and concerns raised by municipal government agencies throughout the consultation process is presented in section 4.7.2 and Appendix C4. The table

includes a summary of efforts to address concerns and mitigate potential effects, as well as agreements reached. Additional details on correspondence with the above municipal government representatives and agencies is provided in the following sections.

4.5.1 Local Members of Toronto City Council

Pre-consultation with municipal elected officials took place early in the planning process, with introductory meetings and briefings with the four City Councillors in the project area. The project team asked the Councillors to identify any relevant community groups who may have an interest in the proposed undertaking. As well, the team asked whether the Councillors would be willing to help disseminate project information through their communication avenues. The Councillors were generally receptive to including updates in their newsletters and on their websites.

Subsequently, on July 25, 2016, Hydro One project team members and the Councillor of Ward 29 met to discuss the progress of the Class EA, including selection of the preferred route for underground cable replacement between Leaside TS and Todmorden JCT. Hydro One answered the Councillor's questions about how the preferred route for underground cable replacement had been received to date by First Nations communities and stakeholders. Hydro One also informed the Councillor of coordination efforts with Toronto Hydro for construction work in the Millwood Road area (refer to section 6.2.1). The Councillor expressed that if coordination is possible, excavating once for adjacent Toronto Hydro and Hydro One projects is preferable.

4.5.2 City of Toronto – Major Capital Infrastructure Coordination Office

In addition to the correspondence and meetings outlined in section 4.5, additional discussions took place between Hydro One and the City of Toronto's Major Capital Infrastructure Coordination (MCIC) Office in February 2016. The MCIC Office inquired if Hydro One would be interested in making a presentation to the Toronto Public Utilities Coordinating Committee for the project. On March 2, 2016, Hydro One staff members met with the Toronto Public Utilities Coordinating Committee and discussed the proposed project.

4.5.3 City of Toronto – City Planning Division

A representative from the City Planning Division attended municipal coordination meeting #1, held February 26, 2016 at Hydro One's office (483 Bay Street, Toronto).

On May 19, 2016, the City Archaeology Project Manager requested that Hydro One provide copies of archaeological reports prepared for the proposed project for review. Hydro One provided the Stage 1 archaeological assessment report, prepared by TMHC, to the City Archaeology Project Manager on May 19, 2016. Hydro One continued to provide the City Planning Division with updates regarding completion of the Stage 2 assessment in May and June 2016 when the assessment became delayed. On July 5, 2016, Hydro One provided a memo summarizing the results of the Stage 2 archaeological assessment conducted by TMHC on June 17, 2016 and informed the division that a full Stage 2 archaeological assessment report was currently being written by TMHC for submission to the MTCS.

A representative from the City Planning Division attended municipal coordination meeting #2, held July 14, 2016 at the Hydro One office (483 Bay Street, Toronto).

Hydro One contacted the City Planning Division and Metrolinx on August 4, 2016 to discuss how to coordinate Hydro One's proposed project and Metrolinx's Danforth GO Station Redesign project so that there is minimum impact to the public. Hydro One stated that they are available for a teleconference or meeting and can share some conceptual plans.

4.5.4 City of Toronto – Long-Term Care Homes and Services Division

Hydro One staff met with True Davidson Acres' Supervisor of Building Services on February 17, 2016 and discussed the plan to use the north parking lot (owned by Hydro One and leased by True Davidson) and the grass north of the facility as part of the laydown area during project construction. The Supervisor was also advised that the True Davidson driveway may be used by heavy construction vehicles to access the laydown area. He requested notification in advance of work starting.

Hydro One staff telephoned and emailed the City of Toronto's Long-Term Care Homes and Services Division on July 22, 2016, informing them of the same information. In response, Hydro One received an email on July 25, 2016 naming the Administrator of True Davidson

as the key contact. Hydro One staff met with representatives from True Davidson Acres on August 16, 2016. Concerns were expressed about the use of this driveway as it is frequently used by True Davidson staff, volunteers, visitors and pedestrians. It is also the only access to the entrance of the facility. True Davidson Acres representatives and Hydro One staff discussed alternative access options and Hydro One agreed to look into the issue in further detail and will follow up with staff from the facility closer to construction.

4.5.5 City of Toronto – Transportation Services Division

In February 2016, the Transportation Services Division contacted Hydro One and stated that they were currently working on another project that involves redesigning intersection of Main Street and Danforth Avenue. This division expressed interest in the proposed project, including coordinating works with Hydro One, and inquired how their project on Main Street would impact the proposed project. Hydro One responded on February 29, 2016 informing them that the two projects overlap and that Hydro One and the City of Toronto should work together and coordinate the work. Hydro One proposed to meet with the Transportation Services Division.

In April 2016, Hydro One and the Transportation Services Division discussed the proposed project schedule and the potential impact on the City of Toronto's scheduled road reconstruction of Stephenson Avenue. Hydro One confirmed that although the EA for the proposed project is not yet complete, the expected duration of construction of the proposed project is between May 2017 and December 2018.

Hydro One will continue to correspond with the Transportation Services Division to keep them informed on the status of the project and to coordinate work and construction activities wherever possible.

4.5.6 City of Toronto – Parks, Forestry and Recreation Division

In February, 2016, the PFR Division expressed their interest in learning about the construction schedule and whether public access to trails will be maintained throughout construction. They also inquired about opportunities for trail improvement after construction. Representatives from the PFR Division attended municipal coordination meeting #1, held February 26, 2016 at Hydro One's head office (483 Bay Street, Toronto).

Hydro One notified the PFR Division that there will be biodiversity and habitat creation work to offset construction effects on natural areas and that opportunities for overlap with the division`s trail creation initiatives (e.g., planting/seeding, invasive species control) may be available. A separate workshop on this initiative will be scheduled near the start of construction and Hydro One will keep the PFR Division updated.

An invitation to attend site visits to the route options between Leaside TS and Todmorden JCT on May 9 and 11, 2016 was emailed to representatives of the PFR Division of the City of Toronto on April 19 and 27, 2016.

On May 18, 2016, Hydro One notified the PFR Division about the Stage 2 archaeology fieldwork scheduled from May 25 to 27, 2016. Hydro One continued to provide the division with updates regarding the completion of the Stage 2 archaeological assessment in May and June 2016 when the assessment became delayed. On July 5, 2016, Hydro One provided a memo summarizing the results of the Stage 2 archaeological assessment conducted by TMHC on June 17, 2016. Hydro One stated that Stage 2 archaeological assessment reports are currently being written by TMHC and the TRCA for submission to the MTCS.

On May 26, 2016, Hydro One and the PFR Division exchanged emails discussing the map of the Stage 2 archaeology survey area. The PFR Division requested updated drawings with additional information and labelling for review, which were later provided.

Representatives from the PFR Division attended municipal coordination meeting #2, held July 14, 2016 at the Hydro One office (483 Bay Street, Toronto).

On August 5, 2016, the PFR Division provided their comments on the documents provided at the site visits on May 9 and 11, 2016 and municipal coordination meeting #2. The PFR Division stated that their preferred route would be route option 2, as proposed by Hydro One, noting that route option 2 preserves parkland and reduces the impacts to the streetscape along Millwood Road. Route option 2 also provides the opportunity to improve the natural space along and adjacent to the existing Hydro One RoW and helps to mitigate existing site concerns of erosion from failing infrastructure and non-native and invasive species. The PFR Division inquired if there has been any consideration given to replacing the existing towers along the

existing overhead RoW and combining the overhead transmission cables from the towers with the new underground cables.

The PFR Division strongly encouraged the Hydro One Project Manager to explore the possibility for further improvements to existing infrastructure within the existing utility corridor which would help facilitate the replacement of cables in the future. The PFR Division stated that they had reviewed Hydro One's typical plant list used for restoration projects and found it to be generally satisfactory. The PFR Division stated that it would be appropriate to the nature of the project to use additional plants identified in the vegetation inventory and nearby ESA (Crothers Woods) found to be suitable, to try to restore with vegetation known to thrive in the area. The PFR Division stated that they strongly encourage the Project Managers to consider their comments for inclusion in project planning.

On August 9, 2016, Hydro One thanked the PFR Division for their comments and support, stating that they help confirm that Hydro One is on the right track by selecting route option 2 as the preferred route. Hydro One stated that in response to the PFR Division's question about towers, Hydro One stated that, to bury the circuits on the existing overhead RoW, they would have to build another junction similar to Todmorden JCT or extend a tower line from Todmorden JCT along the rail, under the bridge to connect to the existing line. Hydro One stated that the best option is to keep the towers where they are.

Between July and August 2016, Hydro One and the PFR Division exchanged emails regarding the list of species Hydro One allows for planting under Hydro One's transmission lines. Hydro One stated that the list of species is currently under review. Hydro One also requested the PFR Division's list of contacts for Metrolinx. The PFR Division provided a contact for Metrolinx and a contact from the City Planning Division of the City of Toronto who are currently working on Metrolinx's Danforth GO Station Redesign project.

Ravine and Natural Feature Protection Department

The Ravine and Natural Feature Protection (RNFP) department (a department within the PFR Division) provided their comments based on municipal coordination meeting #1 on March 7, 2016. The RNFP department inquired about a site visit and requested that PFR be notified when the preferred route is selected. The RNFP department discussed an application for tree

removals or injuries and the need for an arborist report by a certified arborist. The RNFP department also requested information as to how the temporary access road will be built and inquired how Hydro One will address proposed tree removals or injuries. The RNFP department recommended carrying out construction under frozen ground conditions as there is lower potential for adverse effects on vegetation. The RNFP department requested that Hydro One submit the tree removal permit with as much notice as possible. The RNFP department noted that the City of Toronto Urban Forestry's Natural Resource Management department may be interested in carrying out required replanting and stewardship and requested that Hydro One contact that department when it has reached that stage of the proposed project.

Hydro One responded on April 5, 2016, answering the questions posed by RNFP, and proposed a site visit for May 2016. Upon selection of the preferred route, Hydro One noted it would issue invitations to the second round of PICs for the proposed project to the RNFP and other City contacts. It was noted that in Hydro One's experience, certified arborist reports are not typically conducted until the post-EA phase. A certified arborist will conduct an assessment, if necessary, once the preferred route is selected and more information on construction methods and access plans are available. Hydro One stated that Golder has been retained to undertake biological surveys, and the information obtained via the surveys will be used to evaluate the potential routes for the new underground cable from Leaside TS to Todmorden JCT. Given that both City staff and the TRCA have expressed a desire to retain and protect trees to the extent possible, Hydro One noted that the evaluation criteria will be weighted to reflect this. Hydro One stated that adverse effects to the natural environment that cannot be entirely avoided or mitigated will be compensated by the biodiversity initiative. Hydro One also stated that during construction, mitigation for erosion along slopes will be undertaken and areas affected by construction work will be restored (e.g., by seeding with compatible native species). Hydro One also addressed the temporary access roads and laydown areas that will be used during construction. Hydro One stated that they will follow the appropriate process for trees that require removal for the proposed project and that they will initiate the permitting process as soon as possible. Hydro One also thanked RNFP for referring them to the Natural Resource Management department and noted that this department will be kept in mind as the Class EA progresses and construction commences.

On July 21, 2016 Hydro One received comments from the RNFP department on the proposed project route options. RNFP stated that a Natural Heritage Impact Study (NHIS) should be conducted and be part of the EA process and if the study has already been done, requested to have a copy sent to the RNFP. RNFP stated that if route option 2 is the selected route once all environmental impacts have been determined, the RNFP would prefer to confine new disturbance to areas of existing disturbance and avoid creating new fragmentation to the extent possible. RNFP also voiced a preference for Hydro One to avoid larger healthy, native trees species versus smaller, less health, non-native species. The RNFP had questions regarding if pushpipe or microtunelling is still an option Hydro One is considering for route option 2 and inquired about Hydro One's Class EA process.

Hydro One responded to the RNFP in August 2016 stating that they were not intending on producing a separate-cover NHIS, as the draft ESR will contain much of the same content and analyses found in an NHIS. Specifically:

- Background and context for the undertaking are presented in sections 1 and 2 of the ESR.
- Identification of Natural Heritage Features and Functions is presented in section 3 of the ESR. The Natural Environment portion of section 3 (i.e., section 3.7) includes aspects typically addressed in NHIS reports, including watercourses and hydrologic features/functions, vegetation communities and species of concern.
- Impact Identification and Analysis, and Responses to Impacts, are presented in section 7 of the ESR. Section 7 provides discussion of the environmental features identified in section 3 that may be affected by the proposed project, and explains how each feature could potentially be affected and what mitigation, avoidance or compensation measures may be employed.

Hydro One also explained that the NHIS and other *Planning Act* requirements typically do not apply to Hydro One as transmission lines are defined as "infrastructure" in the PPS. Hydro One also stated that they will consider the RNFP's suggestions when they finalize their access strategy and will update the RNFP and discuss as required. In response to the RNFP's question about pushpipe or microtunneling, Hydro One stated that they are not considering other trenchless options at this time due to their increased construction complexity.

Hydro One provided the RNFP with a brief explanation of the next steps of the Class EA process.

The RNFP emailed Hydro One on August 16, 2016, providing the City of Toronto's *Tree Protection Policy* document for reference. The RNFP listed some highlights for Hydro One to note regarding tree removal, construction access and storage of materials, and stated a preference for the preservation of greater quality trees versus lesser quality trees that are of smaller size or poorer health (all else being equal). Hydro One responded on August 18, 2016, providing an update on the current approach for a temporary access road along the overhead RoW. Hydro One noted that a detailed tree inventory and arborist report will be provided when an exact cable route is designed and staked in the field. Hydro One provided an update on the laydown area they currently plan to use and stated that they will keep in mind proximity to large trees and will retain an arborist to assist in a detailed inventory and any required permit applications. Hydro One requested the RNFP notify Hydro One if and when they would like to attend another site walk.

4.5.7 City of Toronto – Toronto Water

In addition to the correspondence and meetings outlined in section 4.5, additional discussions took place in July 2016 between Hydro One and Toronto Water regarding two culverts in the area of Millwood Road and Overlea Boulevard. Hydro One stated that they came across two damaged culverts most likely belonging to Toronto Water and requested to be put in contact with the City of Toronto's engineering department that oversees the two culverts. Hydro One stated that they would like more information about the culverts before the start of construction of the proposed project as it may be an opportunity for Toronto Water to fix the culverts while Hydro One works in the area. Hydro One proposed a meeting with Toronto Water to discuss the issue. On July 27, 2016, Toronto Water and Hydro One discussed the location of the two culverts on a satellite map and Hydro One requested Toronto Water to notify Hydro One if they have information about the two culverts. Hydro One stated that they own a portion of the land but the remainder of the corridor is an easement from the City of Toronto. Toronto Water staff are currently looking into the nature of the easement and if it is determined that the land is not owned and operated by Toronto Water, then another City of Toronto division may need to be engaged.

4.5.8 Toronto Hydro-Electric System Ltd.

In addition to the correspondence outlined in section 4.5, additional discussions took place between Hydro One and Toronto Hydro regarding coordinating work along Millwood Road. Specifically, Toronto Hydro is installing underground cables and a duct bank along Millwood Road in the vicinity of Hydro One's planned project.

During the Class EA, Hydro One and Toronto Hydro discussed the logistics of coordinating excavation along Millwood Road. On June 29, 2016, Hydro One proposed meeting with Aecon (the engineering firm retained by Toronto Hydro) to coordinate scope and timelines.

The coordination proposed is as follows: When Toronto Hydro trenches along Millwood Road to install its distribution cable duct banks, they will install additional empty cable ducts, suitable for Hydro One's 115 kV cables, below their low-voltage ducts. This "stacked duct bank" would extend for approximately 120 m along Millwood Road, and the high-voltage (115 kV) cable ducts would eventually be transferred to Hydro One to house the new transmission cables that will run from Leaside TS to Todmorden JCT. Therefore, when Hydro One commences construction on this portion of the project, crews will use these pre-constructed cable ducts to minimize the need for further excavation and trenching on Millwood Road. This would also minimize the removal of vegetation south of Millwood Road, as Hydro One's cable ducts would need to be located south of the road curb if coordination did not occur and they were to be installed after Toronto Hydro work is completed.

While this potential coordination of work is not yet confirmed, Hydro One staff will continue to work with Toronto Hydro to attempt to coordinate construction efforts and thereby minimize construction-related disturbance to the surrounding community and environment.

4.5.9 Toronto Transit Commission

On January 26, 2016, the TTC expressed interest in a detailed review of where Hydro One's underground transmission line cable crosses TTC's infrastructure. The TTC also requested to be notified in advance if service diversions are needed for the proposed project for a significant period of time. On July 8, 2016, the TTC notified Hydro One that they have forwarded the July 14, 2016 municipal coordination meeting #1 invitation to a colleague who will determine

TTC's Strategy and Services Planning department involvement in the project and staff representation as needed.

4.5.10 Municipal Coordination Meeting #1

Hydro One hosted a meeting with municipal-level stakeholders to discuss the potential coordination of proposed project activities with other municipal works and initiatives that are planned in the vicinity of the proposed project. Municipal coordination meeting #1 was held on February 26, 2016 at Hydro One's head office (483 Bay Street, Toronto) between 9:30 a.m. and 11:30 a.m. Invitations for the meeting were sent out between January 25 and 26, 2016 via e-mail to municipal government officials and agencies listed in the contact lists (Appendix C).

At municipal coordination meeting #1, Hydro One provided a presentation on topics pertaining to the following areas:

- Need for the proposed project;
- Proposed project location and project study area;
- Route options between Leaside TS and Todmorden JCT;
- Route evaluation criteria;
- Construction considerations;
- Mitigation measures;
- Natural features in the project study area; and,
- Biodiversity initiative.

Discussion between Hydro One and meeting attendees was framed around the provided presentation. There were seventeen (17) attendees at the municipal coordination meeting. Attendees included representatives from the following municipal level groups:

- City of Toronto Councillors representing Ward 31 and Ward 26;
- TTC;
- City of Toronto;
    - Major Capital Infrastructure;
    - Community Planning;
    - Utility Cut Operations;

    - PFR Division, including representatives from the RNFP department; and,
- Toronto Hydro.

Representatives from the TRCA also attended the meeting.

In general, questions and comments raised during the municipal coordination meeting pertained to the following topics:

- General information on the proposed project;
- Construction methods and duration;
- Land considerations;
- Permitting considerations;
- Access restrictions;
- Coordination with other development;
- Recreational resources;
- Route options; and,
- Feedback on the municipal coordination meeting.

A summary of comments received at the municipal coordination meeting #1 is presented in Appendix C4. The summary outlines the integration of the comments received during municipal coordination meeting #1 into project planning, responses from the project team, and follow-up conducted by Hydro One.

4.5.11 Municipal Coordination Meeting #2

Hydro One hosted a second municipal coordination meeting on July 14, 2016 at Hydro One's head office between 9:30 a.m. and 11:30 a.m. Invitations for the meeting were sent to the municipal government officials and agencies listed in the contact lists (Appendix C).

At municipal coordination meeting #2, Hydro One provided a presentation on topics pertaining to the following areas:

- Project update and timeline;

- Overview of feasible route options for underground cable replacement between Leaside TS and Todmorden JCT;
- Construction considerations for each of these routing option;
- The route evaluation and selection process;
- The route evaluation results; and,
- An explanation of the matrix used in the evaluation and selection process.

Municipal-level stakeholders in attendance at the meeting included representatives from:

- City of Toronto Councillor, Ward 29;
- City of Toronto;
    - Community Planning;
    - Utility Cut Operations;
    - PFR Division, including representatives from the RNFP department;
- Toronto Hydro/Aecon; and,
- TTC.

Representatives from the TRCA also attended the meeting.

In general, questions and comments raised during municipal coordination meeting #2 pertained to the following topics:

- Route options and route evaluation matrix;
- Project consultation;
- Project construction;
- Features along the preferred route;
- Coordination with other development;
- Traffic and transportation; and,
- Mitigation of environmental effects.

A summary of comments received at municipal coordination meeting #2 that pertain to the proposed project are presented in Appendix C4. The summary outlines the integration of the

comments received during municipal coordination meeting #2 into project planning, responses from the project team, and follow-up conducted by Hydro One.

4.6 Potentially Affected and Interested Persons, Businesses and Interest Groups

Consultation opportunities were provided to potentially affected and interested persons and interest groups throughout the Class EA Process. Notification about the proposed project was achieved by means of hand delivered notices to residential and commercial units and buildings, Canada Post mail, email and newspaper advertisements.

4.6.1 Canadian National Railway

Hydro One provided notice to CN Rail on January 26, 2016 by sending a project notification letter and invitation to attend the first round of PICs. This preliminary engagement activity was carried out early in the project planning process to allow CN Rail to provide early input. The invitation included a request for CN Rail to attend the first round of PICs scheduled for February 8 and 10, 2016.

Hydro One contacted CN Rail on May 17, 2016 with questions regarding a CN-owned rail line that is in close proximity to one of Hydro One's route options for the project. Hydro One inquired if CN Rail could provide GIS data or other mapping data that would show the extent of the CN Rail RoW and also inquired if there are any other requirements or restrictions for construction activities close to an active rail line.

An invitation to attend the second round of PICs was emailed to CN Rail on July 29, 2016.

4.6.2 Canadian Pacific Railway

Hydro One provided notice CP Rail of the project on January 27, 2016 by sending a project notification letter and invitation to attend the first road of PICs. The invitation included a request for representatives to attend the first round of PICs scheduled for February 8 and 10, 2016.

4.6.3 Potentially Affected and Interested Persons

Residential, commercial and industrial property owners and local residents that may be potentially affected and are located within an approximate distance of 250 m from the proposed project work areas were contacted directly through email, hand delivery and Canada Post mail regarding commencement of the EA, PICs and community "Power Walks". Additionally, advertisements pertaining to project notices and PICs were published in the following newspapers: Hi-Rise Community Newspaper, East York/North Riverdale Mirror, Beach Metro and North York Mirror.

Hydro One initiated consultation with these potentially affected and interested persons via a project notification letter and an invitation to attend the first round of PICs. Hydro One encouraged these individuals to sign up for the project contact list to receive future project updates via email.

On February 17, 2016, Hydro One staff held face-to-face visits with business owners in the stretch of the project between Main TS and Lumsden JCT to notify them of the project and discuss possible concerns regarding construction. The project team brought copies of the materials presented at the first round of PICs to hand out to business owners.

An invitation to attend the second round of PICs was sent to potentially affected and interested persons, as well as emailed to the project contact list, on July 29, 2016. The invitation included an update on the proposed project and a request for attendance at one of the PICs.

A table summarizing the key issues and concerns raised by potentially affected and interested persons throughout the consultation process is presented in section 4.7.4 and Appendix C5.

4.6.4 Interest Groups

As part of the consultation program for the proposed project, the interest groups that were contacted include:

- Community associations and committees;
- BIAs;
- Local community leisure and sports groups (e.g., cycling clubs, dog walker groups);

- Environmental interest groups;
- Community centres;
- Developers;
- Local associations of property owners, ratepayers, tenants, and residents;
- Service providers; and
    - Utilities
    - Medical care facilities; and,
    - Schools and daycares.
- Municipal and regional associations.

The detailed list of interest groups that were contacted is provided in Appendix C.

Hydro One provided project notification and invited these stakeholders to the first and second round of PICs via email and mail.

4.6.5 Public Information Centre #1

An initial round of PICs was held on February 8 and 10, 2016. The February 8 PIC was held at Stan Wadlow Community Centre located at 373 Cedarvale Avenue in Toronto between 6:30 p.m. and 9:30 p.m. The February 10 PIC was held at the Leaside Arena's William Lea Room located at 1073 Millwood Road in Toronto between 6:00 p.m. and 9:00 p.m.

Advertisements for the first round of PICs were published in the following newspapers: the Hi Rise Community Newspaper on January 30, 2016, the East York Mirror on January 28, 2016 and February 4, 2016, and the Beach Metro on January 26 and February 9, 2016. In addition to these advertisements, notices were distributed to one federal agency (Transport Canada), municipal and provincial government officials and agencies, the MNCFN, and potentially affected and interested persons listed in Appendix C. Notices were also hand-delivered or mailed to residential and commercial units and buildings located within an approximate distance of 250 m from the proposed project work areas.

At the first round of PICs, information was provided on the following topics:

- Overview of the need for the proposed project;

- Proposed project location and project study area;
- Environmental features map in the project study area;
- Regulatory process for the proposed project;
- Overview of possible environmental mitigation measures; and,
- Proposed project timelines.

Display panels and table maps were available for review at these consultation events (see Appendix C). A comment form was available to allow attendees to record comments or concerns and to provide feedback (see Appendix C).

Fourteen (14) local residents and government officials and representatives attended the February 8, 2016 PIC. Government officials and representatives attendees included:

- City of Toronto Councillor representing Ward 31;
- Constituency Assistant for the Councillor representing Ward 31;
- Representative from City of Toronto PFR Division;
- Acting Natural Environment Specialist from the City of Toronto PFR Division Natural Environment & Community Programs; and,
- Representative for Beaches-East York MPP's Office.

Seven (7) local residents and government officials and representatives attended the February 10, 2016 PIC. Government officials and representatives attendees included:

- City of Toronto Councillor representing Ward 29;
- Advisor (Policy, Planning & Operations) for the City of Toronto Councillor representing Ward 26; and,
- Senior Environmental Officer from the MOECC, Toronto District.

In general, questions and comments raised during the first round of PICs pertained to the following topics:

- General information on the proposed project;
- Existing distribution and transmission system;

- Materials used in existing transmission infrastructure;
- Construction methods and duration;
- Access restrictions and disruption of community activities during construction;
- Future development/growth and electricity demand;
- Recreational resources;
- Class EA process;
- Potential environmental effects;
- Public feedback received to date;
- Participation in future project meetings;
- Project notices to stakeholders and the public;
- Community groups interested in the proposed project; and,
- Providing feedback on first round of PICs.

A summary of comments received at the first round of PICs and responses from the project team is provided in Appendix C5.

4.6.6 Community "Power Walks"

Community "Power Walk" #1

The first community "Power Walk" was held on May 31, 2016 from 6:15 p.m. to 7:30 p.m. along the existing underground cable route between Leaside TS and the Leaside Bridge, overlooking Todmorden JCT. The purpose of the meeting was to provide context to the audience about how the proposed project infrastructure fits into Toronto's electricity system and provide details about route options, environmental studies and potential construction methods.

There were ten (10) attendees at community "Power Walk" #1, including:

- Local residents who live in close proximity to the proposed project area;
- Residents who live near the Main TS to Lumsden JCT section; and,
- A representative of local mountain bikers.

The walk generated a productive discussion amongst Hydro One's project team and attendees. Key conversation topics included:

- Concerns about the disruption to the environment from construction along each route;
- Discussion about the new cables that will be installed (e.g., material, lifespan); and,
- Questions about permits and policies Hydro One and its contractor will adhere to during construction.

The general tone of the walk was positive and residents appeared engaged and interested in learning more about the proposed project and the electricity system in general.

A summary of comments received, and responses from the project team, is provided in Appendix C5.

Community "Power Walk" #2

The second community "Power Walk" was held on June 1, 2016 from 6:15 p.m. to 7:30 p.m. along the existing underground cable route between Main TS and Lumsden JCT. The purpose of the meeting was to provide context to the audience about how the proposed project infrastructure fits into Toronto's electricity system and provide details about route options, environmental studies and potential construction methods.

There were eleven (11) attendees at community "Power Walk" #2, including the City of Toronto Councillor representing Ward 29 and local residents who live in close proximity to the proposed project area.

The walk generated a productive discussion amongst Hydro One's project team and attendees. Key conversation topics included:

- Concerns about excavating the road, as it was re-paved recently;
- Concerns about parking/ driveway access during construction;
- The planned use of the parking lot and grass near True Davidson Acres as a temporary laydown area;
- Project timeline;

- Construction methods and associated traffic disruptions; and,
- Public safety around open trenches.

The general tone of the walk was positive and residents appeared engaged and interested in learning more about the proposed project.

A summary of comments received, and responses from the project team, from community "Power Walk" #2 is provided in Appendix C5.

4.6.7 Public Information Centre #2

A second round of PICs were held on August 9, 10, and 17, 2016 at Stan Wadlow Community Centre (August 9 and 17) and the Leaside Arena (August 10) between 6:30 p.m. to 8:30 p.m. Advertisements for the second round of PICs were published in the following newspapers: East York/North Riverdale Mirror and North York Mirror on Thursday July 28, 2016, and Hi-Rise Community Newspaper on Saturday July 30, 2016. In addition to these advertisements, notices were distributed to one federal agency (Transport Canada), municipal and provincial government officials and agencies, the MNCFN, potentially affected and interested persons listed in the contact lists (Appendix C) and via email to the project contact list and City Councillors.

At the second round of PICs, information was provided on the following topics:

- Project update;
- Overview of baseline conditions in the study area, including the results of field studies;
- Results of the route evaluation between Leaside TS and Todmorden JCT;
- Draft conceptual design; and,
- Next steps.

Display panels were available for review. The panels described the information listed above, as well as the project need and description, potential environmental effects and mitigation measures, and the consultation process. A comment form was available to allow attendees to record comments or concerns and to provide feedback.

In general, questions and comments raised during the second round of PICs pertained to the following topics:

- Routing options for underground cable replacement between Leaside TS and Todmorden JCT;
- Impacts to vegetation from construction;
- Temporary impacts to trail user during constructions; and,
- Coordination of efforts with other projects in the vicinity (including the Toronto Hydro project along Millwood Road).

A summary of comments received, and responses from the project team, at the second round of PICs is provided in Appendix C5.

4.7 Summary of Key Issues

4.7.1 First Nations Communities Comments and Interests

Table 4-1: Summary of First Nations Communities Comments and Issues

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Class EA Process		
Field Studies	Inclusion in environmental and/or archaeological field work.	Hydro One has involved the MNCFN in field work.
Natural Environment		
Vegetation	Biodiversity initiative.	Hydro One committed to keeping the MNCFN and DOCA staff informed of all upcoming events (e.g., workshops) and progress related to the biodiversity initiative.
	Medicine Harvesting. MNCFN FLRs would be able to identify medicines and other species of interest and their location during field work. FLRs could also determine re-location possibilities for species potentially impacted by the project. Interest in walking the route pre-construction to determined presence of traditional medicines and plants of interest.	Hydro One will work with DOCA staff to involve FLRs in field surveys. Suggested walking the corridor once vegetation maintenance has been performed on corridor.
	Expressed community interest in obtaining the wood from trees that are felled for the proposed project as well as incompatible species that could possibly be transplanted. The wood would need to be left on the ground (typically near where it is felled) for 1 year to ensure that any pests/invasive species are not brought with the wood.	Hydro One to follow up when more information on the preferred route design and a more definitive idea of the number/size of trees that would need to be removed are available. Hydro One is committed to keep MNCFN informed about the start date for forestry work.
	Expressed an interest in having input into restorative seed mixes that Hydro One will use during and after construction. DOCA staff stated that they knew some nurseries that could provide seed mixes with traditional use and medicinal species.	Hydro One will consult with DOCA when selecting a seed mix.

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Aquatic Features	MNCFN would prefer the option that would not affect the creek (i.e., route option 1), but understood that the creek has been labeled not permanent by Golder and that timing and/or mitigation measures would be used in construction to avoid or minimize impacts to the creek (e.g., erosion/sediment controls, extension of the existing culvert).	Comment noted by Hydro One.
	Effects on water.	Hydro One does not anticipate adverse effects to water resources. Mitigation measures for sediment and erosion control will be used during construction (especially for work in proximity to watercourses).
Socio-Economic Environment		
	High level of concern related to potential impacts on MNCFN's interests.	Hydro One agreed to meet with the MNCFN to discuss concerns.

4.7.2 Provincial and Municipal Government Representatives and Agencies Comments and Issues

Table 4-2: Summary of Provincial and Municipal Government Representatives and Agencies Comments and Issues

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Class EA Process		
Class EA Process	The Ministry of Energy recommended Hydro One maintain a record of interactions with Aboriginal communities about the proposed project engagement with any First Nation or Métis community on an interests-basis takes place.	Hydro One is maintaining a record of engagement with all relevant First Nation and Métis communities in relation to the proposed project.
	The Ministry of Energy requested to be notified if a First Nation or Métis community provides Hydro One with information indicating potential adverse impact of the proposed project on its Aboriginal or Treaty rights.	Hydro One notified the Ministry of Energy that the MNCFN have asserted their rights within the project area. Hydro One also notified the Ministry of Energy that HDI/HCCC sent an email asserting potential impacts of the proposed project on HDI/HCCC's Treaty Rights (i.e., Haudenosaunee 1701 Nanfan Treaty).
	The MOECC requested that Hydro One identify the MOECC areas of interest which are applicable to the proposed project.	Hydro One provided a response to the MOECC's initial comments on April 5, 2016, identifying the applicable MOECC areas of interest in relation to the proposed project.
Route Evaluation Matrix	Concern that weight assignments in route evaluation matrix should be based on environmental consequences in addition to level of interest.	Hydro One noted that there were other considerations when assigning weight to the criteria, including the sensitivity tied to each criterion. For example, species at risk (SAR) was not an item that was raised during consultation events, but the sensitivity of this criterion played a role on its weight (i.e., it was weighted more heavily than the relative amount of interest expressed by stakeholders in this criterion). The type of input provided also played a role when assigning weight to criteria (e.g., TRCA professional/technical input on natural hazards).
Studies Completed	Request for a NHIS to be conducted and be part of the EA process.	Hydro One stated that while a separate-cover NHIS report is not planned at this time, most of the information typically found in an NHIS will be contained within the draft ESR.
Natural Environment		
Releases to the Environment	Concern over PCBs in existing cables.	Under Environment Canada regulations introduced in 2008, Hydro One has disposed of the majority of PCB-contaminated waste materials. It was confirmed that the existing cables were checked for PCBs and they contain extremely low concentrations of less than 2 ppm. The new

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
		cables will not contain PCBs as they are insulated with polyethylene and do not contain any mineral insulating oil.
Vegetation	Desire to avoid effects to larger healthy, native tree species, in particular butternut (a SAR).	If it becomes apparent that butternut trees may be harmed during construction, the MNRF will be notified and the appropriate registration or permit process will be followed.
	Desire to confine new disturbance to areas of existing disturbance and avoid fragmentation as much as possible.	Hydro One believes that route option 2 (the preferred route) makes the best use of existing disturbance by having the duct bank located along an existing overhead RoW and adjacent to another existing underground transmission cable.
	Concern over impacts to sensitive intact and diverse forested areas on the east side of the Leaside Bridge.	Hydro One noted that minimal disturbance is anticipated east of the Leaside Bridge (route option 2 occurs on an existing overhead transmission corridor and access can be made from existing roads near the wastewater treatment plant). Surveys have been conducted to provide insight into natural communities. Results are documented in section 3.7 and Appendices B7 and B8.
	Vegetation management.	Vegetation management is generally carried out by Hydro One Forestry along RoWs every 6 to 8 years. This forestry work is required to remove incompatible vegetation along existing RoWs.
	Biodiversity initiative.	Hydro One has committed to undertaking a biodiversity initiative specific to this project to compensate for any potential residual net effects to natural communities or resources that may occur. Hydro One's objective in implementing the biodiversity initiative is to ensure that the proposed project results in no net loss of habitat in the Toronto area and, where possible, achieves a net gain.
Wildlife	Effect of construction on bird migration.	No long-term changes that could affect bird migration will occur as the upcoming work only involves the replacement of underground cables. There may be some temporary disturbance during construction. Hydro One will attempt to avoid conducting vegetation removal activities in the breeding season. If these activities must be done in the breeding season, a breeding bird nest survey will be done by a qualified person prior to the work and any active nests will not be disturbed until the young have fledged. This is further described in section 7.
	Concern over SAR and habitat, specifically Barn Swallow and Chimney Swift.	The presence of SAR in the natural heritage study area, including the results of 2015 and 2016 field surveys, is discussed in section 3.7. Hydro One does not anticipate any effects to Barn Swallow or Chimney Swift as a result of the project, as no structures that typically contain nests of either species will be disturbed.

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Aquatic Features	Desire to avoid floodplain areas, grading or other work that could contribute to erosion, natural features and species studies. Desire for contingency plan, which should account for all aspects of work within the floodplain in case of storm events.	Hydro One will work to minimize work in floodplain areas and plan for appropriate mitigation measures (e.g., sediment and erosion controls) and contingency plans during construction and will keep the TRCA informed.
	Concerns about water crossings and alterations to topography, as well as possible erosion.	Water crossings, where necessary, will be temporary. Hydro One will implement appropriate mitigation measures (e.g., sediment and erosion controls) during construction.
Socio-Economic Environment		
Recreational Resources	Effects on access to Taylor Creek Park during construction.	Hydro One responded that due to safety concerns during overhead shield wire replacement, access to some trails may be temporarily restricted. Please note that the work on the shield wire has now been postponed. First Nations, nearby residents and stakeholders will be notified when more information about this overhead work is available.
Transportation and Traffic	Concern expressed by several municipal government representatives and agencies regarding disruption to traffic and parking on Millwood Road.	To replace the underground cables, both routing options require some construction along Millwood Road. This work will be completed in small sections, requiring one to two lane closures for a short duration. Through the municipal coordination meetings, it came to Hydro One's attention that Toronto Hydro also has some upcoming underground work in the Millwood Road area which requires the installation of a duct bank. Hydro One is making best efforts to coordinate work programs to minimize disruption along Millwood Road to motorists and pedestrians. Refer to section 6.2.1 for additional detail.
	Concern expressed by several municipal government representatives and agencies regarding disruption to transit routes and maintenance of access to the Main Street TTC station.	Hydro One will coordinate with the TTC to minimize disruptions. Access to Main Street TTC station will be maintained.
	Disruption to bikeshare station at southwest corner of Main and Danforth.	Hydro One will minimize disruption to the bikeshare station, and will temporarily relocate bikeshare stations overlapping construction areas as required.

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Pedestrian Accessibility and Public Safety	Sidewalk accessibility, in particular along Millwood Road, given that the sidewalk is only on the north side of the road.	Hydro One will provide walkways demarcated by barriers to maintain pedestrian access where construction activities block sidewalk access.
Technical and Cost		
Construction Coordination	Coordination with a City project focused on redesigning the Main and Danforth intersection.	Hydro One to work with the City of Toronto to coordinate where possible.
	Coordination with the Toronto Hydro project on Stephenson Avenue.	Hydro One will continue to consult with Toronto Hydro to coordinate the work, where feasible.
Construction Methods	Concern over proximity of new cable to the existing cable along the preferred route from Leaside TS to Todmorden JCT, and depth of the underground cable duct.	The new cable and duct bank can be adjacent to the existing underground cable. The overhead line will not be affected and the underground cables will avoid the base of the towers. Cables are planned to be installed approximately 1 to 2 mbgs.
	Location of shafts/openings in micro-tunneling in the Leaside TS to Todmorden JCT area.	Micro-tunneling was not selected as a construction method. However, if it had been selected, it would not be used for the entire underground section along route option #1. It would only be used for the sloped area (a subsection of the Leaside TS to Todmorden JCT section).
	Process for selecting construction contractors.	Hydro One is mandated by Ministry of Energy to go for open tender for any contractual work. Bidders will be evaluated on several factors including work schedule, past work experience, contract price, and safety record.
	Concern over construction equipment access requirements for buried cables versus the duct bank, and potential impacts to existing slopes.	Directly burying the cable would require less access space, but direct-buried cables would compromise the ease of future maintenance (one of the purposes of the duct bank). Access approximately 3 m wide is needed for the duct bank option (i.e., a one-way access road from top to bottom of the slope). Hydro One noted concerns about slope and committed to working with agencies including TRCA as further studies (e.g., slope stability assessment) are conducted after the Class EA is completed. Hydro One will also keep agencies including TRCA informed of its plans for construction mitigation measures (such as erosion control measures) and will seek agency input on these plans.
	Construction timelines.	For the underground cable replacement work, the average rate of work is estimated at approximately 10 m per day, although this will vary depending on a number of factors such as density of underground utilities and weather. Procurement is anticipated to take place closer to

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
		the end of 2016. Detailed design will be from post-EA to mid-2017. The expected duration of construction of the proposed project is between mid-2017 and December 2018 (dependent on the completion of the Class EA and other required permits).

4.7.3 Interest Groups Comments and Issues

Table 4-3: Summary of Interest Groups Comments and Issues

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Natural Environment		
Releases to the Environment	Concern from local business owner regarding idling of construction vehicles.	Hydro One will remind construction crews not to idle their engines and asked the local business owner to contact Hydro One Community Relations should he notice idling Hydro One vehicles.
Socio-Economic Environment		
Recreational Resources	Concern regarding recreational impact to Taylor Creek Park during construction.	There will be no below-grade work in Taylor Creek Park and the duration of disruption to recreational users is anticipated to be limited. Please note that the work on the shield wire has now been postponed. This work will be discussed with First Nations communities and stakeholders in the future, when more information is available about the scope and schedule for this work.
Transportation and Traffic	Several stakeholders noted concern over disruption to traffic and businesses, specifically at the intersection of Main Street and Danforth Avenue.	Hydro One is aware that this work will have a temporary impact on the area and will have appropriate signage for traffic, pedestrians and alternate access to businesses in place during construction. Notification will be provided in advance of construction.
Pedestrian Accessibility and Public Safety	Concerns about access to business entrances during construction.	Hydro One will endeavour to maintain access to local businesses during construction. Work will be done in short sections to minimize disruption. If temporary disruption to a main entrance is required, Hydro One will ensure that an alternate access is made available and that signage is in place.
Nuisance Effects	Concerns about power outages during construction.	It is not anticipated that local businesses or residences will experience power outages as part of the proposed project.
	Concerns about noise during construction.	Hydro One will abide by all noise by-laws.

4.7.4 *Public Comments and Issues*

Table 4-4: Summary of Public Comments and Issues

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Natural Environment		
Releases to the Environment	Soil contamination associated with the existing underground cable.	Samples will be taken to test for contamination ahead of construction work.
	Dust during construction.	Dust control requirements will be stipulated in tendering documents for the construction contractor.
Physical Environment	Soil compaction.	Geotextile and gravel will be used for temporary access, where feasible, to reduce compaction, and compacted areas will be restored following construction. Potential environmental effects and proposed mitigation measures are described in the ESR (section 7).
	Steep terrain and erosion, in particular, close to Todmorden JCT.	Hydro One acknowledged that the slope close to Todmorden JCT is quite steep. Terrain conditions have been considered in the engineering studies for the proposed project and were considered in the evaluation of the route options for this portion of the proposed project (section 5). A slope stability assessment will be carried out prior to construction to inform the approach to construction, including erosion and slope stability mitigation measures.
Vegetation	Tree damage and removal.	For the preferred route, route option 2, the cable will be installed along an already maintained overhead Hydro One RoW, which will primarily require trimming/removal of lower growing vegetation. Damage/removal of trees will be kept to a minimum. Potential environmental effects and proposed mitigation measures are described in the ESR (section 7).
	Vegetation management.	Vegetation management is generally carried out by Hydro One Forestry along RoWs every 6 to 8 years. This forestry work is required to remove incompatible vegetation along existing RoWs.
	Biodiversity initiative.	Hydro One has committed to undertaking a biodiversity initiative specific to this project to compensate for any potential residual net effects to natural communities or resources that may occur. Hydro One's objective in implementing the biodiversity initiative is to ensure that the proposed project results in no net loss of habitat in the Toronto area and, where possible, achieves a net gain.

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Socio-Economic Environment		
Recreational Resources	Impacts and access to existing trails.	Hydro One will aim to minimize access restrictions to trails in the vicinity of the proposed project throughout construction, where feasible (e.g. using double gate crossings to restrict access only when construction vehicles are crossing). Access restrictions required for construction will occur for short periods of time. Hydro One will disseminate information on the construction schedule in advance so the public is aware of the timing of potential access restrictions in the vicinity of the proposed project.
	Disruption to community activities.	Hydro One will aim to minimize disruption to community activities in the vicinity of the proposed project throughout construction. It is anticipated that disruptions to community activities as a result of construction will occur for short periods of time.
Transportation and Traffic	Traffic and parking, particularly on Main Street.	With regard to traffic and parking on Main Street, a Traffic Management Plan will be developed for the proposed project. Work areas along Main Street will be limited to one lane, where feasible, and construction will be completed in short sections to minimize disruptions. Effects to traffic and parking and the associated mitigation were further described at the second round of PICs and in sections 4.6.7 and 7 of the ESR.
	TTC disruptions.	Hydro One noted that they are working with the TTC and City of Toronto to identify and mitigate potential effects on transit as a result of project construction.
Pedestrian Accessibility and Public Safety	Safety concerns expressed with regard to open trench work.	Trenches will be closed after work is complete in each section. After working hours, steel plates will be used as necessary to safely close open trench areas to ensure public safety. Barriers (e.g., temporary fencing) may also be used to address safety concerns.
	Concern over restricted access during construction, specifically to Taylor Creek Park, driveways, sidewalks, community garden on Haldon Avenue, parking, and True Davidson Acres.	Hydro One will aim to minimize access restrictions to natural features, residences, and other features in the vicinity of the proposed project throughout construction, where feasible. Access restrictions required for construction will occur for short periods of time in short sections. After working hours, steel plates will be used as necessary to allow driveway access. Hydro One is working with staff from True Davidson Acres to address concerns related to construction. Hydro One will disseminate information on the construction schedule in advance so the public is aware of the timing of potential access restrictions in the vicinity of the proposed project. Please note that the work on the shield wire has now been postponed. First Nations communities, nearby residents and stakeholders will be notified when more information about this overhead work is available.

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Visual Aesthetics	Concerns about reduced shade on the Millwood Road sidewalk due to tree removal, should routing option #1 be selected.	Hydro One acknowledged this is important feedback that will be incorporated into the Class EA process when evaluating route options (i.e., effects of removal of trees on Millwood Road). Route option #2 has been selected as the preferred route, which will minimize the reduction of shade-casting vegetation over the Millwood Road sidewalk.
	Concern about impacts to view (east side of Millwood Road, north of Don Valley).	During construction, construction vehicles, equipment and workers may introduce a temporary change in view to the area. In the long term, there will be minimal visual impact as the cables will be underground. Although some trees will be removed to allow for construction, there will be restoration plantings once construction is complete. This will be determined with the City of Toronto during the tree removal permitting process, following completion of the Class EA.
Nuisance Effects	Concerns about power outages.	It is not anticipated that local businesses or residences will experience any power outages as part of the proposed project.
	Concerns about noise during construction, including use of metal plates.	Hydro One will abide by the City of Toronto noise by-laws. Steel plates will likely only be required in each area for a short period of time.
Technical and Cost		
Materials	Concern over materials to be used in replacement infrastructure (oil filled cables, cross-linked polyethylene, copper welding methods).	No oil-filled cables will be installed as part of this project. A brief description of the new XLPE cables is provided in section 6.1. Bonding of copper during splicing will be done using CAD welding.
Construction Method	Concern over anticipated size of trenching being underestimated.	Hydro One estimated that the trenches would generally be 1 m wide. Staff agreed that crews may require some extra space to complete the work, however, the extent of digging required on the road/sidewalk/ground would be minimized by using barriers (steel plates or wood) to prevent sloughing of narrower trenches (a construction technique known as “shoring”).

4.8 Final Notification and Notice of Draft ESR Deferral

The Final Notification (Notice of Completion of Draft ESR) was sent to municipal and provincial government representatives and agencies, First Nations communities, and potentially affected and interested persons and interest groups presented in section 4.2 to section 4.6 (see contact lists in Appendix C) in late August 2016. The notification stated that the public review and comment period for the draft ESR would be commencing on September 1, 2016.

The Class EA originally included the overhead shield wire replacement between Todmorden JCT and Lumsden JCT. This work was postponed as Hydro One decided to seek opportunities to combine the shield wire replacement with other future refurbishment activities required in the same area. As such, a notification flyer was sent to all project stakeholders in early September 2016 indicating that the release of the draft ESR (and the associated public review and comment period) had been postponed until later in the fall of 2016. The notification indicated that the draft ESR would now focus solely on the underground cable replacement portion of the proposed project, and that Hydro One would deliver another notification prior to the start of the public review and comment period.

On September 27 and 28, 2016, the updated Notice of Completion of Draft ESR was sent to municipal and provincial government representatives and agencies, First Nations communities, and potentially affected and interested persons and interest groups presented in section 4.2 to section 4.6 (see contact lists in Appendix C). The notification indicated that the draft ESR was complete, and that the public review and comment period would run between September 29, 2016 and November 14, 2016. A notification was also placed in local newspapers and on the project website.

Copies of the draft ESR were available for review in hardcopy at the following locations:

Thorncliffe Toronto Public Library
48 Thorncliffe Park Drive
Tel: 416-396-3865

Main Street Toronto Public Library
137 Main Street
Tel: 416-393-7700

Dawes Road Toronto Public Library
416 Dawes Road
Tel: 416-396-3820

S. Walter Stewart Toronto Public Library
170 Memorial Park Avenue
Tel: 416-396-3975

The draft ESR was also available on the project website:
http://www.hydroone.com/Projects/LeasidetoMain.

4.9 Draft ESR Review Period

Hydro One provided a 47-day review period, from September 29, 2016 to November 14, 2016, to allow sufficient time for review and comment on the draft ESR. Comments regarding the draft ESR were to be submitted to Hydro One no later than 4:30 p.m. on Monday, November 14, 2016, to the attention of:

Paul Dalmazzi
Environmental Planner
Hydro One Networks Inc.
483 Bay Street, North Tower, 14th Floor
Toronto, ON M5G 2P5

Email: Community.Relations@HydroOne.com
Tel: 416-345-6799

A table summarizing the key issues and concerns raised throughout the draft ESR review period, and responses from the project team, is presented in section 4.7 and Appendix C.

No Part II Order requests were received to elevate the project from a Class EA to an Individual EA.

4.9.1 Summary of Key Issues

A summary of comments received, and responses from the project team, during the draft ESR review period are below, in Table 4-5 to Table 4-7.

Table 4-5: First Nation Communities Comments and Issues

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Class EA Process		
Draft ESR	Expressed positive feedback on the draft ESR and noted that the MNCFN foresees using the ESR as reference material to contribute to training of MNCFN field representatives. The draft ESR and study reports are examples of the reporting requirements that have to be met and the formatting parameters that comprise the industry standard.	Hydro One thanked the MNCFN for the positive feedback and forwarded the feedback to TMHC and Golder.

Table 4-6: Provincial and Municipal Government Representatives and Agencies Comments and Issues

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Natural Environment		
Archaeological Resources, Built Heritage Resources and Cultural Heritage Landscapes	Given the lack of archaeological resources identified in the Stage 2 property assessment, the lack of anticipated impacts to built heritage resources and cultural heritage landscapes, and the provisions made in section 7.3 for mitigating unanticipated impacts, the MTCS expressed no concerns with the project.	Hydro One thanked the MTCS for their comments, and will follow the mitigation measures outlined in section 7.3.
	Archaeological potential along the ravine slope of route option 2.	Hydro One has conducted Stage 1 and Stage 2 archaeological assessments for this area, and has received a Letter of Clearance from the MTCS. A summary of the Stage 2 archaeological assessment has also been shared with the City of Toronto archaeological coordinator, who was also informed prior to the commencement of the survey. Hydro One noted that typically steep slopes are not considered to be areas of high archaeological potential.
Environmentally Sensitive Areas (ESAs)	Expressed interest in receiving more information about the future refurbishment activities in the area as there are many newly designated ESAs in the Taylor-Massey Creek area which could impact any proposed large-scale work as well as many organizations involved in upcoming infrastructure projects in the area.	Hydro One is examining all of the infrastructure between Lumsden JCT and Todmorden JCT to determine any potential opportunities to combine work with the shield wire replacement. Hydro One is aware of the Taylor Creek ESA and will endeavour to minimize construction effects on the ESA.

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
	Concerns regarding the potential impacts of the construction activities proposed near Lumsden JCT and impacts this may have on the Taylor Creek ESA.	Hydro One is aware of the presence of the Taylor Creek ESA that lies just north of Lumsden JCT and the existing overhead transmission corridor in Taylor Creek Park. Underground cable work and associated temporary construction access and laydown areas will not occur within this ESA. Hydro One will work with the selected contractor to ensure that construction work, access and laydown areas (particularly in proximity to Lumsden JCT) are kept away from the ESA boundaries to the extent practical. Hydro One will also ensure that mitigation measures are employed during construction to ensure that any potential indirect adverse effects will not occur or affect the Taylor Creek ESA. Such measures are documented in section 7.7. Hydro One will review the construction plans (including temporary laydown and access areas, and environmental mitigation measures) with the TRCA prior to mobilization of construction crews to the Lumsden JCT area.
Aquatic Features	Concerns regarding slope stability through the duration of the proposed work, which includes constructing a temporary road into the ravine within the Hydro One easement.	Hydro One has undertaken a preliminary slope stability assessment. The results of the assessment will be used to inform detailed construction and required mitigation measures required, or may identify the need for additional studies. Hydro One noted that when a contractor has been selected, the results of the assessment will be discussed with the contractor to ensure that construction plans suitably address slope stability and erosion both during and after construction.
	Concerns with respect to the erosion issues that currently exist on the slope and the impact that the proposed trenching and temporary road will have on the slope.	Hydro One noted that a slope stability assessment was undertaken to provide additional information on the existing conditions. This study will inform the detailed construction planning, including avoidance, mitigation and restoration measures required to deal with potential erosion concerns.
	Interest expressed in ensuring that impacts are as minimal as possible, and ensuring that all natural features including any hydrological features that exist in the construction area are protected.	Hydro One has committed to ensuring that the impacts from construction will be minimized to the extent feasible. Natural features and hydrological features will be avoided and/or protected during construction. Once a contractor has been selected, Hydro One will discuss detailed plans regarding work areas, access, restoration and any other features of interest (e.g., extension/restoration of the existing culvert along the ravine).
	Concerns with regard to flood vulnerability, specifically regarding work at and to the south of Todmorden JCT. The construction area around Todmorden JCT may be susceptible to flooding; thus, there	Hydro One is aware that work at Todmorden JCT, and part of the new underground cables between Todmorden JCT and Leaside TS, will occur within TRCA-identified floodplain areas associated with the Don River.

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
	may be a need to develop a flood contingency plan for implementation during the construction period.	Hydro One will ensure that the construction contractor, once selected, is aware of the risks associated with working within a floodplain area, and that mitigation and contingency measures are implemented as appropriate. Management of work within the floodplain will likely involve measures such as the following, although more information will be provided to TRCA staff when a contractor has been selected and more detailed plans for construction have been developed: • Timing work within floodplain areas to drier seasons, to the extent feasible. • Limiting the material to be stored near Todmorden JCT. Additionally, liquid chemicals (i.e. fuel, lubricants, etc.) will not be stored within floodplain areas. • Construction monitors will regularly review the upcoming weather forecast during construction and will make daily adjustments and preparations as required. • Vehicle and equipment refueling will generally not be conducted within 100 m of water bodies, where feasible. If refueling is required within 100 m of a water body, special mitigation measures will be employed as necessary. • Installation and maintenance of sediment controls (e.g. silt fences) around the downgradient perimeter of all work and temporary access areas within the floodplain. Hydro One has obtained TRCA floodplain mapping and incorporated the information into Figure 3-7 and project planning.
	Concerns regarding several “unevaluated” wetlands within the study area. While there are no PSW’s currently identified within the study area, the “unevaluated” wetlands should still be considered as significant features, or at least potentially significant within an EA.	Hydro One has clarified in section 3.7.5 that the majority of wetlands identified in the study area have not been evaluated using the Ontario Wetland Evaluation System, and may have potential to be classified as significant. Section 3.7.5 describes these wetlands and notes that the majority are small perched wetlands or of anthropogenic origin (i.e., dug pond) and are located in areas of significant human disturbance. The wetlands identified within the study area are not located in proximity to the underground cable work; therefore, no adverse effects are anticipated at this time.
Vegetation	Presence of Butternut trees in the area.	During the Class EA field studies, two Butternut trees were identified in proximity to the ravine and overhead RoW. Hydro One does not currently expect that these trees will be directly affected by the work. As detailed

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
		construction plans unfold, Hydro One will monitor to ensure that if work is planned within 25 m of these trees, the MNRF will be notified and the appropriate permit or activity registration process will be followed.
	Site Restoration.	Shrub plantings along the overhead RoW can be undertaken as part of site restoration, provided that species used are compatible with the overhead transmission lines (i.e., do not encroach upon line clearances at maturity) and do not unreasonably impede access to the existing towers (e.g., do not have large thorns or form dense thickets). Small shrubs can be planted along the duct bank route, but not directly at joint bay/manhole sections of the duct bank given that these may not allow for sufficient soil cover. Tree species are typically incompatible with overhead transmission lines but can be considered for site restoration in areas where they will not encroach upon overhead infrastructure. Tree plantings will be undertaken to offset any tree removals, either through the City of Toronto permit and review process or through the Biodiversity Initiative that will be implemented for this project.
Wildlife	Tree removal may result in residual effects on woodlands, SAR and wildlife habitat, including long-term loss of snags and cavity trees as a result of the project.	Hydro One has committed to undertaking a tree inventory by a certified International Society of Arboriculture arborist during the detailed design phase of the project. This assessment will consider adverse effects of the construction work and will include the identification of cavity trees that will need to be removed, if any. Once completed, Hydro One will share the arborist's report with the TRCA and City of Toronto (RNFP) staff.
Socio-Economic Environment		
Recreational Resources	Expressed concern that the local trail system could be impacted during construction.	Hydro One will work to ensure that trails remain open during construction to the extent practicable (i.e., where this can be safely achieved). For example, Hydro One will implement a "double gate" crossing system for trails that cross temporary access roads, such that trails are blocked only when the road is in use by construction vehicles or equipment. Some access may be temporarily disrupted during construction, in order to maintain public safety around work areas.
Technical and Cost		
Construction Methods	Inquiry regarding whether Hydro One has already begun work near Millwood Road by Leaside TS, prior to the Class EA process being complete. Stakeholder noted that a lane was blocked off in this area with what appeared to be Hydro One vehicles conducting work.	Hydro One confirmed that the project is still in the draft ESR review period, and thus work has not commenced. Hydro One stated that the work observed along Millwood Road is part of Toronto Hydro's planned upgrades. Hydro One provided a brief summary of how Hydro One is coordinating with Toronto Hydro with some of the Leaside TS and Main TS work since Toronto Hydro is working in the same area. Hydro One

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
		explained the benefits of coordinating the work, which will reduce the effects of the project both to traffic disruption and vegetation and addresses various comments received throughout the EA process asking if Hydro One can coordinate work with other entities wherever possible. Hydro One noted that this coordination is further detailed in section 6.2.1 of the ESR.
	If option 2 is chosen, all temporary material (including the access road) should be removed and all disturbed areas should be restored back to a natural state, to the satisfaction of the RNFP.	Route option 2 is currently the preferred route. Access roads in this area will be temporary in nature and typically consist of crushed stone overlain on a geotextile fabric, which helps mitigate soil compaction and also facilitates removal. Hydro One will also ensure that access road areas are restored (e.g., seeded/planted with native species) following the removal of temporary access roads.
	Expressed interest in ensuring that the footprint of the proposed work for route option 2 is kept to a minimum and within Hydro One's easement down the slope.	Hydro One has committed to ensuring that work areas/effects from construction will be minimized to the extent feasible. Hydro One is conducting a legal survey of the overhead RoW to determine exact easement boundaries, and will use this information to plan work in such a way that Hydro One will attempt to stay within the existing easement to the extent possible. It may be the case that small portions of the work area may need to extend slightly (e.g., a few metres) beyond the existing easement boundaries (e.g., to maximize distance from ravine slopes). If this is the case, Hydro One will work with RNFP and other city departments to obtain required real estate rights and discuss additional mitigation that may be warranted.
	Recommended Hydro One explore alternative construction access options in areas where conditions or ecological sensitivities warrant additional consideration.	Hydro One's standard design for temporary construction access roads (i.e., crushed stone overlaid on a geotextile membrane) performs well in a variety of environments, including slopes and wetlands. The stone layer ensures stability and the geotextile membrane helps to alleviate soil compaction and facilitates quick cleanup and restoration. Once a construction contractor has been selected and more detailed information on construction strategies and equipment is available, Hydro One is amenable to exploring and discussing potential alternative access strategies and temporary road designs if any are deemed to be potentially feasible.
	Concerns expressed regarding dewatering during construction and potential impacts dewatering may have on environmental features.	Hydro One will ensure that water is managed according to all applicable regulations and best practices. Due to the relatively shallow depth of excavation, and the fact that the cable ducts will be generally installed in sections, Hydro One does not anticipate that significant groundwater

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
		dewatering will be required during construction of the duct banks. However, Hydro One does recognize that some groundwater and precipitation/surface water may need to be removed from the trench during construction and returned to the environment in an acceptable manner. Construction water will not be discharged directly to water courses, but will instead be passed through a filter bag or similar material to remove any suspended sediment as well as disperse the outflow energy and reduce potential channeling. Water will be discharged to vegetated areas where possible, away from steep slopes and areas identified as having known or potential erosion concerns.
Construction Coordination	The need to consult with and acquire authorization from CN Rail should any work and/or tree impacts take place on their property.	Hydro One is aware of the rail line and the fact that some work (e.g., beneath the Leaside bridge) will be within the rail easement. Hydro One has worked under such conditions in the past and is aware of the requirements (e.g., hiring of a flagperson, stopping work as trains approach). Hydro One has notified the rail owner and will obtain permission/make all necessary arrangements prior to construction.

Table 4-7: Public Comments and Issues

THEME	ISSUE/CONCERN	RESPONSE FROM HYDRO ONE
Natural Environment		
Aquatic Features	Concern about project impacts to the rivers and river beds within the study area.	Hydro One noted that the majority of the work is not expected to affect water resources and explained Hydro One's mitigation measures for an intermittent creek. Hydro One directed the interested stakeholder to the draft ESR and noted the relevant sections relating to surface water resources.
Socio-Economic Environment		
Nuisance Effects	Concerns about power outages during construction.	It is not anticipated that local businesses or residences will experience power outages as part of the proposed project.
Technical and Cost		
Construction Area	Inquiry regarding the extent of the work area.	Hydro One noted that the replacement of existing aging underground 115 kV cable is required between Leaside TS and Todmorden JCT and Lumsden JCT and Main TS. Hydro One stated that the new cables will be installed in modern concrete duct banks and some work is required at Main TS to replace equipment directly attached to the underground cables.

4.10 Statement of Completion

Hydro One has incorporated comments received during the draft ESR review period into this ESR. No Part II Order requests were received.

This ESR has been placed on the project website and sent to the Environmental Approvals Branch at the MOECC and the appropriate Regional EA Coordinator for filing. Hydro One has completed and submitted the Statement of Completion form to the MOECC along with the finalized ESR on March 27, 2017 (see Appendix D). At this point the project is considered acceptable and can proceed as outlined in this ESR.

5 Route Selection

This section documents the process used to select the preferred route for the underground cable replacement between Leaside TS and Todmorden JCT for the proposed project. The project study area (as described in section 2.1) was defined by taking into account the end-points of each replacement section, the location of the route options, and the extent of likely direct and indirect effects associated with each route option. A subsequent process, as presented in this section, evaluated feasible route options and identified the preferred route for the Leaside TS to Todmorden JCT underground cable replacement section within the previously delineated study area. The selection of the preferred route for this portion of the proposed project considered information obtained through the consultation process, integrating information provided by government agencies, the MNCFN, and potentially affected and interested persons.

The preferred route was identified through a two-stage process. In stage one (section 5.1), technically feasible route options based on environmental features, technical and cost factors, and following the recommendations of the PPS (2014), were identified. In stage two (section 5.2), the identified feasible route options were compared to each other based on an array of environmental, socio-economic, and technical and cost factors, as well as First Nations interests (criteria). These criteria were largely identified through consultation with First Nations, government agencies, and the potentially affected and interested persons. The criteria considered in the route selection process are further discussed in section 5.2. The route option with the best overall score across the entire spectrum of evaluation criteria was identified as the preferred route.

5.1 Identification of Feasible Route Options

Two feasible route options for the Leaside TS to Todmorden JCT cable section were identified by Hydro One's engineers based on the technical needs of the project, known constraints and recommendations of the PPS (2014) such as the optimization of existing infrastructure and public service facilities. A third route option was proposed at the first round of PICs by an attendee.

As discussed in section 2.4, the three route options further explored by Hydro One for the underground replacement section between Leaside TS and Todmorden JCT are:

- Route option 1: Cable replacement to occur along the existing cable route via open trenching from Leaside TS to Todmorden JCT. Due to the steep slope from Leaside Park down the Don Valley and towards Todmorden JCT, this option was later revised to consist of open trenching from Leaside TS to Leaside Park, microtunnel/pushpipe from within Leaside Park to the bottom of the Don Valley slope, and then resume open trenching along the existing Hydro One access road to Todmorden JCT.
- Route option 2: Alternate cable route identified by Hydro One that crosses Millwood Road to follow an existing Hydro One transmission line RoW located on the southwest side of the Leaside Bridge and an existing access road running east to Todmorden JCT. This option would consist of open trenching from Leaside TS to Todmorden JCT.
- Route option 3: Alternate cable route proposed at the first round of PICs. This option runs along the existing cable route via open trench and descends the Don Valley parallel to the Leaside Bridge on its east side. Due to the steep slope from Leaside Park down the Don Valley and towards Todmorden JCT, this option was deemed not feasible (as this option with a microtunnel/pushpipe component for the Don Valley slope area is effectively the same as route option 1). This route option is not discussed further in this section.

No feasible alternate route options that had substantial benefits were identified for the underground cable replacement section between Lumsden JCT and Main TS. Several of the potential alternate route options that were initially considered by Hydro One for this portion of the proposed project had major technical constraints (e.g., 90-degree turns of the duct bank, which would make cable pulling and maintenance more difficult). Thus, the existing cable route is the only feasible route option for the underground cable replacement section between Lumsden JCT and Main TS.

5.2 Evaluation Criteria and Selection of the Preferred Route

To compare the route options that met the preliminary requirements for the proposed project as presented in section 5.1, route evaluation criteria were further explored considering the specific characteristics of each route option and the requirements of the Class EA process. The characteristics for each route option were determined through a review of existing literature, databases and mapping, reports commissioned by Hydro One, consultation with government agencies, City of Toronto staff, the MNCFN and potentially affected and interested persons, and/or field surveys. These characteristics assisted in the identification of potential effects on environmental features. The technical considerations of undertaking the proposed underground cable replacement between Leaside TS and Todmorden JCT along a given route (i.e., potential construction methods) were also considered during the evaluation. The route option with the best overall score across the entire spectrum of evaluation criteria was identified as the preferred route.

Details of the route evaluation for each of the route options are presented in Table 5-1. Each route option that meets a given criterion is awarded a score of 1. Each route option that meets a given criterion, but where certain considerations need to be taken, is assigned a score of 0.5. Each route option that does not adequately meet a given criterion is given a score of 0. Weight was assigned to each criterion based on a percentage of the total score. The weight assigned was generally based on the level of interest or importance stated by government agencies, the MNCFN, and stakeholders during consultation events and meetings (e.g., criteria which were raised more often or by a larger number of interested parties were weighted relatively higher). A maximum of a 10% weight was assigned to each criterion. The sum of the weighted score for each criterion was considered to identify an overall preferred route. When the weighted scores for each route option across all criteria were combined, the route option with the highest combined weighted score (out of a possible 100%) was considered to be the preferred route.

Results from the evaluation concluded that **route option 2** is the preferred route for the underground replacement section between Leaside TS and Todmorden JCT.

Specifically, it was determined through the route option evaluation process that route option 2 is the preferred route with respect to:

- Construction complexity and cost;
- Impacts to recreational resources;
- Potential disturbance to residents and businesses;
- Disruption to pedestrian access; and,
- Transit disruption.

The location of the preferred route is shown on Figure 5-1.

Table 5-1: Details of Route Evaluation by Criteria Group

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
Cultural Heritage Resources											
Potential Impact to Archaeological Resources	Level of existing disturbance Results from Stage 2 archaeological assessment Distance from archaeology sites	2.0%	High Minimal previous disturbance to option lands Artifacts and site found in option area	Medium Moderate previous disturbance to option lands Artifacts and/or site in vicinity of option area	Low High level of previous disturbance to option lands Artifacts and/or site not in vicinity of option area	1.0	2.0%	Stage 1 and Stage 2 Archaeological Assessments have been conducted. No significant archaeological resources identified. The MNCFN noted the Stage 2 Archaeological Assessment uncovered no cultural materials of interest. A MNCFN FLR was on-site and had no additional concerns.	1.0	2.0%	Stage 1 and Stage 2 Archaeological Assessments have been conducted. No significant archaeological resources identified. The MNCFN noted the Stage 2 Archaeological Assessment uncovered no cultural materials of interest. A MNCFN FLR was on-site and had no additional concerns.
Heritage Landscapes and Sites	Heritage resources identified Potential to affect Heritage resources and/or alter their heritage value	2.0%	High Heritage sites within option area Option traverses heritage site with potential for high levels of disturbance	Medium Heritage sites within option area Option traverses heritage site with limited to no anticipated disturbance	Low Heritage sites not within option area	0.5	1.0%	Leaside Bridge is a registered heritage structure. Construction will be adjacent to the bridge; however, this is not anticipated to affect or alter the bridge's heritage value in any way.	0.5	1.0%	Leaside Bridge is a registered heritage structure. Construction of the duct bank will need to pass underneath Leaside Bridge; however, this is not anticipated to affect or alter the bridge's heritage value in any way.
Human Settlements											
Alignment with PPS	Use of existing infrastructure/ public service facilities/RoW, where feasible (co-location of utilities or corridors)	1.0%	Low Option rarely uses existing infrastructure/ public service facilities/RoW	Medium Option mostly uses existing infrastructure/ public service facilities/RoW	High Option completely uses existing infrastructure/ public service facilities/RoW	0.5	0.5%	Generally follows same route as the existing cable; however, slight diversion for pushpipe/microtunnel.	0.5	0.5%	Generally follows same area as existing infrastructure; however, some new easements and rights are required.
Difficulty with Obtaining Property Rights/ Easements/ Access	If work is within public road allowances If there are existing rights to access the area	2.0%	High Work outside public road allowances and existing real estate rights No existing rights to access option area	Medium Work partially inside public road allowances and existing real estate rights Existing rights to access portion of option area	Low Work area is primarily inside public road allowances and existing real estate rights Existing rights to access option area	0.5	1.0%	Additional underground easement for work/cables within Leaside Park required. Portions of work are within existing road allowances. Some new permanent rights for adjusting route slightly (pushpipe/microtunnel) are required.	0.5	1.0%	Some new real estate rights (i.e., underground cable easement) will be required for the new duct bank; however, it will largely be within an existing easement for the overhead RoW.

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
Potential Disturbance to Residences and Businesses during Construction	Amount and proximity of existing residential/ commercial properties/ sensitive receptors Potential for property owner concerns Potential for construction nuisance (noise and dust)	3.0%	High High number of existing sensitive receptors in close proximity to project area High potential for property owner concerns Difficult to mitigate for construction nuisance	Medium Moderate amount of existing sensitive receptors in close proximity to project area Low to medium potential for property owner concerns Construction nuisance can be mitigated for this option	Low Low number of existing sensitive receptors in close proximity to project area Low potential for property owner concerns Construction nuisance can be mitigated for this option	0.0	0.0%	Medical clinic, community hall (Free Masons building), Leaside Park and several business offices are in close proximity to the work area and likely to be affected by construction (e.g., noise/dust).	1.0	3.0%	Very few nearby residents/commercial or other sensitive receptors located in work area. Closest building is the North Toronto Wastewater Treatment Plant. Construction crews will require sharing access with the wastewater treatment plant (existing paved road).
Lane Closures Required and Traffic Disruption	Length of road lanes closed Duration Traffic disruption Street infrastructure affected	6.0%	High Long distance of lanes closed or lanes completely blocked (no access) Long duration High traffic disruption; street infrastructure significantly affected	Medium Moderate distance of lanes closed Medium duration Moderate traffic disruption; street infrastructure affected	Low Short distance of lane closed Short duration Low traffic disruption; street infrastructure largely unaffected	0.5	3.0%	One (1) lane closure required on Millwood Road from Leaside TS to Leaside Park. Disruption to intersection of Millwood Road and Overlea Boulevard (need to cross Overlea Boulevard with open trench/duct bank). Significant disruption to street infrastructure (streetlight and other infrastructure affected including TTC bus stops).	0.5	3.0%	Less disruptive than route option 1. Cable duct bank must cross Millwood Road directly across from Leaside TS; however, the road will not be completely blocked (instead, it will involve a short section of two-lane closure). Temporary one-lane closure along the south side of Millwood Road is required; however, the closure is for a shorter distance than that required for route option 1. Some street infrastructure (e.g., lights) will be temporarily affected by construction, although much less than route option 1.
Disruption to Pedestrian Access	Duration of disruption Area of access affected	3.0%	High Lengthy disruption Sidewalks impacted, access temporarily blocked	Medium Moderate length of disruption Sidewalks impacted, access diverted/ modified	Low Short disruption Sidewalks not affected	0.5	1.5%	Pedestrian access maintained. Pedestrians will be diverted onto Millwood Road, with a temporary sidewalk and traffic barriers/fencing.	1.0	3.0%	No (official) sidewalk located on south side of Millwood Rd; therefore, pedestrian access will be largely unaffected.

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
Road Crossings, Railway Proximity	Complexities associated with road/railway Length	3.0%	High Option must cross railway Multiple road crossings required	Medium Option within railway RoW; potential clearance issues or additional requirements during construction One or more road crossings required	Low Option not within railway RoW; no clearance issues or additional requirements No road crossings required	0.5	1.5%	Crossing Overlea Boulevard at Millwood Road via open trench to construct duct bank. Potential to interfere with street infrastructure (e.g., stoplight).	0.5	1.5%	Duct bank will need to cross Millwood Road, resulting in a brief two-lane road closure. Duct bank will be within the existing CN/Metrolinx RoW as it passes underneath Leaside Bridge (parallel to the existing access road to Todmorden JCT). A flagman will likely be required during construction to stop work as trains are approaching/passing. Hydro One continues to consult with CN/Metrolinx to determine other potential requirements.
Transit Disruption	Costs to coordinate with City of Toronto /TTC Time Number of bus routes impacted	4.0%	High Significant costs to coordinate with City of Toronto /TTC to re-route buses Lengthy disruption Bus stops impacted, re-location required	Medium Medium costs to coordinate with City of Toronto /TTC Moderate length of disruption Bus stops potentially impacted, re-location potentially required	Low Low amount of work to coordinate with City of Toronto /TTC Short disruption Bus stops not impacted	0.0	0.0%	Re-routing and diversion of TTC buses, including the removal and temporary relocation of bus stops, will be required along the north side of Millwood Road. This option will affect traffic at the intersection of Overlea Boulevard and Millwood Road.	1.0	4.0%	No TTC bus stops require removal or temporary relocation. No transit routes require re-routing.
First Nations Interests											
First Nations Traditional Land Use	First Nations identified cultural/ traditional/ historical land or resources Access to cultural/ traditional/ historical land or resources that were previously accessible	5.0%	High Significant cultural/ traditional/ historical land or resources identified by First Nations within option area Option area creates complete restriction to cultural/ traditional/ historical land or resources that were previously accessible	Medium Minimal cultural/ traditional/ historical land or resources identified by First Nations within option area Option area minimally create restriction to cultural/ traditional/ historical land or resources that were previously accessible	Low Cultural/ traditional/ historical land or resources that were previously accessible not identified within option area	1.0	5.0%	As per correspondence form MNCFN staff, the Lower Don Valley may have been exploited for species (plant and animal), but was not an area of settlement due to seasonal flooding and steep slopes, and possibly erosional dangers. The MNCFN has indicated an interest in surveying the area for traditional medicinal plants. The MNCFN has also indicated possible interest in salvaging any useable wood from trees that may require removal. While outside the scope of the proposed project, there is general interest from the MNCFN community to establish various land management plans. In particular, in reference to previously disturbed areas, there is a plan to reduce the impact of invasive species, especially noxious species such as Giant Hogweed.	1.0	5.0%	As per correspondence form MNCFN staff, the Lower Don Valley may have been exploited for species (plant and animal), but was not an area of settlement due to seasonal flooding and steep slopes, and possibly erosional dangers. The MNCFN has indicated an interest in surveying the area for traditional medicinal plants. The MNCFN has also indicated possible interest in salvaging any useable wood from trees that may require removal. While outside the scope of the proposed project, there is general interest from the MNCFN community to establish various land management plans. In particular, in reference to previously disturbed areas, there is a plan to reduce the impact of invasive species, especially noxious species such as Giant Hogweed.

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
								The MNCFN noted the Stage 2 Archaeological Assessment uncovered no cultural materials of interest. A MNCFN FLR was on-site and had no additional concerns. Hydro One will continue to work with the MNCFN to identify potential interests of the MNCFN regarding traditional land use.			The MNCFN noted the Stage 2 Archaeological Assessment uncovered no cultural materials of interest. A MNCFN FLR was on-site and had no additional concerns. Hydro One will continue to work with the MNCFN to identify potential interests of the MNCFN regarding traditional land use.
Potential Impact to Species of Interest to First Nations	Species of conservation concern or interest to First Nations identified within the project area Impact to fish, wildlife and botanical species of interest	5.0%	High Confirmed species of conservation concern or interest identified within option area, and likely to be affected Direct and significant impact to fish, wildlife and botanical species of interest within option area	Medium Confirmed species of conservation concern or interest identified within option area, potential to be affected or minimally affected Species of interest and habitat in option area potentially or minimally affected	Low No species of conservation concerns or interest to First Nations are identified within the option area Species of interest and habitat not identified or affected in the option area	1.0	5.0%	No potential impact to species of interest were identified by the MNCFN FLRs during environmental surveys; however, a specific botanical survey (one or two days) could be conducted. Pockets of wildlife exist in urbanized areas, such as the project area. Given the additional difficulties of the steep slope and silting, this provides obstacles to re-establishing traditional activity areas. Hydro One will continue to work with the MNCFN to identify potential species of interest.	1.0	5.0%	No potential impact to species of interest were identified by the MNCFN Field Liaison Representatives during environmental surveys; however, a specific botanical survey (one or two days) could be conducted. Pockets of wildlife exist in urbanized areas, such as the project area. Given the additional difficulties of the steep slope and silting, this provides obstacles to re-establishing traditional activity areas. Hydro One will continue to work with the MNCFN to identify potential species of interest.
Natural Environment Resources											
Potential Impact to Vegetative Cover/ Vegetation Communities	Area of natural vegetation, particularly woodland, removal required Amount of trees required to be removed Amount or percentage of mature trees lost Effects to Tree Protection Zones	10.0%	High High disturbance and removal required of native and mature vegetation Work disturbs and affects Tree Protection Zones	Medium Moderate disturbance and removal required of native and mature vegetation Work disturbs and affects Tree Protection Zones	Low Low disturbance and minimal removal required of native and mature vegetation Work does not disturb Tree Protection Zones	0.5	5.0%	Pushpipe/microtunneling method will avoid trenching down the Don Valley slope, resulting in less disturbance to vegetative cover down the slope than originally predicted (with open trenching method). However some trees within Leaside Park would still need to be removed, and there is still some potential for trenchless work to affect trees on the Don Valley slope. Open trench portion would require the removal of large mature trees on Millwood Road.	0.5	5.0%	Majority of vegetation removal would need to occur on the existing overhead RoW. Due to upcoming regular maintenance (7 year cycle), vegetation removal will occur regardless of route selected. The existing overhead RoW is heavily disturbed and contains numerous invasive species. Removal of some vegetation near the top and bottom of the slope may require removal due to access/work area requirements or root system damage; however, this vegetation is primarily shrub vegetation (Sumac) or other invasive species (Knotweed). In order to install a temporary one-lane access road, some trees adjacent to the existing overhead RoW may require removal.

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
Natural Hazards (e.g., erosion, flooding)	Within/outside hazardous lands Distance buffer from limit of hazardous lands Level of risk associated with flooding/erosion/slope instability Does/does not create new natural hazards or aggravate existing hazards Alteration to topography – extent of grading/soil removal/fill required Sediment and erosion control measures required	6.0%	High Option primarily within hazardous lands High risk level for flooding/erosion/ slope instability Aggravates existing hazards Extensive grading/ alteration to topography required Difficult conditions to mitigate	Medium Option within hazardous lands Moderate risk level for flooding/erosion/ slope instability Potentially aggravates existing hazards Some grading/ alteration to topography required Conditions can be mitigated with moderate difficulty	Low Option near or only slightly within hazardous lands Low risk level for flooding/erosion/ slope instability Does not aggravate existing hazards Some grading/ alteration to topography required Mitigation not required, or easy to apply	0.5	3.0%	Pushpipe/microtunneling methods are unlikely to destabilize the slope, but could still impact the slope. Borehole logs from work done at Todmorden JCT indicate presence of sandy soils. The TRCA advised on July 14, 2016 that risks regarding erosion and slope stability with microtunneling or pushpipe method are present, though somewhat less than open trenching in the same area. As a result of this consultation, the score for route option 1 has been revised from “Low” to “Medium”.	0.0	0.0%	Erosion is currently occurring and has been observed in the ravine, and in some areas the buried metal culvert along the overhead RoW has been exposed. Soil stability and erosion/sedimentation mitigation measures will need to be applied during construction and after (restoration) (e.g., erosion blankets, silt fence/socks). Restoration is likely to involve seeding with native species (and cover crop) and/or terra-seeding/ eco-blanket (seed mixtures applied with an adhesive growth medium to contain loose soils) to stabilize soil and establish vegetative root system.
Potential Impact to Water Resources	Impacts to watercourse quality Impacts to aquifers, surface water receptors, water well intakes/source protection areas Proximity to and/or crossings of, or access to watercourses Proximity and/or disturbances to wetlands Proximity to groundwater discharge areas/seeps	3.0%	High Negatively affects water quality Close proximity to water resources and features (e.g. aquifers, surface water receptors, wells, wetlands, groundwater discharge areas) Water crossing required	Medium Water quality not likely to be affected; but mitigation required Moderate proximity to water resources and features (e.g. aquifers, surface water receptors, wells, wetlands, groundwater discharge areas) Water crossing required but easily mitigatable	Low Water quality not affected Not in close proximity to water resources and features (e.g. aquifers, surface water receptors, wells, wetlands, groundwater discharge areas) Water crossing not required	0.5	1.5%	The Don River is located within the study area, and is downgradient of the work area; standard sedimentation and erosion control measures can be used to mitigate effects. Potential need for temporary construction dewatering/PTTW (5 to 7 mbgs excavation at Leaside Park).	0.5	1.5%	The Don River is located within the study area, and is downgradient of the work area; standard sedimentation and erosion control measures can be used to mitigate effects. Route will cross an unnamed drainage (ravine) underneath the culvert, west of Leaside Bridge. The unnamed drainage is not permanent. Groundwater contribution has been identified as part of water flowing from the unnamed drainage/culvert towards the Don River. It has been determined that this unnamed drainage is also not permanent so water is likely less of a concern during certain seasons/conditions. Typical sedimentation mitigation and construction water management practices will be applied.

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
Potential Impact to Designated Natural Areas	Present/not present Traversal of designated ESAs, or distance from ESA/ANSI/ natural heritage feature Conservation areas	3.0%	High Environmentally sensitive and/or significant areas and/or conservation areas present or in close proximity to the option Option traverses through ESAs	Medium Environmentally sensitive and/or significant areas and/or conservation areas present but not in close proximity to the option Option partially traverses through ESAs	Low Environmentally sensitive and/or significant areas and/or conservation areas not present in the option work area Option does not traverse through ESAs	0.5	1.5%	Access/egress via existing paved road through ESA (Crothers Woods ESA). No construction within ESA or ANSI.	0.5	1.5%	Access/egress via existing paved road through ESA (Crothers Woods ESA). No construction within ESA or ANSI.
Potential Impact to Habitat Value	Terrestrial species and habitat Impacts to terrestrial natural cover (TRCA) Extent of impact/ disturbance	3.0%	High Significant reduction in terrestrial natural cover and habitats for terrestrial species Effects to species and/or their habitats are difficult to mitigate and/or compensate for	Medium Mixed reduction of vegetation or terrestrial natural cover that are compatible habitats for local terrestrial species Minimal to no effects/ disturbance to species and/or their habitats; effects can mostly be mitigated and/or compensated for, and there may be some opportunities to improve habitat value	Low No reduction of vegetation or terrestrial natural cover, or reductions are not compatible habitats for native species (e.g., invasive-dominated plant communities) Effects are easily mitigatable and there are significant opportunities to improve habitat value in area	0.5	1.5%	Pushpipe/microtunnel less intrusive to mature forest community along Don Valley slope than original plan (open trench); however, there is potential need to remove some mature trees along the top of the slope at Leaside Park. Some vegetation removal is required along the bottom of the slope. The vegetation is comprised of a mix of native and invasive species and this area is heavily disturbed. Large mature trees along the north side of Millwood Road will require removal with this option, and given their size and age/health, these trees likely provide isolated habitat patches for birds and other small wildlife. Native shrub vegetation can be easily restored; however, loss of mature trees cannot be mitigated/compensated in the near term.	0.5	1.5%	Hydro One Forestry will clear the area as part of regular 7-year maintenance cycle. Some additional low growing vegetation and a few mature trees not typically removed by Hydro One Forestry will require removal. Vegetation removal at top of slope (Sumac) is required. No rare vegetation communities, fish habitat, or PSW areas on route. Numerous invasive species observed as established on/near the already heavily disturbed RoW.
Aquatic and Terrestrial Habitat Connectivity	Impedes/does not impede access	2.0%	High Impedes connectivity by creating a new fragmentation of existing aquatic and/or terrestrial habitat patches	Medium Somewhat impedes connectivity of existing aquatic and/or terrestrial habitat patches	Low Does not impede connectivity of existing aquatic and/or terrestrial habitat patches	1.0	2.0%	No new fragmentation of existing habitat patches.	1.0	2.0%	No new terrestrial fragmentation. Trench will occur on existing disturbance (overhead RoW and along access road to Todmorden JCT). Trench/duct bank will need to cross the ravine/unnamed drainage west of Leaside Bridge. This area has not been identified as fish habitat or migratory pathway; therefore, this work will not impede the movement of aquatic wildlife.

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
Alignment with TRCA Natural System Priorities and Protection Hierarchy	Proximity to/construction within TRCA regulated areas and TRCA property/habitat implementation plan areas Ability to avoid/minimize/ mitigate/ compensation Within/outside Natural System areas Crossing Natural System (perpendicular at most narrow point favoured) Option area open to remediation	3.0%	Low Work is in and affects TRCA areas Compensate for negative impacts to Natural System Option area within Natural System areas Crossing Natural System required; not at most narrow point Option area not open to remediation	Medium Work is within, but has minimal effect on, TRCA areas Mitigate negative impacts to Natural System Portion of option area within Natural System areas Crossing Natural System may be required Option area open to remediation	High Work does not affect TRCA areas Minimize negative impacts to Natural System Option area not within Natural System areas Crossing Natural System not required Option area open to remediation	0.5	1.5%	Work will occur within TRCA lands, including the push pipe/microtunneling down the Don Valley slope (immediately east of Leaside Bridge) and some trenching at the bottom of the slope eastward to Todmorden JCT. Temporary laydown area needed near Todmorden JCT. The push pipe/microtunneling method will limit disturbance to vegetation down the slope. Vegetation removal at the bottom of the slope can be mitigated and improved by replacing invasive species with native plantings. Vegetated areas can largely be avoided and work will occur within previously disturbed areas (e.g., existing access road to Todmorden JCT) to the extent possible.	0.5	1.5%	Some work will be required on TRCA property (primarily east of Leaside Bridge at the bottom of the Don Valley slope, after the duct bank/trench passes beneath Leaside Bridge). Some vegetation removal is required in areas of existing disturbance (overhead RoW; bottom of slope along access road to Todmorden JCT). Restoration (including removal of invasive species and replacement with native plantings) to occur following construction (to be done by contractor). These areas (overhead RoW and bottom of Don Valley slope) are open to mitigation, remediation and restoration options (e.g., terra-seeding for erosion control, native/compatible plant seeding/plantings).
Potential Impact to SAR/Sensitive Species	Presence of SAR confirmed SAR or their habitat affected/likely affected Presence of NHIC/TRCA-designated sensitive species	5.0%	High Confirmed SAR presence in option area Habitats for SAR likely affected; high likelihood of requiring permit or registration under *Endangered Species Act, 2007* NHIC/TRCA designated sensitive species located in project area	Medium Potential SAR presence in option area due to suitable habitat found Potential need for permit or registration under *Endangered Species Act, 2007* NHIC/TRCA designated sensitive species located close to project area	Low Low potential SAR presence in option area due to lack of suitable habitat found, or SAR not observed within work area during surveys Very low likelihood of requiring permit under *Endangered Species Act, 2007* NHIC/TRCA designated sensitive species not located in project area	1.0	5.0%	Low potential to affect SAR. Butternut not identified within work area for Option 1. Low potential to remove cavity trees, which may be habitat for Chimney Swift. No effects to any man-made structures, which may provide habitat for Barn Swallow or Chimney Swift.	0.0	0.0%	Butternut trees observed long the overhead RoW. Possible need for a permit/registration to remove butternut(s). If removal is not necessary, work will still be within close proximity. No work is expected to affect cavity trees or man-made structures that may currently serve as habitat for barn swallows or chimney swift.
Recreational Resources											

CRITERIA GROUP	INDICATORS	WEIGHT % of total score	CRITERIA SCORE Blue = Route option 1 score; Red = Route option 2 score; Purple = both options score equally			ROUTE OPTION 1			ROUTE OPTION 2		
			0	0.5	1	Score	Weighted Score	Comments	Score	Weighted Score	Comments
Potential Impact to Recreational Use	Trails affected Duration of effects to trails Parks affected	9.0%	High Trail and park access affected; high level of disturbance Temporary closure of trails or parks is required for a significant duration	Medium Trail and park access affected; moderate and temporary disturbance Temporary closure of trails or parks is required for a moderate duration	Low Trail and park access not affected, or minimal and temporary disturbance	0.0	0.0%	Significant disruption would be required to Leaside Park, as a large area in the southern half of the park would need to be occupied in order to excavate the 5 to 7 mbgs required for the push pipe or microtunnel options. This would close off a large portion of Leaside Park for the duration of tunneling and would also affect the new stairs/ramp access which would need to be replaced following construction. Bike trails along the Don Valley slope, just east of Leaside Bridge, may need to be temporarily closed during tunneling for public safety.	1.0	9.0%	No effects are expected to occur to Leaside Park. Existing trails cross the overhead RoW. These trails will need to be blocked for public safety purposes as vehicles pass during construction; however, a “double-gate” method will be used whereby trails are only blocked as construction vehicles and equipment are passing, and can be reopened shortly after. Therefore, disruption to the existing trails is expected to be minimal.
Technical Considerations											
Complexity and Duration of Construction	Duration of construction Number of significant obstacles Complexity of construction methods	10.0%	High High level of complexity due to significant amount of restrictions and coordination Significantly longer design/ coordination/ construction time required	Medium Moderate level of complexity due to number of restrictions and coordination Design/ coordination/ construction time required aligns with existing schedule	Low Lower level of complexity due to minimal restrictions and moderate coordination Design/ coordination/ construction time required is shorter than anticipated in the existing schedule	0.0	0.0%	Complexity of construction is high due to the addition of the push pipe/microtunneling construction method, which will require an open pit to be dug in Leaside Park and at the bottom of the slope as entry and exit shafts, respectively. The open trench section is also highly complex due to the presence of large mature trees, sidewalks, street infrastructure/transit, underground utilities, work within the park and disruption to the park infrastructure (new stairs/ramp). Construction times will also be longer due to the above-mentioned complications.	0.5	5.0%	Construction complexities include: • Trenching along Millwood Road and down the slope, but fairly basic construction practices (open trench and duct bank installation) • Access roads • Proximity to the existing overhead structures and underground cable • Difficulties working along steep slope of ravine All the above-mentioned factors can be managed with standard construction methods and practices.
Cost	Relative cost	10.0%	High Greater relative cost		Low Lesser relative cost	0.0	0.0%	Significant additional costs for push pipe/microtunneling method and additional costs to rebuild sidewalks and ramps and other street infrastructure. Significant transit disruption/rerouting along Millwood Road (bus stops temporarily removed).	1.0	10%	Open trenching is the most cost effective option based on current estimates. Additional costs for slope stabilization along the overhead RoW/ravine are estimated lower than costs of push pipe or microtunneling.
SUMMARY		100%				14.5	41.5%	Route option 1 is preferred in respect to: • Natural hazards (e.g., erosion concerns) • Potential impact to SAR (Two Butternut identified in area near route option 2)	20.5	66%	Route option 2 is preferred in respect to: • Construction complexity and cost • Impacts to recreational resources • Potential disturbance to residents and businesses • Disruption to pedestrian access • Transit disruption Based on this evaluation, it is concluded that route option 2 is the preferred route for the underground replacement section between Leaside TS and Todmorden JCT.

Produced By: Inergi LP, GIS Services
Date: Dec 12, 2014/Revision Jul 29, 2016
Map14-117_H7L_LeasidexMain_Leaside_Todmoden_Preferred Route

Station or Junction
Preferred Route for Underground Cable Replacement
Class EA Study Area
Water
Highways
Roads
Railway

Figure 5-1: Preferred Route for the Underground Cable Replacement between Leaside TS and Todmorden JCT

1:4,000

0 25 50 100 m

6 Project Description

The proposed project is similar to many other projects completed by Hydro One. The underground cable replacement portion of the proposed project, which is assessed in this ESR, will extend over a combined distance of approximately 2.3 km, and consists of the following major components:

- Installation of a new, underground cable duct bank containing two (2) circuits of 115 kV XLPE transmission cable between Leaside TS and Todmorden JCT, as well as fibre-optic communication cable, over a distance of approximately 0.8 km;
- Decommissioning (draining and capping) of the existing underground direct-buried 115 kV LPOF transmission line cables between Leaside TS and Todmorden JCT;
- Removal of the existing 115 kV LPOF transmission line cables between Lumsden JCT and Main TS and installation of a new, underground cable duct bank containing two (2) circuits of 115 kV XLPE transmission cable, as well as fibre-optic communication cable, along the same route over a distance of approximately 1.5 km;
- Installation of concrete splice boxes along the underground cable duct banks, to facilitate connection of the 115 kV XLPE transmission cables;
- Insulator and conductor replacement on equipment within the Todmorden JCT and Lumsden JCT (i.e., within the existing fenceline); and,
- Improvements to Lumsden JCT, including re-grading (within the existing fenceline) and the partial replacement of the existing chain-link fence with a new wooden fence.

As opposed to the existing LPOF transmission cables, the new XLPE transmission cables do not contain insulating oil and will be encased in concrete duct banks that provide additional protection to the cables and easier access for future maintenance.

Hydro One initially planned to replace and upgrade the overhead shield wire between Todmorden JCT and Lumsden JCT at approximately the same time as the underground cable replacement work. Although this upgrade of the shield wire is not subject to the *EA Act*, it was originally included as part of the Class EA study area and communication strategy due to its close proximity and parallel schedule. At the time of this ESR finalization, the shield wire work has been postponed. First Nations communities, nearby residents and stakeholders will

be notified when more information about this overhead work is available. This ESR is focused on the underground cable replacement portion of the proposed project.

6.1 Design Phase

Following completion of the Class EA process, detailed engineering and design for the proposed project will be undertaken. The final design plans will be based on necessary surveys, including a geotechnical survey and slope stability assessment. Concurrent with finalization of the design, required permits, licences and approvals, as listed in section 1.5.3, will be obtained. Hydro One will also finalize restoration plans in consultation with the appropriate stakeholders and local community as necessary.

Following completion of the Class EA process, and in accordance with Hydro One's internal procedures, an Environmental Specification will be developed. This document will provide specific directions to construction personnel, a summary of legislative requirements and environmental commitments as set out in this ESR. In addition, it will include all required monitoring as specified in the monitoring program (section 8).

6.2 Construction Phase

Construction activities will be guided by Hydro One standards and guidelines as well as project-specific documents; these are to be adhered to by all construction personnel including sub-contractors. In addition, the project-specific Environmental Specification, outlining specific requirements for the proposed project, will be followed during the construction phase.

Construction of the underground transmission cable duct banks and installation of cables will involve the following activities:

- Remove vegetation, conduct locates for buried utilities and infrastructure, and conduct other site preparation activities (e.g., stockpiling of materials), as required;
- Construct temporary access roads, where required, which will consist of crushed stone overlain on geotextile liner;
- Construct temporary watercourse crossings (e.g., temporary new culvert), as required;
- Temporary closure of existing roads and trails during construction, where required;

- Set up of temporary laydown areas (including trailer setup and perimeter fence installation) north of Leaside TS, adjacent to Lumsden JCT on the existing overhead transmission corridor, and adjacent to Todmorden JCT, using crushed stone overlain atop geotextile fabric;
- Install required environmental mitigation measures (e.g., silt fence/socks, erosion blankets, tree protection boarding);
- Excavate a trench (approximately 2.0 to 3.5 mbgs and approximately 1.2 m wide) in sections for the installation of the XLPE 115 kV underground transmission cable duct bank;
- Stockpile materials and excavated soil, as required;
- Discharge of construction water from dewatering activities to filter bags and ground surface (i.e., a vegetated area) before it reaches nearby watercourses, or to the existing sewer network;
- Remove existing LPOF 115 kV underground transmission cables between Lumsden JCT and Main TS;
- Install new 8-inch polyvinyl chloride ducts enclosed in a concrete bank at an anticipated average rate of approximately 10 m per day, with some areas potentially having a slower pace of installation;
- Pull (install) the new XLPE 115 kV underground transmission cables and fibre optic wire through the newly installed cable ducts;
- Drain oil, cap, and decommission in situ the existing LPOF 115 kV underground transmission cables between Leaside TS and Todmorden JCT;
- Backfill trench with thermal fill to grade;
- Pave roads (e.g., Main Street, Lumsden Avenue), as required;
- Remove and replace old junction components within the fence line at Todmorden JCT and Lumsden JCT; and,
- Clean-up and site restoration and seeding with native species (and cover crop) and/or terra-seeding/eco-blanket as required.

Hydro One is aware that a changing climate is likely to result in an increase of unusual weather patterns and severe weather events, which could potentially damage or adversely affect

infrastructure and other public facilities. Hydro One is satisfied that the facilities being planned for this project have been engineered to adequately withstand the effects of climate change throughout the duration of their planned lifespan. By nature, buried underground transmission cables and cable duct banks are less subject to damage from severe atmospheric weather conditions such as lightning, high winds, and ice accumulation. The concrete duct bank and thermal backfill will provide additional levels of protection for the new cables compared to the existing direct-buried infrastructure. In addition, the underground XLPE cables are designed to withstand longitudinal water penetration and are housed in a water-impermeable sheathing which allows for operation in fully-submerged conditions (i.e., in a worst-case flooding scenario), and ensures that the cables will sustain minimal damage if such an event occurs. The XLPE cables and accessories themselves are designed, manufactured and tested as per Association of Edison Illuminating Companies (AEIC) CS9, International Electrotechnical Commission (IEC) 60840, and Institute of Electrical and Electronics Engineers (IEEE) 404 specifications and standards.

Throughout the construction period, an Environmental Specialist will be available to address unforeseen environmental effects and mitigation requirements. The Environmental Specialist will monitor construction activities to ensure conformance with the requirements set out in Hydro One's construction standards and guidelines as well as the Environmental Specification. Upon completion of construction, operation and maintenance staff will be provided with a briefing and "as constructed" documentation covering ongoing commitments, including monitoring and notification requirements, if applicable.

Should archaeological resources be uncovered during construction, work will stop immediately pending assessment by the project archaeologist and further consultation with the MTCS, as well as the appropriate First Nations communities and the TRCA (if on TRCA lands).

6.2.1 Potential Coordination with Planned Toronto Hydro-Electric System Ltd. Work (Millwood Road)

As part of the Class EA process, Hydro One consulted with a number of municipal stakeholders (City of Toronto staff and municipal agencies/utilities) to inform them of and discuss the proposed project. During this process, Toronto Hydro staff informed Hydro One that they were planning to undertake work to reinforce the local distribution system, and that this work would occur in the same area as the portion of the proposed project involving

replacement of the underground cables between Leaside TS and Todmorden JCT. Toronto Hydro's upcoming work will involve the installation of underground cable duct banks for distribution (low-voltage) cables that will be located underneath Millwood Road in an area that Hydro One had identified as part of the preferred route between Leaside TS and Todmorden JCT (along Millwood Road, just south of Leaside TS and northwest of Leaside Bridge). Toronto Hydro staff have raised the possibility of coordinating their work with Hydro One's work, since this presents an opportunity to minimize disturbance to this area.

The coordination proposed by Toronto Hydro staff is as follows: when Toronto Hydro trenches along Millwood Road to install their distribution cable duct banks, they have offered to install additional empty cable ducts, suitable for Hydro One's 115 kV cables, below their low-voltage ducts. This "stacked duct bank" would extend for approximately 120 m along Millwood Road, and the high-voltage (115 kV) cable ducts would eventually be transferred to Hydro One for use. Therefore, when Hydro One commences construction on this portion of the proposed project, crews will use these pre-existing cable ducts and will avoid further excavation and trenching on Millwood Road. This would also potentially avoid the removal of vegetation just south of Millwood Road, as Hydro One's cable ducts would need to be located south of the road curb if they need to be installed after Toronto Hydro has installed their duct bank.

While Toronto Hydro's work to install these additional duct banks may potentially occur prior to filing of the ESR for the proposed project, it is Hydro One's position that this activity is compatible with both the *EA Act* and the *Class Environmental Assessment for Minor Transmission Facilities* for the following reasons:

- This work will not involve the actual removal, replacement or installation of any conductors or electrical-conducting equipment greater than 115 kV prior to completion of the Class EA. Until the Class EA is completed and Hydro One crews complete installation of the new 115 kV conductors/cables, the ducts are effectively empty concrete-encased polyvinyl chloride piping and will therefore not perform any function related to the transmission of electricity.

- The Toronto Hydro work to reinforce the low-voltage distribution system (and subsequent road/traffic disruption) is not subject to the *EA Act* (e.g., voltages of Toronto Hydro conductors are below 115 kV), and this work will occur regardless of the outcome of the proposed project Class EA process.
- The proposed project Class EA and consultation program has to date received numerous requests from nearby residents and project stakeholders to coordinate work (especially work which causes road/traffic/transit disruption) to the extent possible in order to minimize such road disturbance. This coordinated effort will significantly reduce the road/traffic disruption caused by the construction of the proposed project.
- The proposed project Class EA and consultation program has to date received numerous requests from project stakeholders to minimize vegetation removal in the area to the extent possible. Coordinating installation of cable ducts along this section with Toronto Hydro's upcoming duct bank installation will significantly reduce vegetation removal along the south side of Millwood Road, as Hydro One's duct bank would need to be located directly adjacent to this vegetated area if coordination with Toronto Hydro cannot be achieved.

At the time of the release of the draft ESR and 30-day public review period, the ability to coordinate this work with Toronto Hydro had not been definitively determined. Since that time, it has been confirmed that this coordination of work will in fact occur, and both parties have begun to proceed accordingly.

Hydro One staff will continue to work with Toronto Hydro to attempt to coordinate construction efforts and therefore minimize construction-related disturbance to the surrounding community and environment. For the purposes of the route evaluation and selection of the preferred route (section 5) and the assessment of potential environmental effects and mitigation measures (section 7), Hydro One had conservatively assumed that coordination with Toronto Hydro would not occur.

6.3 Maintenance and Operation Phase

The proposed project is scheduled to be in service by December 2018. Unlike the existing underground LPOF cables, the new XLPE cables eliminate the need for maintaining both

liquid levels and pressure. Likewise, the operation of these underground circuits, apart from automated protection and control measures at the transformer stations, is considered to be generally maintenance-free.

6.4 Project Schedule

The anticipated schedule for the proposed project activities is provided below in Table 6-1. This schedule shows key steps remaining in the Class EA process and subsequent anticipated timing of the start of construction and commissioning of the underground 115 kV cables and duct banks.

Table 6-1: Project Schedule

ACTIVITY	PERIOD
Filing of ESR with the MOECC	March 2017
Construction start	Summer 2017
Planned in-service date	December 2018

7 Potential Environmental Effects and Mitigation Measures

This section describes the potential environmental effects and mitigation measures associated with the construction and operation of the underground duct bank and 115 kV transmission cables. Where feasible alternatives were identified, the preferred cable route was selected through a route evaluation and selection process that is documented in section 1.4 and section 5 of this ESR. A description of the underground duct bank and cables is presented in section 1.3 and section 6.

As discussed throughout the ESR, Hydro One initially planned to replace and upgrade the overhead shield wire between Todmorden JCT and Lumsden JCT at approximately the same time as the underground cable replacement work, but this shield wire work has now been postponed and is currently being re-evaluated by Hydro One. Therefore, this section does not take into consideration potential effects associated with the overhead shield wire replacement between Todmorden JCT and Lumsden JCT.

The assessment of potential environmental effects for the underground duct banks and cables (i.e., the proposed project) considered the baseline information on the environmental features that was collected for the study area as presented in section 3. If resources were determined not to be present in the study area during the collection of baseline information, they are not addressed in this section.

The potential environmental effects resulting from the construction and operation of the proposed project are similar to other projects undertaken by Hydro One and are well understood. Hydro One has a strong track record of environmental compliance and stewardship and is committed to the completion of comprehensive environmental and social analysis and mitigation of potential environmental effects.

The following sections describe potential environmental effects for both the short-term (construction) and long-term (operation) activities of the proposed project. The selection of mitigation measures are based on the following seven principles:

- Avoidance of sensitive areas, where feasible;

- Avoidance of watercourse crossings, where feasible, by use of an existing nearby crossing, access to structures from either side of the watercourse, or use of off-corridor access;
- Appropriate timing of construction activities, where feasible, to avoid sensitive time periods, such as fish spawning and egg incubation periods, or migratory bird nesting periods;
- Proactive communication with area residents and businesses on proposed project timelines and construction areas;
- Proactive communication with First Nations communities, government agencies, stakeholders and interest groups regarding the proposed project;
- Implementation of conventional, proven mitigation measures during construction consistent with the criteria set out in Appendix J of the *Class Environmental Assessment for Minor Transmission Facilities* (Ontario Hydro, 1992), and in accordance with applicable legislative requirements; and,
- Development of environmental enhancement or compensation measures to offset the unavoidable effects of construction and operation where such effects exist and where feasible.

Based upon the project design and implementation of the proposed mitigation measures, no significant adverse residual effects (i.e., effects following the implementation of mitigation) are expected.

7.1 Agricultural Resources

As indicated in section 3.6, there are no classified agricultural resources within the study area and therefore no potential effects have been identified for the proposed project.

7.2 Forestry Resources

As indicated in section 3.6, there is no potential for the proposed project to affect the productivity or utilization of the land for forestry harvesting and therefore no potential effects have been identified for the proposed project.

7.3 Cultural Heritage Resources

The Stage 2 Archaeological Assessment conducted by Timmins-Martelle Heritage Consultants did not result in the identification of any archaeological materials; therefore, the areas assessed through this survey are considered free of archaeological concern. The final report for the Stage 2 archaeological assessment was submitted to the MTCS on August 3, 2016. TRCA staff undertook a Stage 2 Archaeological Assessment of the areas of TRCA property within the study area that were identified in the Stage 1 Archaeological Assessment report as having archaeological potential (i.e., the area between the Leaside Bridge and Todmorden JCT) on June 16, 2016. During the survey, a single small quartz flake was identified. TRCA Archaeology Resource Management Services staff confirmed in an email dated June 20, 2016 that they had no further archaeological concerns for this area, and that TRCA staff would be submitting a report to the MTCS detailing the results of the TRCA Stage 2 Archaeological Assessment.

If archaeological material is encountered during the course of the project, all activities with the potential to affect the archaeological material will cease immediately and a licensed archaeologist will be engaged, as well as the MTCS, the MNCFN, and the TRCA (if on TRCA lands). In the event that human remains are encountered, Hydro One will immediately stop work in the area and notify the police, the coroner's office, MTCS and the Registrar of Cemeteries.

The Built Heritage Resource Background Review (TMHC, 2015) identified two built heritage resources within the project study area (i.e., the Leaside Bridge and a house on Midburn Avenue) and three built heritage resources within 50 m of the project study area (i.e., a house on Dawes Road, a house on Gerrard Street East, and a house on Glenwood Crescent). No cultural heritage landscapes were identified. Per the recommendations of the Built Heritage Resource Background Review (TMHC, 2015), work proposed in the project study area will be suitably planned in a manner that avoids the identified, above ground, cultural heritage resources. It is anticipated that the cultural heritage resources identified within the study area (i.e., the Leaside Bridge and a house on Midburn Avenue) will not be affected by the proposed project. If it becomes apparent that an identified, above ground, cultural heritage resource could be affected by loss, displacement or disruption, further research will be undertaken to

identify the specific heritage significance of the affected cultural heritage resource and appropriate mitigation measures will be adopted where appropriate. In this regard, provincial guidelines will be consulted for advice and further heritage assessment work by a qualified heritage consultant will be undertaken, as necessary.

7.4 Human Settlements

7.4.1 Nuisance Effects

Air Quality

Construction activities have the potential to create temporary, localized effects on air quality in the immediate vicinity of the proposed project (these effects on air quality and associated mitigation are discussed further in section 7.7.2). Emissions from construction are primarily comprised of fugitive dust and combustion products from the movement and operation of construction equipment and vehicles. These emissions, in turn, may create a nuisance or disturbance effect for local residents and land users during the construction phase. Nuisance effects are subjective, and the magnitude of the effect will vary depending on the individual and their location in relation to construction activities; however, concerns regarding nuisance effects were raised during the consultation program (see section 4). Noticeable effects will occur only during the construction phase and will occur intermittently. Mitigation measures to reduce potential nuisance effects of dust and air emissions include maintenance of equipment used on site to minimize exhaust, adherence to Hydro One's Fleet Environmental Program which includes anti-idling requirements and GPS installation in vehicles to optimize routing, and use of effective dust suppression techniques, such as on-site watering and road sweeping, as necessary.

Emissions from maintenance activities during operation will be variable, is expected to be short in duration, and will occur periodically over the life of the proposed project (see section 7.7.2). Nuisance effects posed by these brief activities are expected to be negligible and will not result in noticeable or long-term changes to local air quality.

Noise

Proposed project activities have the potential to affect ambient noise levels during the construction and operation phases; however, noise effects will be most noticeable during the construction phase (these effects on noise and associated mitigation are discussed further in section 7.7.2). These effects, in turn, may create a nuisance or disturbance effect for local residents and land users during the construction phase, particularly at PORs, as defined by NPC-300 (see section 3.7.2 for the definition of POR). Concerns regarding noise-related nuisance impacts were raised by local residents and business owners during consultation (see section 4). Nuisance effects are subjective, and the magnitude of the effect will vary depending on the individual and their location in relation to construction activities. However, it is important to note that noise effects will generally not be constant across the study area for the entirety of the construction phase; rather, noise effects will be introduced and diminish depending on where construction is actively occurring, thereby reducing the duration of nuisance effects to local residents, business operators and land users. Mitigation measures to reduce potential nuisance effects resulting from noise include making sure that noise abatement equipment on machinery is in good working order and maintaining equipment such that construction and maintenance activities conform to typical noise parameters. Hydro One will consider noise when deciding on equipment and construction work methods and schedule. Hydro One will also take reasonable measures to control construction-related noise near residential areas.

Construction activities will conform to the City of Toronto noise by-law (Chapter 591 of the Municipal Code) to the extent feasible (see section 7.7.2). If exemptions to the noise by law are necessary, the requirements of applicable approvals processes will be met. If construction activities need to be extended to facilitate their completion, Hydro One will inform local residents and businesses.

Vibration

Proposed project activities have the potential to affect ambient vibration levels during the construction phase, causing nuisance and disturbance effects to local residents and land users in the vicinity of the proposed project. Effects on ambient vibration levels and associated mitigation are discussed further in section 7.7.2.

Mitigation measures to reduce potential nuisance effects resulting from vibration include the consideration of vibration when selecting equipment and construction work methods and determining work schedules for the proposed project, and taking reasonable measures to control vibration related to project construction near residential areas. In addition, construction activities shall conform to City of Toronto vibration by-law requirements in By-law 514-2008. If construction activities need to be extended to facilitate their completion, Hydro One will inform local residents and businesses.

7.4.2 Mud

Construction activities (see section 6.2) may result in the accumulation of mud in construction areas. Mud mats will be installed, as required, near site exits to loosen and shake off mud. Mud related to construction activities will be removed from access roads, and vehicles and equipment will be washed and maintained at work areas as necessary. Formal cleanup and site restoration (e.g., restoration planting and seeding) will further minimize this potential project effect.

7.4.3 Public Safety

Construction sites pose potential safety hazards to local land users and residents due to the operation of heavy construction equipment, if not appropriately controlled. Workplace safety and public safety are leading priorities at Hydro One. Hydro One mitigates safety issues by implementing safety measures in accordance with its Public Safety Policy during construction. This includes ensuring that replacement and installation procedures are executed in accordance with applicable codes and regulations. To minimize the effects of construction on public safety, Hydro One will undertake a wide range of safety measures, adding signage, fencing and locks to construction laydown areas, installing additional lighting in construction laydown and equipment storage areas, carefully selecting construction laydown areas and access roads, developing the construction schedule in consultation with the City of Toronto's planning staff (including avoidance of major events where feasible), providing the final construction schedule to emergency and protective services (Toronto Police Service, Toronto Fire Service, and Toronto Paramedic Service), informing adjacent residents, landowners and commercial establishment operators of proposed project activities prior to construction, and providing alternative driveway and/or pedestrian entrances for businesses and municipal

facilities where traditional access routes are blocked by construction activities. Barriers and steel plates will be used to maintain public safety and prevent unauthorized access to work areas. During the maintenance and operation phase, Hydro One will maintain appropriate signage, fencing and locks at stations and junctions and other visible infrastructure, and will continuously monitor in-service cable integrity.

7.4.4 Land Use Planning

As indicated in section 0, a review of the proposed project's land use designation compatibility and conformance with the City of Toronto Official Plan confirms that there are no issues regarding conformance. Therefore, no potential effects on land use planning have been identified.

7.4.5 Population and Demographics

As indicated in section 3.4.2, the addition of a temporary workforce to the local population during construction as a result of the proposed project is predicted to be indiscernible. Therefore, no potential effects on population and demographics have been identified.

7.4.6 First Nations Lands and Territory

The proposed project is located within the traditional territory of the MNCFN; therefore, some traditional lands have the potential to be disturbed by construction and maintenance and operation activities of the proposed project. Hydro One is committed to developing and maintaining relationships of mutual respect between Hydro One and First Nations and Métis communities. Hydro One recognizes that First Nations and Métis communities and their lands are unique in Canada, with distinct legal, historical and cultural significance. Hydro One is committed to continue to engage with the MNCFN to provide regular project updates, and actively identify and avoid geographically defined areas which support current or past traditional use for the harvesting of wildlife or fish, the harvesting of traditional plants, or use as sites of spiritual or cultural significance. Hydro One will seek to identify community concerns and build appropriate actions into proposed project plans to address expressed concerns (see section 4). Hydro One has undertaken Stage 1 and Stage 2 Archaeological Assessments and has invited the MNCFN to participate in project planning, archaeological

and other consultation work to identify and mitigate potential effects to the traditional land use of the MNCFN.

7.4.7 Services and Infrastructure

Transportation and Traffic

The study area is located within a densely populated urban area, which includes a combination of laneways, on-street permit parking areas, public transit stations, local streets, arterial streets and highways. Roadways transected by the proposed project that have the potential to be affected include (but are not limited to) Lumsden Avenue, Main Street, Danforth Avenue, Stephenson Avenue, Doncaster Avenue, Barrington Avenue, Millwood Road, the Leaside Bridge, Overlea Boulevard, and the laneway north of Danforth Avenue and west of Main Street.

Roadways in the study area are used by car traffic, as well as by TTC streetcar and bus traffic (see section 3.4.5). Sidewalks along roadways in the study area are also used for pedestrian traffic. There is potential for disruption to vehicular and foot traffic as well as available parking along roadways in the study area during the construction phase, both from workforce and construction-related traffic, on road segments where the installation of underground cables will occur. Concerns regarding disruptions to road traffic, on-street parking, and TTC service were raised through the consultation program (see section 4). The potential also exists for temporary road closures (e.g., Millwood Road, Lumsden Avenue, Main Street) to occur. Where regular overnight parking may be temporarily displaced during construction, Hydro One will notify the residents in advance and will work to provide a solution until regular parking access is reinstated.

There are 28 operational railway segments[17] in the project study area, extending a cumulative 10.6 km and operated by GO Transit, CN Rail and CP Rail (MNRF, 2016e). The proposed underground cable routes do not transect existing railways, reducing the potential for effects

[17] Refers to an area of rail track with uniform characteristics.

to rail infrastructure. A railway flagperson will be utilized as necessary where work occurs within rail RoWs.

To minimize disruptions and/or delays to local road traffic and emergency public safety services, construction areas will be carefully designed to avoid existing road and transit infrastructure, to the extent feasible. Underground duct banks will be installed in sections to reduce traffic disruption. Hydro One will develop a Traffic Management Plan in consultation with City of Toronto staff. Advance notice will be provided to the City, adjacent landowners, commercial establishment operators, railway operators (i.e., CN Rail and CP Rail), public transit operators (i.e., TTC and Metrolinx) and emergency response units outlining the location of entry/exit points for construction sites as well as the schedule for construction work in those areas. Road signage will also be installed. Where appropriate, traffic control officers will be assigned to assist construction truck entry and exit. Traffic control officers will be trained and provided with safety attire and equipment. Walkways demarcated by physical barriers will be provided to maintain pedestrian access where construction activities block sidewalk access. Timing of alternating street parking periods will be considered when locating construction equipment in the study area. Where regular parking may be disrupted, Hydro One will work with residents to find a solution.

There is no air transportation infrastructure in the study area; therefore no potential impacts to air transportation are predicted.

Water, Wastewater and Waste Services and Infrastructure

During the construction of the proposed project, Hydro One will follow stringent provincial policy and legislation to ensure the safety and protection of both ground and surface water, complying with the *Clean Water Act, 2006,* the PPS (2014), the *Source Protection Plan for the Credit Valley, Toronto and Region and Central Lake Ontario Source Protection Area* and the *City of Toronto Official Plan.* Hydro One will continue to consult with provincial ministries, the City of Toronto and the TRCA on proposed project design, construction and operation to address concerns related to water services and infrastructure.

The proposed project has the potential to increase demand on waste infrastructure in the study area during the construction phase. Construction waste will be generated by the proposed

project, and will need to be disposed of in regional landfills and recycling facilities. Waste generated during construction will be tested, handled, stored, transported and disposed of at licensed recycling and waste disposal facilities, as applicable, in accordance with applicable legislation. Waste produced will be minimized, and segregated and recycled where possible.

Healthcare, Emergency Medical, Fire Suppression and Protective Services

Hydro One is committed to constructing the proposed project in a safe and responsible manner. With respect to the potential for the proposed project to result in direct impacts to local services, the possibility remains that the demand for healthcare, emergency medical, fire suppression and protective services may increase as a result of the proposed project, in the event of an accident or malfunction, or as a result of the introduction and presence of a temporary workforce to the neighbourhoods in the study area. However, given the size and design of the proposed project, the size of the project workforce, and the capacity of local medical, fire, EMS, and protective service providers serving the study area, it is anticipated that existing services in the study area would be able to accommodate emergency response or healthcare needs of the proposed project during the construction phase. It is anticipated that any changes to the direct demand of these services during the construction phase as a result of the proposed project would be negligible.

With respect to the potential for the proposed project to result in an indirect or induced effect on healthcare services, emergency medical, fire suppression or protective services, it is not anticipated that the temporary influx of approximately 60 workers during construction would result in an increased population in the study area. Therefore, it is not anticipated that the proposed project will indirectly affect demand for healthcare services, emergency medical, fire suppression or protective services during construction.

Hydro One makes worker safety its top priority. All workers and contractors will be qualified and properly trained, with an emphasis on safe work practices. Contractors will provide basic first aid on-site throughout the construction phase, as required. First aid kits, an eyewash station, spill kits, emergency evacuation/assembly points, and emergency response plans and maps will be available on-site. All workers will undergo site orientation including first aid procedures and other health and safety information. Hydro One will provide advance notice of the construction schedule, construction activities and a copy of the approved traffic control

plan during construction to the City of Toronto's Paramedic Service, Fire Service, and Police Service. Hydro One employees and their subcontractors will also be required to review and adhere to Hydro One's Safety Rules.

There are no anticipated direct or indirect effects on healthcare, emergency medical, fire suppression or protective services as a result of the proposed project during the maintenance and operation phase due to the small number of permanent employment positions and the anticipated minimal activity required during this phase.

Education Services and Infrastructure

As indicated in section 3.4.5, the proposed project will not have a discernible effect on educational services or infrastructure in the study area. Therefore, no potential effects on education services and infrastructure have been identified.

Housing

As indicated in section 3.4.5, the proposed project will not have a discernible effect on housing in the study area. Therefore, no potential effects on housing have been identified.

7.4.8 Labour Market and Economy

Economic development associated with construction spending is one of the positive effects of transmission facility projects. Construction activities provide an opportunity for local employment and result in spin-off effects to the local service industry. Direct employment benefits will be realized through the construction phase of the proposed project. The bulk of the direct employment would take place during the construction phase (which could begin in May 2017 and be completed by December 2018).

Indirect employment and/or economic benefits may also be stimulated through direct expenditures on goods and services required for construction sourced from Ontario businesses. In addition, induced employment and economic benefits may be realized in the service industries, as the construction workforce may purchase local goods and services (e.g., food and beverages). Together, these demands would result in small but positive labour market and economic benefits to the region for workers and supplying businesses.

At the same time, there is potential for adverse effects on economic performance of commercial establishments within the study area, given that construction will reduce pedestrian and road access to these businesses over the course of construction. Concerns related to potential economic impacts on local businesses due to road closures, loss of street parking and noise impacts were raised during the consultation program (see section 4). However, it is important to note that traffic and noise effects will not be constant across the study area for the entirety of the construction phase; rather, noise and transportation infrastructure effects will be introduced to certain areas and diminish depending on where construction is actively occurring, thereby reducing the duration of nuisance effects to business establishments, local residents and land users. As a result, it is unlikely that the proposed project will result in adverse effects to the economy of the study area in the medium-to-long term. Hydro One will seek to limit potential for effects to local businesses to occur through project design and the construction schedule, minimizing the time for which access to commercial establishments is lost. Hydro One will take feasible measures to allow continued access to businesses on streets where construction is underway (e.g., along Main Street) during working hours, and provide signage directing customers to alternative entrances for commercial establishments during loss of regular street access.

To reduce effects to pedestrian traffic, Hydro One will provide walkways demarcated by physical barriers to maintain pedestrian access where construction activities block sidewalk access. Mitigation measures outlined in section 7.7.2 related to nuisance effects as a result of noise will also be implemented in order to minimize the effects of the construction period on local businesses. Hydro One will continue to communicate with adjacent commercial landowners and operators regarding the proposed project as project planning continues through detailed design.

7.5 Trapping

As indicated in section 3.5, there are no known trapping activities within the study area and therefore no potential effects on trapping have been identified.

7.6 Mineral Resources

As indicated in section 3.6, there are no current mineral resource activities within the study area and therefore no potential effects on mineral resources have been identified.

7.7 Natural Environment Resources

7.7.1 Physical Environment

Geology

Given the relatively shallow anticipated depth of trenching (approximately 2.0 to 3.5 mbgs), the proposed project is not predicted to affect surficial or bedrock geology. With backfill and site restoration following construction, physiography in the vicinity of the proposed project is not predicted to be affected. Therefore, no net effects on the physical environment have been identified for the proposed project.

7.7.2 Atmospheric Environment

Air Quality

Construction has the potential to temporarily affect local air quality in the immediate vicinity of the proposed project. Emissions from construction are primarily comprised of fugitive dust and combustion products from the movement and operation of construction equipment and vehicles. Potential effects associated with construction are anticipated to be minimal due to their short and intermittent duration. As a result, construction emissions are unlikely to have a long-term effect on local air quality.

Additionally, potential impacts to air quality from construction activities can be mitigated through proper servicing and maintenance of construction equipment and the implementation of best management practices. Proper maintenance of construction vehicles and equipment can assist in reducing combustion emissions and should reduce effects on air quality. The proposed project will adhere to Hydro One's Fleet Services Environmental Program, which includes anti-idling requirements and GPS installation in vehicles to optimize routing. Similarly, the implementation of best management practices, such as on-site watering and road sweeping, can reduce the generation of fugitive dust. Therefore, it is likely that the net effects

of construction activities on local air quality will be negligible and no additional mitigation is required.

With the exception of periodic maintenance activities, such as inspection from vehicles, no additional emissions are expected as a result of the operation of the proposed project. Emissions from maintenance activities during operation will be variable depending on activities, expected to be short in duration, and will occur periodically over the life of the proposed project. These maintenance activities are not expected to result in long-term changes to local air quality. Therefore, net air quality effects associated with maintenance and operation activities are likely to be lower in magnitude than the effects during the construction phase and will be negligible. No additional mitigation is required.

Noise

The proposed project has the potential to affect ambient noise levels during the construction and maintenance and operation phases.

In Canada, noise can be regulated at a federal, provincial and/or municipal level. If adequate local (i.e., provincial or municipal) noise requirements exist, federal regulations look to the local requirements for guidance. In Ontario, the MOECC NPC documents *NPC-115 – Construction Equipment* (MOECC, 1978) and *Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning, Publication NPC-300* (MOECC 2013) address environmental noise. NPC-115 sets out maximum noise emission ratings for construction equipment. Construction activities are often also regulated at the municipal level through by-laws, which typically limit construction activities during certain days of the week and periods of the day. The City of Toronto sets out noise by-law requirements in Chapter 591 of the Municipal Code (City of Toronto, 2009). For operations of stationary equipment (e.g., transformers), NPC-300 specifies an exclusionary noise limit at the POR, which is dependent on the classification of areas containing sensitive PORs in the vicinity of a project.

Based on available data, a number of PORs, as defined by NPC-300, are located in the vicinity of the proposed project. As described in section 3.7.2, an elevated ambient noise level already exists at the identified PORs. Ambient noise levels can be expected to increase, on occasion, due to construction activities at some of the identified PORs. However, construction noise

will be temporary in nature, will only occur during specific activities, will be limited to certain days of the week and periods of the day, and will be limited to the vicinity of the proposed project. The range in the change to ambient noise levels associated with construction activities will depend primarily on the number and type of noise sources and their proximity to the PORs (i.e., noise levels as a result of the proposed project in the environment would generally decrease as the distance between the POR and construction activities increase). Potential effects on noise levels during construction of the proposed project will vary based on the type of construction activities. For the proposed project, noise effects during construction are expected to occur during site clearing, excavation, trenching, concrete duct bank installation, and grading. The primary noise sources associated with construction are expected to be off-road equipment such as dozers, backhoes, excavators, graders, compactors, cranes/booms and trucks, and smaller equipment such as saws, generators, pumps and winches.

The MOECC does not specify particular limits for construction noise levels at PORs; however, the MOECC requires the implementation of good practices to limit noise levels. This includes the use of reasonable noise mitigation measures to reduce the effect of construction noise of new facilities or modifications to existing facilities on nearby PORs.

The variability of noise emission levels, location of equipment and the distance of PORs from the construction activity will result in a range of construction noise levels at PORs, generally decreasing with distance from the proposed project. General good construction methods are considered inherent to the proposed project and include maintenance of equipment such that construction activities conform to typical noise parameters, use and maintenance of noise abatement equipment (e.g., muffler systems) to reduce noise emissions (i.e., compliance with NPC-115), considering noise when deciding on equipment and construction work methods and schedule, and taking reasonable measures to control construction related noise near residential areas. Construction activities will conform to the City of Toronto noise by-law to the extent feasible. While efforts will be made to comply with the City of Toronto noise by-law, there may be instances where noise by-law exemptions are sought (e.g., after-hours or weekend work to alleviate potential traffic disruptions during rush hour, or to complete certain trench sections more quickly). If exemptions are necessary, the requirements of applicable approvals processes will be met. These efforts will reduce the potential for noise effects at PORs. Furthermore, as the proposed project is expected to be linear and construction activities are

planned sequentially, the duration of construction at any one location along the proposed project will be limited and intermittent, thereby reducing the amount of time a given POR would be exposed to noise emissions resulting from the proposed project.

Noise emissions associated with maintenance and operation activities are expected to be minimal. Noise sources and noise levels from maintenance activities after construction will be variable, are expected to be limited to a short duration, and will occur periodically over the life of the proposed project. With the exception of periodic maintenance activities, such as inspection from ground-based vehicles, no additional noise sources are expected as a result of the proposed project during maintenance and operation activities. These maintenance and operation activities are not expected to result in long-term changes to ambient noise levels at PORs in the vicinity of the proposed project. Post construction, the project will not result in any increase in noise levels beyond the existing condition, and therefore no additional mitigation is required for noise during maintenance and operation.

Vibration

The proposed project has the potential to affect ambient vibration levels during the construction phase. The MOECC NPC documents address vibration, and the City of Toronto sets out vibration by-law requirements in By-law 514-2008 (City of Toronto, 2008).

Ambient vibration levels can be expected to increase, on specific occasions, due to construction activities at some of the identified PORs, but construction vibration will be temporary in nature, occur only during specific activities, and limited to the immediate vicinity of the work area. The range in the increased vibration levels associated with construction activities will depend primarily on the number and type of sources and their proximity to the PORs. Potential effects of vibration during construction will vary based on the type of construction activities. For the underground cable installation, vibration effects during construction are expected to be greatest during excavation, compaction, and grading.

Mitigation measures to reduce potential nuisance effects resulting from vibration include the consideration of vibration when selecting equipment and construction work methods and determining work schedules for the proposed project, and taking reasonable measures to control vibration related to project construction near residential areas. In addition,

construction activities shall conform to City of Toronto vibration by-law requirements in By-law 514-2008. If construction activities need to be extended to facilitate their completion, Hydro One will inform local residents and businesses. These efforts will reduce the potential for vibration effects at PORs. Moreover, vibration associated with maintenance and operation activities are expected to be minimal, and additional mitigation is not required.

7.7.3 Surface Water Resources

Construction Phase

Predicted Likely Effects on Surface Water Quantity

Proposed project activities during the construction phase that have the potential to influence surface water quantity conditions in nearby watercourses are:

- Site preparation for a new underground cable route/duct bank, adjacent access road and temporary laydown areas;
- Construction of a temporary watercourse crossing; and,
- Discharge of construction water from dewatering activities to nearby watercourses.

Site Preparation

Site preparation, including activities such as removal of vegetation, locates/daylighting of existing buried utilities, and construction of a temporary access road, will be required in relation to the work areas for the underground cable replacement, as well as the work areas adjacent to Todmorden JCT and Lumsden JCT.

The preferred route will use an existing RoW for overhead lines extending from Leaside TS to the bottom of the Don River valley slope. From the bottom of the valley slope on the west side of the Leaside Bridge to Todmorden JCT the preferred route will follow an existing access road. The work area in this location will be approximately 310 m in length along the north side of the existing access road that is located on the right bank of the Lower Don River. The work area will have an approximate total width of 6 m to accommodate a 3 m wide easement for the underground cable and a one-way 3 m wide temporary access road.

Site preparation will also be required for three temporary laydown areas. The first two will be located north of Leaside TS and adjacent to Todmorden JCT, respectively, and will be used primarily for equipment and material storage. The third laydown area will be located adjacent to Lumsden JCT, on the grassed lawn area on the existing overhead RoW, and will be used primarily for trailers and for the storage/staging of equipment and materials related to the Lumsden JCT x Main TS underground cable work. Runoff from the work area for the Leaside TS to Todmorden JCT underground cable installation and the temporary laydown areas near Leaside TS and Todmorden JCT will be directed to the Lower Don River. The total disturbed area is expected to be a very small proportion of the 31,600 ha catchment area that is estimated to drain to the Lower Don River at the Leaside Bridge. Runoff from the temporary laydown area adjacent to Lumsden JCT will drain to Taylor-Massey Creek.

During construction, it is expected that changes to streamflow and water levels in the watercourses downgradient of the areas of disturbed land will reflect the proportion of disturbed area relative to the total watercourse catchment area. In the case of the Lower Don River and Taylor-Massey Creek, the area of disturbed land will be orders of magnitude smaller than the catchments of these receiving watercourses. As a result, changes to streamflow and water levels in the Lower Don River and Taylor-Massey Creek are not expected to be discernible.

At the end of construction, the new work area (i.e., new underground cable route/duct bank, adjacent access road and temporary laydown areas) will be revegetated and the temporary laydown areas will be restored to their original condition to the extent feasible. Therefore, there will be negligible residual effects on surface water quantity as a result of site preparation activities.

Construction of Temporary Watercourse Crossings

The existing overhead RoW just west of Leaside Bridge passes through a ravine drained by an unnamed watercourse flowing north-south which is believed to be not permanent (see section 3.7.3). This ravine will need to be crossed by both the underground cable route/duct bank (trench) and a temporary construction access road. The temporary access road will cross the unnamed watercourse approximately one third of the way down the valley slope. Currently,

it is anticipated that the crossing will occur in a location that is upstream of the culvert identified on the east slope during 2016 fieldwork that discharges to the watercourse, such that the existing culvert can be accommodated. A new temporary culvert will be required for the temporary access road to cross the unnamed watercourse. The installation of the culvert may require the temporary diversion or pumping of streamflows around the work area to permit construction under dry conditions. The installation of the culvert may result in local changes to flow conveyance conditions in the unnamed watercourse (e.g., area of channel cross-section could be reduced) with the potential for streamflow obstruction and backwater (water held back by the obstruction) in the channel reach immediately upstream of the crossing.

If the need arises to install temporary watercourse crossings at other locations, Hydro One will notify the appropriate agencies. To conservatively predict the potential effects of the proposed project on surface water, it is assumed that temporary watercourse crossings will be required to facilitate construction activities. Specifically, it is assumed that the construction of temporary watercourse crossings will consist of the installation of a culvert to facilitate access to all areas of the proposed project.

Replacement of the underground cable between Main TS and Lumsden JCT will take place in the existing cable route, and will use existing roads and watercourse crossings for access.

To avoid or minimize the potential adverse effects of constructing temporary watercourse crossings on surface water quantity, the following mitigation measures will be implemented:

- Select a design rainfall event based on the operating life of the watercourse crossings and a level of hydrologic risk consistent with existing regulatory guidelines and/or good industry practice;
- Design the watercourse crossings to convey the peak flow for the design rainfall event without constricting streamflow and causing backwater effects in the watercourse;
- Install the watercourse crossings over a relatively short period of time (i.e., less than one week) during the winter season or a dry period when water conditions are low; and,
- Carry out work in consultation with TRCA and incorporate their feedback into design and construction.

Watercourse crossings will be removed and channel cross-sections will be restored, to the extent feasible, to their original conditions at the end of the construction phase. With the implementation of the mitigation measures described above, and the short life of the works, the construction of temporary watercourse crossings are not anticipated to have long-term residual effects on surface water quantity.

Discharge of Construction Water from Dewatering Activities

The removal and discharge of construction water will be required as a result of dewatering activities in open trenches constructed for the underground cable replacement between Leaside TS and Todmorden JCT, and between Main TS and Lumsden JCT. Construction water will consist of local stormwater runoff and groundwater intercepted during trench excavation. Construction water from dewatering activities for underground cable installation between Leaside TS and Todmorden JCT will be discharged to a filter bag and, in turn, to the ground surface (i.e., a vegetated area). Under most runoff conditions, this discharge water is expected to largely infiltrate and ultimately report to the unnamed watercourse flowing parallel to the Leaside Bridge or the Lower Don River via indirect pathways. The disposal of construction water from dewatering activities for underground cable installation between Main TS and Lumsden JCT will be determined in consultation with the City of Toronto and TRCA, but will likely involve discharge to the existing sewer network and may contribute indirectly to streamflows in Taylor-Massey Creek. The discharge of construction water from dewatering activities to these watercourses may result in slight increases to streamflows and water levels.

To minimize the potential adverse effects of dewatering activities on surface water quantity conditions, the following mitigation measures will be implemented:

- Discharge construction water in compliance with the required permits and/or approvals from the MOECC and the City of Toronto; and,
- Develop and execute appropriate construction dewatering plans prior to construction, as required.

With the implementation of the mitigation measures described above, and the short duration of the dewatering activities, dewatering activities are not anticipated to have long-term residual effects on surface water quantity in the receiving watercourses.

Predicted Likely Effects on Surface Water Quality

Project activities during the construction phase that have the potential to influence surface water quality conditions in nearby watercourses are:

- Site preparation for the new underground cable route/duct bank, adjacent access road and temporary laydown areas;
- Earthworks associated with the construction of the temporary access road, temporary laydown areas, underground cable replacement, and improvements within the existing Lumsden JCT fenceline;
- Discharge of construction water from dewatering activities to nearby watercourses; and,
- Operation of vehicles and equipment throughout the construction phase.

Site Preparation

Site preparation will consist of removal of vegetation, rough grading, and stockpiling of materials. These activities will result in the temporary exposure and disturbance of soil with the potential for wind and water erosion and the transport of sediment to watercourses. Site preparation will also result in the temporary accumulation of cleared vegetation with the potential for mobilization of organic debris and its transport to local watercourses during runoff events. Earthworks will consist of excavation, fill, and stockpiling activities, and will similarly result in disturbance and exposure of soil and aggregates to wind and water erosion and the transport of sediment to watercourses. Some re-grading will be required at Lumsden JCT (entirely within the existing fenceline) to make parts of the junction more easily accessible to Hydro One workers and equipment.

As stated above, site preparation will be required for the work area for the underground cable installation between Leaside TS and Todmorden JCT, temporary laydown areas near Leaside TS and Todmorden JCT with vehicle access to the underground cable route, and a

temporary laydown area near Lumsden JCT. The new work area between Leaside TS and Todmorden JCT and the temporary laydown areas near Leaside TS and Todmorden JCT will drain to the Lower Don River, whereas the temporary laydown area near Lumsden JCT will drain to Taylor-Massey Creek. In order to avoid or minimize the potential adverse effects of site preparation activities on surface water quality in these receiving watercourses, the following mitigation measures will be implemented where practicable:

- Carry out activities in the winter season or dry periods when ground conditions are stable and runoff events are infrequent, where feasible;
- Stage work to minimize the extent of exposed and disturbed areas at any given time;
- Remove cleared vegetation to designated areas above the high water marks of watercourses;
- Stockpile topsoil in designated areas above the high water marks of watercourses;
- Develop and execute site-specific erosion and sediment control plans as required;
- Minimize equipment operation adjacent to watercourses, where feasible;
- Retain vegetation buffers along the banks of watercourses, where feasible; and,
- Carry out work in consultation with the TRCA and incorporate their feedback into design and construction.

With the implementation of the mitigation measures described above, and the short duration of the construction works, site preparation activities are not anticipated to have long-term residual effects on surface water quality conditions in nearby watercourses.

Earthworks

Earthworks will be required for the construction of the temporary access road within the work area of the underground cable installation between Leaside TS and Todmorden JCT. Some re-grading will be required at Lumsden JCT (entirely within the existing fenceline) to make parts of the junction more easily accessible to Hydro One workers. Earthworks for the temporary access road will consist of excavation, fill, sub-grade preparation, and the placement of gravel sub-base and base courses. Earthworks may also be required for the installation of a temporary culvert (associated with the temporary access road) at the unnamed watercourse on the west side of the Leaside Bridge. Earthworks for the temporary culvert (if necessary) will consist of

excavation, preparation of culvert pipe bedding, culvert pipe placement, and backfilling. Earthworks will also include the stockpiling of soil and aggregate materials.

Earthworks for the construction of the temporary laydown areas near Leaside TS, Todmorden JCT and Lumsden JCT will similarly consist of excavation, fill, and sub-grade preparation, followed by the installation of crushed stone overtop a geotextile fabric. Soil and aggregate materials will be stockpiled.

Earthworks will also be required for the replacement of underground cable between Leaside TS and Todmorden JCT and between Main TS and Lumsden JCT. The underground cable replacement will involve open trenching to remove or decommission in-situ the existing cables, and to install the new cables in concrete duct banks. Open trenching will be restricted to the 3 m wide easement and a depth of up to 3.5 mbgs. The trench section lengths will depend on site conditions. Earthworks to support the above activities will include the stockpiling of soil and aggregate materials.

To avoid or minimize the potential adverse effects of earthworks activities on surface water quality in nearby watercourses, the following mitigation measures will be implemented where practicable:

- Carry out activities in the winter season or dry periods when ground conditions are stable and runoff events are infrequent, where feasible;
- Stage work to minimize the extent of exposed and disturbed areas at any given time;
- Stockpile soil and aggregates in designated areas above the high water marks of watercourses;
- Carry out work in consultation with TRCA and incorporate their feedback into design and construction;
- Develop and execute site-specific erosion and sediment control plans as required;
- Minimize equipment operation adjacent to watercourses, where feasible; and
- Retain vegetation buffers along the banks of watercourses, where feasible.

With the implementation of the mitigation measures described above, and the short duration of the construction works, earthworks activities are not anticipated to have long-term residual effects on surface water quality conditions in nearby watercourses.

Discharge of Construction Water from Dewatering Activities

Dewatering activities will be required in open trenches constructed for the underground cable replacement between Leaside TS and Todmorden JCT, and between Main TS and Lumsden JCT. Dewatering flows will consist of local stormwater runoff and/or groundwater intercepted during trench excavation. Construction water from dewatering activities for the underground cable installation between Leaside TS and Todmorden JCT will be discharged to a filter bag and, in turn, to the ground surface (i.e., a vegetated area) to reduce the concentration of suspended solids. Under most runoff conditions, this discharge water is expected to largely infiltrate and ultimately report to the unnamed watercourse flowing parallel to the Leaside Bridge or the Lower Don River via indirect pathways. The disposal of construction water from dewatering activities for underground cable installation between Main TS and Lumsden JCT will be determined in consultation with the City of Toronto and TRCA, but will likely involve discharge to the existing sewer network and may contribute to streamflows in Taylor-Massey Creek. Depending on local subsurface conditions, construction water may have high suspended solids concentrations with the potential to increase sediment loads in the receiving watercourses. If instances of high turbidity are encountered in construction water, additional mitigation (e.g., settling containers) will be used as required.

To avoid or minimize the potential adverse effects of dewatering activities on surface water quality in the receiving watercourses, the following mitigation measures will be implemented:

- Discharge construction water in compliance with the required permits and/or approvals from the MOECC and the City of Toronto;
- Discharge construction water to a filter bag, and, in turn, to ground surface (i.e., a vegetated area) to reduce the concentration of suspended solids;
- Develop appropriate discharge plans prior to construction, as required; and,
- Contain collected water and conduct testing prior to discharge, as required.

With the implementation of the mitigation measures described above, and the short duration of the dewatering activities, dewatering activities are not anticipated to have long-term residual effects on surface water quality conditions in the receiving watercourses.

Potential Effects of Surface Water on the Project

Project work will occur within TRCA-identified floodplain areas of the Don River. Proposed project activities during the construction phase that could potentially be impacted by flooding are:

- site preparation for a new underground cable route/duct bank, adjacent access road and temporary laydown areas;
- open trenching associated with project construction; and,
- construction of a temporary watercourse crossing.

To mitigate the flooding risks associated with working in a floodplain, mitigation and contingency measures will be implemented as appropriate. These measures will include:

- timing;
- limiting the material to be stored near Todmorden JCT;
- relocating vehicles and equipment as required; and,
- sediment controls.

Timing

Best efforts will be made to ensure that construction work occurs in dry or frozen conditions (e.g., winter or the height of summer) to the extent feasible. Although the flood vulnerability study (section 3.7.3) indicates that flooding events tend to happen in the summer, statistically, the summer is still a drier season. To mitigate the impact of floods, weather conditions will be monitored on a daily basis during construction. If a major storm is predicted or occurs, qualified personnel will determine if work needs to be halted or postponed and, if necessary, inspect the site to determine whether any corrective actions need to be implemented.

Limiting the Material to be Stored near Todmorden JCT

The primary construction storage and laydown area will be located north of Leaside TS, well away from the identified floodplain areas. Long-term material stockpiles will be located outside the floodplain area, above the anticipated high water level. Any storage of materials near Todmorden JCT will be short-term (e.g., materials expected to be used imminently). No liquid chemicals (e.g., fuel, lubricants) will be stored within floodplain areas.

Relocating Vehicles and Equipment as Required

Small vehicles and equipment will be relocated to the primary laydown area (near Leaside TS) at the end of each day and will not be stored overnight in floodplain areas. Large vehicles and equipment (e.g., excavators) may not be feasible to relocate each day but can be relocated if potential flood conditions can be reasonably expected.

Vehicle and equipment refueling will not be conducted within 100 m of water bodies. If refueling is required within 100 m of a water body (e.g., refueling in an emergency situation or for less mobile equipment such as excavators), special mitigation measures (such as mobile spill containment) will be employed.

Sediment Controls

Sediment controls (e.g., silt fences) will be installed and maintained around the downgradient perimeter of all work and temporary access areas within the floodplain.

Maintenance and Operation Phase

Predicted Effects on Surface Water Quantity

Project activities during the maintenance and operation phase that have the potential to influence surface water quantity conditions in nearby watercourses are:

- Operation and maintenance of a new easement for underground cable.

A new easement will be required for part of the underground cable installation between Leaside TS and Todmorden JCT. The preferred route will use the existing RoW for overhead

lines extending from Leaside TS to the bottom of the Don River valley slope. However, a new easement will be required from the bottom of the valley slope on the west side of the Leaside Bridge to Todmorden JCT. The new easement will be approximately 310 m in length along the north side of the existing trail on the right bank of the Lower Don River, with an approximate width of 3 m and an approximately 3 m wide adjacent access road, for an approximate total width of 6 m.

Constructing the new easement will require the removal of existing vegetation. When underground cable installation work is completed, the new easement will be revegetated with a ground cover of low-growing grasses and shrubs requiring little maintenance effort. On the existing overhead transmission line RoW just west of Leaside Bridge, Hydro One Forestry crews will continue to implement their regular vegetation maintenance program to ensure the safe and reliable operation of the overhead conductors. This program runs on an approximately 6-8 year cycle and is focused on controlling the regeneration and re-establishment of vegetation deemed to be non-compatible with overhead transmission lines.

The maintenance and operation of the new easement will result in localized changes in land cover with the potential to increase runoff rates and volumes during rainfall and snowmelt events. Runoff from the new easement will be directed to the Lower Don River, recognizing that changes to streamflow and water levels in the river are expected to be similar to the proportion of the disturbed area relative to its total catchment area. The new easement will cover an area representing a small proportion of the 31,600 ha catchment area that is estimated to drain to the Lower Don River at the Leaside Bridge.

The residual effect on surface water quantity in the Lower Don River as a result of the maintenance and operation of the proposed project along the new easement is anticipated to be negligible. Changes to streamflows and water levels in the Lower Don River are not expected to be discernable, given that the area covered by the new easement will be orders of magnitude smaller than the catchment area of the Lower Don River.

Predicted Effects on Surface Water Quality

There are no proposed project activities during the maintenance and operation phase that have the potential to influence surface water quality conditions in nearby watercourses, thus potential effects have not been identified.

7.7.4 Groundwater Resources

During construction, the potential effects of the proposed project on groundwater include changes in water quality due to disturbance of pre-existing soil contamination which may exist, changes to existing groundwater quality or quantity due to trenching activities and construction dewatering, and changes in groundwater flow regime due to installation of concrete duct banks for the new underground cables and construction of a new underground cable route/duct bank and adjacent access road.

Changes in groundwater due to project activities during construction could also affect the amount of groundwater discharged to nearby watercourses and natural environment features (e.g., vegetation, fish and fish habitat, and wetlands).

Effects on groundwater will likely occur in the underground cable replacement sections from Leaside TS to Todmorden JCT and Lumsden JCT to Main TS where construction dewatering may be required. It is anticipated these effects will be limited to the construction phase. However, effects on groundwater may extend into the maintenance and operation phase in the event that low permeability materials are present. It is anticipated that the effects on groundwater during the maintenance and operation phase will be negligible.

Potential Effects on Groundwater Quality

Soil contamination may be encountered during construction. These areas of soil contamination may contribute to groundwater contamination if disturbed during construction. Excess material that needs to be disposed of off-site will be sampled and analyzed to determine its disposal requirements. Backfill will be tested to ensure that it is acceptable. Soil and groundwater containment and disposal measures will be implemented, if required.

No residual adverse effects have been identified for changes in groundwater quality due to the construction of the proposed project. If changes in groundwater quality were to occur, it is

anticipated that groundwater quality would return to baseline conditions following the implementation of mitigation measures, such as containment and removal of contaminated soils.

Potential Effects on Groundwater Quantity

Trench Excavations, Trench Dewatering and Concrete Duct Construction

The trench excavation between Leaside TS and Todmorden JCT, and Lumsden JCT and Main TS (approximately 2.0 to 3.5 mbgs and 1.2 m wide), could potentially intersect the groundwater table along some sections of the proposed project. This could temporarily result in a lowering of the groundwater table down to the depth of the bottom of the excavation, and a temporary change in the direction of groundwater flow directly adjacent to the trench. Effects of this nature would likely occur in low areas where the groundwater table is shallow and trench dewatering may be required. For the purposes of this effects assessment, it has been conservatively assumed that the groundwater table is at ground surface. In addition, although the length of the trenches may vary dependent on conditions encountered during construction, for the purposes of this assessment it has been assumed that trench dimensions will be approximately 3.5 m deep by 1.2 m wide by 20 m long. Based on current understanding of the geology and hydrogeology in the study area, and the relatively shallow extent of the trench excavation, it is anticipated that drawdown of the groundwater table associated with dewatering of the soil will be limited to a radius of influence ranging between 50 m to 60 m from the trench segments. Following completion of dewatering and backfilling of the trench, the recovery of the groundwater table within these permeable features to preconstruction conditions will likely take place relatively rapidly during the construction period, or potentially extending into the maintenance and operation phase under less permeable conditions.

Groundwater baseflow (quantity) is seasonally important to nearby water bodies and natural environment features, including vegetation, fish and fish habitat, and wetlands. The effects on groundwater quantity associated with construction of the concrete duct to be installed for the new underground cable are anticipated to be local to the comparatively shallow trench. Trench excavation will be carried out as quickly as possible and trenches will be successively backfilled in a timely manner prior to proceeding to the next segment of the trench. As such, it is predicted that there will be no or limited temporal effects on groundwater levels and quantity

as a result of construction activities. Therefore, no effect on groundwater baseflow delivered to adjacent water bodies and natural environment features is expected.

No PSWs occur either within or adjacent to the natural heritage study area. However, non-designated wetlands associated with the Taylor-Massey Creek ESA were identified within the natural heritage study area. No wetlands will be crossed by the underground cable. Portions of the open trench near Lumsden JCT will be located approximately 60 m from wetland areas which may be affected by dewatering activities as they are located within the potential radius of dewatering activities. However, it is likely that these effects will be limited given the distance from the trenches.

The trenched portion of the proposed project between Leaside TS and Todmorden JCT will require temporary crossing of an unnamed watercourse west of Leaside Bridge. Based on field observations in 2016, flow in the tributary may not be permanent. As discussed in section 7.7.3, watercourse crossings and open trenching are predicted to have temporary and short-term effects that will be minimized by implementing mitigation measures (e.g., construction during dry periods, appropriate design of water crossings, implementation of erosion and sedimentation best management practices). It is not likely that disruption of flow in the unnamed watercourse channel will notably affect flow in the Lower Don River.

Near Todmorden JCT the open trench will be approximately 60 m from the Lower Don River. Dewatering activities required for the trench, expected to be short in duration, could result in a localized lowering of the groundwater table. However, given that trench excavation will be carried out as quickly as possible and the trench will be successively backfilled upon completion of the duct banks in a timely manner, baseflow loss directly adjacent to the Lower Don River is anticipated to be minimal, and it is not anticipated that these dewatering activities will notably impact the flow in the Lower Don River.

For construction within the clayey till soils at the western end of the Leaside TS to Todmorden JCT section, construction dewatering may not be required other than for control of precipitation. However, construction dewatering to control groundwater inflow may be required in the portion of the alignment to be installed in the alluvial (sand and gravel) deposits and the glaciolacustrine deposits encountered in the Lumsden JCT to Main TS section. If

construction dewatering of the trench is required at a rate greater than 50,000 L/day a PTTW or Environmental Activity and Sector Registry (EASR) will be obtained from the MOECC. The proposed project will comply with applicable guidelines and legislation, including Provincial Water Quality Objectives, Ontario Drinking Water Standards, Objectives and Guidelines and Ontario Regulation 153/04. Adequate dewatering and discharge plans will be developed prior to construction, and collected water will be contained and tested prior to disposal, if required.

The study area lies within the Don River watershed in which municipal groundwater takings have all been converted to surface water supplied systems. There is no municipal groundwater taking for potable water within the Don River watershed (TRCA, 2009). The MOECC WWIS database identified 70 water well records within the study area. However, none of the MOECC wells were listed for use as a water supply. Given that drinking water wells do not exist in the study area and that water supply is from surface water it is therefore not likely that project construction activities will have an effect on the water supply in the study area. It should be noted that private well users may have retained their wells for uses other than water supply. If these wells exist, the water quality and quantity in these wells should be maintained.

Given that the trench depth is relatively shallow, the effects of the dewatering activities during construction are expected to be temporary and groundwater levels and flow are expected to return to pre-construction conditions during the construction period, or shortly thereafter (into the maintenance and operation phase) if lower permeability soils are encountered, no residual adverse effects have been identified for changes in the groundwater quantity as a result of trenching and dewatering activities during construction.

Vegetation Removal during Construction of New Underground Cable Route/Duct Bank and Adjacent Access Road

The installation of the underground cable will require a new underground cable route/duct bank extending from the west side of the Leaside Bridge to Todmorden JCT. The new underground cable route/duct bank will be approximately 310 m long and 3 m wide, with an adjacent approximately 3 m wide access road. Constructing the new underground cable route/duct bank and adjacent access road will require the removal of existing vegetation.

Vegetation removal may lead to increased recharge where the modern alluvial deposits are exposed at surface. This may lead to raising of the water table; however, this will likely be localized and temporary. Once cable installation work is completed, the new underground cable route/duct bank and adjacent access road will be revegetated with low-growing grasses and the water table should return to pre-existing levels Given that this change in water table is anticipated to be localized (i.e., within tens of metres of the underground cable route/duct bank and adjacent access road), no change in groundwater discharge to the nearby Don River is anticipated given its distance from the underground cable route/duct bank and adjacent access road (approximately 45 m to the south). There are no drinking water wells in the area that are likely to be affected by this temporary change in groundwater table given that the nearest well (MOECC ID 7048747) has been decommissioned.

7.7.5 Designated or Special Natural Areas

The nature of the proposed project is temporary. No effects on natural heritage features are anticipated during the maintenance and operation phase.

Two ESAs, Taylor Creek and Crothers Woods, are located within the study area. The Taylor Creek ESA, near Lumsden JCT, is located north of the existing overhead RoW. The Crothers Woods ESA is located west of the railway and slightly overlaps the study area. However, neither ESA will be affected by the proposed project.

In addition, portions of the study area are considered part of the City of Toronto Natural Heritage System, which functions as an ecological linkage between natural areas within the City limits. The proposed project will not affect this function, and site restoration to a pre-disturbance state or better will be implemented following the completion of construction, where feasible.

7.7.6 Natural Heritage Features

The nature of the construction disturbance associated with the proposed project is temporary. No effects on natural heritage features are anticipated during the maintenance and operation phase.

Construction activities will be restricted to designated work areas and protective barriers such as fencing will be erected to protect adjacent features from construction related effects. For example, silt fencing and/or other sediment and erosion control measures will be installed as required to prevent the migration of sediment-laden water from the site, and tree protection boarding will be installed adjacent to vegetation areas to prevent encroachment or damage during construction. In addition, vegetation removal limits will be clearly demarcated. Prior to construction, a detailed construction plan will be developed in consultation with the City of Toronto and the TRCA. Existing access (e.g., trails, bridges) will be used where possible during construction to limit new disturbance within the valleylands and pathway corridors.

Other measures that will be undertaken to reduce adverse effects resulting from the construction of the proposed project include:

- restricting access and minimizing travel/work areas to maximize retention of compatible vegetation;
- implementing sediment and erosion controls per TRCA guidelines;
- selectively cutting and retaining compatible vegetation to promote regeneration;
- using geotextile and gravel for temporary access, where feasible, to reduce compaction;
- restoring compacted areas;
- replanting with compatible native species;
- retention of compatible vegetation in constraint areas (e.g., road and watercourse crossings, wetlands, valley lands, significant wildlife habitat and other environmentally sensitive areas);
- implementation of the biodiversity initiative; and,
- installing barriers (e.g., silt fences) to promote protection of watercourses.

Geotextile and gravel used for temporary access will be removed upon completion of construction. The primary temporary laydown area for the proposed project during construction will be located in a developed area at the west end of the study area to the north of Millwood Road. Therefore, this temporary laydown area will not affect natural vegetation communities or sensitive natural heritage features. Temporary laydown areas will be constructed adjacent to both Todmorden JCT and Lumsden JCT using the same techniques

(gravel overlain on geotextile). These areas will be restored following removal of the temporary laydown areas post-construction.

Most wildlife species that occur in the study area are habituated to human activities and are mobile. Any sensitive resident animals can relocate temporarily to avoid noise and disturbance associated with construction activities and return after construction completion. Construction disturbance will be sufficiently local and transitory that little displacement of wildlife is anticipated. Therefore, the effect of the proposed project on wildlife will be minimal. Wildlife will not be harassed or harmed during construction.

Removal of vegetation has the potential to disturb nesting migratory birds. The *Migratory Birds Convention Act, 1994* (MBCA) prohibits the disturbance, destruction or removal of a nest, egg or nest shelter of a migratory bird. In order to avoid contravention of the MBCA, vegetation removal should not be conducted during the migratory bird breeding season (April 5 to August 31 in nesting zone C2; Environment and Climate Change Canada [ECCC], 2016b) where feasible. If vegetation removal occurs during the breeding season, a non-intrusive breeding bird nest survey will be undertaken by a qualified avian biologist and nests found will not be disturbed until the young have fledged. Where active nests are found, a buffer zone reflective of the species will be established to restrict construction activities.

Removed vegetation will be carefully cleaned up and disposed of. Specifically, non-salvageable limbs will be chipped or removed to designated areas. Stumps will be cut flush with the ground where feasible.

Invasive Species

There is potential for the proposed project to facilitate the spread of invasive species that occur within or adjacent to work areas during the construction phase. Measures that will be undertaken to reduce the spread of invasive species include:

- seeding and fertilizing previously vegetated areas (excluding wetlands) with native seed mix;

- taking care to avoid spreading invasive species (especially invasive plant species) that occur in or adjacent to work areas, and educating crews on the importance of preventing the spread of invasive species;
- abiding by the draft *Invasive Species Act* regulations which have recently been released for comment;
- removing and properly disposing of invasive plant material, where feasible; and,
- inspecting and cleaning equipment and vehicles as necessary prior to entering/leaving vegetated work areas, to reduce potential for spreading invasive species propagules.

Wetlands

No PSWs were identified in or adjacent to the natural heritage study area. Therefore, there is no potential for the proposed project to affect PSWs.

No wetlands will be crossed by the underground cable replacement footprint. If it becomes apparent that wetlands will be disturbed during construction, wetland vegetation will be allowed to re-establish naturally or will be re-seeded with native wetland species.

Fish Habitat

There are no fish SAR present in the reach of the Don River associated with the proposed project. Taylor-Massey Creek is heavily armored with boulders, which reduces fish habitat potential. However, five fish species have been recorded in the creek based on existing fisheries data. Thirteen fish species have been recorded in reaches of the Don River that are within the study area.

There is potential for fish habitat to be affected during the construction phase of the proposed project. However, watercourse crossings will be avoided during construction to the extent feasible by using existing access and crossings (e.g., bridges) and by accessing structures from either side of each watercourse, where feasible. To conservatively predict the potential effects of the proposed project on fish and fish habitat it is assumed that temporary watercourse crossings will be required to facilitate construction activities, although this may not be the case if alternate access is readily available. Necessary permits and approvals will be acquired before

construction commences. In-water works, if required, will conform to applicable MNRF fish timing windows.

Other potential disturbances to fish habitat resulting from construction activities near water will be minimized through the development of an erosion and sediment control plan, which will include mitigation measures such as constructing access roads during low flow conditions, retaining stream bank vegetation, and storing materials away from water. In addition, no refueling of vehicles and/or equipment will be permitted within 100 m of a watercourse to avoid potential spills (e.g., fuel, oil, lubricant) from migrating and entering aquatic features or riparian areas. Spill kits will also be located at work areas to mitigate the effects of accidental spills or releases, should they occur during construction.

Woodlands

Significant woodlands have not been identified and mapped in the City of Toronto Official Plan (City of Toronto, 2015). One contiguous tract of woodland partly located within the study area may qualify as a significant woodland (see section 3.7.6) but is not within or adjacent to the activities associated with the proposed project.

In general, removal of woody vegetation will be minimized during construction to the extent feasible. The route for the underground cable between Leaside TS and Todmorden JCT was selected in part with the goal to minimize disturbance to forested areas during construction and will be situated mostly in cultural thicket and cultural meadow vegetation communities along an existing overhead transmission line RoW. At this time no tree removal is anticipated for the underground cable replacement between Lumsden JCT and Main TS, since construction will be primarily completed within the road allowance on Lumsden Avenue and Main Street. If it becomes apparent that construction of the underground cable replacement between Lumsden JCT and Main TS will result in the removal or significant injury to trees, Hydro One will notify the appropriate agencies and obtain all necessary permits prior to tree removal.

Hydro One has consulted with, and will continue to work with, the City of Toronto Urban Forestry Services to identify in the field which trees will be removed and which will be retained on an individual basis. Upon completion of detailed design for the cable duct banks, a detailed

tree inventory will be conducted by a certified arborist to determine the extent of tree removal likely to occur due to construction activities. Tree removal permits will be obtained from the City of Toronto, as required. Regarding trees to be retained, both parties will work collaboratively on the methods of protection and mitigation. Hydro One will consult with the City of Toronto and the TRCA in the development of a replacement plan for the lost trees. Hydro One will document the number of trees of each species removed during construction through the aforementioned tree inventory and will consult with the City of Toronto Urban Forestry Services to determine compensation requirements.

Valleylands

The Don River valley meets several of the criteria identified in the Natural Heritage Reference Manual (MNR, 2010) and therefore qualifies as a significant valleyland. Activities associated with the proposed project will therefore require review by the TRCA to ensure conformity with their regulations, and may require additional review by the MNRF if clearing or significant alterations to the valley slopes or vegetation occur. However, the proposed project is not anticipated to result in substantial alterations to the valley slopes or vegetation given its transitory nature and limited need for vegetation removal.

Species at Risk

Species at risk designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Natural Resources and Forestry, species are added to the provincial *Endangered Species Act, 2007*, which came into effect June 30, 2008. The legislation prohibits the killing or harming of species identified as 'endangered' or 'threatened' in the various schedules to the Act. The *Endangered Species Act, 2007* also provides habitat protection to all species listed as threatened or endangered. As of June 30, 2008, the Species at Risk in Ontario (SARO) List is contained in O. Reg. 230/08.

Subsection 9(1) of the *Endangered Species Act, 2007* prohibits the killing, harming or harassing of species identified as 'endangered' or 'threatened' in the various schedules to the Act. Subsection 10(1) (a) of the *Endangered Species Act, 2007* states that "No person shall damage or

destroy the habitat of a species that is listed on the SARO List as an endangered or threatened species".

General habitat protection is provided by the *Endangered Species Act, 2007* to all threatened and endangered species. Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law under the *Endangered Species Act, 2007*. The *Endangered Species Act, 2007* has a permitting process where alterations to protected species or their habitats may be considered.

As noted above, species designated as either endangered or threatened under the Ontario *Endangered Species Act, 2007* are provided individual and habitat protection. Species designated as special concern under the *Endangered Species Act, 2007* do not have regulatory protection and are not discussed further. Three SAR categorized as endangered or threatened under the *Endangered Species Act, 2007* were identified in the study area during the 2015-2016 field surveys: Butternut, Chimney Swift and Barn Swallow. Should any Butternut trees require removal, all necessary permits and approvals from the City of Toronto and MNRF will be acquired. Chimney Swift and Barn Swallow receive general habitat protection focused on nest sites and surrounding habitat. Neither species was confirmed to be breeding in the natural heritage study area during the 2015-2016 field surveys. No suitable nesting structures were identified in the natural heritage study area for Barn Swallow. However, commercial and industrial areas in the natural heritage study area may provide suitable nesting and foraging habitat for Chimney Swift. Both species are also protected by the MBCA. Vegetation removal during the migratory bird breeding season (April 5 to August 31 in nesting zone C2; ECCC 2016b) will be avoided to the extent feasible. A non-intrusive breeding bird nest survey will be undertaken by a qualified avian biologist if vegetation removal is required during this period. Should nest sites of these species be identified, protective measures (e.g., buffers) as described in the general habitat descriptions for these species will be implemented (MNR, 2013a; MNR, 2013b). Should other SAR or their habitat be encountered during construction activities, the required works will be assessed to determine the potential for modification of the work, schedule or mitigation measures to avoid potential effects on SAR and their habitat. If avoidance of SAR is not possible, Hydro One will communicate with the MNRF, and if required, an overall benefit permit will be obtained.

Wildlife Habitat

Several forms of significant wildlife habitat or candidate significant wildlife habitat were identified in the natural heritage study area during 2015-2016 field surveys. However, significant wildlife habitat is only a constraint if there is appreciable alteration or loss as a result of development, which is not anticipated to be the case with respect to the proposed project.

Route selection considered environmental sensitivities including wildlife habitat features, and vegetation removal will be limited. Other measures that will be undertaken to reduce adverse effects on wildlife habitat (including significant wildlife habitat) resulting from the proposed project include:

- the retention of snags and cavity trees where feasible;
- general avoidance of wetlands;
- the promotion of wildlife habitat through vegetation control;
- retain natural vegetation, where possible;
- the use of native plant species where seeding or planting is completed; and,
- implementation of the biodiversity initiative.

Significant Areas of Natural and Scientific Interest

There are no ANSIs in the study area; therefore, no effects on significant areas of natural and scientific interest as a result of the proposed project are anticipated.

Leaside to Main Biodiversity Initiative

While Hydro One always strives to avoid and mitigate potential effects to the natural environment, and restore areas that are temporarily affected during construction, Hydro One also acknowledges that there may be adverse effects that cannot be avoided, or that occur even when appropriate mitigation and restoration measures are employed. Examples include the removal of mature trees which can only be replaced by much younger saplings, or the permanent conversion of a woodlot into a shrub or meadow community. Hydro One refers to these as "residual net effects" to the natural environment. Because residual net effects cannot be further avoided or mitigated, they are typically compensated for by undertaking

positive environmental activities (e.g., the creation of new natural communities or enhancement of existing ones) at other locations.

Hydro One has committed to undertaking a biodiversity initiative specific to this project to compensate for any potential residual net effects to natural communities or resources that may occur. Hydro One's objective in implementing the biodiversity initiative is to ensure that the proposed project results in no net loss of habitat in the Toronto area and, where possible, achieves a net gain.

The biodiversity initiative will involve the funding of third-party projects or proposals (opportunities) to create new habitat (e.g., by reforesting former agricultural or brownfield sites) or to enhance existing habitat (e.g., through the inventory or control of invasive species). Following completion of the Class EA process, a workshop will be held with interested parties to introduce the biodiversity initiative and explain the process for how opportunities will be selected for funding.

Habitat creation/enhancement opportunities will be solicited in an open call for Letters of Interest (LOIs), which are submissions to Hydro One from potential partners describing the habitat creation/enhancement work that they are seeking funding for. Opportunities/LOIs will be screened to ensure that they meet the objectives of the biodiversity initiative (habitat creation/enhancement) and other mandatory criteria (e.g., suitable ecological objectives, occur on secured lands); opportunities that do not meet these criteria will be excluded from further consideration.

Opportunities that are found to meet the objectives of the biodiversity initiative and the mandatory criteria will be subject to an evaluation process, using an ecological valuation methodology that will be based on past Hydro One biodiversity initiatives as well as additional feedback and input received at the biodiversity initiative workshop. Opportunities will then be sorted according to their ecological score and their estimated cost (dollars per ha, to account for cost-efficiency), and the highest-ranking opportunities will be selected for funding. After this process has been completed, a second biodiversity initiative workshop will be held where the evaluation process and results are presented. It is expected that funding (and the

subsequent commencement of work by the selected partners) would begin as construction on the proposed project is underway.

7.8 Recreational Resources

As indicated in section 3.8, the study area has numerous recreational uses, as a result of the parklands, trails, bicycle trails, waterways, built recreational resources and community gardens located within the study area. It is predicted that some of these recreational resources may be temporarily disturbed during the construction phase, due to the establishment of laydown areas, activities in existing RoWs and the presence of construction equipment and project workers. It is expected that recreational users may face some temporary and intermittent loss of access to and enjoyment of parklands, trails and bicycle trails in particular, that are in the vicinity of construction areas due to public safety considerations. Access to built recreational infrastructure along roadways (e.g., bicycle trail entrances) in the study area may be temporarily reduced due to construction activities. Concerns related to loss of access to recreational resources (particularly parks, including off-leash dog parks and trails) were raised during the consultation program (see section 4). Loss of access is expected to be short-term in nature due to the duration of the construction phase and given that trenching is occurring primarily in built-up areas, rather than areas of recreational use. However, some loss of enjoyment may continue temporarily through the operation phase as wooded areas affected by construction and laydown areas revegetate and return to baseline conditions. To reduce effects on recreational resources and their users, Hydro One will seek to plan construction areas to avoid recreational resources to the extent feasible, and be as unobtrusive as possible (e.g., establishing double-gate trail crossings). Hydro One will engage with the City of Toronto to coordinate the diversion of trails and bicycle networks during construction, to allow for ongoing, safe recreational use in the greater area, where feasible. Clear signage will be erected in the relevant areas, and Hydro One will provide notification/pre-construction information to area residents detailing construction schedules and routes. Anti-climbing devices will be installed as a safety precaution, to protect the public from temporary laydown and construction areas. Where feasible, bikeshare depots will be temporarily relocated should they be overlapped by construction areas. Moreover, construction schedules will seek to avoid peak seasons and times of recreational use (i.e., winter construction and daytime construction) to

the extent feasible. Site restoration (e.g., restoration seeding and planting) will be used, where feasible, to minimize long-term visual and environmental impacts to recreation areas.

7.9 Visual and Aesthetic Resources

Construction of the proposed project will require selective removal of vegetation, the installation of underground cable, the presence of construction workers, and the operation of equipment. The proposed project is located primarily within an urban landscape, and where possible, is aligned with other linear disturbances (i.e., roadways, existing power infrastructure). However, removal of vegetation during construction and installation of underground cables in active urban areas will result in an alteration of viewscapes and visual aesthetics during construction. Hydro One contractors will minimize visual impacts on properties adjacent to the proposed project by maintaining a clean and organized workspace. Hydro One is working closely with the City of Toronto, the TRCA and the local community in order to identify opportunities for site protection and restoration. Where feasible, efforts will be made to preserve mature trees along the proposed project work areas, leaving vegetation screens. Temporary screens will be installed during construction to block views of construction activities, where feasible. Tree removals will follow the City of Toronto permitting processes and include appropriate compensatory plantings, as necessary. This collaborative effort will continue throughout the proposed project to ensure that the loss of trees is minimized, particularly in areas used for recreational purposes. Site restoration (including restoration planting and seeding) will be implemented post-construction.

7.10 Spills

The cable ducts are plastic (polyvinyl chloride) piping encased in concrete and cables are enclosed in a water-impermeable sheath, and the XLPE cables do not contain any insulating oil and therefore do not present a risk of oil contamination during operation. During construction there is the possibility of spills from the unintentional release of oils and fuels from construction vehicles and other equipment. A number of mitigation measures are proposed to reduce the risk of spills and to minimize the effect in the unlikely event that a spill occurs. These measures include:

- Operating properly functioning and well-maintained vehicles and equipment;

- Developing and making available an Emergency Response Plan to govern spill and other emergency response in the unlikely event of occurrence;
- Locating spill cleanup and response equipment on-site and in Hydro One vehicles;
- Training personnel on spill management;
- Should they occur, cleaning up spills as soon as possible and remediating a site after a spill;
- Installing alarms on equipment for early spill detection, where feasible; and,
- Undertaking refueling, lubricating or servicing of construction vehicles and equipment in a designated location near spill cleanup equipment, at least 100 m away from waterbodies.

During any phase of the project, in the event of an accidental spill of any material such as waste oil, fuel, lubricants or other pollutants, spills will be reported, managed and cleaned up in accordance with pertinent legislation and Hydro One procedures.

7.11 Summary of Potential Environmental Effects, Mitigation Measures, and Residual Effects

Table 7-1 provides a summary of potential effects, the associated mitigation, and the residual effects identified for the proposed project.

Table 7-1: Summary of Potential Effects, Mitigation Measures and Residual Effects

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
CULTURAL HERITAGE RESOURCES			
Archaeological Resources	Based on the results of the Stage 1 and Stage 2 archaeological assessments completed by TMHC and TRCA in 2016, no effects are predicted during the construction phase or the maintenance and operation phase.	• If archaeological material is encountered during the course of the project, immediately cease all activities with the potential to affect the archaeological material and engage a licensed archaeologist, as well as the MTCS, the MNCFN, and the TRCA (if on TRCA lands). • In the event that human remains are encountered, Hydro One will immediately stop work in the area and notify the police, the coroner's office, MTCS and the Registrar of Cemeteries.	No long-term adverse effects are predicted.
Cultural Heritage Resources	Based on the Built Heritage Resource Background Review (TMHC, 2015), two built heritage resources (i.e., Leaside Bridge, house on Midburn Avenue) are located within the project study area but are not anticipated to be impacted during the construction phase.	• Suitably plan work proposed in the project study area in a manner that avoids the identified, above ground, cultural heritage resources. • If it becomes apparent that an identified, above ground, cultural heritage resource could be affected by loss, displacement or disruption, undertake further research to identify the specific heritage significance of the affected cultural heritage resource and adopt appropriate mitigation measures where appropriate. • Consult provincial guidelines for advice and undertake further heritage assessment work by a qualified heritage consultant, as necessary.	No long-term adverse effects are predicted.
EFFECTS TO HUMAN SETTLEMENTS			
Nuisance Effects			
Air Quality	Emissions may be generated from vehicles during the construction phase and the maintenance and operation phase. Dust may be generated during construction.	• Maintain equipment used on site to minimize exhaust. • Adhere to Hydro One's Fleet Environmental Program which includes anti-idling requirements and GPS installation in vehicles to optimize routing. • Use effective dust suppression techniques, such as on-site watering and road sweeping, as necessary.	Negligible residual effects are predicted. Residual effects on air quality will be temporary and limited to the construction phase.
Noise	Noise may be generated during the construction phase and the maintenance and operation phase.	• Make sure that noise abatement equipment on machinery is in good working order. • Maintain equipment such that construction and maintenance activities conform to typical noise parameters. • Consider noise when deciding on equipment and construction work methods and schedule. • Take reasonable measures to control construction-related noise near residential areas. • Construction activities will conform to the City of Toronto noise by-law to the extent feasible; local residents and businesses will be informed if activities need to be extended to facilitate their completion. If exemptions to the noise by-law are necessary, the requirements of applicable approvals processes will be met.	Negligible residual effects are predicted. Residual effects on noise will be temporary and limited to the construction phase.
Vibration	Vibration may be generated during the construction phase.	• Consider vibration when selecting equipment, construction work methods and determining work schedules. • Take reasonable measures to control construction-related vibration near residential areas. • All construction shall conform to City of Toronto vibration by-law requirements in By-law 514-2008; local residents and businesses will be informed if activities need to be extended to facilitate their completion.	Negligible residual effects are predicted. Residual effects on vibration will be temporary and limited to the construction phase.
Mud	Mud may accumulate due to activities during the construction phase.	• Remove mud from access roads. • Install mud mats near site exits to loosen and shake off mud, as required. • Wash and maintain vehicles and equipment at work areas, as necessary. • Carry out formal cleanup and site restoration (e.g., restoration planting and seeding).	Residual effects are identified. These effects will be temporary and limited to the construction phase.
Public Safety	Construction sites pose potential safety hazards to local land users and residents due to the operation of heavy equipment during the construction phase. The public may be exposed to typical operation hazards during the maintenance and operation phase.	• Implement the Hydro One Public Safety Policy during construction. • Execute replacement and installation procedures in accordance with applicable codes and regulations. • Sign, fence and lock construction laydown areas where necessary. • Install additional lighting in construction laydown and equipment storage areas to promote safety and security during off-work hours. • Develop the construction schedule in consultation with the City of Toronto's planning staff (including avoidance of major events where feasible) • Select the location of the construction lay-down and access areas with care in order to minimize potential effects on public safety. • Use physical barriers and steel plates to maintain public safety and prevent unauthorized access to work areas. • Discuss construction schedule with the City of Toronto's planning staff. • Halt construction activities during key City events in the vicinity of the proposed project, where feasible. • Provide final construction schedule and site locations to Toronto Police Service, Toronto Fire Service, and Toronto Paramedic Service. • Inform adjacent residents, landowners and commercial establishment operators of project activities prior to construction. • Provide alternative driveway and/or pedestrian entrances for business establishments and municipal facilities, where required.	No residual adverse effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		• Maintain appropriate signage, fencing and locks at stations and junctions and other visible infrastructure. • Continuous monitoring of in-service cable integrity.	
First Nations Lands and Territory	Traditional lands of First Nations communities may be disturbed during the construction phase and the maintenance and operation phase.	• Continue to engage with the MNCFN in the project planning process to provide regular updates. • Identify and avoid geographically defined areas which support current or past traditional use for the harvesting of wildlife or fish, the harvesting of traditional plants, or use as sites of spiritual or cultural significance, to the extent possible. • Undertake Stage 1 and Stage 2 archaeological assessments. • Continue to engage the MNCFN ahead of and during construction to identify and avoid or mitigate effects to resources of importance where possible.	No long-term adverse effects are predicted.
Services and Infrastructure			
Transportation and Traffic	Road traffic may increase in the vicinity of the proposed project due to equipment and materials delivery and worker vehicular traffic during the construction phase. Roadways (e.g., Millwood Road, Lumsden Avenue, Main Street) may need to be temporarily closed or partially closed, causing loss or reduction of street access and access to commercial establishments during the construction phase. Public transportation, public parking and pedestrian traffic may be impeded by project traffic and/or loss of access during the construction phase.	• Construct underground duct banks in sections to reduce traffic disruption. • Design site construction and laydown areas so as to avoid existing road and transit infrastructure, to the extent feasible. • Provide notification and a pre-construction PIC to area residents to present them with information on project timelines and construction areas. • Develop an approved Traffic Management Plan with the City of Toronto. • Erect road signage and provide notification/pre-construction information to adjacent landowners, commercial establishment operators, railway and public transit operators, parking enforcement, and emergency response units on construction schedules and sites. • Assign traffic control officers to assist construction truck entry and exit, where appropriate. • Provide proper training, safety attire and equipment to the traffic control officers. • Provide walkways demarcated by physical barriers to maintain pedestrian access where construction activities block sidewalk access. • Consider timing of alternating street parking periods when locating construction equipment in the study area. • Work with residents to find a solution where regular parking may be disrupted.	Residual effects are identified. These effects will be temporary and limited to the construction phase. Traffic disruption can be mitigated with a variety of proven methods that will be planned in conjunction with City of Toronto staff, although some disruption may still occur.
Water, Wastewater and Waste Services and Infrastructure	Solid and/or liquid waste (e.g., formerly used cable) may be generated during the construction phase.	• Minimize waste produced and segregate and recycle waste where possible. • Test, handle, store, transport and dispose of recyclables and waste at licensed recycling and waste disposal facilities, as applicable, in accordance with applicable legislation.	No residual adverse effects are predicted.
Healthcare, Emergency Medical, Fire Suppression and Protective Services	Demand on local healthcare, emergency medical, fire suppression or protective services may increase during the construction phase In the event of an injury or accident, or as a result of the introduction and presence of a temporary workforce to the neighbourhoods in the study area.	• Hydro One makes worker safety its top priority. All workers and contractors will be qualified and properly trained, with an emphasis on safe work practices. • Contractors will provide basic first aid on-site throughout the construction phase, as required. • Make first aid kits, an eyewash station, spill kits, emergency evacuation/assembly points, and emergency response plans and maps available on-site. • Require all workers to undergo a site orientation including first aid procedures and other health and safety information. • Provide advance notice of the construction schedule, construction activities and a copy of the approved traffic control plan during construction to the City of Toronto's Paramedic Service, Fire Service, and Police Service. • Require employees and their subcontractors to review and adhere to Hydro One's Safety Rules.	No residual adverse effects are predicted. The proposed project will not result in a noticeable increase to the burden on Toronto healthcare, emergency medical, fire suppression or protective services.
Labour Market and Economy	Direct, indirect and induced employment and procurement opportunities may increase as a result of project activities during the construction phase.	• No mitigation measures are required. Effects related to employment and procurement are positive in direction (i.e., a proposed project benefit).	Positive effects are predicted.
	Local commercial establishments may experience reduced business due to loss of pedestrian/road access during the construction phase.	• Continue to communicate project details to nearby commercial landowners and operators. • Maintain access to businesses during working hours, where feasible. Where regular access cannot be maintained, alternate access and signage will be provided. • Provide walkways demarcated by physical barriers to maintain pedestrian access where construction activities block sidewalk access.	Residual effects are identified. These effects will be temporary and limited to the construction phase.
EFFECTS TO NATURAL ENVIRONMENT RESOURCES			
Physical Environment			
Changes in Physiography	Potential changes in physiography as a result of trenching activities during the construction phase.	• Backfill and site restoration following construction.	No long-term adverse effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
Atmospheric Environment			
Emissions from Vehicles and Equipment	Emissions from vehicles and equipment during the construction and maintenance and operation phases.	• Properly service and maintain equipment. • Adherence to Hydro One's Fleet Services Environmental Program which includes anti-idling requirements and GPS installation in vehicles to optimize routing.	Negligible residual effects are predicted. Residual effects on air quality will be temporary and limited to the construction phase.
Particulate Emissions (Dust)	Particulate emissions from vehicles during the construction and maintenance and operation phases.	• Use of effective dust suppression techniques, such as on-site watering and road sweeping, as necessary.	Negligible residual effects are predicted. Residual effects on air quality will be temporary and limited to the construction phase.
Noise	Noise may be generated during the construction phase and the maintenance and operation phase.	• Make sure that noise abatement equipment on machinery is in good working order. • Maintain equipment such that construction and maintenance activities conform to typical noise parameters. • Consider noise when deciding on equipment and construction work methods and schedule. • Take reasonable measures to control construction-related noise near residential areas. • Construction activities will conform to the City of Toronto noise by-law to the extent feasible; local residents and businesses will be informed if activities need to be extended to facilitate their completion. If exemptions to the noise by-law are necessary, the requirements of applicable approvals processes will be met.	Negligible residual effects are predicted. Residual effects on noise will be temporary and limited to the construction phase.
Vibration	Vibration may be generated during the construction phase.	• Consider vibration when selecting equipment, construction work methods and determining work schedules. • Take reasonable measures to control construction-related vibration near residential areas. • All construction shall conform to City of Toronto vibration by-law requirements in By-law 514-2008; local residents and businesses will be informed if activities need to be extended to facilitate their completion.	Negligible residual effects are predicted. Residual effects on vibration will be temporary and limited to the construction phase.
Surface Water Resources			
Increased Runoff Rates and Volumes from Proposed Project Sites	Changes in streamflow and water levels in receiving watercourses during the construction phase and the maintenance and operation phase as a result of changes in land cover.	• Revegetate the new work area (i.e., new underground cable route/duct bank, adjacent access road and temporary laydown areas) to the extent feasible. • Restore the temporary laydown areas to their original condition to the extent feasible.	Negligible residual effects are predicted.
Changes in Flow Conveyance and Hydraulics at Watercourses	Impedance of streamflow and creation of backwater effects as a result of installing temporary watercourse crossings during the construction phase.	• Select an appropriate design rainfall event based on the operating life of the crossing and a level of hydrologic risk consistent with regulatory guidelines and/or good industry practice. • Design the crossing to convey the peak flow for the design rainfall event without constricting streamflow and causing backwater effects in the watercourse. • Install the crossing over a relatively short period of time, during the winter season or a dry period when water conditions are low. • Carry out work in consultation with TRCA and incorporate their feedback into design and construction.	No long-term residual effects are predicted. Residual effects on changes in flow conveyance and hydraulics at watercourses will be temporary and limited to the construction phase.
Discharge of Construction Water (e.g., stormwater runoff and/or groundwater collecting in excavations) from Dewatering Activities	Changes in streamflow and water levels in receiving watercourses during the construction phase.	• Discharge construction water in compliance with the required permits and/or approvals from the MOECC and the City of Toronto. • Discharge construction water to a filter bag, and, in turn, to ground surface (i.e., vegetated area) to reduce the concentration of suspended solids. • Develop appropriate discharge plans prior to construction, as required.	No long-term residual effects are predicted. Residual effects on changes in streamflow and water levels in receiving watercourses will be temporary and limited to the construction phase.
Increased Organic Debris and Sediment Loads in Watercourses	Mobilization and transport of organic debris to nearby watercourses as a result of site preparation and earthworks during the construction phase. Erosion and transport of sediment to nearby watercourses as a result of site preparation, earthworks, and discharge of construction water from dewatering activities during the construction phase.	• Carry out activities in the winter season or dry periods when ground conditions are stable and runoff events are infrequent, where feasible. • Stage work to minimize the extent of exposed and disturbed areas at any given time. • Remove cleared vegetation to designated areas above the high water marks of watercourses. • Stockpile soil and aggregates in designated areas above the high water marks of watercourses. • Develop and execute site-specific erosion and sediment control plans as required. • Minimize equipment operation adjacent to watercourses, where feasible. • Retain vegetation buffers along the banks of watercourses, where feasible. • Carry out work in consultation with the TRCA and incorporate their feedback into design and construction. • Discharge construction water in compliance with the required permits and/or approvals from the MOECC and the City of Toronto. • Discharge construction water to a filter bag, and, in turn, to ground surface (i.e., a vegetated area) to reduce the concentration of suspended solids. • Develop appropriate discharge plans prior to construction, as required. • Contain collected water and conduct testing prior to discharge, as required.	No long-term residual effects are predicted. Residual effects on surface water quality due to increased organic debris and sediment loads in watercourses will be temporary and limited to the construction phase.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
Groundwater Resources			
Potential Contamination of Groundwater due to Soil Disturbance	Disturbance of contaminated soil during the construction phase may contribute to groundwater contamination.	• Sample and analyze excess material that needs to be disposed of off-site to determine its disposal requirements. • Test backfill to ensure that it is acceptable. • Implement soil and groundwater containment and disposal measures, if required.	No long-term adverse effects are predicted.
Reduced Baseflow to Waterbodies and Natural Environment Features	Reduced groundwater contribution to streams and wetland areas due to dewatering activities.	• Trench at shallow depths ranging from 2.0 m to 3.5 mbgs. • Trench sections will be successively backfilled in a timely manner before proceeding to the next segment of the trench.	Negligible residual effects are predicted. Residual effects on baseflow to waterbodies and natural environment features will be temporary and limited to the construction phase.
Removal and Disposal of Groundwater from Dewatering Activities	Potential to encounter groundwater during trench excavation and concrete duct construction. Removal of groundwater may result in temporary lowering of aquifers. Stormwater may also be discharged from excavations during dewatering activities in the construction phase.	• The proposed project will comply with applicable guidelines and legislation, including Provincial Water Quality Objectives, Ontario Drinking Water Standards, Objectives and Guidelines and Ontario Regulation 153/04. • Discharge of water from dewatering activities will be in compliance with required permits and approvals from the MOECC. A PTTW or EASR will be obtained for dewatering greater than 50,000 L/day. • Develop adequate dewatering and discharge plans prior to construction, if required. • Contain collected water and conduct testing prior to disposal, if required.	No long-term adverse effects are predicted.
Increased Groundwater Recharge	Vegetation removal may lead to increased recharge where the modern alluvial deposits are exposed at surface during the construction phase.	• None. Predicted changes will not be discernible.	Negligible residual effects are predicted. Residual effects on increased groundwater recharge will be temporary and limited to the construction phase.
Natural Heritage Features			
Vegetation Impacts	Removal of vegetation within laydown areas and/or the RoW during the construction phase.	• Install tree protection boarding adjacent to vegetation areas to prevent encroachment or damage during construction. • Clearly demarcate limits of vegetation removal. • Develop a detailed construction plan will be developed in consultation with the City of Toronto and the TRCA. • Restrict construction activities to designated work areas and erect protective barriers such as fencing as required. • Use existing access (e.g., trails, bridges) where possible during construction to limit new disturbance within valleylands and pathway corridors. • Restrict access and minimize travel/work areas to maximize retention of compatible vegetation. • Implement sediment and erosion controls per TRCA guidelines. • Selectively cut and retain compatible vegetation to promote regeneration. • Use geotextile and gravel for temporary access, where feasible, to reduce compaction. • Restore compacted areas. • Replant with compatible native species. • Designate and track special treatment areas, such as areas of contaminated soils, imported fill, and invasive vegetation species for future reference during maintenance activities. • Use selective vegetation control methods. • Retain compatible vegetation in constraint areas (e.g., road and watercourse crossings, wetlands, valley lands, significant wildlife habitat and other environmentally sensitive areas). • Implement the biodiversity initiative.	Negligible residual effects are predicted.
Clean-up and Disposal of Cleared Vegetation	Accumulation of cleared vegetation during the construction phase.	• Disposal of all non-salvageable limbs by chipping or removal to designated areas. • Stumps are cut flush with the ground where feasible.	No long-term residual effects are predicted.
Invasive Species	Potential to facilitate the spread of invasive species that occur within or adjacent to work areas during the construction phase.	• Seed and fertilize previously vegetated areas (excluding wetlands) with native seed mix. • Take care to avoid spreading invasive species (especially invasive plant species) that occur in or adjacent to work areas, and crews will be educated on the importance of preventing the spread of invasive species. Hydro One is aware of the draft *Invasive Species Act* regulations which have recently been released for comment, and will abide by any such legislation. • Remove and properly dispose of invasive plant material, where feasible. • Inspect and clean equipment and vehicles as necessary prior to entering/leaving vegetated work areas, to reduce potential for spreading invasive species propagules.	Negligible residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
Fish Habitat, including Spawning Beds	Disturbance to fish habitat as a result of activities (e.g., water crossings, vegetation loss, soil erosion) during the construction phase.	• Avoid watercourse crossings during construction to the extent feasible by using existing access and crossings (e.g., bridges) and by accessing structures from either side of each watercourse, where feasible. • Develop an erosion and sediment control plan, which will include mitigation measures such as constructing access roads during low flow conditions, retaining stream bank vegetation, and storing materials away from water. • Do not permit refueling of vehicles and/or equipment within 100 m of a watercourse to avoid potential spills (e.g., fuel, oil, lubricant) from migrating and entering aquatic features or riparian areas. • Place spill kits at work areas to mitigate the effects of accidental spills or releases, should they occur during construction. • Select appropriate crossing types and acquire necessary permits and approvals prior to crossing construction. Adhere to terms and conditions of permits and approvals. • In-water works will conform to applicable MNRF fish timing windows. • Construct access roads during low water flow conditions, where feasible. • Retain stream bank vegetation as long as possible prior to crossing construction. Retain shrubby bank vegetation where feasible. • Store or stockpile material at least 30 m away from water. • Install sediment traps, silt fences and other mitigation measures as necessary. • Restore disturbed areas to a pre-disturbed state or better, where feasible.	Negligible residual effects are predicted.
Woodlands	Loss of woodlands during the construction phase.	• Take forested land into account when planning the route and off-corridor access. • Conduct a detailed tree inventory (by a certified arborist) to determine the extent of tree removal likely to occur due to construction activities. • Retain, salvage or fell trees as appropriate. • Obtain tree removal permits from the City of Toronto, and undertake compensatory plantings, as required. • Reforest and implement the biodiversity initiative to ensure no long-term net loss of habitat results from the proposed project.	No long-term net loss of habitat is predicted.
SAR Impacts	Disturbance or loss of SAR as a result of habitat loss from activities during the construction phase.	• Avoid SAR and their habitat. • Notify the MNRF and develop a plan to mitigate the impact of the work if avoidance of SAR is not possible. Obtain a permit under the *Endangered Species Act, 2007* if required. • Acquire all necessary permits and approvals from the City of Toronto and MNRF should any Butternut trees require removal. • Make construction personnel aware of the potential presence of, and able to identify, SAR known to occur within the work areas such as Butternut, Chimney Swift and Barn Swallow. • Avoid vegetation removal during the migratory bird breeding season (April 5 to August 31 in nesting zone C2; ECCC 2016b) to the extent feasible. Undertake a non-intrusive breeding bird nest survey (by a qualified avian biologist) if vegetation removal is required during this period. Implement protective measures (e.g., buffers) as described in the general habitat descriptions for these species should nest sites of these species be identified. • Assess the required works to determine the potential for modification of the work, schedule or mitigation measures to avoid potential effects on SAR and their habitat should other SAR or their habitat be encountered during construction activities. Communicate will communicate with the MNRF, and if required, obtain an overall benefit permit if avoidance of SAR is not possible. • Report new SAR observations to the appropriate MNRF District Office as soon as possible and within 24 hours. • Cease work activities if a SAR is harmed or killed as a result of the work being carried out, and the appropriate MNRF District Office will be notified.	No residual effects are predicted.
Disturbance to Wildlife	Disturbance to wildlife during activities in the construction phase.	• Do not harass or harm wildlife during construction. • Avoid site preparation and vegetation removal during the breeding bird season when feasible. Complete a non-intrusive nest survey (by a qualified avian biologist) if vegetation removal is required during the breeding bird season. Buffer any active nests found, as appropriate, until no longer occupied.	Negligible residual effects are predicted.
Habitat, Breeding Grounds and/or Food Sources for Wildlife, as well as Fragmentation	Disturbance (including fragmentation) and loss of habitat, breeding grounds and/or food sources for wildlife due to vegetation removal during the construction phase.	• Avoid tree removal in wooded areas during nesting season where feasible. Conduct a non-intrusive breeding bird survey if clearing is to be undertaken during the breeding season. Protect active nests until the young have fledged. • Retain natural vegetation, where possible. Use native species where seeding or planting is carried out. • Retain snags for wildlife management, where feasible. • Implement the biodiversity initiative.	No long-term net loss of habitat is predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
EFFECTS TO RECREATIONAL RESOURCES			
Recreational Use	Recreational resources (i.e., parklands, trails, bicycle trails and infrastructure) may be disturbed and users may temporarily lose access during the construction phase.	• Plan construction areas (e.g., laydown areas, temporary access roads) to avoid recreational resources, where feasible. • Design the proposed project to be unobtrusive during construction and operation, to the extent feasible (e.g., double-gate trail crossings). • Schedule proposed project work during off-peak seasons, to the extent feasible (i.e., winter construction). • Engage with the City of Toronto to coordinate the diversion of trails and bicycle networks during construction to allow for ongoing safe recreational use, where feasible. • Erect signage and provide notification/pre-construction information to area residents detailing construction schedules and routes. • Implement safety precautions such as anti-climbing devices to protect the public from construction areas. • Schedule work to avoid peak recreational usage periods (i.e., evenings, weekends), where feasible. • Temporarily relocate bikeshare depots overlapping construction areas, where feasible. • Restore sites (e.g., restoration seeding and planting) to minimize long-term visual and environmental impacts to recreation areas, where feasible.	No long-term residual effects are predicted Residual effects on recreational use will be temporary and limited to the construction phase.
EFFECTS TO VISUAL AND AESTHETIC RESOURCES			
Landscape, Aesthetics and Visual Resources	Construction activities in the study area may cause visual disturbance.	• Minimize visual impacts on properties adjacent to the proposed project by maintaining a clean and organized workspace. • Leave vegetation screens where possible. • Follow the City of Toronto tree removal permitting processes and include appropriate compensatory plantings, as necessary. • Install temporary screens during construction to block view of construction activities, where feasible. • Undertake site restoration (e.g., restoration planting) in affected areas of the project study area post-construction. Restore alterations to the landscape associated with construction and temporary facilities. • Continue to work with the City of Toronto, TRCA, and the local community to identify opportunities for site protection and restoration.	Residual effects are identified. These effects will be predominantly temporary and mitigation measures will reduce the magnitude and duration of the impact of the project on this urban area.
SPILLS			
Spills	Incidental spills of waste oil, fuel, lubricants or other liquids may occur during the construction phase or the maintenance and operation phases.	• The cable ducts are plastic (polyvinyl chloride) piping encased in concrete and cables are enclosed in a water-impermeable sheath, and the XLPE cables do not contain any insulating oil and therefore do not present a risk of oil contamination during operation. • Operate properly functioning and well-maintained vehicles and equipment. • Developing and making available an Emergency Response Plan to govern spill and other emergency response in the unlikely event of occurrence. • Locate spill cleanup and response equipment on-site and in Hydro One vehicles. • Train personnel on spill management. • Should they occur, clean up spills and remediate the site as soon as possible. • Install alarms on equipment for early spill detection, where feasible. • Refueling or lubrication of vehicles and equipment will be undertaken in a designated location near spill cleanup equipment and at least 100 m away from waterbodies.	No long-term adverse effects are predicted.

8 Effects Monitoring

The purpose of effects monitoring is to confirm the extent of the project's environmental effects by comparing the actual effects with the predicted effects, to verify the effectiveness of mitigation measures, and to determine whether additional measures are warranted. Monitoring also confirms that the commitments, conditions of approval, where applicable, and compliance with other environmental legislation are met. An Environmental Specialist will be assigned to the project for the duration of construction to monitor construction activities and provide guidance on needed field changes.

As previously noted in section 6, a project-specific Environmental Specification will be prepared following the completion of the Class EA process. The Environmental Specification will:

- Summarize legislative requirements;
- Summarize environmental commitments set out in the ESR, and terms and conditions of approval, if any; and,
- Provide specific directions to construction personnel.

At the end of construction, an as-constructed plan will be prepared to guide ongoing operation and maintenance activities. The plan will document "as constructed" conditions as well as ongoing monitoring requirements, if required.

9 Conclusions

Hydro One is seeking approval under the *EA Act* for the refurbishment of two sections of existing underground 115 kV transmission cable (Circuit H7L/H11L), located in the City of Toronto between Leaside TS and Todmorden JCT (0.8 km) and Lumsden JCT and Main TS (1.5 km).

The proposed project is required to refurbish the aging underground transmission infrastructure to ensure a continued safe and reliable supply of power to Toronto Hydro customers in the area and to minimize the risk of future power interruptions.

Hydro One initially planned to replace and upgrade the overhead shield wire between Todmorden JCT and Lumsden JCT at approximately the same time as the underground cable replacement work. Although this upgrade of the shield wire is not subject to the *EA Act*, it was originally included as part of the Class EA study area and communication strategy due to its close proximity and parallel schedule. This shield wire work has now been postponed and is currently being re-evaluated by Hydro One to determine if there are additional opportunities to combine this work with future refurbishment activities. Subsequently, this ESR is focused on the underground cable replacement portion of this project. First Nations, nearby residents and stakeholders will be notified when more information about this overhead work is available.

The proposed undertaking is described in section 6 including the design, construction, maintenance and operation, as well as the project schedule.

Route options were identified for the underground replacement section between Leaside TS and Todmorden JCT within the study area. The route selection process included two stages. The first stage assessed technically feasible route options based on environmental features, technical and cost factors, and following the recommendations of the PPS (2014). In stage two, the identified feasible route options were compared to each other based on an array of environmental, socio-economic, and technical and cost factors, as well as First Nations interests (criteria). These criteria were largely identified through consultation with First Nations, project stakeholders and the public. After evaluation, route option 2 was identified as the preferred route. No feasible alternate route options were identified for the underground cable replacement section between Lumsden JCT and Main TS. The potential

alternate route options initially considered by Hydro One for this portion of work had technical constraints (e.g., 90-degree turns of the duct bank, which would make cable pulling and maintenance more difficult).

Potential short- and long-term environmental effects were identified and corresponding mitigation measures were developed to address these effects. Based upon the project design and implementation of the proposed mitigation measures, no significant adverse residual effects are expected.

Hydro One has conducted comprehensive consultation regarding the proposed project with municipal and provincial government officials and agencies, First Nations communities, potentially affected and interested persons and interest groups to inform them of the proposed project as well as to identify and resolve potential concerns. The consultation program included PICs, which provided opportunities for interested parties to discuss with and pose questions to the Hydro One project team and complete comment forms; individual meetings with First Nations representatives; meetings with key stakeholders, including municipal meetings and individual face-to-face meetings with business owners to address specific concerns and considerations; community "Power Walks" through the study area for interested residents, led by the project team, to allow for better understanding of the proposed project; and establishment and maintenance of a project website.

The draft ESR was available for federal agencies, municipal and provincial government officials and agencies, First Nations communities, potentially affected and interested persons and interest groups to review for 47 calendar days, from September 29, 2016 to November 14, 2016. Hydro One responded to and made best efforts to resolve issues raised by concerned parties during the review period. Comments received during this period were addressed and are documented in this ESR as required by the Class EA process.

The proposed project will be implemented in full compliance with the requirements of the Class EA process as outlined in this ESR, incorporating input obtained throughout the planning process including the consultation program. Hydro One will obtain the necessary environmental approvals and permits required for the proposed project.

10 References

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