AECOM Imagine it. Delivered.

Appendix B1

Ontario Line Project

Final Environmental Conditions Report – Natural Environment Report

AECOM Imagine it. Delivered.

Metrolinx

Natural Environment Environmental Conditions Report

Ontario Line Project

Prepared by:

AECOM Canada Ltd.
105 Commerce Valley Drive West, 7th Floor
Markham, ON L3T 7W3
Canada

T: 905.886.7022
F: 905.886.9494
www.aecom.com

Date: November 2020

Statement of Qualifications and Limitations

The attached Report (the “Report”) has been prepared by AECOM Canada Ltd. (“AECOM”) for the benefit of the Client (“Client”) in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);
- represents AECOM’s professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM’s professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information (“improper use of the Report”), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2015-04-13
© 2009-2015 AECOM Canada Ltd. All Rights Reserved.

Authors

Report Prepared By:

Olga Hropach, B.Sc. (Hons)
Terrestrial Ecologist

Olivia Butty, B.Sc. (Hons)
Aquatic Ecologist

Report Reviewed By:

Wendy Ott, B.Sc., Dipl. ET., C.E.T.
Senior Environmental Scientist

Nicole Cooke, MES
Senior Environmental Planner,
Impact Assessment and Permitting

Executive Summary

ES.1 Project Overview and Study Purpose

Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line, extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto. AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete an Environmental Conditions Report for the proposed Ontario Line Project (the Project).

The Project is a new approximately 16-kilometre subway line with connections to Line 1 (Yonge-University) subway service at Osgoode and Queen Stations, Line 2 (Bloor-Danforth) subway service at Pape Station, and Line 5 (Eglinton Crosstown) light rail transit service at the future Science Centre Station. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way with a combination of elevated (i.e., above existing rail corridor/roadway), tunnelled (i.e., underground), and at-grade (i.e., at grade with existing rail corridor) segments at various locations.

For the purpose of this Natural Environment Environmental Conditions Report, the Ontario Line Study Area has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station)
- Ontario Line South (from Osgoode Station to Pape Station)
- Ontario Line North (from Pape Station to the Ontario Science Centre).

This Report supports the Environmental Conditions Report prepared for the Project in accordance with Section 4 of Ontario Regulation 341/20: Ontario Line Project. The purpose of this Report is to:

- Document the existing natural heritage features and resources (e.g., designated natural areas, policy areas, vegetation communities, fish and fish habitat, wildlife and wildlife habitat, rare species) within the Study Area;
- Provide an overview of the relevant municipal, regional and provincial policies to natural heritage and how they are applicable to the Project;
- Provide a preliminary description of the potential impacts that the Project might have on the environment that have been identified to date;

- Describe potential measures for mitigating negative impacts; and
- Identify anticipated next steps for Project advancement, including recommendations for further investigations to be completed as part of a future Environmental Impact Assessment Report.

Refer to **Section 1** of this Report for more information related to the Project purpose and detailed Study Area description.

ES.2 Methodology

AECOM has completed a desktop background review of secondary source information and field investigations to establish natural environment existing conditions within the Ontario Line Study Area. Detailed methodology description is provided in **Section 2**.

ES.3 Existing Natural Environment Conditions

Summaries of the existing natural environment conditions for the three segments are provided below.

Ontario Line West:

This Ontario Line West Study Area is heavily urbanized and includes neighbourhoods that are primarily residential and commercial. Natural cover is generally low and is limited to parks and narrow strips within the existing rail corridor. There were no designated natural areas (i.e., Provincially and Locally Significant Wetlands, Areas of Natural and Scientific Interest, unevaluated wetlands and significant woodlands) identified within the limits of this Study Area; however, a small portion (0.2 hectares) of the City of Toronto's Natural Heritage System consisting of a cultural hedgerow is located adjacent to the existing rail corridor within the westernmost limits of the Study Area.

There are no watercourses identified within this Study Area and the Study Area is located outside of the Toronto and Region Conservation Authority's regulation limits. There are also no fish and fish habitat or aquatic Species at Risk present within this Study Area.

Vegetation communities were identified through aerial photography interpretation and field investigations. Most of the vegetation communities were cultural in nature, heavily fragmentated and disturbed.

Despite the limited naturalized areas, there are low-quality habitats present for urban wildlife. Isolated trees, shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for migratory birds protected

under the Migratory Birds Convention Act, 1994. There was no suitable amphibian breeding habitat present within the Study Area due to the absence of standing water and lack of naturalized vegetation communities. A Significant Wildlife Habitat screening has been completed using the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a). Within the Ontario Line West Study Area, there is potential for the following candidate Significant Wildlife Habitat to occur:

- Candidate Bat Maternity Colonies
- Candidate habitat for the following Species of Conservation Concern: Common Nighthawk (*Chordeiles minor*), Eastern Wood-pewee (*Contopus virens*), Peregrine Falcon (*Falco peregrinus*) and Red-headed Woodpecker (*Melanerpes erythrocephalus*).

A Species at Risk habitat screening was also completed based on the collection of recent records (i.e., within the last 20 years) of Species at Risk within the Ontario Line West Study Area from secondary sources. The potential for Species at Risk to occur within the Ontario Line West Study Area was determined by comparing species habitat requirements to the habitat conditions present on-site and using the results of the background information review. The following Species at Risk have a high probability of occurring with the Ontario Line West Study Area:

- Chimney Swift (*Chaetura pelagica*) – Several Chimney Swifts were incidentally observed flying over the Ontario Line West Study Area. Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line West Study Area.
- Barn Swallow (*Hirundo rustica*) – a few Barn Swallows were incidentally observed flying over Garrison Commons.

The following Species at Risk have a medium probability of occurring within the Ontario Line West Study Area:

- Bat Species at Risk including Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Long-eared Myotis (*Myotis septentrionalis*) and Tri-coloured Bat (*Perimyotis subflavus*) – natural roosting habitat (i.e., a treed area) is present, is addition to anthropogenic roosting structures in the form of buildings with potential entry holes may be present within the Ontario Line West Study Area.

- Butternut (*Juglans cinerea*) – this species may occur within the vegetation communities in the Ontario Line West Study Area.

Ontario Line South:

This Study Area is also heavily urbanized and there is limited natural cover providing wildlife habitat in the form of urban parks, residential yards and narrow strips of riparian vegetation along the Don River. There were no designated natural areas (i.e., Provincially Significant Wetlands, Locally Significant Wetlands, Areas of Natural and Scientific Interest, unevaluated wetlands and significant woodlands) identified within the limits of this Study Area; however, areas associated with the Lower Don River Valley fall within the City of Toronto's Natural Heritage System (51.9 hectares within the Study Area) and Ravine and Natural Feature Protection By-law Area (4.4 hectares), as well as Toronto and Region's Conservation Authority's Target Natural Heritage System (2.4 hectares) and regulation limits (77 hectares). The Urban River Valley designation under the Greenbelt Plan occurs along the Don River to its mouth at Lake Ontario (13.8 hectares within the Study Area).

Vegetation communities identified within the Ontario Line South Study Area are largely limited to narrow vegetation strips within the existing rail corridor, which is surrounded by heavily developed commercial, industrial and residential areas. These vegetation communities are heavily disturbed as evidenced by large proportions of non-native and invasive plant species and consist of Mineral Cultural Woodlands (CUW1), Cultural Hedgerows (CUH) and Dry-moist Old Field Cultural Meadows (CUM1-1) (AECOM, 2017; AECOM, 2018; 4Transit, 2018b; HDR 2018; Golder Associates, 2018). None of these vegetation communities are provincially significant. There were no plant species at risk or provincially significant plants identified within the Ontario Line South Study Area; however, there were five regionally and locally rare plants noted.

Previous assessments of the Don River within the Ontario Line South Study Area showed evidence of prior re-alignment to accommodate urban transportation corridor development and was hardened with little natural features present (AECOM, 2017) and slow flowing, turbid water (HDR, 2018; Golder Associates, 2018). It was found that the section of the Don River within the Study Area provides direct fish habitat important for migration, feeding and refuge however conditions are generally non-limiting throughout with no specialized (critically limiting spawning habitat) identified (AECOM, 2017, 4Transit, 2018a). Migratory species, such as Salmon, use the Don River as a seasonal migratory corridor to and from Lake Ontario as no barriers to fish use were identified (AECOM, 2017).

Generally, the Ontario Line South Study Area provides limited wildlife habitat throughout and although the Don River may function as a movement corridor for small to medium

sized urban wildlife, there is low connectivity to significant natural features with many barriers to animal movement (i.e., railways, roads, construction areas and fences). However, it is important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for many migratory birds, which are protected under the Migratory Birds Convention Act. There was no suitable amphibian breeding habitat present within the Study Area due to the absence of standing water and the anthropogenic nature of the Study Area. The following Significant Wildlife Habitat were identified within the Ontario Line South Study Area through the Significant Wildlife Habitat screening:

- Confirmed habitat for Peregrine Falcon at the Sheraton Centre Toronto Hotel located at 123 Queen Street West.
- Confirmed habitat for Northern Map Turtle (Grap*temys geographica*) near the Lower Don River.
- Candidate habitat for the following Species of Conservation Concern: Common Nighthawk, Eastern Wood-pewee, Red-headed Woodpecker, Monarch (*Danaus plexippus*) and Snapping Turtle (*Chelydra serpentina*).

A species at risk habitat screening was also completed based on the collection of recent records (i.e., within the last 20 years) of species at risk within the Ontario Line South Study Area from secondary sources. The potential for species at risk to occur within the Ontario Line South Study Area was determined by comparing species habitat requirements to the habitat conditions present on-site and using the results of the background information review. The following species at risk have a high probability of occurring within the Ontario Line South Study Area:

- Barn Swallow – this species was observed by 4Transit (2018b) to be nesting under the rail bridge crossing the Don River.
- Chimney Swift – there are two confirmed Chimney Swift roosting / nesting sites in the Ontario Line South Study Area. Buildings with suitable chimneys or uncapped smokestacks can provide habitat for Chimney Swift.

The following species at risk have a medium probability of occurring within the Ontario Line South Study Area:

- Bat species at risk – natural roosting habitat (i.e., treed areas) is present, in addition to anthropogenic roosting habitat in the form of buildings with potential entry / exit points that may be present within the Ontario Line South Study Area.
- Butternut – this species may occur within the cultural hedgerows within the existing rail corridor.

The remaining species at risk had low probability of occurrence due to lack of habitat identified within the Ontario Line South Study Area. There were historical Natural Heritage Information Centre records from 1884 and 1926 of Lake Sturgeon (*Acipenser fulvescens*) and Redside Dace (*Clinostomus elongatus*), as well as American Eel (4Transit, 2018a). All of these species are listed as Endangered and receive protection under the Endangered Species Act but are unlikely to still persist within the Don River since they were last recorded more than 20 years ago. There is no critical habitat for Aquatic species at risk in the Don River as confirmed through correspondence with Ministry of Natural Resources and Forestry on January 30, 2018.

Ontario Line North:

Similar to the other segments, the Ontario Line North Study Area is also very urbanized, but it encompasses a portion of the Don River Valley between Eglinton Avenue East and Millwood Road. While the natural environment characteristics/data were obtained for the entire Ontario Line North Study Area, field investigations for the purposes of this Report focused on areas where the Project representative alignment (as presented in the Ontario Line Initial Business Case (2019) crosses the Don River Valley - parallel to Millwood Road (Millwood Road Area of Investigation) and in vicinity of Overlea Boulevard and Don Mills Road (E.T. Seton Park Area of Investigation).

The Candidate Regionally Significant West Don River Valley Life Science Areas of Natural and Scientific Interest, as well as unevaluated wetlands and woodlands are located within the Ontario Line North Study Area; however, there are no Provincially Significant Wetlands or Locally Significant Wetlands. The Don River Valley is a valleyland feature designated as an Urban River Valley under the Greenbelt Plan (of which 21.8 hectares is within the Ontario Line North Study Area). The natural areas within the Don River Valley are part of the City of Toronto's Natural Heritage System (108.2 hectares within the Ontario Line North Study Area) and Ravine and Natural Feature Protection By-law Area (104.8 hectares), as well as Toronto and Region Conservation Authority's Terrestrial Natural Heritage System (80.7 hectares) and regulation limits (109.3 hectares). There is one City of Toronto Environmentally Significant Area within E.T. Seton Park (23.6 hectares within the Study Area), located north of Overlea Boulevard within the Don River Valley, which overlaps a portion of the Candidate Regionally Significant West Don Valley Life Science Areas of Natural and Scientific Interest.

Several vegetation communities within the Ontario Line North Study Area were identified; however, none were provincially significant. A total of five butternuts, a tree Species at Risk protected under the Endangered Species Act, were incidentally recorded during field investigations in forested areas within the Ontario Line North Study

Area within the Don River Valley. It is suspected that two of the identified butternuts are hybrids which may be confirmed through additional DNA testing, if required. No other Species at Risk or provincially significant plants were observed; however, several locally and regionally rare species were noted (refer to **Section 4.3.3** for details).

Fish records collected in the Ontario Line North Study Area indicate that the local fish community is represented by a mix of generally common forage and sport fish that are intermittently tolerant to tolerant of environmental perturbation. Based on the representative reaches assessed, local fish habitat is used for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. As per the Fisheries and Oceans Canada's 2020 Aquatic Species at Risk Map, no habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk that are afforded protection under the Endangered Species Act were identified.

The majority of the wildlife in the City of Toronto are common and tolerant to anthropogenic disturbances, while a small proportion is comprised of sensitive or rare species. The Ontario Line North Study Area provides habitat for many urban wildlife, including migratory breeding bird species protected under the Migratory Birds Convention Act. One bird Species at Risk, Barn Swallow, and one bird Species of Conservation Concern, Eastern Wood-pewee, were recorded during breeding bird surveys in 2019. There was no suitable amphibian breeding habitat within the Millwood Road Area of Investigation due to high noise levels and absence of standing water. The ponds in E.T. Seton Park behind the Ontario Science Centre and associated marshes may provide candidate amphibian breeding habitat.

The following Significant Wildlife Habitat were identified within the Ontario Line North Study Area:

- Confirmed Turtle Wintering Areas
- Confirmed Marsh Bird Breeding Habitat
- Candidate Bat Maternity Colonies
- Candidate Reptile Hibernacula
- Candidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)
- Candidate Landbird Migratory Stopover Area
- Candidate Turtle Nesting Areas
- Confirmed Amphibian Wetland Breeding Habitat
- Candidate Amphibian Movement Corridor

- Confirmed habitat for the following Species of Conservation Concern: Eastern Wood-Pewee, Monarch and Snapping Turtle (*Chelydra serpentina*)
- Candidate habitat for the following Species of Conservation Concern: Western Chorus Frog, Black-crowned Night Heron, Common Nighthawk, Great Egret, Peregrine Falcon, Red-headed Woodpecker, Wood Thrush, Monarch and Northern Map Turtle (*Graptemys geographica*).

A Species at Risk habitat screening was also completed based on the collection of recent records (i.e., within the last 20 years) of Species at Risk within the Ontario Line North Study Area from secondary sources. The potential for Species at Risk to occur within the Study Area was determined by comparing species habitat requirements to the habitat conditions present on-site and using the results of the background information review. The following Species at Risk have a high probability of occurring within the Ontario Line North Study Area:

- Barn Swallow – Several were seen foraging within the Millwood Road Area of Investigation.
- Chimney Swift – Recent records from Toronto and Region Conservation Authority indicate this species foraging within the Millwood Road and E.T. Seton Park Areas of Investigation, suggesting that they may be nesting nearby. Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line North Study Area.
- Butternut – A total of five butternuts were identified within the Ontario Line North Study Area, including two in the Millwood Road Area of Investigation and three in the E.T. Seton Park Area of Investigation with varying degrees of evidence of butternut canker (*Ophiognomonia clavigignenti-juglandacearum*).

The following Species at Risk have a medium probability of occurring within the Ontario Line North Study Area:

- Bank Swallow – There were four separate locations where several burrows (ranging from 6 to 30) were observed at each location in the vertical eroded banks of the Don River; two sites (Location 1 and 3) were in the Millwood Road Area of Investigation and the other two sites (Location 2 and 4) were in the E.T. Seton Park Area of Investigation.
- Bat Species at Risk – Natural roosting habitat (i.e., treed areas) is present, in addition to anthropogenic roosting habitat in the form of buildings with potential entry / exit points that may be present within the Ontario Line North Study Area.

The remaining Species at Risk had low probability of occurrence due to lack of habitat identified within the Ontario Line North Study Area. There were historical Natural Heritage Information Centre records from 1884 and 1926 of Lake Sturgeon (*Acipenser fulvescens*) and Redside Dace (*Clinostomus elongatus*), as well as American Eel (4Transit, 2018a). All of these species are listed as Endangered and receive protection under the Endangered Species Act but are unlikely to still persist within the Don River system since they were last recorded more than 20 years ago. There is no critical habitat for Aquatic Species at Risk in the Don River West Branch as confirmed through correspondence with the Ministry of Natural Resources and Forestry on January 30, 2018.

ES.4 Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities

Preliminary potential impacts, mitigation measures, and monitoring activities are discussed in **Section 5** of this Report. Project-specific effects, mitigation measures, and monitoring activities will be determined as part of the Environmental Impact Assessment and/or Early Works reports, as per Sections 8 and 15 of Ontario Regulation 341/20: Ontario Line Project, respectively.

ES.5 Future Studies

Future studies to be completed for specific alignment(s) / footprint(s) as the project planning and design advance in support of the Environmental Impact Assessment Report are anticipated to include, but are not limited to, the following, as required (refer to **Section 6** for more details):

- Additional Ecological Land Classification surveys and plant inventories.
- Additional breeding bird, species-specific Species at Risk surveys and/or surveys to confirm candidate Significant Wildlife Habitat.
- Additional fish and fish habitat surveys at the proposed Project water crossing site(s).
- Updated Species at Risk habitat screening.

Furthermore, the following surveys/studies may be completed prior to construction, as required:

- Nest checks for Migratory Birds Convention Act protected birds for any structures anticipated to be modified, disturbed or replaced to facilitate the construction of the Project.

- Assessment of potential impacts on fish and fish habitat in support of a Fisheries and Oceans Canada Request for Review if work is proposed within 30 metres of the High Water Mark (HWM) of the Don River (in the Ontario Line South and Ontario Line North Study Areas).
- Tree surveys to develop compensation for trees within public and private lands, including those on the boundary of the Metrolinx Row and public or private lands, will follow the requirements of applicable by-laws and regulations, as per the Metrolinx's Vegetation Guideline (2020).
- Assessment of buildings proposed to be demolished which may support Species at Risk and Species of Conservation Concern anthropogenic habitat.
- Species-specific surveys targeting presence or absence of Species at Risk in order to support required authorizations under the Endangered Species Act.
- If dewatering activities are proposed, the need for a dewatering zone of influence assessment should be confirmed in order to identify potentially affected natural heritage features (e.g., wetlands).

ES.6 Permits and Approvals

The following permits and approvals may be required (refer to **Section 7** for more details):

- Authorizations under the Endangered Species Act legislation may be required if the Project adversely affects Species at Risk.
- Authorization under the Fisheries Act may be required if it is determined that Project works will result in death of fish and / or harmful alteration, disruption or destruction of fish habitat.
- No authorizations under the Species at Risk Act, 2002 or Migratory Birds Convention Act are anticipated.

Table of Contents

page

List of Tables

Appendices

1. Introduction

1.1 Project Overview

Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line, extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto. AECOM Canada Limited was retained by Metrolinx and Infrastructure Ontario to complete an Environmental Conditions Report for the proposed Ontario Line Project (the Project). This Natural Environment Environmental Conditions Report (this Report) is one of several environmental conditions reports prepared for the Project. The purpose of this Report is described in **Section 1.2**.

The Project is a new approximately 16-kilometre subway line with connections to Line 1 (Yonge-University) subway service at Osgoode and Queen Stations, Line 2 (Bloor-Danforth) subway service at Pape Station, and Line 5 (Eglinton Crosstown) light rail transit service at the future Science Centre Station. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way with a combination of elevated (i.e., above existing rail corridor/roadway), tunnelled (i.e., underground), and at-grade (i.e., at grade with existing rail corridor) segments at various locations.

For the purpose of this Report, the Ontario Line Study Area has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station);
- Ontario Line South (from Osgoode Station to Pape Station); and
- Ontario Line North (from Pape Station to the Ontario Science Centre).

The Ontario Line West, Ontario Line South, and Ontario Line North Stud Areas are further described in **Section 1.3** and are shown in **Figure 1-1**, provided in **Appendix A**.

1.2 Purpose of this Report

The purpose of this Report is to:

- Document the existing natural heritage features and resources (e.g., designated natural areas, policy areas, vegetation communities, fish and fish habitat, wildlife and wildlife habitat, rare species) within the Study Area;
- Provide an overview of the relevant municipal, regional and provincial policies to natural heritage and how they are applicable to the Project;
- Provide a preliminary description of the potential impacts that the Project might have on the environment that have been identified to date;
- Describe potential measures for mitigating negative impacts; and
- Identify anticipated next steps for Project advancement, including recommendations for further investigations to be completed as part of a future Environmental Impact Assessment Report.

This Report has been prepared in accordance with Section 4 of Ontario Regulation 341/20: Ontario Line Project and contains the information outlined in **Table 1-1**.

Table 1-1: Report Contents in accordance with Ontario Regulation 341/20: Ontario Line Project

Reg. Section	Requirement	Report Section
Section 4(3)4	A description of the local environmental conditions in the area studied in respect of the Ontario Line Project.	**Section 4**
Section 4(3)6	A preliminary description of the potential impacts that the Ontario Line Project might have on the environment that have been identified to date and an indication of how those impacts will be studied and described in further detail in the environmental impact assessment report.	**Section 5**
Section 4(3)7	A description of any potential measures for mitigating any negative impacts that the Ontario Line Project might have on the environment.	**Section 5**
Section 4(3)8	A description of the future studies that will be carried out as part of the environmental impact assessment report to determine potential impacts to the environment caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them.	**Section 6**
Section 4(3)9	A preliminary list of the potential municipal, provincial, federal or other approvals or permits that may be required for the Ontario Line Project.	**Section 7**

1.3 Study Area

The Ontario Line Study Area was established based on the representative alignment shown in the Ontario Line Initial Business Case (Metrolinx and Infrastructure Ontario, 2019), where a buffer was applied to the alignment to delineate a sufficiently sized area to comprehensively characterize existing environmental conditions and allow for flexibility to advance project planning and design.

For readability and for the purposes of the discipline-specific existing environmental conditions reports, the Ontario Line Study Area has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station);
- Ontario Line South (from Osgoode Station to Pape Station); and
- Ontario Line North (from Pape Station to the Ontario Science Centre).

1.3.1 Ontario Line West

The Ontario Line West Study Area approximate boundaries are Dufferin Street in the west, Osgoode Station in the east, Queen Street West in the north, and the Gardiner Expressway in the south. The Ontario Line West Study Area is shown in **Figure 1-1A** in **Appendix A**.

1.3.2 Ontario Line South

The Ontario Line South Study Area approximate boundaries are Osgoode Station in the west, Pape Avenue in the east, Pape Station in the north, and the Toronto waterfront and Lakeshore Boulevard East in the south. The Ontario Line South Study Area is shown in **Figure 1-1B** in **Appendix A**.

1.3.3 Ontario Line North

The Ontario Line North Study Area approximate boundaries are the Canadian Pacific rail tracks in the west, Don Mills Road in the east, Pape Station in the south, and Barber Greene Road / Green Belt Drive (north of Eglinton Avenue East) in the north. The Ontario Line North Study Area is shown in **Figure 1-1C** in **Appendix A**.

2. Methodology

2.1 Background Information Review

For the purpose of the preliminary environmental background information review, terrestrial and aquatic features and functions were identified within the boundaries of the Ontario Line Study Area as shown in **Figure 1-1** in **Appendix A** via desktop review of available secondary sources. The following sources were used to conduct the background information review:

- Ministry of Natural Resources and Forestry's Ontario GeoHub base mapping data (2020a) for:
  - Designated natural areas (e.g., Areas of Natural and Scientific Interest [Areas of Natural and Scientific Interest], wooded areas, Provincially Significant Wetlands/Locally Significant Wetland/ unevaluated wetlands, provincial parks);
  - Wildlife habitats;
  - Aquatic Resources Areas; and
  - Natural Heritage Information Centre provincially tracked species.
- Wildlife atlases:
  - Ontario Butterfly Atlas Online (McNaughton et al., 2019);
  - Ontario Breeding Bird Atlas Website (BSC et al., 2006);
  - Ontario Reptile and Amphibian Atlas Online (Ontario Nature, 2020);
  - Atlas of the Mammals of Ontario (Dobbyn, 1994);
  - Bat Conservation International Species Profiles (2020); and
  - Fisheries and Oceans Canada Aquatic Species at Risk map (2020).
- Planning documents and guidelines:
  - Natural Heritage Information Request Guide (Ministry of Natural Resources and Forestry, 2018);
  - Significant Wildlife Habitat Technical Guide (Ministry of Natural Resources and Forestry, 2000);
  - Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a);
  - Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement – Second Edition (Ministry of Natural Resources and Forestry, 2010);

  - City of Toronto Interactive Mapping Version 2 (2020a); and
  - City of Toronto Official Plan (2019).

- Previously Completed Environment Project Reports under the Transit Projects Assessment Process (Transit Project Assessment Process; O. Reg. 231/08) in the Ontario Line South Study Area:
  - Relief Line South Environmental Project Report (HDR, 2018);
  - Natural Environment Existing Conditions – Relief Line South (Golder Associates, 2018);
  - Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018);
  - GO Transit Rail Network Electrification EA Natural Environment Baseline Conditions Report (Morrison-Hershfield, 2017);
  - East Harbour SmartTrack Station Environmental Project Report (4Transit, 2018a); and
  - Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project Environmental Project Report (AECOM, 2017).
- Other Reports:
  - Environmentally Significant Areas in the City of Toronto (North-South Environmental Inc. et al., 2012)
  - Review of Provincially Significant Wetlands in the City of Toronto (North-South Environmental Inc. and Dougan & Associates, 2009)
  - Migratory Birds in the City of Toronto – A Literature Review and Data Assessment Final Report (Dougan & Associates and North-South Environmental Inc., 2009).
- Open Data Portals:
  - City of Toronto Open Data Portal (2020b)
  - Toronto and Region Conservation Authority Open Data Portal (2020a).
- Aerial Photography.

2.1.1 Agency Correspondence

As of June 29, 2019, the Ministry of Environment, Conservation and Parks assumed responsibility for the Endangered Species Act, 2007, which was formerly the responsibility of Ministry of Natural Resources and Forestry. It is both Ministry of Environment, Conservation and Park's and Ministry of Natural Resources and Forestry's current direction for proponents to conduct a desktop screening for Species at Risk and natural heritage records using online secondary sources. Therefore,

information requests were not sent to Ministry of Environment, Conservation and Parks or Ministry of Natural Resources and Forestry again in 2020 (given that Species at Risk records could be obtained from online sources).

AECOM Ecologists submitted data requests in 2018 on behalf of Metrolinx to the Ministry of Natural Resources and Forestry and Toronto and Region Conservation Authority in order to obtain supplementary natural heritage information not publicly available (e.g., Areas of Natural and Scientific Interest, wetlands, vegetation communities, flora and fauna records, Species at Risk records and watercourses) for the Ontario Line North Study Area (at that time, a portion of it overlapped with the study area of the Relief Line North Project, for which this request was made). AECOM requested herpetofauna records from Ontario Nature for the Ontario Line Study Area on March 20, 2020 and received a response to our data request on May 19, 2020.

Ecological Land Classification mapping for the Ontario Line Study Area was downloaded from Toronto and Region Conservation Authority's open data portal in 2019. Additional natural heritage data such as flora and fauna records and updated regulation limits were requested from Toronto and Region Conservation Authority on December 19, 2019, as this information was not available on Toronto and Region Conservation Authority's open data portal and the information received from Toronto and Region Conservation Authority from 2018 did not cover the remainder of the Ontario Line Study Area. Requested data from Toronto and Region Conservation Authority were received on January 13, 2020. **Table 2-1** provides a summary of agency correspondence for the Ontario Line Study Area. The information provided by agencies was incorporated and summarized throughout the Report.

Table 2-1: Summary of Agency Correspondence for the Ontario Line Study Area

Agency	Information Request Sent	Date Received	Information Received
Ministry of Natural Resources and Forestry Aurora District Office	January 17, 2018	January 30, 2018	Ministry of Natural Resources and Forestry confirmed Natural Heritage Information Centre rare species list and potential for bat Species at Risk to occur in Relief Line North Area of Investigation. Ministry of Natural Resources and Forestry confirmed that there is no occupied habitat for aquatic Species at Risk.

Agency	Information Request Sent	Date Received	Information Received
Toronto and Region Conservation Authority	January 17, 2018	February 27, 2018	Toronto and Region Conservation Authority provided shapefiles for requested natural heritage information including, Ecological Land Classification mapping and, flora and fauna records.
Toronto and Region Conservation Authority	December 19, 2019	January 13, 2020	Toronto and Region Conservation Authority provided recently updated regulation limits, and flora and fauna records for the entire Ontario Line Study Area.
Toronto and Region Conservation Authority	December 19, 2020	January 14, 2020	Toronto and Region Conservation Authority provided thermal regime and fish community data for the entire Ontario Line Study Area.
Ontario Nature	March 20, 2020	May 19, 2020	Ontario Nature shared herpetofauna records for the Ontario Line Study Area.

2.2 Field Investigations

2.2.1 Ontario Line West

2.2.1.1 Ecological Land Classification and Plant Inventory

Ecological Land Classification is the provincially accepted standard for classifying vegetation communities in Ontario. This protocol uses a series of six nested levels (Site Region, System, Community Class, Community Series, Ecosite and Vegetation Type) to describe the ecological form and function of a vegetation community in a spatial context, from largest to smallest scale. Vegetation communities within the Ontario Line West Study Area were initially delineated and classified via aerial photography interpretation and were field-verified in June 2020 following the Ecological Land Classification for Southern Ontario – First Approximation and its Applications (Lee *et al.*, 1998). Ecological Land Classification surveys and plant inventories were limited to within the natural areas in the Fort York Historical Site and those identified within the existing rail corridor between Dufferin Street and Bathurst Street where site access was available and safe. A summary of the results of these investigations can be found in **Section 4.3.1**.

Toronto and Region Conservation Authority's local ranks for flora were used to identify species that are regionally rare within Toronto and Region Conservation Authority

jurisdiction based on ecological criteria collected by Toronto and Region Conservation Authority and other agencies (Toronto and Region Conservation Authority, 2020a). Species with local ranks of L1 to L3 are considered by Toronto and Region Conservation Authority to be Regional Species of Conservation Concern and are flagged as being at risk and highly sensitive to habitat loss due to changing landscapes within the entire Toronto and Region Conservation Authority jurisdiction over the long term even though some species may not be currently rare now (Toronto and Region Conservation Authority, 2020a).

2.2.1.2 Aquatic Site Reconnaissance

Aquatic site reconnaissance surveys were not completed as no water features were identified within the Ontario Line West Study Area. A summary of the results of these investigations can be found in **Section 4.4.1**.

2.2.1.3 Incidental Wildlife Observations

Wildlife incidentally encountered, including any Species at Risk or Species of Conservation Concern, during the 2020 spring field investigations via direct observation or incidental evidence (e.g., scat, trails and tracks) were also documented. The species identification, Global Positioning System co-ordinates and general habitat conditions of any Species at Risk or Species of Conservation Concern incidentally observed during field investigations were documented, if encountered. Wildlife surveys, such as breeding bird surveys or amphibian night call surveys, were not completed as there was limited wildlife habitat potential given the urban surroundings and there were sufficient wildlife records available from secondary sources. Fauna records received from the Toronto and Region Conservation Authority were reviewed to identify any Species at Risk or Species of Conservation Concern known to occur within the Ontario Line West Study Area. A summary of these results can be found in **Section 4.5.1**.

2.2.2 Ontario Line South

2.2.2.1 Ecological Land Classification Confirmation

Ecological Land Classification surveys were undertaken in 2016 and 2017 as part of the field investigations for the Relief Line South, Union Station Rail Corridor, East Harbour SmartTrack Station and Lakeshore East Projects within portions of the Ontario Line South Study Area. Survey results were not considered to be outdated as vegetation communities were unlikely to have changed in species composition. Therefore, additional Ecological Land Classification surveys and plant inventories were not

completed for the limited natural areas present within the Ontario Line South Study Area as there was sufficient data coverage from other projects now. Survey results documented in the Relief Line South, Union Station Rail Corridor and Lakeshore East Environmental Project Reports were reviewed and summarized to provide the Ecological Land Classification community descriptions within the Ontario Line South Study Area. Toronto and Region Conservation Authority's local ranking system for flora was used to identify Regional Species of Conservation Concern within Toronto and Region Conservation Authority's jurisdiction as described in **Section 2.2.1.1**. A summary of these investigations can be found in **Section 4.3.2**.

Of note, there has been recent development in the Lower Don Lands which may have resulted in changes to or loss of the vegetation communities identified and mapped as part of the Union Station Rail Corridor Project due to vegetation removal as part of adjacent and ongoing projects in that area. For this reason, a site reconnaissance was completed on October 18, 2019 to confirm presence / boundaries of vegetation communities in the Lower Don Lands.

2.2.2.2 Aquatic Site Reconnaissance

Aquatic site reconnaissance surveys were not completed as the only water feature within the Ontario Line South Study Area is the Don River which has been previously assessed through the previously completed Environmental Project Reports. Therefore, fish habitat assessment of the Don River reach in the Ontario Line South Study Area was limited to a background review of the available information collected in support of the Relief Line South, Union Station Rail Corridor and Lakeshore East Environmental Project Reports. A summary of these results can be found in **Section 4.4.2**.

2.2.2.3 Incidental Wildlife Observations

Wildlife surveys, such as breeding bird surveys or amphibian night call surveys, were not conducted as there were sufficient wildlife records available from secondary sources and field investigations completed in 2016 and 2017 for the Relief Line South, Union Station Rail Corridor and Lakeshore East Environmental Project Reports. Fauna records received from Toronto and Region Conservation Authority were also reviewed to identify Species at Risk or Species of Conservation Concern known to occur within the Ontario Line South Study Area. A summary of these results can be found in **Section 4.5.2**.

2.2.3 Ontario Line North

The Ontario Line North Study Area contains two natural valleyland areas associated with the Don River. For the purposes of reporting field results within these two natural area systems, the following two sub-areas of investigation have been identified with the Ontario Line North Study Area (refer to **Figure 1-1A** in **Appendix A** for locations):

- Millwood Road Area of Investigation; and
- E.T. Seton Park Area of Investigation.

The remainder of the Ontario Line North Study Area included developed residential and commercial areas with vegetation limited to streetscapes (e.g., street trees, City parks, manicured lawns), which did not warrant in-field investigations in these developed areas.

2.2.3.1 Ecological Land Classification and Plant Inventory

Ecological Land Classification and plant inventory were derived from Toronto and Region Conservation Authority database, aerial photography interpretation, and field investigations in accordance with the Ecological Land Classification for Southern Ontario – First Approximation and its Applications (Lee *et al.*, 1998) to identify and map vegetation communities in identified data gaps (i.e., missing Ecological Land Classification or outdated Ecological Land Classification mapping from Toronto and Region Conservation Authority). Field-verifications were limited to within natural areas, which were defined as naturally vegetated areas greater than 0.5 hectares in size and did not include mowed lawns, manicured municipal parks or streetscapes, and where site access was available and safe.

Field investigations were focused on the Millwood Road Area of Investigation and E.T. Seton Park Area of Investigation where the Ontario Line North representative alignment segment passes through natural areas. The remainder of the Ontario Line North Study Area contained developed urban areas with vegetation limited to streetscapes (e.g., mowed lawns, street trees, municipal parks) that were not investigated in the field due to lack of natural areas. The following subsections detail the Ecological Land Classification methods completed at each area of investigation. A summary of these investigations can be found in **Section 4.3.3**.

<u>Millwood Road Area of Investigation</u>

Ecological Land Classification surveys were completed during the peak growing season on June 19 and July 2 and 9, 2019 in publicly accessible areas and where permission to enter private property was granted. Vegetation communities within the Millwood Road Area of Investigation were classified and delineated through a combination of aerial

photograph interpretation and field examination, in accordance with the protocol for the Ecological Land Classification for Southern Ontario (Lee et al., 1998). Vegetation communities were classified to the lowest level possible (i.e., Vegetation Type or Ecosite), based on the stand structure and species composition, which included noting species dominance within each vegetation layer. Vegetation community boundaries were delineated on maps in the field, which were then digitized by a GIS Analyst. Wetland communities were identified and delineated using the Ecological Land Classification protocol where the ground flora cover consisted of 50% wetland indicator plants (Ministry of Natural Resources and Forestry, 2014). Evaluation of wetland communities following the Ontario Wetland Evaluation System (Ministry of Natural Resources and Forestry, 2014) were not completed. A summary of observed disturbance factors, community conditions, and representative photographs were recorded for each vegetation community. In addition, a vascular plant inventory was also completed for each type of vegetation community; these inventories provide a representative record of vascular plants present onsite. Inventories were used to determine the rarity of species and calculate metrics such as species diversity and percent of non-native and invasive plants. Toronto and Region Conservation Authority's local ranking system for flora was used to identify Regional Species of Conservation Concern within Toronto and Region Conservation Authority's jurisdiction as described in **Section 2.2.1.1**. GPS co-ordinates of Species at Risk plants were recorded, wherever encountered.

E.T. Seton Park Area of Investigation

Although Ecological Land Classification mapping for the E.T. Seton Park Area of Investigation was available from Toronto and Region Conservation Authority, the Ecological Land Classification data collected by Toronto and Region Conservation Authority within this area date to 2004 and were therefore considered to be outdated (i.e., more than 10 years old); vegetation community classifications and delineations may have changed due to natural ecological succession and / or urban development since 2004. For this reason, AECOM completed a confirmatory Ecological Land Classification survey from June 1 to 4, 2020 to confirm or refine Toronto and Region Conservation Authority's Ecological Land Classification delineations using the same methods described above for the Millwood Road Area of Investigation. Areas within 50 metres to 100 metres of the Ontario Line North representative alignments and other Project components were verified through AECOM's confirmatory Ecological Land Classification surveys in June 2020 to either confirm or update Toronto and Region Conservation Authority's existing Ecological Land Classification data. Where areas could not be assessed due to safety concerns (e.g., steep hills) or other accessibility restrictions, all species and site conditions that were visible through the use of binoculars from accessible lands (e.g., roadside and fence lines) were documented.

2.2.3.2 Aquatic Site Reconnaissance

Similar to the Ecological Land Classification and plant inventory field investigations, aquatic site reconnaissance within Ontario Line North was focused on the Millwood Road Area of Investigation and E.T. Seton Park Area of Investigation where the Ontario Line North representative alignment segment passes through natural areas. Methods for conducting aquatic site reconnaissance at each of the Areas of Investigation are described in the following subsections. A summary of these results can be found in **Section 4.4.3.**

Millwood Road Area of Investigation

Fish habitat assessments were completed on July 2, 2019 for the Don River within the Millwood Road Area of Investigation (see **Figure 4-4B**) using a modified Ministry of Transportation protocol (Environmental Guide for Fish and Fish Habitat, Ministry of Transportation of Ontario, 2006) that focused on visual observations of various habitat features to identify sensitive habitat and factors that influence fish habitat composition. Photographs of representative aquatic habitats were taken and compiled into a photographic log. These features include but may not necessarily be limited to:

- Instream cover;
- Flow characteristics;
- Bank characteristics and stability;
- Substrate composition;
- Stream morphology;
- Barriers to fish movement;
- Disturbances and past habitat alterations (e.g., channelization, pollutant point sources);
- Canopy cover;
- Aquatic vegetation;
- Riparian vegetation; and
- Groundwater indicators (e.g., iron staining).

Documentation of these features was completed to identify habitat classified as critical under the Species at Risk Act (i.e. habitat vital to the survival or recovery of a species) and specialized habitat within the assessed reaches such as spawning, nursery, feeding and migratory habitat. As Project planning and design advance, the identification of critical and/or specialized habitat is necessary to determine the proposed Project's

potential impacts to fish and fish habitat, develop mitigation measures to minimize effects of the Project to fish and fish habitat, and inform the anticipated constraints and/or permitting expectations for the Project.

Fish community surveys were not conducted as there were sufficient existing fish community records available in secondary sources of information.

E.T. Seton Park Area of Investigation

Fish habitat assessments following the same methods as described above for the Millwood Road Area of Investigation were completed on October 18, 2019 at the Don River West Branch within the E.T. Seton Park Area of Investigation (see **Figure 4-4B**) from accessible points along the Lower Don Recreational Trail.

An unnamed pond in E.T. Seton Park connecting to the Don River West Branch approximately 760 metres upstream of Overlea Boulevard was excluded from the local fish habitat conditions assessment completed within the E.T. Seton Park Area of Investigation.

Subsequent surveys are to be conducted for specific alignment crossings locations once those are confirmed following the advancement of project planning and detailed design and will be captured in the forthcoming Environmental Impact Assessment Report.

2.2.3.3 Breeding Bird Surveys

Millwood Road Area of Investigation

Breeding bird surveys following Bird Studies Canada protocols were undertaken by a qualified Avian Biologist on June 19 and July 2, 2019. A total of eight BBS Point Count Stations were visited on two occasions between 5:30 am and 11:00 am, when weather conditions were suitable (e.g., no precipitation and low wind). During each visit, a qualified Avian Biologist observed and recorded bird species within a 150 metres radius of each BBS Point Count Station for ten minutes. Breeding evidence as defined in the Ontario Breeding Bird Atlas Guide for Participants (BSC, 2001) was recorded. Weather conditions including temperature, sky conditions and wind speed were also recorded during each visit.

A list of breeding birds recorded within the Millwood Road Area of Investigation was compiled and analyzed for any bird Species at Risk and Species of Conservation Concern. The under-structure of the Millwood Road Overpass Bridge was examined from the ground level for evidence of bird nests using binoculars. A summary of these results can be found in **Section 4.5.3**.

E.T. Seton Park Area of Investigation

Breeding bird surveys were not completed at the E.T. Seton Park Area of Investigation because there were sufficient breeding bird records available from secondary sources, such as the Ontario Breeding Bird Atlas (BSC *et al.*, 2006).

2.2.3.4 Nocturnal Amphibian Breeding Call Surveys

Millwood Road Area of Investigation

A nocturnal amphibian breeding call survey was completed by a qualified Biologist on April 24, 2019 at Monitoring Station 1 within the Millwood Road Area of Investigation where a potential marsh was identified via aerial photography interpretation. Nocturnal amphibian breeding call surveys were conducted by a qualified Biologist following the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (BSC *et al.,* 2009). The survey was conducted between 30 minutes after sunset and midnight during appropriate weather conditions. After waiting one minute upon arrival at a station to allow for amphibians to start calling again after being disturbed, a three-minute listening survey was completed. The estimated distance and direction of calling amphibian species were recorded, along with the weather conditions and Beaufort Wind Speed Codes (refer to **Table 2-2**). Call counts were recorded using the codes established for the Marsh Monitoring Program (Marsh Monitoring Program, 2000). Calling codes are used to categorize the intensity of the calling activity observed; calling codes and associated calling descriptors are presented in **Table 2-3**. The intensity of background noise at each monitoring station was also recorded to further characterize habitat quality. The scale used to categorize background noise is presented in **Table 2-4**. During the first survey, it was determined that subsequent surveys were not necessarily due to lack of suitable habitat present. A summary of these investigations can be found in **Section 4.5.3**.

Table 2-2: Beaufort Wind Speed Codes

Code	Description
0	0 to 2 kilometres per hour (km/h), calm
1	3 to 5 kilometres per hour, light air movement
2	6 to 11 kilometres per hour, slight breeze, can feel on face
3	12 to 19 kilometres per hour, gentle breeze, leaves move on twigs
4	20 to 30 kilometres per hour, moderate breeze, small branches move
5	31 to 38 kilometres per hour, fresh breeze, moderate branches move
6	39 to 49 kilometres per hour, strong breeze, large branches move

Table 2-3: Marsh Monitoring Program Calling Code Descriptors

Code	Description
Code 1	Calling individuals can be counted and calls are not simultaneous. In this instance, exact counts can be made of the number of calling individuals and surveyors are asked to record both the code and their count.
Code 2	Calls of individuals can be distinguished but some calling is simultaneous. Under these conditions, an exact count is not possible or expected but the surveyor should be able to make a reliable estimate of the number of individuals calling. Surveyors are asked to record both the code and their count estimate.
Code 3	A full calling chorus with calls continuous and overlapping. Reliable counts and even estimates are unrealistic at this level of calling intensity and no counts are requested.

Table 2-4: Background Noise Scale

Code	Description
0	No appreciable effect
1	Slight – distant traffic (one car)
2	Moderate – distant traffic (two to five cars)
3	Serious – continuous traffic nearby (six to ten cars)
4	Profound – continuous traffic passing

E.T. Seton Park Area of Investigation

Nocturnal amphibian breeding call surveys were not completed for the E.T. Seton Park Area of Investigation as vernal pools are unlikely to be present due to the slope in the valley. The ponds behind the Ontario Science Centre were not surveyed as these were not anticipated to be affected by the Project and amphibian records were obtained from Ontario Nature, which were used to determine the significance of amphibian breeding habitat in these ponds based on the criteria set out in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a).

2.2.3.5 Incidental Wildlife Observations

Wildlife incidentally encountered, including any Species at Risk or Species of Conservation Concern, during field investigations via direct observation or incidental evidence (e.g., scat, trails and tracks) were documented. The species identification, Global Positioning System co-ordinates and general habitat conditions of any Species at Risk or Species of Conservation Concern incidentally observed during any of the field investigations described above were documented. Fauna records received from Toronto

and Region Conservation Authority were also reviewed to identify Species at Risk or Species of Conservation Concern known to occur within the Ontario Line North Study Area. A summary of these results can be found in **Section 4.5.3**.

2.3 Significant Wildlife Habitat Screening

Concurrent with the field investigations discussed in **Section 2.2**, the Ontario Line West, Ontario Line South, and Ontario Line North Study Areas were assessed for the presence of candidate Significant Wildlife Habitat features (e.g., bat maternity roosting habitat in forested areas and Species of Conservation Concern) using the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) as part of the Significant Wildlife Habitat Technical Guide (Ministry of Natural Resources and Forestry, 2000).

The Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) contain information and criteria for identifying Significant Wildlife Habitat, which are defined as areas that have important ecological features and functions and which support sustainable populations of plants, wildlife and other organisms within this Ecoregion. The Ministry of Natural Resources and Forestry generally categorizes Significant Wildlife Habitat into the following five categories:

- Seasonal Concentration Areas
- Rare Vegetation Communities with a Provincial S-Rank[1] of S1-S3
- Specialized Habitats for Wildlife
- Habitats of Species of Conservation Concern
- Animal Movement Corridors.

Field data such as general habitat conditions and habitat characteristics were collected to identify the presence of Significant Wildlife Habitat within the Ontario Line Study Area based on the habitat criteria identified in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a). Confirmed Significant Wildlife Habitat were identified based on AECOM's field investigations, Toronto and Region Conservation Authority's records and / or other secondary sources. Candidate Significant Wildlife Habitat refer to potential habitats that meet the habitat criteria as defined in the Significant Wildlife Habitat Criteria Schedules

1. The Natural Heritage Information Centre and the NatureServe Network have developed standard methods to evaluate species and plant communities and assign conservation status ranks. S-rank is a sub-national conservation status assigned to a species or plant community within a particular province, territory or state (Ministry of Natural Resources and Forestry, 2019).

for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) but have not been confirmed as significant through additional detailed studies.

According to the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010), which was developed to provide technical guidance for implementing the natural heritage policies of the Provincial Policy Statement, Significant Wildlife Habitat includes the habitat of Species of Conservation Concern, which consist of the following:

- Species with Provincial S-rank assigned by the Natural Heritage Information Centre as S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable)
- Species listed as Special Concern under the Endangered Species Act
- Species identified as nationally Endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada, which are not protected under the Endangered Species Act.

Although Species of Conservation Concern do not receive legal protection under the Endangered Species Act, their habitat is protected under the Provincial Policy Statement and they may also be afforded protection under the Migratory Birds Convention Act or Ontario Fish and Wildlife Conservation Act 1997. A screening for Species of Conservation Concern was completed as per **Section 2.4** below.

Breeding bird and nocturnal amphibian breeding call survey results were used to determine significance of applicable candidate Significant Wildlife Habitat features.

2.4 Species at Risk Habitat Screening

Special consideration was given to identifying any Species at Risk and Species of Conservation Concern within the Ontario Line Study Area. For the purposes of this Report, Species at Risk include species that are listed as Extirpated, Endangered or Threatened on the Species at Risk in Ontario list and receive both individual and habitat protection under the Endangered Species Act. Aquatic Species at Risk also include those that are identified as Extirpated, Endangered or Threatened and afforded protection under both the provincial Endangered Species Act and the federal Species at Risk Act, 2002.

Species at Risk and Species of Conservation Concern with ranges overlapping with, or recent occurrence records (i.e., within the last 20 years) within the Ontario Line Study Area were identified using the sources listed in **Section 2.1**. Species with records greater than 20 years old were considered historical in accordance with the standard Conservation Status Assessment Methodology (NatureServe 2019), which Natural

Heritage Information Centre uses to evaluate a species' S-rank. Species with historical records were deemed unlikely to persist in the general area given the vast urbanization within the City of Toronto and for this reason were not included in the Species at Risk and Species of Conservation Concern screenings.

The potential for Species at Risk and Species of Conservation Concern to occur within the Ontario Line Study Area was determined by comparing species habitat requirements to the habitat conditions present on-site and using the results of the background information review (**Section 2.1**) and results from field investigations described in **Section 2.2**, to apply the following rankings:

- **Low Probability:** neither species nor suitable habitat observed through field investigations but there is a known species record in the general area.
- **Medium Probability:** species not observed; however, potentially suitable habitat identified through investigations and there is a known species record in the general area.
- **High Probability:** good quality Species at Risk habitat identified (e.g., sufficiently large areas of suitable vegetation and presence of key features such as nesting sites), and known species record in the Ontario Line Study Area (either through current or previous field investigations).

3. Planning Policy

3.1 Federal

3.1.1 Species at Risk Act, 2002

The federal Species at Risk Act, 2002 protects and provides recovery strategies for Species at Risk listed as Extirpated, Endangered or Threatened species under Schedule 1. With respect to terrestrial Species at Risk, this legislation applies to federal lands, federally regulated projects or species with critical habitat on non-federal lands in specific circumstances unless they are aquatic species or migratory birds listed on Schedule 1. Critical habitat is identified in recovery strategies or action plants for species listed as Endangered and Threatened under the Species at Risk Act and is defined as habitat that is vital to the survival or recovery of a species. The majority of species listed under Schedule 1 of Species at Risk Act receive habitat protection on non-federal lands under the Endangered Species Act (refer to **Section 3.2.1**). Species that do not receive protection under the Endangered Species Act and do not have critical habitat identified may be afforded protection under other legislation such as the Migratory Bird Convention Act, 1994 (Migratory Birds Convention Act; refer to **Section 3.1.3**). In the case of aquatic Species at Risk, Species at Risk Act provides protection for aquatic species and habitat, including critical habitats, on both federal and non-federal lands.

Species that are listed as Special Concern under Schedule 1 of Species at Risk Act receive management initiatives under Species at Risk Act to prevent them from becoming Endangered and Threatened, but do not receive individual or habitat protection.

Permits are required by those persons/organizations conducting activities that may affect species listed on Schedule 1 of Species at Risk Act, as extirpated, endangered, or threatened and which contravene the Act’s general or critical habitat prohibitions. The Act also contains a prohibition against the damage or destruction of their residences (e.g., nest or den). Under Section 73 of Species at Risk Act, a permit may be issued to engage in an activity affecting a listed wildlife species or any part of its critical habitat or its residences.

3.1.2 Fisheries Act, R.S.C. 1985

On August 28, 2019 the new Fish and Fish Habitat Protection Provisions of the Amended Fisheries Act came into force. Changes to the Act include a return to the policies that were enforced prior to the 2012 amendments, focusing on the following key concepts:

- Protecting all fish and fish habitat (i.e., the focus is no longer on only protecting Commercial, Recreational and Aboriginal fisheries);
- Restoring the previous prohibition against 'harmful alteration, disruption or destruction of fish habitat'; and
- Restoring a prohibition against causing 'the death of a fish by any other means than fishing'.

One of the new Fish and Fish Habitat Protections includes the creation of new Standards and Codes of Practice that will specify procedures, practices or standards in relation to works, undertakings and activities during any phase of their construction, operation, modification, etc. The new Standards and Codes of Practice are anticipated to replace the Operational Statements that were in use prior to the 2012 Fisheries Act amendments. Operational Statements included common works, undertakings and activities around water like Bridge Maintenance, Culvert Maintenance, Maintenance of Riparian Vegetation in Existing Right-of-Way, High-Pressure Directional Drilling, Isolated or Dry Open-Cut Stream Crossing, Punch and Bore Crossings etc. At the time that this Report was being prepared, Fisheries and Oceans Canada had yet to publish any of the new Standards and Codes of Practice and thus they will not be further referenced in this Report.

The Fish and Fish Habitat Protection Program ensures compliance with relevant provisions under the Fisheries Act and Species at Risk Act. The program reviews proposed works, undertakings and activities that may impact fish and fish habitat. If a project is taking place in or near water, the proponent is responsible for understanding project related impacts on fish and fish habitat and applying measures to avoid and/or mitigate impacts (i.e., harmful, alteration, disruption or destruction) to fish and fish habitat. In cases where harmful alteration, disruption or destruction of fish and fish habitat cannot be avoided and/or mitigated, activities take place in a waterbody where Fisheries and Oceans Canada review is not required or the scope of work cannot be covered under a Standard or Code of Practice, proponents are asked to submit a request for review to Fisheries and Oceans Canada.

3.1.3 Migratory Birds Convention Act, 1994

The federal Migratory Birds Convention Act is intended to protect migratory birds, their eggs and their active nests. The Migratory Birds Convention Act prohibits the possession, destruction and harm of migratory birds and / or their active nests and prohibits the release of harmful substances in areas frequented by migratory birds. Environment and Climate Change Canada administers the Act, but numerous other agencies are responsible for consideration of migratory birds under the Migratory Birds Convention Act. Under the Migratory Birds Convention Act, the nesting period for most migratory birds for Nesting Zone C1 that encompasses the Project is from April 1 to August 31, during which vegetation removal is strongly discouraged to avoid contravention of the Migratory Birds Convention Act. However, if vegetation clearing must occur during this timing window, active nest searches may be conducted in simple habitats defined by Environment and Climate Change Canada (2017) as "*often man-made settings with only a few likely nesting spots or small community of migratory birds. Examples of simple habitats include:*

- an urban park consisting mostly of lawns with a few isolated trees;
- a vacant lot with few possible nest sites;
- a previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil, for instance); or
- a structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawks, gulls and others)."

Complex habitat includes woodlands and scrublands where there are many potential nesting areas such that detection of nests, especially nests of cryptic songbirds, would be difficult and not effective (Environment and Climate Change Canada, 2017).

3.2 Provincial

3.2.1 Endangered Species Act, 2007

The provincial Endangered Species Act protects those species listed on the Species at Risk in Ontario List as Extirpated, Endangered or Threatened on provincial crown or private lands. Sections 9 and 10 of the Endangered Species Act prohibit the killing, harassment, capture or taking of living individuals of Species at Risk or damaging or destroying their habitat. Therefore, where a proposed activity will impact protected species or habitat, changes to timing, location and methods of the proposed activity

should be considered, wherever feasible, to avoid impacts to Species at Risk. Where impacts cannot be avoided or mitigated, a permit process can be initiated.

The Act was formerly administered by the Ministry of Natural Resources and Forestry but as of June 29, 2019, the provincial government officially transitioned all duties regarding administration of the Endangered Species Act to the Ministry of Environment, Conservation and Parks. Ministry of Environment, Conservation and Parks may grant a permit, or other authorization, for activities that would otherwise not be allowable under the Act. Several permit types are available, depending on the nature of the proposed work and may include conditions for the activity to meet with aid in protection or recovery of the targeted Species at Risk. Although listed as Species at Risk under the Endangered Species Act, Special Concern species are not afforded species or habitat protection under the Act but receive protection under other Acts such as the Migratory Birds Convention Act, Ontario Fish and Wildlife Conservation Act, 1997, as Significant Wildlife Habitat (refer to **Section 3.2.2**) under the Provincial Policy Statement, 2020 (Provincial Policy Statement), and other planning documents (e.g., municipal official plans).

3.2.2 Provincial Policy Statement, 2020

The Provincial Policy Statement sets the policy framework for regulating development and use of land and is issued under the authority of the Planning Act, 1990. According to Section 2.0 of the Provincial Policy Statement, development and site alteration is not permitted in significant wetlands or coastal wetlands. However, development and site alteration may occur adjacent to significant wetlands and significant coastal wetlands, and in or adjacent to significant woodlands, significant valleylands, Significant Wildlife Habitat, and Areas of Natural and Scientific Interest provided that it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. Section 1.6.8.6 of the Provincial Policy Statement notes that "*when planning for corridors and rights-of-way for significant transportation infrastructure facilities, consideration will be given to the significant resources in Section 2.0: Wise Use and Management of Resources*". If development of significant transportation infrastructure facilities occurs in or adjacent (50 metres or 120 metres) to natural heritage features (e.g., Significant Wildlife Habitat, Areas of Natural and Scientific Interest, Provincially Significant Wetlands, significant woodlands, significant valleylands, fish habitat), Metrolinx must provide consideration to minimize effects, if any, on these features to the extent possible. This Report has been prepared to identify the natural heritage features present within the Ontario Line Study Area through background information review and field investigations for consideration in the Environmental Impact Assessment Report.

3.2.3 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019 (Growth Plan) is a long-term plan for Ontario designed to promote economic growth, increase housing supply, create jobs, and build communities that make life easier, healthier, and more affordable for people of all ages. As one of the most dynamic and fast-growing regions in North America, the Greater Golden Horseshoe is a designation for many people and businesses from other parts of Canada and around the world. To accommodate such growth, an integral part of the Plan's vision is focused on investing in transit infrastructure to support the regional transit network.

The Project is consistent with the relevant policies of the Growth Plan by extending the higher-order transit network into existing residential and employment areas, which optimizes the efficiency and viability of existing and planned transit and help develop more vibrant and complete communities.

The Growth Plan identifies Downtown Toronto as an "urban growth centre" and a "priority transit corridor" (Ministry of Municipal Affairs and Housing, 2019). The Growth Plan notes that urban growth centres will be planned:

a) as focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural, and entertainment uses;
b) to accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit;
c) to serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses; and
d) to accommodate significant population and employment growth.

Each "urban growth centre" is given a minimum density target to achieve by 2031. The minimum density target for Downtown Toronto is 400 residents and jobs combined per hectare. To support these growth and density targets, "priority transit corridors" are identified with policies for infrastructure development, such as requiring municipalities to recognize these areas in their official plans to implement the policies of the Growth Plan.

According to Section 3.2.5 (d), any impacts on key natural heritage features in the Natural Heritage System for the Growth Plan, key hydrological features and key hydrologic areas should be avoided or, if not possible, minimized and mitigated to the extent possible as demonstrated through an environmental assessment completed by the Province when planning for the development, optimization or expansion of existing or planned infrastructure corridors. The Natural Heritage System for the Growth Plan is not mapped for Downtown Toronto; however, the City of Toronto maps its Natural Heritage System in its Official Plan (City of Toronto, 2019).

The Project promotes the Growth Plan's policies by providing Downtown Toronto with improved regional connections that will accommodate the increased population and employment to be achieved by the density targets while minimizing effects on natural heritage and hydrological features.

3.2.4 Greenbelt Plan, 2017

The Greenbelt Plan builds on the Provincial Policy Statement and provides a land use planning framework related to urban structure and future growth in Ontario's Greater Golden Horseshoe while providing protection to the agricultural lands, ecological and hydrological features in the Greenbelt Area (Ministry of Municipal Affairs and Housing, 2017). Within the Ontario Line Study Area, the Don River is designated as an Urban River Valley under the Greenbelt Plan. The Urban River Valley designation provides connectivity between the Greenbelt and Lake Ontario and directs land use planning in those areas where the Greenbelt occupies river valleys in an urban context (Ministry of Municipal Affairs and Housing, 2017). The lands are governed by municipal official plans, such as the City of Toronto Official Plan (2019). All publicly owned lands (i.e., by the Province, municipality or conservation authority) are subject to the policies of the Urban River Valley designation and all existing, expanded or new infrastructure subject to and approved under the *Environmental Assessment Act* (or similar approval) are permitted within the Urban River Valley Designations provided that the goals of the Growth Plan for the Greater Golden Horseshoe and Greenbelt Plan are supported (Ministry of Municipal Affairs and Housing, 2017).

3.2.5 Conservation Authorities Act, 1998

The Ontario Line Study Area falls under the jurisdiction of the Toronto and Region Conservation Authority. Ontario Regulation (O. Reg.) 166/06 under Section 28 of the *Conservation Authorities Act* (1998), establishes regulated areas within Toronto and Region Conservation Authority's jurisdiction where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features.

Metrolinx will engage with the Toronto and Region Conservation Authority as project planning and design advance, including regarding compensation and post-planting monitoring, in support of The Living City Policies for Planning and Development in the Watersheds (Toronto and Region Conservation Authority, 2014).

3.3 Municipal

The City of Toronto Official Plan promotes strong communities and a competitive economy while protecting, restoring or enhancing the natural environment and urban forests (City of Toronto, 2019). A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. Metrolinx, as a Provincial Agency, is not subject to municipal permits and approvals (Metrolinx Act, 2006); however, Metrolinx will endeavour to adhere to the intent of the relevant municipal permits/approvals to the greatest extent possible and shall submit applications for review and information. Metrolinx shall continue to communicate and engage with the City of Toronto during detailed design and construction planning to address municipal concerns.

4. Existing Conditions

4.1 Designated Natural Areas

Designated natural areas include valleylands, Provincially and Locally Significant Wetlands (Provincially Significant Wetlands and Locally Significant Wetland), Areas of Natural and Scientific Interest, significant woodlands, and significant wildlife habitat. According to Section 1.6.8.6 of the Provincial Policy Statement, consideration is to be given to designated natural areas when planning for corridors and rights-of-way for significant transportation and infrastructure facilities. Brief descriptions of the different types of designated natural areas are as follows:

- Valleylands refer to a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year (Ministry of Natural Resources and Forestry, 2010). Significant valleylands are those valleylands that are identified as significant based on a variety of criteria including but not limited to hydrological, geomorphological and ecological function as identified in the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010).
- Provincially Significant Wetlands and Locally Significant Wetland are wetlands that are seasonally or permanently flooded by shallow water, or areas where the water table is close to the surface, enabling the development of hydric soil, which supports primarily hydrophytic or water tolerant plants (Ministry of Natural Resources and Forestry, 2014). Ministry of Natural Resources and Forestry evaluates the significance of wetlands through the Ontario Wetland Evaluation System. Based on the resulting score of an evaluation, an evaluated wetland can fall into one of two classes: Provincially Significant Wetlands or Locally Significant Wetland (Ministry of Natural Resources and Forestry, 2014). Until such a time that an Ontario Wetland Evaluation System evaluation is completed and evaluated by Ministry of Natural Resources and Forestry, unevaluated wetlands should be considered as significant for the purposes of assessing impacts.
- Areas of Natural and Scientific Interest include land and / or water containing natural landscapes or features that have been scientifically identified by Ministry of Natural Resources and Forestry as having life science or earth science values related to protection, scientific study or education (Ministry of Natural Resources and Forestry, 2010). Areas of Natural and Scientific Interest

are designated as earth science (geological) or life science (biological) depending on the features present (Ministry of Natural Resources and Forestry, 2010). “Candidate Areas of Natural and Scientific Interest” are those provincial-level Areas of Natural and Scientific Interest that Ministry of Natural Resources and Forestry has identified and recommended for protection but that have not been formally confirmed through a confirmation procedure (Ministry of Natural Resources and Forestry, 2010). For the purposes of the Provincial Policy Statement, an Areas of Natural and Scientific Interest is not considered provincially significant until it has been confirmed.

- Significant woodlands are those woodlots that are identified as significant in a municipal official plan or those woodlots that have been investigated and meet the criteria of significance as identified in the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010).
- Significant wildlife habitats are areas that have important ecological features and functions which support sustainable populations of plants, wildlife and other organisms as discussed in **Section 2.3.** These are further assessed in **Section 4.6** below.

The following subsections describe the designated natural areas within each segment of the Ontario Line Study Area.

4.1.1 Ontario Line West

According to the Ministry of Natural Resources and Forestry’s GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetland, Areas of Natural and Scientific Interest, valleylands, unevaluated wetlands or woodlands within the Ontario Line West Study Area. The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (2019). Refer to **Section 4.6.1** for a discussion on Significant Wildlife Habitat in the Ontario Line West Study Area.

4.1.2 Ontario Line South

According to the Ministry of Natural Resources and Forestry’s GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetland, valleylands, unevaluated wetlands or woodlands within the Ontario Line South Study Area. The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (2019). The Don River Valley is designated as an Urban River Valley under the Greenbelt Plan. Refer to **Section 4.6.2** for a discussion on Significant Wildlife Habitat in the Ontario Line West Study Area.

4.1.3 Ontario Line North

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetland or provincially significant Areas of Natural and Scientific Interest within the Ontario Line North Study Area. However, there is a candidate regionally significant life science Areas of Natural and Scientific Interest within the E.T. Seton Area of Investigation, as well as unevaluated wetlands and wooded areas within both Areas of Investigation. The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (2019). **Table 4-1** below provides a brief summary of these designated natural areas and **Figure 4-1A** in **Appendix A** shows their locations within the Ontario Line North Study Area. Refer to **Section 4.6.3** for a discussion on Significant Wildlife Habitat in the Ontario Line North Study Area.

Table 4-1: Designated Natural Areas within the Ontario Line North Study Area

Designated Natural Area Type	Name of Feature	Significance Status	Area (ha) within Ontario Line North Study Area
Wetland	Not Applicable	Unevaluated Wetland	5.8
Woodlands	Unknown	Unknown	55.1
Life Science Areas of Natural and Scientific Interest	West Don River Valley	Candidate Regionally Significant	23.5

In addition, the Don River Valley within the Ontario Line North Study Area is a valleyland feature consisting of a continuous natural vegetation corridor with a minimum width of 100 metres and containing over 25% of natural cover, fish habitat and regionally and locally rare species identified within the Candidate Regionally Significant West Don River Valley Life Science Areas of Natural and Scientific Interest and environmentally significant area within E.T. Seton Park, described below in **Section 4.2.3**. Although there was no mapping available from secondary sources identifying the boundaries of this valleyland specifically, the City of Toronto's Natural Heritage System and Ravine and Natural Feature Protection By-law, and Toronto and Region Conservation Authority's regulation limits generally include the extent of the valleyland within the Ontario Line North Study Area as further discussed in **Section 4.2.3**. The Don River Valley is also designated as an Urban River Valley under the Greenbelt Plan.

4.2 Planning Policy Areas

Planning Policy Areas include land use planning designations from provincial plans, upper and lower tier municipal official plans, and conservation authorities as described

in **Section 3** and below. Planning Policy Areas related to the protection of the natural environment that are applicable to the Ontario Line are described below.

- **City of Toronto Natural Heritage System**

  As described in Section 3.4 of the City of Toronto's Official Plan (2019), the Natural Heritage System is comprised of the following features:

  - Significant landforms and physical features
  - Watercourses and hydrological features
  - Valley slopes, riparian zones
  - Terrestrial natural habitat types
  - Significant aquatic features
  - Species of concern and significant biological features that are subject to the Provincial Policy Statement.

  According to the City of Toronto Interactive Map – Environmentally Significant Areas (City of Toronto, 2020a), portions of the Natural Heritage System are located within the Ontario Line Study Area. According to Section 3.4.14 of the City's Official Plan (2019), new or expanding infrastructure should be avoided in the Natural Heritage System unless there is no reasonable alternative, in which case adverse impacts are minimized and natural features and ecological functions are restored or enhance where feasible. In this case, Metrolinx is not subject to City of Toronto permitting requirements within Metrolinx-owned lands but will engage the City as project planning and design advance.

- **City of Toronto Ravine and Natural Feature Protection By-law**

  This By-law is enforced by the City of Toronto and protects natural features that are vulnerable to degradation due to the removal of trees, changes in grade, or lack of management (City of Toronto, 2017).Typically, a permit would be required to conduct any work in a Ravine or Natural Feature area including removing a tree, placing fill, or altering the grade of the land (City of Toronto, 2017). In this case, Metrolinx is not subject to City of Toronto permitting requirements within Metrolinx-owned lands but will engage the City as project planning and design advances. Metrolinx obtains permits on behalf of property owners for cases where trees on private lands are impacted by the Project.

- **Environmentally Significant Areas**

  These are designated by the City of Toronto and form portions of the City's Natural Heritage System and include natural heritage areas that support high

species diversity, habitats for wildlife, including rare species, rare landforms and important ecological function, which require additional protection to conserve their important ecological qualities and functions (North-South Environmental Inc. et al., 2012).

- **Toronto and Region Conservation Authority Terrestrial Natural Heritage System**

  Toronto and Region Conservation Authority has developed the Terrestrial Natural Heritage System to identify natural features and areas that need to be protected and expanded within their jurisdiction in order to protect ecological functions and biodiversity. Valley and stream corridors, wetlands, woodlands and meadows are key components of this target system. Toronto and Region Conservation Authority also sets targets for improving the quality, integrity, quantity and connectivity of terrestrial natural features within the system.

- **Toronto and Region Conservation Authority Regulated Areas**

  Refer to **Section 3.2.5** above.

- **Urban River Valley Designation**

  This designation is provided under the Greenbelt Plan as described in **Section 3.2.4** and applies to the Don River Valley.

A discussion of planning policy areas as they relate to each Study Area is provided in the following sub-sections.

4.2.1 Ontario Line West

According to the City of Toronto's Interactive Map (City of Toronto, 2020a), a small portion (0.2 hectares) of the City's Natural Heritage System falls within the western most limits of the Ontario Line West Study Area west of Dufferin Street along the rail corridor (refer to **Figure 4-2A** in **Appendix A**). There are no other policy areas identified within this Study Area. This Study Area is located outside of Toronto and Region Conservation Authority's regulation limits.

4.2.2 Ontario Line South

According to the City of Toronto's Interactive Map (City of Toronto, 2020a), areas associated with the Lower Don River Valley fall within the City of Toronto's Natural Heritage System (51.9 hectares within the Study Area) and Ravine and Natural Feature

Protection By-law Area (4.4 hectares), as well as Toronto and Region Conservation Authority's Terrestrial Natural Heritage System (2.4 hectares) and regulation limits (77 hectares) as shown in **Figure 4-2B** in **Appendix A**. The Urban River Valley designation under the Greenbelt Plan occurs along the Don River to its mouth at Lake Ontario (13.8 hectares within the Study Area). There are no environmentally significant areas within the Ontario Line South Study Area.

4.2.3 Ontario Line North

According to the City of Toronto Interactive Map (City of Toronto, 2020a), the natural areas within the Don River Valley located in the Ontario Line North Study Area (in both the Millwood Road and E.T. Seton Park Areas of Investigation) are part of the City of Toronto's Natural Heritage System (108.2 hectares within the Study Area) and Ravine and Natural Feature Protection By-law Area (104.8 hectares), as well as Toronto and Region Conservation Authority's Terrestrial Natural Heritage System (80.7 hectares) and regulation limits (109.3 hectares). There is one environmentally significant area within E.T. Seton Park, located north of Overlea Boulevard within the Don River Valley (of which 23.6 hectares falls within the Study Area). The Urban River Valley designation under the Greenbelt Plan occurs along the Don River (21.8 hectares within the Study Area).

The E.T. Seton Park Environmentally Significant Area consists of a mixture of forested, cultural and wetland communities. Wetlands are groundwater-fed and support important water storage functions (North-South Environmental Inc. et al., 2012). There are three significant[2] flora species, two significant fauna species and two significant vegetation communities present (North-South Environmental Inc. et al., 2012). Refer to **Figure 4-2C** in **Appendix A** for locations of policy areas.

4.3 Ecological Land Classification and Plant Inventory

4.3.1 Ontario Line West

The majority of the Ontario Line West Study Area is urbanised and vegetation is limited to streetscapes (e.g., street trees, city parks and manicured lawns). Based on aerial photography interpretation, there are limited vegetation communities present within the Fort York Historic Site and within the Right-of-Way of the existing rail corridor. These vegetation communities were investigated by AECOM in June 2020; the results of which can be found in **Table 4-2** below.

2. Significant as defined in the Environmentally Significant Areas in the City of Toronto (North-South Environmental Inc. et al., 2012) refers to vulnerable, rare, threatened, or endangered within the Province, the City or Greater Toronto Area.

Table 4-2: Ecological Land Classification Vegetation Communities Identified by AECOM in June 2020 within the Ontario Line West Study Area

Ecological Land Classification Community	Ecological Land Classification Descriptor	Ecological Land Classification Code	Ecological Land Classification Name	Tree Canopy	Shrub Layer	Ground Layer	General Location	Comments
Cultural (CU) Communities	**Cultural Hedgerow (CUH)**	CUH	Cultural Hedgerow	Manitoba maple (*Acer negundo*) dominated the canopy along with European ash (*Fraxinus excelsior*) and Siberian elm (*Ulmus pumila).*	The shrub layer contained Manitoba maple and staghorn sumac (*Rhus typhina*).	The ground layer was not noted in this community.	West of Strachan Ave.	
Cultural (CU) Communities	**Cultural Hedgerow (CUH)**	CUH with MAS2 inclusion	Cultural Hedgerow with Mineral Shallow Marsh inclusion	Manitoba maple dominated the canopy along with Siberian elm and tree-of-heaven (*Ailanthus altissima*).	The shrub layer was dominated by Manitoba maple and Scotch elm (*Ulmus glabra*).	The following species were found in the ground layer: garlic mustard (*Alliaria petiolata*), goldenrod species (*Solidago spp.*), yellow avens (*Geum aleppicum*), Philadelphia fleabane (*Erigeron philadelphicus ssp. Philadelphicus)* and thicket creeper (*Parthenocissus inserta*).	North of the rail corridor, from Atlantic Ave. to the western limit of the Ontario Line West Study Area.	
Cultural (CU) Communities	**Cultural Hedgerow (CUH)**	CUH with CUT1a inclusion	Cultural Hedgerow with Manitoba Maple Thicket inclusion	Horse chestnut (*Aesculus hippocastanum*) dominated the canopy along with Siberian elm, Freeman's maple (*Acer freemanii*) and European ash.	The shrub layer was dominated by European ash and Siberian elm.	The following species were found in the ground layer: orchard grass (*Dactylis glomerate*), dame's rocket (*Hesperis matronalis*), garlic mustard, tall goldenrod (*Solidago altissima*), wild carrot (*Daucus carota*), and common burdock (*Arctium minus*).	In Fort York Park, east of Strachan Ave. between the rail corridor and Gardiner Expressway.	
Cultural (CU) Communities	**Cultural Thicket (CUT)**	CUT1	Mineral Cultural Thicket	Manitoba maple, eastern cottonwood (*Populus deltoides ssp. deltoides*) and Siberian elm dominated the canopy layer.	The shrub layer was dominated by Manitoba maple, red-osier dogwood (*Cornus sericea*) and thicket creeper.	The ground layer was not noted in this community.	West of Bathurst St. in Fort York Park.	
Forest (FO) Communities	**Deciduous Forest (FOD)**	FOD4	Dry – Fresh Deciduous Forest Ecosite	Siberian elm, hybrid crack willow (*Salix rubens*), Manitoba maple, Norway maple (*Acer platanoides*) and white ash (*Fraxinus americana*) made up the canopy layer.	The shrub layer was dominated by Manitoba maple, Morrow's honeysuckle (*Lonicera morrowii*) and common buckthorn (*Rhamnus cathartica*).	The following species were found in the ground layer: grass species including Kentucky blue grass (*Poa pratensis*) and orchard grass, garlic mustard, common burdock and dog-strangling vine (*Cynanchum rossicum*).	In Fort York Park, south of the rail corridor and west of Bathurst St.	Patch of Japanese knotweed (*Fallopia japonica*) growing along the trail.

The vegetation communities in the Ontario Line West Study Area were mainly cultural in nature and consisted of Cultural Hedgerows (CUH), Cultural Thickets (CUT1) and a Deciduous Forest (FOD) as shown in **Figure 4-3A** to **Figure 4-3B** in **Appendix A**.

A comprehensive vascular plant list for the Ontario Line West Study Area is provided in **Appendix C**. Of the 72 species documented in the Ontario Line West Study Area, 29 (40%) were native and 43 (60%) were invasive. There were no plant Species at Risk or provincially rare species (S1-S3 rank), however, there were two Regional Species of Conservation Concern plants recorded, which are described in **Table 4-3** below. These Regional Species of Conservation Concern plants are not protected under federal or provincial legislation and therefore Metrolinx is not subject to their protection within their own lands.

Table 4-3: Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded within the Ontario Line West Study Area

Common Name	Scientific Name	Local Rank	Vegetation Community Observed	Source of Record
Slippery elm	*Ulmus rubra*	L3	CUH near Strachan Avenue	AECOM (2020)
Eastern snowberry	*Symphoricarpos albus var. albus*	L3	CUH near Strachan Avenue	AECOM (2020)

Note: Local Rank – Toronto and Region Conservation Authority (2020c). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority within their jurisdiction:
L+: Exotic. Not native to TRCA jurisdiction (includes hybrids between native and exotic species).
L1: Rare in TRCA jurisdiction, of concern regionally.
L2: Probably rare in TRCA jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout TRCA jurisdiction; may be of very localized concern in highly disturbed areas.

4.3.2 Ontario Line South

Vegetation communities identified in the Ontario Line South Study Area were generally disturbed as result of anthropogenic activities and are largely limited to narrow vegetation strips within the existing rail corridor surrounded by heavily developed commercial, industrial and residential areas. These vegetation communities contained large proportions of non-native and invasive plant species and none were identified as being provincially significant (AECOM, 2017; AECOM, 2018; 4Transit, 2018; HDR, 2018; Golder Associates, 2018). Descriptions of vegetation communities and their structural compositions are summarized in **Table 4-4** and mapped in **Figure 4-3C** to **Figure 4-3G** in **Appendix A**.

Table 4-4: Ecological Land Classification Vegetation Communities within the Ontario Line South Study Area – Cultural (CU) Communities

Ecological Land Classification Descriptor	Ecological Land Classification Code	Ecological Land Classification Name	Tree Canopy	Shrub Layer	Ground Layer	General Location	Source
Cultural Meadow (CUM)	CUM1	Dry-moist Old Field Cultural Meadow	No tree canopy layer identified in this community.	No shrub layer identified in this community.	Cultural meadows were identified through interpretation of aerial imagery. These communities were generally dominated by grasses, weeds, and other herbaceous species.	West of the Don River	Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018)
Cultural Meadow (CUM)	CUM1-1	Dry-moist Old Field Cultural Meadow	No tree canopy layer identified in this community.	No shrub layer identified in this community.	Greater than 60% ground cover primarily dominated by dog strangling vine, garlic mustard, white sweet-clover (*Melilotus alba*), Canada goldenrod (*Solidago canadensis*), tall goldenrod, thicket creeper and wild carrot.	East of the Don River	Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017)
Cultural Meadow (CUM)	CUM1-A	Native Forb Meadow	Less than 10% tree cover consisting of Russian olive (*Elaeagnus angustifolia*).	No shrub layer identified in this community.	Greater than 60% ground cover primarily dominated by goldenrods, grasses and Canada thistle (*Cirsium arvense*).	West of the Don River underneath the Don Valley Parkway	Toronto and Region Conservation Authority (2003)
Cultural Meadow (CUM)	CUM1-b with a CUP1-A	Exotic Cool-season Grass Graminoid Meadow with a Cultural Plantation inclusion	Less than 10% tree cover consisting of Austrian Pine (*Pinus nigra*), giant-toothed aspen (*Populus grandidentata*) and balsam poplar (*Populus balsamifera*).	No shrub layer identified in this community.	Greater than 60% ground cover primarily dominated by grasses, Canada thistle, wild carrot and common milkweed (*Asclepias syriaca*).	East of the Don River within the clover-leaf o f the on-ramp for the Don Valley Parkway	Toronto and Region Conservation Authority (2003)
Cultural Meadow (CUM)	CUM1-c	Exotic Forb Meadow	Less than 10% tree cover consisting of green ash (*Fraxinus pensylvanica*).	Less than 10% cover dominated by common buckthorn.	Greater than 60% ground cover primarily dominated by white sweet clover (*Melilotus alba*), common chicory (*Cichorium intybus*)	West of the Don River underneath the Don Valley Parkway	Toronto and Region Conservation Authority (2003)
Cultural Thicket (CUT)	CUT1	Mineral Cultural Thicket	Less than 25% tree cover: dominated by tree species such as: Manitoba maple, Norway maple and tree-of-heaven. Less common trees noted in the canopy included green ash, white mulberry (*Morus alba*), Carolina poplar (*Populus X canadensis*) and wych elm (*Ulmus glabra*).	Between 25 and 60% shrub cover: dominated by staghorn sumac, common buckthorn, gray dogwood (*Cornus racemosa*), Russian olive and Oriental bittersweet (*Celastrus orbiculatus*).	Ground species made up more than 60% of this community, including especially tall goldenrod, dog strangling vine and mugwort (*Artemisia vulgaris*).	West of the Don River	Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018)
Cultural Thicket (CUT)	CUT1-1	Sumac Deciduous Thicket	Less than 10% tree cover consisting of tree-of-heaven, Russian olive, Manitoba maple and eastern cottonwood.	Greater than 60% shrub cover dominated by staghorn sumac with lesser of white mulberry, choke cherry (*Prunus virginiana*), red-osier dogwood, common buckthorn and narrow-leaf willow (*Salix exigua*)	Greater than 60% ground cover dominated by grasses, stinging nettle, common milkweed, Canada thistle and bouncing bet (*Saponaria offinaliz*).	West of the Don River north of the existing rail corridor	Toronto and Region Conservation Authority (2003)

Ecological Land Classification Descriptor	Ecological Land Classification Code	Ecological Land Classification Name	Tree Canopy	Shrub Layer	Ground Layer	General Location	Source
Cultural Woodland (CUW)	CUW1	Mineral Cultural Woodland	The species composition of cultural woodlands varied depending on the location along the Union Station Rail Corridor. Tree canopy cover was 25-60% and mainly dominated by Manitoba maple, tree-of-heaven or Eastern cottonwood. Less common tree species included black cherry (*Prunus serotina*) and green ash.	The shrub cover generally consisted of Tartarian honeysuckle (*Lonicera tatarica*), Japanese knotweed, red-osier dogwood, and common buckthorn.	Ground cover was largely dominated by stinging nettle and garlic mustard, both highly invasive species. Other ground species consisted of thicket creeper, riverbank grape (*Vitis riparia*), and common plantain (*Plantago major*).	West of the Don River	Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018)
Cultural Woodland (CUW)	CUW1	Mineral Cultural Woodland	Less than 60% tree canopy was dominated by Manitoba maple, Siberian elm (*Ulmus pumila*) or black walnut (*Juglans nigra*). Less dominant trees included tree-of-heaven, Norway maple, green ash and black locust (*Robinia pseudoacacia*). Red oak (*Quercus rubra*) was sometimes noted on the edge of City parks but was generally outside of the existing rail corridor.	The shrub cover generally consisted of choke cherry, Manitoba maple, honeysuckles, staghorn sumac and common buckthorn.	Ground species were largely either dominated by dog strangling vine or garlic mustard, both highly invasive species. Other ground species consisted of thicket creeper, wild carrot, riverbank grape, field horsetail (*Equisetum arvense*), goldenrods, bracken fern (*Pteridium aquilinum*), common St. John's wort (*Hypericum perforatum*) and sometimes to a lesser extent, false Solomon's seal (*Maianthemum racemosum*)	East of the Don River	Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017
Cultural Hedgerows[3]	CUH	Cultural Hedgerows	The tree canopy was dominated by Manitoba maple, common buckthorn and Russian olive.	No shrub layer identified in this community.	Ground cover consisted of the same herbaceous species described above for cultural thickets and woodlands.	West of the Don River	Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018)
Cultural Hedgerows[3]	CUH	Cultural Hedgerows	The tree canopy was dominated by Siberian elm, Manitoba maple, tree-of-heaven or black walnut depending on the location. Other less dominant tree species noted included poplar (*Populus sp.*), Norway maple and black locust.	The shrub layer was dominated by thicket Creeper. Japanese knotweed was also noted at certain locations.	Ground cover consisted of the same herbaceous and grass species described above for cultural meadows.	East of the Don River	Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017

3. For the purpose of this investigation, cultural hedgerows were defined as narrow strips or rows of trees, either planted or natural growing as remnants of old vegetation communities that were removed in the past, with minimal vegetative cover underneath.

There were no plant Species at Risk or provincially significant plants identified within the Ontario Line South Study Area (AECOM, 2017; AECOM, 2018; HDR, 2018). However, three Regional Species of Conservation Concern plants were recorded within or in the vicinity of the Ontario Line South Study Area and are summarized in **Table 4-5**. These Regional Species of Conservation Concern plants are not protected under federal or provincial legislation and therefore Metrolinx is not subject to their protection within their own lands.

Table 4-5: Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded within the Ontario Line South Study Area

Common Name	Scientific Name	Local Rank	General Location within the Ontario Line South Study Area	Source
Wild red currant	*Ribes triste*	L3	East of the Don River	Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environment Project Reports (AECOM, 2017)
American prickly-ash	*Zanthoxylum americanum*	L3	East of the Don River	Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environment Project Reports (AECOM, 2017)
Big bluestem	*Andropogon gerardii*	L3	East of the Don River	Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environment Project Reports (AECOM, 2017)

Note: Local Rank – Toronto and Region Conservation Authority (2020c). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by TRCA within their jurisdiction:
L+: Exotic. Not native to TRCA jurisdiction (includes hybrids between native and exotic species).
L1: Rare in TRCA jurisdiction, of concern regionally.
L2: Probably rare in TRCA jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout TRCA jurisdiction; may be of very localized concern in highly disturbed areas.

4.3.3 Ontario Line North

As outlined in **Section 2.2.3**, portions of the Ontario Line North Study Area included developed residential and commercial areas with vegetation limited to streetscapes (e.g., street trees, City parks, manicured lawns). Field investigations were focused on the natural areas present within the Millwood Road and E.T. Seton Park Areas of Investigation and described in the following sub-sections.

4.3.3.1 Millwood Road Area of Investigation

Nine vegetation communities were identified within the Millwood Road Area of Investigation. The locations and Ecological Land Classification classifications of these vegetation communities are shown in **Figure 4-3H** in **Appendix A** and summarized in **Table 4-6** below. None of these vegetation communities are provincially significant. Representative photographs of the vegetation communities identified are provided in **Appendix B**.

A comprehensive vascular plant list for the Millwood Road Area of Investigation is provided in **Appendix C**. A total of 125 plant species were recorded within the area investigated. Of the 125 species that could be identified to species level, 68 (54%) were native and 57 (46%) were non-native species.

One Species at Risk, butternut, was incidentally observed in two locations during Ecological Land Classification surveys in the Millwood Road Area of Investigation; this species is listed as Endangered and protected under the Endangered Species Act. One butternut was observed in the Dry – Fresh Sugar Maple – Oak Deciduous Forest Type (FOD5-3) near Millwood Road, noted to be in general good health conditions (e.g., minimal evidence of butternut canker [*Ophiognomonia clavigignenti-juglandacearum*]). This tree was surrounded by tree protection fencing, which suggests that this individual may be a pure specimen. A second butternut was noted in the Fresh - Moist Lowland Deciduous Forest Ecosite (FOD7b) near the existing rail corridor. It was measured to be approximately 24 cm diameter at breast height and was noted to be heavily affected by butternut canker. The live canopy percent could not be confirmed at the time of field investigations given that this butternut was just beginning to leaf out, but several dead branches were noted in the canopy. Its anticipated that this specimen was a pure butternut; however, a butternut health assessment and DNA test should be completed if proposed works are within 25 metres of this tree. An arborist with tree climbing qualifications would be required to collect a DNA sample.

Table 4-6: Ecological Land Classification Vegetation Communities Identified within the Millwood Road Area of Investigation

Ecological Land Classification Community	Ecological Land Classification Descriptor	Ecological Land Classification Code	Ecological Land Classification Name	Tree Canopy	Shrub Layer	Ground Layer	Comments
Forest (FO) Communities	Deciduous Forest (FOD)	FOD4	Dry – Fresh Deciduous Forest Ecosite	▪ Greater than 60% tree cover: dominated by Norway maple, Manitoba maple, Siberian elm, and black walnut.	▪ No distinct shrub layer could be observed in the community.	▪ Between 10 and 60% ground cover: dominated by false nettle (*Boehmeria cylindrica*), dog-strangling vine, reed canary grass (*Phalaris arundinacea*), and dame's rocket).	
Forest (FO) Communities	Deciduous Forest (FOD)	FOD5-3 with a FOD5-2 inclusion	Dry – Fresh Sugar Maple – Oak Deciduous Forest Type	▪ Greater than 60% tree cover: canopy dominated by sugar maple (Acer saccharum), red oak (Quercus rubra), and bitternut hickory (Carya cordiformis).	▪ Between 10 and 25% shrub cover: dominated by sugar maple and included green ash (Fraxinus pennsylvanica).	▪ Between 10 and 25% ground cover: dominated by grass species (Poaceae sp.), sugar maple, and eastern creeping snowberry (Gaultheria hispidula).	▪ An inclusion of Dry – Fresh Sugar Maple – Beech Deciduous Forest Type (FOD5-2) was noted along the Lower Don Recreation Trail near the valley bottom. ▪ Suitable cavity trees for bats were present in this mature forest. ▪ Generally more non-native, weedy species were present along the edge of Millwood Road.
Forest (FO) Communities	Deciduous Forest (FOD)	FOD7a with MAM2 inclusion	Fresh – Moist Lowland Deciduous Forest Ecosite	▪ Greater than 60% tree cover: canopy dominated by sugar maple, Freeman's maple, and, to a lesser extent, tree-of-heaven.	▪ Between 25 and 60% shrub cover: dominated by Manitoba maple, green ash, American basswood (Tilia americana), and red oak.	▪ Greater than 60% ground cover: dominated by stinging nettle (Urtica dioica ssp. dioica), common burdock, and wood avens (Geum urbanum).	▪ Patch of invasive species growing along the trail, including Japanese knotweed, abundant dog-strangling vine, and garlic mustard.
Forest (FO) Communities	Deciduous Forest (FOD)	FOD7b with MAM2-10 Inclusion and a Mineral Open Beach / bar (BBO1) inclusion	Fresh – Moist Lowland Deciduous Forest Ecosite with Forb Mineral Meadow Marsh inclusion	▪ Canopy dominated by Siberian elm, crack willow (Salix fragilis), and eastern cottonwood.	▪ Shrub layer dominated by Manitoba maple and common buckthorn.	▪ Ground layer dominated by stinging nettle and, to a lesser extent, garlic mustard, dog-strangling vine, goldenrod species, and common ragweed (Ambrosia artemisifolia).	▪ Forb Mineral Meadow Marsh (MAM2-10) was dominated by stinging nettle, goldenrods and dog strangling vine. No standing water was observed. ▪ A sand, gravelly beach (BBO1) was noted as an inclusion of FOD7b along the Don River on the north bank. ▪ Abundant evidence of disturbance, including trails, invasive species, and abandoned bonfire sites.
Forest (FO) Communities	Deciduous Forest (FOD)	FOD7c with FOD5-3 inclusion	Fresh – Moist Lowland Deciduous Forest Ecosite	▪ Canopy dominated by Manitoba maple, crack willow, black locust (Robinia pseudoacacia), and black walnut.	▪ Shrub layer dominated by Manitoba maple and common buckthorn.	▪ Ground layer dominated by Canadian wood nettle (Laportea canadensis) and tall nettle (Urtica procera) and, to a lesser extent, goldenrod species, dame's rocket, and garlic mustard.	▪ Dog-strangling vine was dominant along the edge of the Lower Don Recreational Trail.

Ecological Land Classification Community	Ecological Land Classification Descriptor	Ecological Land Classification Code	Ecological Land Classification Name	Tree Canopy	Shrub Layer	Ground Layer	Comments
Cultural (CU) Communities	Cultural Meadow (CUM)	CUM1-1	Dry-moist Old Field Meadow	▪ No tree canopy layer identified in this community.	▪ Between 0 and 10% shrub cover: dominated by Manitoba maple and common buckthorn.	▪ Greater than 60% ground cover: dominated by dog-strangling vine, dame's rocket, common tansy (Tanacetum vulgare) and, to a lesser extent, common milkweed, reed canary grass, and stinging nettle.	▪ This Dry-moist Old Field Meadow was located along the south bank of the Don River underneath the Millwood Road Overpass Bridge.
Cultural (CU) Communities	Cultural Meadow (CUM)	CUM1-1 with CUT1 inclusion	Mineral Cultural Meadow with Common Lilac Cultural Thicket inclusion	▪ No tree canopy layer identified in this community.	▪ Less than 25% shrub cover dominate by eastern red cedar (Juniperus virginiana), Tartarian honeysuckle (Lonicera tatarica), and common buckthorn.	▪ Greater than 60% ground cover dominated by goldenrods, poison ivy (Toxicodendron radicans ssp. negundo), dog strangling vine, reed-canary grass, wild carrot, and Canada thistle.	▪ This Mineral Cultural Meadow was located within the existing rail corridor of the Don Valley Parkway. The Common Lilac Cultural Thicket (CUT1) inclusion was present along the south side of the Don Valley Parkway.
Cultural (CU) Communities	Cultural Meadow (CUM)	CUM1-1 with CUT1-1 inclusion	Dry-moist Old Field Meadow with Mineral Sumac Cultural Thicket inclusion	▪ No tree canopy layer identified in this community.	▪ Less than 60% shrub cover was dominated by staghorn sumac, Manitoba maple, and Tartarian honeysuckle.	▪ Greater than 60% ground cover was dominated by stinging nettle and, to a lesser extent, dog-strangling vine, dame's rocket, and Kentucky blue grass.	▪ This Dry-moist Old Field Meadow was located north of the existing rail corridor. Active construction was ongoing at the time of field investigation. The Mineral Sumac Cultural Thicket was located immediately along the north side of the rail tracks. ▪ A small patch of common reed (Phragmites australis), a wetland invasive plant, was present adjacent to the construction parking area.
Cultural (CU) Communities	Cultural Thicket (CUT)	CUT1	Mineral Cultural Thicket Ecosite	▪ No tree canopy layer identified in this community.	▪ Greater than 60% shrub cover dominated by staghorn sumac, Morrow's honeysuckle, Norway maple, black elderberry (Sambucus nigra), Manitoba maple and common buckthorn.	▪ Greater than 60% ground cover: dominated by dog-strangling vine, garlic mustard, and wood avens.	▪ Evidence of disturbance underneath the Hydro Corridor (e.g., cutting of shrubs and Manitoba maple).

No other Species at Risk or provincially significant plants were observed during ELC surveys. Six Regional Species of Conservation Concern plants were observed and are summarized in **Table 4-7**.

Table 4-7: Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded in the Millwood Road Area of Investigation

Common Name	Scientific Name	Local Rank	Vegetation Community Observed
Red pine	*Pinus resinosa*	L1	FOD7c
Hoary vervain	*Verbena stricta*	L3	CUM1-1
Hard-stemmed bulrush	*Schoenoplectus acutus var. acutus*	L3	FOD7b
Eastern Snowberry	*Symphoricarpos albus var. albus*	L3	FOD5-3
Butternut	*Juglans cinerea*	L3	FOD5-3
Wood-sorrel	*Oxalis montana*	L2	FOD4, FOD7b, FOD7c

Note: Local Rank – Toronto and Region Conservation Authority (2020c). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by TRCA within their jurisdiction:
L+: Exotic. Not native to TRCA jurisdiction (includes hybrids between native and exotic species).
L1: Rare in TRCA jurisdiction, of concern regionally.
L2: Probably rare in TRCA jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout TRCA jurisdiction; may be of very localized concern in highly disturbed areas.

4.3.3.2 E.T. Seton Park Area of Investigation

Vegetation communities within the E.T. Seton Park Area of Investigation were classified to 40 vegetation types. It appears that natural vegetation communities dominated the landscape, particularly forest communities which represented 33.69 hectares or 54% of the of the Study Area. Dry-Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8) and Fresh-Moist Lowland Deciduous Forest (FOD7) were the largest vegetation communities while Fresh-Moist Manitoba Maple Lowland Deciduous Forest (FOD7-a) was the most frequently occurring community type.

The locations and Ecological Land Classification of these vegetation communities are shown in **Figure 4-3I** in **Appendix A**. These vegetation communities are further described in **Table 4-8** below.

Table 4-8: Ecological Land Classification Vegetation Communities Identified within the E.T. Seton Park Area of Investigation

Ecological Land Classification Community	Ecological Land Classification Code	Ecological Land Classification_ Name	Tree Canopy	Shrub Layer	Ground Layer	Comments	Verified by AECOM 2020
Beach / Bar (BB)	BBO1-A	Open Riparian Sand / Gravel Bar	No tree canopy layer identified in this community.	No shrub layer identified in this community.	The following species were dominant in the ground cover: reed-canary grass, forget-me-not (*Myosotis scirpoides*) and stinging nettle.	There is a moderate level of non-native species present and evidence of flash floods and disturbed hydrology.	Yes
Bluff Communities (BL)	BLT1-B	Deciduous Treed Bluff	Dominant species in the canopy included: sugar maple, paper birch (*Betula papyrifera*), American elm (*Ulmus americana*), and white ash.	The following species were dominant in the shrub layer: white ash, alternate-leaved dogwood (*Cornus alternifolia*), and hybrid honeysuckle (*Lonicera x bella)*.	The following species were dominant in the shrub layer: field horsetail, dog-strangling vine, coltsfoot (*Tussilago farfara*) and Virginia creeper (*Parthenocissus quinquefolia*).	–	No
Cultural Communities (CU)	CUH	Cultural Hedgerow	Manitoba maple dominated the canopy along with white ash, trembling aspen (*Populus tremuloides*) and Siberian elm.	Common buckthorn was present in the shrub layer.	The following species were dominant in the ground layer: Virginia creeper, tall goldenrod and dog-strangling vine.	–	Yes
Cultural Communities (CU)	CUM1	Mineral Cultural Meadow	No tree canopy layer identified in this community.	No shrub layer identified in this community.	The following species were dominant in the ground layer: Kentucky blue-grass (Poa pratensis), dog-strangling vine, wild carrot (Daucus carota), white sweet-clover (Melilotus albus) and common dandelion (Taraxacum officinale)	–	Yes
Cultural Communities (CU)	CUM1-1	Mineral Cultural Meadow	No tree canopy layer identified in this community.	No shrub layer identified in this community.	The following species were dominant in the ground layer: Kentucky blue-grass, dog-strangling vine, wild carrot, white sweet-clover and common dandelion (*Taraxacum officinale*).	–	Yes
Cultural Communities (CU)	CUM1-b	Exotic Cool-season Grass Graminoid Meadow	Dominant species in the canopy included: *Lonicera x bella* shrub honeysuckle, Siberian elm, staghorn sumac, black locust, white spruce (*Picea glauca*) and common buckthorn.	No shrub layer identified in this community.	The following species were dominant in the ground layer: grasses, common reed (*Phragmites australis asustralis*) dog-strangling vine, Canada thistle and tall goldenrod.	–	Yes
Cultural Communities (CU)	CUM1-c	Exotic Forb Meadow	Dominant species in the canopy included: Norway spruce (*Picea abies*), honey locust (*Gleditsia triacanthos*), and white spruce.	The following species were dominant in the shrub layer: common buckthorn, hybrid honeysuckle and staghorn sumac.	Dog-strangling vine dominated in the ground layer. Orchard grass, Canada thistle and tall goldenrod was also present.	–	Yes
Cultural Communities (CU)	CUP1-c, with CUT1-1 inclusion	Locust Deciduous Plantation	Dominant species in the canopy included: black locust with some black walnut and Manitoba maple.	Common buckthorn dominated in the shrub layer with staghorn sumac and Morrow's honeysuckle.	The following species were dominant in the ground layer: dog-strangling vine, tall goldenrod, and garlic mustard.	formerly designated FOD4-c.	Yes

Ecological Land Classification Community	Ecological Land Classification Code	Ecological Land Classification_ Name	Tree Canopy	Shrub Layer	Ground Layer	Comments	Verified by AECOM 2020
Cultural Communities (CU)	CUP1-c	Locust Deciduous Plantation	Black locust dominated the canopy with some black walnut and sugar maple in the sub-canopy.	The following species were dominant in the shrub layer: hybrid honeysuckle, hawthorn species (*Crataegus sp.*), common buckthorn and white ash.	The following species were dominant in the ground layer: dog-strangling vine, garlic mustard and grasses.	formerly designated FOD4-c	Yes
Cultural Communities (CU)	CUP1-8	Red Oak Deciduous Plantation	Red oak dominated the canopy along with black locust.	The shrub layer was dominated by common buckthorn and Morrow's honeysuckle.	The following species were dominant in the ground layer: dog-strangling vine, bracken fern, goldenrod species, false Solomon's seal and garlic mustard.	–	Yes
Cultural Communities (CU)	CUP2-A	Restoration Mixed Plantation	Dominant species in the canopy included: Austrian pine (*Pinus nigra*), green ash and bur oak (*Quercus macrocarpa*).	The following species were dominant in the shrub layer: red oak, white pine (*Pinus strobus*), common buckthorn and staghorn sumac.	The following species were dominant in the ground layer: grasses, dog-strangling vine, Canada thistle and bird vetch (*Vicia cracca*).	–	No
Cultural Communities (CU)	CUP3-1	Red Pine Coniferous Plantation	The canopy was dominated by red pine (*Pinus resinosa*) with white pine and American elm also present.	Common buckthorn and white ash dominated in the shrub layer.	The following species were dominant in the ground layer: dog-strangling vine, garlic mustard, enchanters' nightshade (*Circaea sp.*) and herb-Robert (*Geranium robertianum*).	–	No
Cultural Communities (CU)	CUP3-2	White Pine Coniferous Plantation	The canopy was dominated by white pine with some alder (*Alnus sp.*) species present.	Shrub species were not noted.	The following species were dominant in the ground layer: dog-strangling vine, enchanters' nightshade and stinging nettle.	–	No
Cultural Communities (CU)	CUP3-H	Mixed Conifer Coniferous Plantation	Dominant species in the canopy included: red pine, white pine, Norway spruce and white spruce .	Common buckthorn and hybrid honeysuckle dominated in the shrub layer.	Garlic mustard and dog-strangling vine dominated in the ground layer. Grasses were also present.	–	Yes
Cultural Communities (CU)	CUS1-1, with CUP3-C inclusion	Hawthorn Successional Savannah	Dominant species in the canopy included: eastern cottonwood, hawthorn species, ash species (*Fraxinus spp.*), black locust and white pine.	Common buckthorn and hawthorn species dominated in the shrub layer.	Dog-strangling vine dominated in the ground layer. Tall goldenrod and grasses were also present.	history of cattle grazing; native hawthorn	No
Cultural Communities (CU)	CUS1-b	Exotic Successional Savannah	Dominant species in the canopy included: Hybrid poplar (*Populus* × *jackii*), honey locust, Colorado Spruce (*Picea pungens*), and Manitoba maple.	Hybrid poplar and European cranberrybush (*Viburnum opulus*) dominated in the shrub layer.	The following species were dominant in the ground layer: dog-strangling vine, smooth brome (*Bromus inermis*), wild carrot and tall goldenrod.	formerly tended landscapes with ornamentals	No
Cultural Communities (CU)	CUT1	Mineral Cultural Thicket	Dominant species in the canopy included: Siberian elm, tree-of-heaven, and Manitoba maple.	The following species were dominant in the shrub layer: staghorn sumac, common buckthorn and Siberian elm.	The following species were dominant in the ground layer: dog-strangling vine, Virginia creeper and tall goldenrod.	–	Yes
Cultural Communities (CU)	CUT1-1, with MAS2-1b inclusion	Sumac Deciduous Thicket	Dominant species in the canopy included: trembling aspen, balsam poplar, and Manitoba maple.	The following species were dominant in the shrub layer: staghorn sumac, common buckthorn and hybrid honeysuckle.	The following species were dominant in the ground layer: dog-strangling vine, Virginia creeper, garlic mustard, grasses and goldenrod species.	–	Yes

Ecological Land Classification Community	Ecological Land Classification Code	Ecological Land Classification_ Name	Tree Canopy	Shrub Layer	Ground Layer	Comments	Verified by AECOM 2020
Cultural Communities (CU)	CUT1-1, with CUP3-H complex	Sumac Deciduous Thicket	Dominant species in the canopy included: white ash, Manitoba maple and trembling aspen.	The following species were dominant in the shrub layer: staghorn sumac, riverbank grape and hybrid honeysuckle.	The following species were dominant in the ground layer: dog-strangling vine, grasses and goldenrod species.	–	No
Cultural Communities (CU)	CUT1-1	Sumac Deciduous Thicket	No tree canopy layer identified in this community.	The shrub layer was dominated by staghorn sumac with buckthorn and Morrow's honeysuckle.	Dog-strangling vine dominated in the ground layer. Tall goldenrod, grasses and garlic mustard were also present.	honeysuckle (*Lonicera spp.)* and autumn olive (*Elaeagnus umbellata*) present.	Yes
Cultural Communities (CU)	CUT1-b, with CUT1-1 inclusion	Buckthorn Deciduous Thicket	The canopy was dominated by white ash and Manitoba maple.	The shrub layer was dominated by common buckthorn. Hybrid honeysuckle and white ash were also present.	Dog-strangling vine dominated in the ground layer. Tall goldenrod and grasses were also present.	buckthorn in more-or-less pure stands	Yes
Cultural Communities (CU)	CUT1-b	Buckthorn Deciduous Thicket	The canopy was dominated by common buckthorn and white spruce.	The following species were dominant in the shrub layer: common buckthorn, staghorn sumac, Manitoba maple and eastern red cedar.	The following species were dominant in the ground layer: dog-strangling vine, Canada blue grass (*Poa compressa*), and Kentucky blue grass.	buckthorn in more-or-less pure stands	Yes
Cultural Communities (CU)	CUT1-c	Exotic Deciduous Thicket	Dominant species in the canopy included: black locust, Manitoba maple, white Ash and common buckthorn.	The following species were dominant in the shrub layer: Manitoba maple, common buckthorn, riverbank grape and staghorn sumac.	The following species were dominant in the ground layer: dog-strangling vine, grasses, garlic mustard, Virginia creeper and tall goldenrod.	honeysuckle, lilac (*Syringa sp.*), multiflora rose (*Rosa multiflora*), autumn olive (*Elaeagnus umbellata*), etc.	Yes
Cultural Communities (CU)	CUW1	Mineral Cultural Woodland	The canopy was dominated with Manitoba maple and white ash.	The following species were dominant in the shrub layer: common buckthorn, Manitoba maple, common lilac (*Syringa vulgaris*), and Amur honeysuckle (*Lonicera maackii*).	Dog-strangling vine dominated in the ground layer, followed by zig-zag goldenrod (*Solidago flexicaulis*) and garlic mustard.	–	Yes
Cultural Communities (CU)	CUW1-b with CUM1 inclusion	Exotic Successional Woodland	Dominant species in the canopy included: reddish willow (*Salix x*. rubens)*,* Siberian elm, black locust, eastern cottonwood and Manitoba maple.	The following species were dominant in the shrub layer: Manitoba maple, common buckthorn, Siberian elm, hybrid honeysuckle and American elm.	Dog-strangling vine dominated in the ground layer, followed by common buckthorn, garlic mustard and dame's rocket. Smooth brome and tall goldenrod were also present.	abandoned homesteads & formerly manicured yards	Yes
Forest Communities (FO)	FOD1-1	Dry-Fresh Red Oak Deciduous Forest	Dominant species in the canopy included: red oak, sugar maple, American basswood, American beech (*Fagus grandifolia*) and ironwood (*Ostrya virginiana*).	The following species were dominant in the shrub layer: common buckthorn, sugar maple and staghorn sumac.	The following species were dominant in the ground layer: northern bush honeysuckle (*Diervilla lonicera*), dog-strangling vine, riverbank grape and garlic mustard.	–	Yes
Forest Communities (FO)	FOD3-1 with MAS2-1 inclusion	Dry-Fresh Poplar Deciduous Forest	Dominant canopy species included: trembling aspen, red oak and white ash.	The following species were dominant in the shrub layer: common buckthorn, Morrow's honeysuckle and trembling aspen.	Dog-strangling vine dominated the ground layer with bracken fern.	–	Yes

Ecological Land Classification Community	Ecological Land Classification Code	Ecological Land Classification_ Name	Tree Canopy	Shrub Layer	Ground Layer	Comments	Verified by AECOM 2020
Forest Communities (FO)	FOD4-b	Dry-Fresh Manitoba Maple Deciduous Forest	The canopy was dominated by Manitoba maple and black locust with some American basswood and white ash present.	Common buckthorn, hybrid honeysuckle and staghorn sumac dominated in the shrub layer.	The following species were dominant in the ground layer: enchanters' nightshade, garlic mustard, dame's rocket, goldenrod, wild sarsaparilla (*Aralia nudicaulis*) and yellow avens.	–	Yes
Forest Communities (FO)	FOD4-b, with FOD3-1 inclusion	Dry-Fresh Manitoba Maple Deciduous Forest	Dominant species in the canopy included: Manitoba maple, white Ash, and American elm.	The following species were dominant in the shrub layer: riverbank grape, common buckthorn, Virginia creeper and multiflora rose.	The ground layer was dominated by dog-strangling vine and garlic mustard.	–	No
Forest Communities (FO)	FOD5-1 with SWD2-2 inclusion	Dry-Fresh Sugar Maple Deciduous Forest	Sugar maple dominated the canopy. Red oak, black cherry, white ash, American beech and sugar maple were also present.	The following species were dominant in the shrub layer: sugar maple, white ash, chokecherry (*Prunus virginiana*) and hybrid honeysuckle.	The following species were dominant in the ground layer: garlic mustard, yellow trout-lily (*Erythronium americanum*) and large false Solomon's seal.	–	Yes
Forest Communities (FO)	FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest	Sugar maple dominated the canopy. Red oak and black cherry were also present.	The following species were dominant in the shrub layer: sugar maple, chokecherry buckthorn, and alternate-leaved dogwood.	The ground layer was dominated by zig-zag goldenrod, dog-strangling vine and garlic mustard.	–	Yes
Forest Communities (FO)	FOD5-2, with CUP3-b inclusion	Dry-Fresh Sugar Maple - Beech Deciduous Forest	Dominant species in the canopy included: American beech and sugar maple.	The following species were dominant in the shrub layer: American beech, sugar maple and common buckthorn.	The ground layer was dominated by garlic mustard and yellow trout-lily.	–	No
Forest Communities (FO)	FOD5-2	Dry-Fresh Sugar Maple - Beech Deciduous Forest	Dominant species in the canopy included: sugar maple, American beech, red oak, white ash and ironwood.	The following species were dominant in the shrub layer: sugar maple, common buckthorn, chokecherry, white ash and Manitoba maple.	The following species were dominant in the ground layer: garlic mustard, yellow trout-lily, zig-zag goldenrod and dog-strangling vine.	–	Yes
Forest Communities (FO)	FOD5-3	Dry-Fresh Sugar Maple - Oak Deciduous Forest	Dominant species in the canopy included: sugar maple, red oak, American beech, white ash, American basswood and ironwood.	The following species were dominant in the shrub layer: sugar maple, alternate-leaved dogwood and common buckthorn.	The following species were dominant in the ground layer: zig-zag goldenrod, sarsaparilla, garlic mustard, dog-strangling vine, large false Solomon's seal and Canada mayapple (*Podophyllum peltatum*).	–	Yes
Forest Communities (FO)	FOD5-3, with MAM2-a inclusion	Dry-Fresh Sugar Maple - Oak Deciduous Forest	Dominant species in the canopy included: red oak, sugar maple, American basswood and black cherry.	The following species were dominant in the shrub layer: sugar maple, white ash, common buckthorn and chokecherry.	The following species were dominant in the ground layer: garlic mustard, zig-zag goldenrod, Virginia creeper, large false Solomon's seal and starry false Solomon's seal (*Maianthemum stellatum*).	–	Yes
Forest Communities (FO)	FOD5-3, with FOD4-b and FOD6-1 inclusions	Dry-Fresh Sugar Maple - Oak Deciduous Forest	Dominant species in the canopy included: sugar maple, red oak and white ash.	The following species were dominant in the shrub layer: sugar maple, chokecherry, alternate-leaved dogwood and white ash.	The following species were dominant in the ground layer: zig-zag goldenrod, garlic mustard, large false Solomon's seal and Canada black-snakeroot (*Sanicula canadensis var. canadensis*).	–	No

Ecological Land Classification Community	Ecological Land Classification Code	Ecological Land Classification_ Name	Tree Canopy	Shrub Layer	Ground Layer	Comments	Verified by AECOM 2020
Forest Communities (FO)	FOD5-8	Dry-Fresh Sugar Maple - White Ash Deciduous Forest	Dominant species in the canopy included: sugar maple, white ash, American beech and red oak.	The following species were dominant in the shrub layer: sugar maple, Manitoba maple and white ash.	The following species were dominant in the ground layer: yellow trout-lily, starry false Solomon's seal, garlic mustard and zig-zag goldenrod.	–	Yes
Forest Communities (FO)	FOD5-8 with CUP1 inclusion	Dry-Fresh Sugar Maple - White Ash Deciduous Forest	Dominant species in the canopy included: sugar maple, white ash, red oak, American beech and eastern hemlock (*Tsuga canadensis*).	Chokecherry and common buckthorn dominated in the shrub layer.	The following species were dominant in the ground layer: zig-zag goldenrod, grasses, marginal wood-fern (*Dryopteris marginalis*), and garlic mustard.	CUP1 inclusion consisted of white pine, trembling aspen, silver maple, staghorn sumac and red-osier dogwood.	Yes
Forest Communities (FO)	FOD5-8, with FOD4-b inclusion	Dry-Fresh Sugar Maple - White Ash Deciduous Forest	Dominant species in the canopy included: sugar maple, white ash, paper birch and black cherry.	The following species were dominant in the shrub layer: alternate-leaved dogwood, sugar maple, chokecherry and Norway maple.	The following species were dominant in the ground layer: garlic mustard, zig-zag goldenrod, Virginia creeper and yellow trout-lily.	–	Yes
Forest Communities (FO)	FOD7 with CUT1-1 inclusion	Fresh-Moist Lowland Deciduous Forest	Dominant species in the canopy included Manitoba maple, eastern cottonwood, willow species and Siberian elm.	Shrub species were not noted.	Ground layer species were not noted.	–	Yes
Forest Communities (FO)	FOD7-3	Fresh-Moist Willow Lowland Deciduous Forest	Dominant species in the canopy included: reddish willow, eastern cottonwood, Manitoba maple, European black alder (*Alnus glutinosa*) and Norway maple.	The following species were dominant in the shrub layer: European black alder, *Lonicera x bella* shrub honeysuckle, common buckthorn and staghorn sumac.	The following species were dominant in the ground layer: dog-strangling vine, goldenrod, garlic mustard, stinging nettle and Virginia creeper.	–	Yes
Forest Communities (FO)	FOD7-a	Fresh-Moist Manitoba Maple Lowland Deciduous Forest	Dominant species in the canopy included: American elm, Manitoba maple, white ash, reddish willow, and eastern cottonwood.	Common buckthorn, honeysuckle and riverbank grape dominated the shrub layer.	The following species were dominant in the ground layer: garlic mustard, dog-strangling vine, dame's rocket, Virginia creeper and tall goldenrod.	–	Yes
Forest Communities (FO)	FOD7-a with CUM1 inclusion	Fresh-Moist Manitoba Maple Lowland Deciduous Forest	Manitoba maple, white ash, sugar maple and American basswood dominated the canopy.	Manitoba maple, common buckthorn and white ash made up a majority of the shrub layer.	The following species were dominant in the ground layer: zig-zag goldenrod, ostrich fern (*Matteuccia struthiopteris*), dog-strangling vine and field horsetail.	–	Yes
Forest Communities (FO)	FOD7-c	Fresh-Moist Exotic Deciduous Forest	The canopy was dominated by alder species with Manitoba maple and reddish willow also present.	The following species were dominant in the shrub layer: alder species, common buckthorn and hybrid honeysuckle.	The following species were dominant in the ground layer: alder species, dog-strangling vine, enchanters' nightshade and spotted spurge (*Euphorbia maculata*).	–	No
Forest Communities (FO)	FOD8-1	Fresh-Moist Poplar Deciduous Forest	Dominant species in the canopy included: trembling aspen, paper birch, white ash and hawthorn species.	The following species were dominant in the shrub layer: hybrid honeysuckle, common buckthorn, white ash and sugar maple.	The following species were dominant in the ground layer: dog-strangling vine, Virginia creeper and sensitive fern (*Onoclea sensibilis*).	–	No

Ecological Land Classification Community	Ecological Land Classification Code	Ecological Land Classification_ Name	Tree Canopy	Shrub Layer	Ground Layer	Comments	Verified by AECOM 2020
Wetland Communities	MAM2-7	Horsetail Mineral Meadow Marsh	American elm was present in the canopy.	American elm was present in the shrub layer.	The following species were dominant in the ground layer: field horsetail, rice cut grass (*Leersia oryzoides*), bittersweet nightshade (*Solanum dulcamara*), and jewelweed (*Impatiens capensis*).	usually non-coastal, + dense cover (no bare soil).	No
Wetland Communities	MAM2-a	Common Reed Mineral Meadow Marsh	Common reed dominated in the canopy.	Shrub species include Morrow's honeysuckle and choke cherry.	The following species were dominant in the ground layer: field horsetail, Virginia creeper, bittersweet nightshade and coltsfoot.	–	Yes
Wetland Communities	MAS2-1b	Narrow-leaved Cattail Mineral Shallow Marsh	Hybrid cattail *(Typha × glauca)* and reed manna grass (*Glyceria maxima*) dominated in the canopy.	Shrub species were not noted.	The ground layer was dominated by jewelweed.	*Typha angustifolia* or *T. x glauca*; indicates disturbance	Yes
Wetland Communities	MAS2-1b, with SWT2-2 inclusion	Narrow-leaved Cattail Mineral Shallow Marsh	*Typha × glauca* dominated in the canopy.	Shrub species were not noted.	The ground layer was dominated by reed manna grass.	*Typha angustifolia* or *T. x glauca*; indicates disturbance	No
Wetland Communities	MAS2-e	Giant Manna Grass Mineral Shallow Marsh	White cedar (*Thuja occidentalis*) and white spruce were present in the canopy.	The shrub layer was dominated by reed manna grass. Purple loosestrife (*Lythrum salicaria*) and Canada thistle were also present.	The ground layer was dominated by bittersweet nightshade.	*Glyceria maxima* (an exotic)	No
Wetland Communities	OAO1-T	Turbid Open Aquatic (unvegetated)	*Typha × glauca* dominated in the canopy.	Shrub species were not noted.	The following species were dominant in the ground layer: pondweed species (*Potamogetonaceae spp.),* fennel-leaved pondweed (*Stuckenia pectinata*), and curly-leaved pondweed (*Potamogeton crispus*).	sedimentation and/or nutrient input evident	No
Wetland Communities	SWD4-3	Paper Birch - Poplar Mineral Deciduous Swamp	Trembling aspen, white ash, alder species dominated in the canopy.	The following species were dominant in the shrub layer: riverbank grape, common buckthorn, trembling aspen and white ash.	The following species were dominant in the ground layer: fowl blue grass (*Poa palustris*), purple-stemmed aster (*Symphyotrichum puniceum*), jewelweed and sensitive fern.	–	No
Wetland Communities	SWT2-2	Willow Mineral Thicket Swamp	Green ash and Manitoba maple dominated in the canopy.	Narrow-leaf willow dominated in the shrub layer. Red osier dogwood and amur maple (*Acer ginnala*) were also present.	The following species were dominant in the ground layer: field horsetail, white panicled aster (*Symphyotrichum lanceolatum*), Kentucky blue-grass and giant goldenrod (*Solidago gigantea*).	–	Yes
Wetland Communities	SWT2-2 with MAM2-a inclusion	Willow Mineral Thicket Swamp	Reddish willow, Manitoba maple and balsam poplar dominated in the canopy.	Common reed dominated in the shrub layer.	The following species were dominant in the ground layer: stinging nettle, dog-strangling vine and garlic mustard.	–	Yes

A comprehensive vascular plant list for the E.T. Seton Park Area of Investigation is provided in **Appendix C**. A total of 166 plant species were recorded within the area investigated. Of the 166 species that could be identified to species level, 106 (64%) were native and 60 (36%) were non-native species. Three butternuts were incidentally encountered within the E.T. Seton Park Area of Investigation; they are described as follows:

- One butternut tree had a diameter at breast height of 20 cm, some evidence of butternut canker and a live crown of 50 to 60%. Leaves could not be reached by staff from the ground for DNA testing but can likely be reached using pruners. It is suspected that this specimen is pure.
- A second butternut tree had a diameter at breast height of 4 cm, little to no evidence of butternut canker and a live crown of 90%. Similarly, leaves could not be reached from the ground but could be accessed via a pruner for DNA sample collection in the future. This specimen exhibited atypical characteristics of a butternut, which suggests that it is likely a hybrid, and DNA testing is recommended to confirm hybridity.
- A third butternut tree was recorded to have a diameter at breast height of 22 cm with no visible evidence of butternut canker. Live canopy percent could not be determined as the canopy was obscured by understorey foliage. This specimen exhibited atypical characteristics of a butternut, which suggests that it is likely a hybrid specimen, and DNA testing is recommended to confirm hybridity.

No other plant Species at Risk or provincially significant plants were observed during ELC surveys. However, Toronto and Region Conservation Authority and AECOM recorded 27 Regional Species of Conservation Concern plants, which are summarized in **Table 4-9**. AECOM recorded 16 plant species considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority; the remaining species were recorded by Toronto and Region Conservation Authority and were not encountered by AECOM in 2020. Aside from butternut, the Regional Species of Conservation Concern in **Table 4-9** are not protected under federal or provincial legislation, and therefore, Metrolinx is not subject to their protection within their own lands.

Table 4-9: Regional Species of Conservation Concern Plants Recorded within the E.T. Seton Park Area of Investigation

Common Name	Scientific Name	Regional Status – Toronto[1]	Local Rank[2]	Source of Record
Red pine	*Pinus resinosa*	R3	L1	AECOM (2020)
Sycamore	*Platanus occidentalis*	R2	L2	Toronto and Region Conservation Authority
White oak	*Quercus alba*	X	L2	Toronto and Region Conservation Authority
Bearded short-husk	*Brachyelytrum erectum*	R	L3	AECOM (2020)
Black-fruited mountain-rice	*Patis racemosa*	R3	L3	AECOM (2020)
Blue cohosh	*Caulophyllum thalictroides*	X	L3	AECOM (2020)
Blunt-leaf water-leaf	*Hydrophyllum canadense*	U	L3	AECOM (2020)
Broad-leaved sedge	*Carex platyphylla*	U	L3	AECOM (2020)
Butternut	*Juglans cinerea*	X	L3	AECOM (2020)
Dwarf scouring-rush	*Equisetum scirpoides*	U	L3	AECOM (2020)
Eastern snowberry	*Symphoricarpos albus var. albus*	U	L3	Toronto and Region Conservation Authority
Maple-leaved viburnum	*Viburnum acerifolium*	X	L3	Toronto and Region Conservation Authority
Meadow horsetail	*Equisetum pratense*	R1	L3	AECOM (2020)
Ninebark	*Physocarpus opulifolius*	R6	L3	AECOM (2020)
Northern dewberry	*Rubus flagellaris*	R4	L3	Toronto and Region Conservation Authority
Shagbark hickory	*Carya ovata*	R4	L3	Toronto and Region Conservation Authority
Sharp-lobed hepatica	*Anemone acutiloba*	X	L3	AECOM (2020)
Shinleaf	*Pyrola elliptica*	R5	L3	Toronto and Region Conservation Authority
Star duckweed	*Lemna trisulca*	R1	L3	Toronto and Region Conservation Authority
Swamp red currant	*Ribes triste*	R2	L3	Toronto and Region Conservation Authority
Turtlehead	*Chelone glabra*	U	L3	Toronto and Region Conservation Authority
White bear sedge	*Carex albursina*	R5	L3	AECOM (2020)
White rattlesnake-root	*Prenanthes alba*	U	L3	AECOM (2020)
White spruce	*Picea glauca*	X	L3	AECOM (2020)
Witch-hazel	*Hamamelis virginiana*	X	L3	AECOM (2020)
Wood millet	*Milium effusum*	R1	L3	AECOM (2020)
Wood-anemone	*Anemone quinquefolia var. quinquefolia*	U	L3	Toronto and Region Conservation Authority

Source: 1. Varga et al., 2000 / 2. Toronto and Region Conservation Authority

Note: Local Rank (Toronto and Region Conservation Authority, 2020b). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority within their jurisdiction:

L+: Exotic. Not native to Toronto and Region Conservation Authority jurisdiction (includes hybrids between native and exotic species).
L1: Rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L2: Probably rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout Toronto and Region Conservation Authority jurisdiction; may be of very localized concern in highly disturbed areas.

4.4 Fish and Fish Habitat

4.4.1 Ontario Line West

There were no watercourses identified within the Ontario Line West Study Area; thus, fish and fish habitat assessments were not required.

4.4.2 Ontario Line South

4.4.2.1 Watershed Description

The Study Area contains the Don River, which is situated within the Don River watershed with the southern extent adjacent to the Lake Ontario waterfront. The Don River watershed is approximately 80% urbanized with almost half of the watershed dedicated to residential development (AECOM, 2017). As one of the watersheds most anthropologically affected in Toronto and Region Conservation Authority's jurisdiction, the natural cover that remains is mostly along the larger valleys and in the headwaters which serve as wildlife refuges and recreational spaces for the 1.2 million residents that live within its boundaries (AECOM, 2017). The Don River watershed has suffered extensive degradation as a result of the removal of natural cover and the alteration of the hydrologic system through the spread of agriculture and subsequent urbanization of the watershed. Lack of effective stormwater control including the increase of impervious surfaces, stormwater retention ponds affecting seasonal fluctuations of flows and physical alterations to tributaries (TRCA, 2009) has resulted in flooding, erosion, poor water quality and degraded terrestrial and aquatic ecosystems. The water quality of the Don River is impacted by industrial and sewage outfalls, untreated storm water discharge and agricultural runoff (TRCA, 2009). Rising population density has led to further development and expanded areas of impervious ground cover as well as heavy use of public greenspaces and natural areas (AECOM, 2017).

4.4.2.2 Aquatic Habitat Description

Previous assessments of the Don River within the Ontario Line South Study Area showed evidence of prior re-alignment to accommodate urban transportation corridor development with little natural features present (AECOM, 2017) and slow flowing, turbid water (HDR, 2018). Banks were found to have a narrow strip of riparian vegetation and steel support walls (HDR, 2018). Bankfull width and depth were approximately 40 metres and 2 metres, respectively, with wetted width approximately 36 metres (HDR, 2018).

The Don River within the Study Area provides direct fish habitat important for migration, feeding and refuge however conditions are generally non-limiting throughout with no

specialized (critically limiting spawning habitat) identified (AECOM, 2017, 4Transit, 2018a). Migratory species (i.e., Salmon) use the Don River as a seasonal migratory corridor to and from Lake Ontario as no barriers to fish use were identified (AECOM, 2017). **Figure 4-4A** in **Appendix A** shows the reach of Don River within the Ontario Line South Study Area.

4.4.2.3 Fish Species Composition

The section of the Don River through the Ontario Line South Study Area is classified as estuarine in the City of Toronto Natural Heritage Study (HDR, 2018a) with 33 species of fish recorded (Toronto and Region Conservation Authority, 2020c). The aquatic species composition represents a mix of generally common warm to cold water species that are intermittently tolerant to tolerant of environmental perturbation with *Salmonid* species being the exception (AECOM, 2018). Coldwater species that are generally intolerant such as Atlantic Salmon and Brown Trout were identified, however are not anticipated to be resident fish. Rather, they have been captured in the Don River as a result of sport fish restocking initiatives and/or seasonal migration to and from Lake Ontario (AECOM, 2018; TRCA, 2009). Toronto and Region Conservation Authority fish community sampling locations are provided in **Figure 4-4A**. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk have been recorded within the Ontario Line North Study Area (Fisheries and Oceans Canada, 2020), except historical records discussed in **Section 4.7.2**.

Table 4-10 provides a summary of records including the number of fish species and thermal regime.

Table 4-10: Fish Community in Don River within Ontario Line South Study Area

Watercourse	Number of Fish Species	Thermal Regime[1]	Fish Community Records (2011-2019; Source: Toronto and Region Conservation Authority)
Don River	33	Warm[2]	Mixed Assemblage of Cold, Cool and Warm Water Species[3] including: **Cold:** – Atlantic Salmon* – Alewife* – Brown Trout* – Chinook Salmon* – Rainbow Trout* **Cool:** – Blacknose Dace – Common Shiner

Watercourse	Number of Fish Species	Thermal Regime[1]	Fish Community Records (2011-2019; Source: Toronto and Region Conservation Authority)
			– Creek Chub – Emerald Shiner – Gizzard Shad – Northern Pike – Rock Bass – Round Goby – Sea Lamprey – Smallmouth Bass – Spottail Shiner – Walleye – White Sucker – Yellow Perch – Quillback **Warm:** – Bigmouth Buffalo – Bluntnose Minnow – Brown Bullhead – Common Carp* – Fathead Minnow – Freshwater Drum – Goldfish* – Goldfish x Common Carp hybrid* – Koi* – Longnose Gar – Pumpkinseed – Spotfin Shiner – White Bass

Note: 1. Thermal regime data provided by Toronto and Region Conservation Authority (2020).
2. Coldwater species such as salmon and trout were identified, however are not anticipated to be resident fish, rather a result of sport fish restocking initiatives and/or seasonal migration to and from Lake Ontario (AECOM, 2018). As such, thermal regime is based on resident fish community structure and has been confirmed through Toronto and Region Conservation Authority correspondence as a warmwater regime.
3. Thermal Regime by species Source: The Ontario Freshwater Fishes Life History Database, Eakins, 2020).
* denotes non-native species (Source: Fish Communities of the Toronto Waterfront, TRCA, 2008).

4.4.3 Ontario Line North

4.4.3.1 Watershed Description

The general watershed characteristics of the Don River in the Ontario Line South Study Area described in **Section 4.4.2.1** above also apply to the reaches of the Don River and Don River West Branch located within the Ontario Line North Study Area

4.4.3.2 Aquatic Habitat Description

As outlined in **Section 2.2.3.2**, field investigations of the general aquatic habitat conditions occurred within the Millwood Road and E.T. Seton Park Areas of Investigation in the Ontario Line North Study Area, as seen in **Figure 4-4B**. The results of these field investigations are summarized below.

Millwood Road Area of Investigation

The assessed reach of the Don River in the Millwood Road Area of Investigation was conveyed southwest through the Study Area with moderate flow and morphology consisting of sequences of runs (50%), riffles (25%) and pools (25%). The mean wetted width of the channel was approximately 20 metres and mean wetted depth was approximately 0.3 metres. The mean bankfull depth was approximately 25 metres and mean bankfull depth was approximately 1.0 metres. Substrate was mainly comprised of cobble, gravel, sand, silt, and boulder, in order of dominance. Right upstream bank was stable, while the left upstream bank was moderately unstable with scouring due to high water levels. Riparian cover was low (30%) and consisted of trees (90%) and shrubs (10%). Instream cover (100% total cover) was provided primarily by cobble (90%), boulder (5%) and woody debris (5%). No barriers to fish passage or groundwater indicators were observed.

The assessed reach provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk identified in desktop review or agency correspondence that are afforded protection under the Endangered Species Act were identified within the surveyed reach. A photographic log of the assessed reach is presented in **Appendix D**.

E.T. Seton Park Area of Investigation

The assessed reach of the Don River West Branch was conveyed southwest through the Study Area with moderate flow and morphology consisting of sequences of runs (50%), riffles (25%) and pools (25%). The mean wetted width of the channel was approximately 15 metres and mean wetted depth was approximately 0.2 metres. The mean bankfull depth was approximately 20 metres and mean bankfull depth was approximately 1.0 metres. Substrate was mainly comprised of cobble, gravel, sand, silt, and boulder, in order of dominance. Banks were unstable with scouring at meanders throughout the Ontario Line North Study Area. Riparian cover was moderate (35%) and consisted of trees (90%) and shrubs (10%). Instream cover (100% total cover) was provided primarily by cobble (60%), boulder (35%) and woody debris (15%). No barriers to fish passage or groundwater indicators were observed.

The assessed reach provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk identified in desktop review or Toronto and Region Conservation Authority sampling data that are afforded protection under the Endangered Species Act were identified within the surveyed reach. A photographic log of the assessed reach is presented in **Appendix D**.

4.4.3.3 Fish Species Composition

The aquatic species composition represents a mix of generally common forage that are tolerant of environmental perturbation.

Fish records for the Don River West Branch within and upstream of the Ontario Line North Study Area were obtained from Toronto and Region Conservation Authority (2020).**Table 4-11** below provides a summary of records including the number of fish species and thermal regime within the Don River West Branch. Toronto and Region Conservation Authority fish community sampling locations are provided in **Figure 4-4B**. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk have been recorded within the Ontario Line North Study Area (Fisheries and Oceans Canada, 2020), except historical records discussed in **Section 4.7.3**.

Table 4-11: Fish Community in Don River Study Area within the Ontario Line North Study Area

Official Name Label	Number of Fish Species	Thermal Regime[1]	Toronto and Region Conservation Authority/Ministry of Natural Resources and Forestry Fish Community Records
Don River West Branch[2]	5	Warm	Mixed Assemblage of Cool and Warm Water Species[3] including: **Cool:** – Blacknose Dace – Creek Chub – Longnose Dace – White Sucker **Warm:** – Fathead Minnow

Note: 1. Thermal regime data provided by Toronto and Region Conservation Authority (2020).
2. Fish community assemblage within the Don River may consist of a larger species diversity and may include some of the species identified in Table 4-10. However, Toronto and Region Conservation Authority fish community records presented in Table 4-11 are sourced from Toronto and Region Conservation Authority sampling locations in closest proximity to the Ontario Line North Study Area.
3. Thermal Regime by species Source: The Ontario Freshwater Fishes Life History Database, Eakins, 2020).
* denotes non-native species (Source: Fish Communities of the Toronto Waterfront, TRCA, 2008).

4.5 Wildlife and Wildlife Habitat

Based on a review of wildlife atlases, there are records of 28 mammal species, 125 bird species, 31 herpetofauna species and 104 butterfly species in the Ontario Line Study Area (refer to **Appendix E** for comprehensive species lists). The majority of the wildlife are common in the City of Toronto and tolerant to anthropogenic disturbances, while a small proportion is comprised of sensitive or rare species (refer to **Sections 4.6** and **4.7** for discussion on Species of Conservation Concern and Species at Risk).

Forested ravines, City parks and open spaces that make up the City of Toronto's Natural Heritage System provide important habitats for wildlife in an urban setting (City of Toronto, 2012). The forested ravines of the Don River act as important wildlife corridors and allow for the movement of mammals, herpetofauna, birds and butterflies between different areas to seek food, shelter and mates within the City of Toronto's Natural Heritage System (City of Toronto, 2012). The Don River also provides connectivity from Lake Ontario and the Greenbelt. In addition, the forested river valleys and ravines associated with the Don River Valley, such as those in the Ontario Line North Study Area for example, support the movement of migratory breeding birds and provide shelter and food for migrant waterbirds such as Black-crowned Night-Herons (*Nycticorax nycticorax*), Spotted Sandpipers (*Actitis macularius*), and Belted Kingfishers (*Megaceryle alcyon*) among other bird species (Dougan & Associates and North-South Environmental Inc., 2009). In addition, City parks and open spaces, utility corridors and existing rail corridors may act as stepping stones that provide connectivity to major natural systems (e.g., forested ravines of the Don River) and support wildlife movement (City of Toronto, 2018).

Within the Ontario Line Study Area, there were 23 area-sensitive forest breeding bird species recorded between 2001 and 2005 based on the Ontario Breeding Bird Atlas (BSC *et al*., 2006); these species are identified in **Appendix E**. Area-sensitive refers to species that require large patches of habitat (e.g., forest) to carry out their critical life processes (e.g., foraging and reproduction) or occur in higher densities in larger areas of habitat (Environment Canada, 2007).

The following sub-section discuss local wildlife habitat conditions within each Study Area.

4.5.1 Ontario Line West

Appendix E has a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line West Study Area. The majority of these species are common and secure in Ontario and tolerant to urban conditions. Many bird species are protected under the

Migratory Birds Convention Act and a few Species of Conservation Concern and Species at Risk species were noted which are further described in **Sections 4.6** and **4.7** below.

Generally, the Ontario Line West Study Area is largely urbanized with very limited naturalized areas providing low-quality habitat for urban wildlife due to fragmentation, limited connectivity to significant natural areas, presence of non-native and invasive plants, and noise and vibration from surrounding vehicle, train and pedestrian traffic. However, it is important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for many migratory birds protected under the Migratory Birds Convention Act. The existing rail corridor may support movement of small mammals, birds and insects but overall is considered to be a poor wildlife linkage due to limited connectivity to significant natural areas, which are generally absent in the Ontario Line West Study Area.

4.5.1.1 Incidental Wildlife Observations

The following incidental wildlife were recorded during the 2020 field investigations within the Ontario Line West Study Area:

- Barn Swallow (*Hirundo rustica*)
- Song Sparrow (*Melospiza melodia*)
- Chimney Swift (*Chaetura pelagica*)

Song Sparrow is a common bird that is protected under the Migratory Birds Convention Act; however, Barn Swallow and Chimney Swift are listed as Threatened and protected under the Endangered Species Act, as well as the Migratory Birds Convention Act (refer to **Section 4.7** for detailed discussion on Species at Risk). Barn Swallows were observed flying over and foraging over mowed lawns of the Garrison Commons; however, no nests were observed in the vicinity of the Garrison Commons from accessible areas. It is possible that Barn Swallows are nesting at sites closer to the waterfront and foraging further away in open areas such as Garrison Commons. Chimney Swifts were observed flying over the Royal Regiment of Canada Museum, which appears to contain an uncapped smokestack. It is suspected that Chimney Swifts may be using this smokestack as nesting and roosting habitat; however, none were incidentally observed entering the smokestack. Chimney Swifts were also observed flying over near Jefferson Avenue and the existing rail corridor.

4.5.2 Ontario Line South

Appendix E has a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line South Study Area. There is limited natural cover providing wildlife habitat within the Ontario Line South Study Area in the form of urban parks, residential yards and narrow strips of riparian vegetation along the Don River and within the existing rail corridor (HDR, 2018). The Corktown Common Park is located in the West Don Lands adjacent to the Don River and was converted from an industrial brownfield to a 7.3 hectare park, containing a system of restored urban prairie and marsh habitats situated on top of a flood protection landform (Waterfront Toronto, 2020).

This park provides habitat for urban wildlife. Small pockets of low-quality vegetation west of Don River supporting urban wildlife were documented but generally lacked in amphibian breeding habitat (AECOM, 2018). Similarly, there is limited wildlife habitat within the existing rail corridor as vegetation communities are largely disturbed containing a high proportion of non-native and invasive plant species that were highly fragmentated with low connectivity to significant natural features (AECOM, 2017). The existing rail corridor provides low-quality movement corridors for some small mammals, birds and insects.

Most of the bird species recorded within the existing rail corridor east of the Don River consisted of common species in Ontario that are tolerant to urban disturbances except for Barn Swallow and Chimney Swift, both Species at Risk birds protected under the Endangered Species Act, noted flying over the existing rail corridor (AECOM, 2017; further discussed in **Section 4.7** below).

Areas that could potentially support herpetofauna tolerant of urban conditions including American Toad (*Anaxyrus americanus*), Dekay's Brownsnake (*Storeria d. dekayi*), and Eastern Gartersnake (*Thamnophis s.sirtalis*) were also identified close to the Don River (4Transit, 2018b).

Generally, the Ontario Line South Study Area provides limited wildlife habitat throughout and although the Don River may function as a movement corridor for small to medium sized urban wildlife, there is low connectivity to other significant natural features with many barriers to animal movement (i.e., railways, roads, construction areas and fences). However, it is important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for many migratory birds, which are protected under the Migratory Birds Convention Act.

4.5.3 Ontario Line North

Appendix **E** has a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line North Study Area. A large proportion of the Ontario Line North Study Area consists of residential and commercial buildings, with the remainder consisting of natural area systems associated with the Don River. Generally, the forested ravines of the Don River provide higher quality of wildlife habitat that facilitate and support wildlife movement as discussed above (**Section 4.5**). The following subsections document the results of wildlife surveys completed in the Ontario Line North Study Area as described in **Section 2.2.3.3** and **2.2.3.4**.

4.5.3.1 Millwood Road Area of Investigation

Birds

A total of 37 species of birds were recorded within the Millwood Road Area of Investigation during the breeding bird surveys completed in 2019. **Appendix F** provides a comprehensive summary of the breeding bird survey results and the locations of the eight breeding bird stations are mapped in **Figure 4-3H** in **Appendix A**. The most abundant species recorded was the Red-winged Blackbird (*Agelaius phoeniceus),* followed by Yellow Warbler (*Dendroica petechia*) and American Goldfinch (*Cardeulis tristis*). Two area-sensitive species were also recorded including Hairy Woodpecker (*Picoides villosus*) and Blue-gray Gnatcatcher (*Polioptila caerulea*). The majority of the species recorded are common throughout southern Ontario; however, many of the recorded species are protected under the Migratory Birds Convention Act (refer to **Appendix E** for details). One bird Species at Risk, Barn Swallow, and one bird Species of Conservation Concern, Eastern Wood-pewee (*Contopus virens*), were recorded during the breeding bird surveys.

Barn Swallow is listed as Threatened under the Endangered Species Act and receives species and habitat protection under the Endangered Species Act (refer to **Section 4.7** for detailed discussion pertaining to Species at Risk). A total of three individuals were observed foraging near breeding bird point count stations BBS-MC-004 and BBS-MC-006 during the first round of surveys. The North Toronto Wastewater Treatment Plant located immediately west of the Millwood Road Area of Investigation and Ontario Line North Study Area likely provides suitable nesting habitat for Barn Swallow as suitable open structures were observed and juveniles were observed perched on a building within the property during field investigations on July 9, 2019. Habitats for bird Species at Risk are discussed further in **Section 4.7**.

Eastern Wood-pewee is listed as Special Concern but does not receive species or habitat protection under the Endangered Species Act; however, habitats for Species of Conservation Concern are protected under the Provincial Policy Statement. A total of three individuals were recorded near breeding bird point count stations BBS-MC-007 and BBS-MC-008. As a result, the FOD5-3 and FOD7a are considered to be confirmed Significant Wildlife Habitat for Eastern Wood-pewee.

No nests were observed under the Millwood Road Overpass Bridge. Though the bridge was too tall to confirm with 100% confidence from the ground, given that the bridge is subjected to high levels of noise and vibration from daily vehicular traffic, its anticipated that it is unlikely to provide suitable nesting habitat for more sensitive species such as Barn Swallow.

There were two sites along the Don River where several burrows were noted in the eroded, undercut banks. The first site is located near the Millwood Road overpass bridge. At this location (Location 1), approximately 6 burrows were noted at the south eroding vertical bank of the Don River, estimated to be at height of 2 metres and 30 metres wide, near breeding point count BBS-MC-004; however, no Bank Swallows (*Riparia riparia*), a bird Species at Risk known to make and nest in burrows in vertical faces, were observed during the breeding bird surveys in 2019. Northern Rough-winged Swallows (*Stelgidopteryx serripennis*), a common species that also nests in burrows, was recorded flying near this breeding bird point count station. This suggests that these burrows may be used by this species but none were observed entering or exiting the burrows. The other site (Location 3) was located on the north bank approximately 200 metres west of the Millwood Road overpass bridge and was estimated to be at a height of 2 metres and 20 metres wide. At this location, approximately 12 burrows were noted in the sandy, sunny, south facing bank. No Bank Swallows were observed at these locations during 2019 field investigations. Photograph of these burrow locations are provided in the photographic log in **Appendix B**.

Amphibians and Amphibian Habitat

There were no amphibians heard calling on the first survey and it was noted that there was likely no standing water in the Forb Mineral Meadow Marsh (MAM2-10) inclusion of the Fresh – Moist Lowland Deciduous Forest Ecosite (FOD7b), which did not constitute suitable amphibian breeding habitat. Background noise levels were high due to vehicle, airplane, and rail traffic and the running water of the Don River. Due to high noise levels and absence of standing water, it was determined that the second and third rounds of amphibian breeding surveys were not required to further assess Station 1. Therefore, there was no significant amphibian breeding habitat identified within the Millwood Road Area of Investigation.

Incidental Wildlife Observations

The following incidental wildlife were recorded during the 2019 field investigations within the Millwood Road Area of Investigation:

- Red Admiral Butterfly (*Vanessa atalanta*)
- Eastern Cottontail (*Sylvilagus floridanus*)
- Monarch (*Danaus plexippus*).

These are common wildlife tolerant to urban disturbances; however, Monarch is listed as Special Concern under the Endangered Species Act and therefore is considered to be an Species of Conservation Concern. The Monarch was observed flying over the Mineral Cultural Meadow (CUM1-1) within the Right-of-Way of the Don Valley Parkway. There were no large patches of Common Milkweed identified within the Mineral Cultural Meadow; however, this meadow may act as foraging habitat for this species.

4.5.3.2 E.T. Seton Park Area of Investigation

Appendix E has a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line North Study Area. The majority of the species are common and secure in Ontario and tolerant to urban disturbances. The E.T. Park Area of Investigation provides habitat for many urban wildlife species, including migratory breeding bird species protected under the Migratory Birds Convention Act (Ramsay-Brown, 2015).

An additional two sites along the Don River within the E.T. Seton Park Area of Investigation were identified to have burrows in eroding, undercut banks. One site (Location 2) was initially identified during the fish habitat assessment completed in 2019. At this site, a total of six burrows were noted on the sandy, south bank (facing north) estimated to be at a height of 2 metres tall and 25 to 30 metres wide. Presence of woody debris and vegetation such as Manitoba maple were noted at the top and bottom of bank. The other site (Location 4) was located on the north bank (facing south) of the Don River and estimated to be at a height of 2 metres and approximately 30 metres in width. Approximately 30 burrows were noted in the vertical bank consisting of sandy substrate. The top of the bank consisted of mowed grass surrounded by young Manitoba maple and more mature willows. No Bank Swallows were observed at these locations during 2019 field investigations. Photographs of these burrow locations are provided in the photographic log in **Appendix B**.

Incidental Wildlife Observations

The following incidental wildlife were recorded during the 2020 field investigations within the E.T. Seton Park Area of Investigation:

- **Amphibians:**
  - American Toad
- **Birds:**
  - American Crow (Corvus brachyrhynchos)
  - Blue Jay (Cyanocitta cristata)
  - Cedar Waxwing (Bombycilla cedrorum)
  - Chimney Swift
  - Downy Woodpecker (Picoides pubescens)
  - Eastern Phoebe (Sayornis phoebe)
  - Eastern Wood-pewee (Contopus virens)
  - Gray Catbird (Dumetella carolinensis)
  - Mallard (Anas platyrhynchos)
  - Red-eyed Vireo (Vireo olivaceus)
  - Red-tailed Hawk (Buteo jamaicensis)
  - Red-winged Blackbird (Agelaius phoeniceus)
  - Song Sparrow (Melospiza melodia)
  - Yellow Warbler (Setophaga petechia)
- **Butterflies:**
  - Cabbage White (*Pieris rapae*)
  - Eastern Tiger Swallowtail (*Papilio glaucus*)
  - Spring Azure (*Celastrina ladon*)
- **Mammals:**
  - American Red Squirrel (*Tamiasciurus hudsonicus*)
  - Eastern Chipmunk (*Tamias striatus)*
  - Eastern Gray Squirrel (*Sciurus carolinensis*)

The majority of the wildlife observed are considered to be urban wildlife common to downtown Toronto. Two Chimney Swifts were observed flying over the circle parking lot south of Overlea Boulevard (refer to **Section 4.7** for detailed discussion for Species at Risk). Eastern Wood-pewee was recorded vocalizing in the Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FOD5-10) located west of the Don River.

In addition, anecdotal evidence was provided by a member of the public that there was an active Cooper's Hawk nest in the Red Oak Deciduous Plantation (CUP1-8) Community in previous years.

4.6 Significant Wildlife Habitat

The following sub-sections identify candidate and confirmed Significant Wildlife Habitat within the Ontario Line Study Area. Significant Wildlife Habitat, including habitats for Species of Conservation Concern, receive protection under the Provincial Policy Statement and should thus be considered when corridors and rights-of-way for significant transportation are being planned according to Section 1.6.8.6 of the Provincial Policy Statement. Species of Conservation Concern may also be afforded protection under the Migratory Birds Convention Act or Ontario Fish and Wildlife Conservation Act, 1997.

A Significant Wildlife Habitat screening for each Study Area is provided in **Appendix G**. A habitat screening for Species of Conservation Concern was completed for each Study Area following the methods described in **Section 2.3** and is provided in **Appendix H**. Applicable Ecological Land Classification vegetation communities for each candidate or confirmed Significant Wildlife Habitat were identified and are mapped in **Figure 4-3** in **Appendix A**.

4.6.1 Ontario Line West

Based on the preliminary review of Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a), the following Significant Wildlife Habitat types may occur within the Ontario Line West Study Area. These features are mapped in **Figures 4-3A to 4-3B**. Refer to **Appendix G** for the Significant Wildlife Habitat Screening in the Ontario Line West Study Area.

Seasonal Concentration Areas:

- **Candidate Bat Maternity Colonies**
  Deciduous Forests (FOD), Mixed Forests (FOM), Deciduous Swamp (SWD) and Mixed Swamp (SWM) communities are considered to be candidate bat maternity colony habitats. A Deciduous Forest Community (FOD4) was identified within the Study Area north of the Gardiner Expressway between Strachan Avenue and Bathurst Street.

Habitats of Species of Conservation Concern (refer to Appendix H for details):

- **Candidate Habitat for Species of Conservation Concern:**
  - **Common Nighthawk (*Chordeiles minor*)**
    This species may nest on the flat, gravel rooftops of buildings in urban areas (Brigham *et al.,* 2011).
  - **Eastern Wood-pewee (*Contopus virens*)**
    A forested area (FOD4) within the existing rail corridor may provide suitable nesting habitat. This species is protected by Migratory Birds Convention Act.
  - **Peregrine Falcon (*Falco peregrinus*)**
    High-rise buildings may provide suitable nesting habitat. This species is not protected by Migratory Birds Convention Act but receives protection under the Ontario Fish and Wildlife Conservation Act, 1997.
  - **Red-headed Woodpecker (*Melanerpes erythrocephalus*)**
    a forested area (FOD4) within the existing rail corridor may provide suitable habitat for this species. This species is protected by Migratory Birds Convention Act.

There were no candidate or confirmed rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the Ontario Line West Study Area. The Ontario Line West Study Area is significantly urbanized and contains many barriers to animal movements (i.e., railways, roads, construction areas and fences). In addition, there were no confirmed Species of Conservation Concern habitats identified within the Ontario Line West Study Area.

4.6.2 Ontario Line South

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) and the sources listed in **Section 2.1**, the following Significant Wildlife Habitat types occur or may occur within the Ontario Line South Study Area. These features are mapped in **Figures 4-3C to 4-3G**. Refer to **Appendix G** for the Significant Wildlife Habitat Screening in the Ontario Line South Study Area.

Habitats of Species of Conservation Concern (refer to Appendix H for details):

- **Confirmed Habitat for Species of Conservation Concern:**
  - **Peregrine Falcon**
    This species may nest on ledges of high-rise buildings. This species

was recorded by Toronto and Region Conservation Authority in 2010 near the intersection of Queen Street West and University Avenue. The Sheraton Centre Toronto Hotel located at 123 Queen Street West is a confirmed and current nesting location for this species (Canadian Peregrine Foundation, 2020). This species is not protected by Migratory Birds Convention Act but receives protection under the Ontario Fish and Wildlife Conservation Act, 1997.

- **Northern Map Turtle**
  The Don River may serve as a movement corridor for this species due to its moderate flow and less than 1 metre depth. However, there are no suitable nesting or basking habitats present. A single record of this species within the Ontario Line South Study Area was reported by Ontario Nature in 2016.

- **Candidate Habitat for Species of Conservation Concern:**
  - **Common Nighthawk**
    This species may nest on the flat, gravel rooftops of buildings in urban areas (Brigham *et al.,* 2011), as well as along the banks of the Don River. This species was recorded by Toronto and Region Conservation Authority in 2016 near the intersection of Pape Avenue and Danforth Avenue. This species is protected by Migratory Birds Convention Act.
  - **Eastern Wood-pewee**
    The cultural woodlands (CUW1) west of the Don River may provide suitable nesting habitat for this species. This species is protected by Migratory Birds Convention Act.
  - **Red-headed Woodpecker**
    Wooded areas (e.g., cultural woodlands) may provide suitable habitat for this species. This species is protected by Migratory Birds Convention Act.
  - **Monarch**
    Cultural meadows (CUM1) east and west of the Don River may provide suitable foraging and rearing habitat.
  - **Snapping Turtle**
    The Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 metres and may serve as movement corridor for this species to Lake Ontario. However, there are no suitable nesting, or basking habitats present.

There were no candidate or confirmed seasonal concentration areas, rare vegetation communities or specialised habitat for wildlife identified within the Ontario Line South Study Area. Although the Don River within the Ontario Line South Study Area acts as an important movement corridor for small urban wildlife in a highly urbanized area, it does not qualify as a candidate animal movement (amphibian or deer) corridor based on the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) due to high levels of urbanization, fragmentation and barriers to animal movements (i.e., railways, roads, construction areas and fences).

4.6.3 Ontario Line North

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015) and field investigations completed within the Millwood Road and E.T. Seton Park Areas of Investigation, the following Significant Wildlife Habitat types occur or may occur within the Ontario Line North Study Area. These features are mapped in **Figures 4-3H to 4-3I.** Refer to **Appendix G** for the Significant Wildlife Habitat Screening in the Ontario Line North Study Area.

Seasonal Concentration Areas:

- **Confirmed Turtle Wintering Areas**
  Based on records received from Toronto and Region Conservation Authority and Ontario Nature, the ponds in E.T. Seton Park behind the Ontario Science Centre support Painted Turtle and Snapping Turtle and provide confirmed turtle wintering area habitat.
- **Candidate Bat Maternity Colonies**
  Deciduous Forests (FOD), Mixed Forests (FOM), Deciduous Swamp (SWD) and Mixed Swamp (SWM) communities are considered to be candidate bat maternity colony habitats. Suitable snag trees were observed within the treed areas in the Millwood Road and E.T. Seton Park Areas of Investigation.
- **Candidate Reptile Hibernacula**
  Reptile hibernacula sites for common snakes may be present in burrows or rock outcroppings in dry areas within the Millwood Road and E.T. Seton Park Areas of Investigation.
- **Candidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)**
  There were four separate locations where several burrows were observed at each location in the vertical eroded banks along the Don River. Two locations (Burrow Locations 1 and 3) were within the Millwood Road Area of

Investigation and the other two locations (Burrow Locations 2 and 4) were in the E.T. Seton Park Area of Investigation.

- **Candidate Landbird Migratory Stopover Area**
  According to Migratory Birds in the City of Toronto (Dougan & Associates and North-South Environmental Inc., 2009), the natural areas within the City of Toronto, specifically along the shoreline and those associated with ravine systems such as the Don River act as an annual stopover for migratory birds. Therefore, the natural areas within the Millwood Road and E.T. Seton Park Areas of Investigation, which are within approximately 5 kilometres (km) of the Lake Ontario shoreline may act as candidate landbird migratory stopover areas. These locations cannot be confirmed as significant as detailed bird migration surveys were not completed.

Specialized Habitat for Wildlife:

- **Candidate Turtle Nesting Areas**
  Sandy or gravel shorelines along the Don River may provide suitable nesting habitat for turtles (refer to BBO1 community in **Figure 4-3H**).
- **Confirmed Amphibian Wetland Breeding Habitat**
  The ponds in E.T. Seton Park behind the Ontario Science Centre and associated marshes provide amphibian breeding habitat as confirmed through records received from Ontario Nature, including records of American Toad, Green Frog (*Rana clamitans*) and American Bullfrog (*Lithobates catesbeianus*). According to the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015), wetlands with breeding American Bullfrogs are considered to be significant.
- **Confirmed Marsh Breeding Bird Habitat**
  Green Herons with probable breeding were observed in June 2020 and Trumpeter Swans in 2019 in the ponds behind the Ontario Science Centre based on records reviewed from eBird (2017). The pond and associated shallow marsh (MAS) communities are considered to be significant marsh breeding bird habitat.

Habitats of Species of Conservation Concern (refer to Appendix H for details):

- **Confirmed Habitat for Species of Conservation Concern:**
  - **Eastern Wood-pewee**
    Based on records from AECOM's field investigations and Toronto and Region Conservation Authority records, the forested areas within the Millwood Road and E.T. Seton Park Areas of Investigation provide

breeding habitat for Eastern Wood-pewee. This species is protected by Migratory Birds Convention Act.

- **Monarch**
  The Mineral Cultural Meadow (CUM1) within the Right-of-Way of the Don Valley Parkway in the Millwood Road Area of Investigation provides foraging and rearing habitat for this species. Large patches of Common Milkweed were not noted but the Mineral Cultural Meadow (CUM1) provides foraging habitat.
- **Snapping Turtle**
  The ponds in the E.T. Seton Park provide overwintering habitat for this species. Snapping Turtle was recorded by Toronto and Region Conservation Authority in these ponds in 2013.

- **Candidate Habitat for Species of Conservation Concern:**
  - **Western Chorus Frog (*Pseudacris maculata pop. 1*)**
    The ponds in E.T. Seton Park behind the Ontario Science Centre may provide suitable breeding habitat. Toronto and Region Conservation Authority has a record of Western Chorus Frog from 1990 in these ponds; however, its unlikely that this species still persists in this location given that this record is more than 20 years old.
  - **Black-crowned Night Heron (*Nycticorax nycticorax*)**
    This species may forage near the Don River and roost in trees along the forested riparian banks. However, this species likely nests in the Leslie Street Spit (outside the Ontario Line North Study Area), where there is a known large rookery. This species is protected by Migratory Birds Convention Act.
  - **Common Nighthawk**
    This species may nest on flat, gravel rooftops of buildings in urban areas (Brigham *et al.,* 2011). Several buildings within the Ontario Line North Study Area were identified to have flat rooftops. This species is protected under the Migratory Birds Convention Act.
  - **Great Egret (*Ardea alba*)**
    This species may forage near the Don River and roost in trees along the forested riparian banks. This species is protected by Migratory Birds Convention Act.
  - **Peregrine Falcon**
    There were no high-rise buildings identified within the Ontario Line North Study Area that are suitable for nesting; however, Peregrine

Falcons may be observed flying over the Study Area preying on abundant supply of pigeons, other small passerines and occasionally mammals (White *et al.,* 2020).

- **Red-headed Woodpecker**
  The forested areas within the Millwood Road and E.T. Seton Park Areas of Investigation may provide suitable habitat. This species is protected by Migratory Birds Convention Act.
- **Wood Thrush (*Hylocichla mustelina*)**
  The forested areas within the Millwood Road and E.T. Seton Park Areas of Investigation may provide suitable habitat. This species is protected by Migratory Birds Convention Act.
- **Monarch**
  Cultural meadows may provide foraging and rearing habitat for this species. A dense patch consisting of more than 60 common milkweeds was noted in the CUT1-1 community located east of Beth Nealson Drive (43.710944, -79.341518), which may act as suitable egg-laying habitat for Monarchs. No Monarch caterpillars were observed in this patch at the time of confirmatory Ecological Land Classification surveys in 2020.
- **Northern Map Turtle**
  The Don River may serve as a movement corridor and provide nesting habitat for this species.
- **Snapping Turtle**
  The Don River is a moderately flowing river with depths ranging from 0.1 metres to 1.0 metres, with sandy/gravel banks at certain locations and may serve as movement corridor for this species to Lake Ontario, as well as nesting habitat. Toronto and Region Conservation Authority provided a record of Snapping Turtle in the ponds behind the Ontario Science Centre from 2013.

Animal Movement Corridors:

- **Candidate Amphibian Movement Corridor**
  The Don River and the forested habitats within the E.T. Seton Park Area of Investigation are candidate significant habitat due to the presence of significant amphibian breeding habitat within the ponds behind the Ontario Science Centre.

There were no rare vegetation communities identified within the Ontario Line North Study Area.

4.7 Species at Risk Habitat Screening

A habitat screening for Species at Risk was completed for each study area following the methods described in **Section 2.4** and is provided in **Appendix I**. The following sub-sections provide a brief discussion on the likelihood of Species at Risk occurring within each Study Area.

4.7.1 Ontario Line West

The following Species at Risk have a high probability of occurring within the Ontario Line West Study Area:

- **Barn Swallow**
  This species is listed as Threatened and receives protection under the Provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Barn Swallows are known to use anthropogenic structures (e.g., bridges and buildings); however, nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access mud to for nest building (Heagy et al., 2014). Therefore, anthropogenic structures (e.g., buildings) located within 200 metres of waterbodies were determined as having a higher probability of supporting Barn Swallow nesting. The buildings within the Ontario Line West Study Area were generally deemed to have low potential for supporting nesting Barn Swallows as these were located more than 200 metres from the nearest waterbody. This species was observed foraging within the Ontario Line West Study Area in the Garrison Commons; however, no nests in the vicinity were observed from accessible areas. It is suspected that Barn Swallow may be nesting closer to the Lake Ontario waterfront and forage further inland.
- **Chimney Swift**
  This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Chimney Swifts are aerial insectivores and are typically concentrated in urban settlements where there are suitable chimneys for nesting and roosting (Steeves *et al*., 2014). Chimney Swifts were observed flying over in the Ontario Line West Study Area. Buildings with suitable chimneys or standalone smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line West Study Area. Suitable

chimneys have the following characteristics (BSC, 2009; Committee on the Status of Endangered Wildlife in Canada , 2018):

- Chimneys with a wide diameter of at least 2.5 standard bricks (20 centimetres [cm] x 9 cm x 6 cm) in width or that have a minimum interior diameter of 25 to 30 cm (or 1 foot)
- Chimneys built of brick, stucco, stone or concrete
- Chimneys lacking caps, spark protectors and animal guards that would otherwise prevent entry
- Chimneys lacking aluminum flues or metal linings that may prevent Chimney Swifts from clinging to the interior of the chimney
- Internal chimney temperatures between 13°C and 43°C
- Chimney height extends beyond the roofline with a preferred height of 2.68 metres.

The following Species at Risk have a medium probability of occurring within the Ontario Line West Study Area:

- **Bat Species at Risk, including Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Long-eared Myotis (*Myotis septentrionalis*) and Tri-coloured Bat (*Perimyotis subflavus*)**
  Bat Species at Risk are listed as Endangered and receive protection under the Endangered Species Act. Little Brown Myotis and Northern Myotis may roost in trees that are hollow, have cavities or loose bark. Tri-coloured bats are known to roost in dead leaf clusters while Eastern Small-footed Myotis are known to roost in rocky outcrops and talus slopes. All bat Species at Risk are known to roost in anthropogenic structures such as buildings in crevice-like spaces; under sidings, eves, roof tiles or shingles or behind shutters or sliding doors, between building wings, cracks and crevices in walls, wall coatings, hollow mortice joints, rain gutters and chimneys; and / or in attics (Bat Conservation Trust, 2012; Ministry of Natural Resources and Forestry, 1984; Humphrey, 2017; Humphrey and Fotherby, 2019). There were no hibernacula identified within the Ontario Line West Study Area; however, maternity roosting habitats may be present. Within the Ontario Line West Study Area, a forest community (FOD4) along the existing rail corridor may provide suitable maternity roosting habitats for these species (refer to Figure 4-5A in Appendix A). Buildings with potential entry / exit points within the Ontario Line West Study Area may also be used by bat Species at Risk for roosting.

- **Butternut**
  This species is listed as Endangered and receives protection under the provincial Endangered Species Act. This species may occur within the cultural hedgerows within the existing rail corridor or within the forested area.

The remaining Species at Risk identified had low probability of occurrence within the Ontario Line West Study Area (refer to **Appendix I** for the full Species at Risk habitat screening):

- Bank Swallow
- Bobolink (*Dolichonyx oryzivorus*)
- Eastern Meadowlark (*Sturnella magna*)
- Blanding's Turtle.

There are no aquatic Species at Risk present given that there are no water features identified within the Ontario Line West Study Area.

4.7.2 Ontario Line South

The following Species at Risk have a high probability of occurring within the Ontario Line South Study Area:

- **Barn Swallow**
  This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Barn Swallows are aerial insectivores and commonly forage over open areas such as waterbodies, pastures with livestock and woodlands edges (Ministry of Natural Resources and Forestry, 2013a), and often live in close association with humans, building their cup-shaped mud nests, which are often reused from year to year, almost exclusively on human-made structures such as open barns, buildings, under bridges and in culverts (Ministry of Environment, Conservation and Parks, 2019a). Nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access to mud for nest building (Heagy *et al*., 2014). According to 4Transit (2018b), Barn Swallows were observed foraging in the vicinity of the rail bridge crossing the Don River suggesting that active nests may be present under this bridge (refer to **Figure 4-5B to 4-5E** in **Appendix A**). Generally, the buildings within the Ontario Line South Study Area were deemed to have limited potential to support nesting Barn Swallows as these were located more than 200 metres from the nearest waterbody.

- **Chimney Swift**
  This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line South Study Area. A list of characteristics for suitable chimneys is provided above in **Section 4.7.1**. Based on review of available online secondary source information, there are two confirmed Chimney Swift sites within the Ontario Line South Study Area. According to 4Transit (2018b), Chimney Swift nests were confirmed in 2017 inside the chimney located on 21 Don Roadway, which is situated on the east bank of the Don River and south of the existing rail corridor. The second location is one of the largest known roosts in Ontario, located at the Moss Park Armoury on 130 Queen Street East (Bird Studies Canada and SwiftWatch, 2019). Chimney Swifts have strong site fidelity (i.e., will return and use sites year after year) as long as the conditions of the nest and roost sites remain stable (Ministry of Natural Resources and Forestry, 2013b).

The following Species at Risk have a medium probability of occurring within the Ontario Line South Study Area:

- **Bat Species at Risk, including Eastern Small-footed Myotis, Little Brown Myotis, Northern Long-eared Myotis and Tri-coloured Bat**
  Bat Species at Risk are listed as Endangered and receive protection under the Endangered Species Act. There were no hibernacula identified within the Ontario Line South Study Area; however, maternity roosting habitats may be present. Within the Ontario Line South Study Area, treed areas, including forest and cultural woodlands within the existing rail corridor may provide suitable maternity roosting habitats for these species (refer to **Figures 4-5F to 4-5G** in **Appendix A**). Buildings with potential entry / exit points within the Ontario Line South Study Area may also be used by bat Species at Risk for roosting. The rail bridge over the Don River is not considered to be roosting habitat for bat Species at Risk as these species are not known to use bridges or rail overpasses as day roost habitats at northern latitudes (Keeley and Tuttle, 1999; Bennet *et al*., 2008; Bektas *et al*., 2018; Civjan *et al*., No Date; Adam and Hays, 2000). Documented cases of this behaviour have only been recorded in the southern United States along with the Pacific northwest and west coast (Keeley and Tuttle, 1999; Bennet *et al*., 2008; Bektas *et al*., 2018; Civjan *et al*., No Date; Adam and Hays, 2000). There are no documented cases of bats utilizing bridges as roosting habitat in Ontario or Michigan, as bridges at these northern latitudes are not warm enough to meet bats' microclimatic conditions.

- **Butternut**
  This species is listed as Endangered and receives protection under the provincial Endangered Species Act. This species may occur within the cultural hedgerows within the existing rail corridor.

The remaining Species at Risk had low probability of occurrence due to lack of habitat identified within the Ontario Line South Study Area (refer to **Appendix I** for full Species at Risk habitat screening):

- Bank Swallow
- Bobolink
- Eastern Meadowlark
- Blanding's Turtle.

There were historical Natural Heritage Information Centre records from 1884 and 1926 of Lake Sturgeon (*Acipenser fulvescens*) and Redside Dace (*Clinostomus elongatus*), respectively, as well as American Eel (4Transit, 2018a). All listed as Endangered under the Endangered Species Act, were not included in the Species at Risk habitat screening provided in **Appendix I** as these records from Natural Heritage Information Centre were considered to be historical (i.e., more than 20 years old). Lake Sturgeon and Redside Dace are unlikely to still persist within the Don River, which does not provide suitable habitat conditions for these species. American Eels are habitat generalists; however, Fisheries and Oceans Canada's 2020 Aquatic Species at Risk Map and MNRF data records are considered to be current and indicate that there are no critical habitat for aquatic Species at Risk in the Don River within the entire Ontario Line Study Area

4.7.3 Ontario Line North

The following Species at Risk have a high probability of occurring within the Ontario Line North Study Area:

- **Barn Swallow**
  This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. This species was observed foraging within the Millwood Road Area of Investigation during AECOM's breeding bird surveys. Barn Swallows are aerial insectivores and commonly forage over open areas such as waterbodies, pastures with livestock and woodlands edges (Ministry of Natural Resources and Forestry, 2013a), and often live in close association with humans, building their cup-shaped mud nests, which are often reused

from year to year, almost exclusively on human-made structures such as open barns, buildings, under bridges and in culverts (Ministry of Environment, Conservation and Parks, 2019a). Nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access to mud for nest building (Heagy *et al*., 2014). Therefore, anthropogenic structures located within 200 metres of waterbodies were considered to have a higher probability of supporting Barn Swallow nesting. It is anticipated that the buildings associated with the Ontario Science Centre and Go Green Youth Centre located within the E.T. Seton Park Area of Investigation may have higher probability of nesting Barn Swallows than other buildings within the Ontario Line North Study Area because they are within 200 metres of the Don River. In addition, the North Toronto Wastewater Treatment Plant located immediately west of the Millwood Road Area of Investigation and Ontario Line North Study Area likely provides suitable nesting habitat for Barn Swallow as suitable open structures were observed and juveniles were observed perched on a building within the property during field investigations on July 9, 2019.

- **Chimney Swift**
  This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Chimney Swifts are aerial insectivores and are typically concentrated in urban settlements where there are suitable chimneys for nesting and roosting (Steeves *et al*., 2014). Chimney Swift was recorded by Toronto and Region Conservation Authority in 2010 and 2016 foraging within the Millwood Road and E.T. Seton Park Areas of Investigation, suggesting that they may be nesting nearby**.** AECOM also observed Chimney Swifts foraging over the E.T. Seton Park Area of Investigation in 2020. A large uncapped chimney (as seen from Google Earth aerial Imagery) is located within the North Toronto Wastewater Treatment Plant, located immediately outside of the Ontario Line North Study Area, that may provide suitable habitat; however, no Chimney Swifts were recorded during AECOM's breeding bird surveys. Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line North Study Area. A list of characteristics for suitable chimneys is provided above in **Section 4.7.1**. Chimney Swifts have strong site fidelity (i.e., will return and use sites year after year) as long as the conditions of the nest and roost sites remain stable (Ministry of Natural Resources and Forestry, 2013b).
- **Butternut**
  This species is listed as Endangered and receives protection under the provincial Endangered Species Act. A total of five butternuts were identified

within the Ontario Line North Study Area, including two in the Millwood Road Area of Investigation and three in the E.T. Seton Park Area of Investigation with varying degrees of evidence of butternut canker (*Ophiognomonia clavigignenti-juglandacearum*). Detailed tree inventories are required during detailed design to confirm that there are no additional butternuts within the Project footprint.

The following Species at Risk have a medium probability of occurring within the Ontario Line North Study Area:

- **Bank Swallow**
  This species listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Bank Swallow nesting habitat includes naturally eroding banks and humanmade sand and gravel pits, quarries and stockpiles where vertical or near-vertical (at least 75°) surfaces of suitable material (typically fine sand or silt) are available (Ministry of Natural Resources and Forestry, 2017b). This species nest in burrows and is strongly colonial, rarely nesting alone (Garisson, 1999). Colonies may consist of 10 to 2,000 nests (Cornell Laboratory of Ornithology, 2019). There were four separate sites where several burrows (ranging from 6 to 30) were observed at each location in the vertical eroded banks of the Don River; two sites (Burrow Location 1 and 3) were in the Millwood Road Area of Investigation and the other two sites (Burrow Location 2 and 4) were in the E.T. Seton Park Area of Investigation. Representative photos of the locations and extents of the four sites are provided in **Appendix B**. Bank Swallows were not recorded during the breeding bird survey completed in 2019 within the Millwood Road Area of Investigation. As species-specific surveys were not yet completed to confirm use of burrows by Bank Swallows, these four locations were assumed to be suitable potential habitat.
- **Bat Species at Risk, including Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-coloured Bat**
  Bat Species at Risk are listed as Endangered and receive protection under the Endangered Species Act. There were no hibernacula identified within the Ontario Line North Study Area during field investigation or through the background information review; however, maternity roosting habitats may be present. Little Brown Myotis and Northern Myotis may roost in trees that are hollow, have cavities or loose bark. Tri-coloured bats are known to roost in dead leaf clusters while Eastern Small-footed Myotis are known to roost in rocky outcrops and talus slopes. All bat Species at Risk are also known to

roost in anthropogenic structures such as buildings in crevice-like spaces; under sidings, eves, roof tiles or shingles or behind shutters or sliding doors, between building wings, cracks and crevices in walls, wall coatings, hollow mortice joints, rain gutters and chimneys; and / or in attics (Bat Conservation Trust, 2012; Ministry of Natural Resources and Forestry, 1984; Humphrey, 2017; Humphrey and Fotherby, 2019). Within the Ontario Line North Study Area, forested areas associated with the Don River Valley where cavity trees are available may provide suitable maternity roosting habitats for these species (refer to **Figures 4-5F** to **4-5G** in **Appendix A**). Rocky outcrops weren't identified within the Ontario Line North Study Area. Buildings with potential entry / exit points within the Ontario Line North Study Area may also be used by bat Species at Risk for roosting. As outlined in **Section 4.7.2**, bat Species at Risk are not known to use bridges or rail overpasses as day roost habitats at northern latitudes. Therefore, the Millwood Road overpass bridge and the existing rail overpass crossing the Don River in E.T. Seton Park are not considered to be roosting habitat for bat Species at Risk.

The remaining Species at Risk recorded in the Ontario Line North Study Area had low probability of occurrence due to lack of habitat (refer to **Appendix I** for the full Species at Risk habitat screening):

- Bobolink;
- Eastern Meadowlark; and
- Blanding's Turtle.

As outlined in **Section 4.7.2**, Lake Sturgeon, American Eel and Redside Dace were not included in the Species at Risk habitat screening provided in **Appendix I** given their historical records (more than 20 years old). This is further confirmed through correspondence with Ministry of Natural Resources and Forestry on January 30 2018, wherein Ministry of Natural Resources and Forestry stated that there are no occupied habitats for Redside Dace or Lake Sturgeon within the Don River and Don River West Branch in the Ontario Line North Study Area. Furthermore, review of Fisheries and Oceans Canada's 2020 Aquatic Species at Risk Map indicated that there is no critical habitat for aquatic Species at Risk in the Don River within the entire Ontario Line Study Area. Fisheries and Oceans Canada's 2020 Aquatic Species at Risk Map and MNRF data records are considered current to confirm regulatory records.

There were records of Blanding's Turtle from 2019 (refer to **Appendix E**) in the vicinity of Millwood Road in the Ontario Line North Study Area (Ontario Nature, 2020); however, there were no records of Blanding's Turtle within the Ontario Line Study Area provided

by Ontario Nature. The Ontario Line North Study Area is located within a densely urbanized area with several movement barriers including roads, highways and existing rail tracks that would impede movement. Furthermore, the Don River is characterized as moderately flowing in the Ontario Line North Study Area which can also be a movement barrier for Blanding's Turtles (Ministry of Environment, Conservation and Parks, 2019b). Therefore, the probability of Blanding's Turtles traveling along the Don River Valley into the Ontario Line Study Area was deemed to be low.

5. Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities

In accordance with Sections 4(3)(6) and 4(3)(7) of Ontario Regulation 341/20: Ontario Line Project, this section provides a preliminary overview of potential impacts, mitigation measures, and monitoring activities associated with the Project.

See **Table 5-1** and **Table 5-2** for a list of preliminary potential impacts, mitigation measures, and monitoring activities to be further assessed and evaluated as part of the Project Early Works Report and/or Environmental Impact Assessment Report, as per Sections 8 and 15 of Ontario Regulation 341/20: Ontario Line Project.

Table 5-1: Preliminary Potential Impacts, Mitigation Measures and Monitoring During Construction

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Designated Natural Areas – West Don River Valley Candidate Regionally Significant Life Science Areas of Natural and Scientific Interest	▪ Vegetation removal within the West Don River Valley Candidate Regionally Significant Life Science Areas of Natural and Scientific Interest ▪ Disturbance, displacement or mortality of wildlife or habitat loss / degradation, including potential Significant Wildlife Habitat and Species at Risk ▪ Soil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment use ▪ Introduction or spread of Invasive Species ▪ Increased erosion and sedimentation ▪ Reduction in ecological function and integrity	▪ Refer below to mitigation measures described for Vegetation Communities. ▪ Refer below to mitigation measures described for Wildlife and Wildlife Habitat. ▪ Refer below to mitigation measures described for Species at Risk. ▪ Mitigation measures will be confirmed and refined as part of the Environmental Impact Assessment Report, as applicable.	▪ Refer below to monitoring described for Vegetation Communities. ▪ Refer below to monitoring described for Wildlife and Wildlife Habitat. ▪ Refer below to monitoring described for Species at Risk. ▪ Monitoring will be confirmed and refined as part of the Environmental Impact Assessment Report, as applicable.
Policy Areas – City of Toronto Natural Heritage System and E.T. Seton Park Environmentally Significant Area	▪ Vegetation removal within the City of Toronto Natural Heritage System and E.T. Seton Park Environmentally Significant Area ▪ Disturbance, displacement or mortality of wildlife or habitat loss / degradation, including potential Significant Wildlife Habitat and Species at Risk ▪ Disturbance, displacement or mortality of wildlife or habitat loss / degradation, including potential Significant Wildlife Habitat and Species at Risk ▪ Soil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment use. ▪ Introduction or spread of Invasive Species ▪ Increased erosion and sedimentation ▪ Reduction in ecological function and integrity	▪ Refer below to mitigation measures described for Vegetation Communities. ▪ Refer below to mitigation measures described for Wildlife and Wildlife Habitat. ▪ Refer below to mitigation measures described for Species at Risk. ▪ Mitigation measures will be confirmed and any additional mitigation measures will be identified as part of the Environmental Impact Assessment Report, as applicable.	▪ Refer below to monitoring described for Vegetation Communities. ▪ Refer below to mitigation measures described for Wildlife and Wildlife Habitat. ▪ Refer below to mitigation measures described for Species at Risk. ▪ Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable.
Policy Areas – City of Toronto Ravine and Natural Feature Protection	▪ Tree removal within the City of Toronto Ravine and Natural Feature Protection	▪ Refer below to mitigation measures described for Tree Removal under Vegetation Communities. ▪ Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020).	▪ Refer below to monitoring described for Vegetation Communities.
Policy Areas – Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and Regulation Areas	▪ Vegetation removal within Toronto and Region Conservation Authority Regulated Areas and Terrestrial Natural Heritage System	▪ Further consideration to minimize potential impacts on Toronto and Region Conservation Authority's Terrestrial Natural Heritage System to the extent possible will be undertaken during detailed design.	▪ Refer below to monitoring described for Vegetation Communities. ▪ Recommendations for additional monitoring related to vegetation removal within regulated areas may be determined through consultation with Toronto and Region Conservation Authority.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Policy Areas – Urban River Valley under the Greenbelt Plan	▪ Vegetation removal within the Urban River Valley	▪ Refer below to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment. ▪ Compensation for the removal of vegetation in accordance with Metrolinx's Vegetation Guideline (2020) will consider maintaining or enhancing connectivity along the Don River to the extent possible.	▪ Refer below to monitoring described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment.
Vegetation Communities	▪ Removal of vegetation communities ▪ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion	▪ Vegetation removal will be kept to a minimum and limited to within the construction footprint. ▪ Construction fencing and / or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ▪ Provide compensation for the removal of vegetation in accordance with Metrolinx's Vegetation Guideline (2020). ▪ Temporarily disturbed areas will be re-vegetated using non-invasive, preferably native plantings and / or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as needed. ▪ Vegetation removals will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds and Species at Risk) and features (e.g., Significant Wildlife Habitat). Refer to the Wildlife, Significant Wildlife Habitat and Species at Risk mitigation measures described below.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ▪ The approach to compensation monitoring will be determined by property ownership, applicable governing by-laws / regulations and location with respect to ecological functioning.
Vegetation Communities	▪ City and Private Tree Removal	▪ An Arborist Report by an I.S.A. Certified Arborist may be prepared with regard to the Ontario Forestry Act R.S.O. 1990, and other regulations and best management practices as applicable. ▪ The Arborist Report may include, but not be limited to the individual identification of trees within the Study Area including those that require removal or preservation, or trees that may be injured as a result of the Project. Trees to be identified within the Study Area may include those on Metrolinx property, trees on public and private lands, and boundary trees. The City of Toronto by-laws dictate the minimum area buffers to be inventoried and Diameter at Breast Height which requires inventory. ▪ Prior to the undertaking of tree removals, a Tree Removal Strategy / Tree Preservation Plan may be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto Tree Protection	▪ Regular inspection in areas of vegetation removal will be undertaken as required during construction to ensure that fencing is intact, only specified trees are removed and no damage is caused to the remaining trees and adjacent vegetation communities. ▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ▪ The approach to compensation monitoring will be determined by property ownership, applicable governing by-laws / regulations and location with respect to ecological functioning.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
		Policy and Specifications for Construction Near Trees Guidelines (2016) and adherence with best practices, standards and regulations on safety, environmental and wildlife protections. ▪ Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020). ▪ Pruning of branches will be conducted through the implementation of proper arboricultural techniques. ▪ Tree Protection Zone (TPZ) fencing will be established to protect and prevent tree injuries. TPZs will be clearly staked prior to construction using barriers in accordance with local by-law requirements.	
Vegetation Communities	▪ Increased erosion and sedimentation	▪ Construction fencing and / or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ▪ An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (2006), will be prepared prior to and implemented during construction to minimize the risk of sedimentation to the vegetation communities. ▪ Stockpiled materials or equipment will be stored within the construction footprint but shall be kept at least 30 metres away from any watercourse. Signs will be put up on site to indicate the 30 metres setback from any watercourse.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
Vegetation Communities	▪ Soil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment use ▪ Introduction or spread of Invasive Species	▪ A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ▪ Refuelling of equipment will occur at least 30 metres away from any watercourse. Signs will be put up on site to indicate the 30 metres setback from any watercourse. ▪ Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. ▪ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ▪ Ensure precautions are being taken to minimize the spread of invasive species by implementing the Clean Equipment Protocol for Industry (Halloran et al., 2013) on equipment and machinery prior to moving sites.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Wildlife and Wildlife Habitat – General	▪ Disturbance, displacement or mortality of wildlife	▪ If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and / or its habitat. For example, construction activities will cease or be reduced and wildlife will be encouraged to move off-site and away from the construction area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
Wildlife and Wildlife Habitat – General Significant Wildlife Habitat	▪ Disturbance, displacement or mortality of wildlife or habitat loss for the following Significant Wildlife Habitat: – Candidate Amphibian Movement Corridor – Candidate Bat Maternity Colonies – Candidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff) – Candidate Landbird Migratory Stopover Area – Candidate Reptile Hibernacula – Candidate Turtle Nesting Areas – Confirmed Amphibian Wetland Breeding Habitat – Confirmed Marsh Breeding Bird Habitat – Confirmed Turtle Wintering Area	▪ Potential impacts and appropriate mitigation measures for Significant Wildlife Habitat as result of the Project Footprint will be determined as part of the Environmental Impact Assessment Report, as appropriate. ▪ Prior to construction, investigation of the Project Footprint for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate.	▪ Monitoring requirements will be determined in the Environmental Impact Assessment Report.
Wildlife and Wildlife Habitat – Significant Wildlife Habitat – Monarch (Species of Conservation Concern)	▪ Disturbance or destruction of habitat used by Monarchs	▪ Identify opportunities to promote pollinator species and habitat in accordance with the Metrolinx Vegetation Guideline (2020). This may include planting or seeding native flowering plants in temporarily disturbed areas.	▪ Regular monitoring will be undertaken during construction to prevent unauthorized impacts to habitats used by Monarchs.
Wildlife and Wildlife Habitat – Significant Wildlife Habitat – Turtles and Turtle Habitat, including Species of Conservation Concern	▪ Potential for impacts to turtles and / or turtle habitat	▪ Work within turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work. ▪ Post-construction habitat restoration will be implemented as required.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
Wildlife and Wildlife Habitat – Significant Wildlife Habitat -– Snake Hibernacula	▪ Disturbance or destruction of Reptile Hibernaculum	▪ Where project activity occurs adjacent to suitable snake hibernacula, exclusionary fencing will be erected along the activity area to fully isolate the area of activity during the active snake season. In the event that exclusionary fencing cannot be installed, follow-up discussions with the Ministry of the Environment, Conservation and Parks and the Ministry of Natural Resources and Forestry will be required to determine adequate alternative mitigation measure(s). ▪ For areas where the hibernacula feature requires removal to facilitate development, the exclusion fencing is to be installed during the active snake season and prior to any construction activities commencing to prevent snakes from	▪ Monitoring will be undertaken prior to construction to survey exclusionary fencing installation and regular monitoring during construction to survey for snakes potentially trapped within exclusionary areas. ▪ Continuous monitoring of feature removal will be undertaken during activity.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
		entering the feature pre-removal. Any snakes encountered within the exclusion fencing will be relocated outside the fencing and within suitable habitat containing suitable vegetation cover / refuge by a qualified biologist in accordance with the required permit(s) in accordance with the Ministry of Natural Resources and Forestry's Reptile and Amphibian Exclusion Fencing (2013c).	
Wildlife and Wildlife Habitat – Significant Wildlife Habitat – Common Nighthawk	▪ Removal of candidate nesting habitat for Common Nighthawk	▪ Refer below to mitigation measures described for Migratory Breeding Birds and Nests. ▪ Demolition of buildings should be scheduled outside of the breeding bird season of April 1 to August 31. If this is not possible and buildings must be demolished during this period, the following will be completed: ▪ The roofs will be checked for presence of gravel. If gravel is not present, then the building is unlikely to provide suitable nesting habitat for Common Nighthawk. If gravel is present, a search for eggs and nesting activity for Common Nighthawk on the roof will be conducted. If nests or nesting activity of Common Nighthawk are confirmed, the building cannot be demolished until it is confirmed by a Qualified Biologist that young have fully fledged and left the nest.	▪ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Wildlife and Wildlife Habitat – Migratory Breeding Birds and Nests, including Species of Conservation Concern birds	▪ Disturbance or destruction of migratory bird nests	▪ All works must comply with the Migratory Birds Convention Act, including timing windows for the nesting period (April 1 to August 31 in Ontario). ▪ If activities are proposed to occur during the general nesting period a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ▪ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection.	▪ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
Wildlife and Wildlife Habitat – Wildlife Habitat Connectivity	▪ Decrease of habitat connectivity for wildlife	▪ Refer to the mitigation measures described above for Urban River Valley under the Greenbelt Plan and Vegetation Communities. ▪ Opportunities to enhance the natural environment and provide a connection to the surrounding natural areas will be explored to the extent possible.	▪ Refer to monitoring described for Vegetation Communities.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Species at Risk – General	▪ Habitat loss, disturbance and / or mortality to Species at Risk	▪ All requirements of the Endangered Species Act and Species at Risk Act will be met. Species-specific mitigation measures will be implemented based on any recommended surveys undertaken prior to construction, and consultation with Ministry of Environment, Conservation and Parks / Ministry of Natural Resources and Forestry. ▪ If Species at Risk is present and conservation strategies have been developed by Ministry of Natural Resources and Forestry / Ministry of the Environment, Conservation and Parks, the Constructor will follow the commitments in the recover strategy. ▪ On-site personnel will be provided with information (e.g., factsheets) that addresses the existence of potential Species at Risk on site, the identification of the Species at Risk species and the procedure(s) to follow if an individual is encountered or injured.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ▪ Species-specific monitoring activities will be developed in accordance with any registration and / or permitting requirements under the Endangered Species Act.
Species at Risk – Barn / Bank Swallow	▪ Habitat loss, disturbance and / or mortality to Barn and / or Bank Swallow	▪ Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active. ▪ Where loss or disturbance cannot be avoided (e.g., due to work on bridges or banks), all requirements under the Endangered Species Act will be met, including any registration, compensation, replacement structures and / or permitting requirements. ▪ If construction activities are scheduled during the nesting season for Barn and / or Bank Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn and / or Bank Swallows are nesting on structures or banks that may be affected by construction activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required.
Species at Risk – Chimney Swift	▪ Habitat loss, disturbance and / or mortality to Chimney Swift	▪ If repair, maintenance or demolition of buildings / structures with suitable roosting / nesting habitat (e.g., chimneys) is to take place, targeted surveys for Chimney Swift will be completed as per the Bird Studies Canada Chimney Swift Monitoring Protocol (2009) during the nesting season of April 15 to October 15. ▪ Repair, maintenance, or demolition of an identified roosting / nesting structure may constitute destruction of critical habitat and would be discussed in advance with the Ministry of Environment, Conservation and Parks and requirements of the Endangered Species Act will be met.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Species at Risk – Species at Risk Bats	▪ Habitat loss, disturbance and/or mortality to Species at Risk Bats	▪ All requirements of the Endangered Species Act will be met. ▪ Additional monitoring, mitigation and compensation for removal of suitable treed or anthropogenic roosting habitat may be required based on the results of additional surveys and consultation with the Ministry of Environment, Conservation and Parks.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required.
Species at Risk – Butternut	▪ Habitat loss, disturbance and/or mortality of Butternut	▪ If any works are proposed within the critical root zone (i.e., 25 metres radius from stem) of a butternut, mitigation, monitoring and compensation to address impacts to butternuts may be required based on the results of additional surveys (i.e., Butternut Health Assessment and DNA testing to confirm purity) and consultation with the Ministry of Environment, Conservation and Parks.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required.
Aquatic Environment – Wetlands and Waterbodies	▪ Removal or impacts to wetland, aquatic and riparian vegetation, degradation of wetlands as result of dewatering and discharge activities; erosion and sedimentation to wetlands / waterbodies from construction; risk of contamination to wetlands / waterbodies as a result of spills.	▪ Construction activities will maintain the buffers established during the design phase to minimize potential negative impacts to wetlands and waterbodies. ▪ Shorelines or banks disturbed by construction activities will be immediately stabilized by any activity associated with the project to prevent erosion and / or sedimentation, preferably through re-vegetation with native species suitable for the site. ▪ An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (December, 2006), as amended from time to time, will be prepared prior to and implemented during construction to minimize the risk of sedimentation to the waterbody. ▪ A Spill Prevention and Response Plan will be developed before work commences to ensure procedures and policies are in place during construction to minimize impacts to wetlands and watercourses. ▪ In wetland areas where vernal pooling occurs, prior to dewatering isolated work areas, wildlife will be captured and relocated to suitable habitat outside of the work area. ▪ Vegetation removals will also consider and mitigate potential impacts to wetland communities. Until such a time, that an Ontario Wetland Evaluation System evaluation is completed and evaluated by Ministry of Natural Resources and Forestry, unevaluated wetlands should be considered as significant for the purposes of assessing impacts.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include alteration of activities to minimize impacts and enhance mitigation measures.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
		■ Wetland communities potentially affected by the Project will be clearly staked out on site. ■ If dewatering is proposed, it is recommended to be undertaken during the winter when the potential impacts of changes in water levels are less significant in wetland communities. During detailed design the need for a dewatering zone of influence assessment and dewatering monitoring plan should be evaluated. The dewatering monitoring plan, should it be deemed required, will monitor for potential negative effects to nearby wetlands and adjacent vegetation communities if affected due to dewatering activities, and will provide an adaptive management plan should negative effects be observed.	
Aquatic Environment – Fish and Fish Habitat	■ Potential for direct, in-water impacts to fish and fish habitat. ■ Dewatering activities and water discharge resulting in changes in water velocity or temperature, soil and erosion, release of contaminated and sediment-laden water, fish habitat structure and cover, food supply, nutrient concentration, access to habitat leading to the displacement or stranding of fish.	■ All requirements of the Fisheries Act will be met. ■ In the event that in-water and/or near water construction works are required appropriate mitigation measures will be followed, as identified in Applicable Law and through consultation with the relevant authorities including Fisheries and Oceans Canada. In-water works will be planned to consider timing windows to protect fish, including their eggs, juveniles, spawning adults and / or the organisms upon which they feed. ■ Design water management system and dewatering operations to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody or adjacent wetlands. ■ Prior to dewatering isolated work areas, fish will be captured and relocated to suitable habitat outside of the work area under a Licence to Collect Fish for Scientific Purposes from the Ministry of Natural Resources and Forestry.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ■ Monitoring for dewatering will be undertaken to confirm sediment-laden discharge, visible scour/erosion and/or changes in temperature within any receiving watercourse does not occur.

Notes: Regulations, standards and guidance documents referenced herein are current as of the time of writing and may be amended from time to time.
If clarification is required regarding regulatory requirements, the Constructor is encouraged to consult with the appropriate regulatory agencies.

Table 5-2: Preliminary Potential Impacts, Mitigation Measures and Monitoring During Operation

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Designated Natural Areas – West Don River Valley Candidate Regionally Significant Life Science Areas of Natural and Scientific Interest	▪ Potential impacts will be assessed and evaluated as part of the Environmental Impact Assessment Report.	▪ Mitigation measures will be determined as part of the Environmental Impact Assessment Report, as applicable.	▪ Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable.
Policy Areas – City of Toronto Natural Heritage System, E.T. Seton Park Environmentally Significant Area and Ravine and Natural Feature Protection; Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and Regulation Areas; Urban River Valley under the Greenbelt Plan	▪ Potential impacts will be assessed and evaluated as part of the Environmental Impact Assessment Report.	▪ Mitigation measures will be determined as part of the Environmental Impact Assessment Report, as applicable.	▪ Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable.
Vegetation Communities – Vegetation Communities	▪ Removal of vegetation during operational vegetation maintenance activities, if applicable. ▪ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion during operational vegetation maintenance activities, if applicable.	▪ Vegetation removal will be kept to a minimum and limited to within the Metrolinx right-of-way.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
Vegetation Communities – Vegetation Communities	▪ Soil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment use during maintenance activities.	▪ A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ▪ Refuelling of equipment will occur at least 30 metres away from any watercourse. ▪ Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. ▪ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
Wildlife and Wildlife Habitat – General	▪ Disturbance, displacement or mortality of wildlife during operational vegetation maintenance activities, if applicable.	▪ If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and / or its habitat. For example, operational vegetation maintenance activities will cease or be reduced and wildlife will be encouraged to move off-site and away from the work area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Wildlife and Wildlife Habitat – Significant Wildlife Habitat – Turtles and Turtle Habitat, including Species of Conservation Concern	▪ Potential for impacts to turtles and / or turtle habitat during operational vegetation maintenance activities, if applicable.	▪ Work within turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
Wildlife and Wildlife Habitat – Migratory Breeding Birds and Nests, including Species of Conservation Concern birds	▪ Disturbance or destruction of migratory bird nests during operational vegetation maintenance activities, if applicable.	▪ All works must comply with the Migratory Birds Convention Act, including timing windows for the nesting period (April 1 to August 31 in Ontario). ▪ If operation vegetation maintenance activities are proposed to occur during the general nesting period a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ▪ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection.	▪ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
Species at Risk – General	▪ Habitat loss, disturbance and / or mortality to Species at Risk during operational vegetation maintenance activities, if applicable.	▪ All requirements of the Endangered Species Act and Species at Risk Act will be met. Species-specific mitigation measures will be implemented based on any recommended surveys undertaken prior to construction, and consultation with Ministry of Environment, Conservation and Parks / Ministry of Natural Resources and Forestry.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ▪ Species-specific monitoring activities will be developed in accordance with any registration and / or permitting requirements under the Endangered Species Act.
Species at Risk – Barn / Bank Swallow	▪ Habitat loss, disturbance and / or mortality to Barn and / or Bank Swallow during operational vegetation maintenance activities, if applicable.	▪ If operational vegetation maintenance activities are scheduled during the nesting season for Barn and / or Bank Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn and / or Bank Swallows are nesting on structures or banks that may be affected by activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required.
Species at Risk – Bats	▪ Habitat loss, disturbance and/or mortality to Species at Risk bats during operational vegetation maintenance activities, if applicable.	▪ Removal of identified roosting structure / habitat would be discussed in advance with the Ministry of Environment, Conservation and Parks and requirements of the Endangered Species Act will be met. ▪ Additional monitoring, mitigation and compensation for removal of suitable treed or anthropogenic roosting habitat may be required based on the results of additional surveys and consultation with the Ministry of Environment, Conservation and Parks.	▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required.
Aquatic Environment – Wetlands and Waterbodies	▪ Potential impacts are not anticipated during operations.	▪ None required.	▪ None required.
Aquatic Environment – Fish and Fish Habitat	▪ Potential impacts are not anticipated during operations.	▪ None required.	▪ None required.

6. Future Studies

The following studies may be undertaken, as required for specific alignment(s) / footprint(s) once those are confirmed as project planning and design advance to support the Project Environmental Impact Assessment Report:

- **Vegetation**
  Additional Ecological Land Classification surveys and plant inventories may be required to confirm vegetation communities potentially affected by specific alignment(s) / footprint(s).
- **Birds**
  Additional breeding bird surveys may be required for specific alignment(s) / footprint(s), as required.
- **Species at Risk**
  Specifies-specific surveys and/or an updated Species at Risk habitat screening, as required.
- **Significant Wildlife Habitat**
  Additional surveys to confirm candidate Significant Wildlife Habitat may be required for specific alignment(s) / footprint(s).
- **Detailed Fish and Fish Habitat Assessments**
  Additional fish and fish habitat assessments at the proposed Project water crossing site(s), as required.

Furthermore, the following surveys/studies may be completed prior to construction as required:

- **Migratory Birds Convention Act Protected Birds**
  All structures (i.e., bridges, rail overpasses and buildings) that are anticipated to be modified or replaced to facilitate the construction of the Project shall be inspected for nests or nesting activity of Migratory Birds Convention Act protected birds. These surveys can occur at any time of year but must be completed prior to onset of construction activities.
- **Fish and Fish Habitat**
  An assessment of potential impacts to fish and fish habitat may need to be completed upon confirmation of construction methodology during the detailed design phase of the Project. Should proposed works require a crossing of the Don River and/or have a temporary or permanent footprint below the HWM,

submission of a Fisheries and Oceans Canada Request for Review is recommended.

- **Tree Surveys**
  As per Metrolinx's Vegetation Guideline (2020), surveys to inform compensation for trees within public and private lands, including those on the boundary of the Metrolinx ROW and public or private lands, will follow the requirements of applicable by-laws and regulations.
- **Exterior Building Surveys**
  Buildings proposed to be demolished should be investigated to determine whether they provide potentially suitable habitat for Species of Conservation Concern (e.g., Common Nighthawk and Peregrine Falcon) and Species at Risk (Barn Swallow, Chimney Swift and bat Species at Risk) known to use anthropogenic structures in urban settings.
- **Species at Risk**
  Species-specific surveys targeting presence or absence of Species at Risk in order to support required authorizations under the Endangered Species Act, which may include:
  - **Aquatic Species at Risk**
    Based on the background information review (i.e., Fisheries and Oceans Canada aquatic Species at Risk Mapping, Ministry of Natural Resources and Forestry data and Toronto and Region Conservation Authority records), no additional surveys to confirm presence / absence of aquatic Species at Risk in the Don River are required as the records of American Eel, Redside Dace and Lake Sturgeon within the Ontario Line Study Area were determined to be historical (i.e., more than 20 years old), indicating that these species are unlikely to still persist in the Don River. Furthermore, there were no critical habitats identified for aquatic Species at Risk within the Don River in the Ontario Line Study Area.
  - **Bat Species at Risk**
    Species-specific surveys (i.e., habitat suitability surveys and / or acoustic monitoring) for bat Species at Risk following the Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis and Tri-coloured Bat (Ministry of Natural Resources and Forestry, 2017d) or a newer protocol if it becomes available from Ministry of Environment, Conservation and Parks, will be required for tree removals proposed within potential bat Species at Risk habitat to confirm potential impacts and necessary level of

compensation under the Endangered Species Act within the Ontario Line Study Area. Total tree removal areas (including both temporary and permanent removals) in suitable bat Species at Risk habitat are recommended to be calculated based on at least 60% detailed design to inform compensation requirements. If demolition of potentially suitable buildings is proposed, detailed searches for potential entry points from all sides of the building and exit surveys following Ministry of Environment, Conservation and Parks protocols should be completed. Surveys should be completed prior to scheduled construction to confirm habitat use by bat Species at Risk and to identify potential for disturbance of the species during construction in order to confirm authorization requirements under the Endangered Species Act.

- **Chimney Swift**
  If demolition of buildings with potentially suitable chimneys is proposed, the following surveys should be completed to further confirm habitat suitability and habitat use by Chimney Swift in order to inform authorization requirements under the Endangered Species Act:

  - It is recommended that a detailed chimney suitability assessment using the Chimney Assessment Form provided in the Chimney Swift (*Chaetura pelagica*) Monitoring Protocol (BSC, 2009) be completed for potentially suitable chimneys that are proposed to be demolished.
  - If chimneys are confirmed to be potentially suitable, the following is a suggested monitoring protocol adapted from Bird Studies Canada's Ontario SwiftWatch Protocol (2019):
    - Evening surveys will be conducted at least once per month during May, June, July and August to gather evidence of habitat use. If Chimney Swifts are confirmed using nesting habitat during May and June, no further monitoring is required. Each evening survey should consist of an hour long survey, starting 30-45 minutes before sunset and continuing for the remainder of the hour or until a Chimney Swift is detected entering or exiting the chimney. If a Chimney Swift is observed entering the chimney, the surveys will continue for an additional 30 minutes.

- During July, two daytime surveys are recommended to be completed to detect nesting Chimney Swifts; these should be done the same day that evening surveys are planned.
- Surveys will be completed on days with low wind and no rain.
- The number of Chimney Swifts observed flying over and entering / exiting chimneys and evidence of nesting should be recorded.

- **Barn Swallow**
  All structures (i.e., bridges, rail overpasses and buildings) identified as potential nesting habitat for Barn Swallow that are anticipated to be modified, replaced or disturbed shall be assessed for nesting Barn Swallow in conjunction with the nest searches for Migratory Birds Convention Act protected birds to be completed prior to onset of construction activities on structures.
- **Butternut**
  Butternut was incidentally recorded within the Ontario Line North Study Area. In addition, there are records of butternuts from Toronto and Region Conservation Authority within the Don River Valley, although located outside but in the vicinity of the Ontario Line Study Area. It is recommended that a search for butternuts be completed within at least 25 metres of the 60% detailed design footprint to confirm presence of any other butternuts. Additional species-specific surveys (e.g., Butternut Health Assessment and DNA testing) should be undertaken for those butternuts where excavation or grading is required for temporary or permanent infrastructure within 25 metres of the identified specimens. A Butternut Health Assessment must be completed during the leaf-on season (May 15 to August 31) by a certified Butternut Health Assessor to determine the health of the butternut(s) and a DNA test is also recommended to confirm whether the specimen is a pure butternut or a hybrid.
- **Bank Swallow**
  Species-specific surveys to confirm habitat use of identified burrow locations by Bank Swallows should be completed in the Ontario Line North Study Area during detailed design (if these locations are anticipated to be impacted by the Project) to confirm authorization requirements under the Endangered Species Act. The following is a suggested monitoring protocol adapted from Best Management

Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario (Ministry of Natural Resources and Forestry, 2017a), Ontario Bank Swallow Project: Volunteer Manual (BSC, 2010) and Bank Swallow Monitoring Protocol and Stewardship Study (Ontario Stone, Sand and Gravel Association, no date):

- During the nesting period of Bank Swallow (May 15 to July 15), three visits (May, June, July) to complete monitoring of the burrow sites should be completed by a qualified Avian Biologist to confirm occupation by Bank Swallows.
- If Bank Swallows are confirmed using the burrows during the first two visits, the remaining visit during that nesting period need not be undertaken.
- Surveys should be conducted during optimal weather conditions (e.g., no precipitation, no or low wind speed, good visibility).
- Each visit should be completed from the same vantage point(s) with good visibility of the burrows without disturbing birds for a duration one hour to observe burrows and record bird species, number of individuals using burrows, bird activity (nesting, flying in or out, foraging, etc.), as well as note condition of the vertical face (e.g., slope conditions, encroachment of woody plants preventing access). Data should be recorded using the Bird Studies Canada's Ontario Bank Swallow Project data forms.

– **General**
There is potential for provincial and federal Species at Risk protection statuses under the Endangered Species Act and Species at Risk Act, respectively, to change in the future. An updated Species at Risk habitat screening may need to be undertaken prior to construction to confirm if the species represented in this Report have been either up- or down-listed or new Species at Risk added, confirm the need for species-specific surveys targeting presence or absence of Species at Risk, if any, and confirm impacts as the design progresses towards completion.

▪ **Dewatering Zone of Influence Assessment**
If dewatering activities are proposed, the need for a dewatering zone of influence assessment should be confirmed in order to identify potentially affected natural heritage features (e.g., wetlands).

7. Permits and Approvals

The following is a preliminary assessment of potential permits and approvals that may be required during subsequent design and implementation phases of the Project. This list is subject to change as project planning and design advances and final lists will be provided in the Environmental Impact Assessment Report:

7.1 Federal

7.1.1 Species at Risk Act, 2002

No permits under this Act are anticipated to be required as there are no federally at-risk aquatic species identified within the Ontario Line West, Ontario Line South and Ontario Line North Study Areas, and provided that appropriate mitigation measures and avoidance timing windows are implemented to avoid adverse effects on federal Species at Risk birds protected under the Migratory Birds Convention Act.

7.1.2 Fisheries Act, 1985

No authorizations are required under the Fisheries Act for works within the Ontario Line West Study Area as there were no watercourses identified within the Ontario Line West Study Area.

If works are to occur in-water or below the HWM of the Don River within the Ontario Line South or Ontario Line North Study Area, submission of a Fisheries and Oceans Canada Request for Review is recommended. Fisheries and Oceans Canada's review will confirm their permitting expectations and whether a *Fisheries Act* Authorization or Letter of Advice may be required in the event Project works is anticipated to result in death of fish and / or harmful alteration, disruption or destruction of fish habitat.

7.1.3 Migratory Birds Convention Act, 1994

No permits under this Act are anticipated to be required for the Ontario Line West, Ontario Line South or Ontario Line North Study Areas provided that appropriate mitigation measures and avoidance timing windows are implemented to avoid adverse effects on migratory breeding birds during the breeding bird season of April 1 to August 31.

7.2 Provincial

7.2.1 Endangered Species Act, 2007

All required authorizations in accordance with the Endangered Species Act legislation will be obtained for Species at Risk that may be affected by the Project as determined through the Environmental Impact Assessment Report and/or Early Works Report(s), including but not limited to the following for each Study Area:

- Ontario Line West Study Area: Barn Swallow, Chimney Swift, butternut and Bat Species at Risk.
- Ontario Line South Study Area: Barn Swallow, Chimney Swift, butternut and Bat Species at Risk.
- Ontario Line North Study Area: Bank Swallow, Barn Swallow, Chimney Swift, butternut and Bat Species at Risk.

Species at Risk potentially affected by the Project, if any, will be identified and confirmed in the Environmental Impact Assessment Report and/or Early Works Report(s) as project planning and design advances.

7.2.2 Conservation Authorities Act, 1998

As a provincial Crown corporation, Metrolinx will engage with the Toronto and Region Conservation Authority as detailed design advances, including regarding compensation and post-planting monitoring, in or near water works and dewatering, and in support of The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority (2014), as necessary.

In accordance with Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas.

7.3 Municipal

A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. Metrolinx will obtain all required permits and approvals. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the City of Toronto to incorporate municipal

requirements as a best practice, where practical, and may obtain associated permits and approvals.

Metrolinx shall continue to communicate and engage with the City of Toronto during detailed design and construction planning to address municipal concerns.

8. Conclusions

The following provides a summary of the natural environment environmental conditions and recommendations for each Study Area:

Existing Conditions:

Ontario Line West:

- There are no designated natural areas (i.e., Provincially Significant Wetlands, Locally Significant Wetland, Areas of Natural and Scientific Interest, unevaluated wetlands or significant woodlands); however, a small portion of the City's Natural Heritage System falls within the western most limits.
- The majority of the vegetation communities were disturbed and heavily fragmented.
- There were no watercourses identified within the Ontario Line West Study Area.
- The Ontario Line West Study Area is largely heavily urbanized with very limited naturalized areas providing low-quality habitat for urban wildlife; however, isolated trees, shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for Migratory Birds Convention Act protected birds.
- The following Significant Wildlife Habitat were identified for the Ontario Line West Study Area:
  - Candidate Bat Maternity Colonies
  - Candidate habitat for the following Species of Conservation Concern: Common Nighthawk, Eastern Wood-pewee, Peregrine Falcon and Red-headed Woodpecker.
- The following Species at Risk have a high probability of occurring within the Ontario Line West Study Area:
  - **Barn Swallow** – Several were seen foraging in the Garrison Commons.
  - **Chimney Swift** – Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line West Study Area. Chimney Swifts were recorded flying-over in the Ontario Line West Study Area.

- The following Species at Risk have a medium probability of occurring within the Ontario Line West Study Area:
  - **Bat Species at Risk** – Natural roosting habitat (i.e., treed areas) is present, in addition anthropogenic roosting structures in the form of buildings with potential entry holes may be present within the Ontario Line West Study Area.
  - **Butternut** – This species may occur within the vegetation communities in the Ontario Line West Study Area.

Ontario Line South:

- There are no designated natural areas (i.e., Provincially Significant Wetlands, Locally Significant Wetland, Areas of Natural and Scientific Interest, unevaluated wetlands or significant woodlands); however, areas associated with the Lower Don River Valley fall within the City of Toronto's Natural Heritage System, Ravine and Natural Feature Protection by-law area, Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and regulation limits. The Don River Valley is also designated as an Urban River Valley under the Greenbelt Plan.
- Vegetation communities identified within the Ontario Line South Study Area are largely limited to narrow vegetation strips within the existing rail corridor, which is surrounded by heavily developed commercial, industrial and residential areas. These vegetation communities are heavily disturbed as evidenced by large proportions of non-native and invasive plant species (AECOM, 2017; AECOM, 2018; 4Transit, 2018b; HDR 2018; Golder Associates, 2018). None of these vegetation communities are provincially significant.
- Previous assessments of the Don River characterized it as a hardened channel with little natural features and slow flowing, turbid water (HDR, 2018). The Don River provides direct fish habitat to a tolerant warmwater fish community and conditions were generally non-limiting throughout. There were no critical habitats identified for aquatic Species at Risk.
- There is limited natural cover providing wildlife habitat within the Ontario Line South Study Area in the form of urban parks, residential yards and narrow strips of riparian vegetation along the Don River. Although the Don River may function as a movement corridor for small to medium sized urban wildlife, there is low connectivity to other significant natural features with many barriers to animal movement (i.e., railways, roads, construction areas, and fences). Isolated trees, shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for Migratory Birds Convention Act protected birds.

- The following Significant Wildlife Habitat were identified for the Ontario Line South Study Area:
  - Confirmed habitat for Peregrine Falcon (Species of Conservation Concern) at the Sheraton Centre Toronto Hotel located at 123 Queen Street West.
  - Confirmed habitat for Northern Map Turtle near the Lower Don River.
  - Candidate habitat for the following Species of Conservation Concern: Common Nighthawk, Eastern Wood-pewee, Red-headed Woodpecker, Monarch, and Snapping Turtle.
- The following Species at Risk have a high probability of occurring within the Ontario Line South Study Area:
  - **Barn Swallow** – This species was observed by 4Transit to be nesting under the rail bridge crossing the Don River.
  - **Chimney Swift** – There are two confirmed Chimney Swift roosting / nesting sites in the Ontario Line South Study Area. Buildings with suitable chimneys or uncapped smokestacks can provide habitat for Chimney Swift.
- The following Species at Risk have a medium probability of occurring within the Ontario Line South Study Area:
  - **Bat Species at Risk** – Natural roosting habitat (i.e., treed areas) is present, in addition to anthropogenic roosting habitat in the form of buildings with potential entry / exit points that may be present within the Ontario Line North Study Area.
  - **Butternut** – This species may occur within the cultural hedgerows within the existing rail corridor.
- The Don River identified within the Ontario Line South Study Area. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk that are afforded protection under the Endangered Species Act or Species at Risk Act were identified within the Study Area.

Ontario Line North:

- There is a Candidate Regionally Significant Life Science Areas of Natural and Scientific Interest within the E.T. Seton Area of Investigation, as well as unevaluated wetlands and woodlands within the Ontario Line North Study Area. In addition, the Don River Valley is considered to be valleyland feature under the Provincial Policy Statement and is also designated as an Urban River Valley under the Greenbelt Plan. There are no Provincially Significant Wetlands or Locally Significant Wetland.

- The natural areas within the Don River Valley are part of the City of Toronto's Natural Heritage System and Ravine and Natural Feature Protection by-law area, as well as Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and regulation limits. There is one environmentally significant area within E.T. Seton Park, located north of Overlea Boulevard within the Don River Valley.
- A large proportion of the Ontario Line North Study Area consists of residential and commercial buildings, with the remainder consisting of natural area systems associated with the Don River. The forested ravines of the Don River provide higher quality of wildlife habitat that facilitate and support wildlife movement. There were no provincially significant vegetation communities.
- The Don River provides direct fish habitat to a generally tolerant warm to cold water fish community and conditions were non-limiting throughout. There were no critical habitats identified for aquatic Species at Risk.
- The Ontario Line North contains two natural areas associated with the Don River Valley which provide larger, more intact habitats for urban wildlife. A total of 37 species of birds were recorded within the Millwood Road Area of Investigation during the breeding bird surveys completed in 2019; the majority of which were common and protected under the Migratory Birds Convention Act. There was no amphibian breeding habitat identified within the Millwood Road Area of Investigation. There were no wildlife surveys conducted at the E.T. Seton Park Area of Investigation but the natural areas therein provide habitat for many urban wildlife, including migratory breeding bird species protected under the Migratory Birds Convention Act.
- The following Significant Wildlife Habitat were identified for the Ontario Line North Study Area:
  - Confirmed Turtle Wintering Areas
  - Confirmed Marsh Breeding Bird Habitat
  - Candidate Bat Maternity Colonies
  - Candidate Reptile Hibernacula
  - Candidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)
  - Candidate Landbird Migratory Stopover Area
  - Candidate Turtle Nesting Areas
  - Confirmed Amphibian Wetland Breeding Habitat
  - Candidate Amphibian Movement Corridor

- Confirmed habitat for the following Species of Conservation Concern: Eastern Wood-Pewee, Monarch and Snapping Turtle
- Candidate habitat for the following Species of Conservation Concern: Western Chorus Frog, Black-crowned Night Heron, Common Nighthawk, Great Egret, Peregrine Falcon, Red-headed Woodpecker, Wood Thrush, Monarch and Northern Map Turtle.

- The following Species at Risk have a high probability of occurring within the Ontario Line North Study Area:
  - **Barn Swallow** – Several were seen foraging within the Millwood Road Area of Investigation.
  - **Chimney Swift** – Recent records from Toronto and Region Conservation Authority indicate this species forages within the Millwood Road and E.T. Seton Park Areas of Investigation, suggesting that they may be nesting nearby**.** AECOM observed Chimney Swifts flying over E.T. Seton Park Area of Investigation in June 2020. Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line North Study Area.
  - **Butternut** – A total of five butternuts were incidentally recorded within the Ontario Line North Study Area.
- The following Species at Risk have a medium probability of occurring within the Ontario Line North Study Area:
  - **Bank Swallow** – There were four separate sites where several burrows (ranging from 6 to 30) were observed at each location in the vertical eroded banks of the Don River; two sites (Location 1 and 3) were in the Millwood Road Area of Investigation and the other two sites (Location 2 and 4) were in the E.T. Seton Park Area of Investigation.
  - **Bat Species at Risk** – Natural roosting habitat (i.e., treed areas) is present, in addition to anthropogenic roosting habitat in the form of buildings with potential entry / exit points that may be present within the Ontario Line South Study Area.
- There are two reaches of the Don River within the Ontario Line North Study Area, the Don River within the Millwood Road Area of Investigation and the Don River West Branch within the E.T. Seton Park Area of Investigation. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk that are afforded protection under the Endangered Species Act or Species at Risk Act were identified within the Study Area.

Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities:

- A preliminary overview of potential impacts, mitigation measures and monitoring activities associated within the Project has been provided in **Table 5-1** and **Table 5-2** in **Section 5**.

Future Studies:

Future studies to be completed for specific alignment(s) / footprint(s) as the project planning and design advance in support of the Environmental Impact Assessment Report are anticipated to include, but are not limited to, the following, as required (refer to **Section 6** for more details):

- Additional Ecological Land Classification surveys and plant inventories.
- Additional breeding bird, species-specific Species at Risk surveys and/or surveys to confirm candidate Significant Wildlife Habitat.
- Additional fish and fish habitat surveys at the proposed Project water crossing site(s).
- Updated Species at Risk habitat screening.

Furthermore, the following surveys/studies may be completed prior to construction, as required:

- Nest checks for Migratory Birds Convention Act protected birds for any structures anticipated to be modified, disturbed or replaced to facilitate the construction of the Project.
- Assessment of potential impacts on fish and fish habitat in support of a Fisheries and Oceans Canada Request for Review if work is proposed within 30 metres of the High Water Mark (HWM) of the Don River (in the Ontario Line South and Ontario Line North Study Areas).
- Tree surveys to develop compensation for trees within public and private lands, including those on the boundary of the Metrolinx Row and public or private lands, will follow the requirements of applicable by-laws and regulations, as per the Metrolinx's Vegetation Guideline (2020).
- Assessment of buildings proposed to be demolished which may support Species at Risk and Species of Conservation Concern anthropogenic habitat.
- Species-specific surveys targeting presence or absence of Species at Risk in order to support required authorizations under the Endangered Species Act.

- If dewatering activities are proposed, the need for a dewatering zone of influence assessment should be confirmed in order to identify potentially affected natural heritage features (e.g., wetlands).

Permits and Approvals:

- The following permits and approvals are anticipated to be required (refer to **Section 7** for more details):
  - Ontario Line West Study Area:
    - Authorizations under the Endangered Species Act legislation may be required if the Project adversely affects Species at Risk identified above.
    - No authorizations under Species at Risk Act, the Fisheries Act or Migratory Birds Convention Act are anticipated.
  - Ontario Line South and Ontario Line North Study Areas:
    - Authorizations under the Endangered Species Act legislation may be required if the Project adversely affects Species at Risk identified above.
    - Authorization under the Fisheries Act may be required if it is determined that project works will result in death of fish and / or harmful alteration, disruption or destruction of fish habitat.
    - No authorization under Species at Risk Act or Migratory Birds Convention Act are anticipated.

9. References

4Transit, 2018a:
East Harbour SmartTrack Station Environmental Project Report. Accessed in January 2020 from: http://smarttrack.to/wp-content/uploads/2018/07/4T-P2-EH-018-SE-RPT-0001-New-SmartTrack-Stations-EPR-Volume-V-East-Harbour-SmartTrack-Station-0.pdf

4Transit, 2018b:
East Harbour SmartTrack Station – Natural Environment Report. May 2018.

Adam M.D. and J.P. Hays, 2000:
Use of Bridges as Night Roosts by Bats in the Oregon Coast Range. Journal of Mammalogy, Volume 81, Issue 2, 1 May 2000, Pages 402–407. Accessed in May 2020 from: https://academic.oup.com/jmammal/article/81/2/402/2372853

AECOM, 2017:
Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project – Natural Environment Effects Assessment Report. August 2017.

AECOM, 2018:
Union Station Rail Corridor (Union Station Rail Corridor) East Enhancements Transit Project Assessment Process – Natural Environment Report. April 2018.

Bat Conservation International, 2020:
Species Profiles. Accessed in January 2020 from: http://www.batcon.org/resources/media-education/species-profiles

Bat Conservation Trust, 2012:
Bats and Buildings: Bats and the Built Environment Series. Accessed in February 2020 from: http://www.bats.org.uk/data/files/BatsandBuildings_2012.pdf

Bektas, B.A., S. Hans, B. Phares, E. Nketah, J. Carey, M.K. Solberg and K. McPeek, 2018:
Most Likely Bridges as Roosting Habitat for Bats: Study for Iowa. Transportation Research Record. Accessed in May 2020 from: https://journals.sagepub.com/doi/10.1177/0361198118758649

Bennet, F.M., S.C. Loeb, M.S. Bunch and W.W. Bowerman, 2008:
Use and Selection of Bridges as Day Roosts by Rafinesque's Big-Eared Bats. The American Midland Naturalist Vol. 160, No. 2 (Oct., 2008), pp. 386-399. Abstract available: https://www.jstor.org/stable/20491398?seq=1#page_scan_tab_contents

Bird Studies Canada (BSC), 2001:
Ontario Breeding Bird Atlas Guide for Participants. Accessed in June 2019 from: https://www.birdsontario.org/download/atlas_feb03.pdf

Bird Studies Canada (BSC), 2010:
Ontario Bank Swallow Project: Volunteer Manual. Available: https://www.bsc-eoc.org/resources/onbans/BSC_BANS_Volunteer_Protocol_revised.pdf. Accessed January 2020.

Bird Studies Canada (BSC) and SwiftWatch, 2019:
2018 Ontario SwiftWatch Report. Accessed in January 2020 from: https://www.bsc-eoc.org/volunteer/ai/resources/2018%20Ontario%20Summary%20Report_EN.pdf

Bird Studies Canada (BSC), 2009:
Chimney Swift (*Chaetura pelagica)* Monitoring Protocol. Port Rowan, 24 pp.

Bird Studies Canada (BSC), Environment Canada and U.S. Environmental Protection Agency, 2009:
Marsh Monitoring Program Participant's Handbook for Surveying Amphibians. 2009 Edition. 13 pages. Published by Bird Studies Canada in co-operation with Environment Canada and the U.S. Environmental Protection Agency. February 2009. Accessed April 2019 from: https://www.ohwetlands.org/uploads/5/0/6/9/50693061/handbook_mmp_amphibians_2009.pdf

Bird Studies Canada (BSC), 2019:
Ontario SwiftWatch Protocol and Data Forms for Volunteers. Updated March 2019. Port Rowan, 12 pp.

Bird Studies Canada (BSC), Environment Canada – Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2006:
Ontario Breeding Bird Atlas website. Accessed in January 2020 from: http://www.birdsontario.org/atlas/index.jsp

Bird Studies Canada and SwiftWatch, 2019:
2018 Ontario SwiftWatch Report. Accessed in February 2020 from: https://www.bsc-eoc.org/volunteer/ai/resources/2018%20Ontario%20Summary%20Report_EN.pdf

Brigham, R.M., J. Ng, R.G. Poulin and S.D. Grindal, 2011:
Common Nighthawk (Chordeiles minor), version 2.0. In The Birds of North America (A. F. Poole, Editor). Cornell Laboratory of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.213

Canadian Peregrine Foundation, 2020:
Toronto – Sheraton Centre. Accessed in May 2020 from: http://www.peregrine-foundation.ca/w/c/sightings/toronto-sheraton-centre/

City of Toronto, 2012:
Mammals of Toronto – A Guide to Their Remarkable Word. City of Toronto Biodiversity Series.

City of Toronto, 2016:
Tree Protection Policy and Specifications for Construction Near Trees. Accessed in November, 2019 from:https://www.toronto.ca/data/parks/pdf/trees/tree-protection-specs.pdf.

City of Toronto, 2017:
Ravine and Natural Feature Protection By-Law. Accessed in February 2020 from: https://www.toronto.ca/wp-content/uploads/2017/08/96f6-Ravine-and-Natural-Feature-Protection-By-Law-Brocure-Division-Planning-And-Development.pdf

City of Toronto, 2018:
Wild, Connected and Diverse: The Draft Biodiversity Strategy for Toronto. Accessed in July 2020 from:https://www.toronto.ca/legdocs/mmis/2018/pe/bgrd/backgroundfile-116043.pdf

City of Toronto, 2019:
Toronto Official Plan – Office Consolidation February 2019. Accessed in January 2020 from: https://www.toronto.ca/wp-content/uploads/2019/06/8f06-OfficialPlanAODA_Compiled-3.0.pdf

City of Toronto, 2020a:
Toronto Maps V2. Accessed in February 2020 from: https://map.toronto.ca/maps/map.jsp?app=TorontoMaps_v2

City of Toronto, 2020b:
Open Data Portal. Accessed in January 2020 from: https://open.toronto.ca/

Civjan, S.A., A. Berthaume, A. Bennett and E. Dumont, No Date:
Bat Roosting in Bridges: Pros and Cons of Assessment Methods from a New England Regional Study. Transportation Research Record. Vol 2628. https://trrjournalonline.trb.org/doi/pdf/10.3141/2628-13

Cornell Laboratory of Ornithology. 2019:
All About Birds – Bank Swallow. Cornell Laboratory of Ornithology, Ithaca, New York. Accessed in February 2020 from: https://www.allaboutbirds.org/guide/Bank_Swallow/lifehistory.

Committee on the Status of Endangered Wildlife in Canada (Committee on the Status of Endangered Wildlife in Canada), 2018:
Committee on the Status of Endangered Wildlife in Canada assessment and status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 63 pp.

Dobbyn, 1994:
Atlas of the Mammals of Ontario. Ontario: Federation of Ontario Naturalists.

Dougan & Associates and North-South Environmental Inc., 2009:
Migratory Birds in the City of Toronto – A Literature Review and Data Assessment Final Report. Prepared for the City of Toronto Planning.

eBird. 2017. eBird:
An online database of bird distribution and abundance [web application]. eBird, Cornell Laboratory of Ornithology, Ithaca, New York. Accessed in July 2020 from: http://www.ebird.org.

Environment Canada, 2007:
Area-sensitive Forest Birds in Urban Areas. Accessed July 2020 from: https://www.csu.edu/cerc/researchreports/documents/AreaSensitiveForestBirdsUrbanAreas2007.pdf

Environment and Climate Change Canada, 2017:
Avoidance Guidelines – Technical Information. Accessed May 2020 from: https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1.

Fisheries and Oceans Canada, 2020:
Aquatic Species at Risk Map. Accessed in January 2020 from: http://www.dfo-mpo.gc.ca/species-especes/fpp-ppp/index-eng.htm

Garrison, B.A., 1999:
Bank Swallow (*Riparia riparia*), version 2.0. In The Birds of North America (A. F. Poole and F. B. Gill, Editors). Cornell Laboratory of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.414

Golder Associates, 2018:
Natural Environment Existing Conditions – Relief Line South, Toronto, Ontario. March 2018.

Halloran, J., H. Anderson and D. Tassie, 2013:
Clean Equipment Protocol for Industry. Prepared for the Peterborough Stewardship Council and Ontario Invasive Plant Council. Peterborough, ON. Printed April 2013. Updated May 2016.

HDR, 2018:
Relief Line South Environmental Project Report. Prepared for Metrolinx, City of Toronto and Toronto Transit Commission.

Heagy, A., D. Badzinski, D. Bradley, M. Falconer, J. McCracken, R.A. Reid and K. Richardson. 2014:
Recovery Strategy for the Barn Swallow (*Hirundo rustica*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 64 pp.

Humphrey, C., 2017:
Recovery Strategy for the Eastern Small-footed Myotis (Myotis leibii) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.

Humphrey, C. and H. Fotherby, 2019:
Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis) and Tri-colored Bat (Perimyotis subflavus) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. vii + 35 pp. + Appendix. Adoption of the Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), the Northern Myotis (Myotis septentrionalis), and the Tri-colored Bat (Perimyotis subflavus) in Canada (Environment and Climate Change Canada 2018).

Keeley B.W. and M.D. Tuttle, 1999:
Bats in American Bridges. Bat Conservation International. Resource Publication No. 4.

Lee, H.T., W.D. Bakowksy, J. Riley, J. Bowles and M. Puddister, et al., 1998:
Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southern Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

Macnaughton, A., R. Layberry, C. Jones and B. Edwards, 2019:
Ontario Butterfly Atlas Online. Accessed in December 2019 from: http://www.ontarioinsects.org/atlas_online.htm.

Metrolinx and Infrastructure Ontario, 2019:
Ontario Line Initial Business Case July 2019. Available: http://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/20190725_Ontario_Line_IBC.pdf

Morrison-Hershfield, 2017:
GO Transit Rail Network Electrification EA Natural Environment Baseline Conditions Report Rev. No. 3.0. Accessed July 2020 from http://www.metrolinx.com/en/electrification/appendix/A1%20-%20Natural%20Environmental%20Baseline%20Conditions%20Report.pdf

NatureServe, 2019:
Conservation Status Assessment. Accessed January 2020 from: https://www.natureserve.org/conservation-tools/conservation-status-assessment

North-South Environmental Inc. & Dougan & Associates, 2009:
Review of Provincially Significant Wetlands in the City of Toronto. Prepared for City of Toronto and City Planning.

North-South Environmental Inc., Dougan & Associates and Beacon Environmental Ltd., 2012:
Environmentally Significant Areas in the City of Toronto. Prepared for Toronto City Planning.

Ontario Filed Ornithologists, 2006:
Bird Protection Laws. Accessed in February 2020 from: http://www.ofo.ca/site/page/view/articles.birdlaws

Ontario Ministry of Municipal Affairs and Housing, 2017:
Greenbelt Plan. Accessed in June 2020 from:
https://www.ontario.ca/document/greenbelt-plan-2017

Ontario Ministry of Municipal Affairs and Housing, 2020:
Provincial Policy Statement. Accessed in February 2020 from:
https://www.ontario.ca/page/provincial-policy-statement-2020

Ontario Ministry of the Environment, Conservation and Parks, 2019:
Barn Swallow. Accessed in January 2020 from:
https://www.ontario.ca/page/barn-swallow.

Ontario Ministry of the Environment, Conservation and Parks, 2019:
Recovery Strategy for the Blanding's Turtle (Emydoidea blandingii) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 6 pp. + Appendix. Adoption of the Recovery Strategy for Blanding's Turtle (Emydoidea blandingii), Great Lakes / St. Lawrence population, in Canada (Environment and Climate Change Canada 2018).

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 1984:
Habitat Management Guidelines for Bats of Ontario. Accessed in February 2020 from: https://dr6j45jk9xcmk.cloudfront.net/documents/2790/guide-bats.pdf

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2000:
Significant Wildlife Habitat Technical Guide. Queen's Printer for Ontario.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2010:
Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2013a:
Barn Swallow General Habitat Description. Accessed in January 2020 from:
https://www.ontario.ca/page/barn-swallow-general-habitat-description

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2013b:
Chimney Swift General Habitat Description. Accessed in January 2020 from: https://www.ontario.ca/page/chimney-swift-general-habitat-description

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2013c:
Reptile and Amphibian Exclusion Fencing: Best Practices, Version 1.0. Species at Risk Branch Technical Note. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. 11 pp.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2014:
Ontario Wetland Evaluation System, Southern Manual, 3rd Edition, Version 3.3. © Queen's Printer for Ontario.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2015a:
Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E. January 2015. Peterborough: Queen's Printer for Ontario. 39 pp.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2015b:
General Habitat Description for the Bank Swallow (*Riparia riparia*). Accessed in January 2020 from: https://ossga.com/multimedia/0/bank_swallow_ghd_en.pdf.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2015c:
Survey Protocol for Blanding's Turtle (*Emydoidea blandingii*) in Ontario. Species Conservation Policy Branch. Peterborough, Ontario. ii + 16 pp.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2017a:
Best Management Practices for Excluding Barn Swallows and Chimney Swifts from Buildings and Structures. Queen's Printer for Ontario, 2017. 22 pp.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2017b:
Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario. Queen's Printer for Ontario, 2017. 37 pp.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2017c:
General Habitat Description for Blanding's Turtle (*Emydoidea blandingii*). Accessed in January 2020 from:https://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_ghd_bln_trtl_en.pdf

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2017d:
Survey Protocol for Species at Risk bats within Treed Habitats: Little Brown Myotis, Northern Myotis and Tri-coloured Bat. Ministry of Natural Resources and Forestry Guelph District. 13 pp.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2018:
Natural Heritage Information Request Guide. Prepared by the Regional Operations Division Ministry of Natural Results & Forestry. December 2018.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2019:
Natural Heritage Methodology. Accessed in June 2020 from: https://www.ontario.ca/page/natural-heritage-methodology

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2020a:
Ontario GeoHub. Accessed in January 2020 from: https://geohub.lio.gov.on.ca/. Powered by Land Information Ontario. Accessed January 2020.

Ontario Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry), 2020b:
Fish ON-Line. Accessed in May, 2020 from: https://www.lioapplications.lrc.gov.on.ca/fishonline/Index.html?viewer=FishONLine.FishONLine&locale=en-CA.

Ontario Ministry of Transportation (MTO), 2006:
Environmental Guide for Fish and Fish Habitat. Accessed in June, 2018 from: https://collections.ola.org/mon/20000/277907.pdf

Ontario Nature, 2020:
Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Accessed in January 2020 from: https://www.ontarioinsects.org/herp/index.html

Ontario Stone, Sand and Gravel Association, no date:
Bank Swallow Monitoring Protocol and Stewardship Study. Accessed January 2020 from: https://ossga.com/multimedia/0/bank_swallow_monitoring_protocol.pdf.

Parks Canada, 2019:
Blanding's Turtles – Parks Canada and the Toronto Zoo Release 48 or More Blanding's Turtle into Rouge National Urban Park. Accessed in January 2020 from: https://www.pc.gc.ca/en/pn-np/on/rouge/info/nouvelles-news/201906-tortue-turtle

Poisson, G. and M. Ursic, 2013:
Recovery Strategy for the Butternut (*Juglans cinerea*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. v + 12 pp. + Appendix vii + 24 pp. Adoption of the Recovery Strategy for the Butternut (*Juglans cinerea*) in Canada (Environment Canada 2010).

Ramsay-Brown, J., 2015:
Toronto's Ravines and Urban Forests: Their Natural Heritage and Local History. James Lorimer & Company Ltd., Publishers, Toronto. 126 pp.

Steeves, T.K., S.B. Kearney-McGee, M.A. Rubega, C.L. Cink and C.T. Collins, 2014:
Chimney Swift (*Chaetura pelagica*), version 2.0. In The Birds of North America (A. F. Poole, Editor). Cornell Laboratory of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.646

Toronto Region Conservation Authority, Conservation Halton, Credit Valley Conservation, Nottawasaga Valley Conservation Authority, Lake Simcoe Region Conservation Authority, Central Lake Ontario Conservation, Grand River Conservation Authority, Niagara Peninsula Conservation Authority, Hamilton Conservation Authority, 2006:
Greater Golden Horseshoe Area Erosion and Sediment Control Guideline for Urban Construction, December 2006.

Toronto Region Conservation Authority, 2009:
Don River Watershed Plan, Aquatic System – Report on Current Conditions. Accessed in November 2020 from: https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2018/10/17165514/Don-Watershed-Plan-Aquatic-System.pdf

Toronto and Region Conservation Authority, 2014:
The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority. Accessed in June 2020 from: https://drive.google.com/file/d/0BxjqkzmOuaaRYWxqSGdUaHp5UE0/view

Toronto and Region Conservation Authority, 2020a:
Species Spotlight: How TRCA Ranks Flora and Fauna. Accessed in July 2020 from: https://trca.ca/news/species-spotlight-how-trca-ranks-flora-and-fauna/

Toronto and Region Conservation Authority, 2020b:
Flora Species for Entire TRCA Jurisdiction. Accessed in June 2020 from: https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2020/07/14074757/FloraRanksandScores2020_Final.pdf

Toronto and Region Conservation Authority, 2020c:
Toronto and Region Conservation Authority Open Data & Information. Accessed in January 2020 from: https://data.trca.ca/

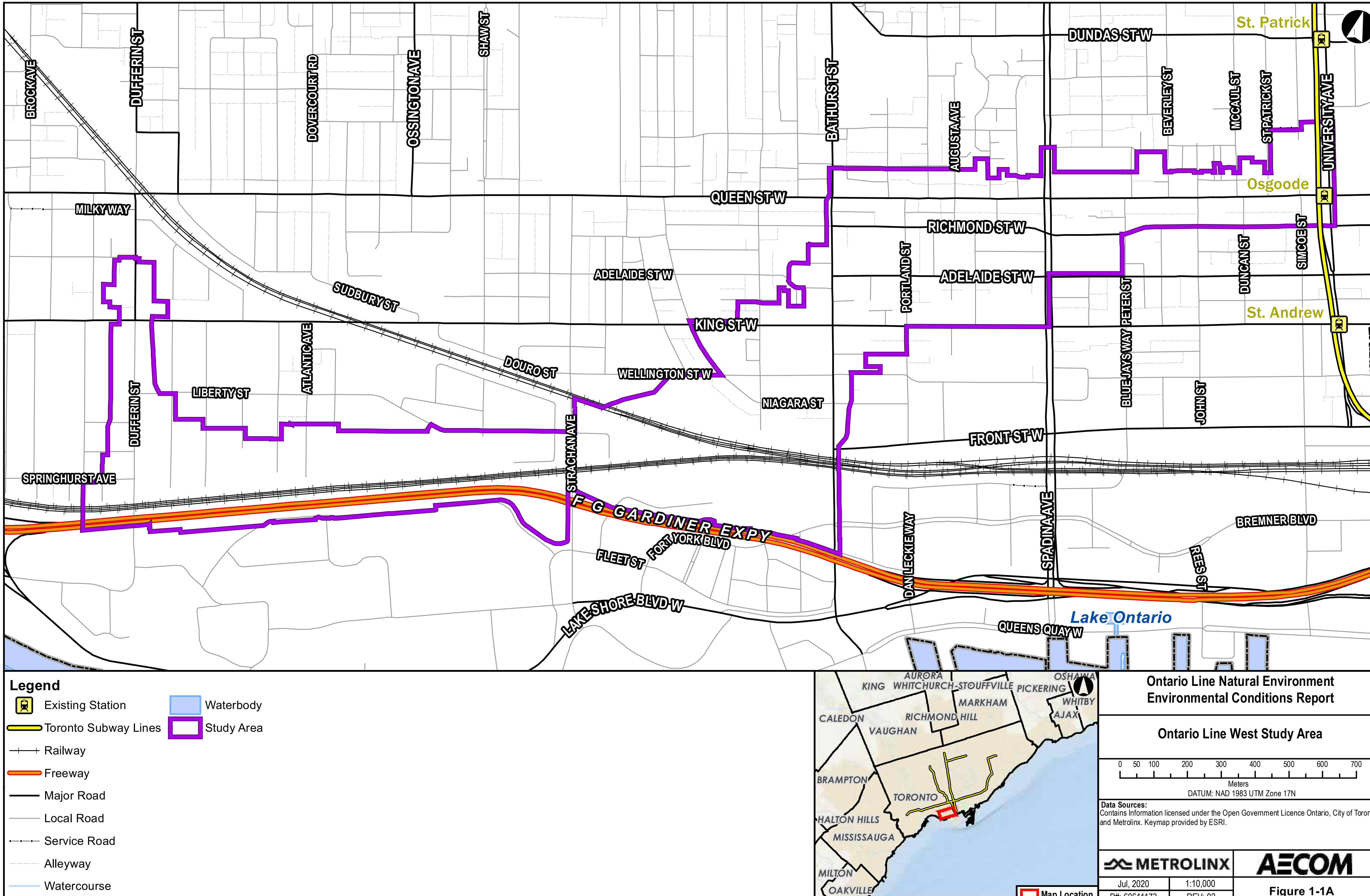
Waterfront Toronto, 2020:
Corktown Common. Accessed in May 2020 from: https://waterfrontoronto.ca/nbe/portal/waterfront/Home/waterfronthome/projects/corktown+common

White, C.M., N.J. Clum, T.J. Cade and W.G. Hunt, 2020:
Peregrine Falcon (Falco peregrinus), version 1.0. In Birds of the World (S.M. Billerman, Editor). Cornell Laboratory of Ornithology, Ithaca, NY, USA. Accessed May 2020 from: https://doi.org/10.2173/bow.perfal.01

AECOM Imagine it. Delivered.

Appendix A

Figures



Ontario Line Natural Environment Environmental Conditions Report

Ontario Line West Study Area

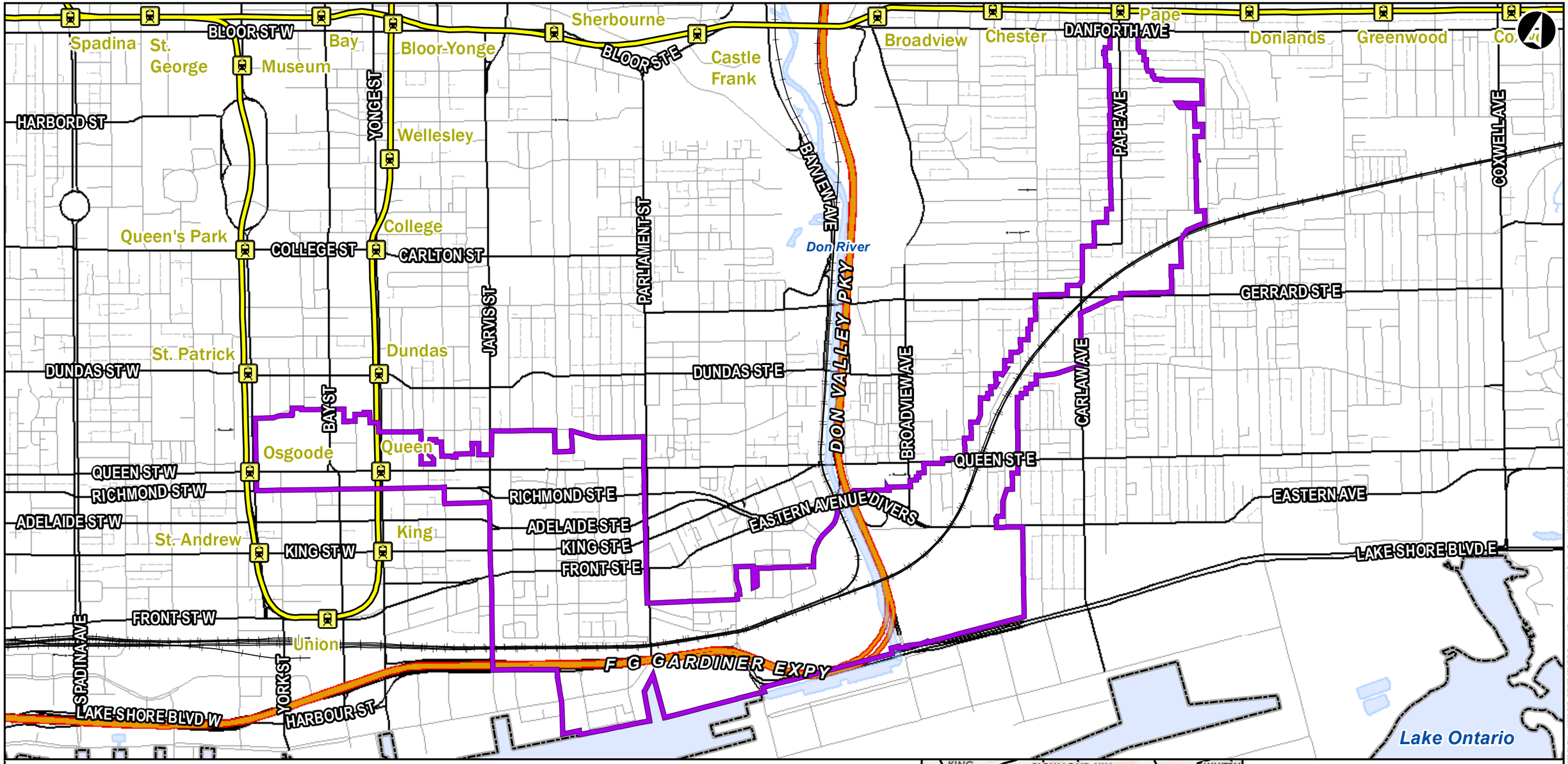
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020 | 1:10,000
P#: 60611173 | REV: 02

Figure 1-1A

Map location: \\na.aecomnet.com\lfs\AMER\Kitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60611173 ONT Line W\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLW_Fig1-1_StudyArea_Rev02-60611173.mxd
Date Saved: 7/21/2020 2:44:48 PM User Name: michael.w.collins



Legend

- Existing Station
- Toronto Subway Lines
- Railway
- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Watercourse
- Waterbody
- Study Area

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South Study Area

0 0.5 1
Kilometers
DATUM: NAD 1983 UTM Zone 17N

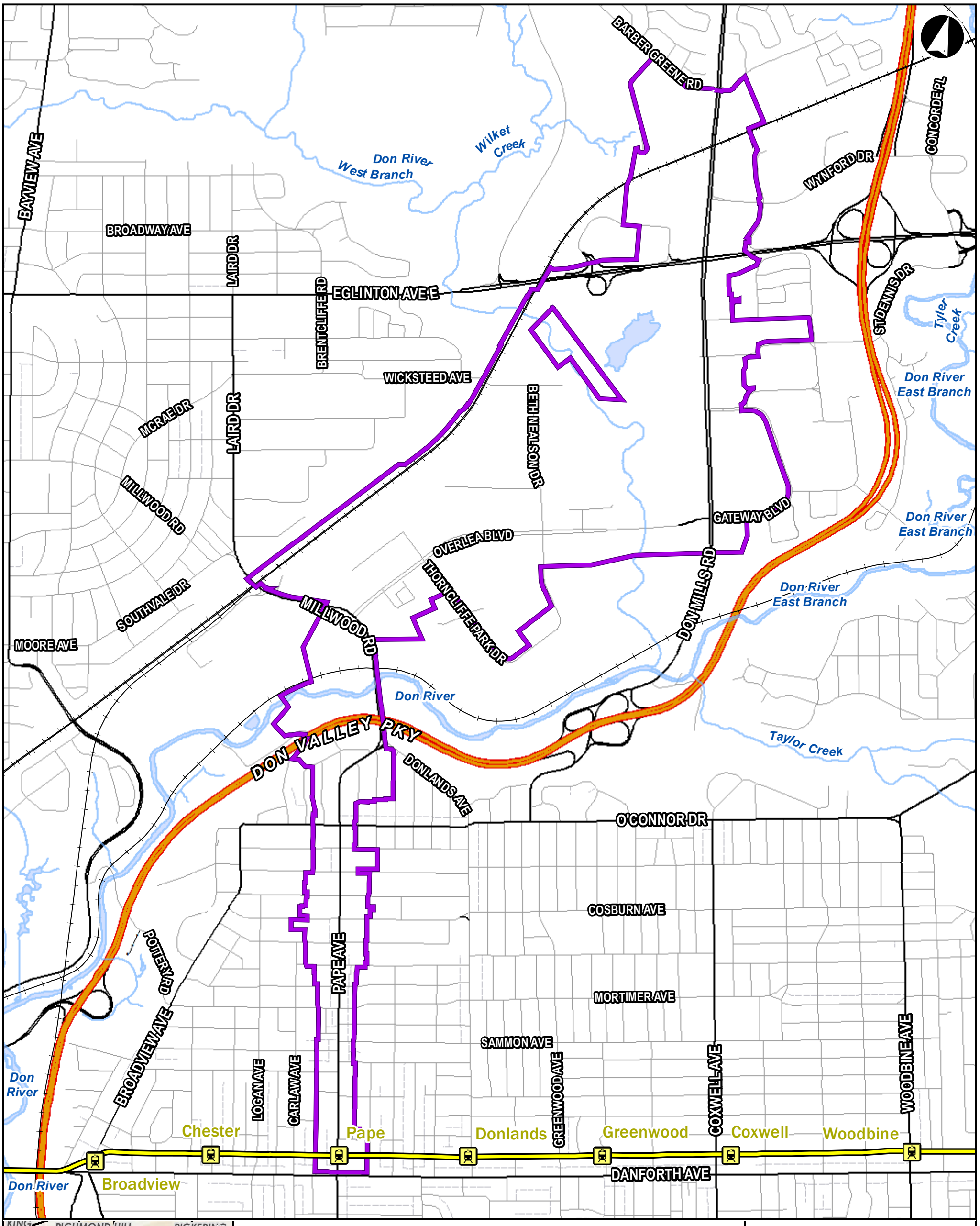
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap provided by ESRI.

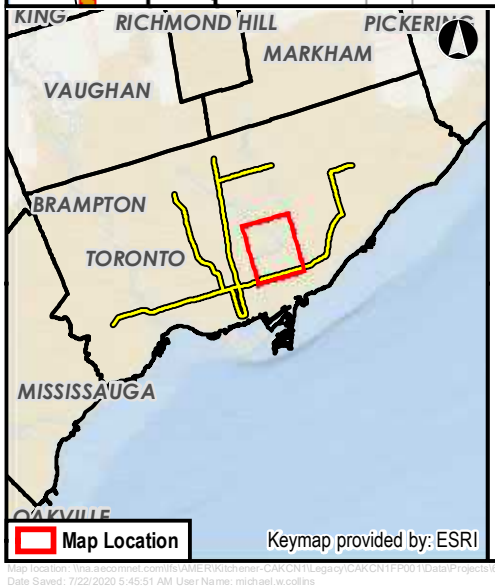
METROLINX | AECOM

Jul, 2020	1:18,000
P#:	REV: 02

Figure 1-1B

Map Location: I:\Projects\60600\60600-200\01 21\05 Figures\Design\01_Reports\Mxd\60600-200-01-21-05-Fig01-Study Area_Rev02.mxd
Date Saved: 7/22/2020 5:47:16 AM User Name: michael.wcollins





Legend

- Existing Station
- Toronto Subway Lines
- Railway
- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Watercourse
- Waterbody
- Study Area

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North Study Area

0 — 0.5 — 1
Kilometers
Datum: NAD 1983 UTM Zone 17N

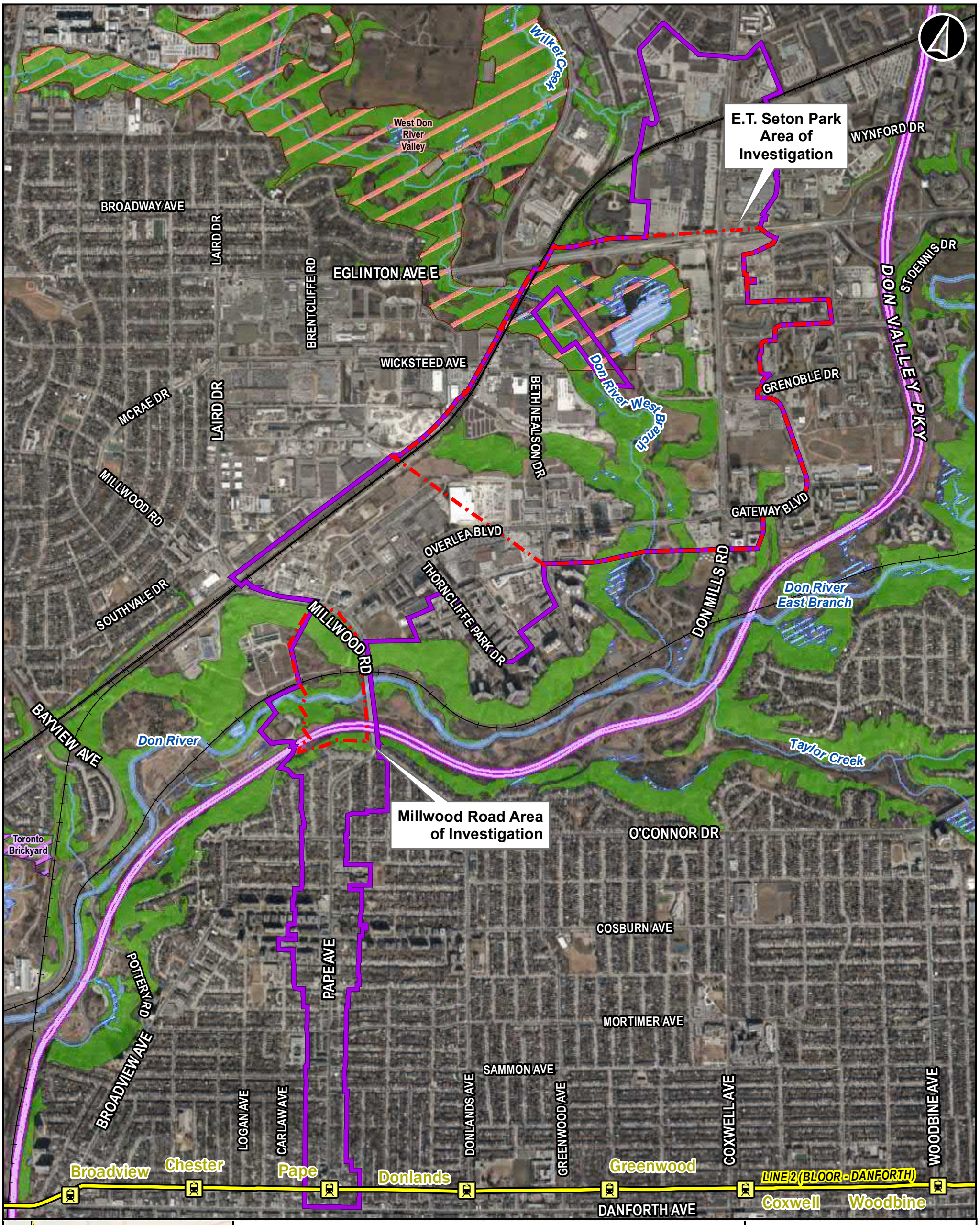
Jul, 2020	1:17,000 * when printed 11"x17"	**Data Sources:** MECP, City of Toronto
P#:60609279	REV: 01	

AECOM

Figure 1-1C

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\fs\AMER\Kitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60609279 ONT Line N\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLN_Fig1-1_StudyArea_Rev02-60609279.mxd
Date Saved: 7/22/2020 5:45:51 AM User Name: michael.w.collins



Legend

- Existing Station
- Toronto Subway Lines
- Freeway
- Highway
- Railway
- Watercourse
- Waterbody
- Wooded Area
- Study Area
- Area of Investigation

Designated Natural Areas

- Wetland, Not evaluated per OWES
- ANSI, Earth Science
- Candidate ANSI, Life Science

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North - Designated Natural Areas

0 100 200 400 600 800
Meters
Datum: NAD 1983 UTM Zone 17N

Jul, 2020	1:16,000 * when printed 11"x17"	**Data Sources:** MECP, City of Toronto, TRCA
P#:60609279	REV: 04	

AECOM

Figure 4-1A

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\fs\AME\KitcheneroffGAKCN1\Legacy\GAKCN1FP001\Data\Projects\60609279 ONT Line N\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-CLN_Fig4-1_NaturalAreas_Rev04-60609279.mxd
Date Saved: 7/22/2020 8:19:55 AM User Name: michael.w.collins

DOVERCOURT RD
OSSINGTON AVE
SHAW ST
BATHURST ST
SPADINA AVE
BEVERLEY ST
MCCAUL ST
UNIVERSITY AVE
St. Patrick
Osgoode
St. Andrew
QUEEN ST W
RICHMOND ST W
ADELAIDE ST W
PORTLAND ST
PETER ST
JOHN ST
DUNCAN ST
SIMCOE ST
KING ST W
WELLINGTON ST W
NIAGARA ST
LIBERTY ST
STRACHAN AVE
FRONT ST W
BREMNER BLVD
FLEET ST
FORT YORK BLVD
F G GARDINER EXPY
REES ST
LAKE SHORE BLVD W
QUEENS QUAY W
Lake Ontario

Legend

- Existing Station
- Toronto Subway Lines
- Freeway
- Railway
- Waterbody
- Study Area

Policy Areas

- Natural Heritage System (City of Toronto)
- Ravine and Natural Feature Protection By-law (RNFP) By-law (City of Toronto)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line West - Policy Areas

0 50 100 200 300 400 500 600 700
Meters
DATUM: NAD 1983 UTM Zone 17N

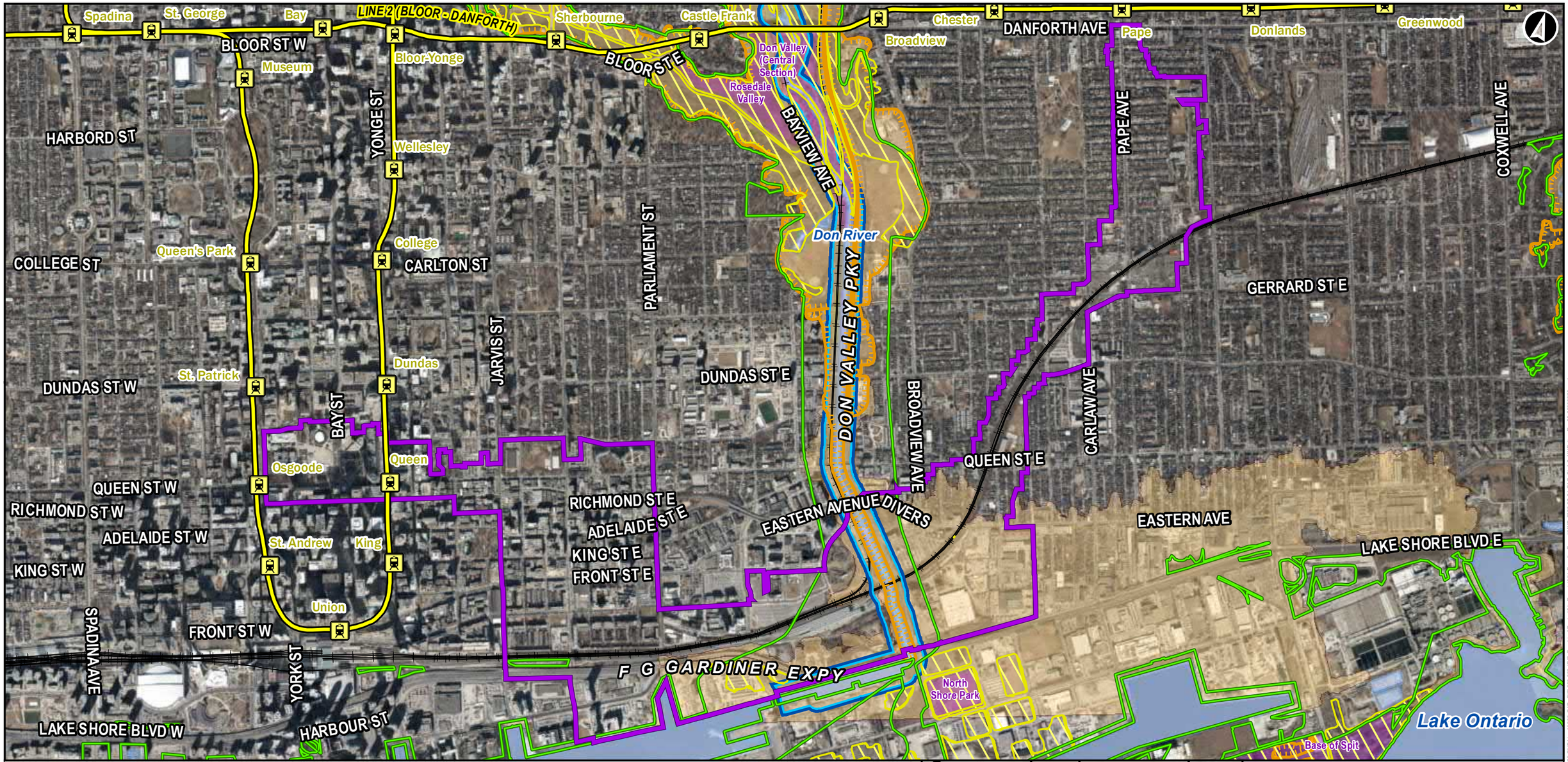
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:10,000
P#: 60611173	REV: 05

Figure 4-2A

Map location: \\na.aecomnet.com\ca\MSP\Projects\CA\ON\HPP01\Data\Projects\60611173 ONTLine W999\CAD_GIS\02 MXD [GIS-Graphics]\Design\01_Reports\Mxd_Report\Mxd\D-20200121-OLW_Fig4-2_ENVPolicy_Rev05-60611173.mxd
Date Saved: 7/22/2020 5:52:33 AM User Name: michael.wcollins



Legend

- Existing Station
- Toronto Subway Lines
- Railway
- Watercourse
- Waterbody
- Study Area

Policy Areas

- Natural Heritage System (City of Toronto)
- Target Natural Heritage System (TRCA)
- Ravine and Natural Feature Protection By-law (RNFP) By-law (City of Toronto)
- City of Toronto's Environmentally Significant Areas
- TRCA Regulation Limit
- Urban River Valley under the Greenbelt Plan (2017)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Policy Areas

0 0.5 1
Kilometers
DATUM: NAD 1983 UTM Zone 17N

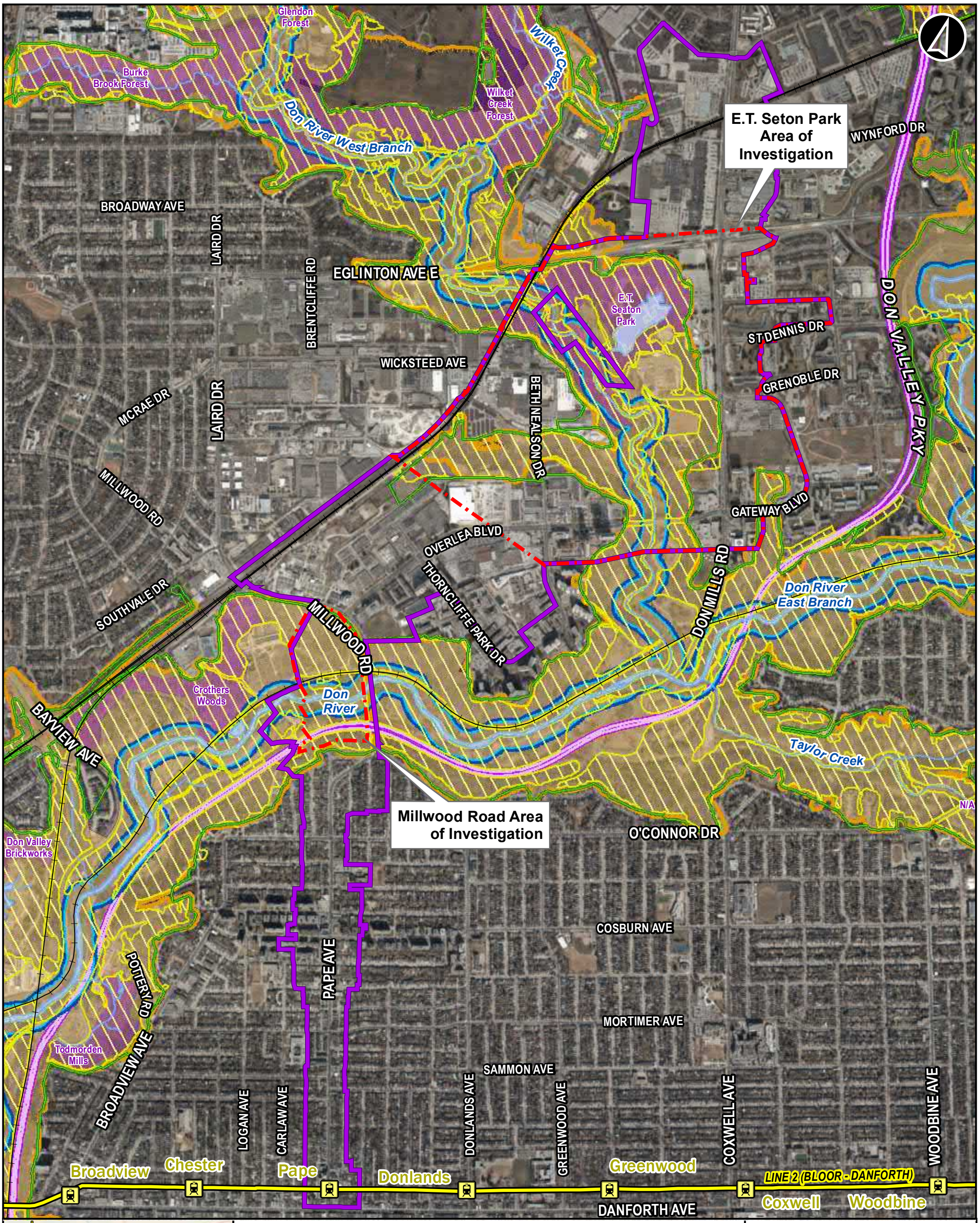
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI. Base Map provided from ESRI.

METROLINX | AECOM

Jul, 2020	1:18,000
P#:	REV: 05

Figure 4-2B

Map Location: I:\projects\60605972\CAD\GIS\MXD\Report\OLS_Fig4-2_NHPolicy_Rev05-60605972.mxd
Date Saved: 7/22/2020 6:17:17 AM User Name: michael.wcollins



Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North - Policy Areas

0 100 200 400 600 800
Meters
Datum: NAD 1983 UTM Zone 17N

Jul, 2020	1:16,000 * when printed 11"x17"	Data Sources: MECP, City of Toronto, TRCA
P#:60609279	REV: 05	

AECOM

Figure 4-2C

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\fs\AMER\Kitchener-GAK\CNT\Legacy\GAKCNTFP001\Data\Projects\60609279 ONT Line N\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLN_Fig4-2_NHPolicy_Rev05-60609279.mxd
Date Saved: 7/22/2020 6:14:30 AM User Name: michael.w.collins

LIBERTY ST
TEMPLE AVE
TYNDALL AVE
DUFFERIN ST
MOWAT AVE
FRASER AVE
PARDEE AVE
JEFFERSON AVE
ATLANTIC AVE
HANNA AVE
LYNN WILLIAMS ST
E LIBERTY ST
THORBURN AVE
SPRINGHURST AVE
FORT ROUILLE ST
CUH
CUH
CUH
F G GARDINER EXPY
MANITOBA DR
NOVA SCOTIA AVE
NUNAVUT RD
QUEBEC ST
SASKATCHEWAN RD

Legend

- Freeway
- Railway
- Parcel Fabric
- Study Area

ELC Collection Method

- ELC Field Verified or by Roadside (AECOM 2019 - 2020)

Ecological Communities

- Cultural (CU)

TORONTO

Map Location

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line West - Ecological Land Classification

0 50 100 200

Meters

DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,000
P#: 60595847	REV: 04

Figure 4-3A

File Location: n:\ca\toronto\active\60595847\4_design\CAD\CIVIL\Figures\ELC\ELC_Report\Figure 4-3A ELC.mxd
Date Saved: 7/22/2020 6:03:40 AM User Name: michael.wcollins

DOURO ST
WELLINGTON ST W
TECUMSETH ST
PIRANDELLO ST
WESTERN BATTERY RD
NIAGARA ST
E LIBERTY ST
ORDNANCE ST
STRACHAN AVE
SOLIDARITY WAY
BATHURST ST
FRONT ST W
CUH
FOD4
CUH
CUT1
CUH
CUH
GARRISON RD
CUT1
QUEENS WHARF RD
F G GARDINER EXPY
MANITOBA DR
FLEET ST
FORT YORK BLVD
IANNUZZI ST

Legend

- Freeway
- Railway
- Parcel Fabric
- Study Area

ELC Collection Method

- ELC Field Verified or by Roadside (AECOM 2019 - 2020)

Ecological Communities

- Cultural (CU)
- Forest (FO)

TORONTO

Map Location

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line West - Ecological Land Classification

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,000
P#: 60595847	REV: 04

Figure 4-3B

Map Location: \\aecomnet.com\dfs-AMER\Projects\CAN\ON1\HPWD\TDM\Projects\605X1171\ON1Line WWD\CAD_Design\03 GIS Graphics\Design\01_Reports\MXD_Figures\Figure 4-3B_ELC_Report_20200729.mxd
Date Saved: 7/22/2020 8:05:40 AM User Name: michael.wcollins

FRONT ST E
MARKET ST
GEORGE ST S
JENOVES PL
FREDERICK ST
PRINCESS ST
BERKELEY ST
TRINITY ST
COOPERAGE ST
ROLLING MILLS
MILL ST
THE ESPL
LOWER SHERBOURNE ST
SCADDING AVE
WILTON ST
LOWER JARVIS ST
HENRY LANE TERR
PORTNEUF CRT
AITKEN PL
DOUVILLE CRT
HAHN PL
PARLIAMENT ST
GRISTMILL LANE
TANK HOUSE LANE
CASE GOODS LANE
DISTILLERY LANE
CHERRY ST
LONGBOAT AVE
TOM LONGBOAT LANE
CUT1
LAKE SHORE BLVD E
Vegetation Cleared for Development
Martin Goodman Trails
F G GARDINER EXPY
SMALL ST
PARLIAMENT ST
CHERRY ST
Lower Don Trail
CUT1-1
LOWER JARVIS ST
RICHARDSON ST
BONNYCASTLE ST
MERCHANTS WHARF
QUEENS QUAY E
Waterfront Trail
EDGEWATER DR
Lake Ontario

Legend

- Railway
- Parcel Fabric
- Study Area

ELC Collection Method

- ELC Field Verified or by Roadside (AECOM 2019 - 2020)
- ELC (TRCA 2003-2017)
- ELC Field Verified or by Roadside (AECOM 2016, USRC)

ELC Communities

- Cultural (CU)

TORONTO

Map Location

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Ecological Land Classification

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

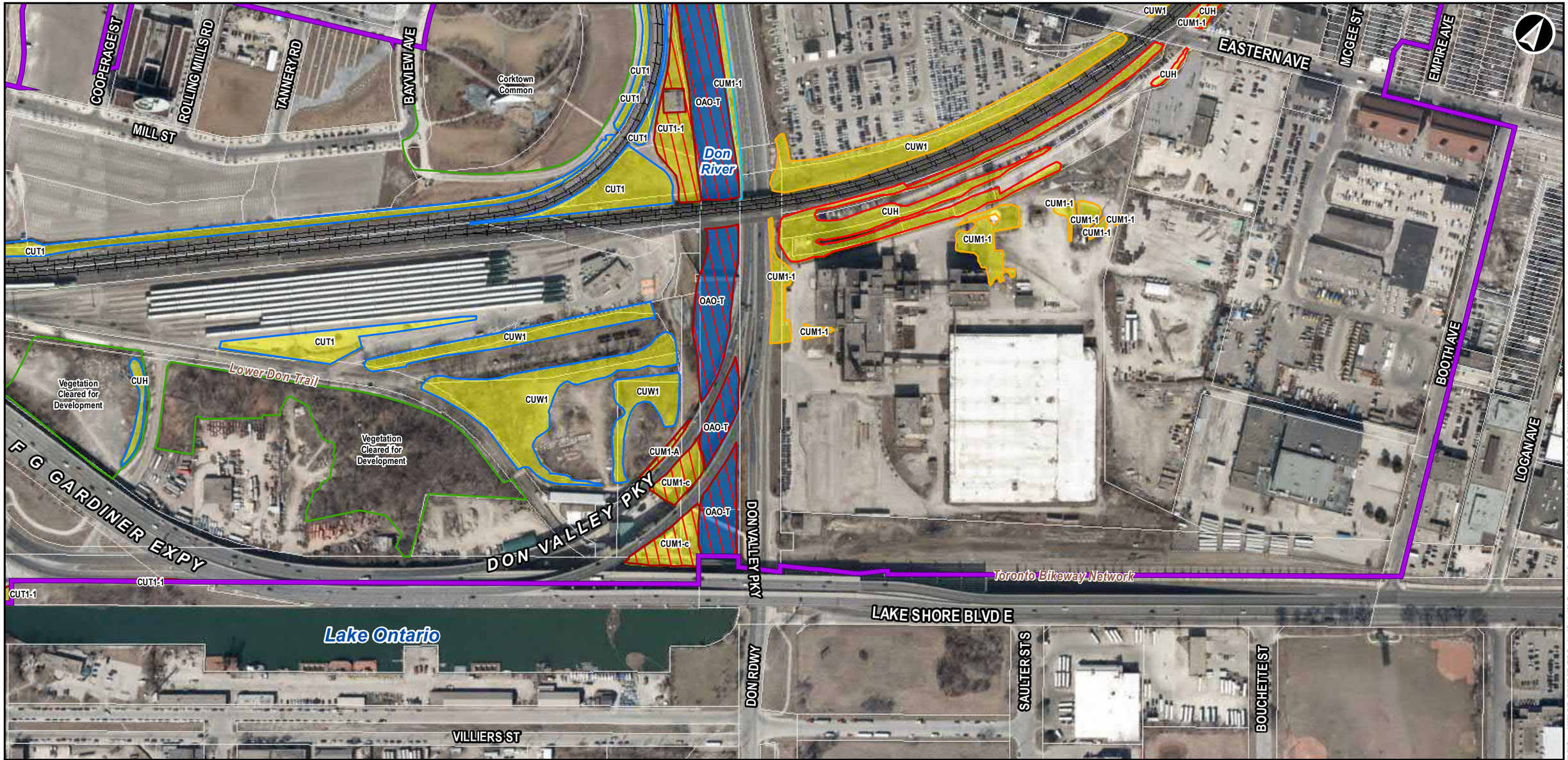
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 05

Figure 4-3C

Map Location: \\aecomnet.com\ca\MTR\Projects\CA\CA31\PR0100\Data\Projects\60609279 ONT Line\Mxds-CAD_GIS\60-GIS\Graphics\Design\01_Report\NR_Baseline\Report\MXD-20201021-210413_Fig4-3_ELC_Red\Mxds\60609279.mxd
Date Saved: 7/22/2020 6:21:44 AM User Name: michael.wcollins



Legend

- Railway
- Parcel Fabric
- Study Area

ELC Collection Method

- ELC Previously Reported (AECOM 2016, Lakeshore Segment 1)
- ELC Field Verified (AECOM 2016, Lakeshore Segment 1)
- ELC Field Verified or by Roadside (AECOM 2019 - 2020)
- ELC (TRCA 2003-2017)
- ELC Field Verified or by Roadside (AECOM 2016, USRC)
- ELC Field Verified or by Roadside (AECOM 2016, USRC)

ELC Communities

- Cultural (CU)
- Open Aquatic (OA)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Ecological Land Classification

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

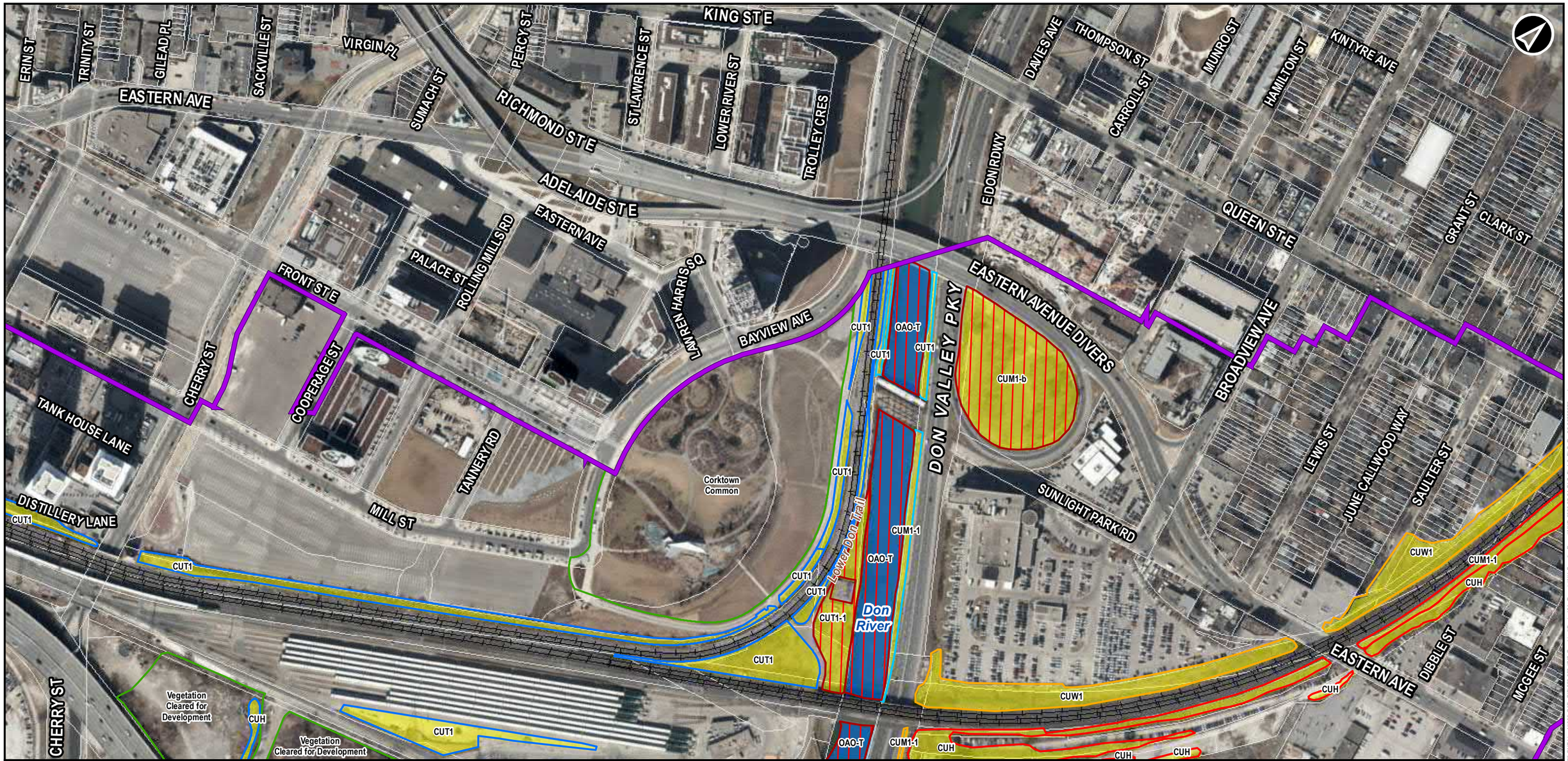
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 05

Figure 4-3D

File location: ca.aecomnet.com\Alt\Shared\Projects\60620070\Data\Projects\60620070_ONT Line\N000-C40_GIS\MXD\ELC\Figure 4-3D_ELC_Parcel.mxd
Date Saved: 7/22/2020 6:21:44 AM User Name: michael.wcollins



Legend

- Railway
- Parcel Fabric
- Study Area

ELC Collection Method

- ELC Previously Reported (AECOM 2016, Lakeshore Segment 1)
- ELC Field Verified (AECOM 2016, Lakeshore Segment 1)
- ELC Field Verified or by Roadside (AECOM 2019 - 2020)
- ELC (TRCA 2003-2017)
- ELC Field Verified or by Roadside (AECOM 2016, USRC)
- ELC Field Verified or by Roadside (AECOM 2016, USRC)

ELC Communities

- Cultural (CU)
- Open Aquatic (OA)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Ecological Land Classification

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 05

Figure 4-3E

Map location: I:\ca\toronto\projects\MRS Projects\Design\CA\CON1\PRO\TO\Data\Projects\60552219 ON1 Line\1-MXD_GIS\60552219_Fig4-3_ELC_Prelim\60552219.mxd
Date Saved: 7/22/2020 6:21:44 AM User Name: michael.wcollins

BROADVIEW AVE
KINTYRE AVE
GRANT ST
CLARK ST
HOWIE AVE
BOULTON AVE
DE GRASSI ST
CUMMINGS ST
WEST AVE
1ST AVE
TIVERTON AVE
SIMPSON AVE
VICTOR AVE
LANGLEY AVE
RIVERDALE AVE
CARLAW AVE
LANGLEY AVE
WARDELL ST
DUNDAS ST E
LOGAN AVE
SAULTER ST
STRANGE ST
QUEEN ST E
BOOTH AVE
PAISLEY AVE
DICKENS ST
THACKERAY ST
GERRARD ST E
GERRARD ST E
CARLAW AVE
BADGEROW AVE
BOSTON AVE
MCGEE ST
GRAHAM PL
NATALIE PL
EMPIRE AVE
BUSY ST
BISLEY ST
COLGATE AVE
VERRAL AVE
PAPE AVE
AUSTIN AVE
MARJORY AVE

CUW1
CUM1-1
CUH

Legend

- Railway
- Parcel Fabric
- Study Area

ELC Collection Method

- ELC Previously Reported (AECOM 2016, Lakeshore Segment 1)
- ELC Field Verified (AECOM 2016, Lakeshore Segment 1)

ELC Communities

- Cultural (CU)

TORONTO

Map Location

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Ecological Land Classification

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 05

Figure 4-3F

File location: \\na.aecomnet.com\ca\AMER\Toronto-CA\CA2\LT\Legacy\CA42\LTP01\Data\Projects\60659029\GIS\Live\MXD\60659029_GIS_Live_MXD_ELC_Keymap_Fig4-3_ELC_Revs.mxd
Date Saved: 7/22/2020 9:21:44 AM User Name: michael.wcollins

CARLAW AVE
LANGLEY AVE
RIVERDALE AVE
VASOS LANE
WITHROW AVE
CARLAW AVE
GOUGH AVE
CUH
CUH
PAPE AVE
PAPE AVE
Pape
DANFORTH AVE
LIPTON AVE
MURIEL AVE
POUCHER ST
CUH
CUM1-1
BAIN AVE
DINGWALL AVE
FRIZZELL AVE
WROXETER AVE
CAVELL AVE
EATON AVE
EGAN AVE
KISWICK ST
STRATHCONA AVE
HARCOURT AVE
HAZELWOOD AVE
LINE 2 (BLOOR-DANFORTH)
GERTRUDE PL
MARJORY AVE
CUW1
WOODYCREST AVE
BOULTBEE AVE
BLAKE ST
GALT AVE
LANGFORD AVE
CUW1
FIELDING AVE
JONES AVE

Legend

- Existing Station
- Toronto Subway Lines
- Railway
- Parcel Fabric
- Study Area

ELC Collection Method

- ELC Previously Reported (AECOM 2016, Lakeshore Segment 1)
- ELC Field Verified (AECOM 2016, Lakeshore Segment 1)

ELC Communities

- Cultural (CU)

TORONTO

Map Location

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Ecological Land Classification

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 05

Figure 4-3G

Map Location: mtaaecomnet.com\MAP Projects\prec-CA\CN1\Legacy\CA\CN1PP001\Data\Projects\60609279 ON1 Line\MXD+GIS\60609279 ON1 LineMXD+GIS_20210702 (GIS Graphics)\Design01_ReportMXD_20201007-210103_Fig4-3_ELC_Rev04\60609279.mxd
Date Saved: 7/22/2020 6:21:44 AM User Name: michael.wcollins

E.T. Seton Park Area of Investigation

Millwood Road Area of Investigation

RANDOLPH RD
KENRAE RD
LAIRD DR
MALCOLM RD
MILLWOOD RD
REDWAY RD
ESANDAR DR
CANVARCO RD
BANIGAN DR
OVERLEA BLVD
THORNCLIFFE PARK DR
MILEPOST PL
MILLWOOD RD
DON VALLEY PKY
BEECHWOOD DR
Don River
MINTON PL
HOPEDALE AVE
STANHOPE AVE
PAPE AVE
PEPLER AVE
RIVERCOURT BLVD
CHILTON RD
WARLAND AVE
WOLVERTON AVE
ELMSDALE RD
DONLANDS AVE
DAVIES CRES
BEECHWOOD CRES
O'CONNOR DR

CUT1
FOD5-3
BBS-MC-007
FOD7a
CUM1-1
BBS-MC-008
BBS-MC-005
Ongoing Construction
BBS-MC-006
OAO-T
FOD7b
BBO1
OAO
BBS-MC-004
BBS-MC-003
FOD7c
FOD4
BBS-MC-001
BBS-MC-002

TORONTO
Map Location
Keymap provided by: ESRI

Legend

- Watercourse
- Railway
- Parcel Fabric
- Study Area
- Area of Investigation

Survey Location

- Nocturnal Amphibian Breeding Call Survey Monitoring Station
- Breeding Bird Station

ELC Collection Method

- ELC Field Verified or by Roadside (AECOM 2019 - 2020)
- ELC (TRCA 2003-2017)

Ecological Communities

- Shoreline (BB)
- Cultural (CU)
- Forest (FO)
- Open Aquatic (OA)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North - Ecological Land Classifcation

0 70 140 280
Meters
Datum: NAD 1983 UTM Zone 17N

Jul, 2020	1:5,000 * when printed 11"x17"	**Data Sources:** MECP, City of Toronto, TRCA **Base Map:** ESRI
P#:60609279	REV: 05	

AECOM

Figure 4-3H

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\lfs\AMER\Kitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60609279 ONT Line N\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLN_Fig4-3_ELC_Rev05-60609279.mxd
Date Saved: 7/22/2020 6:24:34 AM User Name: michael.w.collins

E.T. Seton Park Area of Investigation

WYNFORD DR
GERVAIS DR
EGLINTON E DVP S RAMP
WINDOM RD
SETON PARK RD
FERRAND DR
DON VALLEY PKY
LINKWOOD LANE
ROCHEFORT DR
ST DENNIS DR
DEAUVILLE LANE
GRENOBLE DR
VENDOME PL
EGLINTON WEST I/BM
EGLINTON AVE E
Ontario Science Centre
GATEWAY BLVD
DON MILLS RD
WICKSTEED AVE
BETH NEALSON DR
WILLIAM MORGAN DR
OVERLEA BLVD
THORNCLIFFE PARK DR
Don River West Branch
Don River East Branch
Don River

CUM1-1 CUM1-b CUM1-c CUM1
CUT1-1 CUT1-b CUT1-c CUT1
FOD7-a FOD7-c FOD7
FOD5-3 FOD5-2 FOD5-8 FOD5-1
FOD1-1 FOD8-1
MAS2-1b MAS2-e
SWD4-3
CUP3-1 CUP3-2 CUP3-H CUP1-c CUP1-8 CUP2-A
OAO1-T OAO
CUS1-1 CUS1-b
FOD4-b
CUW1-b CUW1
SWT2-2
BBO1-A
MAM2-a MAM2-7
BLT1-B
FOD3-1
FOD7
CUH

TORONTO
Map Location
Keymap provided by: ESRI

Legend

- Watercourse
- Railway
- Parcel Fabric
- Study Area
- Area of Investigation

ELC Collection Method

- ELC Field Verified or by Roadside (AECOM 2019 - 2020)
- ELC (TRCA 2003-2017)

Ecological Communities

- Shoreline (BB)
- Bluff (BL)
- Cultural (CU)
- Forest (FO)
- Marsh (MA)
- Open Aquatic (OA)
- Swamp (SW)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North - Ecological Land Classifcation

0 95 190 380
Meters
Datum: NAD 1983 UTM Zone 17N

Jul, 2020	1:6,500 * when printed 11"x17"	**Data Sources:** MECP, City of Toronto, TRCA **Base Map:** ESRI
P#:60609279	REV: 05	

AECOM

Figure 4-3l

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\lfs\AMERKitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60609279 ONT Line N\600-CAD_GIS\620-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLN_Fig4-3_ELC_Rev05-60609279.mxd
Date Saved: 7/22/2020 6:24:34 AM User Name: michael.w.collins

Spadina
St. George
Bay
LINE 2 (BLOOR - DANFORTH)
Sherbourne
Castle Frank
Chester
Broadview
DANFORTH AVE
Pape
Donlands
Greenwood
BLOOR ST W
Museum
Bloor-Yonge
BLOOR ST E
BAYVIEW AVE
Don River
PAPE AVE
COXWELL AVE
HARBORD ST
YONGE ST
Wellesley
PARLIAMENT ST
College
Queen's Park
COLLEGE ST
CARLTON ST
GERRARD ST E
JARVIS ST
Dundas
St. Patrick
DUNDAS ST W
DUNDAS ST E
BAY ST
BROADVIEW AVE
CARLAW AVE
Osgoode
Queen
QUEEN ST E
QUEEN ST W
RICHMOND ST E
RICHMOND ST W
ADELAIDE ST E
ADELAIDE ST W
St. Andrew
King
EASTERN AVE
KING ST E
FRONT ST E
KING ST W
LAKE SHORE BLVD E
Union
SPADINA AVE
FRONT ST W
DON VALLEY PKY
F G GARDINER EXPY
YORK ST
HARBOUR ST
LAKE SHORE BLVD W
Lake Ontario

Legend

- TRCA Fish Community Sampling Location
- Existing Station
- Toronto Subway Lines
- Railway
- Study Area
- TRCA Regulation Limit
- Flow Direction
- Waterbody

In-water Timing Window

- Thermal Regime: Warm (July 1 to March 31) (Source: TRCA 2020)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Aquatic Conditions

0 0.5 1
Kilometers
DATUM: NAD 1983 UTM Zone 17N

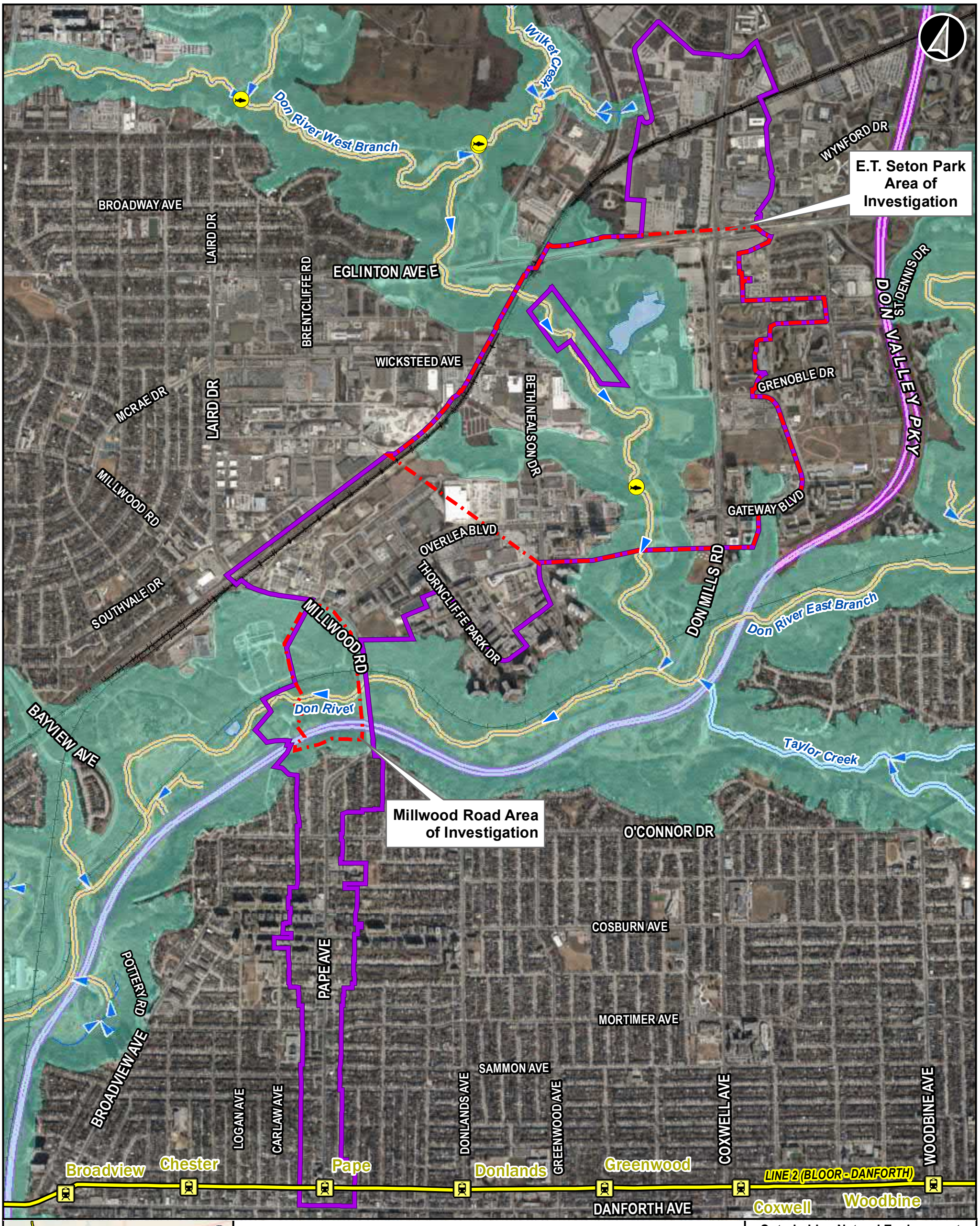
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto, Toronto Region Conservation Authority and Metrolinx. Keymap provided by ESRI. Base Map provided from ESRI.

METROLINX | AECOM

Jul, 2020	1:18,000
P#:	REV: 04

Figure 4-4A

Map Location: I:\projects\metrolinx\ONLINE\Environmental\GIS\MXD\Report\Aquatic_Report\Figure 4-4A_Aquatic_Report.mxd
Date Saved: 7/22/2020 6:27:36 AM User Name: michael.wcollins



Legend

- TRCA Fish Community Sampling Location
- Existing Station
- Toronto Subway Lines
- Freeway
- Railway
- Study Area
- Area of Investigation
- TRCA Regulation Limit
- Flow Direction
- Unknown Watercourse
- Waterbody
- Cold Watercourse

In-water Timing Window

- Thermal Regime: Warm (July 1 to March 31) (Source: TRCA 2020)

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North - Aquatic Conditions

0 100 200 400 600 800
Meters
Datum: NAD 1983 UTM Zone 17N

Jul, 2020	1:16,000 * when printed 11"x17"	**Data Sources:** MECP, City of Toronto, TRCA
P#:60609279	REV: 04	

AECOM

Figure 4-4B

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\ifs\AMER\Kitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60609279 ONT Line N\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLN_Fig4-4_Aquatic_Rev04-60609279.mxd
Date Saved: 7/22/2020 6:26:02 AM User Name: michael.w.collins

Legend

- Freeway
- Railway
- Parcel Fabric
- Study Area

Species At Risk (SAR)

- Potential Bat SAR Natural Roosting Habitat

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line West - Species at Risk and Species of Conservation Concern

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,000
P#: 60595847	REV: 04

Figure 4-5A

Map location: \\na.aecomnet.com\lfs\AMER\Kitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60611173 ONT Line W900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLW_Fig4-5_SAR_SC_Rev04-60611173.mxd
Date Saved: 7/22/2020 6:02:47 AM User Name: michael.w.collins

TANNERY RD
MILL ST
Don River
EASTERN AVE
BOOTH AVE
LOGAN AVE
MORSE ST
DON VALLEY PKY
F G GARDINER EXPY
DON VALLEY PKY
LAKE SHORE BLVD E
Lake Ontario
DON RDWY
SAULTER ST S
BOUCHETTE ST
MUNITION ST
VILLIERS ST

Legend

- Freeway
- Railway
- Waterbody
- Parcel Fabric
- Study Area

Species At Risk (SAR)

- Potential Bat SAR Natural Roosting Habitat
- Potential Habitat for Barn Swallow

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Species at Risk and Species of Conservation Concern

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

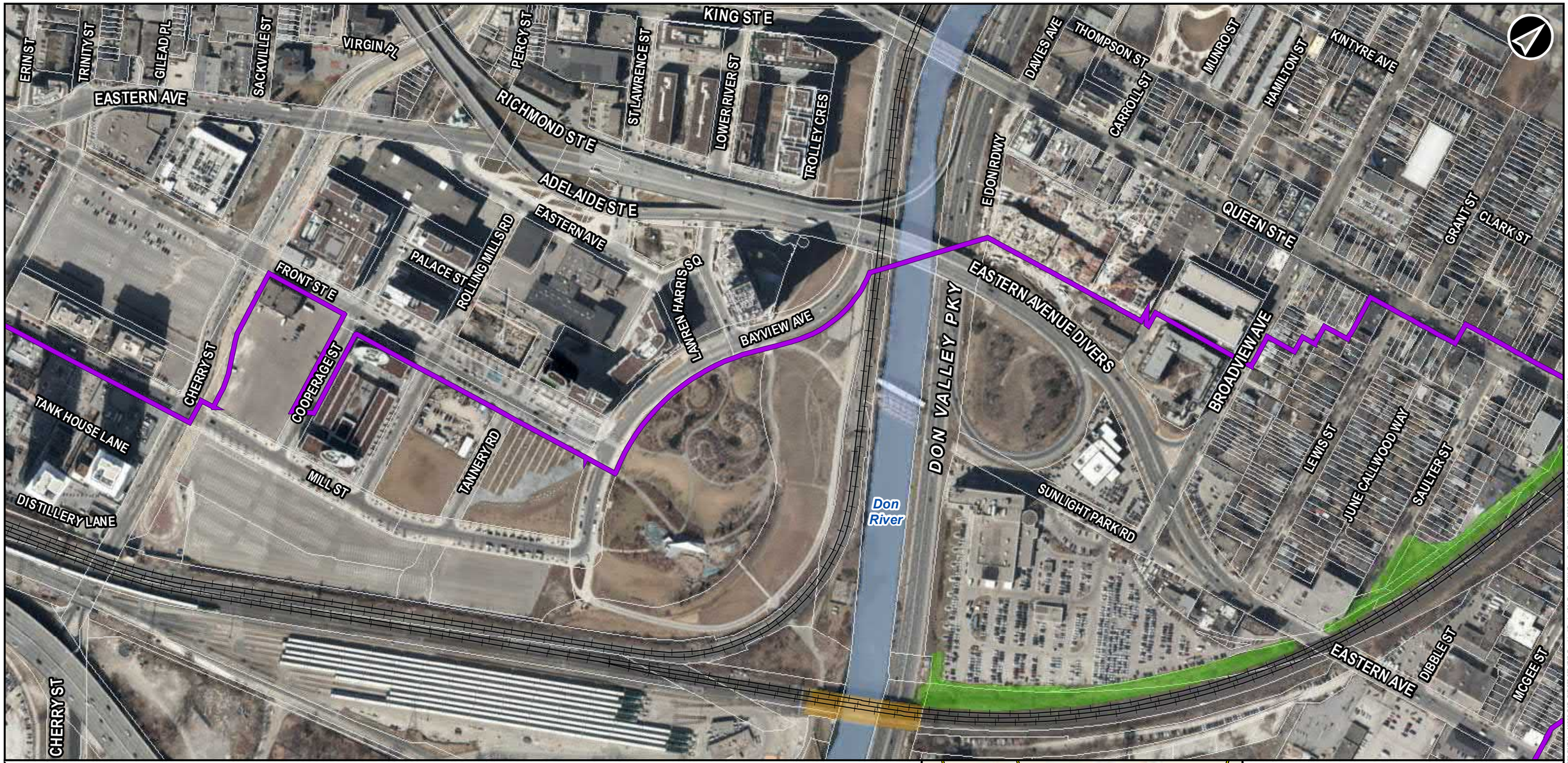
Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 04

Figure 4-5B

Map Location: I:\mea\reports\MMD-200107-210103_Fig4-5_SAR_SC_Rev04-20200729.mxd
Date Saved: 7/21/2020 4:17:36 PM User Name: mcneil.w.collins

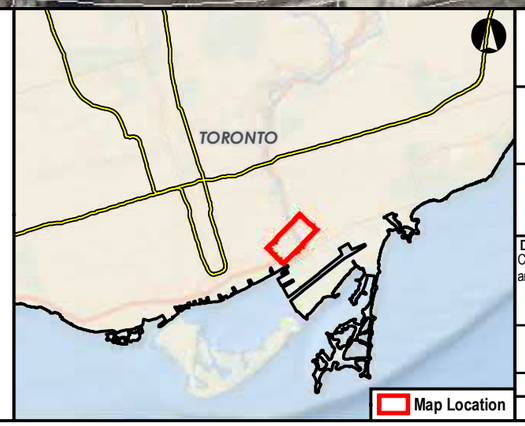


Legend

- Freeway
- Railway
- Waterbody
- Parcel Fabric
- Study Area

Species At Risk (SAR)

- Potential Bat SAR Natural Roosting Habitat
- Potential Habitat for Barn Swallow



Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Species at Risk and Species of Conservation Concern

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 04

Figure 4-5C

File Location: \\na.aecomnet.com\ts\AMER\Toronto-CA\C3\Legacy\OAK\C3\1PR\01\Data\Projects\60609201\GIS\ArcGIS\Mapping\MXD\60609201_ONT Line Report_CAD_GIS\2020\07\28_GIS-Deliverables\Design\01_Report\Ont_BeaverReport\MXD\60609201_ONT Line Report_CAD_GIS_2020-07-21\OLS_Fig4-5_SAR_SC_Rev04-20200729.mxd
Date Saved: 7/21/2020 4:17:36 PM | User Name: michael.w.collins

BROADVIEW AVE
KINTYRE AVE
GRANT ST
CLARK ST
HOWIE AVE
BOULTON AVE
DE GRASSI ST
CUMMINGS ST
WARDELL ST
DUNDAS ST E
WEST AVE
1ST AVE
TIVERTON AVE
LOGAN AVE
SIMPSON AVE
VICTOR AVE
LANGLEY AVE
RIVERDALE AVE
CARLAW AVE
LANGLEY AVE
SAULTER ST
STRANGE ST
QUEEN ST E
PAISLEY AVE
BOOTH AVE
DICKENS ST
THACKERAY ST
GERRARD ST E
GERRARD ST E
CARLAW AVE
BADGEROW AVE
BOSTON AVE
MCGEE ST
GRAHAM PL
NATALIE PL
EMPIRE AVE
BUSY ST
COLGATE AVE
VERRAL AVE
PAPE AVE
AUSTIN AVE
MARJORY AVE

Legend

- Railway
- Parcel Fabric
- Study Area

Species At Risk (SAR)

- Potential Bat SAR Natural Roosting Habitat

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Species at Risk and Species of Conservation Concern

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 04

Figure 4-5D

File location: \\na.aecomnet.com\ca\AMER\Toronto-CA\CA1LI\Legacy\CA421LIP001\00\mxd\Projects\60609270_ONT Line\4000-CAD_GIS\4200-GIS\4220-Design\01_Reports\NHL_BaselineReport\MXD-2020-07-21\OLS_Fig4-5_SAR_SC_Rev04-20200727.mxd
Date Saved: 7/21/2020 4:17:36 PM | User Name: michael.vc.collins

CARLAW AVE
LANGLEY AVE
RIVERDALE AVE
WITHROW AVE
CARLAW AVE
GOUGH AVE
PAPE AVE
PAPE AVE
Pape
POUCHER ST
BAIN AVE
DINGWALL AVE
FRIZZELL AVE
WROXETER AVE
STRATHCONA AVE
CAVELL AVE
HARCOURT AVE
HAZELWOOD AVE
DANFORTH AVE
LIPTON AVE
MURIEL AVE
EATON AVE
LINE 2 (BLOOR-DANFORTH)
GERTRUDE PL
WOODYCREST AVE
EGAN AVE
KISWICK ST
BLAKE ST
GALT AVE
BOULTBEE AVE
JONES AVE
LANGFORD AVE
FIELDING AVE

Legend

- Existing Station
- Toronto Subway Lines
- Railway
- Parcel Fabric
- Study Area

Species At Risk (SAR)

- Potential Bat SAR Natural Roosting Habitat

TORONTO

Map Location

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line South - Species at Risk and Species of Conservation Concern

0 50 100 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap provided by ESRI.

METROLINX | AECOM

Jul, 2020	1:3,500
P#:	REV: 04

Figure 4-5E

Map Location: \\ma.aecomnet.com\Data\AMER\Toronto\CAD\Shared\Legacy\CAD\CIVIL\Projects\60600029\Drawings\Design\01_Report\MXD\60600029_Fig4-5_SAR_SC_Rev04.mxd
Date Saved: 7/21/2020 4:17:36 PM User Name: michael.w.collins

E.T. Seton Park Area of Investigation

Millwood Road Area of Investigation

RANDOLPH RD
KENRAE RD
MALCOLM RD
LAIRD DR
ESANDAR DR
CANVARCO RD
MILLWOOD RD
REDWAY RD
BANIGAN DR
OVERLEA BLVD
THORNCLIFFE PARK DR
MILEPOST PL
MILLWOOD RD
DON VALLEY PKY
BEECHWOOD DR
Don River
MINTON PL
HOPEDALE AVE
STANHOPE AVE
PAPE AVE
PEPLER AVE
RIVERCOURT BLVD
CHILTON RD
WARLAND AVE
WOLVERTON AVE
ELMSDALE RD
DONLANDS AVE
DAVIES CRES
BEECHWOOD CRES
O'CONNOR DR

TORONTO

Map Location

Keymap provided by: ESRI

Legend

- Freeway
- Railway
- Watercourse
- Waterbody
- Parcel Fabric
- Study Area
- Area of Investigation
- Potential Bat SAR Natural Roosting Habitat

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North - Species at Risk and Species of Conservation Concern

0 100 200
Meters
Datum: NAD 1983 UTM Zone 17N

Jul, 2020	1:5,000 * when printed 11"x17"	**Data Sources:** MECP, City of Toronto, TRCA
P#:60609279	REV: 04	

AECOM

Figure 4-5F

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\ifs\AMER\Kitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60609279 ONT Line N\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLN_Fig4-5_SAR_SC_Rev04-60609279.mxd
Date Saved: 7/22/2020 6:30:22 AM User Name: michael.w.collins

E.T. Seton Park Area of Investigation

WYNFORD DR
GERVAIS DR
EGLINTON E DVP S RAMP
WINDOM RD
SETON PARK RD
FERRAND DR
DON VALLEY PKY
LINKWOOD LANE
ROCHEFORT DR
ST DENNIS DR
DEAUVILLE LANE
GRENOBLE DR
EGLINTON WEST/BM
EGLINTON AVE E
Ontario Science Centre
GATEWAY BLVD
DON MILLS RD
WICKSTEED AVE
BETH NEALSON DR
OVERLEA BLVD
THORNCLIFFE PARK DR
Don River West Branch
Don River East Branch
Don River

TORONTO
Map Location
Keymap provided by: ESRI

Legend

- Freeway
- Railway
- Watercourse
- Waterbody
- Parcel Fabric
- Study Area
- Area of Investigation
- Potential Bat SAR Natural Roosting Habitat

Ontario Line Natural Environment Environmental Conditions Report

Ontario Line North - Species at Risk and Species of Conservation Concern

0 100 200
Meters
Datum: NAD 1983 UTM Zone 17N

Jul, 2020	1:6,500 * when printed 11"x17"	**Data Sources:** MECP, City of Toronto, TRCA
P#:60609279	REV: 04	

AECOM

Figure 4-5G

Contains Information licensed under the Open Government Licence Ontario. This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Map location: \\na.aecomnet.com\ifs\AMER\Kitchener-CAKCN1\Legacy\CAKCN1FP001\Data\Projects\60609279 ONT Line N\600-CAD_GIS\620-929 (GIS-Graphics)\Design\01_Reports\NH_BaselineReport\MXD-2020-07-21-OLN_Fig4-5_SAR_SC_Rev04-60609279.mxd
Date Saved: 7/22/2020 6:30:22 AM User Name: michael.w.collins

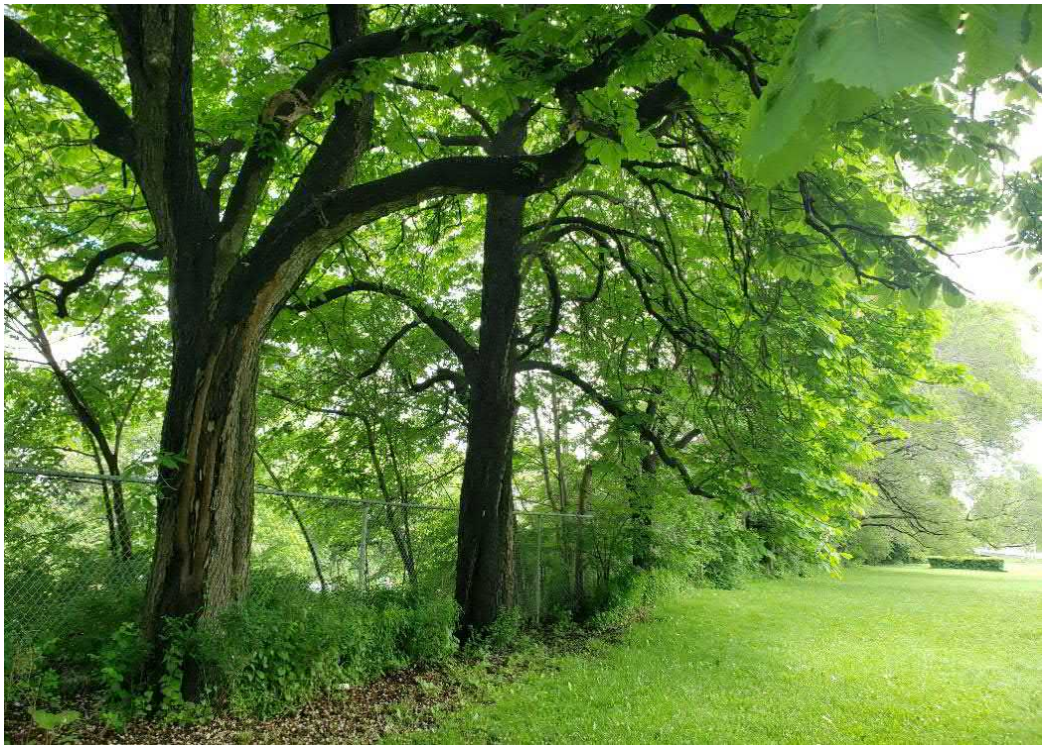
AECOM Imagine it. Delivered.

Appendix B

Terrestrial Environment Conditions Photographic Log

Appendix B. Terrestrial Environmental Conditions Photographic Log

Ontario Line West Study Area



Photograph 1: Cultural Hedgerow (CUH) – June 3, 2020 (facing east)

Photograph 2: Dry-Fresh Deciduous Forest (FOD4) – June 3, 2020 (facing south)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 3: **Mineral Cultural Thicket (CUT1) at Bathurst Street and Fort York Boulevard – June 3, 2020 (facing south)**

Photograph 4: **Cultural Hedgerow (CUH) within the existing rail corridor at Dufferin Street and Jefferson Avenue – June 3, 2020 (facing south)**

Appendix B. Terrestrial Environmental Conditions Photographic Log

Ontario Line North - Millwood Road Area of Investigation

Photograph 5: Dry – Fresh Sugar Maple – Oak Deciduous Forest Type (FOD5-3) – June 19, 2019 (facing north)

Photograph 6: Fresh – Moist Lowland Deciduous Forest Ecosite (FOD7a) – June 19, 2019 (facing south)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 7: Moist Lowland Deciduous Forest Ecosite (FOD7b) – July 9, 2019 (facing east)

Photograph 8: Fresh – Moist Lowland Deciduous Forest Ecosite (FOD7c) – June 19, 2019 (facing north)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 9: **Dry-moist Old Field Meadow (CUM1-1) located along the south bank of the Don River underneath the Millwood Road Overpass Bridge– June 19, 2019 (facing south)**

Photograph 10: **Dry – Fresh Deciduous Forest Ecosite (FOD4) – July 2, 2019 (facing south)**

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 11: Dry-moist Old Field Meadow (CUM1-1) with Mineral Sumac Cultural Thicket inclusion (CUT1-1) within and adjacent to the rail corridor on the north side – July 2, 2019 (facing north) – July 2, 2019 (facing north)

Photograph 12: Mineral Cultural Meadow (CUM1) with Common Lilac Cultural (CUT1) within the ROW of the Don Valley Parkway – July 9, 2019 (facing north)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 13: Mineral Cultural Thicket Ecosite (CUT1) underneath the existing hydro corridor – July 9, 2019 (facing southeast)

Photograph 14: Butternut (Juglans cinerea) identified within the Millwood Road Area of Investigation in the Dry – Fresh Sugar Maple – Oak Deciduous Forest Type (FOD5-3) surrounded by protection fencing – July 9, 2019

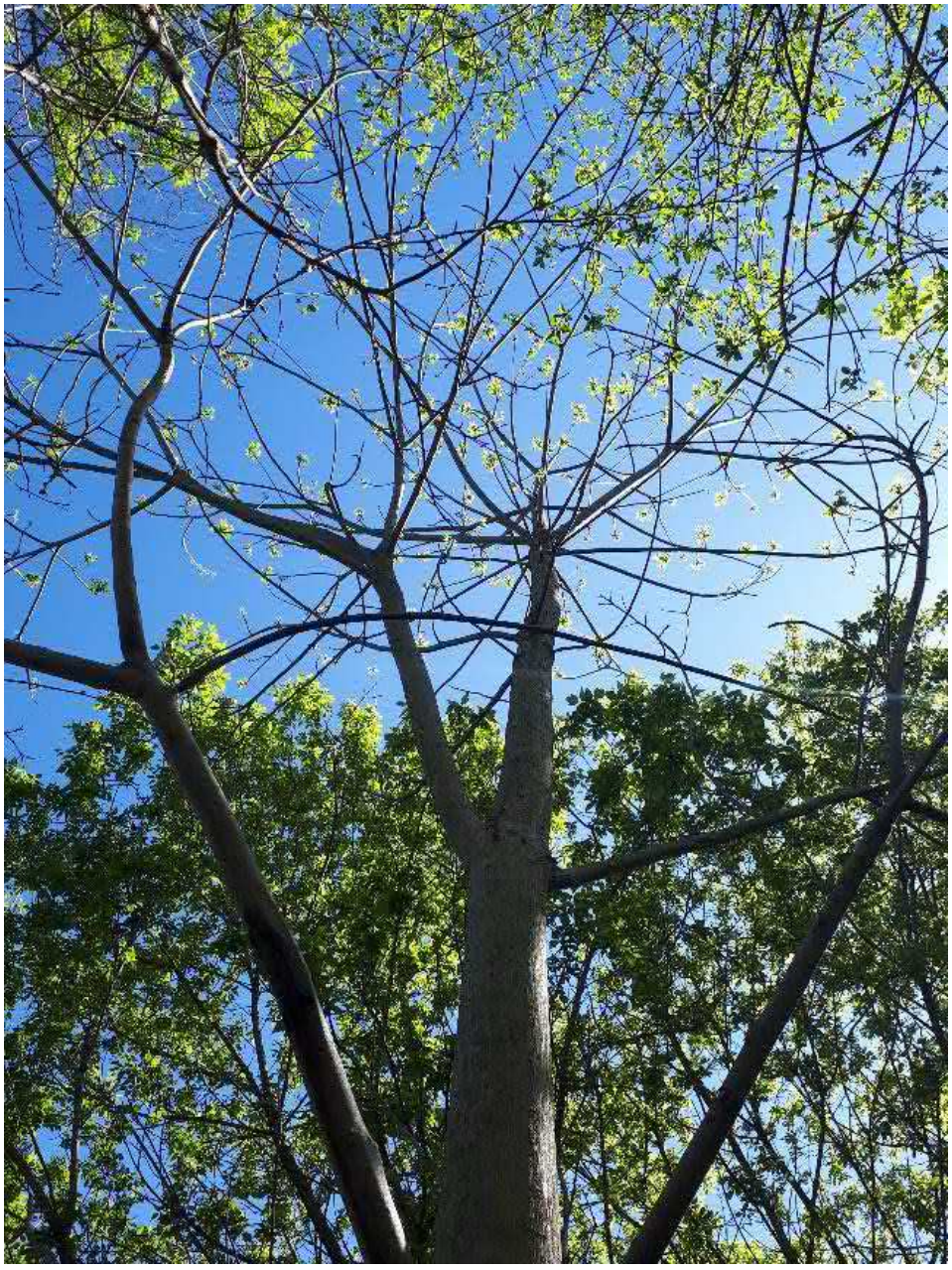
Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 15: Butternut (Juglans cinerea) identified within the Millwood Road Area of Investigation in the Dry – Fresh Sugar Maple – Oak Deciduous Forest Type (FOD5-3) – July 9, 2019

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 16: Heavily cankered Butternut (Juglans cinerea) identified within the Millwood Road Area of Investigation in the Fresh – Moist Lowland Deciduous Forest Ecosite (FOD7b) – May 22, 2020

Appendix B. Terrestrial Environmental Conditions Photographic Log



Photograph 17: Tree canopy of heavily cankered Butternut (Juglans cinerea) identified within the Millwood Road Area of Investigation in the Fresh – Moist Lowland Deciduous Forest Ecosite (FOD7b) – May 22, 2020

Appendix B. Terrestrial Environmental Conditions Photographic Log

E.T Seton Park Area of Investigation

Photograph 18: Dry – Fresh Sugar Maple Deciduous Forest Type (FOD5-1) – June 1, 2020 (facing east)

Photograph 19: Mineral Willow Thicket Swamp (SWT2-2) – June 1, 2020 (facing north)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 20: Sumac Deciduous Thicket (CUT1-1) – June 1, 2020 (facing south)

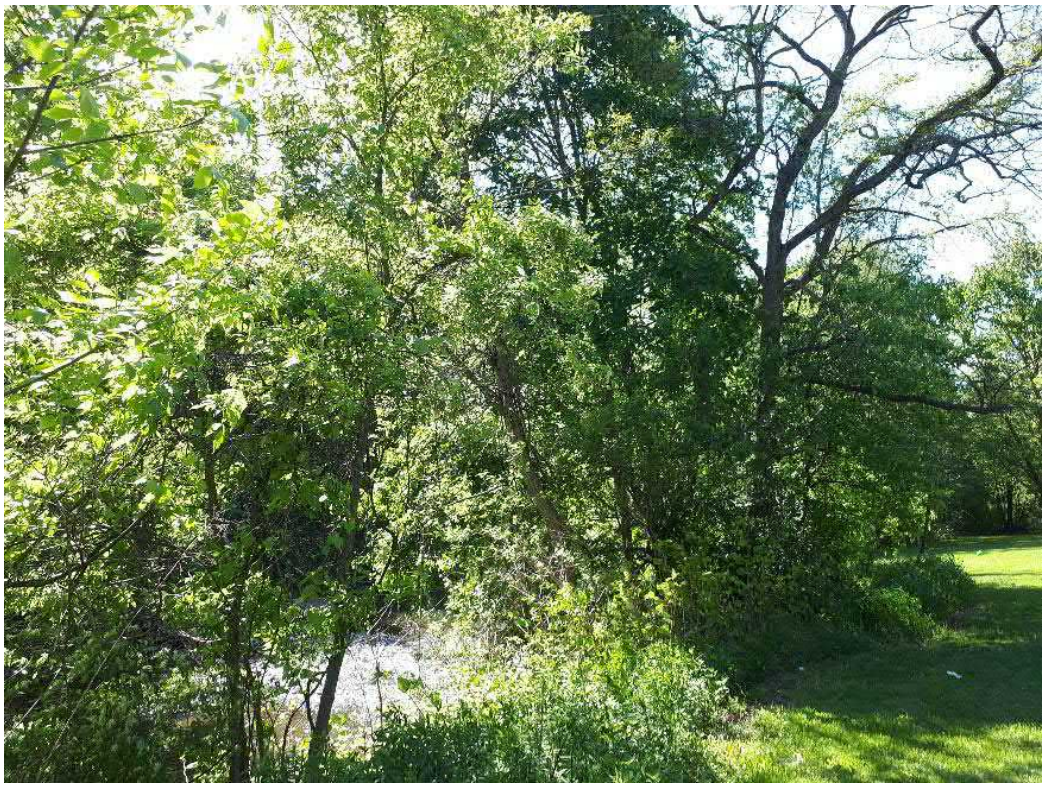
Photograph 21: Exotic Forb Meadow (CUM1-c) – June 1, 2020 (facing east)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 22: Dry-Fresh Sugar Maple - Oak Deciduous Forest (FOD5-3) – June 1, 2020 (facing southwest)

Photograph 23: Suspected Hybrid Butternut in Dry-Fresh Sugar Maple - Oak Deciduous Forest (FOD5-3) – June 1, 2020 (facing southwest). Canopy could not be seen due to understory foliage cover.

Appendix B. Terrestrial Environmental Conditions Photographic Log



Photograph 24: Fresh-Moist Willow Lowland Deciduous Forest (FOD7-3) - June 1, 2020 (facing north).

Photograph 25: Locust Deciduous Forest (CUP1-c) – June 2, 2020 (facing west)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 26: Dry-Fresh Manitoba Maple Deciduous Forest (FOD4-b) – June 2, 2020 (facing west)

Photograph 27: Dry-Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8) – June 2, 2020 (facing northeast)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 28: Dry-Fresh Red Oak Deciduous Forest (FOD1-1) – June 2, 2020 (facing northeast)

Photograph 29: Large patch of Common Milkweed (Asclepias syriaca) in Sumac Deciduous Thicket (CUT1-1) east of Beth Nealson Drive – June 4, 2020 (facing northwest)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 30: Butternut in Dry-Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8) – June 4, 2020.

Photograph 31: Suspected hybrid butternut showing atypical bark in Sumac Deciduous Thicket (CUT1-1)– June 4, 2020

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 32: Canopy of suspected hybrid butternut showing some leaflets with terminal leaves and some without in Sumac Deciduous Thicket (CUT1-1)– June 4, 2020

Appendix B. Terrestrial Environmental Conditions Photographic Log

Potential Bank Swallow Sites

Photograph 33: Potential Bank Swallow Colony Location # 1 in the Millwood Road Area of Investigation along the south bank of the Don River – July 9, 2019 (facing north)

Photograph 34: Potential Bank Swallow Colony Location # 1 in the Millwood Road Area of Investigation along the south bank of the Don River – extended view

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 35: Potential Bank Swallow Colony Location # 2 in the E.T. Seton Park Area of Investigation along the south bank of the Don River – October 18, 2019 (facing north)

Photograph 36: Potential Bank Swallow Colony Location # 3 in the Millwood Road Area of Investigation along the north bank of the Don River (facing south)

Appendix B. Terrestrial Environmental Conditions Photographic Log

Photograph 37: Potential Bank Swallow Colony Location # 4 in the E.T. Seton Park Area of Investigation along the bank of the Don River (facing south)

AECOM Imagine it. Delivered.

Appendix C

Vascular Plant Lists

Appendix C1: 2020 Vascular Plant List for the Ontario Line West Study Area

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	CUH/ CUT1a	FOD4	CUT1	CUH/ MAS2
PTERIDOPHYTES		**FERNS & ALLIES**													
Equisetaceae		**Horsetail Family**													
Equisetum	*arvense*	Field Horsetail	0	0		S5	-	-	-	G5	L5		x		x
GYMNOSPERMS		**CONIFERS**													
Cupressaceae		**Cedar Family**													
Juniperus	*virginiana*	Eastern Red Cedar	4	3		S5	-	-	-	G5	L5		x		
DICOTYLEDONS		**DICOTS**													
Amaranthaceae		**Amaranth Family**													
Atriplex	*patula*	Spear Saltbush	0	-2		SE5	-	-	-	G5	L+?		x		
Anacardiaceae		**Sumac or Cashew Family**													
Toxicodendron	*radicans var. radicans*	Eastern Poison-ivy				S5	-	-	-	G5T5	L5		x		
Rhus	*typhina*	Staghorn Sumac	1	3		S5	-	-	-	G5	L5	x	x		
Apiaceae		**Carrot or Parsley Family**													
Carum	*carvi*	Common Caraway		5	-1	SE3?	-	-	-	GNR	L+			x	
Daucus	*carota*	Wild Carrot		5	-2	SE5	-	-	-	GNR	L+	x		x	
Apocynaceae		**Dogbane Family**													
Asclepias	*syriaca*	Common Milkweed	0	5		S5	-	-	-	G5	L5				x
Vincetoxicum	*rossicum*	Dog-strangling Vine		5	-3	SE5	-	-	-	GNR	L+	x			
Asteraceae		**Composite or Aster Family**													
Arctium	*minus*	Common Burdock		3	-2	SE5	-	-	-	GNR	L+	x	x	x	x
Cirsium	*arvense*	Canada Thistle		3	-1	SE5	-	-	-	G5	L+	x			x
Cirsium	*vulgare*	Bull Thistle		3	-1	SE5	-	-	-	GNR	L+		x		x
Erigeron	*philadelphicus*	Philadelphia Fleabane	1	-3		S5	-	-	-	G5	L5				x
Euthamia	*graminifolia*	Grass-leaved Goldenrod	2	0		S5	-	-	-	G5	L5				x
Hieracium	*vulgatum*	Common Hawkweed		5	-1	SE2?	-	-	-	G5	L+				x
Solidago	*altissima*	Tall Goldenrod	1	3		S5	-	-	-	G5	L5	x	x		x
Tanacetum	*vulgare*	Common Tansy		5	-1	SE5	-	-	-	GNR	L+		x		
Taraxacum	*officinale*	Common Dandelion		3	-2	SE5	-	-	-	G5	L+	x			x
Tussilago	*farfara*	Coltsfoot		3	-2	SE5	-	-	-	GNR	L+				x
Balsaminaceae		**Touch-me-not Family**													
Impatiens	*capensis*	Jewelweed	4	-3		S5	-	-	-	G5	L5		x		
Berberidaceae		**Barberry Family**													
Berberis	*vulgaris*	Common Barberry		3	-2	SE5	-	-	-	GNR	L+		x		
Brassicaceae		**Mustard Family**													
Alliaria	*petiolata*	Garlic Mustard		0	-3	SE5	-	-	-	GNR	L+	x	x	x	x
Barbarea	*vulgaris*	Garden Yellowrocket		0	-1	SE5	-	-	-	GNR	L+		x		
Hesperis	*matronalis*	Dame's Rocket		5	-3	SE5	-	-	-	G4G5	L+	x	x	x	
Celtis	*occidentalis*	Common Hackberry	8	1		S4	-	-	-	G5	L+		x		
Caprifoliaceae		**Honeysuckle Family**													
Lonicera	*maackii*	Amur Honeysuckle		5	-2	SE2	-	-	-	GNR	L+	x			
Lonicera	*morrowii*	Morrow's Honeysuckle		5	-1	SE3	-	-	-	GNR	L+		x		
Lonicera	*tatarica*	Tartarian Honeysuckle		3	-3	SE5	-	-	-	GNR	L+	x			
Symphoricarpos	*albus*	Snowberry	7	4		S5	-	-	-	G5	L3	x			
Silene	*latifolia*	Bladder Campion		5	-2	SE5	-	-	-	GNR	L+		x		x
Celastraceae		**Staff-tree Family**													
Euonymus	*europaeus*	European Spindle Tree		5	-1	SE2	-	-	-	GNR	L+	x			
Convolvulus	*arvensis*	Field Bindweed		5	-1	SE5	-	-	-	GNR	L+		x		
Cornaceae		**Dogwood Family**													
Cornus	*sericea*	Red-osier Dogwood	2	-3		S5	-	-	-	G5	L5		x	x	x
Fabaceae		**Pea Family**													
Securigera	*varia*	Crown-vetch		5	-2	SE5	-	-	-	GNR	L+		x		
Trifolium	*hybridum*	Alsike Clover		1	-1	SE5	-	-	-	GNR	L+	x			
Vicia	*cracca*	Cow Vetch		5	-1	SE5	-	-	-	GNR	L+	x			
Fagaceae		**Beech Family**													
Quercus	*rubra*	Red Oak	6	3		S5	-	-	-	G5	L4		x		
Grossulariaceae		**Currant Family**													
Ribes	*rubrum*	Red Currant		5	-2	SE5	-	-	-	G4G5	L+				x
Juglandaceae		**Walnut Family**													
Juglans	*nigra*	Black Walnut	5	3		S4?	-	-	-	G5	L5				x
Lamiaceae		**Mint Family**													
Leonurus	*cardiaca ssp. cardiaca*	Common Motherwort		5	-2	SE5	-	-	-	GNRTNR	L+	x			
Nepeta	*cataria*	Catnip		1	-2	SE5	-	-	-	GNR	L+		x		
Malvaceae		**Mallow Family**													
Tilia	*americana*	American Basswood	4	3		S5	-	-	-	G5	L5	x			
Moraceae		**Mulberry Family**													
Morus	*alba*	White Mulberry		0	-3	SE5	-	-	-	GNR	L+		x		x
Oleaceae		**Olive Family**													
Fraxinus	*americana*	White Ash	4	3		S4	-	-	-	G5	L5	x	x		
Fraxinus	*excelsior*	European Ash				SE2	-	-	-	GNR	L+	x			

Appendix C1: 2020 Vascular Plant List for the Ontario Line West Study Area

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	CUH/ CUT1a	FOD4	CUT1	CUH/ MAS2
Plantaginaceae		**Plantain Family**													
Plantago	*major*	Common Plantain		-1	-1	SE5	-	-	-	G5	L+	x			
Polygonaceae		**Smartweed Family**													
Fallopia	*japonica*	Japanese Knotweed		3	-1	SE5	-	-	-	G?	L+		x		x
Ranunculaceae		**Buttercup Family**													
Ranunculus	*acris*	Tall Buttercup		-2	-2	SE5	-	-	-	G5	L+		x		
Rhamnaceae		**Buckthorn Family**													
Rhamnus	*cathartica*	Common Buckthorn		3	-3	SE5	-	-	-	GNR	L+	x		x	x
Rosaceae		**Rose Family**													
Geum	*aleppicum*	Yellow Avens	2	-1		S5	-	-	-	G5	L5	x	x		x
Malus	*pumila*	Common Apple		5	-1	SE4	-	-	-	G5	L+				x
Prunus	*virginiana*	Choke Cherry	2	1		S5	-	-	-	G5	L5	x			
Rubiaceae		**Madder Family**													
Galium	*mollugo*	Smooth Bedstraw		5	-2	SE5	-	-	-	GNR	L+		x		
Salicaceae		**Willow Family**													
Populus	*deltoides ssp. deltoides*	Eastern Cottonwood	4	-1		S5	-	-	-	G5T5	L5		x	x	
Populus	*tremuloides*	Trembling Aspen	2	0		S5	-	-	-	G5	L5		x		
Salix	*sp.*	Willow species					-	-	-						x
Salix	*exigua*	Narrow-leaf Willow	3	-5		S5	-	-	-	GNR	L+				x
Salix X	*rubens*	Hybrid Crack Willow		-4	-3	hyb	-	-	-	HYB	L+		x		
Sapindaceae		**Soapberry Family**											x		
Acer	*negundo*	Manitoba Maple	0	0		S5	-	-	-	G5	L+?	x	x	x	x
Acer	*platanoides*	Norway Maple		5	-3	SE5	-	-	-	GNR	L+		x		
Acer X	*freemanii*	Freeman's Maple	6	-5		SNA	-	-	-	GNA	L4	x			
Aesculus	*hippocastanum*	Horse Chestnut		5	-1	SE2	-	-	-	GNR	L+	x	x		x
Scrophulariaceae		**Figwort Family**													
Verbascum	*thapsus*	Common Mullein		5	-2	SE5	-	-	-	GNR	L+		x		
Ailanthus	*altissima*	Tree-of-heaven		5	-1	SE5	-	-	-	GNR	L+	x			x
Solanaceae		**Nightshade Family**													
Solanum	*dulcamara*	Bittersweet Nightshade		0	-2	SE5	-	-	-	GNR	L+	x	x		x
Ulmaceae		**Elm Family**													
Ulmus	*americana*	American Elm	3	-2		S5	-	-	-	G4	L5	x			
Ulmus	*glabra*	Scotch Elm				SE1	-	-	-	GNR	L+	x	x		x
Ulmus	*pumila*	Siberian Elm		5	-1	SE3	-	-	-	GNR	L+	x		x	x
Ulmus	*rubra*	Slippery Elm	6	0		S5	-	-	-	G5	L3	x			
Urticaceae		**Nettle Family**													
Urtica	*dioica ssp. dioica*	Stinging Nettle		-1	-1	SE2	-	-	-	G5T5?	L+	x			
Vitaceae		**Grape Family**													
Parthenocissus	*vitacea*	Thicket-creeper	3	3		S5	-	-	-	G5	L5	x	x	x	x
Vitis	*riparia*	Riverbank Grape	0	-2		S5	-	-	-	G5	L5		x		
MONOCOTYLEDONS		**MONOCOTS**													
Poaceae		**Grass Family**													
Bromus	*inermis*	Smooth Brome		5	-3	SE5	-	-	-	G5	L+				x
Dactylis	*glomerata*	Orchard Grass		3	-1	SE5	-	-	-	GNR	L+	x	x	x	
Phragmites	*australis*	Common Reed	0	-4		S4?	-	-	-	G5	L+				x
Poa	*pratensis ssp. pratensis*	Kentucky Blue Grass	0	1		SE5	-	-	-	G5T5	L+	x	x		

FLORISTIC SUMMARY & ASSESSMENT

Species Diversity

Total Species:	**72**	
Native Species:	**29**	40.28%
Exotic Species	**43**	59.72%
Total Taxa in Region (List Region, Source)	10000	
% Regional Taxa Recorded	0.72%	
S1-S3 Species	0	
S4 Species	2	
S5 Species	23	

Co-efficient of Conservatism and Floral Quality Index

Co-efficient of Conservatism (CC) (average)	**2.86**

Appendix C1: 2020 Vascular Plant List for the Ontario Line West Study Area

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	CUH/ CUT1a	FOD4	CUT1	CUH/ MAS2
CC 0 to 3	*lowest sensitivity*	17	58.62%												
CC 4 to 6	*moderate sensitivity*	9	31.03%												
CC 7 to 8	*high sensitivity*	2	6.90%												
CC 9 to 10	*highest sensitivity*	0	0.00%												
Floral Quality Index (FQI)		**15.39**													
Presence of Weedy & Invasive Species															
mean weediness		**-1.77**													
weediness = -1	*low potential invasiveness*	19	44.19%												
weediness = -2	*moderate potential invasiveness*	15	34.88%												
weediness = -3	*high potential invasiveness*	9	20.93%												
Presence of Wetland Species															
average wetness value		**2.01**													
upland		24	33.33%												
facultative upland		19	26.39%												
facultative		17	23.61%												
facultative wetland		9	12.50%												
obligate wetland		2	2.78%												

Appendix C2: 2019 Vascular Plant List for Millwood Road Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	ESA STATUS	COSEWIC STATUS (2016-08-19)	SARA STATUS (2016-08-19)	GLOBAL STATUS	LOCAL STATUS TRCA	CUM1-1 (North of Tracks)	FOD5-3	CUT1-1	FOD7a	FOD7b	FOD7c	CUM1-1 (South of Tracks)	FOD4	CUM1-1 (DVP)
PTERIDOPHYTES		**FERNS & ALLIES**																		
Equisetaceae		**Horsetail Family**																		
Equisetum	*arvense*	Field Horsetail	0	0		S5	-	-	-	G5	L5							x		
GYMNOSPERMS		**CONIFERS**																		
Cupressaceae		**Cedar Family**																		
Juniperus	*virginiana*	Eastern Red Cedar	4	3		S5	-	-	-	G5	L5									x
Thuja	*occidentalis*	Eastern White Cedar	4	-3		S5	-	-	-	G5	L5						x			
Pinaceae		**Pine Family**																		
Picea	*abies*	Norway Spruce		5	-1	SNA	-	-	-	G5	L+						x			
Pinus	*resinosa*	Red Pine	8	3		S5	-	-	-	G5	L1						x			
Pinus	*strobus*	Eastern White Pine	4	3		S5	-	-	-	G5	L4		x							
DICOTYLEDONS		**DICOTS**																		
Aceraceae		**Maple Family**																		
Acer	*negundo*	Manitoba Maple	0	-2		S5	-	-	-	G5	L+?	x	x	x	x	x	x	x		
Acer	*platanoides*	Norway Maple		5	-3	SNA	-	-	-	GNR	L+			x	x	x			x	
Acer	*saccharum*	Sugar Maple	4	3		S5	-	-	-	G5	L5		x						x	
Acer	*nigrum*	Black Maple	7	3		S4?	-	-	-	G5Q	L4				x					
Acer X	*freemanii*	Freeman's Maple	6	-5		SNA	-	-	-	GNR	L4				x					
Anacardiaceae		**Sumac or Cashew Family**																		
Toxicodendron	*radicans ssp. negundo*	Eastern Poison-ivy	5	-1		S5	-	-	-	G5	L5		x	x						x
Rhus	*typhina*	Staghorn Sumac	1	5		S5	-	-	-	G5	L5	x		x	x	x	x		x	x
Apiaceae		**Carrot or Parsley Family**																		
Aegopodium	*podagraria*	Bishop's Goutweed		0	-3	SNA	-	-	-	GNR	L+					x				
Daucus	*carota*	Wild Carrot		5	-2	SNA	-	-	-	GNR	L+		x			x				
Heracleum	*maximum*	Cow-parsnip	3	-3		S5	-	-	-	G5	L5	x				x	x	x		
Apocynaceae		**Dogbane Family**																		
Apocynum	*androsaemifolium ssp. androsaemifolium*	Spreading Dogbane	3	5		S5	-	-	-	G5	L5							x		
Asclepiadaceae		**Milkweed Family**																		
Asclepias	*incarnata*	Swamp Milkweed	6	-5		S5	-	-	-	G5	L4							x		
Asclepias	*syriaca*	Common Milkweed	0	5		S5	-	-	-	G5	L5		x					x		x
Vincetoxicum	*rossicum*	Dog-strangling Vine		5	-2	SNA	-	-	-	GNR	L+	x	x	x	x	x	x	x	x	x
Asteraceae		**Composite or Aster Family**																		
Achillea	*millefolium*	Common Yarrow		3	-1	SNA	-	-	-	G5	L+									x
Ambrosia	*artemisiifolia*	Common Ragweed	0	3		S5	-	-	-	G5	L5					x				
Ambrosia	*trifida*	Giant Ragweed	0	-1		S5	-	-	-	G5	L5						x			
Anthemis	*arvensis*	Corn Chamomille		5	-1	SNA	-	-	-	GNR	L+		x			x				
Arctium	*minus*	Common Burdock		5	-2	SNA	-	-	-	GNR	L+	x			x	x	x	x		
Symphyotrichum	*lanceolatum*	White Panicled Aster	3	-3		S5	-	-	-	G5T5	L5		x							
Symphyotrichum	*novae-angliae*	New England Aster	2	-3		S5	-	-	-	G5	L5					x				x
Bidens	*frondosa*	Devil's Beggar-ticks	3	-3		S5	-	-	-	G5	L5				x	x				
Leucanthemum	*vulgare*	Ox-eye Daisy		5	-1	SNA	-	-	-	GNR	L+									x
Cichorium	*intybus*	Chicory		5	-1	SNA	-	-	-	GNR	L+		x							
Cirsium	*arvense*	Canada Thistle		3	-1	SNA	-	-	-	GNR	L+	x				x		x		x
Erigeron	*philadelphicus ssp. philadelphicus*	Philadelphia Fleabane	1	-3		S5	-	-	-	G5	L5	x			x	x				
Solidago	*canadensis*	Canada Goldenrod	1	3		S5	-	-	-	G5	L5	x			x	x	x	x	x	x
Solidago	*flexicaulis*	Zig-zag Goldenrod	6	3		S5	-	-	-	G5	L5		x							
Tanacetum	*vulgare*	Common Tansy		5	-1	SNA	-	-	-	GNR	L+	x				x		x		
Taraxacum	*officinale*	Common Dandelion			-1	SNA	-	-	-	G5	L+		x			x				
Balsaminaceae		**Touch-me-not Family**																		
Impatiens	*capensis*	Jewelweed	4	-3		S5	-	-	-	G5	L5					x	x			
Impatiens	*glandulifera*	Ornamental Jewelweed		-3	-2	SNA	-	-	-	GNR	L+					x				
Berberidaceae		**Barberry Family**																		
Podophyllum	*peltatum*	May-apple	5	3		S5	-	-	-	G5	L5		x							
Betulaceae		**Birch Family**																		
Alnus	*glutinosa*	European Black Alder		-2	-3	SNA	-	-	-	GNR	L+		x							
Betula	*papyrifera*	Paper Birch	3	2		S5	-	-	-	G5	L4				x					
Ostrya	*virginiana*	Ironwood	4	4		S5	-	-	-	G5	L5		x							
Brassicaceae		**Mustard Family**																		
Alliaria	*petiolata*	Garlic Mustard		0	-3	SNA	-	-	-	GNR	L+	x	x	x	x	x	x		x	
Barbarea	*vulgaris*	Garden Yellowrocket		0	-1	SNA	-	-	-	GNR	L+							x		
Hesperis	*matronalis*	Dame's Rocket		5	-3	SNA	-	-	-	G4G5	L+	x					x	x	x	
Caprifoliaceae		**Honeysuckle Family**																		
Lonicera	*morrowii*	Morrow's Honeysuckle		5	-1	SNA	-	-	-	GNR	L+			x						
Lonicera	*tatarica*	Tartarian Honeysuckle		3	-3	SNA	-	-	-	GNR	L+	x		x	x		x			
Sambucus	*nigra ssp. canadensis*	American Black Elderberry	5	-2		S5	-	-	-	G5T5	L5			x	x					
Symphoricarpos	*albus*	Snowberry	7	4		S5	-	-	-	G5T5	L3		x							
Cornaceae		**Dogwood Family**																		
Cornus	*alternifolia*	Alternate-leaved Dogwood	6	5		S5	-	-	-	G5	L5		x				x			
Cornus	*sericea*	Red-osier Dogwood	2	-3		S5	-	-	-	G5	L5			x						

Appendix C2: 2019 Vascular Plant List for Millwood Road Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	ESA STATUS	COSEWIC STATUS (2016-08-19)	SARA STATUS (2016-08-19)	GLOBAL STATUS	LOCAL STATUS TRCA	CUM1-1 (North of Tracks)	FOD5-3	CUT1-1	FOD7a	FOD7b	FOD7c	CUM1-1 (South of Tracks)	FOD4	CUM1-1 (DVP)
Dipsacaceae		**Teasel Family**																		
Dipsacus	*fullonum*	Fuller's Teasel		5	-1	SNA	-	-	-	GNR	L+	x						x		
Fabaceae		**Pea Family**																		
Desmodium	*canadense*	Canadian Tick-trefoil	5	1		S4	-	-	-	G5	L5									x
Lotus	*corniculatus*	Bird's-foot Trefoil		1	-2	SNA	-	-	-	GNR	L+	x	x							
Medicago	*lupulina*	Black Medick		1	-1	SNA	-	-	-	GNR	L+	x	x							
Melilotus	*alba*	White Sweet-clover		3	-3	SNA	-	-	-	G5	L+		x							
Robinia	*pseudoacacia*	Black Locust		4	-3	SNA	-	-	-	G5	L+						x			
Trifolium	*hybridum ssp. elegans*	Alsike Clover		1	-1	SNA	-	-	-	GNR	L+		x							
Trifolium	*pratense*	Red Clover		2	-2	SNA	-	-	-	GNR	L+									x
Vicia	*cracca*	Bird Vetch		5	-1	SNA	-	-	-	GNR	L+	x	x					x	x	x
Fagaceae		**Beech Family**																		
Fagus	*grandifolia*	American Beech	6	3		S4	-	-	-	G5	L4	x								
Quercus	*macrocarpa*	Bur Oak	5	1		S5	-	-	-	G5	L4		x							
Quercus	*rubra*	Red Oak	6	3		S5	-	-	-	G5	L4		x		x					
Geraniaceae		**Geranium Family**																		
Geranium	*robertianum*	Herb-robert		5	-2	S5	-	-	-	G5	L+?								x	
Guttiferae		**St. John's-wort Family**																		
Hypericum	*perforatum*	Common St. John's-wort		5	-3	SNA	-	-	-	GNR	L+		x					x		x
Hydrophyllaceae		**Water-leaf Family**																		
Hydrophyllum	*virginianum*	Virginia Water-leaf	6	-2		S5	-	-	-	G5	L5						x			
Juglandaceae		**Walnut Family**																		
Carya	*cordiformis*	Bitternut hickory	6	0		S5	-	-	-	G5	L4		x							
Juglans	*cinerea*	Butternut	6	2		S3?	END	END	END	G4	L3		x							
Juglans	*nigra*	Black Walnut	5	3		S4	-	-	-	G5	L5						x		x	
Lamiaceae		**Mint Family**																		
Glechoma	*hederacea*	Ground Ivy		5	-2	SNA	-	-	-	GNR	L+	x	x		x					
Leonurus	*cardiaca ssp. cardiaca*	Common Motherwort		5	-2	SNA	-	-	-	GNR	L+	x			x	x			x	
Prunella	*vulgaris ssp. vulgaris*	Common Heal-all		0	-1	SNA	-	-	-	G5TU	L+		x							
Lythraceae		**Loosestrife Family**																		
Lythrum	*salicaria*	Purple Loosestrife		-5	-3	SNA	-	-	-	G5	L+							x		
Moraceae		**Mulberry Family**																		
Morus	*alba*	White Mulberry		0	-3	SNA	-	-	-	GNR	L+				x	x	x			
Oleaceae		**Olive Family**																		
Fraxinus	*pennsylvanica*	Green Ash	3	-3		S4	-	-	-	G5	L5		x		x	x	x		x	
Syringa	*vulgaris*	Common Lilac		5	-2	SNA	-	-	-	GNR	L+									x
Onagraceae		**Evening-primrose Family**																		
Circaea	*lutetiana*	Enchanter's Nightshade	3	3		S5	-	-	-	G5T5	L5		x		x	x				
Oxalidaceae		**Wood Sorrel Family**																		
Oxalis	*montana*	Wood-sorrel	8	3		S5	-	-	-	G5	L2					x	x		x	
Papaveraceae		**Poppy Family**																		
Sanguinaria	*canadensis*	Bloodroot	5	4		S5	-	-	-	G5	L5		x		x				x	
Plantaginaceae		**Plantain Family**																		
Plantago	*major*	Common Plantain		-1	-1	S5	-	-	-	G5	L+		x			x				
Polygonaceae		**Smartweed Family**																		
Fallopia	*japonica*	Japanese Knotweed		3	-1	SE4	-	-	-	G?	L+				x	x	x		x	
Polygonum	*persicaria*	Lady's-thumb		-3	-1	SE5	-	-	-	G?	L+						x			
Rumex	*crispus*	Curly-leaf Dock		-1	-2	SNA	-	-	-	GNR	L+	x					x			
Primulaceae		**Primrose Family**																		
Lysimachia	*ciliata*	Fringed Loosestrife	4	-3		S5	-	-	-	G5	L5						x			
Ranunculaceae		**Buttercup Family**																		
Ranunculus	*acris*	Tall Buttercup		-2	-2	SNA	-	-	-	G5	L+					x	x			
Thalictrum	*pubescens*	Tall Meadow-rue	5	-2		S5	-	-	-	G5	L5		x							
Rhamnaceae		**Buckthorn Family**																		
Rhamnus	*cathartica*	Common Buckthorn		3	-3	SNA	-	-	-	GNR	L+	x	x	x	x	x	x	x	x	
Rosaceae		**Rose Family**																		
Crataegus	*species*	Hawthorn species	4	5			-	-	-								x			
Geum	*urbanum*	Wood Avens		5	-1	SNA	-	-	-	G5	L+	x	x	x	x	x				x
Prunus	*serotina*	Black Cherry	3	3		S5	-	-	-	G5	L5		x							
Prunus	*virginiana*	Choke Cherry	2	1		S5	-	-	-	G5	L5		x		x					
Rubus	*idaeus*	American Red Raspberry	2	3		S5	-	-	-	G5	L+									x
Rubus	*odoratus*	Purple Flowering Raspberry	3	5		S5	-	-	-	G5	L5			x			x			
Rubiaceae		**Madder Family**																		
Galium	*mollugo*	Smooth Bedstraw		5	-2	SNA	-	-	-	GNR	L+							x		
Salicaceae		**Willow Family**																		
Populus	*deltoides ssp. deltoides*	Eastern Cottonwood	4	-1		S5	-	-	-	G5T5	L5	x			x	x				
Populus	*grandidentata*	Large-tooth Aspen	5	3		S5	-	-	-	G5	L4						x			
Salix X	*rubens*	Reddish Willow		-4	-3	SE4	-	-	-	HYB						x	x			
Scrophulariaceae		**Figwort Family**																		

Appendix C2: 2019 Vascular Plant List for Millwood Road Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	ESA STATUS	COSEWIC STATUS (2016-08-19)	SARA STATUS (2016-08-19)	GLOBAL STATUS	LOCAL STATUS TRCA	CUM1-1 (North of Tracks)	FOD5-3	CUT1-1	FOD7a	FOD7b	FOD7c	CUM1-1 (South of Tracks)	FOD4	CUM1-1 (DVP)
Verbascum	*thapsus*	Common Mullein		5	-2	SNA	-	-	-	GNR	L+					x				x
Simaroubaceae		**Ailanthus Family**																		
Ailanthus	*altissima*	Tree-of-heaven		5	-1	SNA	-	-	-	GNR	L+				x	x				
Solanaceae		**Nightshade Family**																		
Solanum	*dulcamara*	Bittersweet Nightshade		0	-2	SNA	-	-	-	GNR	L+					x			x	
Tiliaceae		**Linden Family**																		
Tilia	*americana*	American Basswood	4	3		S5	-	-	-	G5	L5				x	x				
Tilia	*cordata*	Small Leaf Linden			0	SNA	-	-	-	GNR	L+		x							
Ulmaceae		**Elm Family**																		
Ulmus	*americana*	American Elm	3	-2		S5	-	-	-	G5?	L5		x						x	
Ulmus	*pumila*	Siberian Elm		5	-1	SNA	-	-	-	GNR	L+					x			x	
Urticaceae		**Nettle Family**																		
Boehmeria	*cylindrica*	Smallspike False Nettle	4	-5		S5	-	-	-	G5	L4					x				
Pilea	*pumila*	Canadian Clearweed	5	-3		S5	-	-	-	G5	L5					x				
Urtica	*dioica ssp. dioica*	Stinging Nettle		-1	-1	SNA	-	-	-	G5T5?	L+	x			x	x	x	x		
Verbenaceae		**Vervain Family**																		
Verbena	*stricta*	Hoary Vervain	7	5		S4	-	-	-	G5	L3							x		
Violaceae		**Violet Family**																		
Viola	*pubescens*	Downy Yellow Violet	5	4		S5	-	-	-	G5T5	L5					x				
Vitaceae		**Grape Family**																		
Parthenocissus	*inserta*	Thicket-creeper	3	3		S5	-	-	-	G5	L5	x	x			x	x		x	
Vitis	*riparia*	Riverbank Grape	0	-2		S5	-	-	-	G5	L5	x		x				x		x
MONOCOTYLEDONS		**MONOCOTS**																		
Araceae		**Arum Family**																		
Arisaema	*triphyllum*	Small Jack-in-the-pulpit	5	-2		S5	-	-	-	G5	L5		x							
Cyperaceae		**Sedge Family**																		
Carex	*vulpinoidea*	Fox Sedge	3	-5		S5	-	-	-	G5	L5					x				
Schoenoplectus	*acutus var. acutus*	Hard-stemmed Bulrush	6	-5		S5	-	-	-	G5	L3					x				
Liliaceae		**Lily Family**																		
Maianthemum	*canadense*	Wild Lily-of-the-Valley	5	0		S5	-	-	-	G5	L4		x							
Maianthemum	*racemosum*	Large False Solomon's Seal	4	3		S5	-	-	-	G5	L5		x			x				
Poaceae		**Grass Family**																		
Agrostis	*gigantea*	Redtop		0	-2	SNA	-	-	-	G4G5	L+									x
Bromus	*arvensis*	Field Brome			-1	SNA	-	-	-	GNR								x		
Bromus	*inermis ssp. inermis*	Smooth Brome		5	-3	SNA	-	-	-	G5TNR	L+					x				
Dactylis	*glomerata*	Orchard Grass		3	-1	SNA	-	-	-	GNR	L+									x
Elymus	*repens*	Quack Grass		3	-3	SNA	-	-	-	GNR	L+					x				
Glyceria	*species*	Manna Grass Species	5				-	-	-				x							
Phalaris	*arundinacea*	Reed Canary Grass	0	-4		S5	-	-	-	G5	L+				x			x	x	x
Phragmites	*australis ssp. australis*	European Reed		-3	-3	SNA	-	-	-	G5T5	L+	x				x	x	x		
Poa	*pratensis ssp. pratensis*	Kentucky Blue Grass	0	1		S5	-	-	-	G5T	L+	x	x			x	x	x		x

FLORISTIC SUMMARY & ASSESSMENT

Species Diversity

Total Species:	**125**	
Native Species:	**68**	54.40%
Exotic Species	**57**	45.60%
Total Taxa in Region (List Region, Source)	10000	
% Regional Taxa Recorded	1.25%	
Regionally Significant Species	enter manually	
S1-S3 Species	0	
S4 Species	5	
S5 Species	60	

Co-efficient of Conservatism and Floral Quality Index

Co-efficient of Conservatism (CC) (average)		**3.85**	
CC 0 to 3	*lowest sensitivity*	27	39.71%
CC 4 to 6	*moderate sensitivity*	36	52.94%
CC 7 to 8	*high sensitivity*	5	7.35%
CC 9 to 10	*highest sensitivity*	0	0.00%
Floral Quality Index (FQI)		**31.77**	

Presence of Weedy & Invasive Species

mean weediness		**-1.82**	
weediness = -1	*low potential invasiveness*	24	42.11%
weediness = -2	*moderate potential invasiveness*	16	28.07%
weediness = -3	*high potential invasiveness*	16	28.07%

Appendix C2: 2019 Vascular Plant List for Millwood Road Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	ESA STATUS	COSEWIC STATUS (2016-08-19)	SARA STATUS (2016-08-19)	GLOBAL STATUS	LOCAL STATUS TRCA	CUM1-1 (North of Tracks)	FOD5-3	CUT1-1	FOD7a	FOD7b	FOD7c	CUM1-1 (South of Tracks)	FOD4	CUM1-1 (DVP)
Presence of Wetland Species																				
average wetness value	**1.39**																			
upland	31	24.80%																		
facultative upland	36	28.80%																		
facultative	23	18.40%																		
facultative wetland	25	20.00%																		
obligate wetland	6	4.80%																		

Appendix C3: 2020 Vascular Plant List of E.T. Seton Park Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	FOD5-1/ SWD2-2	SWT2-2	CUT1-1	CUM-c/ CUT1-1	FOD7-a/ CUM1	FOD5-1	FOD5-3	FOD3 / MAM2-a	FOD7-3	CUW1-b	CUP1-c	FOD4-b	FOD7	CUT1-b	FOD5-2	FOD5-3	FOD1-1	MAS2-1b	CUP1-c	CUP3	FOD1-1	CUT1	FOD5-3	CUT1-c	CUM1-1	FOD7	FOD5-3	CUW1/CUM1-1	SWT2-2/MAS2	FOD5-8	CUW1	FOD5-8	FOD5-8/CUP1	CUT1-1	CUM1	FOD7	FOD3/MAS	CUP1-8
PTERIDOPHYTES		**FERNS & ALLIES**																																														
Dennstaedtiaceae		**Bracken Fern Family**																																														
Pteridium	*aquilinum*	Bracken Fern	2	3		S5	-	-	-	G5	L4																																				x	x
Dryopteridaceae		**Wood Fern Family**																																														
Dryopteris	*carthusiana*	Spinulose Wood Fern	5	-3		S5	-	-	-	G5	L5																																						
Polystichum	*acrostichoides*	Christmas Fern	5	3		S5	-	-	-	G5	L4																																x		x	x					
Equisetaceae		**Horsetail Family**																																														
Equisetum	*arvense*	Field Horsetail	0	0		S5	-	-	-	G5	L5	x	x			x																									x		x	x	x		x		
Equisetum	*pratense*	Meadow Horsetail	8	-3		S5	-	-	-	G5	L3		x																																				
Equisetum	*scirpoides*	Dwarf Scouring-rush	7	0		S5	-	-	-	G5	L3																																					x		
Onocleaceae		**Ostrich Fern Family**																																														
Matteuccia	*struthiopteris*	Ostrich Fern	5	0		S5	-	-	-	G5	L5					x																									x		x						
GYMNOSPERMS		**CONIFERS**																																														
Cupressaceae		**Cedar Family**																																														
Juniperus	*virginiana*	Eastern Red Cedar	4	3		S5	-	-	-	G5	L5																															x			x					
Thuja	*occidentalis*	Eastern White Cedar	4	-3		S5	-	-	-	G5	L5																														x								
Pinaceae		**Pine Family**																																														
Picea	*abies*	Norway Spruce		5	-1	SE3	-	-	-	G5	L+																					x																	
Picea	*glauca*	White Spruce	6	3		S5	-	-	-	G5	L3																					x		x															
Picea	*pungens*	Blue Spruce		3		SE1	-	-	-	G5	LH																							x															
Pinus	*resinosa*	Red Pine	8	3		S5	-	-	-	G5	L1																					x			x														
Pinus	*strobus*	Eastern White Pine	4	3		S5	-	-	-	G5	L4																			x	x											x		x	x					
Tsuga	*canadensis*	Eastern Hemlock	7	3		S5	-	-	-	G5	L4	x					x		x																					x		x	x					
DICOTYLEDONS		**DICOTS**																																														
Adoxaceae		**Moschatel Family**																																														
Sambucus	*racemosa*	Red Elderberry	5	2		S5	-	-	-	G5	L5					x																																		
Amaranthaceae		**Amaranth Family**																																														
Anacardiaceae		**Sumac or Cashew Family**																																														
Toxicodendron	*radicans var. radicans*	Eastern Poison-ivy				S5	-	-	-	G5T5	L5	x	x					x					x															x			x		x	x	x	x			
Rhus	*typhina*	Staghorn Sumac	1	3		S5	-	-	-	G5	L5			x	x					x	x	x	x	x				x				x		x	x	x	x		x		x	x	x	x		x	x
Apiaceae		**Carrot or Parsley Family**																																														
Aegopodium	*podagraria*	Bishop's Goutweed		0	-3	SE5	-	-	-	GNR	L+									x				x																								
Anthriscus	*sylvestris*	Woodland Chervil		5	-2	SE4?	-	-	-	GNR	L+										x			x																								
Daucus	*carota*	Wild Carrot		5	-2	SE5	-	-	-	GNR	L+	x				x								x														x	x						x			
Heracleum	*maximum*	Cow-parsnip	3	-3		S5	-	-	-	G5	L5																																						
Apocynaceae		**Dogbane Family**																																														
Apocynum	*androsaemifolium*	Spreading Dogbane	3	5		S5	-	-	-	G5	L5																							x														
Asclepias	*syriaca*	Common Milkweed	0	5		S5	-	-	-	G5	L5				x																															x			
Vincetoxicum	*rossicum*	Dog-strangling Vine		5	-3	SE5	-	-	-	GNR	L+	x	x	x	x	x	x	x		x	x	x	x	x	x	x		x		x	x	x	x		x	x	x	x		x	x	x	x	x	x	x	x
Araliaceae		**Ginseng Family**																																														
Aralia	*nudicaulis*	Wild Sarsaparilla	4	3		S5	-	-	-	G5	L5											x				x								x							x		x	x				x	
Aristolochiaceae		**Duchman's-pipe Family**																																														
Asarum	*canadense*	Wild Ginger	6	5		S5	-	-	-	G5	L4					x																																		
Asteraceae		**Composite or Aster Family**																																														
Arctium	*minus*	Common Burdock		3	-2	SE5	-	-	-	GNR	L+	x					x				x			x										x						x	x	x				x			
Ambrosia	*trifida*	Giant Ragweed	0	0		S5	-	-	-	G5	L5					x																																	
Symphyotrichum	*lanceolatum*	White Panicled Aster	3	-3		S5	-	-	-	G5	L5																																					x		
Bidens	*cernua*	Nodding Beggar-ticks	2	-5		S5	-	-	-	G5	L5																				x																		
Leucanthemum	*vulgare*	Ox-eye Daisy		5	-1	SE5	-	-	-	GNR	L+																																				x	x			
Cichorium	*intybus*	Chicory		5	-1	SE5	-	-	-	GNR	L+				x																																			
Cirsium	*arvense*	Canada Thistle		3	-1	SE5	-	-	-	G5	L+					x																																		
Erigeron	*philadelphicus*	Philadelphia Fleabane	1	-3		S5	-	-	-	G5	L5									x																											x		x		
Eupatorium	*perfoliatum*	Boneset	2	-3		S5	-	-	-	G5	L5		x																		x																		
Prenanthes	*alba*	White Rattlesnake-root	6	3		S5	-	-	-	G5	L3																																					x			
Solidago	*altissima*	Tall Goldenrod	1	3		S5	-	-	-	G5	L5			x	x		x																														x	x		
Solidago	*canadensis var. canadensis*	Canada Goldenrod	1	3		S5	-	-	-	G5T5	L5										x	x	x																										
Solidago	*flexicaulis*	Zig-zag Goldenrod	6	3		S5	-	-	-	G5	L5	x				x	x	x	x				x	x		x	x									x						x	x	x	x			
Solidago	*nemoralis ssp. nemoralis*	Gray Goldenrod	2	5		S5	-	-	-	G5T5	L5	x																														x		x	x					
Tanacetum	*vulgare*	Common Tansy		5	-1	SE5	-	-	-	GNR	L+				x																																			
Taraxacum	*officinale*	Common Dandelion		3	-2	SE5	-	-	-	G5	L+	x																											x	x			x		x	x					
Tussilago	*farfara*	Coltsfoot		3	-2	SE5	-	-	-	GNR	L+				x	x																											x		x	x	x				
Balsaminaceae		**Touch-me-not Family**																																														
Impatiens	*capensis*	Jewelweed	4	-3		S5	-	-	-	G5	L5	x	x			x																											x		x	x	x		x	x		
Berberidaceae		**Barberry Family**																																														

Appendix C3: 2020 Vascular Plant List of E.T. Seton Park Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	FOD5-1/ SWD2-2	SWT2-2	CUT1-1	CUM-c/ CUT1-1	FOD7-a/ CUM1	FOD5-1	FOD5-3	FOD3 / MAM2-a	FOD7-3	CUW1-b	CUP1-c	FOD4-b	FOD7	CUT1-b	FOD5-2	FOD5-3	FOD1-1	MAS2-1b	CUP1-c	CUP3	FOD1-1	CUT1	FOD5-3	CUT1-c	CUM1-1	FOD7	FOD5-3	CUW1/CUM1-1	SWT2-2/MAS2	FOD5-8	CUW1	FOD5-8	FOD5-8/CUP1	CUT1-1	CUM1	FOD7	FOD3/MAS	CUP1-8
Caulophyllum	*thalictroides*	Blue Cohosh	6	5		S5	-	-	-	G5	L3												x																									
Podophyllum	*peltatum*	May-apple	5	3		S5	-	-	-	G5	L5															x			x																			
Betulaceae		**Birch Family**																																														
Alnus	*glutinosa*	European Black Alder		-2	-3	SE4	-	-	-	GNR	L+									x																													
Betula	*alleghaniensis*	Yellow Birch	6	0		S5	-	-	-	G5	L4							x																															
Betula	*papyrifera*	Paper Birch	2	2		S5	-	-	-	G5	L4					x	x		x							x																				x		x
Corylus	*cornuta*	Beaked Hazelnut	5	5		S5	-	-	-	G5	L4							x																												x		
Ostrya	*virginiana*	Ironwood	4	4		S5	-	-	-	G5	L5	x							x							x	x					x		x												
Boraginaceae		**Borage Family**																																													
Myosotis	*scorpioides*	True Forget-me-not		-5	-1	SE5	-	-	-	G5	L+													x													x										
Brassicaceae		**Mustard Family**																																													
Alliaria	*petiolata*	Garlic Mustard		0	-3	SE5	-	-	-	GNR	L+	x		x		x		x	x	x	x	x	x	x	x	x	x			x	x		x	x	x	x		x			x		x		x
Barbarea	*vulgaris*	Garden Yellowrocket		0	-1	SE5	-	-	-	GNR	L+		x																x																			
Cardamine	*concatenata*	Cut-leaved Toothwort	6	3		S5	-	-	-	G5	L4	x																																			
Hesperis	*matronalis*	Dame's Rocket		5	-3	SE5	-	-	-	G4G5	L+	x				x	x		x	x	x			x	x					x		x								x						
Caprifoliaceae		**Honeysuckle Family**																																													
Lonicera	*maackii*	Amur Honeysuckle		5	-2	SE2	-	-	-	GNR	L+													x																								
Lonicera	*morrowii*	Morrow's Honeysuckle		5	-1	SE3	-	-	-	GNR	L+	x				x						x	x						x	x				x		x		x		x	x	x	x	x		x	x	x
Lonicera	*tatarica*	Tartarian Honeysuckle		3	-3	SE5	-	-	-	GNR	L+			x	x	x		x		x		x	x	x				x		x	x			x		x		x		x	x	x	x	x		x	x	x
Caryophyllaceae		**Pink Family**																																												
Stellaria	*media*	Nodding Chickweed		3	-1	SE5	-	-	-	GNR	L+													x																								
Cornaceae		**Dogwood Family**																																													
Cornus	*alternifolia*	Alternate-leaved Dogwood	6	5		S5	-	-	-	G5	L5	x				x	x	x	x	x																				x		x	x		x			
Cornus	*rugosa*	Round-leaved Dogwood	6	5		S5	-	-	-	G5	L4							x																														x
Cornus	*sericea*	Red-osier Dogwood	2	-3		S5	-	-	-	G5	L5		x															x												x	x		x	x	x			
Dipsacus	*fullonum*	Fuller's Teasel		5	-1	SE5	-	-	-	GNR	L4																																		x			
Elaeagnaceae		**Oleaster Family**																																													
Elaeagnus	*umbellata*	Autumn Olive		3	-3	SE3	-	-	-	GNR	L+				x																										x	x		x	x		x		
Fabaceae		**Pea Family**																																													
Melilotus	*albus*	White Sweet-clover		3	-3	SE5	-	-	-	G5	L+																																x		x	x		x		
Robinia	*pseudoacacia*	Black Locust		4	-3	SE5	-	-	-	G5	L+			x								x	x							x					x				x								x
Trifolium	*pratense*	Red Clover		2	-2	SE5	-	-	-	GNR	L+				x																											x		x	x				
Trifolium	*repens*	White Clover		2	-1	SE5	-	-	-	GNR	L+			x																													x		x	x				
Vicia	*cracca*	Cow Vetch		5	-1	SE5	-	-	-	GNR	L+				x																											x		x	x	x			
Fagaceae		**Beech Family**																																													
Fagus	*grandifolia*	American Beech	6	3		S4	-	-	-	G5	L4	x					x	x								x	x					x		x				x			x		x	x			
Quercus	*alba*	White Oak	6	3		S5	-	-	-	G5	L2																																			x			
Quercus	*macrocarpa*	Bur Oak	5	1		S5	-	-	-	G5	L4																																			x		x		
Quercus	*rubra*	Red Oak	6	3		S5	-	-	-	G5	L4	x		x			x	x	x							x	x	X			x	x	x				x			x	x	x	x			x	x
Geraniaceae		**Geranium Family**																																													
Geranium	*maculatum*	Spotted Geranium	6	3		S5	-	-	-	G5	L4																											x										
Geranium	*robertianum*	Herb-robert		5	-2	S5	-	-	-	G5	L+?																															x		x	x				
Grossulariaceae		**Currant Family**																																													
Ribes	*cynosbati*	Eastern Prickly Gooseberry	4	5		S5	-	-	-	G5	L5																																x		x	x				
Ribes	*rubrum*	Red Currant		5	-2	SE5	-	-	-	G4G5	L+	x				x		x	x						x	x					x				x			x	x		x	x	x	x	x			
Hamamelidaceae		**Witch-hazel Family**																																													
Hamamelis	*virginiana*	Witch-hazel	6	3		S4S5	-	-	-	G5	L3						x																															
Hydrophyllaceae		**Water-leaf Family**																																													
Hydrophyllum	*canadense*	Blunt-leaf Water-leaf	8	-2		S4	-	-	-	G5	L3													x																							
Hydrophyllum	*virginianum*	Virginia Water-leaf	6	-2		S5	-	-	-	G5	L5													x																							
Hypericaceae		**St. John's-wort Family**																																													
Hypericum	*perforatum*	Common St. John's-wort		5	-3	SE5	-	-	-	GNR	L+									x											x																
Juglandaceae		**Walnut Family**																																													
Carya	*cordiformis*	Bitternut Hickory	6	0		S5	-	-	-	G5	L4								x																												
Juglans	*cinerea*	Butternut	6	2		S2?	END	END	END	G3	L3							x																									x		x	x			
Juglans	*nigra*	Black Walnut	5	3		S4?	-	-	-	G5	L5								x		x	x		x						x						x	x		x		x	x					
Lamiaceae		**Mint Family**																																													
Glechoma	*hederacea*	Ground Ivy		5	-2	SE5	-	-	-	GNR	L+									x																												
Leonurus	*cardiaca ssp. cardiaca*	Common Motherwort		5	-2	SE5	-	-	-	NRTN	L+																																x		x	x				
Mentha	*arvensis*	American Wild Mint	3	-3		S5	-	-	-	G5	L+		x															x																				
Lythraceae		**Loosestrife Family**																																													
Lythrum	*salicaria*	Purple Loosestrife		-5	-3	SE5	-	-	-	G5	L+																		x																			
Malvaceae		**Mallow Family**																																													
Tilia	*americana*	American Basswood	4	3		S5	-	-	-	G5	L5	x				x	x	x	x				x				x	x			x		x		x			x		x		x	x			x		

Appendix C3: 2020 Vascular Plant List of E.T. Seton Park Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	FOD5-1/ SWD2-2	SWT2-2	CUT1-1	CUM-c/ CUT1-1	FOD7-a/ CUM1	FOD5-1	FOD5-3	FOD3 / MAM2-a	FOD7-3	CUW1-b	CUP1-c	FOD4-b	FOD7	CUT1-b	FOD5-2	FOD5-3	FOD1-1	MAS2-1b	CUP1-c	CUP3	FOD1-1	CUT1	FOD5-3	CUT1-c	CUM1-1	FOD7	FOD5-3	CUW1/CUM1-1	SWT2-2/MAS2	FOD5-8	CUW1	FOD5-8	FOD5-8/CUP1	CUT1-1	CUM1	FOD7	FOD3/MAS	CUP1-8
Tilia	*cordata*	Little Leaf Linden				SE1	-	-	-	GNR	L+							x																																
Moraceae		**Mulberry Family**																																															
Morus	*alba*	White Mulberry		0	-3	SE5	-	-	-	GNR	L+												x	x													x		x										
Oleaceae		**Olive Family**																																															
Fraxinus	*americana*	White Ash	4	3		S4	-	-	-	G5	L5	x	x			x		x	x	x		x	x	x	x	x	x	x		x	x		x	x	x		x	x	x		x	x	x	x	x		x	x	x
Fraxinus	*pennsylvanica*	Green Ash	3	-3		S4	-	-	-	G5	L5	x															x								x											x				
Syringa	*vulgaris*	Common Lilac		5	-2	SE5	-	-	-	GNR	L+																																	x							
Onagraceae		**Evening-primrose Family**																																															
Circaea	*canadensis*	Canada Enchanter's Nightshade	3	3		S5	-	-	-	G5	L5	x				x		x	x				x			x				x	x										x		x	x						
Oenothera	*biennis*	Common Evening-primrose	0	3		S5	-	-	-	G5	L5																																								
Oxalidaceae		**Wood Sorrel Family**																																															
Oxalis	*stricta*	Common Yellow Oxalis	0	3		S5	-	-	-	G5	L5																										x													
Plantaginaceae		**Plantain Family**																																															
Linaria	*vulgaris*	Butter-and-eggs		5	-1	SE5	-	-	-	GNR	L+																							x																
Plantago	*major*	Common Plantain		-1	-1	SE5	-	-	-	G5	L+																													x											
Polygonaceae		**Smartweed Family**																																															
Fallopia	*japonica*	Japanese Knotweed		3	-1	SE5	-	-	-	G?	L+									x	x			x														x	x	x		x		x	x				x
Rumex	*crispus*	Curly-leaf Dock		-1	-2	SE5	-	-	-	GNR	L+													x																										
Ranunculaceae		**Buttercup Family**																																															
Anemone	*canadensis*	Canada Anemone	3	-3		S5	-	-	-	G5	L5													x															x											
Anemone	*acutiloba*	Sharp-lobed Hepatica	6	5		S5	-	-	-	G5	L3																x									x													
Aquilegia	*canadensis*	Wild Columbine	5	1		S5	-	-	-	G5	L4																																					x			
Ranunculus	*acris*	Tall Buttercup		-2	-2	SE5	-	-	-	G5	L+	x	x			x								x							x						x		x										
Thalictrum	*dioicum*	Early Meadow-rue	5	2		S5	-	-	-	G5	L5	x																																						
Thalictrum	*pubescens*	Tall Meadow-rue	5	-2		S5	-	-	-	G5	L5					x	x		x							x	x															x		x	x					x
Rhamnaceae		**Buckthorn Family**																																															
Rhamnus	*cathartica*	Common Buckthorn		3	-3	SE5	-	-	-	GNR	L+		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		x	x	x	x	x		x	x	x
Frangula	*alnus*	Glossy Buckthorn		-1	-3	SE5	-	-	-	GNR	L+										x																														
Rosaceae		**Rose Family**																																															
Crataegus	*sp.*	Hawthorn species	4	5			-	-	-										x																													
Fragaria	*virginiana*	Wild Strawberry	2	1		S5	-	-	-	G5	L5				x																																			
Geum	*aleppicum*	Yellow Avens	2	-1		S5	-	-	-	G5	L5	x					x																			x														
Geum	*canadense*	White Avens	3	0		S5	-	-	-	G5	L5	x																								x															
Malus	*pumila*	Common Apple		5	-1	SE4	-	-	-	G5	L+				x							x		x																										
Physocarpus	*opulifolius*	Ninebark	5	-2		S5	-	-	-	G5	L3													x																										
Prunus	*serotina*	Black Cherry	3	3		S5	-	-	-	G5	L5	x						x	x	x						x																								x
Prunus	*virginiana*	Choke Cherry	2	1		S5	-	-	-	G5	L5	x				x	x		x	x							x									x													
Pyrus	*communis*	Common Pear		5	-1	SE4	-	-	-	G5	L+																																							
Rosa	*multiflora*	Multiflora Rose		3	-3	SE5	-	-	-	GNR	L+														x																									
Rubus	*allegheniensis*	Common Blackberry	2	2		S5	-	-	-	G5	L5																																							
Rubus	*idaeus*	American Red Raspberry	0	-2		S5	-	-	-	G5	L+		x			x								x														x				x	x	x					
Rubus	*occidentalis*	Black Raspberry	2	5		S5	-	-	-	G5	L5																																							
Rubus	*odoratus*	Purple Flowering Raspberry	3	5		S5	-	-	-	G5	L5				x		x							x														x				x	x						
Sorbus	*aucuparia*	European Mountain-ash		5	-2	SE4	-	-	-	G5	L+																																	x		x	x				
Rubiaceae		**Madder Family**																																															
Galium	*mollugo*	Smooth Bedstraw		5	-2	SE5	-	-	-	GNR	L+		x																																					
Galium	*palustre*	Marsh Bedstraw	5	-5		S5	-	-	-	G5	L5		x																																					
Salicaceae		**Willow Family**																																															
Populus	*balsamifera*	Balsam Poplar	4	-3		S5	-	-	-	G5	L5																																	x		x	x	x			
Populus	*deltoides ssp. deltoides*	Eastern Cottonwood	4	-1		S5	-	-	-	G5T5	L5	x												x				x														x		x	x				
Populus	*tremuloides*	Trembling Aspen	2	0		S5	-	-	-	G5	L5				x														x														x		x	x				
Salix	*sp.*	Willow species					-	-	-			x				x						x																									x	x			
Salix	*exigua*	Narrow-leaf Willow	3	-5		S5	-	-	-	GNR		x	x			x								x														x												
Salix	*fragilis*	Crack Willow		-1	-3	SE	-	-	-	GNR	L+																																							
Salix X	*rubens*	Hybrid Crack Willow		-4	-3	hyb	-	-	-	HYB										x	x		x																	x	x	x		x	x	x		x		
Sapindaceae		**Soapberry Family**																																															
Acer	*negundo*	Manitoba Maple	0	0		S5	-	-	-	G5	L+?	x	x	x		x	x	x	x	x	x	x	x	x	x	x			x	x		x		x		x	x	x	x	x	x	x	x		x		x
Acer	*platanoides*	Norway Maple		5	-3	SE5	-	-	-	GNR	L+	x		x		x			x	x	x			x													x		x							x		x	
Acer	*saccharinum*	Silver Maple	5	-3		S5	-	-	-	G5	L4																																	x		x	x				
Acer	*saccharum*	Sugar Maple	4	3		S5	-	-	-	G5	L5	x				x	x	x	x							x	x	x		x		x		x						x	x		x		x	x				
Acer X	*freemanii*	Freeman's Maple	6	-5		SNA	-	-	-	GNA	L4																				x	x											x		x	x				
Scrophulariaceae		**Figwort Family**																																															
Verbascum	*thapsus*	Common Mullein		5	-2	SE5	-	-	-	GNR	L+																																					x	x			
Ailanthus	*altissima*	Tree-of-heaven		5	-1	SE5	-	-	-	GNR	L+																																					x		x	x				

Appendix C3: 2020 Vascular Plant List of E.T. Seton Park Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	FOD5-1/ SWD2-2	SWT2-2	CUT1-1	CUM-c/ CUT1-1	FOD7-a/ CUM1	FOD5-1	FOD5-3	FOD3 / MAM2-a	FOD7-3	CUW1-b	CUP1-c	FOD4-b	FOD7	CUT1-b	FOD5-2	FOD5-3	FOD1-1	MAS2-1b	CUP1-c	CUP3	FOD1-1	CUT1	FOD5-3	CUT1-c	CUM1-1	FOD7	FOD5-3	CUW1/CUM1-1	SWT2-2/MAS2	FOD5-8	CUW1	FOD5-8	FOD5-8/CUP1	CUT1-1	CUM1	FOD7	FOD3/MAS	CUP1-8
Solanaceae		**Nightshade Family**																																														
Solanum	*dulcamara*	Bittersweet Nightshade		0	-2	SE5	-	-	-	GNR	L+						x												x																					
Ulmaceae		**Elm Family**																																														
Ulmus	*americana*	American Elm	3	-2		S5	-	-	-	G4	L5	x				x			x			x		x												x		x											
Ulmus	*pumila*	Siberian Elm		5	-1	SE3	-	-	-	GNR	L+										x	x	x															x								x				
Urticaceae		**Nettle Family**																																														
Boehmeria	*cylindrica*	Smallspike False Nettle	4	-5		S5	-	-	-	G5	L4						x																																	
Laportea	*canadensis*	Canadian Wood Nettle	6	-3		S5	-	-	-	G5	L5																										x												
Pilea	*pumila*	Canadian Clearweed	5	-3		S5	-	-	-	G5	L5																															x								
Urtica	*dioica ssp. dioica*	Stinging Nettle		-1	-1	SE2	-	-	-	G5T5	L+					x								x					x								x		x	x									
Valerianaceae		**Valerian Family**																																														
Valeriana	*officinalis*	Garden Valerian		2	-1	SE3	-	-	-	GNR	L+		x																																				
Verbenaceae		**Vervain Family**																																														
Verbena	*hastata*	Blue Vervain	4	-4		S5	-	-	-	G5	L5																																				x			
Vitaceae		**Grape Family**																																														
Parthenocissus	*vitacea*	Thicket-creeper	3	3		S5	-	-	-	G5	L5		x			x			x	x			x	x					x							x	x	x			x		x	x			x	x	
Vitis	*riparia*	Riverbank Grape	0	-2		S5	-	-	-	G5	L5	x			x	x					x		x	x					x			x					x		x		x	x	x	x			x	x	
MONOCOTYLEDONS		**MONOCOTS**																																														
Amaryllidaceae		**Amaryllis Family**																																														
Maianthemum	*racemosum*	Large False Solomon's Seal	4	3		S5	-	-	-	G5	L5	x				x	x	x	x	x			x	x	x	x	x							x			x									x	x
Araceae		**Arum Family**																																														
Arisaema	*triphyllum*	Jack-in-the-pulpit	5	-2		S5	-	-	-	G5	L5							x					x																x									
Cyperaceae		**Sedge Family**																																														
Carex	*sp.*	Sedge species					-	-	-			x	x								x			x												x	x			x		x	x				
Carex	*albursina*	White Bear Sedge	7	5		S5	-	-	-	G5	L3													x																								
Carex	*platyphylla*	Broad-leaved Sedge	7	5		S4S5	-	-	-	G5	L3	x																																x				
Carex	*rosea*	Rosy Sedge	5	5		S5	-	-	-	G5	L5	x																																				
Liliaceae		**Lily Family**																																														
Erythronium	*americanum*	Yellow Trout-lily	5	5		S5	-	-	-	G5	L5	x																																				
Melanthiaceae		**Bunchflower Family**																																														
Trillium	*grandiflorum*	White Trillium	5	5		S5	-	-	-	G5	L4																																x		x	x				
Poaceae		**Grass Family**																																														
Brachyelytrum	*erectum*	Bearded Short-husk	7	5		S4	-	-	-	G5	L3																											x											
Bromus	*inermis*	Smooth Brome		5	-3	SE5	-	-	-	G5	L+						x							x														X								x	x		
Dactylis	*glomerata*	Orchard Grass		3	-1	SE5	-	-	-	GNR	L+										x			x														x								x	x		
Milium	*effusum*	Wood Millet	8	4		S4S5	-	-	-	G5	L3	x																																				
Phalaris	*arundinacea*	Reed Canary Grass	0	-4		S5	-	-	-	G5	L+?													x														x									x		
Phleum	*pratense*	Timothy		3	-1	SE5	-	-	-	GNR	L+				x																																		
Phragmites	*australis*	Common Reed	0	-4		S4?	-	-	-	G5	L+																															x							
Poa	*pratensis ssp. pratensis*	Kentucky Blue Grass	0	1		SE5	-	-	-	G5T5	L+		x		x	x					x	x	x	x	x						x		x				x	x		x						x	x		x	
Typhaceae		**Cattail Family**																																														
Typha	*latifolia*	Broad-leaved Cattail	3	-5		S5	-	-	-	G5	L4																	x																			x		x	
Typha X	*glauca*	Glaucous Cattail	3	-5		SNA	-	-	-	GNA	L+																	x																			x		x	

FLORISTIC SUMMARY & ASSESSMENT

Species Diversity

Total Species:	**166**	
Native Species:	**106**	#####
Exotic Species	**60**	#####
Total Taxa in Region (List Region, Source)	10000	
% Regional Taxa Recorded	1.66%	
S1-S3 Species	0	
S4 Species	5	
S5 Species	93	

Co-efficient of Conservatism and Floral Quality Index

Co-efficient of Conservatism (CC) (average)		**3.96**	
CC 0 to 3	*lowest sensitivity*	41	#####
CC 4 to 6	*moderate sensitivity*	55	#####
CC 7 to 8	*high sensitivity*	9	8.49%
CC 9 to 10	*highest sensitivity*	0	0.00%
Floral Quality Index (FQI)		**40.79**	

Presence of Weedy & Invasive Species

Appendix C3: 2020 Vascular Plant List of E.T. Seton Park Area of Investigation

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL RANK	ESA STATUS	COSEWIC STATUS (2020-04-21)	SARA STATUS (2020-04-21)	GLOBAL RANK	LOCAL STATUS TRCA	FOD5-1/ SWD2-2	SWT2-2	CUT1-1	CUM-c/ CUT1-1	FOD7-a/ CUM1	FOD5-1	FOD5-3	FOD3 / MAM2-a	FOD7-3	CUW1-b	CUP1-c	FOD4-b	FOD7	CUT1-b	FOD5-2	FOD5-3	FOD1-1	MAS2-1b	CUP1-c	CUP3	FOD1-1	CUT1	FOD5-3	CUT1-c	CUM1-1	FOD7	FOD5-3	CUW1/CUM1-1	SWT2-2/MAS2	FOD5-8	CUW1	FOD5-8	FOD5-8/CUP1	CUT1-1	CUM1	FOD7	FOD3/MAS	CUP1-8
mean weediness		**-1.93**																																														
weediness = -1	*low potential invasiveness*	23	#####																																													
weediness = -2	*moderate potential invasivenes*	18	#####																																												
weediness = -3	*high potential invasiveness*	19	#####																																												
Presence of Wetland Species																																														
average wetness value		**1.62**																																													
upland		47	#####																																												
facultative upland		55	#####																																												
facultative		26	#####																																												
facultative wetland		30	#####																																												
obligate wetland		8	4.82%																																												

EXPLANATION OF TERMINOLOGY (See the following pages for addition detailed information on terms.)
Botanical and Common Name: From Newmaster et. al, 1998. Species requiring confirmation noted (cf).
Co-efficient of Conservatism: This value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific habitat integrity.
Wetness Index: This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats.
Weediness Index: This value, ranging from -1 (low) to -3 (high) quantifies the potential invasiveness of non-native plants. In combination with the percentage of non-native plants, it can be used as an indicator of disturbance.
Provincial Status: Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These ranks are not legal designations. S4 and S5 species are generally uncommon to common in the province. Species ranked S1-S3 are considered to be rare in Ontario.
Local TRCA Status:

L+: Exotic. Not native to TRCA jurisdiction (includes hybrids between native and exotic species).
L1: Rare in TRCA jurisdiction, of concern regionally.
L2: Probably rare in TRCA jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout TRCA jurisdiction; may be of very localized concern in highly disturbed areas.

Record Type
x- Species recorded in ELC Vegetation Community
DETAILED EXPLANATION OF TERMS
Floral Quality Index and Coefficient of Conservatism Values
Vegetation species and community sensitivity was assessed through the application of coefficient of conservatism values (CC), assigned to each native species in southern Ontario (Oldham, et. al, 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to specific habitat integrity. The occurrence of species with a CC of 9 or 10 can be good indicators of undisturbed conditions such as mature forests, fens or bogs.
General habitat values associated with the CC values are:
0-3: species found in a wide variety of communities, including disturbed sites
4-6: species associated with a specific community, but tolerate moderate disturbance
7-8: species associated with a community in an advanced successional stage, tolerant of minor disturbances
9-10: species with a high degree of fidelity to a narrow range of synecological parameters
The floristic quality of an area is reflected in the mean value of CC. For example, an old field or grazed woodlot would tend have a low mean CC; these habitats are dominated by opportunistic species that occur in a wide range of site conditions and are tolerant of disturbance. A bog, prairie or intact forest would have a higher value, reflecting the specific habitat requirements of many of the species and a generally undisturbed condition. The following provides an example of interpretation of CC values:
mean CC value / % spp CC >8 / Condition of the Landscape
5 / 27 / intact
3.5 / 19 / slightly degraded
1.3 / 2 / severely degraded
The FQI accounts for the species diversity of the area by equating the number of native species with the mean CC value. The FQI is generally used for comparing natural areas. The CC value and FQI of the study area were calculated for the entire study area.
Weediness Index
The sensitivity of natural areas can be assessed through application of the Weediness Index. The Weediness Index quantifies the potential invasiveness of non-native plants, and, in combination with the percentage of non-native plants can be used as an indicator of disturbance. Values (ranging from 1- to -3) have been assigned to most non-native species based on the potential impact each species can have in natural areas:
-1: little or no impact on natural areas (most non-native plants are in this category)
-2: occasional impacts on natural areas, generally infrequent or localized
-3: major potential impacts on natural areas
Wetness Index
All plants in southern Ontario have been assigned a wetland category, based on the designations developed for use by the United States Fish & Wildlife Service. Plants are designated into the following categories:
OBL (Obligate Wetland): occurs almost always in wetlands under natural conditions (estimated >99% probability)
FACW (Facultative Wetland): usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability)
FAC (Facultative): equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability)
FACU (Facultative Upland): occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33% probability)
UPL (Upland): occurs almost never in wetlands under natural conditions (estimated <1% probability)
Further refinement of the Facultative categories are denoted by a "+" or "-" to express exaggerated tendencies for those species. The "+" denotes a greater estimated probability occurring in wetlands than species in the general indicator category, but a lesser probability than species occurring in the next higher category. The "-" denotes a lesser estimated probability of occurring in wetlands than species in the general indicator category, but a greater probability than species occurring in the next lower general category.
Each wetland category has been assigned a numerical value to facilitate the quantification of the wetness index. The wetland categories and their corresponding values are as follows:
OBL : -5
FACW+: -4
FACW: -3
FACW-: -2
FAC+: -1
Provincial Status
Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These rankings are based on the total number of extant Ontario populations and the degree to which they are potentially or actively threatened with destruction. The ranks are:
S1: Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province
S2: Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province
S3: Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation
S4: Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5:Secure—Common, widespread, and abundant in the nation or state/province
SH: Possibly Extirpated (Historical)—Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences
SNR Unranked—Nation or state/province conservation status not yet assessed
SX: Presumed Extirpated—Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered
SNA Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
SU: Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends
Rank ranges, e.g. S2S3, indicate that the rank is either S2 or S3, but that current information is insufficient to differentiate.
S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

REFERENCES

Nomenclature based on:
"Complete PLANTS Checklist." USDA PLANTS, 03 Sept. 2016. Accessed Septemeber, 2016.
Co-efficient of Conservatism, Wetness & Weediness:
Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.
SARA (Species at Risk Act) Status:
"A to Z Species Index." Environment Canada. Government of Canada, 29 Aug. 2016. Accessed September, 2016.
COSEWIC (Committee on the Status of Endangered Wildlife in Canada) Status:
"A to Z Species Index." Environment Canada. Government of Canada, 29 Aug. 2016. Accessed September, 2016.
OMNR (Ontario Ministry of Natural Resources and Forestry) Status:
"A to Z Species Index." Environment Canada. Government of Canada, 29 Aug. 2016. Accessed September, 2016.
Provincial (Ontario) Status:
Natural Heritage Information Centre (NHIC). August 26, 2016. Ontario Vascular Plants. http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx. OMNR, Peterborough.
Local Status - TRCA:
"Flora Species for the TRCA Jurisdiction (2020)". Toronto and Region Conservation Authority, April 2020. https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2020/07/14074757/FloraRanksandScores2020_Final.pdf

AECOM Imagine it. Delivered.

Appendix D

Fish Habitat Photographic Log

Appendix D. Fish Habitat Photographic Log

E.T. Seton Park Area of Investigation

Photograph 1: Don River West Branch in northern limits of E.T. Seton Park Area of Investigation looking upstream – October 18, 2019 (facing north)

Photograph 2: Don River West Branch in northern limits of E.T. Seton Park Area of Investigation looking downstream – October 18, 2019 (facing south)

Appendix D. Fish Habitat Photographic Log

Photograph 3: Looking east at Overlea Boulevard bridge – October 18, 2019 (facing east)

Photograph 4: Don River West Branch in southern limit of E.T. Seton Park Area of Investigation looking upstream – October 18, 2019 (facing north)

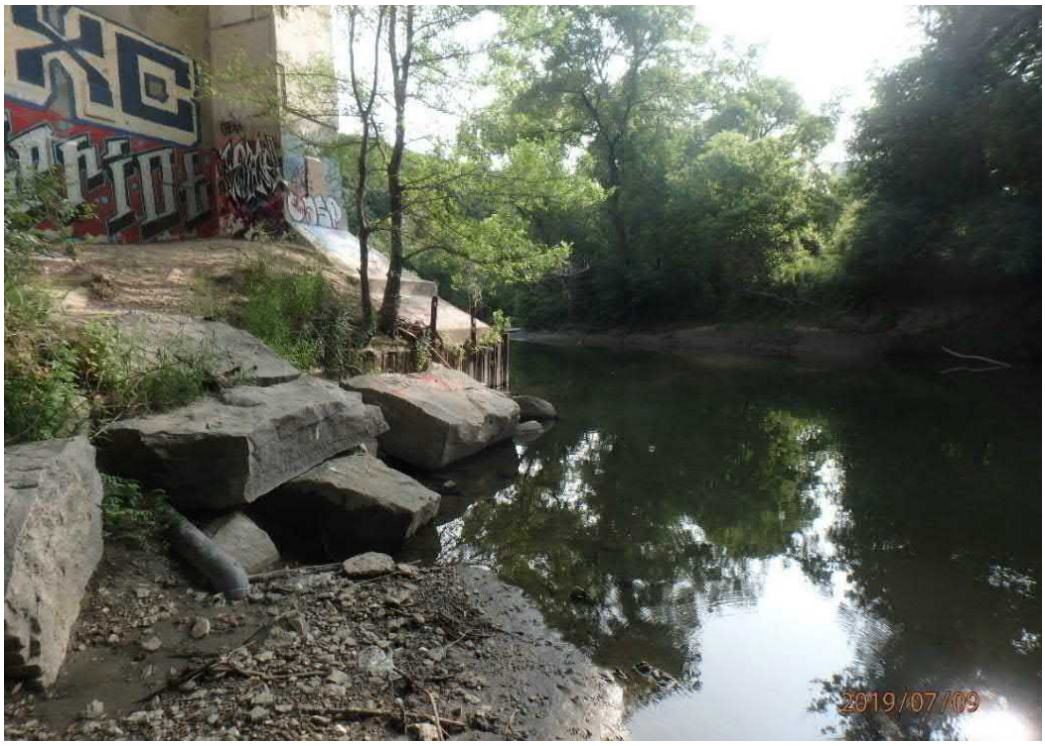
Appendix D. Fish Habitat Photographic Log

Photograph 5: Don River West Branch in southern limit of E.T. Seton Park Area of Investigation looking downstream – October 18, 2019 (facing south)

Appendix D. Fish Habitat Photographic Log

Millwood Road Area of Investigation

Photograph 6: Looking west at Leaside Bridge – July 9, 2019 (facing west)



Photograph 7: Looking upstream of Leaside Bridge – July 9, 2019 (facing north)

Appendix D. Fish Habitat Photographic Log

Photograph 8: Looking downstream of Leaside Bridge – July 9, 2019 (facing south)

AECOM Imagine it. Delivered.

Appendix E

Species Records from Secondary Sources

Appendix E. Species Records from Wildlife Atlases

Table 1: Mammal Records Within the Ontario Line Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]
Bat	Little Brown Myotis	*Myotis lucifugus*	S4	END	END	END
Bat	Hoary Bat	*Lasiurus cinereus*	S4	-		
Bat	Silver-haired Bat	*Lasionycteris noctivagans*	S4	-		
Bat	Eastern Red Bat	*Lasiurus borealis*	S4	-		
Bat	Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END	-	-
Bat	Northern Long-eared Myotis	*Myotis septentrionalis*	S3	END	END	END
Bat	Big Brown Bat	*Eptesicus fuscus*	S5	-		
Bat	Tri-coloured Bat	*Perimyotis subflavus*	S3?	END	END	END
Carnivore	American Mink	*Mustela vison*	S4	-		
Carnivore	Common Raccoon	*Procyon lotor*	S5	-		
Carnivore	Coyote	*Canis latrans*	S5	-		
Carnivore	Striped Skunk	*Mephitis*	S5	-		
Carnivore	Red Fox	*Vulpes*	S5	-		
Hare	European Hare	*Lepus europaeus*	SNA	-		
Mole	Star-nosed Mole	*Condylura cristata*	S5	-		
Opossum	Virginia Opossum	*Didelphis virginiana*	S4	-		
Rabbit	Eastern Cottontail	*Sylvilagus floridanus*	S5	-		
Rodent	Beaver	*Castor canadensis*	S5	-		
Rodent	Deer Mouse	*Peromyscus maniculatus*	S5	-		
Rodent	Eastern Gray Squirrel	*Sciurus carolinensis*	S5	-		
Rodent	Eastern Chipmunk	*Tamias striatus*	S5	-		
Rodent	Groundhog	*Marmota monax*	S5	-		
Rodent	House Mouse	*Mus musculus*	SNA	-		
Rodent	Meadow Vole	*Microtus pennsylvanicus*	S5	-		
Rodent	Porcupine	*Erethizon dorsatum*	S4	-		
Rodent	Norway Rat	*Rattus norvegicus*	SNA	-		
Rodent	Muskrat	*Ondatra zibethicus*	S5	-		
Rodent	White-footed Mouse	*Peromyscus leucopus*	S5	-		

Table Legend

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities.* The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at http://explorer.natureserve.org/nsranks.htm:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

Appendix E. Species Records from Wildlife Atlases

SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.
S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 - Secure—Common, widespread, and abundant in the nation or state/province.
SNR - Unranked—Province conservation status not yet assessed.
SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
Breeding Status Qualifiers
B - Breeding—Conservation status refers to the breeding population of the species in the province.
N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.
M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.
Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").
Other Qualifiers
? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

[2]***ESA Status:*** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END *(Endangered) – A species facing imminent extinction or extirpation in Ontario.*
THR *(Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.*
SC *(Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.*
NAR *(Not at Risk) – A species that has been evaluated and found to be not at risk.*

[3]***SARA Status****: The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before*

they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:

***END (Schedule 1)** – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
***THR (Schedule 1)** – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
***SC (Schedule 1)** – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.*
***No Status (No Schedule)** – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.*
***NAR (Not at Risk)**– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
***Not Applicable (N / A)** – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm

***[4]COSEWIC Status:** COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:*

***END** (Endangered) - A species facing imminent extirpation or extinction throughout its range.*
***THR** (Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction*
***SC** (Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.*
***NAR** (Not at Risk) - A species that has been evaluated and found to be not at risk.*
***DD** (Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.*

Appendix E. Species Records from Wildlife Atlases

Table 2: Ontario Reptile and Amphibian Atlas Records within the Ontario Line Study Area

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Historical Record (> 20 years old)	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
American Bullfrog	*Lithobates catesbeianus*	S4	-	-	-	No	2012	2016	2008
American Toad	*Anaxyrus americanus*	S5	-	-	-	No	2018	2018	2018
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR	END	No	2017	2019	1983
Dekay's Brownsnake	*Storeria dekayi*	S5	NAR	-	NAR	No	2019	2019	2018
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5	-	-	-	No	2018	2019	2018
Eastern Hog-nosed Snake	*Heterodon platirhinos*	S3	THR	THR	THR	Yes	1916	No record	No record
Eastern Musk Turtle	*Sternotherus odoratus*	S3	SC	SC	SC	Yes	1952	No record	1952
Eastern Red-backed Salamander	*Plethodon cinereus*	S5	-	-	-	No	2018	2019	2017
Eastern Ribbonsnake	*Thamnophis sauritus*	S4	SC	SC	SC	Yes	1931	1913	No record
Four-toed Salamander	*Hemidactylium scutatum*	S4	NAR	-	NAR	Yes	1913	No record	No record
Gray Treefrog	*Hyla versicolor*	S5	-	-	-	No	1983	2016	1982
Green Frog	*Lithobates clamitans*	S5	-	-	-	No	2018	2018	2017
Jefferson Salamander	*Ambystoma jeffersonianum*	S2	END	END	END	No	1983	1983	2000
Midland Painted Turtle	*Chrysemys picta marginata*	S4	-	No status	SC	No	2018	2019	2019
Eastern Milksnake	*Lampropeltis triangulum*	S4	NAR	SC	SC	No	2019	2019	2016
Mudpuppy	*Necturus maculosus*	S4	NAR	-	NAR	No	2014	1913	1982
Northern Leopard Frog	*Lithobates pipiens*	S5	NAR	-	NAR	No	2018	2017	2010
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	SC	No	2018	2018	2016
Northern Watersnake	*Nerodia sipedon sipedon*	S5	NAR	-	NAR	No	2015	No record	No record
Pickerel Frog	*Lithobates palustris*	S4	NAR	-	NAR	Yes	1922	No record	No record
Queensnake	*Regina septemvittata*	S2	END	EN	END	Yes	No record	1858	No record
Red-bellied Snake	*Storeria occipitomaculata*	S5	-	-	-	No	1988	2018	1982
Red-eared Slider	*Trachemys scripta elegans*	SE	-	-	-	No	2016	2017	2014
Red-spotted Newt	*Notophthalmus viridescens viridescens*	S5	-	-	-	Yes	1983	1913	1982
Ring-necked Snake	*Diadophis punctatus*	S4	-	-	-	No	2011	No record	No record
Smooth Greensnake	*Opheodrys vernalis*	S4	-	-	-	No	2016	2016	1987
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	SC	No	2018	2019	2019
Spotted Salamander	*Ambystoma maculatum*	S4	-	-	-	Yes	1995	1929	1982

Appendix E. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Historical Record (> 20 years old)	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Spring Peeper	*Pseudacris crucifer*	S5	-	-	-	No	2007	2002	1982
Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield populati	*Pseudacris maculata pop. 1*	S3	NAR	-	THR	No	2016	1989	1990
Wood Frog	*Lithobates sylvaticus*	S5	-	-	-	No	2016	2011	1982

Table Legend

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities.* The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at http://explorer.natureserve.org/nsranks.htm:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.
S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 - Secure—Common, widespread, and abundant in the nation or state/province.
SNR - Unranked—Province conservation status not yet assessed.
SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
Breeding Status Qualifiers
B - Breeding—Conservation status refers to the breeding population of the species in the province.
N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.
M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.
Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Appendix E. Species Records from Wildlife Atlases

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

[2]***ESA Status:*** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END *(Endangered) – A species facing imminent extinction or extirpation in Ontario.*
THR *(Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.*
SC *(Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.*
NAR *(Not at Risk) – A species that has been evaluated and found to be not at risk.*

[3]***SARA Status****: The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:*

END (Schedule 1) *– These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
THR (Schedule 1) *– These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
SC (Schedule 1) *– These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.*
No Status (No Schedule) *– These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.*
NAR (Not at Risk)*– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
Not Applicable (N / A) *– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm

[4]***COSEWIC Status:*** *COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:*

END *(Endangered) - A species facing imminent extirpation or extinction throughout its range.*
THR *(Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction*
SC *(Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.*
NAR *(Not at Risk) - A species that has been evaluated and found to be not at risk.*
DD *(Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.*

Appendix E. Species Records from Wildlife Atlases

Table 3: 2001-2005 Ontario Breeding Bird Atlas Records within the Ontario Line Study Area

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Year Last Recorded	MBCA Protected[5]	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
American Black Duck	*Anas rubripes*	S4	-	-	-	2001-2005	Yes	√	√	√
American Crow	*Corvus brachyrhynchos*	S5B	-	-	-	2001-2005	No	√	√	√
American Goldfinch	*Spinus tristis*	S5B	-	-	-	2001-2005	Yes	√	√	√
American Kestrel	*Falco sparverius*	S4	-	-	-	2001-2005	No	√	√	√
American Redstart[A]	*Setophaga ruticilla*	S5B	-	-	-	2001-2005	Yes	√	√	√
American Robin	*Turdus migratorius*	S5B	-	-	-	2001-2005	Yes	√	√	√
American Wigeon	*Anas americana*	S4	-	-	-	2001-2005	Yes	√		
American Woodcock	*Scolopax minor*	S4B	-	-	-	2001-2005	Yes	√	√	√
Baltimore Oriole	*Icterus galbula*	S4B	-	-	-	2001-2005	Yes	√	√	√
Bank Swallow	*Riparia riparia*	S4B	THR	THR	THR	2001-2005	Yes	√	√	√
Barn Swallow	*Hirundo rustica*	S4B	THR	SC	THR	2001-2005	Yes	√	√	√
Belted Kingfisher	*Megaceryle alcyon*	S4B	-	-	-	2001-2005	No	√	√	√
Black-billed Cuckoo	*Coccyzus erythropthalmus*	S5B	-	-	-	2001-2005	Yes	√	√	√
Black-capped Chickadee	*Poecile atricapillus*	S5	-	-	-	2001-2005	Yes	√	√	√
Black-crowned Night-Heron	*Nycticorax nycticorax*	S3B,S3N	-	-	-	2001-2005	Yes		√	
Blue Jay	*Cyanocitta cristata*	S5	-	-	-	2001-2005	No	√	√	√
Blue-gray Gnatcatcher[A]	*Polioptila caerulea*	S4B	-	-	-	2001-2005	Yes	√	√	√
Blue-winged Teal	*Anas discors*	S4	-	-	-	2001-2005	Yes	√	√	
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	THR	2001-2005	Yes	√	√	√
Brown Creeper[A]	*Certhia americana*	S5B	-	-	-	2001-2005	Yes	√	√	
Brown Thrasher	*Toxostoma rufum*	S4B	-	-	-	2001-2005	Yes	√	√	√
Brown-headed Cowbird	*Molothrus ater*	S4B	-	-	-	2001-2005	No	√	√	√
Canada Goose	*Branta canadensis*	S5	-	-	-	2001-2005	Yes	√	√	√
Canvasback	*Aythya valisineria*	S1B,S4N	-	-	-	2001-2005	Yes	√	√	
Carolina Wren	*Thryothorus ludovicianus*	S4	-	-	-	2001-2005	Yes	√	√	√
Caspian Tern	*Hydroprogne caspia*	S3B	NAR	-	NAR	2001-2005	Yes		√	
Cedar Waxwing	*Bombycilla cedrorum*	S5B	-	-	-	2001-2005	Yes	√	√	√
Chestnut-sided Warbler[A]	*Setophaga pensylvanica*	S5B	-	-	-	2001-2005	Yes	√	√	√
Chimney Swift	*Chaetura pelagica*	S4B,S4N	THR	THR	THR	2001-2005	Yes	√	√	√
Chipping Sparrow	*Spizella passerina*	S5B	-	-	-	2001-2005	Yes	√	√	√
Clay-colored Sparrow	*Spizella pallida*	S4B	-	-	-	2001-2005	Yes		√	
Cliff Swallow	*Petrochelidon pyrrhonota*	S4B	-	-	-	2001-2005	Yes	√	√	√
Common Grackle	*Quiscalus quiscula*	S5B	-	-	-	2001-2005	Yes	√	√	√
Common Nighthawk	*Chordeiles minor*	S4B	SC	THR	SC	2001-2005	Yes	√	√	√
Common Tern	*Sterna hirundo*	S4B	NAR	-	NAR	2001-2005	Yes	√	√	
Common Yellowthroat	*Geothlypis trichas*	S5B	-	-	-	2001-2005	Yes	√	√	√
Cooper's Hawk[A]	*Accipiter cooperii*	S4	NAR	-	NAR	2001-2005	No	√	√	√

Appendix E. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Year Last Recorded	MBCA Protected[5]	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Double-crested Cormorant	*Phalacrocorax auritus*	S5B	NAR	-	NAR	2001-2005	No	√	√	
Downy Woodpecker	*Picoides pubescens*	S5	-	-	-	2001-2005	Yes	√	√	√
Eastern Kingbird	*Tyrannus tyrannus*	S4B	-	-	-	2001-2005	Yes	√	√	√
Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR	THR	2001-2005	Yes	√	√	√
Eastern Phoebe	*Sayornis phoebe*	S5B	-	-	-	2001-2005	Yes	√	√	√
Eastern Screech-Owl	*Megascops asio*	S4	NAR	-	NAR	2001-2005	No	√	√	√
Eastern Towhee	*Pipilo erythrophthalmus*	S4B	-	-	-	2001-2005	Yes	√		
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	SC	SC	2001-2005	Yes	√	√	√
European Starling	*Sturnus vulgaris*	SNA	-	-	-	2001-2005	No	√	√	√
Field Sparrow	*Spizella pusilla*	S4B	-	-	-	2001-2005	No	√	√	
Gadwall	*Anas strepera*	S4	-	-	-	2001-2005	Yes	√	√	
Gray Catbird	*Dumetella carolinensis*	S4B	-	-	-	2001-2005	Yes	√	√	√
Great Black-backed Gull	*Larus marinus*	S2B	-	-	-	2001-2005	Yes		√	
Great Blue Heron	*Ardea herodias*	S4	-	-	-	2001-2005	Yes		√	
Great Crested Flycatcher	*Myiarchus crinitus*	S4B	-	-	-	2001-2005	Yes	√	√	√
Great Egret	*Ardea alba*	S2B	-	-	-	2001-2005	Yes	√	√	
Great Horned Owl	*Bubo virginianus*	S4	-	-	-	2001-2005	No	√	√	√
Green Heron	*Butorides virescens*	S4B	-	-	-	2001-2005	Yes	√	√	√
Green-winged Teal	*Anas crecca*	S4	-	-	-	2001-2005	Yes		√	
Hairy Woodpecker[A]	*Picoides villosus*	S5	-	-	-	2001-2005	Yes	√	√	√
Herring Gull	*Larus argentatus*	S5B,S5N	-	-	-	2001-2005	Yes		√	
Hooded Merganser	*Lophodytes cucullatus*	S5B,S5N	-	-	-	2001-2005	Yes	√	√	√
Horned Lark	*Eremophila alpestris*	S5B	-	-	-	2001-2005	Yes	√	√	√
House Finch	*Haemorhous mexicanus*	SNA	-	-	-	2001-2005	Yes	√	√	√
House Sparrow	*Passer domesticus*	SNA	-	-	-	2001-2005	No	√	√	√
House Wren	*Troglodytes aedon*	S5B	-	-	-	2001-2005	Yes	√	√	√
Indigo Bunting	*Passerina cyanea*	S4B	-	-	-	2001-2005	Yes	√	√	√
Killdeer	*Charadrius vociferus*	S5B,S5N	-	-	-	2001-2005	Yes	√	√	√
Least Flycatcher[A]	*Empidonax minimus*	S4B	-	-	-	2001-2005	Yes	√	√	√
Magnolia Warbler	*Setophaga magnolia*	S5B	-	-	-	2001-2005	Yes	√		
Mallard	*Anas platyrhynchos*	S5	-	-	-	2001-2005	Yes	√	√	√
Marsh Wren	*Cistothorus palustris*	S4B	-	-	-	2001-2005	Yes		√	
Merlin	*Falco columbarius*	S5B	NAR	-	NAR	2001-2005	No			√
Mourning Dove	*Zenaida macroura*	S5	-	-	-	2001-2005	Yes	√	√	√
Mourning Warbler[A]	*Geothlypis philadelphia*	S4B	-	-	-	2001-2005	Yes	√	√	√
Mute Swan	*Cygnus olor*	SNA	-	-	-	2001-2005	Yes	√	√	
Nashville Warbler	*Oreothlypis ruficapilla*	S5B	-	-	-	2001-2005	Yes	√		
Northern Cardinal	*Cardinalis cardinalis*	S5	-	-	-	2001-2005	Yes	√	√	√
Northern Flicker	*Colaptes auratus*	S4B	-	-	-	2001-2005	Yes	√	√	√
Northern Harrier	*Circus hudsonius*	S4B	NAR	-	NAR	2001-2005	No		√	
Northern Mockingbird	*Mimus polyglottos*	S4	-	-	-	2001-2005	Yes	√	√	√

Appendix E. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Year Last Recorded	MBCA Protected[5]	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	S4B	-	-	-	2001-2005	Yes	√	√	√
Northern Saw-whet Owl	*Aegolius acadicus*	S4	-	-	-	2001-2005	No		√	
Northern Shoveler	*Anas clypeata*	S4	-	-	-	2001-2005	Yes	√		
Northern Waterthrush[A]	*Parkesia noveboracensis*	S5B	-	-	-	2001-2005	Yes	√		
Orchard Oriole	*Icterus spurius*	S4B	-	-	-	2001-2005	Yes	√	√	√
Ovenbird[A]	*Seiurus aurocapilla*	S4B	-	-	-	2001-2005	Yes		√	√
Peregrine Falcon	*Falco peregrinus*	S3B	SC	-	NAR	2001-2005	No	√	√	√
Pied-billed Grebe	*Podilymbus podiceps*	S4B,S4N	-	-	-	2001-2005	Yes	√		
Pileated Woodpecker[A]	*Dryocopus pileatus*	S5	-	-	-	2001-2005	Yes	√	√	√
Pine Siskin	*Spinus pinus*	S4B	-	-	-	2001-2005	Yes	√		
Pine Warbler[A]	*Setophaga pinus*	S5B	-	-	-	2001-2005	Yes	√		√
Purple Martin	*Progne subis*	S3S4B	-	-	-	2001-2005	Yes	√	√	√
Red-bellied Woodpecker[A]	*Melanerpes carolinus*	S4	-	-	-	2001-2005	Yes	√	√	
Red-breasted Nuthatch[A]	*Sitta canadensis*	S5	-	-	-	2001-2005	Yes	√	√	√
Red-eyed Vireo	*Vireo olivaceus*	S5B	-	-	-	2001-2005	Yes	√	√	√
Redhead	*Aythya americana*	S2B,S4N	-	-	-	2001-2005	Yes		√	
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S4B	SC	THR	END	2001-2005	Yes	√	√	
Red-necked Grebe	*Podiceps grisegena*	S3B,S4N	NAR	-	NAR	2001-2005	Yes	√		
Red-tailed Hawk	*Buteo jamaicensis*	S5	NAR	-	NAR	2001-2005	No	√	√	√
Red-winged Blackbird	*Agelaius phoeniceus*	S4	-	-	-	2001-2005	Yes	√	√	√
Ring-billed Gull	*Larus delawarensis*	S5B,S4N	-	-	-	2001-2005	Yes	√	√	
Ring-necked Pheasant	*Phasianus colchicus*	SNA	-	-	-	2001-2005	Yes	√		√
Rock Pigeon	*Columba livia*	SNA	-	-	-	2001-2005	Yes	√	√	√
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S4B	-	-	-	2001-2005	Yes	√	√	√
Ruby-throated Hummingbird	*Archilochus colubris*	S5B	-	-	-	2001-2005	Yes	√	√	√
Savannah Sparrow	*Passerculus sandwichensis*	S4B	-	-	-	2001-2005	Yes	√	√	√
Scarlet Tanager[A]	*Piranga olivacea*	S4B	-	-	-	2001-2005	Yes	√	√	√
Sharp-shinned Hawk[A]	*Accipiter striatus*	S5	NAR	-	NAR	2001-2005	No	√	√	√
Song Sparrow	*Melospiza melodia*	S5B	-	-	-	2001-2005	Yes	√	√	√
Sora	*Porzana carolina*	S4B	-	-	-	2001-2005	Yes	√	√	√
Spotted Sandpiper	*Actitis macularius*	S5	-	-	-	2001-2005	Yes	√	√	√
Swamp Sparrow	*Melospiza georgiana*	S5B	-	-	-	2001-2005	Yes	√		√
Tree Swallow	*Tachycineta bicolor*	S4B	-	-	-	2001-2005	Yes	√	√	√
Turkey Vulture	*Cathartes aura*	S5B	-	-	-	2001-2005	No	√		√
Veery[A]	*Catharus fuscescens*	S4B	-	-	-	2001-2005	Yes	√		√
Virginia Rail	*Rallus limicola*	S5B	-	-	-	2001-2005	Yes	√	√	√
Warbling Vireo	*Vireo gilvus*	S5B	-	-	-	2001-2005	Yes	√	√	√
White-breasted Nuthatch[A]	*Sitta carolinensis*	S5	-	-	-	2001-2005	Yes	√	√	√
White-throated Sparrow[A]	*Zonotrichia albicollis*	S5B	-	-	-	2001-2005	Yes			√

Appendix E. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Year Last Recorded	MBCA Protected[5]	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Willow Flycatcher	*Empidonax traillii*	S5B	-	-	-	2001-2005	Yes	√	√	√
Winter Wren[A]	*Troglodytes hiemalis*	S5B	-	-	-	2001-2005	Yes	√		
Wood Duck	*Aix sponsa*	S5	-	-	-	2001-2005	Yes	√	√	√
Wood Thrush[A]	*Hylocichla mustelina*	S4B	SC	THR	THR	2001-2005	Yes	√	√	√
Yellow Warbler	*Setophaga petechia*	S5B	-	-	-	2001-2005	Yes	√	√	√
Yellow-bellied Sapsucker[A]	*Sphyrapicus varius*	S5B	-	-	-	2001-2005	Yes	√		
Yellow-billed Cuckoo	*Coccyzus americanus*	S4B	-	-	-	2001-2005	Yes	√	√	√
Yellow-throated Vireo[A]	*Vireo flavifrons*	S4B	-	-	-	2001-2005	Yes	√		

Table Legend

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities.* The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at http://explorer.natureserve.org/nsranks.htm:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.
S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 - Secure—Common, widespread, and abundant in the nation or state/province.
SNR - Unranked—Province conservation status not yet assessed.
SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
Breeding Status Qualifiers
B - Breeding—Conservation status refers to the breeding population of the species in the province.
N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.
M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

Appendix E. Species Records from Wildlife Atlases

Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").
Other Qualifiers
? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

[2]***ESA Status:*** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END *(Endangered) – A species facing imminent extinction or extirpation in Ontario.*
THR *(Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.*
SC *(Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.*
NAR *(Not at Risk) – A species that has been evaluated and found to be not at risk.*

[3]***SARA Status****: The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:*

END (Schedule 1) *– These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
THR (Schedule 1) *– These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
SC (Schedule 1) *– These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.*
No Status (No Schedule) *– These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.*
NAR (Not at Risk)*– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
Not Applicable (N / A) *– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm

[4]***COSEWIC Status:*** *COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:*

END *(Endangered) - A species facing imminent extirpation or extinction throughout its range.*
THR *(Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction*

Appendix E. Species Records from Wildlife Atlases

SC *(Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.*
NAR *(Not at Risk) - A species that has been evaluated and found to be not at risk.*
DD *(Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.*

[5]***MBCA***: The federal Migratory Bird Convention Act, 1994 (MBCA) protects most migratory birds and their nests in Canada. Bird families not protect under the act include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds; however, these bird families have some level of protection under the Fish and Wildlife Conservation Act, 1997(FWCA)

[A]Area-Sensitive Forest Breeding Bird: Area-sensitive means a forest bird that requires a larger patch of forest to carry out its critical life processes or occurs in higher densities in large patches (Environment Canada, 2007).

Appendix E. Species Records from Wildlife Atlases

Table 4: Ontario Butterfly Atlas Records within the Ontario Line Study Area

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Historical Record (> 20 years old)	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Acadian Hairstreak	*Satyrium acadica*	S4	-	-	-	No	2019	2016	2018
American Copper	*Lycaena phlaeas*	S5	-	-	-	No	2017	1993	No record
American Lady	*Vanessa virginiensis*	S5	-	-	-	No	2019	2019	2019
American Snout	*Libytheana carinenta*	SNA	-	-	-	No	2019	2019	2019
Aphrodite Fritillary	*Speyeria aphrodite*	S5	-	-	-	No	1928	1959	No record
Appalachian Brown	*Lethe appalachia*	S4	-	-	-	Yes	1984	1984	1997
Atlantis Fritillary	*Speyeria atlantis*	S5	-	-	-	Yes	1921	No record	No record
Azure sp.	*Celastrina sp.*		-	-	-	No	2018	2019	2019
Baltimore Checkerspot	*Euphydryas phaeton*	S4	-	-	-	No	2019	2019	2019
Banded Hairstreak	*Satyrium calanus*	S4	-	-	-	No	2019	2019	2017
Black Dash	*Euphyes conspicua*	S3	-	-	-	No	2004	2016	No record
Black Swallowtail	*Papilio polyxenes*	S5	-	-	-	No	2019	2019	2019
Broad-winged Skipper	*Poanes viator*	S4	-	-	-	No	2012	(year not recorded)	1981
Bronze Copper	*Lycaena hyllus*	S5	-	-	-	No	2007	2006	1983
Cabbage White	*Pieris rapae*	SNA	-	-	-	No	2019	2019	2019
Canadian Tiger Swallowtail	*Papilio canadensis*	S5	-	-	-	No	2017	2016	No record
Checkered White	*Pontia protodice*	SNA	-	-	-	No	2001	2007	No record
Clouded Sulphur	*Colias philodice*	S5	-	-	-	No	2019	2019	2019
Cloudless Sulphur	*Phoebis sennae*	SNA	-	-	-	No	2017	2012	No record
Columbine Duskywing	*Erynnis lucilius*	S4	-	-	-	Yes	1926	1904	No record
Common Buckeye	*Junonia coenia*	SNA	-	-	-	No	2019	2019	No record
Common Checkered Skipper	*Pyrgus communis*	SNA	-	-	-	Yes	1982	No record	No record
Common Ringlet	*Coenonympha tullia*	S5	-	-	-	No	2019	2019	2019
Common Sootywing	*Pholisora catullus*	S4	-	-	-	Yes	1997	1991	1956
Common Wood-Nymph	*Cercyonis pegala*	S5	-	-	-	No	2019	2019	2019
Compton Tortoiseshell	*Nymphalis l-album*	S5	-	-	-	No	2018	2015	2018
Coral Hairstreak	*Satyrium titus*	S5	-	-	-	No	2015	2000	1977
Crossline Skipper	*Polites origenes*	S4	-	-	-	No	2019	2014	2013
Delaware Skipper	*Anatrytone logan*	S4	-	-	-	No	2019	2016	2016
Dion Skipper	*Euphyes dion*	S4	-	-	-	No	1985	No record	2016
Dreamy Duskywing	*Erynnis icelus*	S5	-	-	-	No	1913	No record	2014
Dun Skipper	*Euphyes vestris*	S5	-	-	-	No	2019	2018	2019

Appendix E. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Historical Record (> 20 years old)	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Eastern Comma	*Polygonia comma*	S5	-	-	-	No	2019	2019	2019
Eastern Giant Swallowtail	*Papilio cresphontes*		-	-	-	No	2019	2019	2019
Eastern Pine Elfin	*Callophrys niphon*	S5	-	-	-	No	2006	No record	No record
Eastern Tailed Blue	*Cupido comyntas*	S5	-	-	-	No	2019	2019	2018
Eastern Tiger Swallowtail	*Papilio glaucus*	S5	-	-	-	No	2019	2019	2019
Edwards' Hairstreak	*Satyrium edwardsii*	S4	-	-	-	No	2010	1981	1990
European Skipper	*Thymelicus lineola*	SNA	-	-	-	No	2019	2019	2019
Eyed Brown	*Lethe eurydice*	S5	-	-	-	No	1987	2019	1989
Fiery Skipper	*Hylephila phyleus*	SNA	-	-	-	No	2019	2019	2016
Funereal Duskywing	*Erynnis funeralis*	SNA	-	-	-	No	2015	2019	No record
Gorgone Checkerspot	*Chlosyne gorgone*		-	-	-	No	No record	No record	(year not recorded)
Gray Comma	*Polygonia progne*	S5	-	-	-	No	2018	2003	2019
Gray Hairstreak	*Strymon melinus*	S4	-	-	-	No	2012	2012	No record
Great Spangled Fritillary	*Speyeria cybele*	S5	-	-	-	No	2019	2018	2019
Green Comma	*Polygonia faunus*	S4	-	-	-	No	No record	2006	No record
Hackberry Emperor	*Asterocampa celtis*	S3	-	-	-	No	2017	No record	No record
Harris's Checkerspot	*Chlosyne harrisii*	S4	-	-	-	Yes	No record	No record	1969
Harvester	*Feniseca tarquinius*	S4	-	-	-	No	2010	2018	2017
Hickory Hairstreak	*Satyrium caryaevorus*	S4	-	-	-	No	2008	2014	2016
Hobomok Skipper	*Poanes hobomok*	S5	-	-	-	No	2019	2019	2019
Horace's Duskywing	*Erynnis horatius*	SNA	-	-	-	No	2011	2019	2019
Juvenal's Duskywing	*Erynnis juvenalis*	S5	-	-	-	No	No record	No record	No record
Karner Blue	*Plebejus melissa samuelis*	SX	EXP	Extirpated	EXP	Yes	1909	No record	No record
Least Skipper	*Ancyloxypha numitor*	S5	-	-	-	No	2018	2019	2019
Leonard's Skipper	*Hesperia leonardus*	S4	-	-	-	Yes	1926	(year not recorded)	No record
Little Glassywing	*Pompeius verna*	S4	-	-	-	No	2018	2014	2019
Little Wood-Satyr	*Megisto cymela*	S5	-	-	-	No	2019	2019	2019
Little Yellow	*Pyrisitia lisa*	SNA	-	-	-	No	2012	2015	1994
Long Dash Skipper	*Polites mystic*	S5	-	-	-	No	2018	2015	2015
Long-Tailed Skipper	*Urbanus proteus*	SNA	-	-	-	No	2012	No record	No record
Marine Blue	*Leptotes marina*	SNA	-	-	-	No	2008	No record	No record
Meadow Fritillary	*Boloria bellona*	S5	-	-	-	No	2017	1986	2013
Midsummer Tiger Swallowtail	*Papilio canadensis X glaucus*		-	-	-	No	2019	2019	No record
Milbert's Tortoiseshell	*Aglais milberti*	S5	-	-	-	No	2016	2019	2018

Appendix E. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Historical Record (> 20 years old)	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Monarch	*Danaus plexippus*	S2N,S4 B	SC	Special Concern	END	No	2019	2019	2019
Mottled Duskywing	*Erynnis martialis*	S2	END	No Status	END	Yes	1906	No record	1896
Mourning Cloak	*Nymphalis antiopa*	S5	-	-	-	No	2019	2019	2019
Mustard White	*Pieris oleracea*	S4	-	-	-	No	2017	No record	No record
Northern Azure	*Celastrina lucia*		-	-	-	No	2019	2019	No record
Northern Broken-Dash	*Wallengrenia egeremet*	S5	-	-	-	No	2019	2019	2019
Northern Cloudywing	*Thorybes pylades*	S5	-	-	-	No	2019	2005	2017
Northern Crescent	*Phyciodes cocyta*	S5	-	-	-	No	2019	2019	2019
Northern Pearly-Eye	*Lethe anthedon*	S5	-	-	-	No	2016	1987	1989
Ocola Skipper	*Panoquina ocola*	SNA	-	-	-	No	2012	No record	No record
Orange Sulphur	*Colias eurytheme*	S5	-	-	-	No	2019	2019	2018
Orange-barred Sulphur	*Phoebis philea*	SNA	-	-	-	No	No record	1987	No record
Painted Lady	*Vanessa cardui*	S5	-	-	-	No	2019	2019	2019
Pearl Crescent	*Phyciodes tharos*	S4	-	-	-	No	2019	2019	2019
Peck's Skipper	*Polites peckius*	S5	-	-	-	No	2019	2019	2019
Pipevine Swallowtail	*Battus philenor*	SNA	-	-	-	No	2019	2017	1935
Purplish Copper	*Lycaena helloides*	S3	-	-	-	No	No record	1953	No record
Question Mark	*Polygonia interrogationis*	S5	-	-	-	No	2019	2019	2019
Red Admiral	*Vanessa atalanta*	S5	-	-	-	No	2019	2019	2019
Red-spotted Purple	*Limenitis arthemis astyanax*	S5	-	-	-	No	2015	2019	2019
Regal Fritillary	*Speyeria idalia*	SNA	-	-	-	Yes	1911	No record	No record
Sachem	*Atalopedes campestris*	SNA	-	-	-	No	2012	2012	No record
Silver-bordered Fritillary	*Boloria selene*	S5	-	-	-	Yes	1929	1960	No record
Silver-spotted Skipper	*Epargyreus clarus*	S4	-	-	-	No	2019	2019	2019
Silvery Blue	*Glaucopsyche lygdamus*	S5	-	-	-	No	2019	2019	2019
Silvery Checkerspot	*Chlosyne nycteis*	S5	-	-	-	No	2008	1988	1977
Spicebush Swallowtail	*Papilio troilus*	S4	-	-	-	No	2019	2017	No record
Striped Hairstreak	*Satyrium liparops*	S5	-	-	-	No	2019	2012	2015
Summer Azure	*Celastrina neglecta*	S5	-	-	-	No	2019	2016	No record
Tawny Emperor	*Asterocampa clyton*	S3	-	-	-	No	No record	2015	No record
Tawny-edged Skipper	*Polites themistocles*	S5	-	-	-	No	2018	2017	2019
Two-spotted Skipper	*Euphyes bimacula*	S4	-	-	-	Yes	1928	No record	No record
Variegated Fritillary	*Euptoieta claudia*	SNA	-	-	-	No	2018	2012	2016
Viceroy	*Limenitis archippus*	S5	-	-	-	No	2019	2019	2015
White Admiral	*Limenitis arthemis arthemis*	S5	-	-	-	No	2012	2018	2015
White M-Hairstreak	*Parrhasius m-album*		-	-	-	Yes	No record	1999	No record

Appendix E. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Historical Record (> 20 years old)	17PJ23 (OLS)	17PJ33 (OLW, OLS, OLN)	17PJ34 (OLN)
Wild Indigo Duskywing	*Erynnis baptisiae*	S4	-	-	-	No	2019	2018	2019
Zebra Swallowtail	*Eurytides marcellus*	SNA	-	-	-	Yes	1896	No record	1943

Table Legend

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities.* The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at http://explorer.natureserve.org/nsranks.htm:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.
S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 - Secure—Common, widespread, and abundant in the nation or state/province.
SNR - Unranked—Province conservation status not yet assessed.
SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
Breeding Status Qualifiers
B - Breeding—Conservation status refers to the breeding population of the species in the province.
N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.
M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.
Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").
Other Qualifiers
? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

Appendix E. Species Records from Wildlife Atlases

[2]***ESA Status:*** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END *(Endangered) – A species facing imminent extinction or extirpation in Ontario.*
THR *(Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.*
SC *(Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.*
NAR *(Not at Risk) – A species that has been evaluated and found to be not at risk.*

[3]***SARA Status****: The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:*

END (Schedule 1) *– These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
THR (Schedule 1) *– These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.*
SC (Schedule 1) *– These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.*
No Status (No Schedule) *– These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.*
NAR (Not at Risk)*– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
Not Applicable (N / A) *– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.*
Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm

[4]***COSEWIC Status:*** *COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:*

END *(Endangered) - A species facing imminent extirpation or extinction throughout its range.*
THR *(Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction*
SC *(Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.*
NAR *(Not at Risk) - A species that has been evaluated and found to be not at risk.*
DD *(Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.*

AECOM Imagine it. Delivered.

Appendix F

Breeding Bird Survey Results for Millwood Road Area of Investigation

Appenix F: Breeding Bird Survey Results for Millwood Road Area of Investigation

												AECOM Observations	BBS-MC-001				BBS-MC-002				BBS-MC-003				BBS-MC-004				BBS-MC-005		BBS-MC-006				BBS-MC-007				BBS-MC-008			
													Round 1				Round 1				Round 1				Round 1				Round 1		Round 1				Round 1				Round 1			
Common Name	Scientific Name	S-Rank[2]	SARA Status[3]	COSEWIC Status[4]	ESA Status[5]	COSSARO Status[6]	MBCA Protected (Y/N)	Area-sensitive Species[8]	TRCA L-Rank[9]	AECOM Observations	Highest Breeding Evidence	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*	*Total*	*Highest Breeding Evidence*
Ducks, Geese, & Swans (ANATIDAE)																																									
Mallard	*Anas platyrhynchos*	S5					Y		L5	4	H													3	X	1	H														
Eagles & Hawks (ACCIPITRIDAE)																																									
Red-tailed Hawk	*Buteo jamaicensis*	S5	SC Sch 3			NAR	N		L5	1	X													1	X																
Plovers and Lapwings (CHARADRIIDAE)																																									
Killdeer	*Charadrius vociferus*	S5B,S5N					Y		L5	1	S													1	S																
Sandpipers, Phalaropes, and Allies (SCOLOPACIDAE)																																									
Spotted Sandpiper	*Actitis macularia*	S5					Y		L4	1	S															1	S														
Gulls & Terns (LARIDAE)																																									
Ring-billed Gull	*Larus delawarensis*	S5B,S4N					Y		L4	2	X																					1	X	1	X						
Hummingbirds (TROCHILIDAE)																																									
Ruby-throated Hummingbird	*Archilochus colubris*	S5B					Y		L4	1	H																										1	H			
Kingfishers (ALCEDINIDAE)																																									
Belted Kingfisher	*Ceryle alcyon*	S4B					N		L4	1	CF															1	CF														
Woodpeckers & Allies (PICIDAE)																																									
Downy Woodpecker	*Picoides pubescens*	S5					Y		L5	2	S											1	S										1	S							
Hairy Woodpecker	*Picoides villosus*	S5					Y	A	L4	3	A							1	A																	1	S	1	S		
Northern Flicker	*Colaptes auratus*	S4B					Y		L4	1	H																						1	H						
Flycatchers (TYRANNIDAE)																																									
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	SC	SC	SC	Y		L4	3	T																									1	S			1	S	1	T
Willow Flycatcher	*Empidonax traillii*	S5B					Y		L4	1	S																												1	S		
Great Crested Flycatcher	*Myiarchus crinitus*	S4B					Y		L4	2	S											1	S							1	S										
Swallows (HIRUNDINIDAE)																																									
Tree Swallow	*Tachycineta bicolor*	S4B					Y		L4	8	X													5	X	3	X														
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	S4B					Y		L4	2	X													1	X	1	X														
Cliff Swallow	*Petrochelidon pyrrhonota*	S4B					Y		L5	2	X															2	X														
Barn Swallow	*Hirundo rustica*	S4B	THR	THR	THR	THR	Y		L4	3	X													1	X							2	X								
Jays & Crows (CORVIDAE)																																									
Blue Jay	*Cyanocitta cristata*	S5					N		L5	3	S	1	H																								1	S			1	S
Chickadees & Titmice (PARIDAE)																																									
Black-capped Chickadee	*Poecile atricapillus*	S5					Y		L5	1	S																			1	S										
Wrens (TROGLODYTIDAE)																																									
House Wren	*Troglodytes aedon*	S5B					Y		L5	1	S																														
Gnatcatchers (POLIOPTILIDAE)																																									
Blue-gray Gnatcatcher	*Polioptila caerulea*	S4B					Y	A	L4	2	T																										1	S	1	T		
Thrushes (TURDIDAE)																																									
American Robin	*Turdus migratorius*	S5B					Y		L5	11	T			1	H	1	S	1	T			1	S	1	H			1	H	1	S	1	T	1	S			1	S	1	S
Mockingbirds, Thrashers & Allies (MIMIDAE)																																									
Gray Catbird	*Dumetella carolinensis*	S4B					Y		L4	4	T									1	S									1	S	1	T					1	S		
Waxwings (BOMBYCILLIDAE)																																									
Cedar Waxwing	*Bombycilla cedrorum*	S5B					Y		L5	10	S	1	X					1	X	1	X	1	X			5	X			1	S										
Vireos (VIREONIDAE)																																									
Warbling Vireo	*Vireo gilvus*	S5B					Y		L5	4	S									1	S			1	S							1	S	1	S						
Red-eyed Vireo	*Vireo olivaceus*	S5B					Y		L4	4	S									1	S															1	S	2	S		
Wood-Warblers (PARULIDAE)																																									
Yellow Warbler	*Dendroica petechia*	S5B					Y		L5	19	FY	1	S							3	S	2	T	2	S	1	T	1	S	2	S	3	FY	2	S	1	T	1	S		
American Redstart	*Setophaga ruticilla*	S5B					Y		L3	7	T																			1	S			3	S	1	T	1	S	1	T
Cardinals, Grosbeaks & Allies (CARDINALIDAE)																																									
Northern Cardinal	*Cardinalis cardinalis*	S5					Y		L5	11	T	1	S	1	T	2	H									1	S	1	S	2	S	1	S					1	H	1	H
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S4B					Y		L4	2	S																									1	S			1	S
Indigo Bunting	*Passerina cyanea*	S4B					Y		L4	7	S													1	S			2	S	2	S					1	S			1	S
New World Sparrows & Allies																																									
Song Sparrow	*Melospiza melodia*	S5B					Y		L5	8	T									1	S	1	S	1	S			1	S	1	S	2	T					1	S		
Blackbirds & Allies (ICTERIDAE)																																									
Red-winged Blackbird	*Agelaius phoeniceus*	S4					N		L5	20	T	1	S	1	T			1	S	2	S	3	T	2	S	2	S	1	S	2	S	1	T	1	S	1	T	2	S		
Brown-headed Cowbird	*Molothrus ater*	S4B					N		L5	3	S													1	S					1	S	1	S								
Baltimore Oriole	*Icterus galbula*	S4B					Y		L5	8	T									2	S	1	T	1	S	1	S	2	S			1	S								
Finches & Allies (FRINGILLIDAE)																																									
American Goldfinch	*Cardeulis tristis*	S5B					Y		L5	16	T					1	S			1	S					1	X	1	X	1	S	8	T	1	S			1	X	1	X
Old World Sparrows (PASSERIDAE)																																									
House Sparrow	*Passer domesticus*	SNA					N		L+	7	T	1	S	2	T	2	S	1	T			1	S																		

AECOM Imagine it. Delivered.

Appendix G

Significant Wildlife Habitat Screening

Appendix G. Significant Wildlife Habitat Screening

SWH Ecoregion 7E Criterion Schedule

Table 1.1 Seasonal Concentration Areas of Animals.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM1 CUT1 • Plus evidence of annual spring flooding from melt water or run-off within these Ecosites. • Fields with waste grain in the Long Point, Rondeau, Lk. St. Clair, Grand Bend and Pt. Pelee areas may be important to Tundra Swans.	• Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	• Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • Any mixed species aggregations of 100 or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependent on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates).	None present.	None present.	None Present.
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH • The combined area of the ELC ecosites and a 100 m radius area is the SWH • Wetland area and shorelines associated with sites identified within the Significant Wildlife Habitat Technical Guide (SWHTG) Appendix K are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded).	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH, Information Sources • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • NHIC Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	None present.	None present.	None present. Shoreline habitat (BBO1) associated with the Don River is limited and unable to support large numbers of shorebirds.
Raptor Wintering Area **Rationale:** Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern:** Short-eared Owl Bald Eagle	**Hawks/Owls** Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. **Bald Eagle:** Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or lakes with open water (hunting areas).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering(hawk/owl) sites need to be > 20 ha with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting. Information Sources: • OMNR Ecologist or Biologist • Naturalist club • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada, most notably for Short-eared Owls. • Results of Christmas Bird Counts. • Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or; At least 10 individuals and two of listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	None present.	None Present.	None present. There are no idle/fallow or lightly grazed field/meadows of sufficient size (>15 ha).

Appendix G. Significant Wildlife Habitat Screening

Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Bat Hibernacula **Rationale;** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-colored Bat	• Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH. • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNR for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts. • Clubs that explore caves (eg. Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the “Guideline for Wind Power Projects Potential Impacts to Bats and Bat Habitats”.	None present.	None present.	None present.
Bat Maternity Colonies **Rationale;** Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	• Maternity colonies considered SWH are found in forested Ecosites. • All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. Information Sources • OMNR for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; – >10 Big Brown Bats – >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or the forest stand ELC Ecosite containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”.	None present.	Candidate Habitat present. A Deciduous Forest Community (FOD4) was identified within the Study Area north of the Gardiner Expressway between Strachan Avenue and Bathurst Street.	Candidate Habitat present. Suitable snag trees were observed within the treed areas in the Millwood Road and E.T. Seton Park Areas of Investigation.

Appendix G. Significant Wildlife Habitat Screening

Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Turtle Wintering Areas **<u>Rationale;</u>** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **<u>Special Concern:</u>** Northern Map Turtle Snapping Turtle	• Snapping and Midland Painted turtles; ELC Community Classes; SW, MA, OA and SA. ELC Community Series; • FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. <u>Information Sources</u> • EIS studies carried out by Conservation Authorities. • Field Naturalist Clubs • OMNRF Ecologist or Biologist • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May). Congregation of turtles is more common where wintering areas are limited and therefore significant.	None present.	None present.	Confirmed Habitat present. Based on records received from TRCA and Ontario Nature, the ponds in E.T. Seton Park behind the Ontario Science Centre support turtles and provide confirmed turtle wintering area habitat. In 2008, there were 22 Midland Painted Turtles (*Chrysemys picta*) and one Snapping Turtle (*Chelydra serpentina*) recorded in these ponds, with a more recent record of Snapping Turtle from 2013.
Reptile Hibernaculum **<u>Rationale;</u>** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**<u>Snakes:</u>** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **<u>Special Concern:</u>** Milksnake Eastern Ribbonsnake	• For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. • Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator.	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g.old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs • University herpetologists. • Natural Heritage Information Center (NHIC)	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. near potential hibernacula (e.g. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • <u>Note</u>: If there are Special Concern Species present, then site is SWH • <u>Note</u>: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e. strong hibernation site fidelity.]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m buffer is the SWH	None present.	None present.	Candidate Habitat present. Reptile hibernacula sites for common snakes may be present in burrows or rock outcroppings in dry areas within the Millwood Road and E.T. Seton Park Areas of Investigation.

Appendix G. Significant Wildlife Habitat Screening

Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff) **<u>Rationale:</u>** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies).	• Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles, cliff faces, bridge abutments, silos, barns (Cliff Swallows). • Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> • Reports and other information available from Conservation Authorities • Ontario Breeding Bird Atlas. • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season (May-June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	None present.	None present.	Candidate Habitat present. There were four separate locations where several burrows were observed at each location in the vertical eroded banks along the Don River. Two locations (Burrow Locations 1 and 3) were within the Millwood Road Area of Investigation and the other two locations (Burrow Locations 2 and 4) were in the E.T. Seton Park Area of Investigation.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale;</u>** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. <u>Information Sources</u> • Ontario Breeding Bird Atlas, colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from Conservation Authorities • MNRF District Offices. • Local naturalist clubs.	Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300 m radius or extend of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Colonially - Nesting Bird Breeding Habitat (Ground) **<u>Rationale:</u>** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	• Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). • Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> • Ontario Breeding Bird Atlas, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from Conservation Authorities • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices. • Field Naturalist Clubs.	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	None present.	None present.	None present.
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	• Combination of ELC Community Series; need to have present one Community Series from each landclass: <u>Field</u>: CUM CUT CUS <u>Forest</u>: FOC FOD FOM CUP • Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Erie and Ontario. • The habitat is typically a combination of field & forest and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Stopover areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. <u>Information Sources</u> • MNRF district Offices • Natural Heritage Information Center (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.	None present. There are no field or forest combinations of sufficient size (> 10 ha). However, Monarch butterflies may still be present and use the habitat in the OLW Study Area for foraging and egg-laying but not at significant numbers to qualify as a candidate Migratory Butterfly Stopover Area.	None present. There are no field or forest combinations of sufficient size (> 10 ha). However, Monarch butterflies may still be present and use the habitat in the OLS Study Area for foraging and egg-laying but not at significant numbers to qualify as a candidate Migratory Butterfly Stopover Area.	None present. The Millwood Road and E.T. Seton Park Area of Investigations are located more than 5 km from the lakeshore. However, Monarch butterflies may still be present and use the habitat in the OLN Study Area for foraging and egg-laying but not at significant numbers to qualify as a candidate Migratory Butterfly Stopover Area.

Appendix G. Significant Wildlife Habitat Screening

Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Landbird Migratory Stopover Areas **<u>Rationale:</u>** Sites with a high diversity of species as well as high numbers are most significant.	• All migratory songbirds. • Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 • All migrant raptors species: • Ontario Ministry of Natural Resources: • Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	• All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Woodlots need to be >5 ha in size and within 5 km of Lake Ontario and Erie. If woodlands are rare in an area of shoreline, woodland fragments 2-5ha can be considered for this habitat. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Erie and Lake Ontario are more significant • Sites have a variety of habitats; forest, grassland and wetland complexes • The largest sites are more significant • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Erie and Lake Ontario are Candidate SWH. <u>Information Sources</u> • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the woodlot by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (March to May) and fall (Aug to Oct) migration using standardized assessment techniques. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	None present.	None present.	Candidate Habitat present. According to the Migratory Birds in the City of Toronto (Dougan & Associates and North-South Environmental Inc., 2009), the natural areas within the City of Toronto, specifically along the shoreline and those associated with ravine systems such as the Don River act as an annual stopover for migratory birds.
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	• All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD • Conifer plantations much smaller than 50 ha may also be used.	• Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlots >50ha. • Deer movement during winter in the southern areas Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> • MNRF District Offices. • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques , ground or road surveys, or a pellet count deer density survey.	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Table 1.2.1 Rare Vegetation Communities.

Rare Vegetation Community	CANDIDATE SWH ELC Ecosite Code	CANDIDATE SWH Habitat Description	CANDIDATE SWH Detailed Information and Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Cliffs and Talus Slopes **<u>Rationale;</u>** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	• Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	• A Cliff is vertical to near vertical bedrock >3m in height. • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris	• Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF Districts • Natural Heritage Information Center (NHIC) has location information available their website • Field Naturalist Clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	None present.	None present.	None present.
Sand Barren **<u>Rationale;</u>** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	• ELC Ecosites: SBO1 SBS1 SBT1 • Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	• A sand barren area >0.5ha in size. <u>Information Sources</u> • OMNRF Destricts. • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None present.	None present.	None present.
Alvar **<u>Rationale:</u>** Alvars are extremely rare habitats in Ecoregion 7E.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 • **Five Alvar Indicator Species:** 1)*Carex crawei* 2)*Panicum philadelphicum* 3)*Elocharis compressa* 4)*Scutellaria parvula* 5)*Trichostema brachiatum* • These indicator species are very specific to Alvars within Ecoregion 7E.	• An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.	• An Alvar site > 0.5 ha in size. • Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie. <u>Information Sources</u> • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Staff. • Field Naturalist Clubs. • Conservation Authorities.	• Field studies identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Rare Vegetation Community	CANDIDATE SWH ELC Ecosite Code	CANDIDATE SWH Habitat Description	CANDIDATE SWH Detailed Information and Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Old Growth Forest **Rationale:** Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	• Forest Community Series: FOD FOC FOM SWD SWC SWM	• Old-growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in mosaic of gaps that encourage development of multi-layered canopy and an abundance of snags and downed woody debris.	• Woodland area is >0.5 ha. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist Clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then area containing these trees is Significant Wildlife Habitat • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut steps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics.	None present.	None present.	None present.
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	• A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	• No minimum size to site • Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location data available on their website. • OMNRF Districts. • Field Naturalists Clubs. • Conservation Authorities.	• Field studies confirm one or more of the Savannah indicator species listed in Appendix N of SWHTG should be present. Note: Savannah plant spp. list from Ecoregion 7E should be used • Area of the ELC Ecosite is the SWH· • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None present.	None present.	None present.
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	• A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. • In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	• No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location data available on their website. • Field Naturalists Clubs. • Conservation Authorities	• Field studies confirm one or more of the Prairie indicator species listed in Appendix N of SWHTG should be present. Note: Prairie plant spp. list from Ecoregion 7E should be used • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None present.	None present.	None present.
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	• Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	• Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	• ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M • The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location data available on their website. • Field Naturalists Clubs. • Conservation Authorities	• Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH.	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Table 1.2.2 Specialized Habitats of Wildlife considered SWH.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	• All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 **Note: includes adjacency to Provincially Significant Wetlands**	• A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5 ha) with small wetlands (<0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.	None present.	None present.	None present.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale;** Nest sites are fairly uncommon in Ecoregion 7E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **Special Concern** Bald Eagle	• ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations, Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities • Field naturalist Clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area . • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for ≥ 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	• May be found in all forested ELC Ecosites. • May also be found in SWC, SWM, SWD and CUP3	• All natural or conifer plantation woodland/forest stands combined >30ha or with >4 ha of interior habitat. Interior habitat determined with a 200m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.	None present.	None present.	None present. Although there was anecdotal evidence from a citizen indicating the presence of an active Copper's Hawk nest in previous year in the Red Oak Deciduous Plantation (CUP1-8), this community or adjacent forested communities (FOD3-1 and FOD7) west of Beth Nealson Drive do not qualify as candidate Woodland Raptor Nesting Habitat as these plantation and forested communities together do not meet the minimum size criterion of > 30 ha with 4 ha of interior habitat.
Turtle Nesting Areas **<u>Rationale;</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> Northern Map Turtle Snapping Turtle	• Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Atlas records (or other similar atlases) for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist Clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as a part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method.	None present.	None present.	Candidate Habitat present. Sandy or gravel shorelines along the Don River may provide suitable nesting habitat for turtles (BBO1 community).

Appendix G. Significant Wildlife Habitat Screening

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Seeps and Springs **Rationale:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	• Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	• Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. Information Sources • Topographical Map. • Thermography. • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists Clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.	None present.	None present.	None present.
Amphibian Breeding Habitat (Woodland). **Rationale:** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	• All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD • Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians	• Presence of a wetland, pond or woodland pool(including vernal pools) >500m^2 within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF Districts and wetland evaluations • Field Naturalist Clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; • Presence of breeding population of 1 or more of the listed salamander species or 2 or more of the listed frog species with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observation study and call count survey will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH ELC Ecosite Codes	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	• ELC Community Classes SW, MA, FE, BO, OA and SA. • Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	• Wetlands >500m2 (about 25m diameter) supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.	None present.	None present.	Confirmed significant habitat present. The ponds in E.T. Seton Park behind the Ontario Science Centre and associated marshes provide amphibian breeding habitat as confirmed through records received from Ontario Nature. There are records of up to four American Toads (*Anayxrus americanus*) in 2015, and up to 15 Green Frogs (*Rana clamitans*) and up to two American Bullfrogs (*Lithobates catesbeianus*) recorded in 2008.

Appendix G. Significant Wildlife Habitat Screening

Table 1.3. Habitats of Species of Conservation Concern considered SWH.

Wildlife	Species	CANDIDATE SWH ELC Ecosite	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Woodland Area-Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker Special Concern: Cerulean Warbler Canada Warbler	• All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 years old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat. Information Sources • Local birder clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warbler is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	None present.	None present.	None present. Although forested areas are present, interior forest habitat is lacking due to fragmentation from roads rail corridors, etc.
Marsh Breeding Bird Habitat **Rationale:** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Centre (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas.	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	None present.	None present.	Confirmed significant habitat present. Green Herons were observed in June 2020 and Trumpeter Swans in 2019 have been recorded in the ponds behind E.T. Seton Park (eBirds, 2017). The pond and associated shallow marsh (MAS) communities are considered to be significant marsh breeding bird habitat.

Appendix G. Significant Wildlife Habitat Screening

Wildlife	Species	CANDIDATE SWH ELC Ecosite	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Open Country Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	CUM1 CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources: • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • EIS Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	None present.	None present.	None present.
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 • Patches of shrub ecosites can be complexed into a larger habitat for some bird species	• Large field areas succeeding to shrub and thicket habitats >10ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources: • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	None present.	None present.	None present.

Appendix G. Significant Wildlife Habitat Screening

Wildlife	Species	CANDIDATE SWH ELC Ecosite	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Terrestrial Crayfish; **Rationale:** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an Habitat ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.	None present.	None present.	None present.
Special Concern and Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	• All Special Concern and Provincially Rare (S1-S3, SH) plant and animal • species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	• All plant and animal element occurrences (EO) within a 1 or 10km grid. • Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy	• When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites. Information Sources: • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.	A comprehensive screening for each SOCC record identified within the OLS Study Area is provided in Appendix H.	A comprehensive screening for each SOCC record identified within the OLW Study Area is provided in Appendix H.	A comprehensive screening for each SOCC record identified within the OLN Study Area is provided in Appendix H.

Appendix G. Significant Wildlife Habitat Screening

Table 1.4 Animal Movement Corridors

Habitat	SPECIES	CANDIDATE SWH ELC Eco-sites	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
Amphibian Movement Corridors **Rationale:** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	• Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	• Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat –Wetland) of this Schedule. Information Sources: • MNRF District Office. • Natural Heritage Information Centre (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs.	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.	None present.	None present.	Candidate habitat present. The Don River and the forested habitats within the E.T. Seton Park Area of Investigation are candidate significant habitat due to the presence of significant amphibian breeding habitat within the ponds behind the Ontario Science Centre.

Table 1.5 Significant Wildlife Habitat Exceptions for Ecodistricts within Eco-Region 7E

Habitat	SPECIES	CANDIDATE SWH ELC Eco-sites	CANDIDATE SWH Habitat Criteria and Information Sources	CONFIRMED SWH Defining Criteria	Ontario Line South Study Area (OLS)	Ontario Line West Study Area (OLW)	Ontario Line North Study Area (OLN)
7E-2	**Bat Migratory Stopover Area** Rationale: Stopover areas for long distance migrant bats are important during fall migration. Hoary Bat Eastern Red Bat Silver-haired Bat	• No specific ELC types.	• Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas. • This is the only known bat migratory stopover habitats based on current information. Information Sources • OMNRF for possible locations and contact for local experts • University of Waterloo, Biology Department	• Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stop-over habitat for fall migrating Silver-haired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration. • The confirmation criteria and habitat areas for this SWH are still being determined.	None present as the Study Area is not located in Long Point, Ontario.	None present as the Study Area is not located in Long Point, Ontario.	None present as the Study Area is not located in Long Point, Ontario.

AECOM Imagine it. Delivered.

Appendix H

Species of Conservation Concern Habitat Screening

Appendix H. Species of Conservation Concern Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
Amphibian	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield populati	*Pseudacris maculata pop. 1*	2016	S3	NAR	THR	THR	The Western Chorus Frog is primarily a lowland terrestrial species. In marshes or wooded wetland areas, it is found on the ground or in low shrubs and grass. It is a poor climber. Like all other frogs, the Western Chorus Frog requires both terrestrial and aquatic habitats in close proximity. For breeding and tadpole development, it requires seasonally dry temporary ponds devoid of predators, particularly fish. The Western Chorus Frog is very rarely found in permanent ponds. Although it uses aquatic habitat during the breeding season, the Western Chorus Frog is a poor swimmer. The species hibernates in its terrestrial habitat, under rocks, dead trees, or leaves, or in loose soil or animal burrows, even though these sites are sometimes flooded.	MAS, SW	ORAA, TRCA	Low - no suitable habitat is present.	Low - no suitable habitat is present. Although the RLS EPR, suggests that the Corktown Common Park may provide suitable habitat for this species, it's unlikely that this species is present given that the park was built in 2012 and is surrounded by barriers (e.g., roads, railways, etc.) to amphibian movement.	Medium - the ponds within E.T. Seton Park near the Ontario Science Centre may provide suitable breeding habitat. TRCA has a record of Western Chorus Frog from 1990 in these ponds; however, it's unlikely that this species still persists in this location.
Birds	Black-crowned Night-Heron	*Nycticorax nycticorax*	2001-2005	S3B,S3N	-	-	-	This species can be found in deciduous woodland swamps, cattail marshes, islands, wooded rivers and lake banks, coastal wetlands, bottomland hardwood forests and thickets, rocky cliffs, various habitats except in dense vegetation. This species roosts in tall live or dead trees with tree limbs greater than 18 inches in diameter.	SWD, MAS, FOD, SW, CL	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - there is no suitable habitat present.	Low - there is no suitable habitat present.	Medium - this species may forage near the Don River and roost in trees along the forested riparian banks; however, this species likely nests in the Leslie Street Spit, where there is a known large rookery.
Birds	Canvasback	*Aythya valisineria*	2001-2005	S1B,S4N	-	-	-	This species can be found in large marshes for nesting and prefers deep, permanent waterbodies for feeding and courtship.	MA, OAO	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario which is located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario which is located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario which is located outside of the study area.
Birds	Caspian Tern	*Hydroprogne caspia*	2001-2005	S3B	-	-	-	This species can be found in open habitat near large lakes or rivers, beaches, shorelines, rocky or sandy beaches and offshore islands.	OAO, BB	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Common Nighthawk	*Chordeiles minor*	2016	S4B	SC	THR Schedule 1	SC	Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings, and along gravel roads and railways, they tend to occupy natural sites.The Common Nighthawk nests in a wide range of open, vegetation-free habitats, including dunes, beaches, recently harvested forests, rocky outcrops, grasslands, pastures, marshes, river banks and flat buildings with gravel rooftops in urban centres. This species also inhabits mixed and coniferous forests. The Common Nighthawk probably benefited from the newly-opened habitats created by the massive deforestation associated with the arrival of European settlers in eastern Canada and United States. In urban areas, Common Nighthawk prefers to nest on flat, gravel rooftops of buildings (Brigham et al., 2011).	SD, BB, RB, CUM, BO, FOM, FOC and FOD with openings with little vegetation.	TRCA, OBBA (17PJ23, 17PJ33, 17PJ34)	Medium - building with flat, gravel filled rooftops may provide suitable nesting habitat for this species as well as the riverbanks of the Don River.	High - building with flat, gravel filled rooftops may provide suitable nesting habitat for this species as well as the riverbanks of the Don River. TRCA recorded Common Nighthawk near the intersection of Pape Avenue and Danforth Avenue in 2016.	High - building with flat, gravel filled rooftops may provide suitable nesting habitat for this species as well as the riverbanks of the Don River. TRCA recorded Common Nighthawk near the intersection of Pape Avenue and Danforth Avenue in 2015, although was noted to be a possible migrant.

Appendix H. Species of Conservation Concern Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
Birds	Eastern Wood-Pewee	*Contopus virens*	2016	S4B	SC	SC Schedule 1	SC	The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation. During migration, a variety of habitats are used, including forest edges and early successional clearings.	FOC, FOM, FOD, SWD, SWM and CUW.	TRCA; OBBA (17PJ23, 17PJ33); NHIC	Medium - forested areas may provide suitable nesting habitat.	Medium - forested areas east of the Don River may provide suitable nesting habitat.	High - forested areas within the Don River valley provide suitable nesting and foraging habitat for this species. Eastern Wood-pewee was recorded within the Millwood Road Area of Investigation during the 2019 breeding bird survey and TRCA has records of this species within the E.T. Seaton Park Area of Investigation from 2000 and 2004.
Birds	Great Black-backed Gull	*Larus marinus*	2001-2005	S2B	-	-	-	This species can be found in flat rocky, coastal islands, moorlands, rocky beaches and cliffs.	OAO, BB, CL	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Great Egret	*Ardea alba*	2001-2005	S2B	-	-	-	This species can be found in open swamp woods or willow thickets, offshore islands and mudflats for feeding. This species nests in standings trees in open water, thickets and sometimes in low vegetation on islands or in rookeries with other herons.	SWD, SWC, SWM, SWT	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - suitable habitat is not present.	Low - suitable habitat is not present.	Medium - this species may forage near the Don River and roost in trees along the forested riparian banks.
Birds	Peregrine Falcon	*Falco peregrinus*	2008	S3B	SC	No Status	Not At Risk	Peregrine Falcons usually nest on tall, steep cliff ledges close to large bodies of water. Although most people associate Peregrine Falcons with rugged wilderness, some of these birds have adapted well to city life. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas. Cities offer peregrines a good year-round supply of pigeons and starlings to feed on.The Peregrine Falcon is found in various types of habitats, from Arctic tundra to coastal areas and from prairies to urban centres. It usually nests alone on cliff ledges or crevices, preferably 50 to 200 m in height, but sometimes on the ledges of tall buildings or bridges, always near good foraging areas. Suitable nesting sites are usually dispersed, but can be common locally in some areas. The natural nesting habitat has not changed significantly since the population crash and is still largely available. In addition, structures built by humans in both rural and urban areas provide the Peregrine Falcon with other potential nesting sites. And though urbanization and other land uses have had a significant impact on some areas where they feed, Peregrine Falcons can usually modify their diet based on the prey species present in a given area.	CLO	NHIC, OBBA (17PJ23, 17PJ33, 17PJ34), TRCA	Medium - High-rise buildings may provide suitable nesting habitat.	High - High-rise buildings may provide suitable nesting habitat. TRCA has a record of a Peregrine Falcon near the intersection of Queen Street West and University Avenue from 2010. The Sheraton Centre Toronto Hotel located at 123 Queen Street West is a confirmed, and current nesting habitat for this species according to the Canadian Peregrine Foundation (2019).	Medium - Although there were no high-rise buildings identified within this study area, this species may still forage in the area.
Birds	Purple Martin	*Progne subis*	2001-2005	S3S4B	-	-	-	This species can be found in open and treed areas such as farmlands, parks, yards, marshes usually near large bodies of water. This species most commonly nests in artificial nest boxes and requires open space for foraging.	CUM, CUT, MA	OBBA (17PJ23, 17PJ33)	Low - no suitable habitat (i.e., nest boxes) is present.	Low - no suitable habitat (i.e., nest boxes) is present.	Low - no suitable habitat (i.e., nest boxes) is present.

Appendix H. Species of Conservation Concern Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
Birds	Redhead	*Aythya americana*	2001-2005	S2B,S4N	-	-	-	This species can be found in shallow cattail/bulrush marshes, lakes and ponds and fens, preferred nesting usually close to shallow water.	MAS, OAO, FE	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	2001-2005	S4B	SC	THR Schedule 1	END	The Red-headed Woodpecker lives in open woodland and woodland edges, and is often found in parks, golf courses, and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching. A few of these birds will stay the winter in woodlands in southern Ontario if there are adequate supplies of nuts. The Red-headed Woodpecker is found in a variety of habitats, including oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, beaver ponds, and burns.	TPS, TPW, CUW, FOD1, FOD2, FOD4-1, FOD6, FOD7, and FOD9 that are open and have an abundance of dead trees.	OBBA (17PJ23, 17PJ33, 17PJ34)	Medium - forested areas provide suitable habitat for this species.	Medium - forested areas (e.g., cultural woodlands) provide suitable habitat for this species.	Medium - forested areas within the Don River Valley provide suitable habitat for this species.
Birds	Red-necked Grebe	*Podiceps grisegena*	2001-2005	S3B,S4N	-	-	-	This species can be found in permanent freshwater lakes with a fringe of aquatic emergent vegetation, marshes, impoundments or sewage lagoons with greater than 4 ha of open water.	OAO, MA	OBBA (17PJ23, 17PJ33)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Wood Thrush	*Hylocichla mustelina*	2016	S4B	SC	THR Schedule 1	THR	The Wood Thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds prefer large forests, but will also use smaller stands of trees. They build their nests in living saplings, trees, or shrubs, usually in Sugar Maple or American Beech. In Canada, the Wood Thrush nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. This species prefers large forest mosaics, but may also nest in small forest fragments.	FOD and FOM that are greater than 1 ha in size.	TRCA, OBBA (17PJ23, 17PJ33)	Low - no suitable habitat is present.	Low - no suitable habitat is present.	Medium - forested areas within the Don River Valley provide suitable habitat for this species.
Insect	Monarch	*Danaus plexippus*	2019	S2N,S4B	SC	SC Schedule 1	END	Throughout their life cycle, Monarchs use three different types of habitat. Only the caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. Milkweeds (numerous species) are the sole food plant for Monarch caterpillars. These plants grow predominantly in open and periodically disturbed habitats such as roadsides, fields, wetlands, prairies, and open forests. Milkweeds are often planted outside their native range, and sometimes wayward Monarchs are observed at these patches. Monarchs require staging areas which are used to rest, feed, and avoid inclement weather during migration. In Canada, they are found along the north shores of the Great Lakes where Monarchs roost in trees before crossing large areas of open water.	AI, TP, and CUM where milkweed plants are present.	OBA	Low - no suitable habitat is present.	Medium - cultural meadows may provide suitable foraging and rearing habitat.	High - cultural meadows provide suitable foraging and rearing habitat. Monarch was observed within the Millwood Road Area of Investigation during AECOM's 2019 field investigations.

Appendix H. Species of Conservation Concern Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
Insect	Black Dash	*Euphyes conspicua*	2016	S3	-	-	-	This species can be found in boggy marshes, wet meadows, and marshy stream banks	MA, BO	OBA	Low - suitable habitat is not present.	Low - suitable habitat is not present.	Low - suitable habitat is not present.
Insect	Hackberry Emperor	*Asterocampa celtis*	2017	S3	-	-	-	This species can be found along wooded streams and deciduous forests with the host plant, Hackberry (*Celtis*)	FOD4-3	OBA	Low - suitable habitat is not present.	Low - suitable habitat is not present.	Low - suitable habitat is not present.
Insect	Tawny Emperor	*Asterocampa clyton*	2015	S3	-	-	-	This species can be found along wooded streams and deciduous forests with the host plant, Hackberry (*Celtis*)	FOD4-3	OBA	Low - suitable habitat is not present.	Low - suitable habitat is not present.	Low - suitable habitat is not present.
Reptiles	Northern Map Turtle	*Graptemys geographica*	2018	S3	SC	SCSchedule 1	SC	The Northern Map Turtle inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled.The Northern Map Turtle inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as rocks and logs) and exposure to the sun for at least part of the day.	OAO, SA with emergent rocks and fallen trees suitable habitat for prey.	ORAA	Low - suitable habitat is not present.	High - the Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 m. One record of this species supplied by Ontario Nature indicates its presence within the Study Area and that the Don River may serve as movement corridor for this species to Lake Ontario. However, there are no suitable nesting, or basking habitats present. There are reinforced retaining walls on either side of the Don River at the Lower Don Bridge which do not provide suitable nesting habitat.	Medium - the Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 m, with sandy banks and may serve as movement corridor and nesting habitat for this species to Lake Ontario.
Reptiles	Snapping Turtle	*Chelydra serpentina*	2019	S4	SC	SC Schedule 1	SC	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams, and aggregate pits. Although Snapping Turtles have been observed in shallow water in almost every kind of freshwater habitat, the preferred habitat of the species is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges, and slow streams, or areas combining several of these wetland habitats. Individual turtles will persist in urbanized water bodies, such as golf course ponds and irrigation canals, but it is unlikely that a population could become established in such habitats. The Snapping Turtle can occur in highly polluted waterways, but environmental contamination is known to reduce the already low reproductive output of this species. Basking on offshore logs and protruding rocks can be common in Snapping Turtles, depending on environmental temperature.	OAO, SA near gravelly or sandy areas.	ORAA; TRCA; NHIC	Low - suitable habitat is not present.	Medium - the Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 m and may serve as movement corridor for this species to Lake Ontario. However, there are no suitable nesting, or basking habitats present. There are reinforced retaining walls on either side of the Don River at the Lower Don Bridge which do not provide suitable nesting habitat.	High - the Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 m, with sandy banks and may serve as movement corridor, and nesting habitat for this species to Lake Ontario. The ponds in E.T. Seton Park near the Ontario Science Centre may provide suitable overwintering habitat. TRCA has a record of Snapping Turtle from these ponds from 2013.

Appendix H. Species of Conservation Concern Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
								Females generally nest on sand or gravel banks along waterways. Upon emergence from the nest in early fall, hatchling Snapping Turtles usually move to water, after which they bury themselves under leaf litter or debris. Snapping Turtles overwinter underwater, buried beneath logs, sticks or overhanging banks in small streams that flow continuously throughout the winter. They can also hibernate buried in deep mud in marshy areas or beneath floating mats of vegetation. Snapping Turtle habitat is diminishing in both quantity and quality in Canada, with losses primarily due to conversion of wetlands to agriculture and urban development.					
Plants	Old -field Toadflax	*Nuttallanthus canadensis*	n/a	S2				Dry, open, sandy or rocky, barren ground; oak and sassafras savanna and jack pine plains; beds of dried lakes (Michigan Flora, 2011)	TPW, RBO, RBS	NHIC	Low - suitable habitat is not present.	Low - suitable habitat is not present.	Low - suitable habitat is not present.

Glossary and Notes

1 S-rank: **The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at http://explorer.natureserve.org/nsranks.htm:**

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.
S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 - Secure—Common, widespread, and abundant in the nation or state/province.
SNR - Unranked—Province conservation status not yet assessed.
SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.
N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.
M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.
Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

2 ESA Status: **The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:**

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.
THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.
SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.
NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.

3 SARA Status: **The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not**

receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:

END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.
THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.
SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.
No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.
NAR (Not at Risk)– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.
Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.
Schedule 2 - Species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3 - Species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm

4 COSEWIC: Committee on the Status of Endangered Wildlife in Canada - a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.

5 Preferred Habitat / Known Species Range: The following references were used to describe preferred habitat and/or known species ranges:

- Species at Risk . Ontario Ministry of Natural Resources. http://www.mnr.gov.on.ca/en/Business/Species/index.html. © Queens Printer For Ontario, 2013.
- Species at Risk Status Reports. Committed on the Status of Endangered Wildlife in Canada. Ottawa. http://www.sararegistry.gc.ca/search/advSearchResults_e.cfm?stype=doc&docID=18.
- Evans, Melissa, Elizabeth Gow, R. R. Roth, M. S. Johnson and T. J. Underwood. 2011. Wood Thrush (Hylocichla mustelina), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology;

doi:10.2173/bna.246
Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/246
- McCarty, John P. 1996. Eastern Wood-Pewee (Contopus virens), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/245

doi:10.2173/bna.245

6 Sources Identifying Species Record: Records of species were identified from the following secondary sources unless otherwise stated:

BCI -Bat Conservation International (BCI), 2019: Species Profiles. Accessed from:http://www.batcon.org/resources/media-education/species-profiles
OBBA -Bird Studies Canada (BSC), Environment Canada – Canadian Wildlife Service (EC-CWS), Ontario Nature, Ontario Field Ornithologists (OFO) and Ontario Ministry of Natural Resources and Forestry (MNRF), 2006: Ontario Breeding Bird Atlas (OBBA) website. Accessed 2019 from: http://www.birdsontario.org/atlas/index.jsp
NHIC - Ontario Ministry of Natural Resources and Forestry (MNRF), 2019: Natural Heritage Information Centre (NHIC) Rare Species Database. Accessed 2019 from: http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US
ORAA - Ontario Nature, 2017: Ontario Reptile and Amphibian Atlas Program. Accessed 2017 from: http://www.ontarionature.org/protect/species/herpetofaunal_atlas.php
OBA - Macnaughton, A., Layberry, R., Jones, C. and B. Edwards, 2020: Ontario Butterfly Atlas Online. Accessed 2020 from: http://www.ontarioinsects.org/atlas_online.htm
DFO - Fisheries and Oceans Canada (DFO). 2020: Aquatic Species at Risk Mapping. Accessed 2020 from: http://www.dfo-mpo.gc.ca/species-especes/fpp-ppp/index-eng.htm
TRCA - flora and fauna records received from TRCA on February 27, 2018
MNRF - records from MNRF based on email correspondence on January 30 2018

Other References Used:

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurrary, 1998: Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

MICHIGAN FLORA ONLINE. A. A. Reznicek, E. G. Voss, & B. S. Walters. February 2011. University of Michigan. Web. January 14, 2020. https://michiganflora.net/species.aspx?id=1950.

AECOM Imagine it. Delivered.

Appendix I

Species at Risk Habitat Screening

Appendix I. Species at Risk Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source Identifying Species Record (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
Birds	Bank Swallow	*Riparia riparia*	2017	S4B	THR	THRSchedule 1	THR	Bank Swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs.The Bank Swallow breeds in a wide variety of natural and artificial sites with vertical banks, including riverbanks, lake and ocean bluffs, aggregate pits, road cuts, and stock piles of soil. Sand-silt substrates are preferred for excavating nest burrows. Breeding sites tend to be somewhat ephemeral due to the dynamic nature of bank erosion. Breeding sites are often situated near open terrestrial habitat used for aerial foraging (e.g., grasslands, meadows, pastures, and agricultural cropland). Large wetlands are used as communal nocturnal roost sites during post-breeding, migration, and wintering periods.	N/A	NHIC; OBBA (17PJ33, 17PJ34)	Low - there is no suitable habitat present.	Low - there is no suitable habitat present. The banks of the Don River include a hardened bank, impervious surfaces and lack of sandy vertical banks.	Medium - Potential habitat exists along the vertical eroded banks of the Don River at two locations where several burrows (approximately 12 to 20) were found at two locations, one at the Millwood Road and another the E.T. Seton Park areas of Investigations. Bank Swallows were not observed at the Millwood Road Area of Investigation during breeding bird surveys in 2019 and none were observed within the E.T. Seton Park Area of Investigation but the site visit was conducted outside of the breeding bird season.
Birds	Barn Swallow	*Hirundo rustica*	2001-2005	S4B	THR	THR Schedule 1	THR	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges, and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces. Before European colonization, Barn Swallows nested mostly in caves, holes, crevices, and ledges in cliff faces. Following European settlement, they shifted largely to nesting in and on artificial structures, including barns and other outbuildings, garages, houses, bridges, and road culverts. Barn Swallows prefer various types of open habitats for foraging, including grassy fields, pastures, various kinds of agricultural crops, lake and river shorelines, cleared rights-of-way, cottage areas and farmyards, islands, wetlands, and subarctic tundra.	TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1; containing or adjacent structures that are suitable for nesting.	OBBA (17PJ33, 17PJ34)	High – Barn Swallows were recorded foraging in the Garrison Commons; however, there are no buildings, bridges and other structures within 200 m of a waterbody within the study area and therefore there is limited potential for Barn Swallows to be nesting on buildings within the OLW Study Area.	High - buildings, bridges and other structures with suitable nesting attachment sites provide suitable nesting habitat. According to 4Transit (2018), Barn Swallows were observed foraging in the vicinity of the rail corridor bridge crossing the Don River, suggesting that nests be present under the bridge.	High - buildings, bridges and other structures with suitable nesting attachment sites provide suitable nesting habitat. Foraging habitat is also present, especially within the forested Don River valleylands. Barn Swallows were observed within the Millwood Road Area of Investigation during the breeding bird surveys.
Birds	Bobolink	*Dolichonyx oryzivorus*	2001-2005	S4B	THR	THRSchedule 1	THR	Historically, Bobolinks lived in North American tallgrass prairie and other open meadows. With the clearing of native prairies, Bobolinks moved to living in hayfields. Bobolinks often build their small nests on the ground in dense grasses. Both parents usually tend to their young, sometimes with a third Bobolink helping.Most of this prairie was converted to agricultural land over a century ago, and at the same time the forests of eastern North America were cleared to hayfields and meadows that provided habitat for the birds. Since the conversion of the prairie to cropland and the clearing of the eastern forests, the Bobolink has nested in forage crops (e.g.,	TPO, TPS, CUM1 and MAM2.	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.

Appendix I. Species at Risk Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source Identifying Species Record (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
								hayfields and pastures dominated by a variety of species, such as clover, Timothy, Kentucky Bluegrass, and broadleaved plants). The Bobolink also occurs in various grassland habitats including wet prairie, graminoid peatlands, and abandoned fields dominated by tall grasses, remnants of uncultivated virgin prairie (tall-grass prairie), no-till cropland, small-grain fields, restored surface mining sites, and irrigated fields in arid regions. It is generally not abundant in short-grass prairie, Alfalfa fields, or in row crop monocultures (e.g., corn, soybean, wheat), although its use of Alfalfa may vary with region.					
Birds	Chimney Swift	*Chaetura pelagica*	2016	S4B,S4N	THR	THR Schedule 1	THR	Before European settlement, Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. However, due to the land clearing associated with colonization, hollow trees became increasingly rare, which led Chimney Swifts to move into house chimneys. Today, they are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. It is likely that a small portion of the population continues to use hollow trees. They also tend to stay close to water as this is where the flying insects they eat congregate. The Chimney Swift spends the major part of the day in flight feeding on insects. In the northern part of the breeding range, the Chimney Swift favours sites where the ambient temperature is relatively stable.	TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1 containing or adjacent structures with suitable nesting habitat (i.e. chimneys).	OBBA (17PJ33, 17PJ34)	High - buildings with suitable chimneys may provide nesting and roosting habitat. Several Chimney Swifts were recorded flying over in the OLW Study Area.	High - buildings with suitable chimneys may provide nesting and roosting habitat. According to 4Transit (2018), Chimney Swift nests were confirmed at a chimney located at 21 Don Roadway which is within the OLS Study Area but outside of the proposed TOD footprints. In addition, Moss Park Armoury is known to be a confirmed roost site for Chimney Swifts.	High - buildings with suitable chimneys may provide nesting and roosting habitat. Chimney Swift was recorded by TRCA in 2010 and 2016 foraging within the Millwood Road and E.T. Seton Park Areas of Investigations.
Birds	Eastern Meadowlark	*Sturnella magna*	2001-2005	S4B	THR	THRSchedule 1	THR	Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs, or fence posts are used as elevated song perches.Eastern Meadowlarks prefer grassland habitats, including native prairies and savannahs, as well as non-native pastures, hayfields, weedy meadows, herbaceous fencerows, and airfields.	TPO, TPS, CUM1, CUS, and MAM2 with elevated song perches.	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.
Mammals	Eastern Small-footed Myotis	*Myotis leibii*	N/A	S2S3	END	N/A	N/A	In the spring and summer, Eastern Small-footed Bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. These bats often change their roosting locations every day. At night, they hunt for insects to eat, including beetles, mosquitos, moths, and flies. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier sites than similar bats and will return to the same spot each year.	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	BCI	Medium - treed areas including forests may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.
Mammals	Little Brown Myotis	*Myotis lucifugus*	N/A	S3	END	ENDSchedule 1	END	Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings, and barns for summer colonies where they can raise their young. Bats can squeeze through very tiny spaces (as small as six millimetres across) and this is how they access many roosting areas. Little Brown Bats hibernate from October or November to March or April, most often in caves or	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose	BCI	Medium - treed areas including forests may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide

Appendix I. Species at Risk Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source Identifying Species Record (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
								abandoned mines that are humid and remain above freezing.Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.	bark) habitat is available.		anthropogenic roosting habitat for this species.	anthropogenic roosting habitat for this species.	anthropogenic roosting habitat for this species.
Mammals	Northern Long-eared Myotis	*Myotis septentrionalis*	N/A	S3	END	END Schedule 1	END	Northern Long-eared Bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April. The Northern Long-eared Bat overwinters in cold and humid hibernacula (caves/mines). Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies in buildings or large-diameter trees. Foraging occurs along waterways, forest edges, and in gaps in the forest. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	BCI	Medium - treed areas including forests may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.
Mammals	Tri-coloured Bat	*Perimyotis subflavus*	N/A	S3?	END	END Schedule 1	END	During the summer, the Tri-colored Bat is found in a variety of forested habitats. It forms day roosts and maternity colonies in older forest and occasionally in barns or other structures. They forage over water and along streams in the forest. Tri-colored Bats eat flying insects and spiders gleaned from webs. At the end of the summer they travel to a location where they swarm; it is generally near the cave or underground location where they will overwinter. They overwinter in caves where they typically roost by themselves rather than part of a group.The Tri-colored Bat overwinters in cold and humid hibernacula (caves/mines). Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies in buildings or large-	0	BCI	Medium - treed areas including forests may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.	Medium - treed areas including forests and cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.

Appendix I. Species at Risk Habitat Screening for the Ontario Line Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source Identifying Species Record (See Note 6)	Probability of Occurrence based on Presence of Suitable Habitat: OLW Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLS Study Area	Probability of Occurrence based on Presence of Suitable Habitat: OLN Study Area
								diameter trees. Foraging occurs over water, along waterways, and forest edges. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.					
Plant	Butternut	*Juglans cinerea*	2004	S2?	END	END Schedule 1	END	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry, rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.Butternut occurs primarily in neutral to calcareous soils of pH 5.5 to 8, often in regions with underlying limestone, and is generally absent from acidic regions. It tends to reach greatest abundance in rich well-drained mesic loams in floodplains, streambanks, terraces, and ravine slopes, but can occur in a wide range of other situations. In closed-canopy stands, it must be in the overstory to thrive. Seedling establishment, growth, and survival to maturity are most frequent in stand openings, riparian zones, and forest edges.	FOD and mature hedgerows; Soil: dry rocky or moist (4, 5, 6) to fresh (2, 3).	NHIC	Medium - forests and hedgerows may provide suitable habitat for butternut. There no records based on available secondary source information.	Medium - Butternuts may occur within the hedgerows within the Metrolinx rail corridor.	High - suitable habitat is present within the forested Don River valleyland. One butternut was incidentally recorded within the Millwood Road Area of Investigation.
Reptiles	Blanding's Turtle	*Emydoidea blandingii*	2017	S3	THR	THRSchedule 1	END	Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. They can also occur in slow flowing rivers and creek and artificial channels (MECP, 2019). It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April.In the Great Lakes/St. Lawrence population, Blanding's Turtles are often observed using clear water, eutrophic wetlands. Blanding's Turtles have strong site fidelity but may use several connected water bodies throughout the active season. Females nest in a variety of substrates including sand, organic soil, gravel, cobblestone, and soil-filled crevices of rock outcrops. Adults and juveniles overwinter in a variety of water bodies that maintain pools averaging about 1 m in depth; however, hatchling turtles have been observed hibernating terrestrially during their first winter. Reported mean home ranges generally fall between 10-60 ha (maximum 382 ha) or 1000-2500 m (maximum 7000 m); however, most studies likely underestimate Blanding's Turtle home range size because few have utilized GPS loggers to track daily movements throughout one or more entire active seasons.	SWT2, SWT3, SWD, SWM, MAS2, SAS1, SAM1, where open water is present.	ORAA	Low - suitable habitat is not present. Study Area is largely urbanized.	Low - suitable habitat is not present. Study Area is largely urbanized and this species is not likely present in moderately flowing waters of the Don River.	Low - suitable habitat is not present. Study Area is largely urbanized and this species is not likely present in moderately flowing waters of the Don River.

Appendix I. Species at Risk Habitat Screening for the Ontario Line Study Area

Glossary and Notes

1 S-rank: **The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at http://explorer.natureserve.org/nsranks.htm:**

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.
S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 - Secure—Common, widespread, and abundant in the nation or state/province.
SNR - Unranked—Province conservation status not yet assessed.
SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.
N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.
M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.
Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

2 ESA Status: **The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:**

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.
THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.
SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.
NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.

3 SARA Status: **The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:**

END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.
THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.
SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.
No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.
NAR (Not at Risk)– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.
Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.
Schedule 2 - Species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3 - Species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm

4 COSEWIC: **Committee on the Status of Endangered Wildlife in Canada - a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.**

5 Preferred Habitat / Known Species Range: The following references were used to describe preferred habitat and/or known species ranges:

- Species at Risk . Ontario Ministry of Natural Resources. http://www.mnr.gov.on.ca/en/Business/Species/index.html. © Queens Printer For Ontario, 2013.
- Species at Risk Status Reports. Committed on the Status of Endangered Wildlife in Canada. Ottawa. http://www.sararegistry.gc.ca/search/advSearchResults_e.cfm?stype=doc&docID=18.
- Evans, Melissa, Elizabeth Gow, R. R. Roth, M. S. Johnson and T. J. Underwood. 2011. Wood Thrush (Hylocichla mustelina), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology;

doi:10.2173/bna.246
Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/246

- McCarty, John P. 1996. Eastern Wood-Pewee (Contopus virens), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/245

doi:10.2173/bna.245

6 Sources Identifying Species Record: Records of species were identified from the following secondary sources unless otherwise stated:

BCI -Bat Conservation International (BCI), 2019: Species Profiles. Accessed from:http://www.batcon.org/resources/media-education/species-profiles
OBBA -Bird Studies Canada (BSC), Environment Canada – Canadian Wildlife Service (EC-CWS), Ontario Nature, Ontario Field Ornithologists (OFO) and Ontario Ministry of Natural Resources and Forestry (MNRF), 2006: Ontario Breeding Bird Atlas (OBBA) website. Accessed 2019 from: http://www.birdsontario.org/atlas/index.jsp
NHIC - Ontario Ministry of Natural Resources and Forestry (MNRF), 2019: Natural Heritage Information Centre (NHIC) Rare Species Database. Accessed 2019 from: http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US
ORAA - Ontario Nature, 2020: Ontario Reptile and Amphibian Atlas Program. Accessed 2020 from: http://www.ontarionature.org/protect/species/herpetofaunal_atlas.php
OBA - Macnaughton, A., Layberry, R., Jones, C. and B. Edwards, 2020: Ontario Butterfly Atlas Online. Accessed 2020 from: http://www.ontarioinsects.org/atlas_online.htm
DFO - Fisheries and Oceans Canada (DFO). 2020: Aquatic Species at Risk Mapping. Accessed 2020 from: http://www.dfo-mpo.gc.ca/species-especes/fpp-ppp/index-eng.htm
TRCA - flora and fauna records received from TRCA on February 27, 2018
MNRF - records from MNRF based on email correspondence on January 30, 2018

Other References Used:

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurrary, 1998: Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

MICHIGAN FLORA ONLINE. A. A. Reznicek, E. G. Voss, & B. S. Walters. February 2011. University of Michigan. Web. January 14, 2020. https://michiganflora.net/species.aspx?id=1950.