Appendix B

Natural Environment

Appendix B.1	Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo (AECOM, Oct. 2016)
Appendix B.2	Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo Update (AECOM, Nov. 2021)

Appendix B.1
Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo (AECOM, Oct. 2016)

PARK LAWN LAKE SHORE TRANSPORTATION MASTER PLAN

AECOM
30 Leek Crescent, Floor 4
Richmond Hill, ON, Canada L4B 4N4
www.aecom.com
905 882 4401 tel
905 882 4399 fax

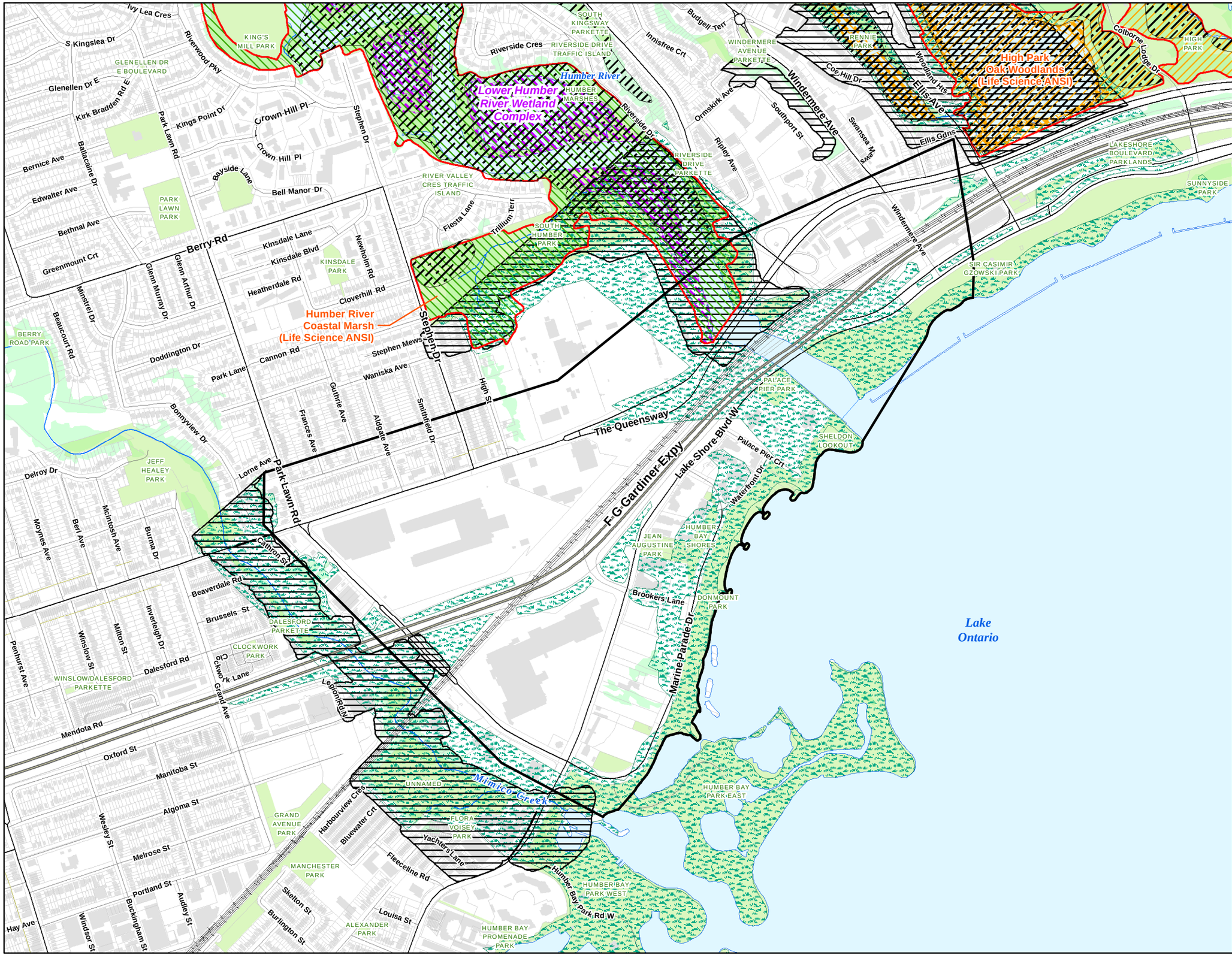
Memorandum

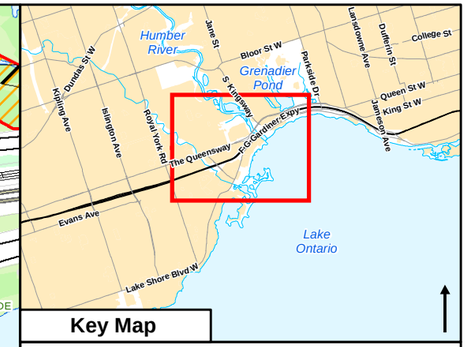
To	Diana Addley, Environmental Planner, AECOM	Page	1
CC	Sheri Harmsworth, Project Manager		
Subject	Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo - CONFIDENTIAL		
From	Carla Korpijaakko, Ashley Minion, Olga Hropach Ecologists, AECOM		
Date	October 27, 2016	Project Number	60494141

1. Introduction

AECOM Canada has been retained by the City of Toronto to undertake a comprehensive Transportation Master Plan (TMP) under a Municipal Class Environmental Assessment (MCEA) process for the Park Lawn/Lake Shore Area. For the purposes of this assessment, AECOM carried out a background information review on the existing aquatic and terrestrial conditions within the Primary Study Area, which is bounded by Park Lawn Road to the west, the Queensway to the north, Windermere Avenue to the east and Lake Ontario shoreline to the south (refer to **Figure 1** for the Primary Study Area boundaries). The following natural environment and natural heritage features have been reviewed and are discussed in this Technical Memorandum:

- Applicable natural heritage polices and guidelines;
- Terrestrial Wetlands;
- Areas of Natural and Significant Interest (ANSIs);
- Environmentally Significant Areas (ESAs);
- Policy protected areas;
- Terrestrial natural habitats, including vegetation communities and flora;
- Watercourses and hydrological features;
- Surface water and fisheries;
- Significant aquatic features, including species and habitat;
- Wildlife and habitats;
- Species at Risk (SAR) under the *Endangered Species Act, 2007* (ESA); and
- Species of Conservation Concern (SOCC).





Key Map

Parklawn / Lakeshore TMP Study Area

- Primary Study Area

City of Toronto Natural Heritage

- Ravine and Natural Features Protection
- Natural Heritage System
- Environmentally Significant Areas (ESAs)

Areas of Natural and Significant Interest (ANSIs)

- Provincial - Life Science
- Regional Candidate - Life Science

Wetlands by Significance

- Unevaluated Wetland
- Provincially Significant Wetland

Base Features

- Freeway
- Major Road
- Local Road
- Ramp
- Alleyway / Laneway
- Service
- Railroad
- Parcels
- Buildings
- Water Feature
- City of Toronto Parks
- Wooded Area

0 125 250 500 Meters

N

Park Lawn Road / Lakeshore TMP Terrestrial Ecology Technical Memo

TERRESTRIAL NATURAL HERITAGE FEATURES

July, 2016	1:10,000	Datum: NAD 83, Zone 17 Source: City of Toronto, MNRF, LIO
P#: 60494141	V#: 001	

Figure 1.0

AECOM

Map location: P:\60494141\900-Work\820_929_GIS\Maps\Working\60494141_Fig1_TerrestrialMemo.mxd
Date Saved: 7/20/2016 9:49:48 AM

2. Methods

2.1 Background Review

A background information review was conducted using secondary sources and correspondence with relevant agencies. The information collected from secondary resources and agencies was used to develop a comprehensive understanding of the terrestrial environment and wildlife potentially occurring within the Primary Study Area. The following secondary sources were analyzed to establish existing conditions and identify data gaps:

- **Guidance and Reference Documents:**
  - *Natural Heritage Reference Manual Second Edition* (MNRF, 2010);
  - *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015);
  - *City of Toronto Official Plan* (City of Toronto, 2010); and
  - *Provincial Policy Statement 2014* (MMAH, 2014).
- **Previous Technical Studies:**
  - *Ecosystems Existing Conditions Report Ellis Av & Colborne Lodge Dr (H1) Wetland (ETWP014A) Final* (AECOM, 2016)
- **Interactive Mapping Sites:**
  - MNRF Make-A-Map: Natural Heritage Areas and Natural Heritage Information Centre (NHIC) Rare Species Records (MNRF, 2014);
  - City of Toronto Interactive Map – Environmentally Significant Areas (City of Toronto, n.d.-a);
  - City of Toronto Interactive Map – Toronto Maps Version 2 (City of Toronto, n.d.-b);
  - Important Bird Areas (IBAs) Canada (IBA Canada, 2015); and,
  - DFO Aquatic Species at Risk Online Mapping Tool.
- **Wildlife Atlases:**
  - Atlas of the Breeding Birds of Ontario (OBBA) Website (BSC. *et al.*, 2006);
  - Ontario Reptile and Amphibian Atlas (Ontario Nature, 2016);
  - Atlas of the Mammals of Ontario (Dobbyn, 1994); and
  - Bat Conservation International (BCI) – Species Profile (2016).
- **City of Toronto**, mapping for:
  - City of Toronto Natural Heritage System (NHS)
  - Ravine and Natural Heritage Protection Areas
  - ESAs
- **Ministry of Natural Resources and Forestry (MNRF)** mapping from Land Information Ontario (LIO) for:
  - Provincial Parks;
  - Conservation Reserves;
  - Provincially Significant Wetlands (PSWs);
  - Unevaluated Wetlands;
  - Wooded Areas; and
  - ANSIs.

2.2 Agency Consultation

Written requests (submitted via email) were made to relevant agencies for information, not otherwise publicly-available, pertaining to natural heritage features within the Primary Study Area, including PSWs, ANSIs, ESAs, terrestrial species records (such as plants, birds, and other wildlife, rare species and SAR), Ecological Land Classification (ELC) mapping and other related GIS layers. **Table 2-1** lists the agencies contacted, information source, and data or information obtained.

Table 2-1: Summary of Agency Consultation

Agency	Date and Data and/or Information Requested	Date and Data and/or Information Obtained
City of Toronto	• May 20, 2016 - City of Toronto requested internally for shapefiles to be provided to AECOM.	• May 30, 2016 – City of Toronto provided the following GIS shapefiles: – Topography – Environmentally Significant Areas – City of Toronto's Natural Heritage System – Ravine and Natural Heritage Protection Areas – Provincially Significant Wetland
Ministry of Natural Resources and Forestry (MNRF)	• June 21, 2016: AECOM requested natural heritage and fisheries information relevant to the Primary Study Area, including SAR records.	• August 5, 2016 – MNRF indicated records of SAR in the Primary Study Area and provided the Ontario Wetlands Evaluation System Report for Lower Humber River Provincially Significant Wetland and fish records. Records of Bridle shiner (Special Concern) and Pugnose minnow (Threatened) were identified within the Lower Humber River Complex.
Toronto Region and Conservation Authority (TRCA)	• June 21, 2016: AECOM requested natural heritage and fisheries information relevant to the Primary Study Area, including ELC mapping as well as flora and fauna records and fish records.	• July 4, 2016 - TRCA provided fish records, ELC mapping, as well as flora and fauna records to AECOM under the condition that this information is kept internal, confidential and not made public as specified in the signed Data Sharing Agreement.

2.3 Terrestrial Field Investigations

Terrestrial field investigations were not completed at this Phase of the MCEA, as the ELC data and mapping obtained from TRCA was considered to be sufficient. Where gaps in TRCA's ELC data were identified within the Primary Study Area, AECOM completed a desktop review using Google Earth to delineate and classify vegetation communities to the community series through aerial photography interpretation following the protocols outlined in the ELC Manual for Southern Ontario (Lee *et al.*, 1998). In addition, gaps were also supplemented by studies completed by AECOM for other Projects within the Primary Study Area as described in **Section 4.1.2.3**.

2.4 Aquatic Field Investigations

Aquatic field investigations were completed on July 27, 2016 to determine significant aquatic features, including sensitive habitat. Background information was requested from the TRCA and the MNRF, to supplement the field investigations completed by AECOM.

3. Relevant Legislation and Policies

3.1 Federal Migratory Birds Convention Act, 1994 (MBCA)

This Act provides protection to migratory birds, their habitats and nests at the federal level by prohibiting the destruction of active migratory bird nests. Currently, 700 migratory bird species are protected under this Act, including songbirds, woodland birds, waterfowl, shorebirds and seabirds. Although no permit is required by the legislation, appropriate timing constraints on disruptive activities such as vegetation clearing (e.g., tree removal) where migratory birds may be nesting are required to avoid contravention of this Act.

3.2 Federal Fisheries Act, 2012 (revised)

The Fisheries Act contains two key provisions on conservation and protection of fish habitat essential to sustaining freshwater and marine fish species. The Department of Fisheries and Oceans administers section 35, the key habitat protection provision, prohibiting any work or undertaking that would cause the harmful alteration, disruption or destruction of fish habitat.

3.3 Federal Species at Risk Act, 2005 (SARA)

The SARA protects and ensures the recovery of SAR listed on Schedule 1 as Extirpated, Endangered and Threatened, and their critical habitats at a federal level; these species are protected on federal lands (First Nations reserves, national parks, etc.). Schedule 1 of the SARA classifies SAR as follows:

- **Extirpated (EXP)** - a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild (SARA Registry, 2012).
- **Endangered (END)** - a wildlife species that is facing imminent extirpation or extinction (SARA Registry, 2012).
- **Threatened (THR)** - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction (SARA Registry, 2012).
- **Special Concern (SC)** - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats (SARA Registry, 2012).

SARA also manages Species of Special Concern by identifying proactive management measures to prevent them from becoming endangered or threatened. This Act includes prohibitions against killing, harming, harassing, capturing or taking an individual of a SAR, prohibits the destruction of their critical habitats and can impose restrictions on development and construction projects; however, in Ontario, SARA is superseded by the provincial ESA in most cases.

3.4 Provincial Endangered Species Act, 2007 (ESA)

The ESA provides protection and recovery strategies for SAR in Ontario. Methods of protection include protection of SAR habitat, support for private and public organizations, recovery of species, and strict enforcement (Ontario, 2012). This regulation applies to Extirpated, Endangered and

Threatened species. Species of Special Concern are not protected under the Act. The above designations are defined as follows:

- **Extirpated (EXP)** - A species that no longer exists in the wild in Ontario but still occurs elsewhere.
- **Endangered (END)** – A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
- **Threatened (THR)** - A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- **Special Concern (SC)** - A species with characteristics that make it sensitive to human activities or natural events.

The Act prohibits the killing, harming, harassing, capturing, selling and trading an individual of a SAR and prohibits destruction of their habitats. Species listed as Extirpated, Endangered or Threatened under the ESA automatically receive general habitat protection. Any activities proposing to harm or destroy the species or their habitat require a Permit and/or other authorizations from the MNRF.

3.5 Provincial Policy Statement, 2014 (PPS)

Section 2.1.1 of the *Provincial Policy Statement* (PPS) states that Natural Features and Areas shall be protected for the long term. Natural Features and Areas are defined under the PPS to include the following natural heritage features:

- significant wetlands in Ecoregions 5E, 6E and 7E1;
- significant coastal wetlands;
- significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;
- significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- significant wildlife habitat;
- significant areas of natural and scientific interest; and
- Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to Section 2.1.4(b) of the policy.

Under Sections 2.1.4 and 2.1.5 of the PPS, development and site alteration in or adjacent to the aforementioned Natural Features and Areas are prohibited unless it has been demonstrated that there will be no negative impacts on said features or on their ecological function through an environmental impact study.

According to the Natural Heritage Reference Manual (MNRF, 2010), significant wildlife habitat includes the habitat of SOCC, which consists of the following:

- Species with Provincial S-rank assigned by the Natural Heritage Information Centre (NHIC) as S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable;
- Species listed as Special Concern under the ESA; and

- Species identified as nationally endangered or threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which are not protected under the ESA.

Although SOCC do not receive legal protection under the ESA, they may be afforded protection under other Acts, such as the PPS, MBCA and *Ontario Fish and Wildlife Conservation Act, 1997*, and other planning documents.

4. Existing Conditions

The following sections summarize the information collected from background sources and data received from agencies as they pertain to aquatic and terrestrial natural heritage features and wildlife in the Primary Study Area.

4.1 Terrestrial Environment

4.1.1 Designated Natural Areas

There are several designated natural areas located in or in the vicinity of the Primary Study Area, including one (1) PSW and three (3) ESAs. Additionally, portions of the Primary Study Area are also located within the City of Toronto's Natural Heritage System and Ravine and Natural Features Protection By-law. A description of each of these designated areas is provided below. The locations of these designated natural areas are shown on **Figure 1.**

4.1.1.1 Provincially Significant Wetlands

The Provincially Significant Lower Humber River Wetland Complex is located within the Primary Study Area, along the west side of the Humber River and north of the Queensway (refer to **Figure 1**). This PSW consists of 15 wetlands, comprised of 84% swamps and 16% marsh (North-South Environmental Inc. and Dougan & Associates, 2009). The open wetlands support habitat for waterfowl species, including Mallard (*Anas platyrhynchos*), Canada Goose (*Branta canadensis*), Gadwall (*Anas strepera*) and Green-winged Teal (*Anas carolinensis*) (North-South Environmental Inc. and Dougan & Associates, 2009). The presence of large dead trees in this PSW provides habitat for bird species that nest in tree cavities such as Red-headed Woodpecker (*Melanerpes erythrocephalus*), for which there were two (2) active nests confirmed in 2003, as well as Hooded Merganser (*Lophodytes cucullatus*), Eastern Screech-owl (*Megascops asio*), American Kestrel (*Falco sparverius*), Wood Duck (*Aix sponsa*) and Hairy Woodpecker (*Leuconotopicus villosus*) (North-South Environmental Inc. and Dougan & Associates, 2009, MNRF, 2007a). Furthermore, this PSW acts as an important stopover area for migrating songbirds and is just over 7 km away from the West End of Lake Ontario Important Bird Area (North-South Environmental Inc. and Dougan & Associates, 2009). Reptile species that inhabit this PSW include Blanding's Turtle (*Emydoidea blandingii*), Northern Map Turtle (*Graptemys geographica*) and an abundance of Midland Painted Turtles (*Chrysemys picta*) (North-South Environmental Inc. and Dougan & Associates, 2009; MNRF, 2007a). Amphibians breeding in this area also include American Toad (*Anaxyrus americanus*), Northern Leopard (*Lithobates pipiens*) Frogs and Spotted Salamanders (*Ambystoma maculatum*).

There are no other PSWs, locally significant wetlands (LSWs) or unevaluated wetlands located in or in the vicinity of the Primary Study Area.

4.1.1.2 Areas of Natural and Scientific Interest

There are no ANSIs located within the Primary Study Area (refer to **Figure 1**). The nearest ANSI is the Provincially Significant High Park Oak Woodlands Life Science ANSI, located 38 m outside of the Primary Study Area.

4.1.1.3 Natural Heritage System – City of Toronto

Portions of the City of Toronto Natural Heritage System are located within the Primary Study Area (**Figure 1**). As described in Section 3.4 of the Official Plan (City of Toronto, 2010), the following features compose the Natural Heritage System and Inventory: 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 (2014).

4.1.1.4 Environmentally Significant Areas (ESAs)

ESAs are designated by the City of Toronto and form portions of the City's Natural Heritage System (refer to **Section 4.1.1**). These include natural heritage areas that are particularly significant (locally and/or regionally) which require additional protection to conserve their important ecological qualities and functions. According to the City of Toronto *Interactive Map – Environmentally Significant Areas* (City of Toronto, n.d.-a), there are three existing ESAs identified within 120 m of the Primary Study Area, which are summarized in **Table 4-1**.

Table 4-1: Summary of Existing ESAs in the Study Area

ESA Name	Characteristics, Rare Species and Communities, and Significant Ecological Function[1]	Area (ha)[1]	Distance from Primary Study Area Boundaries (approximate)
High Park	This ESA consists of black oak savannah and prairies, mature forests, ponds, aquatic and shallow marshes. There are 105 significant flora species, six significant vegetation communities and ten significant flora species.	83.3	44 m
Humber Valley	This ESA consists of cattail marshes, graminoid meadows and bottomland forests in the valley bottom, and deciduous forests on the slopes. Portions of the Provincially Significant Lower Humber River Wetland Complex are part of this ESA. There are 53 significant flora species, six significant vegetation communities and 15 significant fauna species. This ESA supports areas of waterfowl aggregations, important amphibian breeding habitat and acts as an important land linkage between the lake and the river corridor that facilitates wildlife movement.	43.5	11 m
Sassafras Site	This ESA contains black oak savannah remnants which are dominated by Black Oak (*Quercus velutina*) with large patches of Sassafras (*Sassafras albidum*) in the shrub layer. The ground cover is dominated by Little Bluestem (*Schizachyrium scoparium*). There are nine significant flora species and two significant vegetation communities.	1.5	353 m

Notes: 1. Descriptions of ESA characteristics, rare species and communities, significant ecological function and calculated areas were taken from Appendix 2 of the Environmentally Significant Areas in the City of Toronto (North-South Environmental Inc. et al., 2012).

4.1.1.5 Ravine and Natural Feature Protection By-law – City of Toronto

The Ravine and Natural Feature Protection By-law is enforced by the City of Toronto and protects natural features that are vulnerable to degradation due to removal of trees, changes in grade or lack of management (City of Toronto, n.d.-c). Ravine and natural features are important features in the City of Toronto and provide many ecological benefits and functions, including acting as wildlife corridors, preventing soil erosion, reducing storm flows and improving water quality of lakes and streams. Riparian areas along the Humber River and Mimico Creek fall within the Primary Study Area and are designated as ravine and natural features that receive protection under this By-law (City of Toronto, n.d.-b).As such, a permit may be required if the proponent intends to injure or destroy a healthy tree of any size, place or dump fill or alter the grade within these regulated areas (City of Toronto, n.d.-c). **Figure 1** shows the boundaries of these regulated areas within the Primary Study Area.

4.1.1.6 Important Bird Areas

(IBAs are areas that support avian fauna, including rare birds, large groups of birds and those species with limited geographical ranges and habitat that meet standardized, international and scientific criteria. Based on the review of IBA Canada's (2015) interactive map, there are no IBAs located in or in the vicinity of the Primary Study Area.

4.1.2 Terrestrial Vegetation

The Primary Study Area is located within the Lake Erie – Lake Ontario Ecoregion 7E, also called as the Carolinian Forest Ecosystem. An ecoregion is defined by the Ministry of Natural Resources and Forestry (MNRF) as "an area of land within which the response of vegetation to the features of landform follows a consistent pattern" and is "defined by a characteristic range and pattern of climatic variables" (MNRF, 2007b). Ecoregion 7E is the southernmost Ecoregion in Ontario and generally consists of a very flat landscape formed as a result of thick deposits of glacial and post-glacial sediments in the Late Wisconsin glacial period. The bedrock is primarily composed of exposed limestone, with the exception of the southern portion of the Niagara Escarpment. Wetlands and water are found on less than 2% of the ecoregion (MNRF, 2007b). Ecoregion 7E has the greatest diversity of flora and fauna species in Canada, and is home to approximately 2,200 species of herbaceous plants, 70 species of trees, and 400 species of birds (MNRF, 2007b).

According to the Forest Regions of Canada (Rowe, 1972), the Primary Study Area occurs within the Deciduous (Carolinian) Forest Region which are dominated by deciduous trees. Dominant tree species in this region predominantly consist of Sugar Maple (*Acer saccharum*) and American Beech (*Fagus grandifolia*) as well as Basswood (*Tilia americana*), Red Maple (*Acer rubrum*), White Oak (*Quercus alba*) and Bur Oak (*Quercus macrocarpa*) (Rowe, 1972).

The Primary Study Area is heavily urbanized and consists of industrial buildings, waterfront residential condominiums and city parks. The majority of the vegetation in the interior of the Primary Study Area consists of manicured lawns and planted vegetation in between buildings. Natural vegetation is primarily associated with Mimico Creek, Humber River and Lake Ontario shoreline which are present along the periphery of the Primary Study Area.

4.1.2.1 TRCA's ELC and Flora Records

The TRCA provided ELC mapping and associated data for within and in the vicinity of the Primary Study Area. The TRCA used Southern Ontario ELC system as outlined by the MNRF (Lee et al., 1998) to delineate and assess vegetation communities. This protocol classifies vegetation communities through the completion of a multi-layer (i.e., canopy, sub-canopy, ground cover, etc.) vegetation inventory. TRCA delineated vegetation communities within and in the vicinity of the Primary Study Area in 2004, 2010 and 2013 through field investigations. Common vegetation communities found within the Primary Study Area are described as follows. Description of community structure and species composition for each vegetation community type has been amalgamated from all years based on TRCA's provided data. TRCA's ELC communities are mapped on **Figure 2**.

Open Beach Bar (BBO)

Open beach bars are located along the Lake Ontario Shoreline within the Humber Bay Shores Park and consist of cobble-pebble beaches and armour shores.

The **Mineral Open Beach** (**BBO1**) consisted of a few scattered trees including Eastern Cottonwood (*Populus deltoides*) and Manitoba Maple (*Acer negundo*) which make up less than 10% of the tree canopy. The shrub cover (less than 10%) was dominated by Red-osier Dogwood (*Cornus sericea*) with lesser of Hybrid Willow (*Salix X rubens)*. The sparse ground cover consisted of Germander species (*Teucrium sp.*), European Bugleweed (*Lycopus europaeus*), Jewelweed (*Impatiens capensis*) and Butter and Eggs (*Linaria vulgaris*).

The **Rubble Open Shoreline** (**BBO2-A**) consisted of sparse Reed-canary Grass (*Phalaris arundinacea*), Jewelweed and Germander species in the ground cover with a few scattered shrubs of White Willows (*Salix alba*), Wych Elm (*Ulmus glabra*) and Purple-osier Willow (*Salix purpurea*).

Cultural Meadow (CUM)

There were a few cultural meadows consisting of native and non-native herbaceous species.

The native **Mineral Cultural Meadow** (**CUM1-a**) is located adjacent to the BBO1 and was largely dominated by ground cover species including grasses, Tall Goldenrod (*Solidago altissima*), Brown Knapweed (*Centaurea jacea*), Aster species (*Symphyotrichum sp.*), Bird's-foot Trefoil (*Lotus corniculatus*), Canada Thistle (*Cirsium arcense*) and Wild Carrot (*Daucus carota*). Scattered trees and shrubs that made up less than 10% and 10% to 25% of the tree and shrub canopies respectively, included Manitoba Maple, Trembling Aspen (*Populus tremuloides*), Siberian Elm (*Ulmus pumila*), Bur Oak (*Quercus* macrocarpa), Red Oak (*Quercus rubra*), Pin Oak (*Quercus palustris*), Red-osier Dogwood and Grey Dogwood (*Cornus racemosa*).

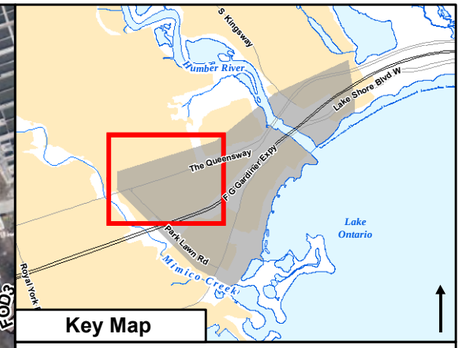
The other **Cultural Meadow** (**CUM1-c**) consisted of primarily grasses, Tall Goldenrod, Canada Thistle and Common St. John's Wort (*Hypercium perforatum*).

Cultural Plantation (CUP)

There are several cultural plantations identified by the TRCA along the Lake Ontario Shoelines and within the valleys of Mimico Creek and Humber River.

CODE	TRCA's ELC Vegetation Communities
BBO1	Mineral Open Beach
BBO2-A	Rubble Open Shoreline
CUM1-A	Native Forb Meadow
CUM1-c	Exotic Forb Meadow
CUP1-4	Hybrid Poplar Deciduous Plantation
CUP1-A	Restoration Deciduous Plantation
CUP1-f	Siberian Elm Deciduous Plantation
CUP2-G	Ash - Conifer Mixed Plantation
CUP3-H	Mixed Conifer Coniferous Plantation
CUS1-A1	Native Deciduous Successional Savannah
CUT1-1	Sumac Deciduous Thicket
CUT1-4	Grey Dogwood Deciduous Thicket
CUT1-A1	Native Deciduous Sapling Regeneration Thicket
CUT1-c	Exotic Deciduous Thicket
CUT1-E	Red Osier Dogwood Deciduous Thicket
CUT1-G	Willow Deciduous Thicket
CUW1-A3	Native Deciduous Successional Woodland
CUW1-b	Exotic Successional Woodland
FOD4-b	Dry-Fresh Manitoba Maple Deciduous Forest
MAS2-1A	Broad-leaved Cattail Mineral Shallow Marsh
MAS2-1b	Narrow-leaved Cattail Mineral Shallow Marsh
MAS2-7	Bur-reed Mineral Shallow Marsh
OAO1-T	Turbid Open Aquatic (unvegetated)
SAS1-1	Pondweed Submerged Shallow Aquatic
SWT2-2	Willow Mineral Thicket Swamp
TPO2-A	Fresh-Moist Tallgrass Prairie Planting

CODE	AECOM's Aerial Interpretation ELC Vegetation Ecosites
BBO1	Mineral Open Beach / Bar
CUM1	Mineral Cultural Meadow
CUT1	Mineral Cultural Thicket
CUW1	Mineral Cultural Woodland
FOD3	Dry – Fresh Poplar – White Birch Deciduous Forest



Legend

Primary Study Area

AECOM ELC Aerial Interpretation 2016

CUM1 CUW1 CUT1 FOD3

AECOM ELC results from Ecosystems Existing Conditions Report - Ellis Av & Colborne Lodge Dr (HI) Wetland (ETWP014A) Final (AECOM 2016)

CUM1-1 CUW1 CUT1-1 OAO

TRCA ELC

CUP3-H CUW1-b FOD4-b

PRIVATE and CONFIDENTIAL

N W E S

0 37.5 75 150

Meters

Park Lawn Road / Lakeshore TMP Terrestrial Ecology Technical Memo

ECOLOGICAL LAND CLASSIFICATION (ELC) Vegetation Communities

July, 2016	1:2,790	Datum: NAD 83, Zone 17 Source: City of Toronto, TRCA, MNRF, LIO Aerial: City of Toronto Web Map Service (WMS)
P#: 60494141	V#: 001	

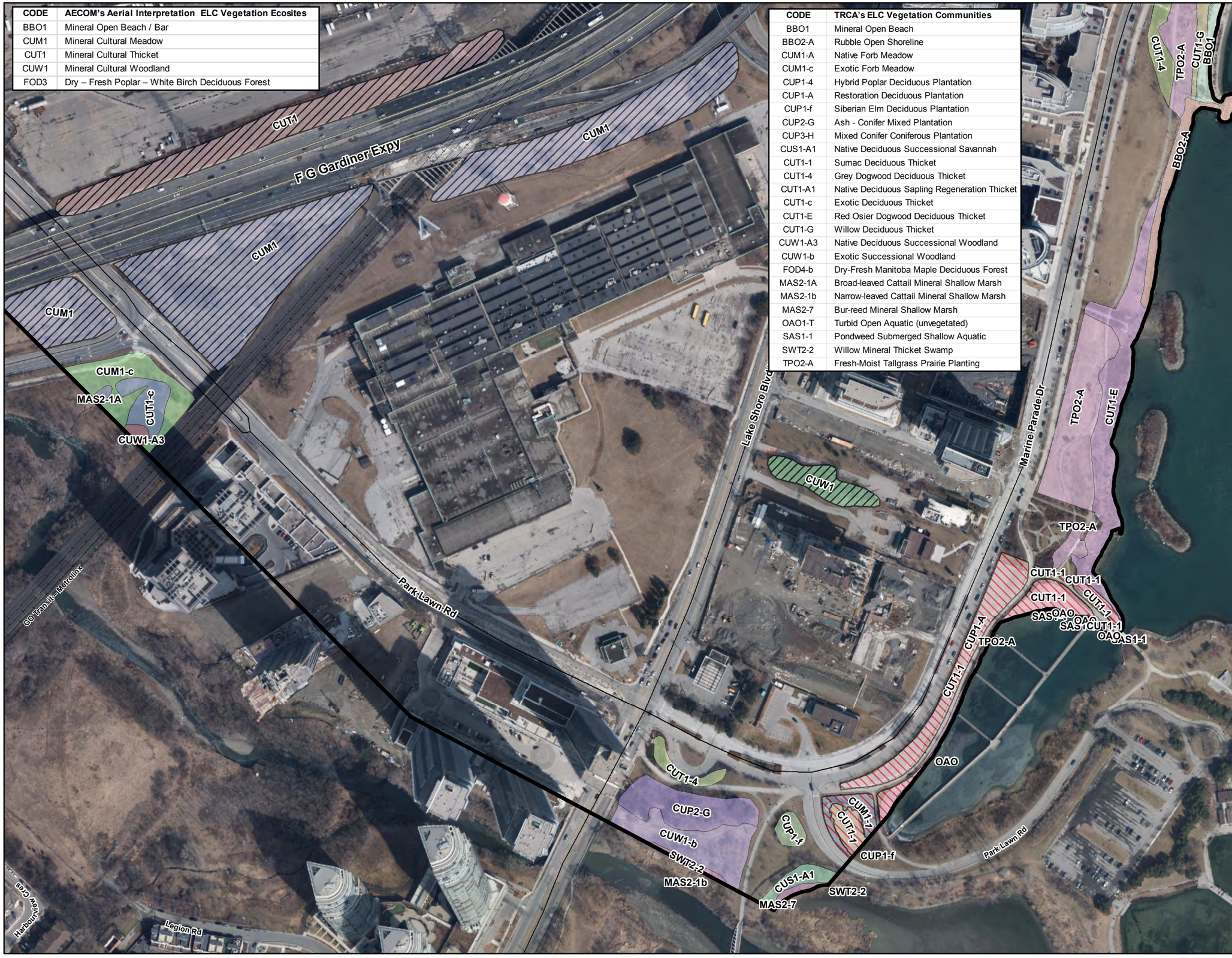
Figure 2.1

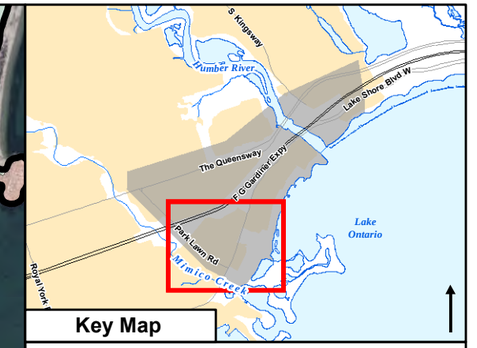
AECOM

Map location: P:\60494141\900-Work\920_929_GIS\Maps\Working\ELC Internal\60494141_Fig2_1_ELC_Int\mxd\mxd
Date Saved: 7/26/2016 8:56:00 AM

CODE	AECOM's Aerial Interpretation ELC Vegetation Ecosites
BBO1	Mineral Open Beach / Bar
CUM1	Mineral Cultural Meadow
CUT1	Mineral Cultural Thicket
CUW1	Mineral Cultural Woodland
FOD3	Dry – Fresh Poplar – White Birch Deciduous Forest

CODE	TRCA's ELC Vegetation Communities
BBO1	Mineral Open Beach
BBO2-A	Rubble Open Shoreline
CUM1-A	Native Forb Meadow
CUM1-c	Exotic Forb Meadow
CUP1-4	Hybrid Poplar Deciduous Plantation
CUP1-A	Restoration Deciduous Plantation
CUP1-f	Siberian Elm Deciduous Plantation
CUP2-G	Ash - Conifer Mixed Plantation
CUP3-H	Mixed Conifer Coniferous Plantation
CUS1-A1	Native Deciduous Successional Savannah
CUT1-1	Sumac Deciduous Thicket
CUT1-4	Grey Dogwood Deciduous Thicket
CUT1-A1	Native Deciduous Sapling Regeneration Thicket
CUT1-c	Exotic Deciduous Thicket
CUT1-E	Red Osier Dogwood Deciduous Thicket
CUT1-G	Willow Deciduous Thicket
CUW1-A3	Native Deciduous Successional Woodland
CUW1-b	Exotic Successional Woodland
FOD4-b	Dry-Fresh Manitoba Maple Deciduous Forest
MAS2-1A	Broad-leaved Cattail Mineral Shallow Marsh
MAS2-1b	Narrow-leaved Cattail Mineral Shallow Marsh
MAS2-7	Bur-reed Mineral Shallow Marsh
OAO1-T	Turbid Open Aquatic (unvegetated)
SAS1-1	Pondweed Submerged Shallow Aquatic
SWT2-2	Willow Mineral Thicket Swamp
TPO2-A	Fresh-Moist Tallgrass Prairie Planting





Key Map

Legend

Primary Study Area

AECOM ELC Aerial Interpretation 2016

CUM1 CUW1 CUT1

AECOM ELC results from Ecosystems Existing Conditions Report - Ellis Av & Colborne Lodge Dr (HI) Wetland (ETWP014A) Final (AECOM 2016)

CUM1-1 CUW1 CUT1-1 OAO

TRCA ELC

BBO1 CUT1-4 MAS2-1b
BBO2-A CUT1-E MAS2-7
CUM1-c CUT1-G SAS1-1
CUP1-A CUT1-c SWT2-2
CUP1-f CUW1-A3 TPO2-A
CUP2-G CUW1-b
CUS1-A1 MAS2-1A

PRIVATE and CONFIDENTIAL

N W E S

0 37.5 75 150

Meters

Park Lawn Road / Lakeshore TMP Terrestrial Ecology Technical Memo

ECOLOGICAL LAND CLASSIFICATION (ELC) Vegetation Communities

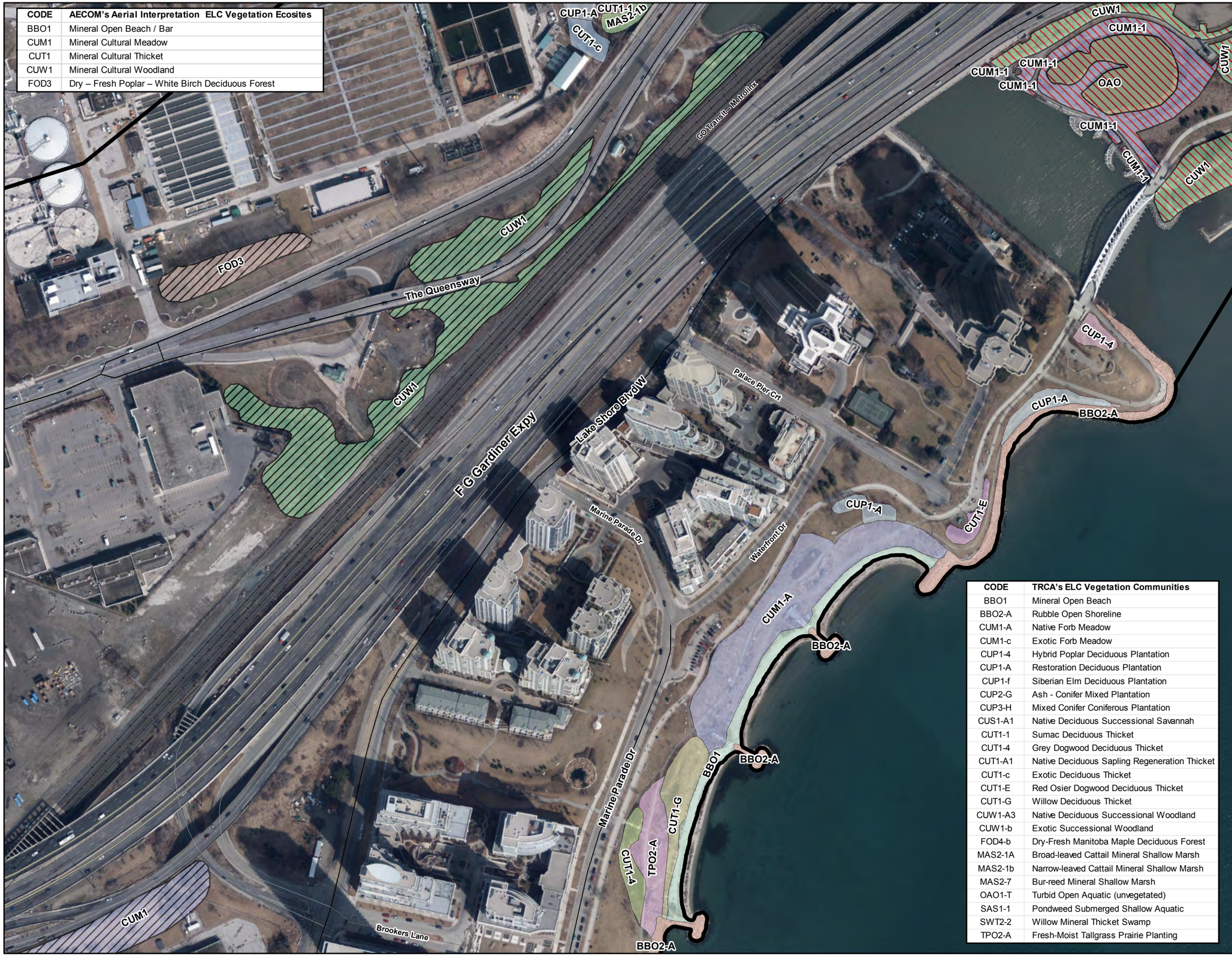
July, 2016	1:2,790	Datum: NAD 83, Zone 17 Source: City of Toronto, TRCA, MNRF, LIO Aerial: City of Toronto Web Map Service (WMS)
P#: 60494141	V#: 001	

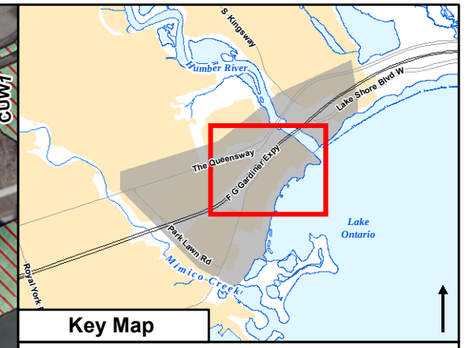
Figure 2.2

AECOM

Map Location: P:\60494141\900-Work\920_929_GIS\Maps\Working\ELC Internal\60494141_Fig2_2_ELC_Internal.mxd
Date Saved: 7/26/2016 9:02:24 AM

CODE	AECOM's Aerial Interpretation ELC Vegetation Ecosites
BBO1	Mineral Open Beach / Bar
CUM1	Mineral Cultural Meadow
CUT1	Mineral Cultural Thicket
CUW1	Mineral Cultural Woodland
FOD3	Dry – Fresh Poplar – White Birch Deciduous Forest





Legend

Primary Study Area

AECOM ELC Aerial Interpretation 2016

CUM1, FOD3, CUW1

AECOM ELC results from Ecosystems Existing Conditions Report - Ellis Av & Colborne Lodge Dr (HI) Wetland (ETWP014A) Final (AECOM 2016)

CUM1-1, CUW1, CUT1-1, OAO

TRCA ELC

BBO1, CUP1-A, CUT1-G, BBO2-A, CUT1-1, CUT1-c, CUM1-A, CUT1-4, MAS2-1b, CUP1-4, CUT1-E, TPO2-A

CODE	TRCA's ELC Vegetation Communities
BBO1	Mineral Open Beach
BBO2-A	Rubble Open Shoreline
CUM1-A	Native Forb Meadow
CUM1-c	Exotic Forb Meadow
CUP1-4	Hybrid Poplar Deciduous Plantation
CUP1-A	Restoration Deciduous Plantation
CUP1-f	Siberian Elm Deciduous Plantation
CUP2-G	Ash - Conifer Mixed Plantation
CUP3-H	Mixed Conifer Coniferous Plantation
CUS1-A1	Native Deciduous Successional Savannah
CUT1-1	Sumac Deciduous Thicket
CUT1-4	Grey Dogwood Deciduous Thicket
CUT1-A1	Native Deciduous Sapling Regeneration Thicket
CUT1-c	Exotic Deciduous Thicket
CUT1-E	Red Osier Dogwood Deciduous Thicket
CUT1-G	Willow Deciduous Thicket
CUW1-A3	Native Deciduous Successional Woodland
CUW1-b	Exotic Successional Woodland
FOD4-b	Dry-Fresh Manitoba Maple Deciduous Forest
MAS2-1A	Broad-leaved Cattail Mineral Shallow Marsh
MAS2-1b	Narrow-leaved Cattail Mineral Shallow Marsh
MAS2-7	Bur-reed Mineral Shallow Marsh
OAO1-T	Turbid Open Aquatic (unvegetated)
SAS1-1	Pondweed Submerged Shallow Aquatic
SWT2-2	Willow Mineral Thicket Swamp
TPO2-A	Fresh-Moist Tallgrass Prairie Planting

PRIVATE and CONFIDENTIAL

N, W, E, S

0 37.5 75 150

Meters

Park Lawn Road / Lakeshore TMP Terrestrial Ecology Technical Memo

ECOLOGICAL LAND CLASSIFICATION (ELC) Vegetation Communities

July, 2016	1:2,790	Datum: NAD 83, Zone 17 Source: City of Toronto, TRCA, MNRF, LIO Aerial: City of Toronto Web Map Service (WMS)
P#: 60494141	V#: 001	

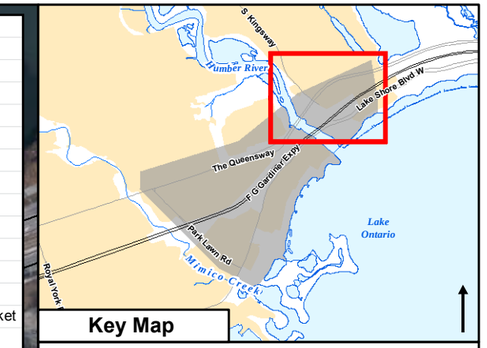
Figure 2.3

AECOM

Map location: P:\60494141\900-Work\920_929_GIS\Maps\Working\ELC Internal\60494141_Fig2_3_ELC_Internal.mxd
Date Saved: 7/20/2016 8:38:46 AM

CODE	AECOM's Aerial Interpretation ELC Vegetation Ecosites
BBO1	Mineral Open Beach / Bar
CUM1	Mineral Cultural Meadow
CUT1	Mineral Cultural Thicket
CUW1	Mineral Cultural Woodland
FOD3	Dry – Fresh Poplar – White Birch Deciduous Forest

CODE	TRCA's ELC Vegetation Communities
BBO1	Mineral Open Beach
BBO2-A	Rubble Open Shoreline
CUM1-A	Native Forb Meadow
CUM1-c	Exotic Forb Meadow
CUP1-4	Hybrid Poplar Deciduous Plantation
CUP1-A	Restoration Deciduous Plantation
CUP1-f	Siberian Elm Deciduous Plantation
CUP2-G	Ash - Conifer Mixed Plantation
CUP3-H	Mixed Conifer Coniferous Plantation
CUS1-A1	Native Deciduous Successional Savannah
CUT1-1	Sumac Deciduous Thicket
CUT1-4	Grey Dogwood Deciduous Thicket
CUT1-A1	Native Deciduous Sapling Regeneration Thicket
CUT1-c	Exotic Deciduous Thicket
CUT1-E	Red Osier Dogwood Deciduous Thicket
CUT1-G	Willow Deciduous Thicket
CUW1-A3	Native Deciduous Successional Woodland
CUW1-b	Exotic Successional Woodland
FOD4-b	Dry-Fresh Manitoba Maple Deciduous Forest
MAS2-1A	Broad-leaved Cattail Mineral Shallow Marsh
MAS2-1b	Narrow-leaved Cattail Mineral Shallow Marsh
MAS2-7	Bur-reed Mineral Shallow Marsh
OAO1-T	Turbid Open Aquatic (unvegetated)
SAS1-1	Pondweed Submerged Shallow Aquatic
SWT2-2	Willow Mineral Thicket Swamp
TPO2-A	Fresh-Moist Tallgrass Prairie Planting



Key Map

Legend

Primary Study Area

AECOM ELC Aerial Interpretation 2016

BBO1 · CUT1 · CUM1 · CUW1

AECOM ELC results from Ecosystems Existing Conditions Report - Ellis Av & Colborne Lodge Dr (HI) Wetland (ETWP014A) Final (AECOM 2016)

CUM1-1 · CUW1 · CUT1-1 · OAO

TRCA ELC

CUP1-A · CUT1-c · OAO1-T · CUT1-1 · FOD4-b · CUT1-A1 · MAS2-1b

PRIVATE and CONFIDENTIAL

N W E S

0 37.5 75 150

Meters

Park Lawn Road / Lakeshore TMP Terrestrial Ecology Technical Memo

ECOLOGICAL LAND CLASSIFICATION (ELC) Vegetation Communities

July, 2016	1:2,790	Datum: NAD 83, Zone 17 Source: City of Toronto, TRCA, MNRF, LIO Aerial: City of Toronto Web Map Service (WMS)
P#: 60494141	V#: 001	

Figure 2.4

AECOM

Map location: P:\60494141\900-Work\920_929_GIS\Maps\Working\ELC Internal\60494141_Fig2_4_ELC_Internal.mxd
Date Saved: 7/20/2016 8:32:54 AM

Hybrid Poplar Deciduous Plantations (**CUP1-4**) were prevalent and mainly dominated by Trembling Aspen in the tree canopy cover (35% to 60%). The ground cover (greater than 60%) of these young plantations generally consisted of the following common forb and grass species: Tall Goldenrod, New England Aster (*Symphyotrichum novae-angliae*), Common Burdock (*Arctium minus*), Awnless Brome (*Bromus inermis)* and Kentucky Bluegrass (*Poa pratensis)*.

There are several young and pioneer **Restoration Deciduous Plantations** (**CUP1-A**) that were likely planted by TRCA. Within these plantations the tree cover varied between less than 10% and 60% and consisted of Trembling Aspen, Silver Maple (*Acer saccharinum*), Green Ash (*Fraxinus pennsylvanica*), White Ash (*Fraxinus americana*), Bayleaf Willow (*Salix pentandra*), Red Oak and Siberian Elm. Shrub species included Staghorn Sumac (*Rhus hirta*), Red-osier Dogwood, Fragrant Sumac (*Rhus aromatica*), Grey Dogwood, Silver Maple, White Willow, Red Oak, Nannyberry (*Viburnum lentago*) and Pin Cherry (*Prunus pensylvanica*). Ground cover consisted of grasses, Tall Goldenrod, New England Aster, White Panicle Aster (*Symphyotricum lanceolatum*), Japanese Hedge Parsley (*Torilis japonica*), Canada Thistle and Purple Flowering Raspberry (*Rubus odouratus*).

The **Elm Deciduous Plantation** (**CUP1-f**) was primarily dominated (greater than 60%) by English Elm (*Ulmus procera*) with lesser of Trembling Aspen. The shrub cover (25$ to 35%) consisted of Staghorn Sumac, Bell's Hybrid Honeysuckle (*Lonicera X bella*) and Red-osier Dogwood. The Ground cover (35% to 60%) was composed of Garlic Mustard (*Alliaria petiolata)*, Japanese Hedge Parsley and grasses.

The **Ash – Conifer Mixed Plantation** (**CUP2-G**) primarily consisted of Green Ash, Austrian Pine (*Pinus nigra*), Eastern White Pine (*Pinus strobus*) and Black Locust (*Robinia pseudoacacia*). Shrub cover (25% to 60%) consisted of Common Lilac (*Syringa vulgaris*), Morrow's Honeysuckle (*Lonicera morrowii*) and Common Buckthorn (*Rhamnus cathartica*). Ground cover (10% to 35%) consisted of New England Aster, Tall Goldenrod, Japanese Hedge Parsley, Garlic Mustard and grasses.

The **Mixed Conifer Coniferous Plantation** (**CUP3-H**) was primarily dominated by Eastern White Cedar (*Thuja occidentalis*), Austrian Pine and Norway Spruce (*Picea abies*). Shrub cover (25% to 35%) was dominated by European Spindle Tree (*Euonymus europaea*), Bell's Hybdrid Honesuckle, Trembling Aspen and Riverbank Grape (*Vitis riparia*). The ground cover was dominated by Garlic Mustard with lesser of Bitter-sweet Nightshade (*Solanum dulcamara*).

Cultural Savannah (CUS)

This Mineral Cultural Savannah (**CUS1-A1**) is located along the shoreline south of Humber Bay Park Road East. The tree cover was minimal (10% to 25%) and dominated by Eastern Cottonwood, Hybrid Willow, Siberian Elm, White Elm (*Ulmus americana*) and Green Ash. The shrub cover (10% to 25%) was dominated by Morrow's Honeysuckle, Staghorn Sumac and Missouri River Willow (*Salix eriocephala*). The ground cover (35% to 60%) was dominated by Tall Goldenrod, New England Aster, Riverbank Grape, Canada Thistle, Japanese Hedge Parsley, Cow Vetch (*Vicia cracca*) and grasses.

Cultural Thicket (CUT)

There were several cultural thickets identified by TRCA including:

- Sumac Cultural Thicket (**CUT1-1**),
- Grey Dogwood Cultural Thicket (**CUT1-4**),

- Native Deciduous Sapling Regeneration Thicket (**CUT1-A1**),
- Exotic Deciduous Thicket (**CUT1-c**),
- Red-osier Dogwood Deciduous Thicket (**CUT1-E**), and
- Willow Deciduous Thicket (**CUT1-G**).

Common tree species recorded in these thickets include Staghorn Sumac, Manitoba Maple, Silver Maple, Green Ash and Eastern Cottonwood. Shrub species included Grey Dogwood, Common Buckthorn, Siberian Elm, Red-osier Dogwood, Sandbar Willow (*Salix interior*), Morrow's Honeysuckle and Fragrant Sumac. Common ground cover species included Tall Goldenrod, Butter and Eggs, Garlic Mustard, Bird's-foot Trefoil, Common Milkweed (*Asclepias syriaca*), Urban Avens (*Geum urbanum*), New England Aster, White Heath Aster (*Symphyotrichum ericoides*), Japanese Hedge Parsley and grasses.

Cultural Woodland (CUW)

There are two types of Cultural Woodlands as identified by TRCA, including, native **Deciduous Successional Woodland** (**CUW1-A3**) and **Exotic Successional Woodland** (**CUW1-b**). The tree canopy covers (35% to 60%) of these woodlands were dominated by either Eastern Cottonwood or Manitoba Maple with lesser of Hybrid Willow, Black Locust, Siberian Elm and White Willow. The shrub cover (25% to 35%) generally consisted of Siberian Elm, Multiflora Rose (*Rosa multiflora*), Staghorn Sumac and Choke Cherry (*Prunus virginiana*). Common ground species included Japanese Knotweed (*Fallopia japonica*), Tall Goldenrod, Garlic Mustard, Cow Vetch, White Sweet Clover (*Melilotus alba*) and grasses.

Deciduous Forest (FOD)

Dry – Fresh Manitoba Maple Deciduous Forests (**FOD4-b**) are associated with Mimico Creek and Humber Valley. The tree canopy (greater than 60%) is dominated by Manitoba Maple with some Siberian Elm, American Basswood (*Tilia americana*), Hybrid Willow and White Ash. The shrub cover varied between 10% and 35% and contained Bell's Hybrid Honeysuckle, Choke Cherry, Norway Maple (*Acer platanoide*s) and Manitoba Maple. The ground cover consisted of common herbaceous plants including Garlic Mustard, Japanese Hedge Parsley, Urban Avens, Enchanter's Nightshade (*Circaea lutetiana*), goldenrods and grasses.

Mineral Shallow Marsh (MAS)

Narrow-leaved Cattail Mineral Shallow Marshes (**MAS2-1b**) are largely associated with the Humber Valley and are part of the Provincially Significant Lower Humber River Wetland Complex. These were predominately composed of Glaucous Hybrid Cattail (*Typha X glauca*). Other plants recorded in this community by TRCA included Softstem Bulrush (*Schoenoplectus tabernaemontani*), Purple Loosestrife (*Lythrum salicaria*), Reed-canary Grass, Jewelweed, Marsh-pepper Smartweed (*Persicaria hydropiper*), Greater Duckweed (*Spirodela polyrrhiza*), Common Duckweed (*Lemna minor*) and Leafy Pondweed (*Potamogeton foliosus ssp. foliosus*).

Broad-leaved Cattail Mineral Shallow Marsh (**MAS2-1A**) was located near Mimino Creek and consisted of largely Broad-leaved Cattails (*Typha latifolia)* with lesser of Narrow-leaved Cattail (*Typha angustifolia*).

Bur-reed Mineral Shallow Marsh (**MAS2-7**) was located south of Humber Bay Park Road East along the shoreline of Lake Ontario. It was dominated by Broad-fruit Bur-reed (*Sparganium eurycarpum*), Glaucous Hybrid Cattail and River Bulrush (*Bolboschoenus fluviatilis*).

Swamp Thicket (SWT)

Willow Mineral Thicket Swamps (SWT2-2) were dominated by shrubs including Pussy Willow (*Salix discolor*), Missouri River Willow, and Sandbar Willow. A few trees were present such as Siberian Elm and White Elm. Ground cover consisted of Purple Loosestrife, Tall Goldenrod, Reed-canary Grass, Red-osier Dogwood, White Panicle Aster, Canada Anemone (*Anemone canadensis*), Common Reed (*Phragmites australis*), European Bugleweed, Canada Thistle and Ginger Hybrid Mint (*Mentha X gracilis*).

Open Tallgrass Prairie (TPO)

These **Fresh – Moist Tallgrass Prairies** (**TPO2-A**) were planted in 1999 through 2000 as part of the Humber Bay Butterfly Habitat along the Lake Ontario Shoreline in Humber Bay Shore Park. These were largely dominated (greater than 60%) by grass species including Kentucky Bluegrass, Red Fescue (*Festuca rubra ssp. rubra*), Old-switch Panic Grass (*Panicum virgatum),* Sideoats Grama (*Bouteloua curtipendula var. curtipendula*) and Meadow Fescue (*Schedonorus pratensis*). Forb species present within these communities included Tall Goldenrod, White Panicle Aster, New England Aster, Common Milkweed and Wild Bergamot (*Monarda fistulosa var. fistulosa*). Trees were sparse in these communities and composed of Eastern Cottonwood, Manitoba Maple, Siberian Elm, Bur Oak, Trembling Aspen, Choke Cherry and Green Ash.

The majority of the plant species that TRCA has recorded within these vegetation communities are common and widespread throughout Ontario; however, most of the vegetation communities contain non-native and /or invasive plants which are typical of an urbanized landscape. The TRCA has ranked the Bur-reed Mineral Shallow Marsh (MAS2-7) as of regional concern (L3); however, this community is limited to the shoreline of the Lake Ontario and is not expected to be impacted by the proposed alternatives. The Fresh – Moist Tallgrass Prairies (TPO2-A) are generally ranked as S1 and are provincially significant; however, this applies to natural tall grass remnants. Those tall grass prairies found in the Primary Study Area were planted as part of the Humber Bay Butterfly Habitat and are therefore not naturally occurring.

TRCA has also identified two provincially significant species, one (1) of which is also Threatened under the ESA. Dense Blazing-star (*Liatris spicata*) was recorded in the Open Tallgrass Prairie (TPO) and has a provincial S-rank of S2 as well as being listed as Threatened under the ESA. However, this plant was likely planted and not a wild occurrence. Swamp Rose-mallow (*Hibiscus moscheutos)* has a provincial S-rank of S3 and is listed as Special Concern. It was also located in the Open Tallgrass Prairie.

4.1.2.2 AECOM's Aerial Photography ELC Interpretation

Where ELC data from TRCA was unavailable within the Primary Study Area, AECOM supplemented these with an aerial photography interpretation using the ELC protocol. Interpretation was focused on naturalized areas rather than areas that were clearly planted or maintained within the road right of way or City Parks. The majority of these ELC communities were interpreted as cultural meadows, thickets and woodlands. These ELC communities are mapped on **Figure 2**. Using streetview on GoogleEarth, generally the most dominant type of trees in these areas consisted of Manitoba Maple, Russian Olive (*Elaeagnus angustifolia*), Black Walnut (*Juglans cinerae)* and Staghorn Sumac.

4.1.2.3 Ecosystems Existing Conditions Report, Ellis Avenue & Colborne Lodge Drive (H1) Wetland (ETWP014A) Final *(AECOM, 2016)*

There is no available ELC data from TRCA east of the Humber River and south of Lake Shore Boulevard West; however, AECOM completed ELC surveys on October 1, 2015 for a portion of this area as part of the Stormwater Management Pond Facility Condition Assessments for the City of Toronto.

AECOM biologists investigated vegetation communities surrounding the stormwater management pond and identified two (2) types of communities: **Cultural Woodland Ecosite** (**CUW1**) and **Mineral Cultural Meadow Ecosite** (**CUM1**). The methods and results of this survey are provided in detail in the *Ecosystems Existing Conditions Report Ellis Av & Colborne Lodge Dr (H1) Wetland (ETWP014A) Final (AECOM, 2016).* The plant composition and structure for each of these communities are briefly described as follows and mapped on **Figure 2**.

Cultural Woodland (CUW1)

Species within the canopy included Silver Maple, Black Maple *(Acer nigrum),* Norway Maple, Red Maple *(Acer rubrum),* Manitoba Maple, Colorado Spruce *(Picea pungens),* Bur Oak, Green Ash, Trembling Aspen, Common Hackberry *(Celtis occidentalis),* and White Elm. The ground cover consisted of occasional Common Milkweed*),* Orchard Grass *(Dactylis glomerata*), Wild Carrot, and Garlic Mustard.

Cultural Meadow Ecosite (CUM1)

Trees and shrubs adjacent to the stormwater pond were included as part of the cultural meadow community and included Silver Maple, Manitoba Maple, Colorado Spruce, Staghorn Sumac, and Gray Dogwood. Dominant herbaceous species included goldenrods, Wild Carrot, Canada Thistle, Cow Vetch, Wild Bergamot and Chicory *(Cichorium intybus)*.

4.1.3 Wildlife

4.1.3.1 Resident/Migratory Birds

A list of breeding bird species within or in the vicinity of the Primary Study Area was obtained from the Atlas of Breeding Birds of Ontario (OBBA) 2001-2005 Database (BSC *et al.*, 2006). The Primary Study Area falls within a 10 x 10 km UTM square (ID 17PJ23) wherein a total of 111 bird species with some level of breeding evidence were identified. A complete and detailed list of all of the bird species documented within or in the vicinity of the Primary Study Area is provided in **Appendix A**. Of these, five (5) species are designated as Threatened and protected under the ESA and five (5) species are designated as Special Concern.

4.1.3.2 Mammals

The City of Toronto contains a high diversity of urban wildlife that has adapted to survive in a heavily developed and densely populated area. Forested ravines, city parks and open spaces that make up the City of Toronto's Natural Heritage System provide important habitats for mammals (City of Toronto, 2012a). The forested ravines, such as those along the Humber River, act as wildlife

corridors and allow for the movement of mammals between different areas to seek food, shelter and mates (City of Toronto, 2012a). The Lake Ontario shorelines also provide important habitats (City of Toronto, 2012a).

According to the Atlas of the Mammals of Ontario (Dobbyn, 1994), Bats Conservation International (BCI, 2016), and fauna records provided by TRCA on July 4, 2016, there are records of 29 mammal species that occur or have been known to occur in or within the Primary Study Area; these are summarized in **Table 4-2**. The majority of these mammals are common and widespread throughout Ontario; however, the Little Brown Myotis (*Myotis lucifugus*), Eastern Small-footed Myotis (*Myotis leibii)*, Northern Long-eared Myotis (*Myotis septentrionalis)* and Tri-coloured Bat (*Perimyotis subflavus)* are designated as Endangered and are protected under the *ESA*.

Table 4-2: Records of Mammals in or within the Primary Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	ESA Status[2]
Bat	Little Brown Myotis	*Myotis lucifugus*	S4	END
	Hoary Bat	*Lasiurus cinereus*	S4	-
	Silver-haired Bat	*Lasionycteris noctivagans*	S4	-
	Eastern Red Bat	*Lasiurus borealis*	S4	-
	Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END
	Northern Long-eared Myotis	*Myotis septentrionalis*	S3	END
	Big Brown Bat	*Eptesicus fuscus*	S5	-
	Tri-coloured Bat	*Perimyotis subflavus*	S3?	END
Carnivore	Common Raccoon	*Procyon lotor*	S5	-
	Striped Skunk	*Mephitis mephitis*	S5	-
	Red Fox	*Vulpes 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	-
	Deer Mouse	*Peromyscus maniculatus*	S5	-
	Eastern Grey Squirrel	*Sciurus carolinensis*	S5	-
	Eastern Chipmunk	*Tamias striatus*	S5	-
	Groundhog	*Marmota monax*	S5	-
	House Mouse	*Mus musculus*	SNA	-
	Meadow Vole	*Microtus pennsylvanicus*	S5	-
	Norway Rat	*Rattus norvegicus*	SNA	-
	Muskrat	*Ondatra zibethicus*	S5	-
	Red Squirrel	*Tamiasciurus hudsonicus*	S5	-
	White-footed Mouse	*Peromyscus leucopus*	S5	-
Shrew	Northern Short-tailed Shrew	*Blarina brevicauda*	S5	-
	Common Shrew	*Sorex cinereus*	S5	-
Weasel	American Mink	*Mustela vison*	S4	-

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF Natural Heritage Information Centre (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.*

4.1.3.3 Herpetofauna

Wetland communities associated with the Humber River valley system as well as the lakeshore of Lake Ontario provides important amphibian and reptile habitats (City of Toronto, 2012b). Records from the Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2016) for in or within the vicinity of the Primary Study Area are summarized in **Table 4-3**. There are records of 20 amphibians known to occur in or within the Primary Study Area. The majority of these species are common and tolerant to urban disturbances with the exception of Blanding's Turtle, which is designated as Threatened, as well as Northern Map Turtle and Snapping Turtle (*Chelydra serpentina)*, which are designated as Special Concern under the ESA. In addition, Milksnake (*Lampropeltis Triangulum)* has a provincial S-Rank of S3 and is considered a SOCC.

Table 4-3: Records of Herpetofauna in or within the Primary Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	ESA Status[2]
Amphibian	American Bullfrog	*Lithobates catesbeianus*	S4	-
	American Toad	*Anaxyrus americanus*	S5	-
	Eastern Red-backed Salamander	*Plethodon cinereus*	S5	-
	Green Frog	*Lithobates clamitans*	S5	-
	Mudpuppy	*Necturus maculosus*	S4	-
	Northern Leopard Frog	*Lithobates pipiens*	S5	-
	Spring Peeper	*Pseudacris crucifer*	S5	-

Table 4-3: Records of Herpetofauna in or within the Primary Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	ESA Status[2]
	Western Chorus Frog (Carolinian Population)	*Pseudacris triseriata*	S4	-
	Wood Frog	*Lithobates sylvaticus*	S5	-
Snake	DeKay's Brownsnake	*Storeria dekayi*	S5	-
	Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5	-
	Milksnake	*Lampropeltis triangulum*	S3	-
	Northern Watersnake	*Nerodia sipedon sipedon*	S5	-
	Ring-necked Snake	*Diadophis punctatus*	S4	-
	Smooth Greensnake	*Opheodrys vernalis*	S4	-
Turtle	Blanding's Turtle	*Emydoidea blandingii*	S3	THR
	Midland Painted Turtle	*Chrysemys picta marginata*	S4	-
	Northern Map Turtle	*Graptemys geographica*	S3	SC
	Red-eared Slider	*Trachemys scripta elegans*	SE2	-
	Snapping Turtle	*Chelydra serpentina*	S3	SC

Notes 1 and 2 – See Notes at the Bottom of Table 4-2.

4.1.3.4 Significant Wildlife Habitats

The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015) was used to identify the presence of significant wildlife habitats (SWH) within the Primary Study Area based on the background review. The interior Primary Study Area primarily consists of residential and industrial buildings, paved roads and manicured grass lawns with minimal natural vegetation that does not support high functioning habitat for wildlife; however, natural areas associated with the Mimico Creek, Humber River and Lake Ontario Shoreline located on the periphery of the Primary Study Area may support SWH, including the following:

- Landbird Migratory Stopover Area
- Turtle Overwintering Areas
- Turtle Nesting Areas
- Amphibian Woodland / Wetland Breeding Habitats
- Amphibian Movement corridors

The Humber Bay Park located along the Lake Ontario Shoreline and Humber Marshes Areas, which are located along the Humber River, support approximately 1.84% and 0.75% of total migrant records collected by the Toronto Ornithological Club between 1990 and 2007 (Dougan & Associates and North-South Environmental Inc., 2009). The Provincially Significant Lower Humber River Wetland Complex acts as an important stopover area for migrating songbirds and is approximately 7 km from the West End of Lake Ontario Important Bird Area (North-South Environmental Inc. and Dougan & Associates, 2009). High Park, which is located approximately 44 m from the Primary Study Area, supports approximately 20% of total migrant songbirds and is the third most significant migratory bird stopover location in the City of Toronto (Dougan & Associates and North-South Environmental Inc., 2009).

Moreover, turtle overwintering areas include permanent water bodies and large wetlands with soft mud substrates, adequate dissolved oxygen and water levels deep enough so that it does not freeze entirely in the winter (MNRF, 2015). The Humber River, Lake Ontario and sections of Mimico Creek are potential turtle overwintering areas. In addition, sandy and gravel banks of these watercourses and waterbodies may also be used as turtle nesting areas as well.

The Provincially Significant Lower Humber River Wetland Complex likely also supports significant breeding populations and acts as an amphibian movement corridor. Generally, forested ravines, city parks and open spaces that make up the City's Natural Heritage System provide important land linkages that facilitate wildlife movement across the urbanized landscape (MNRF, 2000). The most significant wildlife movement corridor within the Primary Study Area is the Humber River Valley which supports the movement of migrant birds, mammals, amphibians, reptiles and insects (2012a and 2012b; Dougan & Associates and North-South Environmental Inc., 2009).

4.2 Aquatic Environment

The following sections summarize the information collected from background information sources, data received from agencies, and results from the aquatic field investigations as they pertain to fish and fish habitat features in the Primary Study Area.

4.2.1 The Humber River

Encompassing approximately 911 square kilometres (km^2), the Humber River Watershed is the largest watershed in the TRCA's jurisdiction. The Humber River headwaters originate on the Niagara Escarpment and the Oak Ridges Moraine and flow down the Humber River into Lake Ontario. The Humber River is a designated Canadian Heritage River due to its rich history in the area (TRCA, 2016).

The overall study area is largely defined by urbanization. The Primary Study Area encompasses many recreational paths, parks, beach areas, pedestrian bridges, a dog park, and major road arteries.

The Humber River was assessed within the Primary Study Area during a site visit completed on July 27, 2016, from the confluence at Lake Ontario to the PSW located approximately 250 m upstream of the Queensway overpass. A photo log of the aquatic field investigation is provided in **Appendix B**. At the confluence to Lake Ontario, the shoreline was hardened by armour stone, large boulders, and concrete walls. Residential condominiums and a paved pedestrian walkway are located immediately west of the pedestrian bridge, at Lake Ontario on the left bank looking upstream. Break-walls (shoreline protection) made of large armour stone were observed looking upstream at the right bank immediately upstream of the pedestrian bridge at the confluence to Lake Ontario. Vegetation was present between the asphalt path and residential area along the left bank looking upstream. The hardened shoreline along the Humber River continued under the Lake Shore Boulevard Bridge, the Gardiner Expressway Bridge and the Metrolinx rail bridge. These structures consist of an approximately 50 m span and the columns/piers supporting the structure is located within the River.

Immediately upstream of the Queensway Bridge, approximately 40 m north of the rail bridge, the shoreline on both the right and left banks are more naturalized. At this stretch of the Humber River, the wetted width is approximately 30-40 m. Large mature trees (Willow, Maple, Ash) were present on the right bank looking upstream with no hardening of the shoreline (i.e., rip-rap, gabions, etc.). The Lower Humber River Wetland Complex is located upstream of the Queensway Bridge, on the left bank looking upstream. This complex is listed as a PSW and is therefore afforded protection. The PSW complex adjacent to the river was approximately 20 m wide on the left bank looking upstream. Further upstream, the wetland was approximately 75 m wide and the wetted width of the river was 50 m. Unidentified Young of year (YOY) fish were observed near the wetland area at the upstream portion of the study area. Algae was prevalent however, no other instream vegetation was observed.

The substrate appeared to be a combination of sand and gravel with cobble and boulders observed throughout. The water appeared turbid near the wetland where little flow was present. The banks appeared moderately stable and well vegetated.

Overall, the Primary Study Area did not appear to provide much suitable habitat for fish due to the hardening of the shorelines and lack of near shore cover. The most suitable habitat was located at the most upstream section of the study area near the wetland complex, since the banks were naturalized and seemed to provide more cover structure for fish habitat, while the overhanging vegetation provided shade. While the shorelines aquatic habitats may be limiting, the estimated depth and width of the Humber River likely provides deep water refuge for species utilizing these types of habitats. No other specialized habitat was observed during the site reconnaissance. Given the connection of the Humber River to Lake Ontario, it is expected that the Humber River acts as a valuable migratory route for various species, including migratory salmonids

4.2.2 Fish Records

Background information received from the TRCA revealed a diverse population of fish species. Email correspondence from MNRF Biologist Mark Heaton, dated July 4, 2016, stated that the Lower Humber River has a resident warm water fish community and a migratory cold water community derived from Lake Ontario. A copy of the Lower Humber River PSW Evaluation Report (MNRF, 2007a) was provided by the MNRF on August 5, 2016, the findings of which indicated that a total of fifty (50) fish species have been recorded in the Lower Humber River PSW between 1975 and 2004. These fish records and associated significance are summarized in **Table 4-4** below. The majority of the fish species are common; however, Pugnose Minnow (*Opsopoeodus emiliae)* and Bridle Shiner (*Notropis bifrenatus*) are designated as Threatened and Special Concern under the ESA, respectively, and were recorded in 1996.

Table 4-4: MNRF Fish Records for the Lower Humber River PSW

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]
Alewife	*Alosa pseudoharengus*	SNA	-
Black Crappie	*Pomoxis nigromaculatus*	S4	-
Blacknose Dace	*Rhinichthys atratulus*	S5	-
Bluegill	*Lepomis macrochirus*	S5	-
Bluntnose Minnow	*Pimephales notatus*	S5	NAR
Bowfin	*Amia calva*	S4	-
Bridle Shiner	*Notropis bifrenatus*	S2	SC
Brook Stickleback	*Culaea inconstans*	S5	-
Brown Bullhead	*Ameiurus nebulosus*	S5	-
Brown Trout	*Salmo trutta*	SNA	-
Chinook Salmon	*Oncorhynchus tshawytscha*	SNA	-
Common Carp	*Cyprinus carpio*	SNA	-
Common Carp	*Cyprinus carpio*	SNA	-
Common Shiner	*Luxilus cornutus*	S5	-
Creek Chub	*Semotilus atromaculatus*	S5	-
Emerald Shiner	*Notropis atherinoides*	S5	-
Fantail Darter	*Etheostoma flabellare*	S4	-
Fathead Minnow	*Pimephales promelas*	S5	-
Freshwater Drum	*Aplodinotus grunniens*	S5	-
Gizzard Shad	*Dorosoma cepedianum*	S4	-
Golden Shiner	*Notemigonus crysoleucas*	S5	-
Goldfish	*Carassius auratus*	SNA	-
Hornyhead Chub	*Nocomis biguttatus*	S4	NAR
Johnny Darter	*Etheostoma nigrum*	S5	-
Lake Chub	*Couesius plumbeus*	S5	-

Table 4-4: MNRF Fish Records for the Lower Humber River PSW

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]
Largemouth Bass	*Micropterus salmoides*	S5	-
Longnose Dace	*Rhinichthys cataractae*	S5	-
Longnose Gar	*Lepisosteus osseus*	S4	-
Mimic Shiner	*Notropis volucellus*	S5	-
Northern Hog Sucker	*Hypentelium nigricans*	S4	-
Northern Pike	*Esox lucius*	S5	-
Pugnose Minnow	*Opsopoeodus emiliae*	S2	THR
Pumpkinseed	*Lepomis gibbosus*	S5	-
Rainbow Darter	*Etheostoma caeruleum*	S4	-
Rainbow Smelt	*Osmerus mordax*	S5	-
Rainbow Trout	*Oncorhynchus mykiss*	SNA	-
Redfin Shiner	*Lythrurus umbratilis*	S4	NAR
River Chub	*Nocomis micropogon*	S4	NAR
Rock Bass	*Ambloplites rupestris*	S5	-
Sand Shiner	*Notropis stramineus*	S4	-
Smallmouth Bass	*Micropterus dolomieu*	S5	-
Spotfin Shiner	*Cyprinella spiloptera*	S4	-
Spottail Shiner	*Notropis hudsonius*	S5	-
Stonecat	*Noturus flavus*	S4	-
Walleye	*Sander vitreus vitreus*	S5	-
White Bass	*Morone chrysops*	S4	-
White Crappie	*Pomoxis annularis*	S4	-
White Perch	*Morone americana*	SNA	-
White Sucker	*Catostomus commersoni*	S5	-
Yellow Perch	*Perca flavescens*	S5	-

Notes 1 and 2 – See Notes at the Bottom of Table 4-2.

4.3 Terrestrial Species at Risk and Species of Conservation Concern

The *Make-a-Map: Natural Heritage Areas Application* (MNRF, 2014) was used to search for NHIC rare species records within 1 km of the Primary Study Area. The results of this search are presented in **Table 4-5**. The majority of the rare species records obtained from NHIC are considered to be historical (i.e., those greater than 20 years old). Given the amount of urban development in recent years, it is considered unlikely that those species still occur in the Primary Study Area. However, more current records consist of three (3) SAR, including Blanding's Turtle, Barn Swallow and Butternut, and one (1) SOCC, Snapping Turtle.

Table 4-5: NHIC Rare Species Records within 1 km of the Primary Study Area

Taxon	Scientific Name	Common Name	S-Rank	ESA Status	Date Last Observed
Bird	*Hirundo rustica*	Barn Swallow	S4B	THR	2001-??-??
	Ixobrychus exilis	Least Bittern	S4B	THR	1915-05-22
Fish	*Clinostomus elongatus*	Redside Dace	S2	END	1952-09-28
Insect	*Polystoechotes punctatus*	Giant Lacewing	SH		1934-08-00
	Chlosyne gorgone	Gorgone Crescentspot	S2		1891-06-06
	Aeshna verticalis	Green-striped Darner	S3		1909-09-27
	Arigomphus furcifer	Lilypad Clubtail	S3		Unknown
	Libellula semifasciata	Painted Skimmer	S2		1936-06-12
	Epiaeschna heros	Swamp Darner	S2S3		1939-06-14
	Erynnis martialis	Mottled Duskywing	S2	END	1911-00-00
	Lycaeides melissa samuelis	Karner Blue	SX	EXP	Unknown

Table 4-5: NHIC Rare Species Records within 1 km of the Primary Study Area

Taxon	Scientific Name	Common Name	S-Rank	ESA Status	Date Last Observed
Plant	*Lithospermum latifolium*	American Gromwell	S3		1904-07-08
	Oenothera gaura	Biennial Gaura	S3		1893-09-18
	Actaea racemosa	Black Cohosh	S2		1974-10-05
	Gillenia trifoliata	Bowman's-root	SX		1902-06-14
	Potentilla supina ssp. paradoxa	Bushy Cinquefoil	S4		1901-09-05
	Euonymus atropurpureus	Eastern Burning Bush	S3		1954-10-07
	Polygonum erectum	Erect Knotweed	SH		1904-07-07
	Aureolaria pedicularia	Fern-leaved Yellow False Foxglove	S2?		1959-09-08
	Erythranthe geyeri	Geyer's Yellow Monkeyflower	S1		1922-09-17
	Cypripedium arietinum	Ram's-head Lady's-slipper	S3		1925-PRE
	Juncus acuminatus	Sharp-fruited Rush	S3		1926
	Hypericum prolificum	Shrubby St. John's-wort	S2		1976-08
	Spiranthes lacera var. gracilis	Southern Slender Ladies'-tresses	S1		1897-09-06
	Gentianella quinquefolia	Stiff Gentian	S2		1890-09-17
	Lupinus perennis	Sundial Lupine	S3		1962-06-01
	Scleria triglomerata	Tall Nutrush	S1		1911-07-13
	Dichanthelium praecocius	White-haired Panicgrass	S3		1911-07-07
	Linum virginianum	Woodland Flax	S2		1890-07-16
	Hypoxis hirsuta	Yellow Stargrass	S3		1933-06-01
	Juglans cinerea	Butternut	S3?	END	2006-11-29
	Morus rubra	Red Mulberry	S2	END	1941-06-27
	Eurybia divaricata	White Wood Aster	S2	THR	1927-07-24
	Nuttallanthus canadensis	Old-field Toadflax	S1		Unknown
Snake	*Regina septemvittata*	Queensnake	S2	END	1858-00-00
	Lampropeltis triangulum	Eastern Milksnake	S3	SC	1933-06-07
	Thamnophis sauritus	Eastern Ribbonsnake	S3	SC	1913-?
Turtle	*Chelydra serpentina*	Snapping Turtle	S3	SC	2009-06-00
	Emydoidea blandingii	Blanding's Turtle	S3	THR	1999-05-31
	Sternotherus odouratus	Eastern Musk Turtle	S3	SC	1969-?
	Graptemys geographica	Northern Map Turtle	S3	SC	1988-06-26
Restricted	Not applicable	RESTRICTED SPECIES	-	-	1983

MNRF provided a response on August 5, 2016 indicating that they have records of Barn Swallow, Chimney Swift and Common Nighthawk in the vicinity of the Primary Study Area. As the province has not been surveyed comprehensively for the presence of SAR, the absence of a species from the NHIC or MNRF records for the Primary Study Area does not necessarily confirm the absence of the species from the site. Therefore, records obtained from various wildlife atlases (refer to **Section 4**) and correspondence with the MNRF and TRCA were used to create comprehensive lists of all potential SAR and SOCC located within the Primary Study Area. Habitat assessments were also completed for SAR and SOCC. These are discussed in further detail in the following sections.

4.3.1 SAR Screening and Habitat Assessment

A comprehensive list of all potential SAR located within the Primary Study Area based on the background search is presented in **Table 4-6**. In order to better understand which SAR may be impacted by the alternative solutions proposed as part of the TMP, a habitat assessment of each Endangered or Threatened species was completed to refine possible candidate species that are more

likely to be present within the Primary Study Area. This assessment included screening the preferred habitat of each SAR against the habitat conditions present in the Primary Study Area to determine whether there is potential for that SAR to occur.

A total of 12 SAR were identified through the background search. Of these, seven SAR have the potential to occur within the Primary Study Area based on available suitable habitat. These include the following:

- Barn Swallow
- Little Brown Myotis
- Eastern Small-footed Myotis
- Northern Long-eared Myotis
- Tri-coloured Bat;
- Dense-blazing Star; and
- Butternut.

4.3.2 Species of Conservation Concern (SOCC) Screening

A comprehensive list of all potential SOCC located within the Primary Study Area based on the background search is presented in **Table 4-7**. Similarly to **Section 4.3.1**, a habitat assessment was completed for each SOCC to determine whether there is potential for that SOCC to occur in the Primary Study Area.

A total of nine SOCC were identified through the background search. Of these, eight (8) SOCC have the potential to occur within the Primary Study Area based on available suitable habitat. These include the following:

- Common Nighthawk;
- Eastern Wood Pewee;
- Peregrine Falcon;
- Red-headed Woodpecker;
- Wood Thrush;
- Swamp-rose Mallow;
- Milksnake; and
- Snapping Turtle.

4.4 Aquatic Species at Risk

According to email correspondence received from Andrew Geraghty, DFO Biologist, on July 12, 2016, the area of the Humber River has been identified as having the potential presence of American eel (Threatened) and Silver lamprey (Special Concern) both listed under COSEWIC and ESA. The same correspondence also mentioned records relating to Redside dace, which is listed as Endangered (Provincially) and Special Concern (Federally) within this reach of the Humber River. According to email correspondence received from Bohdan Kowalyk, MNRF Technical Specialist, there have been records of Pugnose minnow (Endangered) and Bridle shiner (Special concern) in the Lower Humber River Wetland Complex from 1996. Habitat assessments for these aquatic species are included in **Tables 4-6** and **4-7**.

Table 4-6: Habitat Assessment for Potential SAR in the Primary Study Area

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1,2]	Known Species Range1,2	Source Identifying Species Record[3]	Suitable Habitat Identified During Background Review	Conclusions/ Recommendations
Birds	Bank Swallow *Riparia riparia*	THR	No Status	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 is found all across southern Ontario, with sparser populations scattered across northern Ontario. The largest populations are found along the Lake Erie and Lake Ontario shorelines, and the Saugeen River (which flows into Lake Huron).	2001-2005 OBBA (BSC *et al.*, 2006)	• No suitable habitat is present within the Primary Study Area.	• Bank Swallow is unlikely to be present in the Primary Study Area.
Birds	Barn Swallow *Hirundo rustica*	THR	No Status	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. • This species can typically be associated with the following ELC communities: **TPO**, **CUM1**, **MAM**, **MAS**, **OAO**, **SAS1**, **SAM1**, **SAF1**; containing or adjacent structures that are suitable for nesting.	• The Barn Swallow may be found throughout southern Ontario and can range as far north as Hudson Bay, wherever suitable locations for nests exist.	2001-2005 OBBA (BSC *et al.*, 2006) NHIC (MNRF, 2014)	• Suitable habitat for Barn Swallow may be presented within the Primary Study Area in the form of bridges for the Queensway, Gardiner Expressway, Lakeshore Blvd and the Humber Bay Bridge.	• Barn Swallow may be present in the Primary Study Area. Recommendations include conducting nest searches under bridges and culverts to determine presence of Barn Swallow nests.
Birds	Bobolink *Dolichonyx oryzivorus*	THR	No Status	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. • This species can typically be associated with the following ELC communities: **TPO**, **TPS**, **CUM1** and **MAM2**.	• The Bobolink breeds across North America. In Ontario, it is widely distributed throughout most of the province south of the boreal forest, although it may be found in the north where suitable habitat exists.	2001-2005 OBBA (BSC *et al.*, 2006)	• No suitable habitat is present in the Primary Study Area which is largely composed of manicured park lawns.	• Bobolink is unlikely to be present in the Primary Study Area.
Birds	Chimney swift *Chaetura pelagica*	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. 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. They also tend to stay close to water as this is where the flying insects they eat will congregate. • Foraging habitat for this species can be associated with the following ELC codes: **TPO**, **CUM1**, **MAM**, **MAS**, **OAO**, **SAS1**, **SAM1**, **SAF1** containing or adjacent structures with suitable nesting habitat (i.e., chimneys).	• The Chimney Swift breeds in eastern North America, possibly as far north as southern Newfoundland. In Ontario, it is most widely distributed in the Carolinian zone in the south and southwest of the province, but has been detected throughout most of the province south of the 49th parallel. It winters in northwestern South America.	2001-2005 OBBA (BSC *et al.*, 2006)	• No suitable habitat is present in the Primary Study Area which is largely composed of commercial buildings and modern residential condominiums, which lack chimneys.	• Chimney Swift is unlikely to be present in the Primary Study Area.
Birds	Eastern Meadowlark *Sturnella magna*	THR	No Status	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. • This species can typically be associated with the following ELC communities: **TPO**, **TPS**, **CUM1**, **CUS,** and **MAM2** with elevated song perches.	• In Ontario, the Eastern Meadowlark is primarily found south of the Canadian Shield but it also inhabits the Lake Nipissing, Timiskaming and Lake of the Woods areas.	2001-2005 OBBA (BSC *et al.*, 2006)	• No suitable habitat is present in the Primary Study Area which is largely composed of manicured park lawns.	• Eastern Meadowlark is unlikely to be present in the Primary Study Area.
Fish	American eel *Anguilla rostrata*	THR	THR Schedule 1	THR	• American eels have a very diverse habitat, ranging from streams, rivers, and muddy or silt-bottomed lakes during their freshwater stage, as well as oceanic waters, coastal bays and estuaries. Eels are bottom dwellers. They hide in burrows, tubes, snags, masses of plants, other types of shelters.	• The American Eel starts life in the Sargasso Sea in the North Atlantic Ocean and migrates along the east coast of North America. • In Canada, it is found in fresh water and salt water areas that are accessible from the Atlantic Ocean. • This area extends from Niagara Falls in the Great Lakes up to the mid-Labrador coast. • In Ontario, American Eels can be found as far inland as Algonquin Park. Once the eels mature (10-25 years) they return to the Sargasso Sea to spawn.	DFO, 2016	• Possible migratory habitat may exist within the Primary Study Area.	• Further clarification from DFO is recommended to determine if suitable habitat is present.
Fish	Redside dace *Clinostomus elongatus*	END	END	END	• The Redside dace is found in pools and slow-moving areas of small streams and headwaters with a gravel bottom. • They are generally found in areas with overhanging grasses and shrubs, and can leap up to 10 cm out of the water to catch insects. • During spawning, they can be found in shallow parts of streams, which are also popular spawning areas for other minnow species.	• In Canada, Redside dace are found in a few tributaries of Lake Huron, in streams flowing into western Lake Ontario, the Holland River (which flows into Lake Simcoe), and Irvine Creek of the Grand River system (which flows into Lake Erie).	• DF0, 2016	• Suitable habitat within the Primary Study Area is unlikely; however, some suitable habitat may be present in the Lower Humber River Complex PSW north of the Queensway.	• Redside dace is unlikely to occur within the Primary Study Area; however this should be confirmed with the MNRF

Table 4-6: Habitat Assessment for Potential SAR in the Primary Study Area

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1,2]	Known Species Range1,2	Source Identifying Species Record[3]	Suitable Habitat Identified During Background Review	Conclusions/ Recommendations
Fish	Pugnose minnow *Opsopoeodus emiliae*	END	END	END	• The Pugnose Minnow prefers coastal wetlands, and slow-moving rivers and streams with clear, warm water, little or no current, and abundant vegetation	• In Canada, it is at the northern limit of its range and is only found in extreme southwestern Ontario with small populations in Lake St. Clair and the Detroit River.	MNRF, 2016)	• Suitable habitat within the Primary Study Area is unlikely; however, some suitable habitat may be present in the Lower Humber River Complex PSW north of the Queensway, where aquatic vegetation is more prevalent	• Redside dace is unlikely to occur within the Primary Study Area; however this should be confirmed with the MNRF
Mammals	Little Brown Myotis *Myotis lucifugus*	END	END Schedule 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 millimeters across) and this is how they access many roosting areas.Little Brown Myotis hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing. This species can typically be associated with any community where suitable roosting (i.e., cavity trees, houses, abandoned buildings, barns, etc.) habitat is available.	• The Little Brown Myotis is widespread in southern Ontario and found as far north as Moose Factory and Favourable Lake. Outside Ontario, this bat is found across Canada (except in Nunavut) and most of the United States.	BCI (2016)	• Suitable habitat for Little Brown Myotis could be present in the Primary Study Area within the forested sections of South Humber Park and along the Humber River.	• Little Brown Myotis may be present in the Primary Study Area. Recommendations include conducting cavity tree density plot surveys, acoustic monitoring, and/or exit surveys in these forested areas if vegetation removal is proposed therein.
Mammals	Eastern Small-footed Myotis *Myotis leibii*	END	END Schedule 1	END	• 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.	• The eastern small-footed bat has been found from south of Georgian Bay to Lake Erie and east to the Pembroke area. There are also records from the Bruce Peninsula, the Espanola area, and Lake Superior Provincial Park. Most documented sightings are of bats in their winter hibernation sites.	BCI (2016)	• Suitable habitat for Eastern Small-footed Myotis could be present in the Primary Study Area within the forested sections of South Humber Park and along the Humber River.	• Eastern Small-footed Myotis may be present in the Primary Study Area. Recommendations include conducting cavity tree density plot surveys, acoustic monitoring, and/or exit surveys in these forested areas if vegetation removal is proposed therein.
Mammals	Northern Long-eared Myotis *Myotis septentrionalis*	END	END Schedule 1	END	• Northern Long-eared Myotis is 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, most often in caves or abandoned mines. • This species can typically be associated with the following ELC communities: **FOC**, **FOM**, **FOD**, **SWC**, **SWM** and **SWD** where suitable roosting (i.e., cavity trees and trees with loose bark) habitat is available.	• The Northern Long-eared Myotis is found throughout forested areas in southern Ontario, to the north shore of Lake Superior and occasionally as far north as Moosonee, and west to Lake Nipigon. • This bat is found in all Canadian provinces as well as the Yukon and Northwest Territories.	BCI (2016)	• Suitable habitat for Northern Long-eared Myotis could be present in the Primary Study Area within the forested sections of South Humber Park and along the Humber River.	• Northern Long-eared Myotis may be present in the Primary Study Area. Recommendations include conducting cavity tree density plot surveys, acoustic monitoring, and/or exit surveys in these forested areas if vegetation removal is proposed therein.
Mammals	Tri-coloured Bat *Pipistrellus subflavus*	END	END Schedule 1	END	• Tri-coloured Bat can be found in open woods near water where it forages. This species roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines or rock crevices. • This species can typically be associated with the following ELC communities: **FOC, FOM, FOD, SWC, SWM** and **SWD** where suitable roosting (i.e., cavity trees and trees with loose bark) habitat is available.	• This bat can be found throughout southern Ontario.	BCI (2016)	• Suitable habitat for Tri-coloured Bat could be present in the Primary Study Area within the forested sections of South Humber Park and along the Humber River.	• Tri-coloured Bat may be present in the Primary Study Area. Recommendations include conducting cavity tree density plot surveys, acoustic monitoring, and/or exit surveys in these forested areas if vegetation removal is proposed therein.

Table 4-6: Habitat Assessment for Potential SAR in the Primary Study Area

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1,2]	Known Species Range1,2	Source Identifying Species Record[3]	Suitable Habitat Identified During Background Review	Conclusions/ Recommendations
Plants	Butternut *Juglans cinerea*	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. • This species can typically be associated with the following ELC communities: **FOD** and mature hedgerows; Soil: dry rocky or moist (4, 5, 6) to fresh (2, 3).	• Butternut can be found throughout central and eastern North America. In Canada, Butternut occurs in Ontario, Quebec and New Brunswick. In Ontario, this species is found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield.	NHIC (MNRF, 2014)	• Suitable habitat for, or individuals of, Butternut could be present in the Primary Study Area within the forested sections of South Humber Park and along the Humber River.	• Butternut may be present in the Primary Study Area. Recommendations include searching for Butternut in areas where vegetation removal is required. If a Butternut is encountered, a Butternut Health Assessment should be undertaken by a qualified Butternut Health Assessor to determine whether it is a pure and retainable Butternut.
Plants	Dense Blazing Star *Liatris spicata*	THR	THR Schedule 1	THR	• In Ontario, Dense Blazing Star grows in moist prairies, grassland savannahs, wet areas between sand dunes, and abandoned fields. This plant does not do well in the shade and is usually found in areas that are kept open and sunny by fire, floods, drought, or grazing. • This species can typically be associated with the following ELC communities: **TPO2**, **TPS2**, **SDO** and **CUM** with moist soils.	• Dense Blazing Star is found only in North America. In Canada, it occurs naturally only in southwest Ontario, mainly in the area between Lake St. Clair, Lake Huron and Lake Erie. There are believed to be 11 to 13 populations in the province with six populations known to have been lost.	Dense-blazing Star was recorded by TRCA in 2013.	• Open tallgrass prairies are present along the Lake Ontario Shoreline within the Primary Study Area although these are likely to have been planted.	• Dense-blazing Star was likely planted and not naturally occurring.
Reptiles	Blanding's Turtle *Emydoidea blandingii*	THR	THR Schedule 1	THR	• Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. 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. • This species can typically be associated with the following ELC communities: **SWT2**, **SWT3**, **SWD**, **SWM**, **MAS2**, **SAS1**, **SAM1**, where open water is present.	• The Blanding's Turtle is found in and around the Great Lakes Basin, with isolated populations elsewhere in the United States and Canada. In Canada, the Blanding's Turtle is separated into the Great Lakes-St. Lawrence population and the Nova Scotia population. Blanding's Turtles can be found throughout southern, central and eastern Ontario.	ORAA (Ontario Nature, 2016) NHIC (MNRF, 2014)	• Suitable habitat within the Primary Study Area is unlikely; however, suitable habitat may be present in the Lower Humber River Complex PSW north of the Queensway.	• Blanding's Turtle is unlikely to occur in the Primary Study Area, but may occur north of the Primary Study Area in the Humber River Complex PWS in higher quality wetlands.

Notes: *1 - Species at Risk . Ontario Ministry of Natural Resources. http://www.mnr.gov.on.ca/en/Business/Species/index.html. © Queens Printer For Ontario, 2013.*
2 - 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.

Table 4-7: Habitat Assessment for Potential SOCC in the Primary Study Area

Taxonomy	Species	S-Rank	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1,2]	Known Species Range[1,2]	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Conclusions/ Recommendations
Birds	Common Nighthawk *Chordeiles minor*	S4B	SC	THR Schedule 1	THR	• 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. • This species can typically be associated with the following ELC communities: **SD, BB, RB, CUM, BO, FOM, FOC and FOD** with openings with little vegetation.	• The range of the Common Nighthawk spans most of North and Central America. In Canada, the species is found in all provinces and territories except Nunavut. In Ontario, the Common Nighthawk occurs throughout the province except for the coastal regions of James Bay and Hudson Bay. It winters in South America where it is concentrated in Peru, Ecuador and Brazil.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Common Nighthawk may be present in the Primary Study Area, within the forested areas along the Humber River.	• Common Nighthawk may be present within the Primary Study Area.
Birds	*Eastern Wood-Pewee Contopus virens*	S4B	SC	No Status	SC	• The Eastern Wood-Pewee can be found in every type of wooded community in eastern North America. The size of the forest does not appear to be an important factor in habitat selection as this species has been found in both small fragmented forests and larger forest tracks. • This species can typically be associated with the following ELC communities: **FOC, FOM, FOD, SWD, SWM and CUW**.	• The Eastern Wood-Pewee Breed throughout central and eastern North America from Saskatchewan to Nova Scotia south along the Atlantic Coast to North Florida and the Gulf Coast.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Eastern Wood-Pewee could be present in the Primary Study Area within the forested sections of South Humber Park and along the Humber River.	• Eastern Wood-Pewee may be present within the Primary Study Area.
Birds	Peregrine Falcon *Falco peregrinus*	S3	SC	SC Schedule 1	SC	• 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. • This species can be associated with the following ELC communities: **CLO**.	• Although Peregrine Falcons now nest in and around Toronto and several other southern Ontario cities, the majority of Ontario's breeding population is found around Lake Superior in northwestern Ontario.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Peregrine Falcon could be present in the Primary Study Area, in the form of tall condominium buildings.	• Peregrine Falcon may be present in the Primary Study Area.
Birds	Red-headed Woodpecker *Melanerpes erythrocephalus*	S4B	SC	THR Schedule 1	THR	• 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. This woodpecker regularly winters in the United States, moving to locations where it can find sufficient acorns and beechnuts to eat. A few of these birds will stay the winter in woodlands in southern Ontario if there are adequate supplies of nuts. • This species can typically be associated with the following ELC communities: **TPS, TPW, CUW, FOD1, FOD2, FOD4-1, FOD6, FOD7,** and **FOD9** that are open and have an abundance of dead trees.	• The Red-headed Woodpecker is found across southern Ontario, where it is widespread but rare. Outside Ontario, it lives in Alberta, Saskatchewan, Manitoba and Quebec, and is relatively common in the United States.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Red-headed Woodpecker may be present in the Primary Study Area within the Lower Humber River PSW.	• Red-headed Woodpecker may be present in the Primary Study Area.
Birds	Wood Thrush *Hylocichla mustelina*	S4B	SC	No Status	THR	• The Wood Thrush can typically be found in the interior and along the edges of well-developed upland deciduous and mixed forests. Key elements of these forests include trees that are greater than 16 m in height, high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soils and decaying leaf litter. Wood Thrush is more likely to occur in larger forests but may also nest in 1 ha fragments and semi-wooded residential areas and parks. Smaller habitat fragments have lower fecundity when compared to larger fragments. • This species can typically be associated with the following ELC communities: **FOD** and **FOM** that are greater than 1 ha in size.	• The Wood Thrush ranges across central and southern Ontario, southern Quebec, New Brunswick and southern Nova Scotia and the majority of the eastern United States. It winters in Central American between southern Mexico and Panama. \	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Wood Thrush could be present in the Primary Study Area within the forested sections of South Humber Park and along the Humber River.	• Wood Thrush may be present in the Primary Study Area.
Fish	Silver lamprey *Ichthyomyzon unicuspis*	-	SC	SC Schedule 1	SC	• Silver lampreys require clear water so they can find fish hosts, relatively clean stream beds of sand and organic debris for larvae to live in, and unrestricted migration routes for spawning. • Their use of different kinds of habitat throughout their lives (rivers for spawning and early development, and lakes for adults) makes them vulnerable to changes in their environment.	• The Great Lakes - Upper St. Lawrence River population of Silver lamprey is of Special Concern due to a variety of threats, including habitat loss and the use of lampricides – chemicals designed to kill lampreys used to control the invasive sea lamprey Outside Ontario, the Silver lamprey	DF0, 2016	• Suitable habitat does not exist within the Primary Study Area.	• Suitable habitat does not exist within the Primary Study Area.

Table 4-7: Habitat Assessment for Potential SOCC in the Primary Study Area

Taxonomy	Species	S-Rank	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1,2]	Known Species Range[1,2]	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Conclusions/ Recommendations
							is found in tributaries that feed the St. Lawrence River in Quebec and New York west through to Manitoba and tributaries of the Nelson River. Silvery lampreys are also found in the upper Mississippi River tributaries.			
Fish	Bridle shiner *Notropis bifrenatus*	SC	SC	SC	SC	• Bridle Shiners prefer clear, unpolluted streams, rivers and lakes which have an abundance of aquatic vegetation. These vegetated areas provide suitable spawning habitat and places to feed and hide from predators. Bridle Shiners prefer warm water habitats where the bottom is either sand, silt or organic debris, which is necessary for the establishment of aquatic vegetation.	• The Bridle Shiner is found in eastern North America, extending from eastern Ontario east to Maine and south to South Carolina. In Ontario, it has been identified at 17 sites in the eastern Lake Ontario drainage and the St. Lawrence River.	MNRF, 2016	• Suitable habitat within the Primary Study Area is unlikely; however, some suitable habitat may be present in the Lower Humber River Complex PSW north of the Queensway, where aquatic vegetation is more prevalent	• Bridle shiner is unlikely to occur within the Primary Study Area; however this should be confirmed with the MNRF
Plants	Swamp Rose-mallow *Hibiscus moscheutos*	S3	SC	SC Schedule 1	SC	• In Ontario, Swamp Rose-mallow is restricted to shoreline marshes, in the Carolinian and Great Lakes - St. Lawrence forest regions, associated with lakes Erie, Ontario or St. Clair. Swamp Rose-mallow is most commonly found in deep-water cattail marshes and in meadow marshes. It reaches its greatest numbers in dyked wetlands, where competition from other plants is controlled and the open habitat is maintained by periodic flooding. It is also found in open wet woods, thickets, spoil banks, and drainage ditches. • This species can typically be associated with the following ELC communities: **MAS2-1** and **MAM**.	• The Swamp Rose-mallow range in North America extends from the lower Great Lakes region south to Florida and west to New Mexico. It may be adventive (introduced and locally common) farther west. In Ontario, it has been found at approximately 60 to 70 sites and is believed to currently occur at about 50 sites. Most sites are in coastal marshes of Lake Erie and Lake St. Clair. However, in the last 15 years, plants have colonized sites on the shores of Lake Ontario, expanding the distribution northwards. The species has also been introduced to Europe where it is locally common.	Swamp Rose Mallow was recorded by TRCA in 2013.	• Open tallgrass prairies are present along the Lake Ontario Shoreline within the Primary Study Area although these are likely to have been planted.	• Dense-blazing Star was likely planted and not naturally occurring.
Reptiles	Northern Map Turtle *Graptemys geographica*	S3	SC	SC Schedule 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 mollusk 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. • This species can typically be associated with the following ELC communities**: OAO**, **SA** with emergent rocks and fallen trees suitable habitat for prey.	• The Northern Map Turtle's range extends from the Great Lakes region west to Oklahoma and Kansas, south to Louisiana and east to the Adirondack and Appalachian mountain barrier. There are isolated populations in New Jersey and New York states. In Canada, it is found in southwestern Quebec and southern Ontario. In southern Ontario, it lives primarily on the shores of Georgian Bay, Lake St. Clair, Lake Erie and Lake Ontario, and along larger rivers including the Thames, Grand and Ottawa.	ORAA (Ontario Nature, 2016)	• Suitable habitat within the Primary Study Area is unlikely; however, suitable habitat may be present in the Lower Humber River Complex PSW north of the Queensway.	• Northern Map Turtle is unlikely to be in the Primary Study Area, but may occur north of the Primary Study Area in the Humber River Complex PWS.
Reptiles	Snapping Turtle *Chelydra serpentina*	S3	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.This species can typically be associated with the following ELC communities: OAO, SA near gravelly or sandy areas.	• The Snapping Turtle's range extends from Ecuador to Canada. In Canada this turtle can be found from Saskatchewan to Nova Scotia. It is primarily limited to the southern part of Ontario. The Snapping Turtle's range is contracting.	ORAA (Ontario Nature, 2016) NHIC (MNRF, 2014)	• Suitable habitat for Snapping Turtles may be present within the Primary Study Area along the Humber River and Lake Ontario Shoreline.	• Snapping Turtle may be present in the Primary Study Area.

Table 4-7: Habitat Assessment for Potential SOCC in the Primary Study Area

Taxonomy	Species	S-Rank	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1,2]	Known Species Range[1,2]	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Conclusions/ Recommendations
Reptiles	Milksnake *Lampropeltis triangulum*	S3	Not at Risk	SC Schedule 1	SC	• The Milksnake can be found in a range of habitats including rocky outcrops, fields and forest edges. In southern Ontario, it is often found in old farm fields and farm buildings where there is an abundance of mice. The Milksnake hibernates underground, in rotting logs or in the foundations of old buildings. • This species can be associated with the following ELC communities: **BL, TA, AL, RB, TP, CUM, FOC, FOM** and **FOD**.	• The Milksnake range extends from Quebec and Maine south to Alabama and Georgia, and west to Minnesota and Iowa. In Ontario, it is widespread and locally common in southern Ontario, and can be found as far north as Lake Nipissing and Sault Ste. Marie.	ORAA (Ontario Nature, 2016)	• Suitable habitat for Milksnake could be present in the Primary Study Area within the forested sections of South Humber Park, along the Humber River and cultural meadows.	• Milksnake may be present in the Primary Study Area.

5. Conclusions and Considerations

Based on AECOM's review and analyses of background information, the following is a summary of the results and considerations for next steps:

a) The overall sensitivity of the majority of the terrestrial habitat within the Primary Study Area is considered to be low, with the exception of natural vegetation associated with Mimico Creek and the Humber River Valley.

b) Portions of the Provincially Significant Lower Humber River Wetland Complex, City of Toronto's Natural Heritage System, as well as the Ravine and Natural Feature Protected Areas are located within the Primary Study Area. No development may occur within the boundaries of the PSW but if construction is proposed within 120 m of the PSW, an Environmental Impact Study (EIS) will be required to demonstrate that no negative effects will occur to the PSW through implementation of various mitigation measures. A Ravine and Natural Feature Permit from the City of Toronto may be required if the proponent intends to injure or destroy a healthy tree of any size, place or dump fill or alter the grade within the Ravine and Natural Feature Protected Areas. No ANSIs or ESAs are located within the boundaries of the Primary Study Area; however, the Provincially Significant High Park Oak Woodlands Life Science ANSI and three (3) ESAs are located outside but in the vicinity of the Primary Study Area. If any work is proposed within 120 m of these ESAs, further consultation with the City of Toronto and TRCA may be required to determine required studies and / or mitigation measures.

c) Based on the ELC data provided by TRCA, AECOM's previous field investigations and aerial interpretation, the majority of the Primary Study Area is dominated by cultural meadows, thickets and woodlands which have been either been planted or disturbed by anthropogenic activities. These vegetation communities generally consist of primarily non-native and invasive species. More natural areas with higher quality vegetation communities are found along the periphery of the Primary Study Area associated with the riparian corridors of Mimico Creek and the Humber River Valley. These vegetation communities provide nesting habitat for breeding birds protected under the MBCA and therefore construction timing restrictions may apply such as no vegetation removal between April 1 and August 30 unless active nest searches in simple habitats are conducted by qualified Biologists immediately prior to vegetation removal. Furthermore, removal of trees on private properties, city streets, ravines and parks, and construction adjacent to a tree will be subject to the tree protection policies developed by the City of Toronto.

d) Natural areas associated with Mimico Creek and the Humber River Valley provide several SWH, including Landbird Migratory Stopover Areas, Turtle Overwintering and Nesting Areas, Amphibian Woodland / Wetland Breeding Habitats and Wildlife Movement Corridors. If development is proposed within 120 m of these SWH features, specific mitigation measures to avoid or minimize negative effects on these features as result of the development will be required.

e) Although the majority of the flora and fauna identified through the background review are common, tolerant of disturbances and widespread throughout Ontario, a total of

seven SAR and eight SOCC were identified to potentially occur within the Primary Study Area based on available suitable habitat. Species-specific surveys targeting these species are recommended once the preferred alternative is identified along with further consultation with the MNRF. If any SAR is identified during these surveys, MNRF should be consulted with to determine appropriate mitigation and avoidance measures as well as any permitting requirements.

f) The overall sensitivity of the aquatic habitat within the Primary Study Area is considered to be low, with the exception of the migratory value of the Lower Humber River and possibility of Pugnose minnow and Bridle shiner habitat. The MNRF should be consulted to ascertain if further assessment is required to determine if possible habitat exists.

g) Further consultation with the MNRF is recommended to determine if any permitting will be required under the Endangered Species Act and the Public Lands Act.

6. References

AECOM, 2016:
Ecosystems Existing Conditions Report Ellis Av & Colborne Lodge Dr (H1) Wetland (ETWP014A) Final. Prepared for the City of Toronto.

Bat Conservation International (BCI), 2016:
Species Profiles. Accessed June 2016. Available: http://www.batcon.org/resources/media-education/species-profiles

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 (MNFR). 2006:
Ontario Breeding Bird Atlas (OBBA) website. Accessed January 2015. Available: http://www.birdsontario.org/atlas/index.jsp

City of Toronto, 2010:
Toronto Official Plan. Available at: http://www1.toronto.ca/static_files/CityPlanning/PDF/chapters1_5_dec2010.pdf

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

City of Toronto, 2012b:
Reptiles and Amphibians of Toronto – A Guide to their Remarkable World. City of Toronto Biodiversity Series.

City of Toronto, No Date (n.d.-a):
City of Toronto Interactive Map - Environmentally Significant Areas. Accessed June 2016. Available: http://map.toronto.ca/maps/map.jsp?app=ESA

City of Toronto, No Date (n.d.-b):
City of Toronto Interactive Map – Toronto Maps v2. Accessed February 2015. Available: http://map.toronto.ca/maps/map.jsp?app=TorontoMaps_v2

City of Toronto, No Date (n.d.-c):
Ravine and Natural Feature Protection By-Law Brochure. Accessed June 2016. Available: http://www1.toronto.ca/city_of_toronto/parks_forestry__recreation/urban_forestry/files/pdf/RNFPBy-lawbrochure.pdf

Dobbyn, J.S., 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.

Fisheries and Oceans Canada (DFO). 2015:
Aquatic Species at Risk Mapping

Important Bird Areas (IBA) Canada, 2015:
IBA Canada website. Accessed June 2016. Available: http://www.ibacanada.ca/index.jsp?lang=en

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurry. 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.

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

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

Ontario Ministry of Municipal Affairs and Housing (MMAH), 2014:
Provincial Policy Statement. Queen's Printer for Ontario.

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

Ontario Ministry of Natural Resources and Forestry (MNRF), 2007a:
Provincially Significant Lower Humber River Wetland Complex Evaluation Report. January 2007.

Ontario Ministry of Natural Resources and Forestry (MNRF), 2007b:
Ecological Land Classification Primer: Central and Southern Ontario. March, 2007.

Ontario Ministry of Natural Resources and Forestry (MNRF). March 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 (MNRF), 2014a:
Make-a-Map: Natural Heritage Areas and NHIC Rare Species Records. Accessed June 2016. Available at: http://www.giscoeapp.lrc.gov.on.ca/web/MNR/NHLUPS/NaturalHeritage/Viewer/Viewer.html

Ontario Ministry of Natural Resources and Forestry (MNRF), 2015:
Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E. Accessed September 2015. Available: http://www.ontario.ca/document/significant-wildlife-habitat-ecoregional-criteria-schedules-ecoregion-7e

Ontario Nature, 2016:
Ontario Reptile and Amphibian Atlas. Last Modified in 2016. Accessed June 2016. Available: http://www.ontarionature.org/protect/species/reptiles_and_amphibians/

Rowe, J.S., 1972:
Forest Regions of Canada. Department of the Environment, Canadian Forestry Service Publication No. 1300. Ottawa.

Appendix A

Ontario Breeding Bird Atlas Records in Square ID 17PJ23

Appendix A. Ontario Breeding Bird Atlas Records in Square ID 17PJ23

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	Breeding Evidence
American Black Duck	*Anas rubripes*	S4	-	-	Confirmed
American Crow	*Corvus brachyrhynchos*	S5B	-	-	Confirmed
American Goldfinch	*Cardeulis tristis*	S5B	-	-	Confirmed
American Kestrel	*Falco sparverius*	S4	-	-	Confirmed
American Redstart	*Setophaga ruticilla*	S5B	-	-	Possible
American Robin	*Turdus migratorius*	S5B	-	-	Confirmed
American Wigeon	*Anas americana*	S4	-	-	Possible
American Woodcock	*Scolopax minor*	S4B	-	-	Confirmed
Baltimore Oriole	*Icterus galbula*	S4B	-	-	Confirmed
Bank Swallow	*Riparia riparia*	S4B	THR	-	Confirmed
Barn Swallow	*Hirundo rustica*	S4B	THR	-	Confirmed
Belted Kingfisher	*Ceryle alcyon*	S4B	-	-	Confirmed
Black-billed Cuckoo	*Coccyzus erythropthalmus*	S5B	-	-	Confirmed
Black-capped Chickadee	*Poecile atricapillus*	S5	-	-	Confirmed
Blue Jay	*Cyanocitta cristata*	S5	-	-	Confirmed
Blue-Grey Gnatcatcher	*Polioptila caerulea*	S4B	-	-	Confirmed
Blue-winged Teal	*Anas discors*	S4	-	-	Probable
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	-	Probable
Brown Creeper	*Certhia americana*	S5B	-	-	Confirmed
Brown Thrasher	*Toxostoma rufum*	S4B	-	-	Confirmed
Brown-headed Cowbird	*Molothrus ater*	S4B	-	-	Confirmed
Canada Goose	*Branta canadensis*	S5	-	-	Confirmed
Canvasback	*Aythya valisineria*	S1B,S4N	-	-	Confirmed
Carolina Wren	*Thryothorus ludovicianus*	S4	-	-	Confirmed
Cedar Waxwing	*Bombycilla cedrorum*	S5B	-	-	Confirmed
Chestnut-sided Warbler	*Dendroica pensylvanica*	S5B	-	-	Possible
Chimney Swift	*Chaetura pelagica*	S4B,S4N	THR	THR (Schedule 1)	Confirmed
Chipping Sparrow	*Spizella passerina*	S5B	-	-	Confirmed
Cliff Swallow	*Petrochelidon pyrrhonota*	S4B	-	-	Confirmed
Common Grackle	*Quiscalus quiscula*	S5B	-	-	Confirmed
Common Nighthawk	*Chordeiles minor*	S4B	SC	THR (Schedule 1)	Confirmed
Common Tern	*Sterna hirundo*	S4B	-	-	Confirmed
Common Yellowthroat	*Geothlyphis trichas*	S5B	-	-	Confirmed
Cooper's Hawk	*Accipiter cooperi*	S4	-	-	Confirmed
Double-crested Cormorant	*Phalacrocorax auritus*	S5B	-	-	Confirmed
Downy Woodpecker	*Picoides pubescens*	S5	-	-	Confirmed
Eastern Kingbird	*Tyrannus tyrannus*	S4B	-	-	Confirmed
Eastern Meadowlark	*Sturnella magna*	S4B	THR	-	Probable
Eastern Phoebe	*Sayornis phoebe*	S5B	-	-	Confirmed
Eastern Screech Owl	*Otus asio*	S4	-	-	Confirmed
Eastern Towhee	*Pipilio erythrophthalmus*	S4B	-	-	Confirmed
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	-	Confirmed
European Starling	*Sturnus vulgaris*	SNA	-	-	Confirmed
Field Sparrow	*Spizella pusilla*	S4B	-	-	Possible
Gadwall	*Anas strepera*	S4	-	-	Confirmed
Grey Catbird	*Dumetella carolinensis*	S4B	-	-	Confirmed
Great Crested Flycatcher	*Myiarchus crinitus*	S4B	-	-	Confirmed
Great Egret	*Casmerodius albus*	S2B	-	-	Confirmed
Great Horned Owl	*Bubo virginianus*	S4	-	-	Confirmed
Green Heron	*Butorides virescens*	S4B	-	-	Confirmed
Hairy Woodpecker	*Picoides villosus*	S5	-	-	Confirmed
Hooded Merganser	*Lophodytes cucullatus*	S5B,S5N	-	-	Confirmed
Horned Lark	*Eremophila alpestris*	S5B	-	-	Confirmed

Appendix A. Ontario Breeding Bird Atlas Records in Square ID 17PJ23

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	Breeding Evidence
House Finch	*Carpodacus mexicanus*	SNA	-	-	Confirmed
House Sparrow	*Passer domesticus*	SNA	-	-	Confirmed
House Wren	*Troglodytes aedon*	S5B	-	-	Confirmed
Indigo Bunting	*Passerina cyanea*	S4B	-	-	Confirmed
Killdeer	*Charadrius vociferus*	S5B,S5N	-	-	Confirmed
Least Flycatcher	*Empidonax minimus*	S4B	-	-	Confirmed
Magnolia Warbler	*Dendroica magnolia*	S5B	-	-	Probable
Mallard	*Anas platyrhynchos*	S5	-	-	Confirmed
Mourning Dove	*Zenaida macroura*	S5	-	-	Confirmed
Mourning Warbler	*Oporornis philadelphia*	S4B	-	-	Confirmed
Mute Swan	*Cygnus olor*	SNA	-	-	Confirmed
Nashville Warbler	*Vermivora ruficapilla*	S5B	-	-	Possible
Northern Cardinal	*Cardinalis cardinalis*	S5	-	-	Confirmed
Northern Flicker	*Colaptes auratus*	S4B	-	-	Confirmed
Northern Mockingbird	*Mimus polyglottus*	S4	-	-	Confirmed
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	S4B	-	-	Confirmed
Northern Shoveler	*Anas clypeata*	S4	-	-	Probable
Northern Waterthrush	*Seiurus noveboracensis*	S5B	-	-	Possible
Orchard Oriole	*Icterus spurius*	S4B	-	-	Confirmed
Peregrine Falcon	*Falco peregrinus anatum*	S3	SC	SC (Schedule1)	Confirmed
Pied-billed Grebe	*Podilymbus podiceps*	S4B,S4N	-	-	Probable
Pileated Woodpecker	*Dryocopus pileatus*	S5	-	-	Probable
Pine Siskin	*Cardeulis pinus*	S4B	-	-	Confirmed
Pine Warbler	*Dendroica pinus*	S5B	-	-	Confirmed
Purple Martin	*Progne subis*	S4B	-	-	Confirmed
Red-bellied Woodpecker	*Melanerpes carolinus*	S4	-	-	Probable
Red-breasted Nuthatch	*Sitta canadensis*	S5	-	-	Confirmed
Red-eyed Vireo	*Vireo olivaceus*	S5B	-	-	Confirmed
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S4B	SC	THR (Schedule 1)	Confirmed
Red-necked Grebe	*Podiceps grisegena*	S3B,S4N	-	-	Possible
Red-tailed Hawk	*Buteo jamaicensis*	S5	-	SC (Schedule 3)	Confirmed
Red-winged Blackbird	*Agelaius phoeniceus*	S4	-	-	Confirmed
Ring-billed Gull	*Larus delawarensis*	S5B,S4N	-	-	Confirmed
Ring-necked Pheasant	*Phasianus colchicus*	SNA	-	-	Confirmed
Rock Dove	*Columba livia*	SNA	-	-	Confirmed
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S4B	-	-	Confirmed
Ruby-throated Hummingbird	*Archilochus colubris*	S5B	-	-	Probable
Savannah Sparrow	*Passerculus sandwichensis*	S4B	-	-	Confirmed
Scarlet Tanager	*Piranga olivacea*	S4B	-	-	Possible
Sharp-shinned Hawk	*Accipiter striatus*	S5	-	-	Confirmed
Song Sparrow	*Melospiza melodia*	S5B	-	-	Confirmed
Sora	*Porzana carolina*	S4B	-	-	Probable
Spotted Sandpiper	*Actitis macularia*	S5	-	-	Confirmed
Swamp Sparrow	*Melospiza georgiana*	S5B	-	-	Confirmed
Tree Swallow	*Tachycineta bicolor*	S4B	-	-	Confirmed
Turkey Vulture	*Cathartes aura*	S5B	-	-	Confirmed
Veery	*Catharus fuscescens*	S4B	-	-	Probable
Virginia Rail	*Rallus limicola*	S5B	-	-	Probable
Warbling Vireo	*Vireo gilvus*	S5B	-	-	Confirmed
White-breasted Nuthatch	*Sitta carolinensis*	S5	-	-	Confirmed
Willow Flycatcher	*Empidonax traillii*	S5B	-	-	Confirmed
Winter Wren	*Troglodytes troglodytes*	S5B	-	-	Probable
Wood Duck	*Aix sponsa*	S5	-	-	Confirmed

Appendix A. Ontario Breeding Bird Atlas Records in Square ID 17PJ23

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	Breeding Evidence
Wood Thrush	*Hylocicla mustelina*	S4B	SC	-	Confirmed
Yellow Warbler	*Dendroica petechia*	S5B	-	-	Confirmed
Yellow-bellied Sapsucker	*Sphyrapicus varius*	S5B	-	-	Possible
Yellow-billed Cuckoo	*Coccyzus americanus*	S4B	-	-	Possible
Yellow-throated Vireo	*Vireo flavifrons*	S4B	-	-	Confirmed

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF Natural Heritage Information Centre (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.)

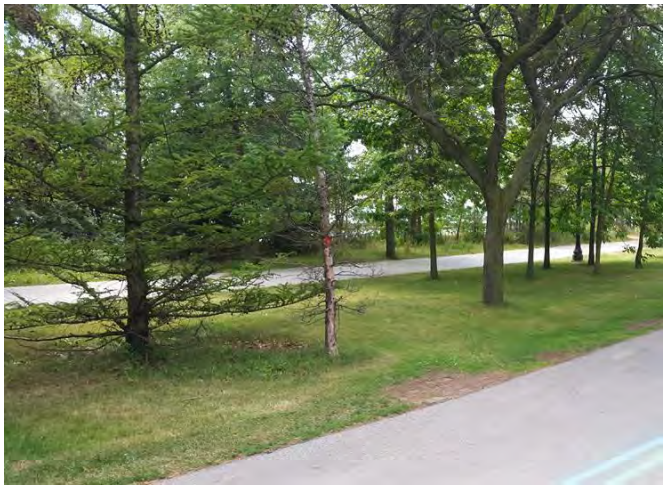
[2] ***ESA Status:*** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species 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.*
Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on February 2015. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm

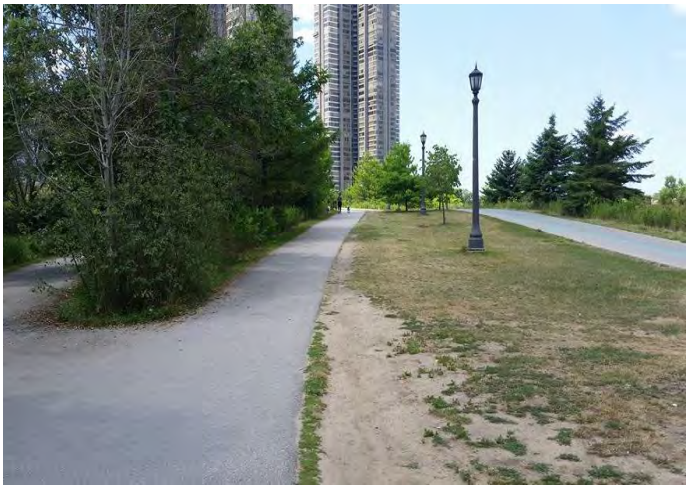
Appendix B

Photo Log – Aquatic Environment

Appendix B. Photo Log – Aquatic Environment



Photograph 1 ↑
East of the Humber River, looking southwest



Photograph 2 ↑
East of the Humber River, looking west

Photograph 3 ↑
The Humber River pedestrian bridge at
Lake Ontario, looking west

Photograph 4 ↑
The Humber River at the pedestrian bridge
at Lake Ontario, looking upstream (north west)

Appendix B. Photo Log – Aquatic Environment

Photograph 5 ↑
The outlet at Lake Ontario, looking downstream (southwest)

Photograph 6 ↑
Concrete shoreline and outlet upstream of pedestrian bridge, looking north west

Photograph 7 ↑
Left bank at outlet, looking northwest

Photograph 8 ↑
The Humber River at the pedestrian bridge at Lake Ontario, looking downstream (southeast)

Appendix B. Photo Log – Aquatic Environment

Photograph 9 ↑
The bridge at Lake Shore Boulevard,
looking upstream (northeast)

Photograph 10 ↑
Gardiner and Lake Shore bridges,
looking downstream (southeast)

Photograph 11 ↑
PSW complex at the Queensway
bridge, looking north

Photograph 12 ↑
The right bank of the Humber River at
upstream section, looking north east

Appendix B. Photo Log – Aquatic Environment

Photograph 13 ↑
The PSW complex, looking upstream (north)

Photograph 14 ↑
Upstream section of the Humber River, looking downstream (south)

Photograph 15 ↑
PSW from the recreational path, looking north east

Photograph 16 ↑
The PSW from the recreational path, looking north east

Appendix B.2

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo Update (AECOM, Nov. 2021)

PARK LAWN LAKE SHORE
TRANSPORTATION MASTER PLAN

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

To: Andrea Potter, Environmental Planner, AECOM

cc: Kevin Phillips, Project Manager, AECOM

Date: April 12, 2021
Project #: 60494141
From: Olga Hropach
Ashley Minion
Joe Broughton

Memorandum

Subject: Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo Update

1. Introduction

In 2013, the City of Toronto initiated a Transportation Master Plan (TMP) to identify necessary transportation improvements and to further develop the Park Lawn / Lake Shore community. As part of that undertaking AECOM completed a preliminary review of the 2016 Primary Study Area at that time (**Figure 1**) to identify existing aquatic and terrestrial features to assist in establishing existing conditions and areas of constraint for use in evaluating the Alternative Solutions being considered as part of the TMP. The review of the 2016 Primary Study Area was completed and documented in a Natural Environment Technical Memo in 2017.

The TMP was originally anticipated to be completed in April 2017, however, City Council put the project on hold, pending a final decision of the land use of the former Christie's Bakery site on the northeast corner of the Lake Shore Boulevard West and Park Lawn Road intersection. Following negotiations with the owners of the Christie's site (i.e. First Capital) regarding the development of the subject lands the TMP was able to move forward in 2020. However, as part of the 2020 revisit of the TMP, the 2016 Primary Study Area was expanded to the west to include a small area bounded by the F.G. Gardiner Expressway to the north, Lake Shore Boulevard West to the south, Legion Road to the west, and Park Lawn Road to the east (**Figure 1**) referred to as the 2020 Additional Study Area.

In 2020 AECOM completed an update to the previous assessment including a desktop review of the existing natural environment conditions (i.e., terrestrial and aquatic) within the 2020 Additional Study Area as well as an update to the Species at Risk (SAR) records for the 2016 Primary Study Area given change to species conservation statuses since 2016. This memorandum reflects the aforementioned updates. For the purposes of this document, the 2016 Primary Study Area as well as the 2020 Additional Study Area as illustrated in **Figure 1** are referred to the Overall Study Area and is generally bounded by Legion Road to the west, the Queensway to the north, Windermere Avenue to

the east and Lake Ontario shoreline to the south. The purpose of this memorandum is to document and establish existing natural environment conditions within the Overall Study Area which will be used to evaluate proposed alternative solutions.

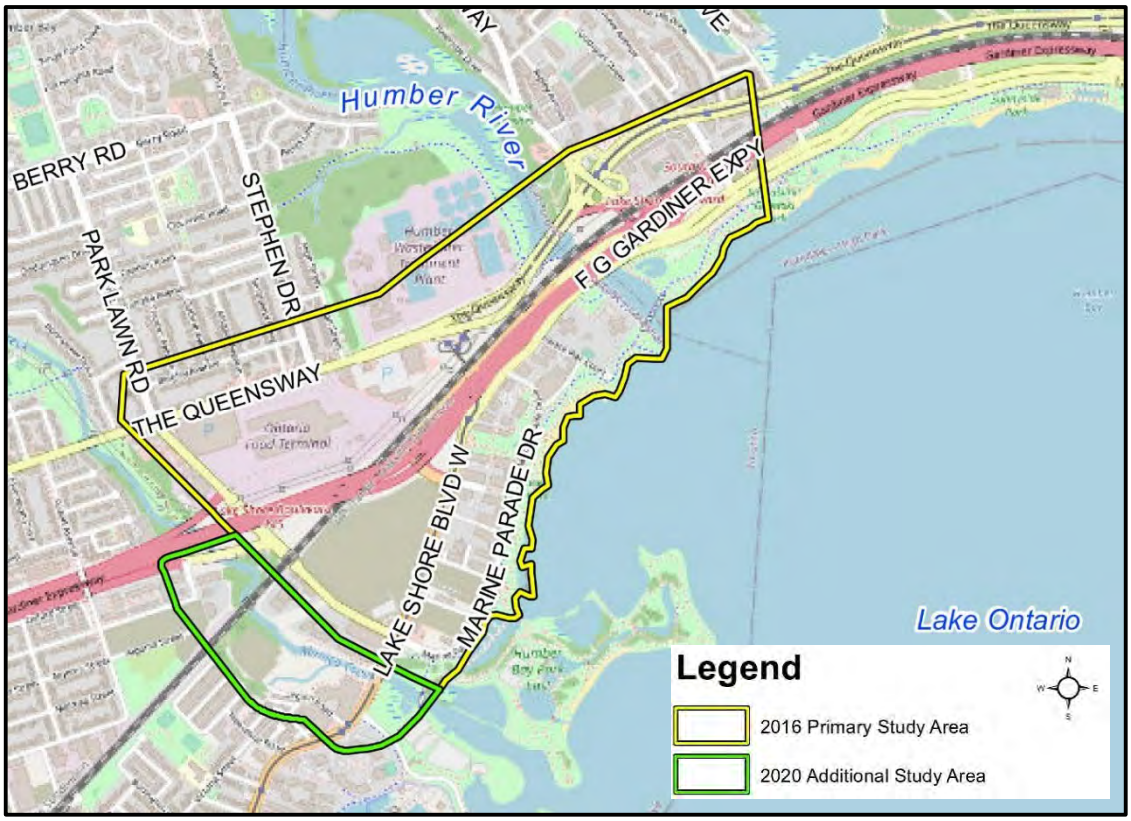


Figure 1. Overall Study Area

The following natural environment and natural heritage features have been reviewed and are discussed in this Technical Memorandum:

- Applicable natural heritage polices and guidelines;
- Terrestrial Wetlands;
- Areas of Natural and Significant Interest (ANSIs);
- Environmentally Significant Areas;
- Policy protected areas;
- Terrestrial natural habitats, including vegetation communities and flora;
- Watercourses and hydrological features;
- Surface water and fisheries;
- Significant aquatic features, including species and habitat;
- Wildlife and habitats;
- SAR under the *Endangered Species Act, 2007* (ESA) and the *Species at Risk Act*, 2002 (*SARA*); and
- Species of Conservation Concern (SOCC).

2. Relevant Legislation and Policies

2.1 Federal Legislation

Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act* (MBCA), 1994, provides protection to migratory birds, their habitats and nests at the federal level by prohibiting the destruction of active migratory bird nests. Currently, 700 migratory bird species are protected under this Act, including songbirds, woodland birds, waterfowl, shorebirds and seabirds. Although no permit is required by the legislation, appropriate timing constraints on disruptive activities such as vegetation clearing (e.g., tree removal) where migratory birds may be nesting are required to avoid contravention of this Act.

Fisheries Act, 1985 amended 2019)

The *Fisheries Act* (1985) was amended on June 21, 2019 to restore protection provisions to fish and fish habitat, with the additional habitat protection provisions coming into force on August 28, 2019. Fisheries and Oceans Canada (DFO) administers habitat protection provisions that prohibit any work or undertaking that would cause the harmful alteration, disruption or destruction (HADD) of fish habitat or the death of fish. If project proponents are unable to reduce the risk of the HADD of fish habitat or death of fish through implementation of DFO's measures to avoid the HADD of fish habitat, implementation of applicable Standards and Codes of Practice; or fall under the exclusion criteria presented on DFO's Work Near Water website, they must submit a Request for Review to DFO. DFO will determine whether the works can avoid the HADD of fish habitat or death of fish.

Species at Risk Act, 2002

The *SARA* protects and provides recovery strategies for SAR listed as Extirpated, Endangered or Threatened species under Schedule 1. This Act includes prohibitions against killing, harming, harassing, capturing or taking an individual of a SAR, prohibits the destruction of their critical habitats and can impose restrictions on development and construction projects. 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 bird listed on Schedule 1. The majority of species listed under Schedule 1 of *SARA* receive habitat protection on non-federal lands under the *ESA* (refer to **Section 2.2.1**). Species that do not receive protection under the *ESA* and do not have critical habitat identified may be afforded protection under other legislation such as the MBCA (refer to **Section 2.1.2**). In the case of aquatic SAR, *SARA* provides protection for aquatic species and habitat on both federal and non-federal lands. Species that are listed as Special Concern under Schedule 1 of *SARA* receive management initiatives under *SARA* to prevent them from becoming Endangered and Threatened, but do not receive individual or habitat protection. Schedule 1 of the *SARA* classifies SAR as follows:

- **Extirpated (EXP)** - a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild (*SARA* Registry, 2012).
- **Endangered (END)** - a wildlife species that is facing imminent extirpation or extinction (*SARA* Registry, 2012).

- **Threatened (THR)** - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction (*SARA* Registry, 2012).
- **Special Concern (SC)** - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats (*SARA* Registry, 2012).

2.2 Provincial Legislation

Endangered Species Act, 2007

The *ESA* provides protection and recovery strategies for SAR in Ontario. The Act prohibits the killing, harming, harassing, capturing, selling and trading an individual of a SAR and prohibits destruction of their habitats. Species listed as Extirpated, Endangered or Threatened under the *ESA* automatically receive general habitat protection. Any activities proposing to harm or destroy the species or their habitat require a Permit and/or other authorizations from the MNRF.

Methods of protection include protection of SAR habitat, support for private and public organizations, recovery of species, and strict enforcement (Ontario, 2012). This regulation applies to Extirpated, Endangered and Threatened species. Species of Special Concern are not protected under the Act. The above designations are defined as follows:

- **Extirpated (EXP)** - A species that no longer exists in the wild in Ontario but still occurs elsewhere.
- **Endangered (END)** – A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's *ESA.*
- **Threatened (THR)** - A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- **Special Concern (SC)** - A species with characteristics that make it sensitive to human activities or natural events.

Provincial Policy Statement, 2020

The Provincial Policy Statement, 2020 (*PSS*) provides direction on provincial matters of interest related to land use planning and development and sets the policy framework for regulating development and use of land, issued under the *Planning Act*. Section 2.1 outlines policies that provide legislative protection for the following natural heritage features:

- significant wetlands in Ecoregions 5E, 6E and 7E;
- significant coastal wetlands;
- significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
- significant woodlands in Ecoregions 6E and 7E ;
- significant valleylands in Ecoregions 6E and 7E ;
- significant wildlife habitat;
- significant areas of natural and scientific interest; and

- Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to Section 2.1.4(b) of the policy.

Section 2.1.4 of the *PSS* prohibits development or site alteration within Provincially Significant Wetlands (PSWs) in Ecoregions 5E, 6E and 7E as well as significant coastal wetlands. Section 2.1.5, prohibits development and site alteration in PSWs in the Canadian Shield north of Ecoregion 5E, Significant Wildlife Habitat (SWH), Significant Woodlands and valleylands in Ecoregions 6E and 7E, coastal wetlands not subject to the policies of Section 2.1.4 and ANSIs unless it has been demonstrated that there will be "no negative impacts on the natural features or their ecological functions". Development and site alteration may occur within fish habitat and habitat for Endangered or Threatened SAR provided that appropriate authorizations and permits are obtained and conditions therein are carried through in accordance with provincial and federal legislation such as the *ESA* (refer to **Section 2.2.1**), *SARA* (Refer to **Section 2.1.3**) and the *Fisheries Act*, 1985 (refer to **Section 2.1.2**).

Conservation Authority Act, 1998

Ontario Regulation (O. Reg.) 166/06 under Section 28 of the *Conservation Authorities Act* (1998), establishes regulated areas within the Toronto and Region Conservation Authority's (TRCA) 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. Development in proximity to protected watercourses or wetlands within the TRCA regulated area requires review by the TRCA and the submission of an "Application for Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses". Other technical studies or plans to support the application may be required at the request of TRCA. Regulated limits to watercourses are present within the Overall Study Area.

The TRCA has also developed the Target Natural Heritage System (TNHS) 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. The TRCA also sets targets for improving the quality, integrity, quantity and connectivity of terrestrial natural features within the system.

Greenbelt Plan, 2017

The Greenbelt Plan builds on the *PSS* and provides a land use planning framework related to urban structure and future growth in Ontario's Greater Golden Horseshoe (GGH) while providing protection to the agricultural lands, ecological and hydrological features in the Greenbelt Area (MMAH, 2020). Within the Overall Study Area, the Humber 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 (MMAH, 2020). The lands are governed by municipal official plans, such as the City of Toronto Official Plan (City of Toronto, 2019). All publicly owned lands (i.e., by the Province, municipality or conservation authority) within the Urban River Valley designation are subject to its policies, 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 GGH and Greenbelt Plan are supported (MMAH, 2020).

2.3 Municipal Legislation

The City of Toronto Official Plan (2019) promotes strong communities and a competitive economy while protecting, restoring or enhancing the natural environment and urban forests. A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. The following are some of the City of Toronto policies related to the protection of the natural environment:

- **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 (NHS) 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; and,
    - Species of concern and significant biological features that are subject to the *PSS*.

  City of Toronto Ravine and Natural Feature Protection (RNFP) 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). Ravine and natural features are important features in the City of Toronto and provide many ecological benefits and functions, including acting as wildlife corridors, preventing soil erosion, reducing storm flows and improving water quality of lakes and streams. 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).

- **Environmentally Significant Areas** – Environmentally Significant Areas are designated by the City of Toronto and form portions of the City's NHS 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).

3. Methods

3.1 Background Review

A background information review was conducted using secondary sources and correspondence with relevant agencies. The information collected from secondary resources and agencies was used to develop a comprehensive understanding of the terrestrial environment and wildlife potentially occurring within the Overall Study Area. The following secondary sources were analyzed to establish existing conditions and identify data gaps:

- **Guidance and Reference Documents:**
  - *Natural Heritage Reference Manual Second Edition* (MNRF, 2010);
  - *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015);
  - *City of Toronto Official Plan* (City of Toronto, 2010); and
  - *Provincial Policy Statement 2020* (MMAH, 2020).
- **Previous Technical Studies:**
  - *Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Aquatic Existing Conditions Memorandum* (AECOM, 2019)
  - *Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Terrestrial Existing Conditions Memorandum* (AECOM, 2019)
  - *Ecosystems Existing Conditions Report Ellis Ave & Colborne Lodge Dr. (H1) Wetland (ETWP014A) Final* (AECOM, 2016)
- **Interactive Mapping Sites:**
  - MNRF Make-A-Map: Natural Heritage Areas and Natural Heritage Information Centre (NHIC) Rare Species Records (MNRF, 2014);
  - City of Toronto Interactive Map – Environmentally Significant Areas (City of Toronto, n.d.-a);
  - City of Toronto Interactive Map – Toronto Maps Version 2 (City of Toronto, n.d.-b);
  - Important Bird Areas (IBAs) Canada (IBA Canada, 2015); and,
  - DFO Aquatic Species at Risk Online Mapping Tool.
- **Wildlife Atlases:**
  - Ontario Butterfly Atlas Online (OBA) (Toronto Entomologists Society, 2020)
  - Atlas of the Breeding Birds of Ontario (OBBA) Website (BSC. et al., 2006);
  - Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019);
  - Atlas of the Mammals of Ontario (Dobbyn, 1994);
  - eBirds (eBirds, 2021); and
  - Bat Conservation International (BCI) – Species Profile (2020).
- **Open Data Portals:**
  - City of Toronto (2020) mapping for:
    - City of Toronto's NHS;

        - RNFP Areas; and
        - Environmentally Significant Areas.
    - TRCA (2020) mapping for:
        - Ecological Land Classification (ELC).
- Ontario Ministry of Natural Resources and Forestry (MNRF) Ontario GeoHub base mapping data, (MNRF, 2020; LIO) for:

    - Provincial Parks;
    - Conservation Reserves;
    - PSWs;
    - Unevaluated Wetlands;
    - Wooded Areas; and
    - ANSIs.

3.2 Agency Consultation

Written requests (submitted via email) were previously made in 2016 to relevant agencies for information, not otherwise publicly-available, pertaining to natural heritage features within the Overall Study Area, including PSWs, ANSIs, Environmentally Significant Areas, terrestrial species records (such as plants, birds, and other wildlife, rare species and SAR), ELC mapping and other related GIS layers. In addition, information requests were sent to both the MNRF and TRCA as part of the Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation Project in 2019, which overlaps with the Overall Study Area west of Park Lawn Road between the railway Right-of-Way (ROW) and Lakeshore Boulevard (henceforth referred to as the Bonar Creek Study Area).

Table 3-1 provides information related to the agencies contacted, information source, and data or information obtained through agency consultation. Information requests have not been sent out in 2020 as it is the Ministry of Environment, Conservation and Parks' (MECP) and MNRF's current direction for proponents to conduct a desktop screening for SAR and natural heritage records, respectively, using online secondary sources. In addition, TRCA and City of Toronto information was largely pulled from their open data portals.

Table 3-1: Summary of Agency Consultation

Agency	Date and Data and/or Information Requested	Date and Data and/or Information Obtained
City of Toronto	• May 20, 2016 - City of Toronto requested internally for shapefiles to be provided to AECOM.	• May 30, 2016 – City of Toronto provided the following GIS shapefiles: – Topography – Environmentally Significant Areas – City of Toronto's NHS – RNFP – Provincially Significant Wetland
MNRF	• June 21, 2016: AECOM requested natural heritage and fisheries information relevant to the Overall Study Area, including SAR records.	• August 5, 2016 – MNRF indicated records of SAR in the Overall Study Area and provided the Ontario Wetlands Evaluation System Report for Lower Humber River Provincially Significant Wetland and fish records. Records of Bridle Shiner (Special Concern) and Pugnose Minnow (Threatened) were identified within the Lower Humber River Complex.
MNRF	• June 29, 2018 AECOM requested natural heritage and fisheries information relevant to the Bonar Creek Study Area, including SAR records.	• January 21, 2019 – MNRF indicated records of SAR in the Bonar Creek Study Area and provided direction for bat surveys to be conducted.
TRCA	• June 21, 2016: AECOM requested natural heritage and fisheries information relevant to the Overall Study Area, including ELC mapping as well as flora and fauna records and fish records.	• July 4, 2016 - TRCA provided fish records, ELC mapping, as well as flora and fauna records to AECOM under the condition that this information is kept internal, confidential and not made public as specified in the signed Data Sharing Agreement.
TRCA	• June 29, 2018: AECOM requested natural heritage and fisheries information relevant to the Bonar Creek Study Area, including SAR records..	• November 19, 2018 – TRCA provided access to requested information through their data portals in accordance with their signed data sharing agreements.

3.3 Terrestrial Field Investigations

Terrestrial field investigations were not completed during this Phase of the MCEA, as the ELC data and mapping obtained from TRCA was considered to be sufficient for the purposes of a background information review. Where gaps in TRCA's ELC data were identified within the Overall Study Area, AECOM completed a desktop review using Google Earth to delineate and classify vegetation communities to the community series through aerial photography interpretation following the protocols outlined in the ELC Manual for Southern Ontario (Lee *et al.*, 1998). In addition, gaps were also supplemented by studies completed by AECOM for other Projects within the Overall Study Area as described in **Section 4.1.3.3** and **Section 4.1.3.4**.

3.4 Aquatic Field Investigations

Aquatic field investigations were completed on July 27, 2016 to confirm aquatic features, including sensitive fish habitat. Background information was requested from the TRCA and the MNRF to supplement the field investigations completed by AECOM. AECOM completed field investigations of

Bonar Creek and its confluence to Mimico Creek on June 15, 2018 as a part of the Bonar Creek Stormwater Management Facility Condition Assessment for the City of Toronto (AECOM, 2019). The data from the Bonar Creek Study Area was used to compliment the Park Lawn Lake Shore Transportation Master Plan Memorandum and supplement any data gaps located west of Park Lawn Road within the extended Overall Study Area.

3.5 Significant Wildlife Habitat Screening

The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015) contains information and criteria for identifying SWH, 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 MNRF generally categorizes SWH into the following five categories:

- Seasonal Concentration Areas;
- Rare Vegetation Communities;
- Specialized Habitats for Wildlife;
- Habitats of SOCC; and,
- Animal Movement Corridors.

Field data such as general habitat conditions and habitat characteristics was collected to identify the presence of SWH within the Overall Study Area based on the habitat criteria identified in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015).

According to the Natural Heritage Reference Manual (MNRF, 2010), significant wildlife habitat includes the habitat of SOCC, which consists of the following:

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

Although SOCC do not receive legal protection under the *ESA*, they may be afforded protection under other Acts, such as the *PSS*, *MBCA* and *Ontario Fish and Wildlife Conservation Act, 1997*, and other planning documents. A screening for SOCC was completed as per **Section 3.6** below.

3.6 Species at Risk Habitat Screening

Special consideration was given to identifying any SAR and SOCC within or in the vicinity of the Overall Study Area. SAR include species that are listed as Extirpated, Endangered or Threatened on the Species at Risk in Ontario (SARO) list or on *SARA* Sch. 1 (aquatic species and MBCA protected birds only) and receive both individual and habitat protection under the *ESA* or the *SARA*.

A desktop SAR habitat screening was conducted using the sources listed in **Section 3.1** within the Overall Study Area. SAR with ranges overlapping with, or recent occurrence records within the Background Review Overall Study Area were identified and then screened by comparing their habitat requirements to the habitat conditions present on-site as determined through the background information review (**Section 3.1**) and field investigations (**Section 3.3** and **Section 3.4**). The potential

for the species to occur within the Overall Study Area was determined through a probability of occurrence whereby the following rankings were applied:

- Low Probability: no suitable habitat for the species and no occurrence of the species incidentally observed through field reconnaissance within the Site Reconnaissance Overall Study Area but there is a known species record in the general area;
- Medium Probability: potentially suitable SAR habitat identified within the Site Reconnaissance Overall Study Area, but no occurrence of the species incidentally observed through field reconnaissance although there is a known species record in the general area; and,
- High Probability: good quality SAR habitat identified within the Site Reconnaissance Overall Study Area and known species record in the Background Review Overall Study Area (either through current field assessment or background information).

4. Existing Conditions

The following sections summarize the information collected from background sources and data received from agencies as they pertain to aquatic and terrestrial natural heritage features and wildlife in the Overall Study Area.

4.1 Terrestrial Environment

Designated Natural Areas

There were several designated natural areas located in or in the vicinity of the Overall Study Area, including one PSW and three ESAs. Additionally, portions of the Overall Study Area were also located within the City of Toronto's NHS and RNFP By-law. A description of each of these designated areas is provided below. The locations of these designated natural areas are shown on **Figure 2.**

Provincially Significant Wetlands

Portions of the Provincially Significant Lower Humber River Wetland Complex was located within the Overall Study Area, along the west side of the Humber River and north of the Queensway (refer to **Figure 2**). This PSW consists of 15 wetlands, comprised of 84% swamps and 16% marsh (North-South Environmental Inc. and Dougan & Associates, 2009). The open wetlands support habitat for waterfowl species, including Mallard (*Anas platyrhynchos*), Canada Goose (*Branta canadensis*), Gadwall (*Anas strepera*) and Green-winged Teal (*Anas carolinensis*) (North-South Environmental Inc. and Dougan & Associates, 2009). The presence of large dead trees in this PSW provide habitat for bird species that nest in tree cavities such as Red-headed Woodpecker (*Melanerpes erythrocephalus*), for which there were two active nests confirmed in 2003, as well as Hooded Merganser (*Lophodytes cucullatus*), Eastern Screech-owl (*Megascops asio*), American Kestrel (*Falco sparverius*), Wood Duck (*Aix sponsa*) and Hairy Woodpecker (*Leuconotopicus villosus*) (North-South Environmental Inc. and Dougan & Associates, 2009, MNRF, 2007a). Furthermore, this PSW acts as an important stopover area for migrating songbirds and is just over 7 km away from the West End of Lake Ontario Important Bird Area (North-South Environmental Inc. and Dougan & Associates, 2009). Reptile species that inhabit this PSW include Blanding's Turtle (*Emydoidea blandingii*), Northern Map

Turtle (*Graptemys geographica*) and an abundance of Midland Painted Turtles (*Chrysemys picta*) (North-South Environmental Inc. and Dougan & Associates, 2009; MNRF, 2007a). Amphibians breeding in this area also include American Toad (*Anaxyrus americanus*), Northern Leopard (*Lithobates pipiens*) Frogs and Spotted Salamanders (*Ambystoma maculatum*).

There were no other PSWs, locally significant wetlands (LSWs) or unevaluated wetlands located in or in the vicinity of the Overall Study Area.

Areas of Natural and Scientific Interest

There were no provincial ANSIs located within the Overall Study Area (refer to **Figure 2**). The nearest ANSI was the Provincially Significant High Park Oak Woodlands Life Science ANSI, located 38 m from the Overall Study Area. The Humber River Coastal Marsh however is a Regional Candidate Life Science ANSI that was located within the Overall Study Area along the Humber River.

Policy Areas

Natural Heritage System – City of Toronto

Portions of the City of Toronto's NHS are located within or adjacent to the Overall Study Area (**Figure 3**).

Environmentally Significant Areas (ESAs)

According to the City of Toronto *Interactive Map – Environmentally Significant Areas* (City of Toronto, n.d.-a), there are four existing Environmentally Significant Areas identified within 120 m of the Overall Study Area, which are summarized in **Table 4-1**. **Figure 3** shows the locations of these Environmentally Significant Areas within and adjacent to the Overall Study Area.

Table 4-1: Summary of Existing Environmentally Significant Areas in the Overall Study Area

ESA Name	Characteristics, Rare Species and Communities, and Significant Ecological Function[1]	Area (ha)[1]	Distance from Overall Study Area Boundaries (approximate)
High Park	This Environmentally Significant Area consists of black oak savannah and prairies, mature forests, ponds, aquatic and shallow marshes. There were 105 significant flora species, six significant vegetation communities and ten significant flora species.	83.3	44 m
Humber Valley	This Environmentally Significant Area consists of cattail marshes, graminoid meadows and bottomland forests in the valley bottom, and deciduous forests on the slopes. Portions of the Provincially Significant Lower Humber River Wetland Complex are part of this Environmentally Significant Area. There were 53 significant flora species, six significant vegetation communities and 15 significant fauna species. This Environmentally Significant Area supports areas of waterfowl aggregations, important amphibian breeding habitat and acts as an important land linkage between the lake and the river corridor that facilitates wildlife movement.	43.5	11 m
Rennie Park	This Environmentally Significant Area consists of an east and west facing slope ravine just west of High Park supporting deciduous forest, old field and lowland forest following a small creek and including a pond. There were eight significant flora species, two significant vegetation communities and one significant fauna species found here. This site also provided 2.7 ha of open water storage as well as providing amphibian breeding habitat.	6.8	54 m
Sassafras Site	This Environmentally Significant Area contains black oak savannah remnants which are dominated by Black Oak (*Quercus velutina*) with large patches of Sassafras (*Sassafras albidum*) in the shrub layer. The ground cover was dominated by Little Bluestem (*Schizachyrium scoparium*). There were nine significant flora species and two significant vegetation communities.	1.5	353 m

Notes: 1. Descriptions of Environmentally Significant Area characteristics, rare species and communities, significant ecological function and calculated areas were taken from Appendix 2 of the Environmentally Significant Areas in the City of Toronto (North-South Environmental Inc. et al., 2012).

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

Riparian areas along the Humber River, Bonar Creek and Mimico Creek fall within the Overall Study Area and are designated as ravine and natural features that receive protection under the RNFP By-law (City of Toronto, 2017). **Figure 3** shows the boundaries of these regulated areas within the Overall Study Area.

TRCA Regulation Limits

The Overall Study Area is located within the TRCA regulated area associated with the Humber River, Bonar Creek, Mimico Creek and the Lake Ontario Shoreline. **Figure 4** shows the boundaries of these regulated limits within the Overall Study Area.

TRCA's Target Natural Heritage System

Riparian areas along the Humber River, Bonar Creek and Mimico Creek identified as part of the TRCA's TNHS are located within the Overall Study Area. In addition to this, a CUW north of the Gardiner Expressway and west of the Humber River is also identified as part of TRCA's TNHS. **Figure 3** shows the boundaries of the TRCA's TNHS within the Overall Study Area.

Legend

- Study Area

Areas of Natural and Significant Interest (ANSIs)

- Life Science ANSI

Wetlands by Significance

- Provincially Significant Wetland (PSW)
- Unevaluated Wetland

Base Features

- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Railway
- Water Feature
- Wooded Area

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Designated Natural Areas

0 100 200 400 600

Meters

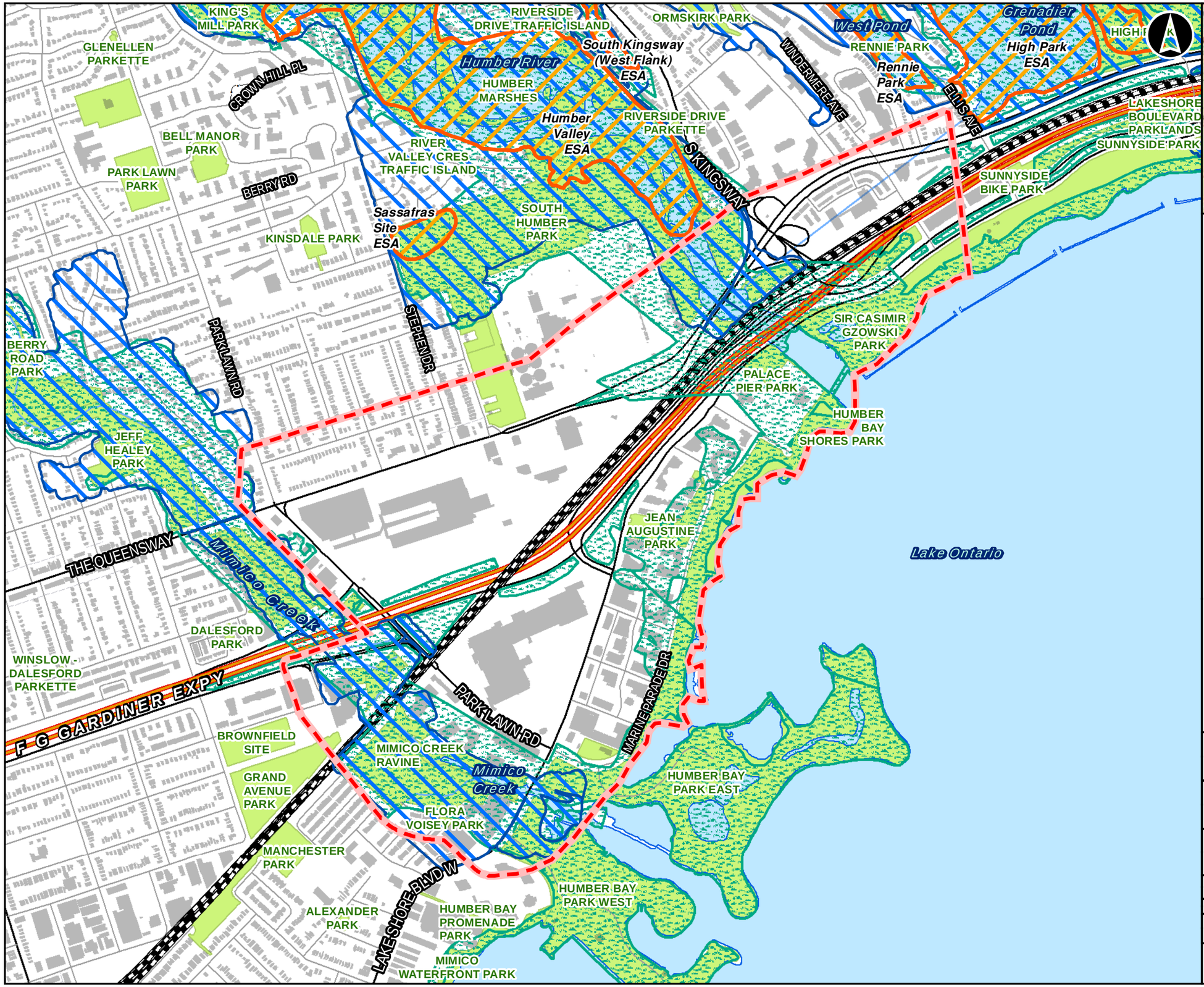
DATUM: NAD 1983 UTM Zone 17N

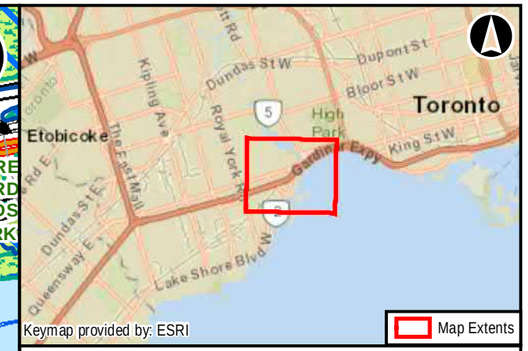
Dec, 2020	1:10,000 * when printed 11"x17"	Data Sources: MMAH, MECP, City of Toronto, ESRI
P#:60494141	Rev:00	

AECOM

Figure 2

Map location: E:\HD\60494141_ParkLawnDesign01_Reports\NaturalEnvMemo_2020\MXD_60494141_DesignatedNaturalAreas_R00.mxd
Date Saved: 12/4/2020 10:42:47 PM User Name: cmeo





Legend

- Study Area

City of Toronto Policy Areas

- Ravine and Natural Features Protection
- Environmentally Significant Areas (ESAs)
- Natural Heritage System

Base Features

- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Railway
- Water Feature
- City of Toronto Park or Green Space

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Municipal Policy Areas

0 100 200 400 600

Meters

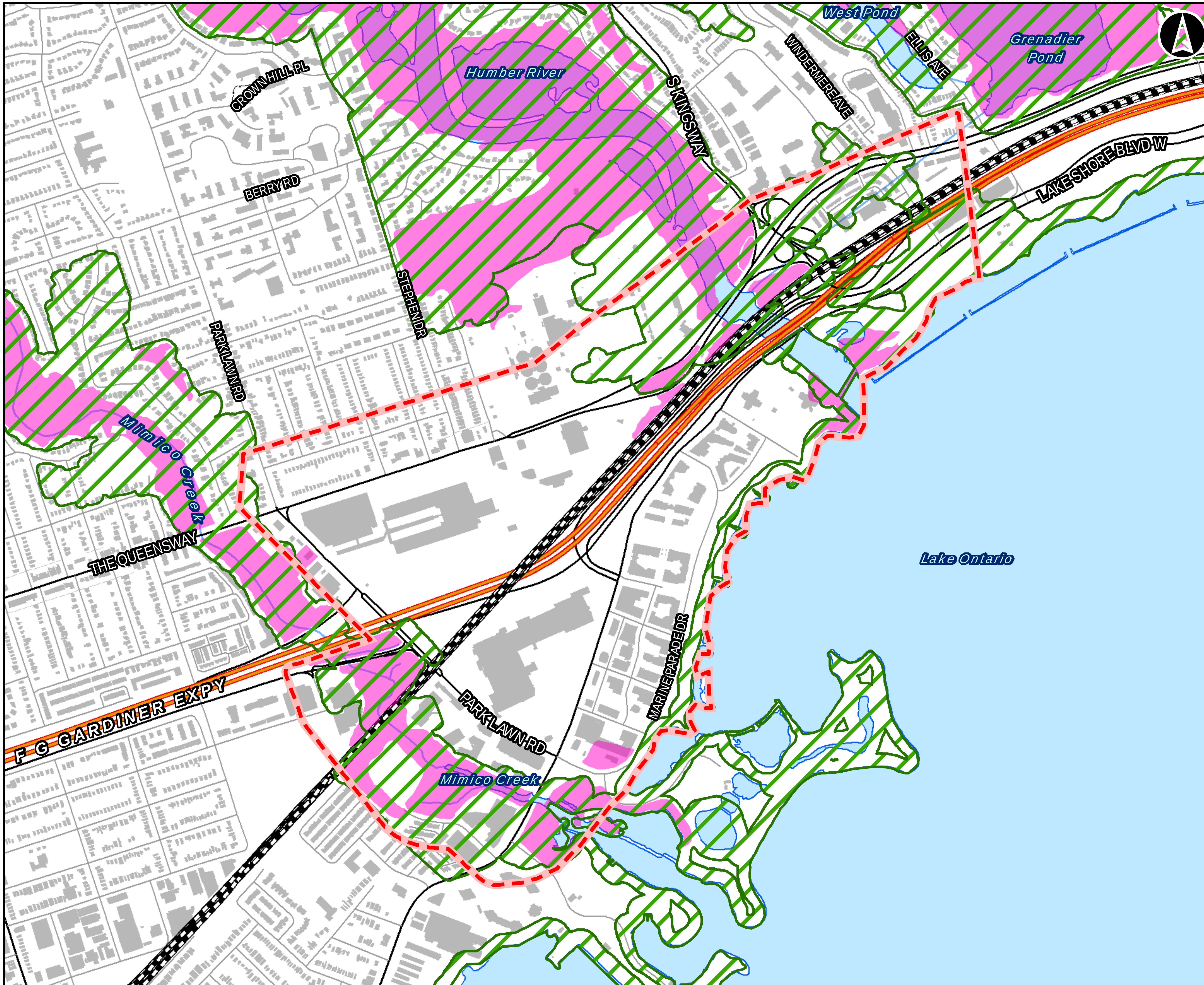
DATUM: NAD 1983 UTM Zone 17N

Dec, 2020	1:10,000 * when printed 11"x17"	Data Sources: MMAH, MECP, City of Toronto, TRCA, ESRI
P#:60494141	Rev:00	

AECOM

Figure 3

Map location: E:\PROJ\60494141_ParkLawnDesign01_Reports\NatEnvMemo_2020\MXD_60494141_MunicipalPolicyAreas_R00.mxd
Date Saved: 12/7/2020 2:21:34 PM User Name: cdale



Legend

- Study Area

TRCA Policy Areas

- Regulated Area
- Target Natural Heritage System

Base Features

- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Railway
- Water Feature

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

TRCA Policy Areas

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

Dec, 2020	1:10,000 (* when printed 11"x17")	Data Sources: MMAH, MECP, City of Toronto, TRCA, ESRI
P#:60494141	Rev:00	
AECOM		Figure 4

Terrestrial Vegetation

The Overall Study Area is located within the Lake Erie – Lake Ontario Ecoregion 7E, also called the Carolinian Forest Ecosystem. An ecoregion is defined by the Ministry of Natural Resources and Forestry (MNRF) as "an area of land within which the response of vegetation to the features of landform follows a consistent pattern" and is "defined by a characteristic range and pattern of climatic variables" (MNRF, 2007b). Ecoregion 7E is the southernmost Ecoregion in Ontario and generally consists of a very flat landscape formed as a result of thick deposits of glacial and post-glacial sediments in the Late Wisconsin glacial period. The bedrock is primarily composed of exposed limestone, with the exception of the southern portion of the Niagara Escarpment. Wetlands and water are found on less than 2% of the ecoregion (MNRF, 2007b). Ecoregion 7E has the greatest diversity of flora and fauna species in Canada, and is home to approximately 2,200 species of herbaceous plants, 70 species of trees, and 400 species of birds (MNRF, 2007b).

According to the Forest Regions of Canada (Rowe, 1972), the Overall Study Area occurs within the Deciduous (Carolinian) Forest Region which are dominated by deciduous trees. Dominant tree species in this region predominantly consist of Sugar Maple (*Acer saccharum*) and American Beech (*Fagus grandifolia*) as well as Basswood (*Tilia americana*), Red Maple (*Acer rubrum*), White Oak (*Quercus alba*) and Bur Oak (*Quercus macrocarpa*) (Rowe, 1972).

The Overall Study Area is heavily urbanized and consists of industrial buildings, waterfront residential condominiums and city parks. The majority of the vegetation in the interior of the Overall Study Area consists of manicured lawns and planted vegetation. Natural vegetation was primarily associated with Bonar Creek, Mimico Creek, Humber River and the Lake Ontario shoreline which are present along the periphery of the Overall Study Area.

TRCA's ELC and Flora Records

The TRCA provided ELC mapping and associated data for the area within and in the vicinity of the Overall Study Area. The TRCA used Southern Ontario ELC system as outlined by the MNRF (Lee et al., 1998) to delineate and assess vegetation communities. This protocol classifies vegetation communities through the completion of a multi-layer (i.e., canopy, sub-canopy, ground cover, etc.) vegetation inventory. TRCA delineated vegetation communities within and in the vicinity of the Overall Study Area in 2004, 2010 and 2013 through field investigations. Common vegetation communities found within the Overall Study Area are described as follows. Description of community structure and species composition for each vegetation community type has been amalgamated from all years based on TRCA's provided data. TRCA's ELC communities are mapped on **Figure 5**.

Open Beach Bar (BBO)

Open beach bars were located along the Lake Ontario Shoreline within the Humber Bay Shores Park and consist of cobble-pebble beaches and armour shores.

The **Mineral Open Beach** (**BBO1**) consisted of a few scattered trees including Eastern Cottonwood (*Populus deltoides*) and Manitoba Maple (*Acer negundo*) which made up less than 10% of the tree canopy. The shrub cover (less than 10%) was dominated by Red-osier Dogwood (*Cornus sericea*) with lesser of Hybrid Willow (*Salix X rubens)*. The sparse ground cover consisted of Germander

species (*Teucrium sp.*), European Bugleweed (*Lycopus europaeus*), Jewelweed (*Impatiens capensis*) and Butter and Eggs (*Linaria vulgaris*).

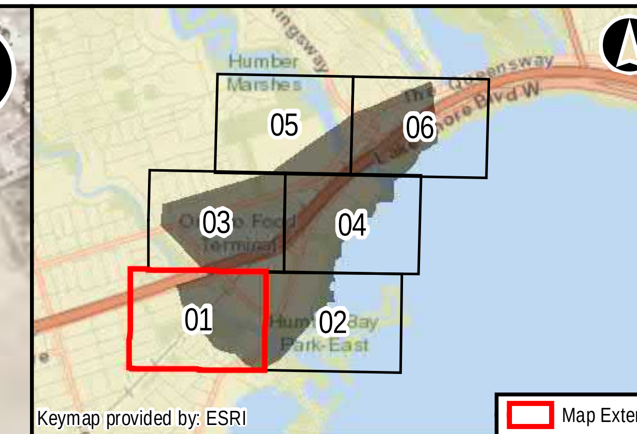
The **Open Riparian Sand / Gravel Bar** (**BBO1-A**) was located on the west shore of Mimico Creek south of Lakeshore Boulevard. It consisted of sparse Marsh Yellow-cress (*Rorippa palustris*), Kentucky Blue-grass (*Poa pratensis*), Brown Galingale (*Cyperus fuscus*) and Oak-leaved Goosefoot (*Oxybasis glauca*).

The **Rubble Open Shoreline** (**BBO2-A**) consisted of sparse Reed-canary Grass (*Phalaris arundinacea*), Jewelweed and Germander species in the ground cover with a few scattered shrubs of White Willows (*Salix alba*), Wych Elm (*Ulmus glabra*) and Purple-osier Willow (*Salix purpurea*).

Cultural Meadow (CUM)

There were a few cultural meadows consisting of native and non-native herbaceous species.

The native **Mineral Cultural Meadow** (**CUM1-a**) was located adjacent to the BBO1 and was largely dominated by ground cover species including grasses, Tall Goldenrod (*Solidago altissima*), Brown Knapweed (*Centaurea jacea*), Aster species (*Symphyotrichum sp.*), Bird's-foot Trefoil (*Lotus corniculatus*), Canada Thistle (*Cirsium arcense*) and Wild Carrot (*Daucus carota*). Scattered trees and shrubs that made up less than 10% and 10% to 25% of the tree and shrub canopies respectively, included Manitoba Maple, Trembling Aspen (*Populus tremuloides*), Siberian Elm (*Ulmus pumila*), Bur Oak (*Quercus* macrocarpa), Red Oak (*Quercus rubra*), Pin Oak (*Quercus palustris*), Red-osier Dogwood and Grey Dogwood (*Cornus racemosa*).



Legend

Primary Study Area

ELC Source

- AECOM ELC Aerial Interpretation 2016
- AECOM ELC Results from Ecosystems Existing Conditions Report - Ellis Av. & Colborne Lodge Dr. (HI) Wetland (ETWP014a) Final (AECOM 2016)
- Bonar Creek Stormwater Management Faciligy Legion Road Extension and Metrolinx Grade Separation - Terrestrial Existing Conditions Memoradum (AECOM 2018)
- TRCA ELC (2020)

ELC Code

BBO	CUT	SAS
CUH	CUW	SWT
CUM	FOD	TPO
CUP	MAS	
CUS	OAO	

Base Features

- Freeway
- Railway
- Major Road
- Watercourse
- Local Road

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Ecological Land Classifications (ELC) Vegetation Communities

0 20 40 80 120 160 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Dec, 2020	1:3,000 * when printed 11"x17"	Data Sources: AECOM, TRCA, MMAH, MECP, ESRI
P#:60494141	Rev:00	

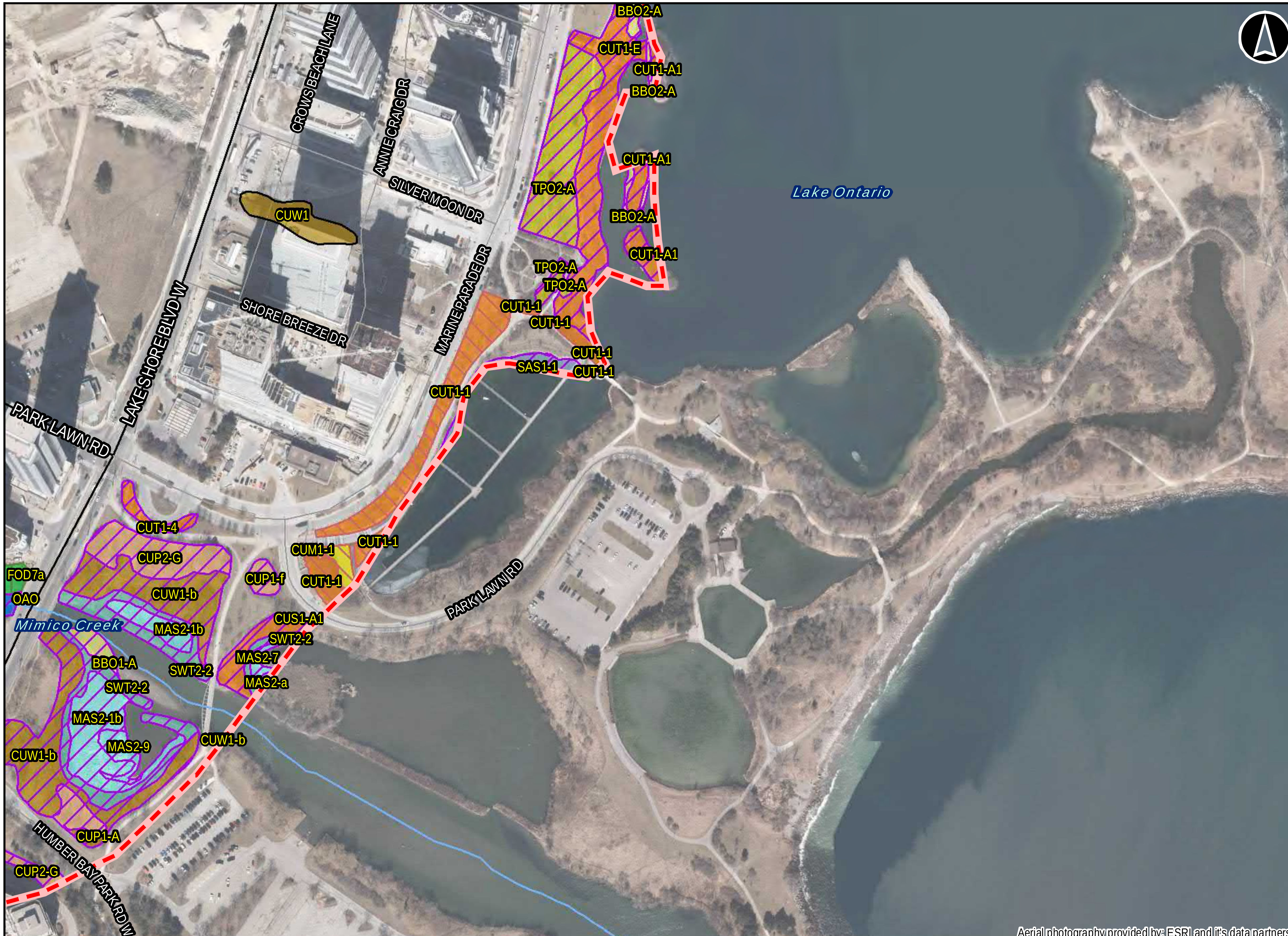
AECOM

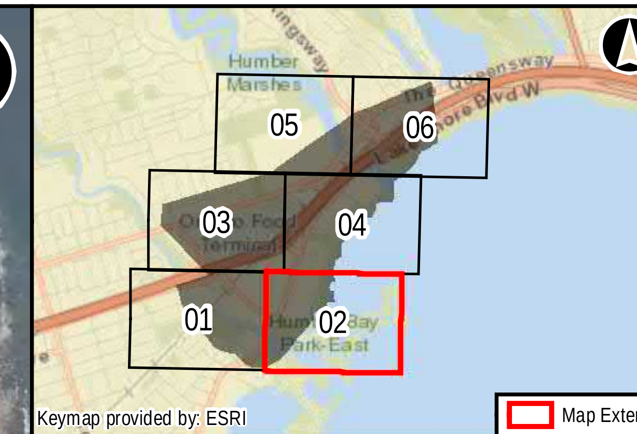
Figure 5-01

ELC Description

- CUH: Cultural Hedgerow
- CUM1-c: Exotic Forb Meadow
- CUM1: Mineral Cultural Meadow
- CUP2-G: Ash-Conifer Mixed Plantation
- CUT1-c: Exotic Deciduous Thicket
- CUW1-A3: Native Deciduous Successional Woodland
- CUW1-b: Exotic Deciduous Thicket
- FOD3-1: Dry - Fresh Poplar Deciduous Forest
- FOD7-3: Fresh - Moist Willow Lowland Deciduous Forest
- FOD7a: Fresh - Moist Siberian Elm-Crack Willow Deciduous Forest
- MAS2-1A: Broad-leaved Cattail Mineral Shallow Marsh
- MOWED: Mowed Grass
- OAO1-T: Turbid Open Aquatic
- OAO: Open

Map location: E:\PRJ\60494141_ParkLawn\Design\01_Reports\NatEnvMe...
Date Saved: 12/10/2020 11:10:45 AM User Name: oraws





Legend

Primary Study Area

ELC Source

- AECOM ELC Aerial Interpretation 2016
- AECOM ELC Results from Ecosystems Existing Conditions Report - Ellis Av. & Colborne Lodge Dr. (HI) Wetland (ETWP014a) Final (AECOM 2016)
- Bonar Creek Stormwater Management Faciligy Legion Road Extension and Metrolinx Grade Separation - Terrestrial Existing Conditions Memoradum (AECOM 2018)
- TRCA ELC (2020)

ELC Code

BBO	CUT	SAS
CUH	CUW	SWT
CUM	FOD	TPO
CUP	MAS	
CUS	OAO	

Base Features

- Major Road
- Local Road
- Watercourse

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Ecological Land Classifications (ELC) Vegetation Communities

0 20 40 80 120 160 200
Meters
DATUM: NAD 1983 UTM Zone 17N

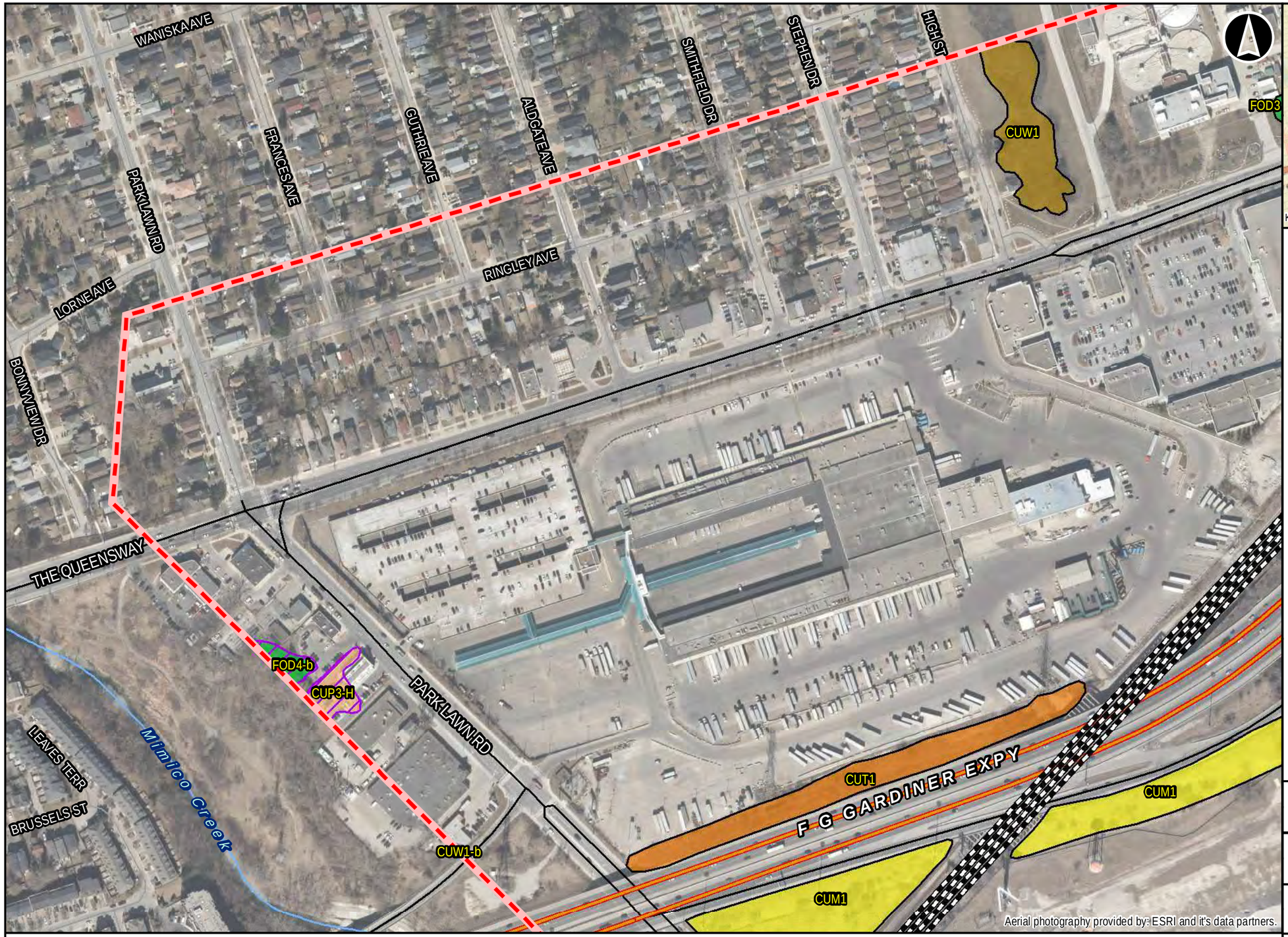
Dec, 2020	1:3,000 * when printed 11"x17"	Data Sources: AECOM, TRCA, MMAH, MECP, ESRI
P#:60494141	Rev:00	

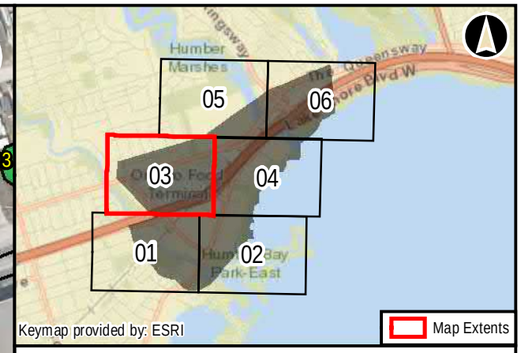
AECOM

Figure 5-02

ELC Description

- BBO1-A: Open Riparian Sand / Gravel Bar
- BBO2-A: Rubble Open Shoreline
- CUM1-1: Dry-Moist Old Field Meadow
- CUP1-A: Restoration Deciduous Plantation
- CUP1-f: Siberian Elm Deciduous Plantation
- CUP2-G: Ash-Conifer Mixed Plantation
- CUS1-A1: Native Deciduous Successional Savannah
- CUT1-1: Sumac Cultural Thicket
- CUT1-4: Gray Dogwood Cultural Thicket
- CUT1-A1: Native Deciduous Sapling Regeneration Thicket
- CUT1-E: Red Osier Dogwood Deciduous Thicket
- CUW1-b: Exotic Deciduous Thicket
- CUW1: Mineral Cultural Woodland
- FOD7a: Fresh - Moist Siberian Elm-Crack Willow Deciduous Forest
- MAS2-1b: Narrow-leaved Cattail Mineral Shallow Marsh
- MAS2-7: Bur-reed Mineral Shallow Marsh
- MAS2-9: Forb Mineral Shallow Marsh
- MAS2-a: Common Reed Mineral Shallow Marsh
- OAO: Open
- SAS1-1: Pondweed Submerged Shallow
- SWT2-2: Willow Mineral Thicket Swamp
- TPO2-A: Fresh - Moist Tallgrass Prairie Planting





Legend

Primary Study Area

ELC Source

- AECOM ELC Aerial Interpretation 2016
- AECOM ELC Results from Ecosystems Existing Conditions Report - Ellis Av. & Colborne Lodge Dr. (HI) Wetland (ETWP014a) Final (AECOM 2016)
- Bonar Creek Stormwater Management Faciligy Legion Road Extension and Metrolinx Grade Separation - Terrestrial Existing Conditions Memoradum (AECOM 2018)
- TRCA ELC (2020)

ELC Code

BBO	CUT	SAS
CUH	CUW	SWT
CUM	FOD	TPO
CUP	MAS	
CUS	OAO	

Base Features

- Freeway
- Major Road
- Local Road
- Alleyway
- Railway
- Watercourse

Aerial photography provided by: ESRI and it's data partners.

ELC Description

CUM1: Mineral Cultural Meadow
CUP3-H: Mixed Conifer Coniferous Plantation
CUT1: Mineral Cultural Thicket
CUW1-b: Exotic Deciduous Thicket
CUW1: Mineral Cultural Woodland
FOD3: Dry - Fresh Poplar - White Birch Deciduous Forest
FOD4-b: Dry - Fresh Manitoba Maple Deciduous Forest

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Ecological Land Classifications (ELC) Vegetation Communities

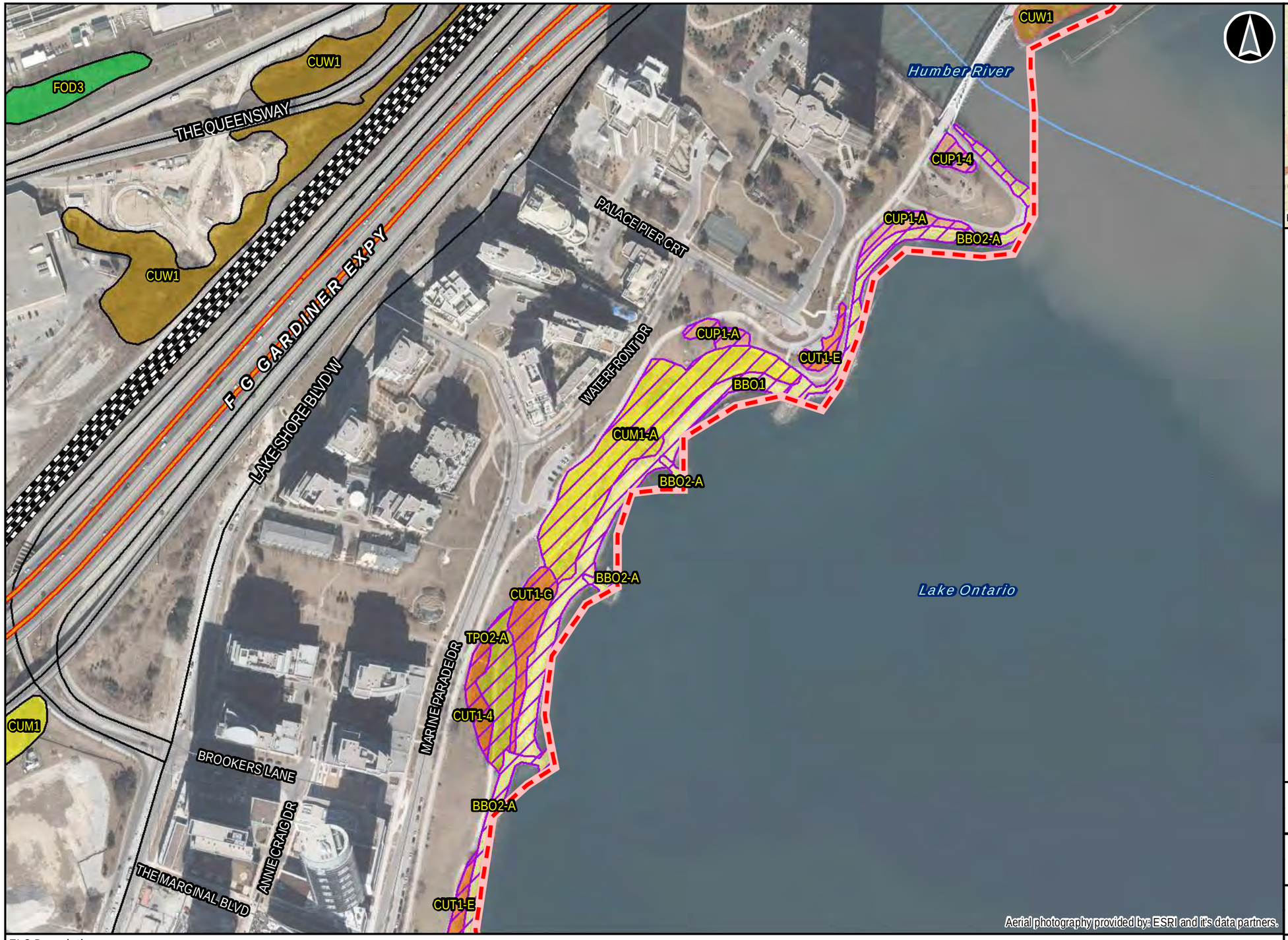
0 20 40 80 120 160 200
Meters
DATUM: NAD 1983 UTM Zone 17N

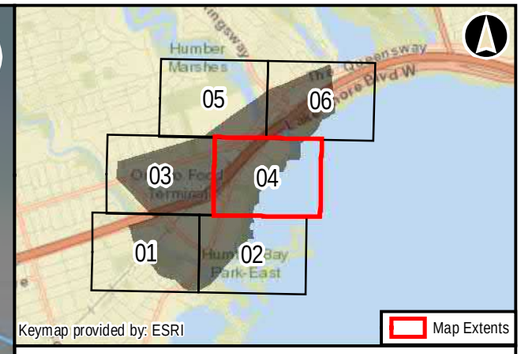
Dec, 2020	1:3,000 * when printed 11"x17"	Data Sources: AECOM, TRCA, MMAH, MECP, ESRI
P#:60494141	Rev:00	

AECOM

Figure 5-03

Map location: E:\Projects\60494141_ParkLawn\Design\01_Reports\NaturalEnvMemo_2020\MXD_60494141_EcologicalLandClassification_R00.mxd
Date Saved: 12/10/2020 11:28:43 AM by Kevin.Yates





Legend

Primary Study Area

ELC Source

- AECOM ELC Aerial Interpretation 2016
- AECOM ELC Results from Ecosystems Existing Conditions Report - Ellis Av. & Colborne Lodge Dr. (HI) Wetland (ETWP014a) Final (AECOM 2016)
- Bonar Creek Stormwater Management Faciligy Legion Road Extension and Metrolinx Grade Separation - Terrestrial Existing Conditions Memoradum (AECOM 2018)
- TRCA ELC (2020)

ELC Code

BBO	CUT	SAS
CUH	CUW	SWT
CUM	FOD	TPO
CUP	MAS	
CUS	OAO	

Base Features

- Freeway
- Major Road
- Local Road
- Railway
- Watercourse

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Ecological Land Classifications (ELC) Vegetation Communities

0 20 40 80 120 160 200

Meters

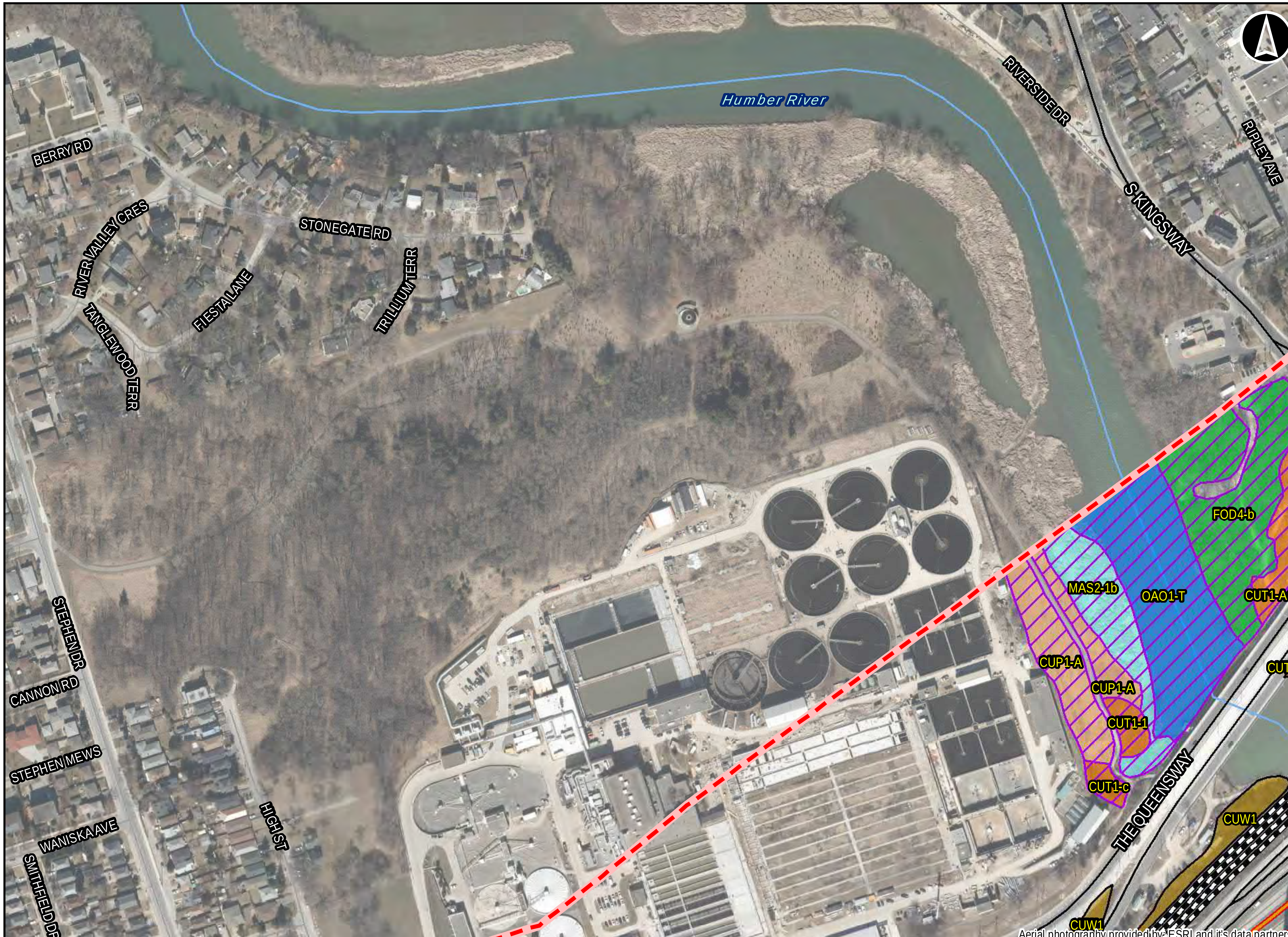
DATUM: NAD 1983 UTM Zone 17N

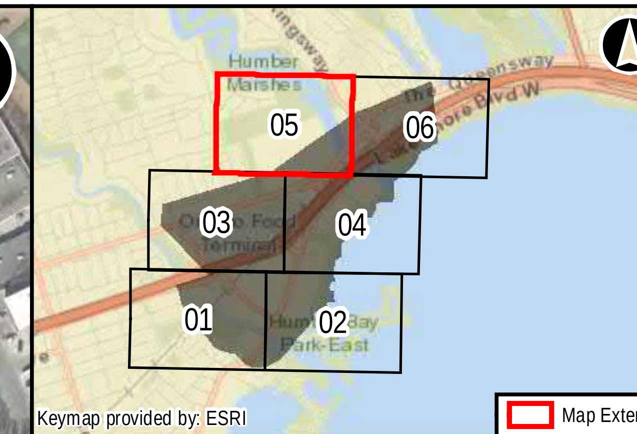
ELC Description

BBO1: Mineral Open Beach / Bar	CUP1-A: Restoration Deciduous Plantation	FOD3: Dry - Fresh Poplar - White Birch Deciduous Forest
BBO2-A: Rubble Open Shoreline	CUT1-4: Gray Dogwood Cultural Thicket	TPO2-A: Fresh - Moist Tallgrass Prairie Planting
CUM1-1: Dry-Moist Old Field Meadow	CUT1-E: Red Osier Dogwood Deciduous Thicket	
CUM1-A: Native Forb Meadow	CUT1-G: Willow Deciduous Thicket	
CUM1: Mineral Cultural Meadow	CUW1: Mineral Cultural Thicket	
CUP1-4: Hybrid Poplar Deciduous Plantation	CUW1: Mineral Cultural Woodland	

Dec, 2020	1:3,000 * when printed 11"x17"	Data Sources: AECOM, TRCA, MMAH, MECP, ESRI
P#:60494141	Rev:00	
AECOM		Figure 5-04

Map location: E:\TRA\60494141_ParkLawnLakeHigh\07_Reports\NaturalEnvMemo_20200930_60494141_EcologicalLandClassification_R00.mxd
Date Saved: 12/10/2020 11:10:10 AM User Name: cohens





Legend

- Primary Study Area

ELC Source

- AECOM ELC Aerial Interpretation 2016
- AECOM ELC Results from Ecosystems Existing Conditions Report - Ellis Av. & Colborne Lodge Dr. (HI) Wetland (ETWP014a) Final (AECOM 2016)
- Bonar Creek Stormwater Management Faciligy Legion Road Extension and Metrolinx Grade Separation - Terrestrial Existing Conditions Memoradum (AECOM 2018)
- TRCA ELC (2020)

ELC Code

BBO	CUT	SAS
CUH	CUW	SWT
CUM	FOD	TPO
CUP	MAS	
CUS	OAO	

Base Features

- Freeway
- Railway
- Major Road
- Watercourse
- Local Road

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Ecological Land Classifications (ELC) Vegetation Communities

0 20 40 80 120 160 200
Meters
DATUM: NAD 1983 UTM Zone 17N

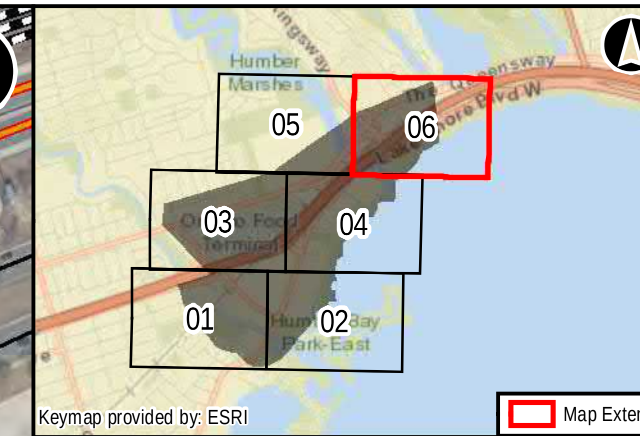
Dec, 2020	1:3,000 * when printed 11"x17"	Data Sources: AECOM, TRCA, MMAH, MECP, ESRI
P#:60494141	Rev:00	

AECOM

Figure 5-05

ELC Description

- CUP1-A: Restoration Deciduous Plantation
- CUT1-1: Sumac Cultural Thicket
- CUT1-A1: Native Deciduous Sapling Regeneration Thicket
- CUT1-c: Exotic Deciduous Thicket
- CUT1: Mineral Cultural Thicket
- CUW1: Mineral Cultural Woodland
- FOD4-b: Dry - Fresh Manitoba Maple Deciduous Forest
- MAS2-1b: Narrow-leaved Cattail Mineral Shallow Marsh
- OAO1-T: Turbid Open Aquatic



Legend

- Primary Study Area

ELC Source

- AECOM ELC Aerial Interpretation 2016
- AECOM ELC Results from Ecosystems Existing Conditions Report - Ellis Av. & Colborne Lodge Dr. (HI) Wetland (ETWP014a) Final (AECOM 2016)
- Bonar Creek Stormwater Management Faciligy Legion Road Extension and Metrolinx Grade Separation - Terrestrial Existing Conditions Memoradum (AECOM 2018)
- TRCA ELC (2020)

ELC Code

BBO	CUT	SAS
CUH	CUW	SWT
CUM	FOD	TPO
CUP	MAS	
CUS	OAO	

Base Features

- Freeway
- Railway
- Major Road
- Watercourse
- Local Road

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Ecological Land Classifications (ELC) Vegetation Communities

0 20 40 80 120 160 200
Meters
DATUM: NAD 1983 UTM Zone 17N

Dec, 2020	1:3,000 * when printed 11"x17"	Data Sources: AECOM, TRCA, MMAH, MECP, ESRI
P#:60494141	Rev:00	

AECOM

Figure 5-06

Map location: E:\PRJ\60494141_ParkLawn\Design\01_Reports\NatEnvMe...
Date Saved: 12/10/2020 11:10:45 AM User Name: oraws

ELC Description

- BBO1: Mineral Open Beach / Bar
- CUM1-1: Dry-Moist Old Field Meadow
- CUM1: Mineral Cultural Meadow
- CUT1-A1: Native Deciduous Sapling Regeneration Thicket
- CUT1: Mineral Cultural Thicket
- CUW1: Mineral Cultural Woodland
- CUW1: Mineral Cultural Woodland
- FOD4-b: Dry - Fresh Manitoba Maple Deciduous Forest
- OAO: Open

The other **Cultural Meadow** (**CUM1-c**) consisted of primarily grasses, Tall Goldenrod, Canada Thistle and Common St. John's Wort (*Hypercium perforatum*).

Cultural Plantation (CUP)

There were several cultural plantations identified by the TRCA along the Lake Ontario Shorelines and within the valleys of Mimico Creek and Humber River.

Hybrid Poplar Deciduous Plantations (**CUP1-4**) were prevalent and mainly dominated by Trembling Aspen in the tree canopy cover (35% to 60%). The ground cover (greater than 60%) of these young plantations generally consisted of the following common forb and grass species: Tall Goldenrod, New England Aster (*Symphyotrichum novae-angliae*), Common Burdock (*Arctium minus*), Awnless Brome (*Bromus inermis)* and Kentucky Bluegrass.

There were several young and pioneer **Restoration Deciduous Plantations** (**CUP1-A**) that were likely planted by TRCA. Within these plantations the tree cover varied between less than 10% and 60% and consisted of Trembling Aspen, Silver Maple (*Acer saccharinum*), Green Ash (*Fraxinus pennsylvanica*), White Ash (*Fraxinus americana*), Bayleaf Willow (*Salix pentandra*), Red Oak and Siberian Elm. Shrub species included Staghorn Sumac (*Rhus hirta*), Red-osier Dogwood, Fragrant Sumac (*Rhus aromatica*), Grey Dogwood, Silver Maple, White Willow, Red Oak, Nannyberry (*Viburnum lentago*) and Pin Cherry (*Prunus pensylvanica*). Ground cover consisted of grasses, Tall Goldenrod, New England Aster, White Panicle Aster (*Symphyotricum lanceolatum*), Japanese Hedge Parsley (*Torilis japonica*), Canada Thistle and Purple Flowering Raspberry (*Rubus odouratus*).

The **Elm Deciduous Plantation** (**CUP1-f**) was primarily dominated (greater than 60%) by English Elm (*Ulmus procera*) with lesser of Trembling Aspen. The shrub cover (25$ to 35%) consisted of Staghorn Sumac, Bell's Hybrid Honeysuckle (*Lonicera X bella*) and Red-osier Dogwood. The Ground cover (35% to 60%) was composed of Garlic Mustard (*Alliaria petiolata)*, Japanese Hedge Parsley and grasses.

The **Ash – Conifer Mixed Plantation** (**CUP2-G**) primarily consisted of Green Ash, Austrian Pine (*Pinus nigra*), Eastern White Pine (*Pinus strobus*) and Black Locust (*Robinia pseudoacacia*). Shrub cover (25% to 60%) consisted of Common Lilac (*Syringa vulgaris*), Morrow's Honeysuckle (*Lonicera morrowii*) and Common Buckthorn (*Rhamnus cathartica*). Ground cover (10% to 35%) consisted of New England Aster, Tall Goldenrod, Japanese Hedge Parsley, Garlic Mustard and grasses.

The **Mixed Conifer Coniferous Plantation** (**CUP3-H**) was primarily dominated by Eastern White Cedar (*Thuja occidentalis*), Austrian Pine and Norway Spruce (*Picea abies*). Shrub cover (25% to 35%) was dominated by European Spindle Tree (*Euonymus europaea*), Bell's Hybdrid Honesuckle, Trembling Aspen and Riverbank Grape (*Vitis riparia*). The ground cover was dominated by Garlic Mustard with lesser of Bitter-sweet Nightshade (*Solanum dulcamara*).

Cultural Savannah (CUS)

This Mineral Cultural Savannah (**CUS1-A1**) is located along the shoreline south of Humber Bay Park Road East. The tree cover was minimal (10% to 25%) and dominated by Eastern Cottonwood, Hybrid Willow, Siberian Elm, White Elm (*Ulmus americana*) and Green Ash. The shrub cover (10% to 25%) was dominated by Morrow's Honeysuckle, Staghorn Sumac and Missouri River Willow (*Salix eriocephala*). The ground cover (35% to 60%) was dominated by Tall Goldenrod, New England Aster, Riverbank Grape, Canada Thistle, Japanese Hedge Parsley, Cow Vetch (*Vicia cracca*) and grasses.

Cultural Thicket (CUT)

There were several cultural thickets identified by TRCA including:

- Sumac Cultural Thicket (**CUT1-1**),
- Grey Dogwood Cultural Thicket (**CUT1-4**),
- Native Deciduous Sapling Regeneration Thicket (**CUT1-A1**),
- Exotic Deciduous Thicket (**CUT1-c**),
- Red-osier Dogwood Deciduous Thicket (**CUT1-E**), and
- Willow Deciduous Thicket (**CUT1-G**).

Common tree species recorded in these thickets include Staghorn Sumac, Manitoba Maple, Silver Maple, Green Ash and Eastern Cottonwood. Shrub species included Grey Dogwood, Common Buckthorn, Siberian Elm, Red-osier Dogwood, Sandbar Willow (*Salix interior*), Morrow's Honeysuckle and Fragrant Sumac. Common ground cover species included Tall Goldenrod, Butter and Eggs, Garlic Mustard, Bird's-foot Trefoil, Common Milkweed (*Asclepias syriaca*), Urban Avens (*Geum urbanum*), New England Aster, White Heath Aster (*Symphyotrichum ericoides*), Japanese Hedge Parsley and grasses.

Cultural Woodland (CUW)

There are two types of Cultural Woodlands as identified by TRCA, including, native **Deciduous Successional Woodland** (**CUW1-A3**) and **Exotic Successional Woodland** (**CUW1-b**). The tree canopy covers (35% to 60%) of these woodlands were dominated by either Eastern Cottonwood or Manitoba Maple with lesser of Hybrid Willow, Black Locust, Siberian Elm and White Willow. The shrub cover (25% to 35%) generally consisted of Siberian Elm, Multiflora Rose (*Rosa multiflora*), Staghorn Sumac and Choke Cherry (*Prunus virginiana*). Common ground species included Japanese Knotweed (*Fallopia japonica*), Tall Goldenrod, Garlic Mustard, Cow Vetch, White Sweet Clover (*Melilotus alba*) and grasses.

Deciduous Forest (FOD)

Dry – Fresh Manitoba Maple Deciduous Forests (**FOD4-b**) are associated with Mimico Creek and Humber Valley. The tree canopy (greater than 60%) is dominated by Manitoba Maple with some Siberian Elm, American Basswood (*Tilia americana*), Hybrid Willow and White Ash. The shrub cover varied between 10% and 35% and contained Bell's Hybrid Honeysuckle, Choke Cherry, Norway Maple (*Acer platanoides*) and Manitoba Maple. The ground cover consisted of common herbaceous plants including Garlic Mustard, Japanese Hedge Parsley, Urban Avens, Enchanter's Nightshade (*Circaea lutetiana*), goldenrods and grasses.

Fresh-Moist Willow Lowland Forest (FOD7-3)

This community was dominated by Crack Willow in the canopy (greater than 60%) followed in dominance by Black Locust, Manitoba Maple, Basswood. Of lesser density (25-35%) was Choke Cherry, Norway Maple and White Ash. Some (<10%) Riverbank Grape and White Elm were also present. The ground layer was covered (>60%) by Garlic Mustard, Tall Goldenrod, Geum species and Bitter-sweet Nightshade.

Mineral Shallow Marsh (MAS)

Narrow-leaved Cattail Mineral Shallow Marshes (**MAS2-1b**) were largely associated with the Humber Valley and are part of the Provincially Significant Lower Humber River Wetland Complex. These were predominately composed of Glaucous Hybrid Cattail (*Typha X glauca*). Other plants recorded in this community by TRCA included Softstem Bulrush (*Schoenoplectus tabernaemontani*), Purple Loosestrife (*Lythrum salicaria*), Reed-canary Grass, Jewelweed, Marsh-pepper Smartweed (*Persicaria hydropiper*), Greater Duckweed (*Spirodela polyrrhiza*), Common Duckweed (*Lemna minor*) and Leafy Pondweed (*Potamogeton foliosus ssp. foliosus*).
Broad-leaved Cattail Mineral Shallow Marsh (**MAS2-1A**) was located near Mimino Creek and consisted of largely Broad-leaved Cattails (*Typha latifolia)* with lesser of Narrow-leaved Cattail (*Typha angustifolia*).

Bur-reed Mineral Shallow Marsh (**MAS2-7**) was located south of Humber Bay Park Road East along the shoreline of Lake Ontario. It was dominated by Broad-fruit Bur-reed (*Sparganium eurycarpum*), Glaucous Hybrid Cattail and River Bulrush (*Bolboschoenus fluviatilis*).

Forb Mineral Shallow Marsh (MAS2-9) was located on the west side of Mimico Creek south of Lakeshore Boulevard. 10-25% of cover was composed of Purple Loosestrife followed by Water Smart weed (*Persicaria amphibia*) and Reed Canary Grass. Less than 10% was covered by Common duckweed.

Common Reed Mineral Shallow Marsh (**MAS2-a**) was located on the east side of Mimico Creek at the southern edge of the Overall Study Area. This was represented by a monocultural community of Common Reed (*Phragmites australis*). A small (<10%) portion of this community did consist of Purple Loosestrife however.

Open Aquatic (OAO)

Open Aquatic (**OAO**) consisted of Mimico Creek south of crossing the railway ROW.

Turbid Open Aquatic (**OAO1-T**) consisted of open water areas on Mimico Creek north of the railway ROW as well as the Humber River north of the Queensway.

Submerged Aquatic (SAS)

Pondweed Submerged Shallow Aquatic (**SAS1-1**) consisted of primarily Curly pondweed (*Potamogeton crispus*) as well as Eurasian Water-milfoil (*Myriophyllum spicatum*) with 10-25% cover.

Swamp Thicket (SWT)

Willow Mineral Thicket Swamps (SWT2-2) were dominated by shrubs including Pussy Willow (*Salix discolor*), Missouri River Willow, and Sandbar Willow. A few trees were present such as Siberian Elm and White Elm. Ground cover consisted of Purple Loosestrife, Tall Goldenrod, Reed-canary Grass, Red-osier Dogwood, White Panicle Aster, Canada Anemone (*Anemone canadensis*), Common Reed, European Bugleweed, Canada Thistle and Ginger Hybrid Mint (*Mentha X gracilis*).

Open Tallgrass Prairie (TPO)

These **Fresh – Moist Tallgrass Prairies** (**TPO2-A**) were planted in 1999 through 2000 as part of the Humber Bay Butterfly Habitat along the Lake Ontario Shoreline in Humber Bay Shore Park. These were largely dominated (greater than 60%) by grass species including Kentucky Bluegrass, Red Fescue (*Festuca rubra ssp. rubra*), Old-switch Panic Grass (*Panicum virgatum),* Sideoats Grama (*Bouteloua curtipendula var. curtipendula*) and Meadow Fescue (*Schedonorus pratensis*). Forb species present within these communities included Tall Goldenrod, White Panicle Aster, New England Aster, Common Milkweed and Wild Bergamot (*Monarda fistulosa var. fistulosa*). Trees were sparse in these communities and composed of Eastern Cottonwood, Manitoba Maple, Siberian Elm, Bur Oak, Trembling Aspen, Choke Cherry and Green Ash.

The majority of the plant species that TRCA has recorded within these vegetation communities are common and widespread throughout Ontario; however, most of the vegetation communities contain non-native and /or invasive plants which are typical of an urbanized landscape. The TRCA has ranked the Bur-reed Mineral Shallow Marsh (MAS2-7) as regional concern (L3); however, this community is limited to the shoreline of the Lake Ontario and is not expected to be impacted by the proposed alternatives. The Fresh – Moist Tallgrass Prairies (TPO2-A) are generally ranked as S1 and are provincially significant; however, this applies to natural tall grass remnants. Those tall grass prairies found in the Overall Study Area were planted as part of the Humber Bay Butterfly Habitat and are therefore not naturally occurring.

TRCA also identified two provincially significant species, one (1) of which is also Threatened under the *ESA.* Dense Blazing-star (*Liatris spicata*) was recorded in the Open Tallgrass Prairie (TPO) and has a provincial S-rank of S2 as well as being listed as Threatened under the *ESA.* However, this plant was likely planted and not a wild occurrence. Swamp Rose-mallow (*Hibiscus moscheutos)* has a provincial S-rank of S3 and is listed as Special Concern. It was also located in the Open Tallgrass Prairie.

AECOM's Aerial Photography ELC Interpretation

Where ELC data from TRCA was unavailable within the Overall Study Area, AECOM supplemented these with an aerial photography interpretation using the ELC protocol. Interpretation was focused on naturalized areas rather than areas that were clearly planted or maintained within the road right of way or City Parks. The majority of these ELC communities were interpreted as cultural meadows, thickets and woodlands. These ELC communities are mapped on **Figure 5.** Using streetview on GoogleEarth, generally the most dominant type of trees in these areas consisted of Manitoba Maple, Russian Olive (*Elaeagnus angustifolia*), Black Walnut (*Juglans cinerae)* and Staghorn Sumac.

Ecosystems Existing Conditions Report, Ellis Avenue & Colborne Lodge Drive (H1) Wetland (ETWP014A) Final (AECOM, 2016)

There is no available ELC data from TRCA east of the Humber River and south of Lake Shore Boulevard West; however, AECOM completed ELC surveys on October 1, 2015 for a portion of this area as part of the Stormwater Management Pond Facility Condition Assessments for the City of Toronto.

AECOM biologists investigated vegetation communities surrounding the stormwater management pond and identified two (2) types of communities: **Cultural Woodland Ecosite** (**CUW1**) and **Mineral**

Cultural Meadow Ecosite (**CUM1**). The methods and results of this survey are provided in detail in the *Ecosystems Existing Conditions Report Ellis Av & Colborne Lodge Dr (H1) Wetland (ETWP014A) Final (AECOM, 2016).* The plant composition and structure for each of these communities are briefly described as follows and mapped on **Figure 5**.

Cultural Woodland (CUW1)

Species within the canopy included Silver Maple*,* Black Maple *(Acer nigrum),* Norway Maple, Red Maple *(Acer rubrum),* Manitoba Maple*,* Colorado Spruce *(Picea pungens),* Bur Oak*,* Green Ash*,* Trembling Aspen*,* Common Hackberry *(Celtis occidentalis),* and White Elm*.* The ground cover consisted of occasional Common Milkweed*),* Orchard Grass *(Dactylis glomerata*), Wild Carrot*,* and Garlic Mustard*.*

Cultural Meadow Ecosite (CUM1)

Trees and shrubs adjacent to the stormwater pond were included as part of the cultural meadow community and included Silver Maple, Manitoba Maple*,* Colorado Spruce*,* Staghorn Sumac*,* and Gray Dogwood*.* Dominant herbaceous species included goldenrods, Wild Carrot*,* Canada Thistle*,* Cow Vetch*,* Wild Bergamot and Chicory *(Cichorium intybus)*.

Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Terrestrial Existing Conditions Memorandum (AECOM, 2019)

For the portion of the Overall Study Area west of Park Lawn Road, AECOM completed field investigations on May 1, June 15 and 25, 2018 and March 16, 2019 as a part of the Bonar Creek Stormwater Management Facility Condition Assessment for the City of Toronto. The methods and results of this survey are provided in detail in the *Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Terrestrial Existing Conditions Memorandum (AECOM, 2019).*

AECOM biologists investigated vegetation communities surrounding Bonar Creek and identified six communities within the Overall Study Area. The majority of the vegetation communities were noted to be disturbed as evidenced by high proportions of non-native and/or invasive species. Brief descriptions are provided for the following vegetation communities, which are also mapped on **Figure 5**:

Mineral Cultural Meadow (CUM1)

Cultural meadows within the Overall Study Area generally consisted of the following common herbaceous and graminoid species: Smooth Brome, Kentucky Blue Grass, Hedge Bindweed (*Calystegia sepium*), Cow vetch, Canada Goldenrod (*Solidago canadensis*), Tall Goldenrod, asters, Canada Thistle, Common Milkweed, Alsike Clover (*Trifolium hybridum*), Wild Carrot and White Sweet Clover *(Melilotus alba*). Dominance of these species varied at different CUM1 locations but generally consisted of similar species. Isolated and scattered trees in CUM1 communities included Manitoba Maple, Crack Willow (*Salix fragilis*), Horsetail (*Equisetum arvense*), Eastern Cottonwood and Silver Maple. This community included a Cattail Mineral Shallow Marsh (MAS2-1) inclusion along Bonar Creek.

Cattail Mineral Shallow Marsh (MAS2-1) Inclusion

This community was present along Bonar Creek and was dominated by Narrow-Leaved Cattail with lesser amounts of Hedge Bindweed, Spotted Jewelweed and Water Pepper.

Fresh-Moist Willow Lowland Forest (FOD7-3)

This community was dominated by Crack Willow in the canopy. The sub-canopy generally consisted of Manitoba Maple, Tree-of-Heaven (*Ailanthus altissima*) and Siberian Elm. The shrub layer consisted of Manitoba Maple with lesser amounts of Choke Cherry and Common Buckthorn. Common herbaceous species in the ground layer included Garlic Mustard, Herb-Robert (*Geranium robertianum*) and Canada Goldenrod. This community included a Cattail Mineral Shallow Marsh (MAS2-1) inclusion along Bonar Creek (see description above).

Fresh-Moist Siberian Elm-Crack Willow Deciduous Forest (FOD7a)

This riparian community was more prevalent along Mimico Creek and was dominated by Siberian elm with lesser of Crack Willow. Manitoba Maple and Norway Maple were co-dominant in the sub-canopy layer with lesser amounts of Choke Cherry, White Ash, Red-osier Dogwood and European Spindle Tree. The ground cover primarily consisted of various grasses, Herb-Robert, and goldenrods. There were more managed areas (i.e., mowed lawns and plantings) on the east side of Mimico Creek. Planted shrubs and trees on the east bank included European Alder (*Alnus glutinosa*), Elderberry (*Sambucus s*.), Gray Dogwood, White Oak, White Spruce (*Picea glauca*), Elm (*Ulmus sp*.) and Norway Maple.

Dry-Fresh Poplar Deciduous Forest (FOD3-1)

The canopy of this community was dominated by eastern cottonwood. The understory was dominated by Manitoba Maple with lesser amounts of Tree-of-Heaven. The shrub layer was dominated by Manitoba Maple with some Virginia Rose (*Rosa virginiana*), Staghorn Sumac (*Rhus typhina*), Tartarian Honeysuckle *(Lonicera tartarica*) and Common Buckthorn. In shaded areas, the ground cover consisted of Garlic Mustard, Herb-Robert, Wood Avens while goldenrods, grasses and Cow Vetch were more common in sunny areas. This community also included a mineral cultural thicket (CUT1) inclusion that was dominated by Virginia Rose. This FOD3-1 community is suspected to have been planted as part of restoration efforts. This community included a Cattail Mineral Shallow Marsh (MAS2-1) inclusion along Bonar Creek (see description above).

Mineral Crack Willow Cultural Woodland (CUW1c)

This cultural woodland was generally similar in composition to the Fresh-Moist Willow Lowland Forest (FOD7-3) however the tree canopy cover was less than 60% due to a transmission line going through the vegetation community along Harbourview Crescent.

Wildlife

Resident/Migratory Birds

Important Bird Areas (IBA) are areas that support avian fauna, including rare birds, large groups of birds and those species with limited geographical ranges and habitat that meet standardized, international and scientific criteria. Based on the review of IBA Canada's (2015) interactive map, there are no IBAs located in or in the vicinity of the Overall Study Area.

A list of breeding bird species within or in the vicinity of the Overall Study Area was obtained from the Atlas of Breeding Birds of Ontario (OBBA) 2001-2005 Database (BSC *et al.*., 2006). The Overall Study Area falls within a 10 x 10 km UTM square (ID 17PJ23) wherein a total of 111 bird species with some level of breeding evidence were identified. Of these, five (5) species are designated as Threatened and protected under the *ESA* and five (5) species are designated as Special Concern.

Additionally, as a part of the Bonar Creek Stormwater Management Facility Condition Assessment breeding bird surveys were conducted within a portion of the Overall Study Area west of Park lawn Road on June 15 and 25, 2018. The methods of this study were conducted generally following the Ontario Breeding Bird Atlas Guide for Participants (BSC., et al.., 2001) were completed at eight point count station wherein Biologists listened and recorded bird species for 10 minutes at each bird count. From this study one bird SAR, Barn Swallow (*Hirundo rustica*), a species listed as Threatened under the *ESA*, was recorded on both site visits. Approximately 10 Barn Swallows were observed flying in and out of the Lakeshore Boulevard Bridge over Mimico Creek, which is located within the Overall Study Area. Although nests under the bridge could not be visually confirmed, they were assumed to be present as Barn Swallows were observed collecting mud from the banks of Mimico Creek and flying under the bridge. Suitable nesting habitat for Barn Swallows may also be present adjacent to the Overall Study Area in culverts, bridges or buildings in the surrounding residential/commercial areas.

In addition, three or four Black-crowned Night Herons (*Nycticorax nycticorax*) were present during all site visits, including both breeding bird survey visits, in the canopy of the FOD7 vegetation community along the bank of Mimico Creek. This species is a SOCC and although is not protected under the *ESA,* it is considered to be provincially significant. There is a relatively large nesting colony (1,224-2390 individuals) of Black-crowned Night Herons located at the Leslie Street Spit, which is an IBA and located approximately 12 km from the Overall Study Area (BirdLife International, 2018). This species may fly from the nesting colony to other areas during evening and night time to forage. It is suspected that the treed riparian areas near Mimico Creek within the Overall Study Area are being used as foraging and/or roosting habitat and not nesting habitat by this species as no stick nests were observed on May 1, 2018 or March 12, 2019 during the leaf-off season. Peregrine Falcon (*Falco peregrinus*) another SOCC was also incidentally observed flying over Grand Avenue Park which is located within the vicinity of the Overall Study Area.

Mammals

The City of Toronto has a high diversity of urban wildlife that has adapted to survive in a heavily developed and densely populated area. Forested ravines, city parks and open spaces that make up the City of Toronto's NHS provide important habitats for mammals (City of Toronto, 2012a). The forested ravines, such as those along the Humber River, act as wildlife corridors and allow for the movement of mammals between different areas to seek food, shelter and mates (City of Toronto, 2012a). The Lake Ontario shorelines also provide important habitats (City of Toronto, 2012a).

According to the Atlas of the Mammals of Ontario (Dobbyn, 1994), Bats Conservation International (BCI, 2016), and fauna records provided by TRCA on July 4, 2016, there are records of 29 mammal species that occur or have been known to occur in or within the Overall Study Area; these are summarized in **Table 4-2**. The majority of these mammals are common and widespread throughout Ontario; however, the Little Brown Myotis (*Myotis lucifugus*), Eastern Small-footed Myotis (*Myotis leibii)*, Northern Long-eared Myotis (*Myotis septentrionalis)* and Tri-coloured Bat (*Perimyotis subflavus)* are designated as Endangered and are protected under the *ESA.* As a part of the Bonar Creek Stormwater Management Facility Condition Assessment, six acoustic monitoring stations were installed within suitable ELC vegetation communities which are located within the Overall Study Area west of Parklawn Road in order to survey for bats. As a result of the acoustic monitoring, there were 1127 recorded passes, including calls from four Ontario bat species, all of which were common and not listed as at risk under the *ESA* or *SARA*. There were no calls identified as confirmed bat SAR recorded for the duration of the survey period. The methods and full results of this survey are provided in detail in the *Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Terrestrial Existing Conditions Memorandum (AECOM, 2019b).*

In addition, there were anecdotal sightings of Coyotes (*Canis latrans*) reported to the City of Toronto in the Bonar Creek Study Area. MNRF also noted that there are white-tailed deer (Odocoileus virginianus) tracks throughout the forested area of the Bonar Creek Study Area via personal communication with Mark Heaton, MNRF Aurora District Biologist, on January 21, 2019.

Table 4-2: Records of Mammals in or within the Overall Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	*ESA* Status[2]	*SARA* Status[3]
Bat	Little Brown Myotis	*Myotis lucifugus*	S4	END	END
	Hoary Bat	*Lasiurus cinereus*	S4	-	-
	Silver-haired Bat	*Lasionycteris noctivagans*	S4	-	-
	Eastern Red Bat	*Lasiurus borealis*	S4	-	-
	Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END	-
	Northern Long-eared Myotis	*Myotis septentrionalis*	S3	END	END
	Big Brown Bat	*Eptesicus fuscus*	S5	-	-
	Tri-coloured Bat	*Perimyotis subflavus*	S3?	END	END
Carnivore	Eastern Coyote	*Canis latrans*	S5	-	-
	Common Raccoon	*Procyon lotor*	S5	-	-
	Striped Skunk	*Mephitis mephitis*	S5	-	-
	Red Fox	*Vulpes 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	-	-
	Deer Mouse	*Peromyscus maniculatus*	S5	-	-

Taxon	Common Name	Scientific Name	S-Rank[1]	*ESA* Status[2]	*SARA* Status[3]
	Eastern Grey Squirrel	*Sciurus carolinensis*	S5	-	-
	Eastern Chipmunk	*Tamias striatus*	S5	-	-
	Groundhog	*Marmota monax*	S5	-	-
	House Mouse	*Mus musculus*	SNA	-	-
	Meadow Vole	*Microtus pennsylvanicus*	S5	-	-
	Norway Rat	*Rattus norvegicus*	SNA	-	-
	Muskrat	*Ondatra zibethicus*	S5	-	-
	Red Squirrel	*Tamiasciurus hudsonicus*	S5	-	-
	White-footed Mouse	*Peromyscus leucopus*	S5	-	-
Shrew	Northern Short-tailed Shrew	*Blarina brevicauda*	S5	-	-
	Common Shrew	*Sorex cinereus*	S5	-	-
Ungulate	White-tailed Deer	*Odocoileus virginianus*	S5	-	-
Weasel	American Mink	*Mustela vison*	S4	-	-

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF Natural Heritage Information Centre (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 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

Herpetofauna

Wetland communities associated with the Humber River valley system as well as the lakeshore of Lake Ontario provide important amphibian and reptile habitats (City of Toronto, 2012b). Records from the Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2020) for in or within the vicinity of the Overall Study Area are summarized in **Table 4-3**. There are records of 20 amphibians known to occur in or within the vicinity of the Overall Study Area. The majority of these species are common and tolerant to urban disturbances with the exception of Blanding's Turtle, which is designated as Threatened, and Northern Map Turtle and Snapping Turtle (*Chelydra serpentina)*, which are designated as Special Concern under the *ESA.*

Table 4-3: Records of Herpetofauna in or within the Overall Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	*ESA* Status[2]	*SARA* Status[3]
Amphibian	American Bullfrog	*Lithobates catesbeianus*	S4	-	-
	American Toad	*Anaxyrus americanus*	S5	-	-
	Eastern Red-backed Salamander	*Plethodon cinereus*	S5	-	-
	Green Frog	*Lithobates clamitans*	S5	-	-
	Mudpuppy	*Necturus maculosus*	S4	-	-
	Northern Leopard Frog	*Lithobates pipiens*	S5	-	-
	Spring Peeper	*Pseudacris crucifer*	S5	-	-
	Western Chorus Frog (Carolinian Population)	*Pseudacris triseriata*	S4	-	-
	Wood Frog	*Lithobates sylvaticus*	S5	-	-
Snake	DeKay's Brownsnake	*Storeria dekayi*	S5	-	-
	Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5	-	-
	Milksnake	*Lampropeltis triangulum*	S4	-	-
	Northern Watersnake	*Nerodia sipedon sipedon*	S5	-	-
	Ring-necked Snake	*Diadophis punctatus*	S4	-	-
	Smooth Greensnake	*Opheodrys vernalis*	S4	-	-
Turtle	Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR
	Midland Painted Turtle	*Chrysemys picta marginata*	S4	-	-
	Eastern Musk Turtle	*Sternotherus odoratus*	S3	SC	SC
	Northern Map Turtle	*Graptemys geographica*	S3	SC	SC
	Red-eared Slider	*Trachemys scripta elegans*	SE2	-	-
	Snapping Turtle	*Chelydra serpentina*	S3	SC	SC

Notes 1, 2 and 3 – See Notes at the Bottom of Table 4-2.

Significant Wildlife Habitats

The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015) was used to identify the presence of SWH within the Overall Study Area based on the background review. The Overall Study Area primarily consists of residential and industrial buildings, paved roads and manicured grass lawns with minimal natural vegetation that does not support high functioning habitat for wildlife; however, natural areas associated with Bonar Creek, Mimico Creek, Humber River and Lake Ontario Shoreline located on the periphery of the Overall Study Area may support SWH, including the following:

- Confirmed and Candidate Bat Maternity Colonies
- Candidate Landbird Migratory Stopover Area
- Candidate Turtle Overwintering Areas
- Candidate Turtle Nesting Areas
- Candidate Amphibian Woodland / Wetland Breeding Habitats
- Candidate Amphibian Movement corridors
- Candidate Habitats for the following SOCC with medium to high likelihoods of being present within the Overall Study Area (refer to **Table 4-7** for SOCC habitat screening):
    - Bald Eagle (*Haliaeetus leucocephalus*);
    - Black-crowned Night Heron;
    - Canvasback (*Aythya valisineria*);
    - Common Nighthawk (*Chordeiles minor*);
    - Eastern Wood-pewee (*Contopus virens*);
    - Grasshopper Sparrow (*Ammodramus savannarum*);
    - Great Egret (*Ardea alba*);
    - horned Grebe (*Podiceps auratus*);
    - Peregrine Falcon;
    - Purple Martin (*Progne subis*);
    - Red-headed woodpecker;
    - Wood Thrush (*Hylocichla mustelina*);
    - Black Dash (*Euphyes conspicua*);
    - Hackberry Emperor (*Asterocampa celtis*);
    - Lilypad Clubtail (*Arigomphus furcifer*);
    - Monarch (*Danus plexippus*);
    - Yellow-banded Bumblebee (*Bombus terricola*);
    - Old-field Toadflax (*Nuttallanthus canadensis*);
    - Swamp Rose-mallow;
    - Eastern Musk Turtle;
    - Northern Map Turtle; and
    - Snapping Turtle.

The Humber Bay Park located along the Lake Ontario Shoreline and Humber Marshes Areas, which are located along the Humber River, support approximately 1.84% and 0.75% of total migrant records collected by the Toronto Ornithological Club between 1990 and 2007 (Dougan & Associates and North-South Environmental Inc., 2009). The Provincially Significant Lower Humber River Wetland Complex acts as an important stopover area for migrating songbirds and is approximately 7 km from the West End of Lake Ontario Important Bird Area (North-South Environmental Inc. and Dougan & Associates, 2009). High Park, which is located approximately 44 m east from the Overall Study Area, supports

approximately 20% of total migrant songbirds and is the third most significant migratory bird stopover location in the City of Toronto (Dougan & Associates and North-South Environmental Inc., 2009).

Moreover, turtle overwintering areas include permanent water bodies and large wetlands with soft mud substrates, adequate dissolved oxygen and water levels deep enough so that it does not freeze entirely in the winter (MNRF, 2015). The Humber River, Lake Ontario and sections of Mimico Creek are candidate turtle overwintering areas. In addition, sandy and gravel banks of these watercourses and waterbodies may also be used as turtle nesting areas as well.

The Provincially Significant Lower Humber River Wetland Complex is believed to also support significant amphibian breeding populations and acts as an amphibian movement corridor. Generally, forested ravines, city parks and open spaces that make up the City's Natural Heritage System provide important land linkages that facilitate wildlife movement across the urbanized landscape (MNRF, 2000). The most significant wildlife movement corridor within the Overall Study Area is the Humber River Valley which supports the movement of migrant birds, mammals, amphibians, reptiles and insects (2012a and 2012b; Dougan & Associates and North-South Environmental Inc., 2009).

In addition to this, field investigations conducted by AECOM within the Bonar Creek Study Area identified Fresh-moist Willow Lowland Forest (FOD7-3) and Dry-fresh Poplar Deciduous Forest (FOD3-1) as assumed significant bat maternity habitat which was assessed by acoustic monitoring (AECOM, 2019b). During these field investigations three SOCC were also observed including Black-crowned Night Heron, Monarch and Peregrine Falcon. The forested riparian banks of Mimico Creek were considered to have provided suitable roosting and foraging habitat for Black-crowned Night Heron and the cultural meadow habitat observed could have provided suitable breeding and foraging habitat for Monarch. Small patches of Common Milkweed were noted but no caterpillars were identified. High rise buildings surrounding and within the Overall Study Area were also noted which may have provided suitable nesting habitat for Peregrine Falcon.

Terrestrial Species at Risk and Species of Conservation Concern

The *Make-a-Map: Natural Heritage Areas Application* (MNRF, 2020) was used to search for NHIC rare species records within 1 km of the Overall Study Area. The results of this search are presented in **Table 4-4**. The majority of the rare species records obtained from NHIC are considered to be historical (i.e., those greater than 20 years old). Given the amount of urban development in recent years, it is considered unlikely that those species still occur in the Overall Study Area. However, more current records include two SAR, including Barn Swallow and Butternut, and one SOCC, Snapping Turtle. One other SAR record with an unknown last record date included Bank Swallow along with four SOCC consisting of Eastern Wood-pewee, Yellow-banded Bumblebee, Lilypad Clubtail, and Old-field Toadflax.

Table 4-4: NHIC Rare Species Records within 1 km of the Overall Study Area

Taxon	Scientific Name	Common Name	S-Rank[1]	*ESA* Status[2]	*SARA* Status[3]	Date Last Observed
Bird	*Riparia riparia*	Bank Swallow	S4B	THR	THR	Unknown
	Hirundo rustica	Barn Swallow	S4B	THR	THR	2001-??-??
	Contopus virens	Eastern Wood-pewee	S4B	SC	SC	Unknown
	Ixobrychus exilis	Least Bittern	S4B	THR	THR	1915-05-22

Table 4-4: NHIC Rare Species Records within 1 km of the Overall Study Area

Taxon	Scientific Name	Common Name	S-Rank[1]	*ESA* Status[2]	*SARA* Status[3]	Date Last Observed
Insect	*Polystoechotes punctatus*	Giant Lacewing	SH			1934-08-00
	Chlosyne gorgone	Gorgone Crescentspot	S2			1891-06-06
	Aeshna verticalis	Green-striped Darner	S3			1909-09-27
	Arigomphus furcifer	Lilypad Clubtail	S3			Unknown
	Libellula semifasciata	Painted Skimmer	S2			1936-06-12
	Epiaeschna heros	Swamp Darner	S2S3			1939-06-14
	Lycaeides melissa samuelis	Karner Blue	SX	EXP	EXP	Unknown
	Bombus terricola	Yellow-banded Bumblebee	S3S5	SC	SC	Unknown
Plant	*Actaea racemosa*	Black Cohosh	S2			1974-10-05
	Dichanthelium praecocius	Early-branching Panicgrass	S3			1911
	Erythranthe geyeri	Geyer's Yellow Monkeyflower	S1			1922-09-17
	Hypericum prolificum	Shrubby St. John's-wort	S2			1976-08
	Lupinus perennis	Sundial Lupine	S3			1962-06-01
	Juglans cinerea	Butternut	S3?	END	END	2006-11-29
	Nuttallanthus canadensis	Old-field Toadflax	S1			Unknown
Snake	*Regina septemvittata*	Queensnake	S2	END	END	1858-00-00
Turtle	*Chelydra serpentina*	Snapping Turtle	S3	SC	SC	2009-06-00
	Emydoidea blandingii	Blanding's Turtle	S3	THR	THR	1999-05-31
	Sternotherus odouratus	Eastern Musk Turtle	S3	SC	SC	1969-?
	Graptemys geographica	Northern Map Turtle	S3	SC	SC	1988-06-26
Restricted	Not applicable	RESTRICTED SPECIES	-	-		1983

Notes 1, 2 and 3 – See Notes at the Bottom of Table 4-2.

MNRF provided a response to AECOM's request for information on August 5, 2016 indicating that they have records of Barn Swallow, Chimney Swift and Common Nighthawk in the vicinity of the Overall Study Area. As the province has not been surveyed comprehensively for the presence of SAR, the absence of a species from the NHIC or MNRF records for the Overall Study Area does not necessarily confirm the absence of the species from the site. Therefore, records obtained from various wildlife atlases (refer to **Section 3.1**) and correspondence with the MNRF and TRCA were used to create comprehensive lists of all potential SAR and SOCC located within the Overall Study Area. Habitat assessments were also completed for SAR and SOCC as discussed in **Sections 4.3** and **4.4** below.

4.2 Aquatic Environment

The following sections summarize the information collected from background information sources, data received from agencies, and results from the aquatic field investigations as they pertain to fish and fish habitat features in the Overall Study Area.

4.2.1 The Humber River

Encompassing approximately 911 square kilometres (km^2), the Humber River Watershed is the largest watershed in the TRCA's jurisdiction. The Humber River headwaters originate on the Niagara

Escarpment and the Oak Ridges Moraine and flow down the Humber River into Lake Ontario. The Humber River is a designated Canadian Heritage River due to its rich history in the area (TRCA, 2016).

The overall Overall Study Area is largely defined by urbanization. The Overall Study Area encompasses many recreational paths, parks, beach areas, pedestrian bridges, a dog park, and major road arteries.

The Humber River was assessed within the Overall Study Area during a site visit completed on July 27, 2016, from the confluence at Lake Ontario to the PSW located approximately 250 m upstream of the Queensway overpass. A photo log of the aquatic field investigation is provided in **Appendix A**. At the confluence to Lake Ontario, the shoreline was hardened by armour stone, large boulders, and concrete walls. Residential condominiums and a paved pedestrian walkway are located immediately west of the pedestrian bridge, at Lake Ontario on the left bank looking upstream. Break-walls (shoreline protection) made of large armour stone were observed looking upstream at the right bank immediately upstream of the pedestrian bridge at the confluence to Lake Ontario. Vegetation was present between the asphalt path and residential area along the left bank looking upstream. The hardened shoreline along the Humber River continued under the Lake Shore Boulevard Bridge, the Gardiner Expressway Bridge and the Metrolinx rail bridge. These structures consist of an approximately 50 m span and the columns/piers supporting the structure are located below the high water mark (HWM) of the River.

Immediately upstream of the Queensway Bridge, approximately 40 m north of the rail bridge, the shoreline on both the right and left banks are more naturalized. Within this stretch of the Humber River, the wetted width is approximately 30-40 m. Large mature trees (Willow, Maple, Ash) were present on the right bank looking upstream with no hardening of the shoreline (i.e., rip-rap, gabions, etc.). The Lower Humber River Wetland Complex is located upstream of the Queensway Bridge, on the left bank (looking upstream). This complex is listed as a PSW and is therefore afforded protection under the *PSS*. The PSW complex adjacent to the river was approximately 20 m wide on the left bank. Further upstream, the wetland was approximately 75 m wide and the wetted width of the river was 50 m. Unidentified Young of Year (YOY) fish were observed near the wetland area at the upstream portion of the Overall Study Area. Algae were prevalent; however, no other instream vegetation was observed. The substrate appeared to be a combination of sand and gravel with cobble and boulders observed throughout. The water appeared turbid near the wetland, where minimal flow within the river was present. The banks appeared moderately stable and well vegetated. Given the connection of the Humber River to Lake Ontario, the Humber River acts as a valuable migratory route for various species, including migratory salmonids (TRCA, 2008). Habitat conditions within the assessed area were generally non-limiting throughout.

4.2.1.1 Fish Records of the Lower Humber River

Background information received from the TRCA reveals a diverse population of fish species who utilize the lower Humber River. Email correspondence from MNRF Biologist Mark Heaton, dated July 4, 2016, stated that the Lower Humber River has a resident warm water fish community and a migratory cold water community derived from Lake Ontario. A copy of the Lower Humber River PSW Evaluation Report (MNRF, 2007a) was provided by the MNRF on August 5, 2016, the findings of which indicated that a total of fifty (50) fish species have been recorded in the Lower Humber River PSW between 1975 and 2004. These fish records and associated significance are summarized in **Table 4-5** below. The majority of the fish species are common; however, Pugnose Minnow

(*Opsopoeodus emiliae)* and Bridle Shiner (*Notropis bifrenatus*) are designated as Threatened and Special Concern under the *ESA,* respectively, and were recorded in 1996. Pugnose Minnow is also designated as Threatened under the *SARA*.

Table 4-5: MNRF Fish Records for the Lower Humber River PSW

Common Name	Scientific Name	S-Rank[1]	*ESA* Status[2]	*SARA* Status[3]
Alewife	*Alosa pseudoharengus*	SNA	-	-
Black Crappie	*Pomoxis nigromaculatus*	S4	-	-
Blacknose Dace	*Rhinichthys atratulus*	S5	-	-
Bluegill	*Lepomis macrochirus*	S5	-	-
Bluntnose Minnow	*Pimephales notatus*	S5	NAR	NAR
Bowfin	*Amia calva*	S4	-	-
Bridle Shiner	*Notropis bifrenatus*	S2	SC	SC
Brook Stickleback	*Culaea inconstans*	S5	-	-
Brown Bullhead	*Ameiurus nebulosus*	S5	-	-
Brown Trout	*Salmo trutta*	SNA	-	-
Chinook Salmon	*Oncorhynchus tshawytscha*	SNA	-	-
Common Carp	*Cyprinus carpio*	SNA	-	-
Common Shiner	*Luxilus cornutus*	S5	-	-
Creek Chub	*Semotilus atromaculatus*	S5	-	-
Emerald Shiner	*Notropis atherinoides*	S5	-	-
Fantail Darter	*Etheostoma flabellare*	S4	-	-
Fathead Minnow	*Pimephales promelas*	S5	-	-
Freshwater Drum	*Aplodinotus grunniens*	S5	-	-
Gizzard Shad	*Dorosoma cepedianum*	S4	-	-
Golden Shiner	*Notemigonus crysoleucas*	S5	-	-
Goldfish	*Carassius auratus*	SNA	-	-
Hornyhead Chub	*Nocomis biguttatus*	S4	NAR	NAR
Johnny Darter	*Etheostoma nigrum*	S5	-	-
Lake Chub	*Couesius plumbeus*	S5	-	-
Largemouth Bass	*Micropterus salmoides*	S5	-	-
Longnose Dace	*Rhinichthys cataractae*	S5	-	-
Longnose Gar	*Lepisosteus osseus*	S4	-	-
Mimic Shiner	*Notropis volucellus*	S5	-	-
Northern Hog Sucker	*Hypentelium nigricans*	S4	-	-
Northern Pike	*Esox lucius*	S5	-	-
Pugnose Minnow	*Opsopoeodus emiliae*	S2	THR	THR
Pumpkinseed	*Lepomis gibbosus*	S5	-	-
Rainbow Darter	*Etheostoma caeruleum*	S4	-	-
Rainbow Smelt	*Osmerus mordax*	S5	-	-
Rainbow Trout	*Oncorhynchus mykiss*	SNA	-	-
Redfin Shiner	*Lythrurus umbratilis*	S4	NAR	NAR
River Chub	*Nocomis micropogon*	S4	NAR	NAR
Rock Bass	*Ambloplites rupestris*	S5	-	-
Sand Shiner	*Notropis stramineus*	S4	-	-
Smallmouth Bass	*Micropterus dolomieu*	S5	-	-
Spotfin Shiner	*Cyprinella spiloptera*	S4	-	-
Spottail Shiner	*Notropis hudsonius*	S5	-	-
Stonecat	*Noturus flavus*	S4	-	-
Walleye	*Sander vitreus vitreus*	S5	-	-
White Bass	*Morone chrysops*	S4	-	-
White Crappie	*Pomoxis annularis*	S4	-	-
White Perch	*Morone americana*	SNA	-	-
White Sucker	*Catostomus commersoni*	S5	-	-
Yellow Perch	*Perca flavescens*	S5	-	-

Notes 1, 2 and 3 – See Notes at the Bottom of Table 4-2.

Mimico Creek and Bonar Creek

For the portion of the Overall Study Area west of Park Lawn Road, AECOM completed field investigations of Bonar Creek and its confluence to Mimico Creek on June 15, 2018 as a part of the Bonar Creek Stormwater Management Facility Condition Assessment for the City of Toronto (AECOM, 2019).The methods and results of this survey are provided in detail in the Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Aquatic Existing Conditions Memorandum (AECOM, 2019).

Mimico Creek at its confluence with Bonar Creek is identified as a permanent flowing system. At the time of assessment, the mean wetted width was approximately 11 m. Reach morphology was dominated by a run at the confluence with Bonar Creek. The banks were naturalized near the waters edge with residential and commercial buildings approximately 50 m beyond the waters edge. It is likely that Mimico Creek provides spawning and rearing habitat for a variety of warmwater forage fish. Habitat conditions within the assessed area were generally non-limiting throughout. No habitat classified as critical by the Species at Risk Act (*SARA*) and no aquatic SAR were identified.

Bonar Creek

Bonar Creek at its confluence with Mimico Creek is identified as a permanent slow flowing system. At the time of assessment, the mean wetted width of the creek varied from 0.3 m to 5 m and the mean water depth was 0.02 m to 0.7 m. Reach morphology was dominated by pools at the confluence with Mimico Creek and glides further upstream with some riffles present. Substrates were comprised predominately of silt and detritus. The banks were observed to be moderately unstable (left bank) to stable (right bank) with minimal slope. A slight sheen was observed on the water, typical of a disturbed urban watercourse. Young of year (YOY) Cyprinids were observed within Bonar Creek at its confluence with Mimico Creek. Further upstream, multiple barriers to fish passage were identified, limiting access for fish to the upper most reaches of Bonar Creek.

In summary, the fish habitat of Bonar Creek provides foraging, rearing and refuge for a variety of warm/cool forage fish, most importantly at the confluence of Mimico Creek and Bonar Creek. Habitat conditions of Bonar Creek within the assessed Overall Study Area were generally non-limiting throughout. No habitat was classified as critical by the *SARA* and no aquatic SAR were identified.

Fish Records of Mimico Creek

The fish records for Mimico creek as shown below in **Table 4-6** are representative of a warm/cool water forage fish community with generally non-limiting habitat requirements.

Table 4-6: MNRF Fish Records for Mimico Creek

Common Name	Scientific Name	S-Rank[1]	*ESA* Status[2]	*SARA* Status[3]
Blacknose Dace	*Rhinichthys atratulus*	S5	-	-
Black Crappie	*Pomoxis negromaculatus*	S4	-	-
Bluegill	*Lepomis macrochirus*	S5	-	-
Bluntnose Minnow	*Pimephales notatus*	S5	NAR	NAR
Brook Stickleback	*Culaea inconstans*	S5	-	-
Brown Bullhead	*Ameiurus nebulosus*	S5	-	-
Common Carp	*Cyprinus carpio*	SNA	-	-
Common Shiner	*Luxilus cornutus*	S5	-	-
Creek Chub	*Semotilus atromaculatus*	S5	-	-
Emerald Shiner	*Notropis atherinoides*	S5	-	-
Fathead Minnow	*Pimephales promelas*	S5	-	-
Lake Chub	*Couesius plumbeus*	S5	-	-
Largemouth Bass	*Micropterus salmoides*	S5	-	-
Longnose Dace	*Rhinichthys cataractae*	S5	-	-
Mimic Shiner	*Notropis volucellus*	S5	-	-
Northern Pike	*Esox lucius*	S5	-	-
Pumpkinseed	*Lepomis gibbosus*	S5	-	-
Rock Bass	*Ambloplites rupestris*	S5	-	-
Round Goby	*Neogobius melanostomus*	-	-	-
Spotfin Shiner	*Cyprinella spiloptera*	S4	-	-
Spottail Shiner	*Notropis hudsonius*	S5	-	-
Tessellated Darter	*Etheostoma olmstedi*	S5	-	-
White Sucker	*Catostomus commersonii*	S5	-	-
Yellow Perch	*Perca flavescens*	S5	-	-

Notes 1, 2 and 3 – See Notes at the Bottom of Table 4-2.
(MNRF, 2016)

Aquatic Species at Risk

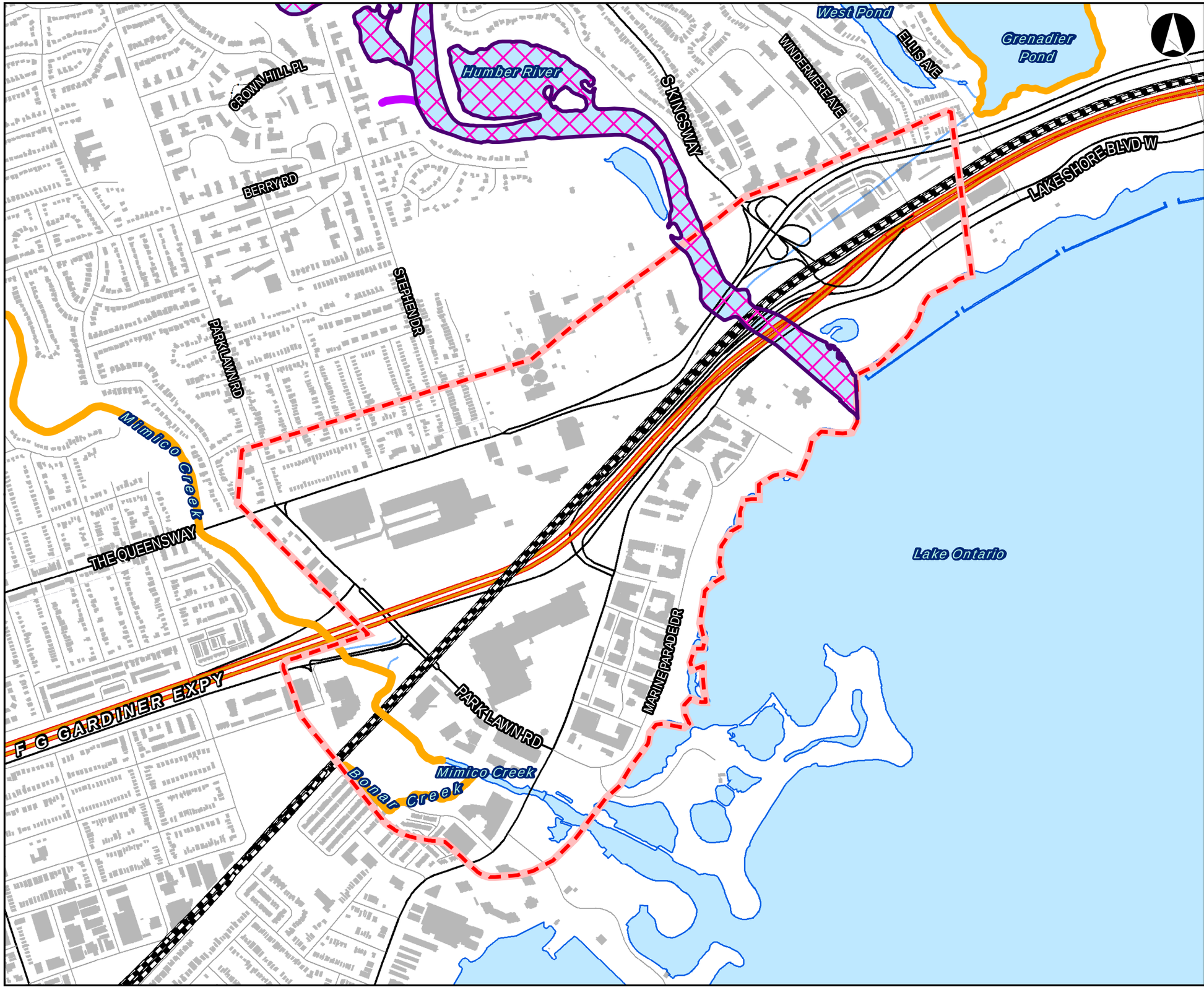
Table 4-7 below is based upon email correspondence received from DFO and MNRF SAR records. The species listed have the potential to be present within the Overall Study Area (refer to **Figure 6**); however, the Upper Great Lakes Kiyi is now considered Extinct. Habitat assessments for these aquatic species are included in **Tables 4-8** and **4-9** below.

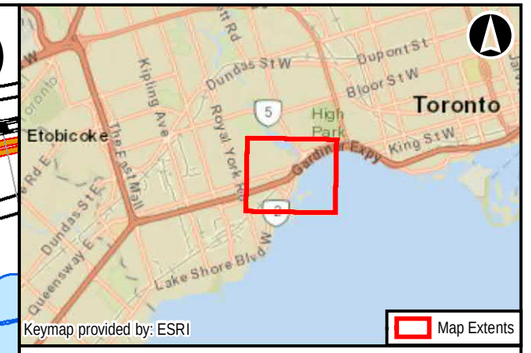
Table 4-7: Potential SAR in the Overall Study Area

Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	*SARA* Status[3]	Source	Location
American Eel	*Anguilla rostrata*	S1S2	THR	THR	DFO, 2016	Humber River
Bridle Shiner	*Notropis bifrenatus*	S2	SC	SC	MNRF, 1996	Lower Humber River Wetland Complex
Kiyi	Coregonus kiyi orientalis	SX	No Status-Extinct	No Status-Extinct	DFO, 2011	Lake Ontario
Lake Sturgeon-Upper Great Lakes and St. Lawrence	*Acipenser fulvescens*	S2	END	SC	MNRF, 2017	Lake Ontario
Pugnose Minnow	*Opsopoeodus emiliae*	S2	THR	THR	MNRF, 1996	Lower Humber River Wetland Complex
Redside Dace	*Clinostomus elongatus*	S1	END	END	DFO,2016	Humber River
Silver Lamprey	*Ichthyomyzon unicuspis*	S3	SC	SC	DFO, 2016	Humber River
Spotted Gar	*Lepisosteus oculatus*	S1	END	END	DFO, 2015	Lake Ontario

Notes 1, 2 and 3 – See Notes at the Bottom of Table 4-2.

(DFO, 2016)





Legend

- Primary Study Area
- Silver Lamprey Species at Risk Habitat (DFO, 2020)

Base Features

- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Railway

Thermal Assessment of Waterbodies

- Warmwater
- Water feature without thermal data

Park Lawn Lake Shore Transportation Master Plan (TMP): Natural Environment Technical Memo

Aquatic Features

0 100 200 400 600

Meters
DATUM: NAD 1983 UTM Zone 17N

Jan, 2021	1:10,000 * when printed 11"x17"	Data Sources: MMAH, MECP, City of Toronto, DFO
P#:60494141	Rev:00	
AECOM		Figure 6

Map location: E:\P\3\60494141_Park Lawn\Design\03_Reports\NatEnvMemo_2020\MXD_60494141_AquaticFeatures_mxmxt_R00.mxd
Date Saved: 1/13/2021 12:24:21 PM User Name: oravs

4.4 SAR Screening and Habitat Assessment

A comprehensive list of all potential SAR located within the Overall Study Area based on the background search is presented in **Table 4-8**. In order to better understand which SAR may be impacted by the alternative solutions proposed as part of the TMP, a habitat assessment of each Endangered or Threatened species was completed to refine possible candidate species that are more likely to be present within the Overall Study Area. This assessment included screening the preferred habitat of each SAR against the habitat conditions present in the Overall Study Area to determine whether there is potential for that SAR to occur.

A total of 37 SAR were identified through the background search. Of these, 21 SAR were considered to have a low probability of occurring within the Overall Study Area, 14 were considered to have a moderate probability and two were considered to have a high probability to occur within the Overall Study Area based on available suitable habitat.

4.5 Species of Conservation Concern (SOCC) Screening

A comprehensive list of all potential SOCC located within the Overall Study Area based on the background search is presented in **Table 4-9**. Similar to **Section 4.3**, a habitat assessment was completed for each SOCC to determine whether there is potential for that SOCC to occur in the Overall Study Area.

A total of 27 SOCC were identified through the background search. Of these, five SOCC were considered to have a low probability of occurring within the Overall Study Area, 18 were considered to have a medium probability and four have a high probability of occurring within the Overall Study Area based on available suitable habitat.

Table 4-8: Habitat Assessment for Potential SAR in the Overall Study Area

Taxonomy	Species	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
Birds	American White Pelican *Pelecanus erythrorhynchos*	THR	No Status	NAR	• The species nests in groups on sparsely-treed islands in large lakes, rivers or reservoirs with an adequate source of prey. It uses several types of environments for foraging, including rivers, lakes, marshes and estuaries.	MNRF City of Toronto SAR Record (01/21/2019)	• No suitable habitat is present within the Overall Study Area.	• **Low-** American White Pelican is unlikely to be present in the Overall Study Area as there are no remote islands or sparsely treed barrens.
Birds	Bank Swallow *Riparia riparia*	THR	THR Schedule 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.	2001-2005 OBBA (BSC *et al.*, 2006)	• No suitable habitat is present within the Overall Study Area.	• **Low-** Bank Swallow is unlikely to be present in the Overall Study Area as there were no eroding banks present that provide suitable habitat.
Birds	Barn Swallow *Hirundo rustica*	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. • This species can typically be associated with the following ELC communities: TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1; containing or adjacent structures that are suitable for nesting.	2001-2005 OBBA (BSC *et al.*, 2006) NHIC (MNRF, 2014)	• Suitable habitat for Barn Swallow may be presented within the Overall Study Area in the form of bridges for the Queensway, Gardiner Expressway, Lakeshore Blvd and the Humber Bay Bridge. Barn Swallows were noted flying under the Lakeshore Blvd bridge in 2018.	• **High-** Barn Swallow may be present in the Overall Study Area. Recommendations include conducting nest searches under bridges and culverts to determine presence of Barn Swallow nests.
Birds	Bobolink *Dolichonyx oryzivorus*	THR	THR Schedule 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. • This species can typically be associated with the following ELC communities: TPO, TPS, CUM1 and MAM2.	2001-2005 OBBA (BSC *et al.*, 2006)	• TPO and CUM communities of at least 5 ha in size are not present within the Overall Study Area.	• **Low-** Bobolink is unlikely to be present in the Overall Study Area.
Birds	Cerulean Warbler *Setophaga cerulea*	THR	END Schedule1	END	• Cerulean Warblers spend their summers (breeding seasons) in mature, deciduous forests with large, tall trees and an open under storey.	MNRF City of Toronto SAR Record (01/21/2019)	• Mature deciduous forests are not present within the Overall Study Area.	• **Low-** Cerulean Warbler is unlikely to be be present in the Overall Study Area.
Birds	Chimney swift *Chaetura pelagica*	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. 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. They also tend to stay close to water as this is where the flying insects they eat will congregate. • Foraging habitat for this species can be associated with the following ELC codes: TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1 containing or adjacent structures with suitable nesting habitat (i.e., chimneys).	2001-2005 OBBA (BSC *et al.*, 2006)	• Buildings with suitable chimneys may be present.	• **Medium-** Chimney Swift may be present in the Overall Study Area.
Birds	Eastern Meadowlark *Sturnella magna*	THR	THR Schedule 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. • This species can typically be associated with the following ELC communities: TPO, TPS, CUM1, CUS, and MAM2 with elevated song perches.	2001-2005 OBBA (BSC *et al.*, 2006)	• TPO and CUM communities of at least 5 ha in size are not present within the Overall Study Area.	• **Low-** Eastern Meadowlark is unlikely to be present in the Overall Study Area.
Birds	Eastern Whip-poor-will *Antrostomus vociferus*	THR	THR Schedule 1	THR	• The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands, or openings in more mature deciduous, coniferous, and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting. It lays its eggs directly on the forest floor, where its colouring means it will easily remain undetected by visual predators. Whip-poor-will breeding habitat is not dependent upon species composition, but rather on forest structure, although common tree associations in both summer and winter are pine and oak. The species shuns both wide-open spaces and dense forest. It prefers to nest in semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances. Other necessary breeding habitat elements are thought to involve ground-level vegetation and woodland size. Individuals will often feed in nearby shrubby pastures or wetlands with perches. Areas with decreased light levels where forest canopies are closed are generally not occupied, perhaps because of reduced forage success for this aerial-feeding insectivore.	MNRF City of Toronto SAR Record (01/21/2019)	• No suitable habitat is present within the Overall Study Area.	• **Low-** Eastern Whip-poor-will is unlikely to be present in the Overall Study Area as there were no savannahs or mature forests present to provide suitable habitat. The Overall Study Area is also densely urbanized.
Birds	Golden Eagle *Aquila chrysaetos*	END	No Status	NAR	• Golden Eagles nest in remote, undisturbed areas, usually building their nests on ledges on a steep cliff or riverbank, but they will also use large trees if needed. • Most hunting is done near open areas such as large bogs or tundra. During migration they could be encountered anywhere, but are most frequently seen migrating west along the shores of Lake Ontario and Erie in November. • Small numbers also winter in the southern half of Ontario, most often near large deer wintering areas where carcasses might be found.	MNRF City of Toronto SAR Record (01/21/2019)	• No suitable habitat is present within the Overall Study Area.	• **Low-** Golden Eagle is unlikely to be present in the Overall Study Area. This species is unlikely to nest/forage within the Overall Study Area but given its proximity to Lake Ontario, records of this

Table 4-8: Habitat Assessment for Potential SAR in the Overall Study Area

Taxonomy	Species	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
								species are likely those of migrants.
Birds	King Rail *Rallus elegans*	END	END Schedule 1	END	• King Rails are found in densely vegetated freshwater marshes with open shallow water that merges with shrubby areas. They are sometimes found in smaller isolated marshes but most seem to prefer larger, coastal wetlands. Its nest is a dinner plate-sized platform made of plant material, placed just above the water in shrubs or clumps of other marsh plants. King Rails are found in a variety of freshwater marshes and marsh-shrub swamp habitats. The species occurs in areas where wild rice grows, but also in sedge and cattail marshes. Most importantly, the species requires large marshes with open shallow water that merges with shrubby areas. In fact, birds only return in successive years to large marshes that are not overgrown with cattails. Originally, the best habitat for King Rails was in southwestern Ontario, but most of these wetlands have since been eliminated. Only 10% of the original pre-European settlement marshes remain in the one area of Ontario where the largest component of the species occurs. The quality of the remaining habitat is also deteriorating.	MNRF City of Toronto SAR Record (01/21/2019)	• There are no large marshes with open water that merge with swamp thicket communities present.	• **Low-** King Rail is unlikely to be present in the Overall Study Area as there were no marshes, ponds or swamp thickets present to provide suitable habitat.
Birds	Least Bittern *Ixobrychus exilis*	THR	THR Schedule 1	THR	• In Ontario, the Least Bittern is found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. This bird builds its nest above the marsh water in stands of dense vegetation, hidden among the cattails. The nests are almost always built near open water, which is needed for foraging. This species eats mostly frogs, small fish, and aquatic insects. The Least Bittern breeds strictly in marshes dominated by emergent vegetation surrounded by areas of open water. Most breeding grounds in Canada are dominated by cattails, but breeding also occurs in areas with other robust emergent plants and in shrubby swamps. The presence of stands of dense vegetation is essential for nesting because the nests of Least Bittern sit on platforms of stiff stems. The nests are almost always within 10 m of open water. Open water is also needed for foraging, because Least Bitterns forage by ambushing their prey in shallow water near marsh edges, often from platforms that they construct out of bent vegetation. Access to clear water is essential for the birds to see their prey. This small heron prefers large marshes that have relatively stable water levels throughout the nesting period. Adults can raise nests somewhat to deal with rising waters, but persistent or sudden increases will flood nests. Conversely, drops in water level can reduce foraging opportunities and increase the species' exposure to predators. Needs for wintering habitat are less specific, and appear to be met by a wide variety of wetlands—not only emergent marshes like those used for breeding, but also brackish and saline swamps. Habitat use during migration is poorly known, but presumably is similar to breeding and wintering habitat.	MNRF City of Toronto SAR Record (01/21/2019)	• Cattail marsh is present within the Overall Study Area directly adjacent to open water on the Humber River.	• **Medium-** Least Bittern may be present within the Overall Study Area; however, it was last observed within the Provincially Significant Lower Humber River Wetland Complex in 1936 (eBirds, 2017).
Birds	Loggerhead Shrike *Lanius ludovicianus*	END	END Schedule 1	Non-active	• In Ontario, the Loggerhead Shrike prefers pasture or other grasslands with scattered low trees and shrubs. It lives in fields or alvars (areas of exposed bedrock) with short grass, which makes it easier to spot prey. It builds its nest in small trees or shrubs and hunts by waiting patiently in tree branches until it swoops down and attacks its unsuspecting prey – usually large insects, such as grasshoppers. Loggerhead shrikes also require spiny, multi-branched shrubs where they can impale prey before eating it. Barbed wired fencing can also be used for this. The Loggerhead Shrike migrans subspecies inhabits open ranges with occasional trees and shrubs that provide nesting sites and perches from which to hunt. This species uses grazing areas where the grass is short. The fact that animals graze on the grass prevents the growth of too many trees and shrubs in these areas, which creates good feeding sites for the Loggerhead Shrike migrans subspecies. The presence of more grazing sites is typically associated with a greater abundance of Loggerhead Shrikes. The size of the habitat area is also important, because larger spaces allow the birds to avoid nesting too close to fences. This leads to greater breeding success, which may be due to the fact that predators use the fences.	MNRF City of Toronto SAR Record (01/21/2019)	• While TPO and CUM communities are present within the Overall Study Area the Loggerhead Shrike is not generally found within Toronto as it is out of its range.	• **Low -** Loggerhead Shrike mis unlikely to be present in the Overall Study Area.
Birds	Piping Plover *Charadrius melodus*	END	END Schedule 1	END	• Piping Plovers nest exclusively on dry sandy or gravelly beaches just above the reach of high water and waves. When not migrating, this bird spends virtually all of its time between the water's edge and the back of the beach. It pecks the sand and searches small pools of water for food - mostly insects and small crustaceans.	MNRF City of Toronto SAR Record (01/21/2019)	• BBO community is present within the Overall Study Area.	• **Medium-** Piping Plover may be present in the Overall Study Area.
Birds	Prothonotary Warbler *Protonotaria citrea*	END	END Schedule 1	END	• The Prothonotary is the only warbler in eastern North America that nests in tree cavities, where it typically lays four to six eggs on a cushion of moss, leaves, and plant fibres. In Canada, this species breeds only in deciduous swamp forests or riparian floodplain forests. The forests it occupies are typically dominated by Silver Maple, ash, and Yellow Birch. The species nests in naturally formed tree cavities or cavities excavated by other species, mainly Downy Woodpeckers and chickadees. It favours small, shallow holes situated at low heights in dead or dying trees, in which it builds a nest lined with moss. Nests are typically situated over standing or slow-moving water. Artificial nest boxes are also readily accepted and perhaps even preferred. Males often build one or more	MNRF City of Toronto SAR Record (01/21/2019)	• No SWD habitat is present within the Overall Study Area.	• **Low-** Prothonotary Warbler is unlikely to be present in the Overall Study Area.

Table 4-8: Habitat Assessment for Potential SAR in the Overall Study Area

Taxonomy	Species	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
					incomplete "dummy" nests. Females usually select one of these to complete, but they may also build an entirely new nest on their own. In any case, several suitable cavities appear to be required in each territory to accommodate all of these nests.			
Birds	Yellow-breasted Chat *Icteria virens*	END	END Schedule 1	END	• The Yellow-breasted Chat lives in thickets and scrub, especially locations where clearings have become overgrown. This bird eats insects gathered from the foliage of low, dense shrubs, or from the ground. The Yellow-breasted Chat is a shrub specialist, occurring in early successional shrub habitats in eastern North America. In Ontario, habitat has declined since the early 1960s, because of land conversion and successional change.	MNRF City of Toronto SAR Record (01/21/2019)	• Cultural Thicket habitat is present within the Overall Study Area.	• **Medium-** Yellow-breasted Chat is unlikely to be present within the Overall Study Area.
Fish	American Eel *Anguilla rostrata*	THR	THR Schedule 1	THR	• American Eels have a very diverse habitat, ranging from streams, rivers, and muddy or silt-bottomed lakes during their freshwater stage, as well as oceanic waters, coastal bays and estuaries. Eels are bottom dwellers. They hide in burrows, tubes, snags, masses of plants, other types of shelters.	DFO, 2016	• Possible migratory habitat may exist within the Overall Study Area, specifically the Humber River and Mimico Creek.	• **Medium-** Further clarification from DFO is recommended to determine if suitable habitat is present.
Fish	Kiyi (*Coregonus kiyi***)**	Extinct- No Status	Extinct- No Status	Extinct- No Status	• The Kiyi lives in the clear, cold-water of the Great Lakes at depths ranging from 35 to 200 metres and feeds on deep-water crustaceans. It is rarely found in waters less than 100 metres deep.	MNRF, 2019	• Suitable habitat does not exist within the Overall Study Area.	• **Low-** Suitable habitat does not exist within the Overall Study Area.
Fish	Lake Sturgeon (*Acipenser fulvescens*)	END	No Status	THR	• The Lake Sturgeon lives almost exclusively in freshwater lakes and rivers with soft bottoms of mud, sand or gravel. They are usually found at depths of five to 20 metres.	MNRF, 2019	• No suitable habitat is present in the Overall Study Area, as water is not sufficiently deep enough. • Record likely from Lake Ontario	• **Low-** No suitable habitat is present in the Overall Study Area
Fish	Redside Dace *Clinostomus elongatus*	END	END	END	• The Redside Dace is found in pools and slow-moving areas of small streams and headwaters with a gravel bottom. • They are generally found in areas with overhanging grasses and shrubs, and can leap up to 10 cm out of the water to catch insects. • During spawning, they can be found in shallow parts of streams, which are also popular spawning areas for other minnow species.	• DF0, 2016	• Suitable habitat within the Overall Study Area is unlikely; however, some suitable habitat may be present in the Lower Humber River (MNRF, 2010)	• **Medium-** Redside Dace is unlikely to occur within the Overall Study Area; however this should be confirmed with the MECP
Fish	Spotted Gar (*Lepisosteus oculatus*)	END	THR Schedule 1	END	• Warm, shallow (<5 m) waters of quiet bays and backwater areas of lakes, and slow-flowing rivers, with dense aquatic vegetation and substrates of clay, silt and organics; preferred water temperature >26°C	• COSEWIC, 2015	• Unlikely that suitable habitat is present within the Overall Study Area- Limited backwater areas with dense aquatic vegetation and clear water in Mimico Creek and the Humber River	• **Low-** Unlikely that suitable habitat is present within the Overall Study Area

Table 4-8: Habitat Assessment for Potential SAR in the Overall Study Area

Taxonomy	Species	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
Fish	Pugnose Minnow *Opsopoeodus emiliae*	END	END	END	• The Pugnose Minnow prefers coastal wetlands, and slow-moving rivers and streams with clear, warm water, little or no current, and abundant vegetation	MNRF (2016)	• Suitable habitat within the Overall Study Area is possible; in the Humber River where minimal to high vegetation exists.	• **Medium-** Pugnose Minnow has the potential to occur within the Overall Study Area; however this should be confirmed with the MECP
Mammals	American Badger (Jacksoni subspecies) *Taxidea taxus*	END	END Schedule 1	END	• In Ontario, badgers are found in a variety of habitats, such as tall grass prairie, sand barrens, and farmland. These habitats provide badgers with small prey, including groundhogs, rabbits, and small rodents. Since badgers are primarily nocturnal and quite wary of people, not many people are fortunate enough to spot one in the wild. American Badgers occur in non-forested grassland and shrubland biomes. Recent work has identified soil and prey availability to be the key defining features of habitat; coherent soils that can be burrowed into without collapsing are preferred. Closed-canopied forested areas generally are not used but early seral habitats along forest corridors can support prey populations that attract American Badgers into forest areas. Badgers are also known from alpine areas and wetlands. Agricultural areas support badgers provided there are sufficient hedgerows, fencerows, and field edges. Cultivated fields are largely avoided. Habitat trends are generally declining across most of the species' Canadian range.	MECP City of Toronto SAR Record (01/21/2019)	• Suitable habitat is not present within the Overall Study Area	• **Low-** American Badger is unlikely to be present in the Overall Study Area.
Mammals	Gray Fox *Urocyon cinereoargenteus*	THR	THR Schedule 1	THR	• In Ontario, the Gray Fox lives in deciduous forests and marshes. Gray Fox dens are usually found in dense shrubs close to a water source but they will also use rocky areas, hollow trees, and underground burrows dug by other animals. This species will live in many types of habitat provided there is sufficient shelter and prey availability. The Gray Fox's distribution is closely associated with deciduous forest. Gray Foxes are considered habitat generalists and are partially tolerant of human disturbances, although they are generally more secretive than Red Fox (Vulpes vulpes), and so are seen less often.	MNRF City of Toronto SAR Record (01/21/2019)	• While there are deciduous forests present, this species' breeding population is largely limited to Peele Island in Southern Ontario. There have been occasional sightings and reports of the Gray Fox close to the U.S. border in the Niagara, Thousand Islands and Windsor areas; however, the Overall Study Area is located outside of these areas.	• **Low-** Gray Fox is unlikely to be present in the Overall Study Area.
Mammals	Little Brown Myotis *Myotis lucifugus*	END	END Schedule 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 millimeters across) and this is how they access many roosting areas.Little Brown Myotis hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing. This species can typically be associated with any community where suitable roosting (i.e., cavity trees, houses, abandoned buildings, barns, etc.) habitat is available.	BCI (2016)	• Suitable habitat for Little Brown Myotis could be present in the Overall Study Area.	• **Medium** – cavity trees are present within forested communities that could provide suitable roosting habitat.
Mammals	Eastern Small-footed Myotis *Myotis leibii*	END	N/A	END	• 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.	BCI (2016)	• Suitable habitat for Eastern Small-footed Myotis could be present in the Overall Study Area.	• **Medium** – cavity trees are present within forested communities that could provide suitable roosting habitat.
Mammals	Northern Long-eared Myotis *Myotis septentrionalis*	END	END Schedule 1	END	• Northern Long-eared Myotis is 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, most often in caves or abandoned mines. • This species can typically be associated with the following ELC communities: FOC, FOM, FOD, SWC, SWM and SWD where suitable roosting (i.e., cavity trees and trees with loose bark) habitat is available.	BCI (2016)	• Suitable habitat for Northern Long-eared Myotis could be present in the Overall Study Area within the forested sections of South Humber Park and along the Humber River.	• **Medium** – cavity trees are present within forested communities that could provide suitable roosting habitat.
Mammals	Tri-coloured Bat *Pipistrellus subflavus*	END	END Schedule 1	END	• Tri-coloured Bat can be found in open woods near water where it forages. This species roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines or rock crevices. • This species can typically be associated with the following ELC communities: FOC, FOM, FOD, SWC, SWM and SWD where suitable roosting (i.e., cavity trees and trees with loose bark) habitat is available.	BCI (2016)	• Suitable habitat for Tri-coloured Bat could be present in the Overall Study Area.	• **Medium** – cavity trees are present within forested communities that could provide suitable roosting habitat.
Mussels	Eastern Pondmussel (*Ligumia nasuta*)	SC	SC Schedule 1	SC	• The Eastern Pondmussel is typically found in sheltered areas of lakes and in slow-moving areas of rivers and canals with sand or mud bottoms. All mussels filter water to find food, such as bacteria and algae. Mussel larvae must attach to a fish (called a "host"), where they consume nutrients from the fish body until they transform into juvenile mussels and drop off the fish host. It is not known which species of fish act as hosts for the Eastern Pondmussel.	DFO (2016)	• Not likely any suitable habitat within the Overall Study Area.	• **Low-** Eastern Pondmussel is not likely present within the Overall Study Area.

Table 4-8: Habitat Assessment for Potential SAR in the Overall Study Area

Taxonomy	Species	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
Plants	American Ginseng *Panax quinquefolius*	END	END Schedule 1	END	• In Ontario, American Ginseng typically grows in rich, moist, but well-drained, and relatively mature, deciduous woods. It usually grows in deep, nutrient-rich soil over limestone or marble bedrock. In Canada, ginseng grows in rich, moist, undisturbed, and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock). The forest canopy is usually dominated by Sugar Maple, White Ash, Bitternut Hickory, and Basswood. Colonies of ginseng are often found near the bottom of gentle south-facing slopes, where the microhabitat is warm and well-drained.	MECP City of Toronto SAR Record (01/21/2019)	• No suitable habitat is present within the Overall Study Area.	• **Low-** American Ginseng is unlikely to be present in the Overall Study Area. There were no mature forests dominated by sugar maple, white ash or American basswood to support suitable habitat.
Plants	Bashful Clubrush *Trichophorum planifolium*	END	END Schedule 1	END	• This species is usually found on steep slopes of oak forests. The Bashful Bulrush grows in open-canopied deciduous and mixed forests that have few shrubs in the understory. Because it requires warmth and good drainage, it tends to occur on semi-open to open, steep slopes that face south or southwest. It is usually found in areas where there are occasional natural disturbances.	MNRF City of Toronto SAR Record (01/21/2019)	• No suitable habitat is present within the Overall Study Area.	• **Low-** Bashful Clubrush is unlikely to be present in the Overall Study Area. There were no oak forests present to support suitable habitat.
Plants	Blue Ash *Fraxinus quadrangulata*	THR	SC Schedule 1	THR	• In Ontario, Blue Ash grows in deciduous floodplain forests, and along sandy beaches and on limestone outcrops associated with Lake Erie. Blue Ash grows in a variety of habitats and soil types. In Ontario, it is found in three distinctive habitat types. They include floodplains and river valleys where Blue Ash grows in rich soils in association with a variety of other tree species; shallow soils on alvar and limestone on the Lake Erie Islands; and stabilized beaches at Point Pelee National Park, and Fish Point on Pelee Island. All of these habitats have declined in area and quality over the last 100 years. While the effects of habitat fragmentation on Blue Ash have not been assessed, it is expected that fragmentation will result in ecological degradation and perhaps genetic degradation over a longer timeframe, which may contribute to decreasing the likelihood of persistence of subpopulations.	MNRF City of Toronto SAR Record (01/21/2019)	• While Forest habitat is present within the Overall Study Area Blue Beech is limited in range to areas in Ontario south of the study area.	• **Low**- Blue Ash is unlikely to be present within the Overall Study Area.
Plants	Butternut *Juglans cinerea*	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. • This species can typically be associated with the following ELC communities: FOD and mature hedgerows; Soil: dry rocky or moist (4, 5, 6) to fresh (2, 3).	NHIC (MNRF, 2014)	• Suitable habitat for, or individuals of, Butternut could be present in the Overall Study Area within the forested sections of South Humber Park and along the Humber River.	• **Medium-** Butternut may be present in the Overall Study Area. Recommendations include searching for Butternut in areas where vegetation removal is required. If a Butternut is encountered, a Butternut Health Assessment should be undertaken by a qualified Butternut Health Assessor to determine whether it is a pure and retainable Butternut.
Plants	Cucumber Tree *Magnolia acuminata*	END	END Schedule 1	END	• In Ontario, Cucumber Trees are found in upland moist deciduous or mixed forest habitats, where they grow in rich, well-drained soils, often in headwater areas or on rises within low swampy areas. The Cucumber Tree requires rich, moist, medium- to coarse-textured acidic soil. The species is shade-intolerant, and hence requires forest with openings, such as wet woods with scattered pools. Regeneration will only occur under good light conditions.	MNRF City of Toronto SAR Record (01/21/2019)	• While upland forest is present within the study area, the range of this species is restricted to Norfolk county and the Niagara region.	• **Low-** Cucumber tree is unlikely to be present in the Overall Study Area.
Plants	Dense Blazing Star *Liatris spicata*	THR	THR Schedule 1	THR	• In Ontario, Dense Blazing Star grows in moist prairies, grassland savannahs, wet areas between sand dunes, and abandoned fields. This plant does not do well in the shade and is usually found in areas that are kept open and sunny by fire, floods, drought, or grazing. • This species can typically be associated with the following ELC communities: TPO2, TPS2, SDO and CUM with moist soils.	Dense-blazing Star was recorded by TRCA in 2013.	• Open tallgrass prairies are present along the Lake Ontario Shoreline within the Overall Study Area although these are likely to have been planted.	• **High-** Dense-blazing Star was likely planted and not naturally occurring.
Plants	Eastern prickly-pear Cactus *Opuntia cespitosa*	END	END Schedule 1	END	• The Eastern Prickly Pear Cactus grows in dry, sandy areas that are relatively open and sunny. It cannot grow in complete shade. It is found on sandy openings on dry, sometimes forested, hillsides and in sand dunes near beaches. The Eastern Prickly Pear Cactus grows in areas that are in the early stages of succession, usually sandy ridges or sandy dunes. Habitat changes that are detrimental to the cactus on Pelee Island and in Point Pelee Park are mainly habitat losses due to winter storms and natural succession by woody vegetation that shades out the cactus.	MNRF City of Toronto SAR Record (01/21/2019)	• While BBO and CUM are present within the Overall Study Area this species is restricted to the north shore of Lake Erie.	• **Low-** Eastern prickly Pear Cactus is unlikely to be present in the Overall Study Area.

Table 4-8: Habitat Assessment for Potential SAR in the Overall Study Area

Taxonomy	Species	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
Reptiles	Blanding's Turtle *Emydoidea blandingii*	THR	THR Schedule 1	THR	• Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. 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. • This species can typically be associated with the following ELC communities: SWT2, SWT3, SWD, SWM, MAS2, SAS1, SAM1, where open water is present.	ORAA (Ontario Nature, 2016) NHIC (MNRF, 2014)	• SWT and MAS communities may provide suitable habitat. Blanding's Turtle may be present in High Park and the Lower Humber Wetland Complex.	• **Medium-** Blanding's Turtle may be present in the Overall Study Area.
Reptiles	Spiny Softshell *Apalone spinifera*	END	END Schedule 1	END	• Spiny Softshells are highly aquatic turtles that rarely travel far from water. They are found primarily in rivers and lakes but also in creeks and even ditches and ponds near rivers. Key habitat requirements are open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and suitable habitat for crayfish and other food species. These habitat features may be distributed over an extensive area, as long as the intervening habitat doesn't prevent the turtles from traveling between them. Spiny Softshell inhabits a wide variety of aquatic habitats, including rivers, marshy creeks, oxbows, lakes, and impoundments. Common habitat features include a soft bottom with sparse aquatic vegetation, as well as sandbars or mudflats. Overwintering sites are generally in well oxygenated lakes and rivers.	MNRF City of Toronto SAR Record (01/21/2019)	• Suitable aquatic habitats are present within the Overall Study Area.	• **Medium-** Spiny Softshell may be present in the Overall Study Area.

[1]ESA Status: *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the 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.*

[2]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.htp****[3]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.*

Table 4-9: Habitat Assessment for Potential SOCC in the Overall Study Area

Taxonomy	Species	S-Rank	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
Birds	Bald Eagle *Haliaeetus leucocephalus*	S2N, S4B	SC	No Status	NAR	• Bald Eagles nest in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting. While fish are their main source of food, Bald Eagles can easily catch prey up to the size of ducks, and frequently feed on dead animals, including White-tailed Deer. They usually nest in large trees such as pine and poplar. During the winter, Bald Eagles sometimes congregate near open water such as the St. Lawrence River, or in places with a high deer population where carcasses might be found.	MNRF City of Toronto SAR Record (01/21/2019)	• FOD communities are present and may provide suitable habitat.	• **Medium-** Bald Eagle may be present within the Overall Study Area.
Birds	Black-crowned Night Heron (*Nycticorax nycticorax*)	S3B, S3N	No Status	No Status	No Status	• Deciduous woodland swamps, cattails marshes, islands, wooded rivers and lake banks, coastal wetlands	AECOM field observation (2018)	• Forested riparian banks of Mimico Creek provide suitable habitat for this species.	• **High-** Three to four Black-crowned Night Herons were observed during the 2018 breeding bird surveys completed by AECOM. It is suspected that the treed riparian areas near Mimico Creek within the Project Area are likely being used as foraging and/or roosting habitat by this species.
Birds	Canada Warbler *Cardellina canadensis*	S4B	SC	THR Schedule 1	THR	• The Canada Warbler breeds in a range of deciduous and coniferous, usually wet forest types, all with a well- developed, dense shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks. It is also found in riparian shrub forests on slopes and in ravines and in old-growth forests with canopy openings and a high density of shrubs, as well as in stands regenerating after natural disturbances, such as forest fires, or anthropogenic disturbances, such as logging. Canada Warbler habitat is believed to be in decline, especially in South America, where the Canada Warbler overwinters. Habitat loss has also been observed in the eastern part of its breeding range, where wet forests have been drained for urban development or farming.	MNRF City of Toronto SAR Record (01/21/2019)	• Suitable habitat is not present within the Overall Study Area.	• **Low-** Canada Warbler is unlikely to be present within the Overall Study Area. While there were FOD7 communities, they did not contain a dense or well-developed shrub layer.
Birds	Canvasback *Aythya valisineria*	S1B, S4N	No Status	No Status	No Status	• Large marshes for nesting, prefers deep, permanent water bodies for feeding and courtship	2001-2005 OBBA (BSC *et al.*, 2006)	• MAS habitat is present within the Overall Study Area along Mimico Creek and the Humber River.	• **Medium-** Canvasback may be present within the Overall Study Area.
Birds	Common Nighthawk *Chordeiles minor*	S4B	SC	THR Schedule 1	THR	• 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. • This species can typically be associated with the following ELC communities: SD, BB, RB, CUM, BO, FOM, FOC and FOD with openings with little vegetation.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Common Nighthawk may be present in the Overall Study Area.	• **Medium-** Common Nighthawk may be present within the Overall Study Area.
Birds	Eastern Wood-Pewee *Contopus virens*	S4B	SC	No Status	SC	• The Eastern Wood-Pewee can be found in every type of wooded community in eastern North America. The size of the forest does not appear to be an important factor in habitat selection as this species has been found in both small fragmented forests and larger forest tracks. • This species can typically be associated with the following ELC communities: FOC, FOM, FOD, SWD, SWM and CUW.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Eastern Wood-Pewee may be present in the Overall Study Area.	• **Medium-** Eastern Wood-Pewee may be present within the Overall Study Area.
Birds	Grasshopper Sparrow *Ammodramus savannarum*	S4B	SC	SC Schedule 1	SC	• It lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies, and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. The Grasshopper Sparrow is a short-distance migrant and leaves Ontario in the fall to migrate to the southeastern United States and Central America for the winter. In Canada, the Eastern Grasshopper Sparrow typically breeds in large human-created grasslands (5 ha or greater), such as pastures and hayfields, and natural prairies, such as alvars, characterized by well-drained, often poor soil dominated by relatively low, sparse perennial herbaceous vegetation.	MNRF City of Toronto SAR Record (01/21/2019)	• TPO community is present within the Overall Study Area.	• **Medium-** Grasshopper Sparrow may be present within the Overall Study Area.
Birds	Great Egret *Ardea alba*	S2B	No Status	No Status	No Status	• Open swamp woods or willow thickets, offshore islands, mudflats for feeding; nests in standing trees in open water and thickets.	2001-2005 OBBA (BSC *et al.*, 2006)	• SWT is present within the Overall Study Area and may provide suitable habitat.	• **Medium-** Great Egret is may be present within the Overall Study Area.

Taxonomy	Species	S-Rank	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
Birds	Horned Grebe *Podiceps auratus*	S1B,S4N	SC	SC Schedule 1	SC	• The Horned Grebe usually nests in small ponds, marshes, and shallow bays that contain areas of open water and emergent vegetation. Nests are usually located within a few metres of open water. The Horned Grebe occupies natural habitat more often than man-made reservoirs and artificial ponds. The Horned Grebe breeds primarily in temperate zones such as the Prairies and Parkland Canada, but can also be found in more boreal and subarctic zones. It generally breeds in freshwater and occasionally in brackish water on small semi-permanent or permanent ponds, but it also uses marshes and shallow bays on lake borders. Breeding areas require open water rich in emerging vegetation, which provides nest materials, concealment and anchorage, and protection for the young.	MNRF City of Toronto SAR Record (01/21/2019)	• MAS is present within the Overall Study Area along Mimico Creek and the Humber River.	• **Medium-** Horned Grebe may be present within the Overall Study Area.
Birds	Olive-sided Flycatcher Contopus cooperi	S4B	SC	THR Schedule 1	SC	• The Olive-sided Flycatcher is most often found along natural forest edges and openings. It will use forests that have been logged or burned if there are ample tall snags and trees to use for foraging perches. Olive-sided Flycatchers' breeding habitat usually consists of coniferous or mixed forest adjacent to rivers or wetlands. In Ontario, Olive-sided Flycatchers commonly nest in conifers such as White and Black Spruce, Jack Pine, and Balsam Fir. The Olive-sided Flycatcher is most often associated with open areas containing tall live trees or snags for perching. These vantage points are required for foraging. This species generally forages from a high, prominent perch from which it sallies forth to intercept flying insects and then returns to the same perch. Open areas may be forest clearings, forest edges located near natural openings (such as rivers or swamps) or human-made openings (such as logged areas), burned forest, or openings within old-growth forest stands; these forests are characterized by mature trees and large numbers of dead trees. There is evidence that the breeding success of birds nesting in harvested habitats is lower than the breeding success of birds nesting in natural openings. In the boreal forest, suitable habitat is more likely to be in or near wetland areas. Although the amount of old-growth forest obviously decreased during the 20th century, the amount of habitat attractive to Olive-sided Flycatchers may have remained more or less constant, since logging operations continue to create openings favoured by these birds. However, recent studies indicate that these sites are less suitable for breeding.	MNRF City of Toronto SAR Record (01/21/2019)	No suitable habitat is present within the Overall Study Area.	• **Low-** Olive-sided Flycatcher is unlikely to be present within the study area.
Birds	Peregrine Falcon *Falco peregrinus*	S3	SC	SC Schedule 1	SC	• 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. • This species can be associated with the following ELC communities: CLO.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Peregrine Falcon could be present in the Overall Study Area, in the form of tall condominium buildings.	• **High-** Peregrine Falcon may be present in the Overall Study Area and has been observed nearby.
Birds	Purple Martin *Progne subis*	S3S4B	No Status	No Status	No Status	• Open, treed, areas such as farmland, parks, yards, marshes and is usually near large bodies of water; nests in tree cavities.	2001-2005 OBBA (BSC *et al.*, 2006)	• Open meadows and forested communities could provide suitable habitat.	• **Medium –** Purple Martin could be present within the Overall Study Area.
Birds	Red-headed Woodpecker *Melanerpes erythrocephalus*	S4B	SC	THR Schedule 1	THR	• 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. This woodpecker regularly winters in the United States, moving to locations where it can find sufficient acorns and beechnuts to eat. A few of these birds will stay the winter in woodlands in southern Ontario if there are adequate supplies of nuts. • This species can typically be associated with the following ELC communities: TPS, TPW, CUW, FOD1, FOD2, FOD4-1, FOD6, FOD7, and FOD9 that are open and have an abundance of dead trees.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Red-headed Woodpecker may be present in the Overall Study Area within the Lower Humber River PSW.	• **Medium-** Red-headed Woodpecker may be present in the Overall Study Area.
Birds	Short-eared Owl *Asio flammeus*	S2N, S4B	SC	SC Schedule 1	SC	• The Short-eared Owl makes use of a wide variety of open habitats, including arctic tundra, grasslands, peat bogs, marshes, sand-sage concentrations, and old pastures. It also occasionally breeds in agricultural fields. Preferred nesting sites are dense grasslands, as well as tundra with areas of small willows. While the Short-eared Owl has a marked preference for open spaces, the main factor influencing the choice of its local habitat is believed to be the abundance of food, in both summer and winter. It nests on the ground and hunts for small mammals, especially voles. Suitable breeding, migration, and wintering habitat has declined	MNRF City of Toronto SAR Record (01/21/2019)	• No suitable habitat is present with the Overall Study Area. Any occurrences of this species within the Overall Study Area are likely during periods of migration.	**Low-** Short-eared Owl is unlikely to be present within the Overall Study Area.

Taxonomy	Species	S-Rank	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
						significantly throughout the 20th century, resulting in a reduction in the number of owls. In North America, it breeds sporadically in arctic areas, coastal marshes, and interior grasslands, where voles and other small rodents proliferate.			
Birds	Wood Thrush *Hylocichla mustelina*	S4B	SC	No Status	THR	• The Wood Thrush can typically be found in the interior and along the edges of well-developed upland deciduous and mixed forests. Key elements of these forests include trees that are greater than 16 m in height, high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soils and decaying leaf litter. Wood Thrush is more likely to occur in larger forests but may also nest in 1 ha fragments and semi-wooded residential areas and parks. Smaller habitat fragments have lower fecundity when compared to larger fragments. • This species can typically be associated with the following ELC communities: FOD and FOM that are greater than 1 ha in size.	2001-2005 OBBA (BSC *et al.*, 2006)	• Suitable habitat for Wood Thrush could be present in the Overall Study Area within the forested sections.	• **Medium-** Wood Thrush may be present in the Overall Study Area.
Insects	Black Dash *Euphyes conspicua*	S3	No Status	No Status	No Status	• Boggy marshes, wet meadows, and marshy stream banks	OBA	• Marsh is present within the Overall Study Area.	• **Medium-** Black Dash may be present within the Overall Study Area.
Insects	Hackberry Emperor *Asterocampa celtis*	S3	No Status	No Status	No Status	• Along wooded streams, forest glades and river edges, wooded roadsides.	OBA	• Treed riparian habitat could be suitable for Hackberry Emperor.	• **Medium-** Hackberry Emperor may be present within the Overall Study Area.
Insects	Lilypad Clubtail *Arigomphus furcifer*	S3	No Status	No Status	No Status	• Prefers ponds and marshy shorelines of lakes with floating and emergent vegetation. (Hastings County Odonata, 2020)	NHIC	• MAS may provide suitable habitat.	• **Medium-** Lilypad Clubtail may be present within the Overall Study Area.
Insects	Monarch *Danaus plexippus*	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.	MNRF City of Toronto SAR Record (01/21/2019); OBA	• Suitable cultural meadow habitat is present with Milkweed.	• **High-** Monarch is likely present within the Overall Study Area. Cultural meadows could provide suitable breeding and foraging habitat. Small patches of Common Milkweed have been identified along with Monarch in the area during previous studies.
Insects	Yellow-banded Bumblebee	S5	SC	SC Schedule 1		• This species is a forage and habitat generalist, able to use a variety of nectaring plants and environmental conditions. It can be found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands, and urban areas. Nest sites are often underground in abandoned rodent burrows or decomposing logs. Yellow-banded Bumble Bee occurs in a diverse range of habitats, including montane meadows, prairie grasslands, and boreal habitats. It has been recorded foraging on flowers for pollen and nectar from a variety of plant genera. Yellow-banded Bumble Bee queens overwinter underground and in decomposing organic material such as rotting logs.	MNRF City of Toronto SAR Record (01/21/2019)	• A range of habitats within the Overall Study Area may be suitable for Yellow-banded Bumblebee.	• **Medium-** Yellow-banded Bumblebee may be present within the Overall Study Area.
Fish	Silver Lamprey *Ichthyomyzon unicuspis*	-	SC	SC Schedule 1	SC	• Silver Lampreys require clear water so they can find fish hosts, relatively clean stream beds of sand and organic debris for larvae to live in, and unrestricted migration routes for spawning.Their use of different kinds of habitat throughout their lives (rivers for spawning and early development, and lakes for adults) makes them vulnerable to changes in their environment.	DF0, 2016	• Suitable habitat has the potential to exist within the Overall Study Area, namely the Humber River	• **Medium- Suitable habitat** has the potential to occur within the Overall Study Area; however this should be confirmed with the MECP
Fish	Bridle Shiner *Notropis bifrenatus*	SC	SC	SC Schedule 1	SC	• Bridle Shiners prefer clear, unpolluted streams, rivers and lakes which have an abundance of aquatic vegetation. These vegetated areas provide suitable spawning habitat and places to feed and hide from predators. Bridle Shiners prefer warm water habitats where the bottom is either sand, silt or organic debris, which is necessary for the establishment of aquatic vegetation.	MNRF, 2016	• Suitable habitat within the Overall Study Area is unlikely; however, some suitable habitat may be present in the Lower Humber River Complex PSW north of the Queensway, where aquatic vegetation is more prevalent	• **Low-** Bridle Shiner is unlikely to occur within the Overall Study Area; however this should be confirmed with the MNRF

Taxonomy	Species	S-Rank	*ESA* Status[1]	*SARA* Status[2]	COSEWIC Status[3]	Preferred Habitat	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Probability of Occurrence Within the Overall Study Area
Plants	Old-field Toadflax *Nuttallanthus canadensis*	S1	No Status	No Status	No Status	• Highly disturbed areas with sandy soils.	NHIC	• Much of the Overall Study Area has been disturbed and may have sandy soils; however, much of the area has been largely developed and unlikely to still support this species.	• **Low -** Old-field Toadflax is unlikely to occur within the Overall Study Area due to urbanization.
Plants	Swamp Rose-mallow *Hibiscus moscheutos*	S3	SC	SC Schedule 1	SC	• In Ontario, Swamp Rose-mallow is restricted to shoreline marshes, in the Carolinian and Great Lakes - St. Lawrence forest regions, associated with lakes Erie, Ontario or St. Clair. Swamp Rose-mallow is most commonly found in deep-water cattail marshes and in meadow marshes. It reaches its greatest numbers in dyked wetlands, where competition from other plants is controlled and the open habitat is maintained by periodic flooding. It is also found in open wet woods, thickets, spoil banks, and drainage ditches. This species can typically be associated with the following ELC communities: MAS2-1 and MAM.	Swamp Rose Mallow was recorded by TRCA in 2013.	• Open tallgrass prairies are present along the Lake Ontario Shoreline within the Overall Study Area although these are likely to have been planted.	• **High-** Swamp Rose-mallow was likely planted and not naturally occurring.
Reptiles	Eastern Musk Turtle *Sternotherus odoratus*	S3	SC	SC Schedule 1	SC	• Eastern Musk Turtles are found in ponds, lakes, marshes, and rivers that are generally slow-moving and have abundant emergent vegetation and muddy bottoms that they burrow into for winter hibernation. Nesting habitat is variable, but it must be close to the water and exposed to direct sunlight. Nesting females dig shallow excavations in soil, decaying vegetation, and rotting wood or lay eggs in muskrat lodges, on the open ground, or in rock crevices. The Eastern Musk Turtle is a highly aquatic species inhabiting littoral zones of waterways such as bays, streams, canals, and swamps with slow to no current and soft bottoms. During their active season, Eastern Musk Turtles prefer shallow water.	MNRF City of Toronto SAR Record (01/21/2019); ORAA	• Suitable habitat may exist within the Overall Study Area of the Humber River.	• **Medium-** Eastern Musk Turtle may be present within the Overall Study Area.
Reptiles	Northern Map Turtle *Graptemys geographica*	S3	SC	SC Schedule 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 mollusk 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.This species can typically be associated with the following ELC communities: OAO, SA with emergent rocks and fallen trees suitable habitat for prey.	ORAA (Ontario Nature, 2016)	• Suitable habitat within the Overall Study Area is unlikely; however, suitable habitat may be present in the Lower Humber River Complex PSW north of the Queensway.	• **Medium-** Northern Map Turtle is may be present within the Overall Study Area.
Reptiles	Snapping Turtle *Chelydra serpentina*	S3	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.This species can typically be associated with the following ELC communities: OAO, SA near gravelly or sandy areas.	ORAA (Ontario Nature, 2016) NHIC (MNRF, 2014)	• Suitable habitat for Snapping Turtles may be present within the Overall Study Area along the Humber River and Lake Ontario Shoreline.	• **Medium-** Snapping Turtle may be present in the Overall Study Area.

See notes under **Table 4-8.**

5. Conclusions and Considerations

Based on AECOM's review and analyses of background information, the following is a summary of the existing natural environment conditions and consideration for potential approvals and permits that may apply to proposed alternative solutions:

a) The overall sensitivity of the majority of the terrestrial habitat within the Overall Study Area is considered to be low, with the exception of natural vegetation associated with Bonar Creek, Mimico Creek and the Humber River Valley.

b) Portions of the Provincially Significant Lower Humber River Wetland Complex, Greenbelt Urban River Valley, TRCA regulation limits, City of Toronto's NHS, as well as the RFNP By-law areas are located within the Overall Study Area.

- No development may occur within the boundaries of the PSW under the *PSS* but if demonstrated that no negative effects will occur to the PSW through implementation of various mitigation measures, construction may occur within 120 m of the PSW.
- A permit under O.Reg. 166/06 from TRCA may be required if proposed works occur within TRCA's regulation limits.
- A RNFP Permit from the City of Toronto may be required if the proponent intends to injure or destroy a healthy tree of any size, place or dump fill or alter the grade within the Ravine and Natural Feature Protected Areas.

c) No Environmentally Significant Areas are located within the boundaries of the Overall Study Area; however, the Provincially Significant High Park Oak Woodlands Life Science ANSI and three Environmentally Significant Areas are located outside but in the vicinity of the Overall Study Area. In addition to this, the Regionally Candidate Life Science ANSI the Humber River Coastal Marsh is located within the Overall Study Area along the Humber River. If any work is proposed within 120 m of these Environmentally Significant Areas, further consultation with the City of Toronto and TRCA may be required to determine required studies and / or mitigation measures.

d) Based on the ELC data provided by TRCA, AECOM's previous field investigations and aerial interpretation, the majority of the Overall Study Area is dominated by cultural meadows, thickets and woodlands which have either been planted or disturbed by anthropogenic activities. These vegetation communities generally consist of primarily non-native and invasive species. More natural areas with higher quality vegetation communities are found along the periphery of the Overall Study Area associated with the riparian corridors of Mimico Creek and the Humber River Valley. These vegetation communities provide nesting habitat for breeding birds protected under the MBCA and therefore construction timing restrictions may apply such as no vegetation removal between April 1 and August 30 unless active nest searches in simple habitats are conducted by qualified Biologists immediately prior to vegetation removal. Furthermore, removal of trees on private properties, city streets, ravines and parks, and construction adjacent to a tree will be subject to the tree protection policies developed by the City of Toronto.

e) Natural areas associated with Bonar Creek, Mimico Creek and the Humber River Valley provide several SWH, including Bat Maternity Roosting habitat, Landbird Migratory Stopover Areas, Turtle Overwintering and Nesting Areas, Amphibian Woodland / Wetland Breeding Habitats and Wildlife Movement Corridors. If development is proposed within 120 m of these SWH features, specific mitigation measures to avoid or minimize negative effects on these features as result of the development will be required.

f) Although the majority of the flora and fauna identified through the background review are common, tolerant of disturbances and widespread throughout Ontario, a total of 37 SAR and 27 SOCC were identified to potentially occur within the Overall Study Area. Of the 37 SAR identified, 21 had low probability of occurrence due to lack of suitable habitat, 14 had a medium probability of occurrence and two had a high probability of occurrence. Of the 27 SOCC, five had low probability of occurrence due to lack of suitable habitat, 18 had a medium probability of occurrence and four had a high probability of occurrence. Species-specific surveys targeting these species may be required once the preferred alternative is identified along with further consultation with the MECP if any SAR or their habitat are anticipated to be affected by the proposed works. If any SAR is identified during these surveys, MECP should be consulted with to determine appropriate mitigation and avoidance measures as well as any permitting requirements.

g) The overall sensitivity of the aquatic habitat within the eastern portion of the Overall Study Area is considered to be high, given the migratory value of the Lower Humber River and possibility of American Eel, Bridle Shiner Pugnose Minnow and Redside Dace habitat. The MECP should be consulted to ascertain if further assessment is required to determine if possible habitat exists for these species.

h) The Mimico Creek and its confluence to Bonar Creek likely provide forage, rearing and refuge habitat for a variety of warm/cool water species and was non-limiting throughout.

6. References

AECOM, 2019a:
Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Aquatic Existing Conditions Memorandum. Prepared for the City of Toronto.

AECOM, 2019b:
Bonar Creek Stormwater Management Facility, Legion Road Extension and Metrolinx Grade Separation – Terrestrial Existing Conditions Memorandum. Prepared for the City of Toronto.

AECOM, 2016:
Ecosystems Existing Conditions Report Ellis Av & Colborne Lodge Dr (H1) Wetland (ETWP014A) Final. Prepared for the City of Toronto.

Bat Conservation International (BCI), 2020:
Species Profiles. Accessed November 2020. Available: http://www.batcon.org/resources/media-education/species-profiles

BirdLife International, 2018: Leslie Street Spit, Toronto, Ontario. Available:
https://www.ibacanada.ca/site.jsp?siteID=ON038

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 (MNFR). 2006:
Ontario Breeding Bird Atlas (OBBA) website. Accessed January 2015. Available:
http://www.birdsontario.org/atlas/index.jsp

City of Toronto, 2010:
Toronto Official Plan. Accessed December 2020. Available at:
http://www1.toronto.ca/static_files/CityPlanning/PDF/chapters1_5_dec2010.pdf

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

City of Toronto, 2012b:
Reptiles and Amphibians of Toronto – A Guide to their Remarkable World. City of Toronto Biodiversity Series.

City of Toronto, No Date (n.d.-a):
City of Toronto Interactive Map - Environmentally Significant Areas. Accessed December 2020. Available: http://map.toronto.ca/maps/map.jsp?app=ESA

City of Toronto, No Date (n.d.-b):
City of Toronto Interactive Map – Toronto Maps v2. Accessed December 2020. Available:
http://map.toronto.ca/maps/map.jsp?app=TorontoMaps_v2

City of Toronto, No Date (n.d.-c):
Ravine and Natural Feature Protection By-Law Brochure. Accessed June 2016. Available:
http://www1.toronto.ca/city_of_toronto/parks_forestry__recreation/urban_forestry/files/pdf/RNFPBy-lawbrochure.pdf

City of Toronto, 2020:
Open Data Portal. Accessed December 2020. Available: https://www.toronto.ca/city-government/data-research-maps/open-data/

Dobbyn, J.S., 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. 2021:
An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Accessed January 2021. Available: http://www.ebird.org.

Fisheries and Oceans Canada (DFO). 2015:
Aquatic Species at Risk Mapping. Accessed December 2020. Available: https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

Hastings County Odonata, 2020: Damselflies and Dragonflies of
south-central Hastings County, Ontario, Clubtails Family Gomphidae Genus Arigomphus Lilypad Clubtail (Arigomphus furcifer) Accessed November 2020. Available: http://www.geocities.ws/hastingscountyodonata/arigomphus_furcifer/arigomphus_furcifer.htm

Important Bird Areas (IBA) Canada, 2015:
IBA Canada website. Accessed June 2016. Available: http://www.ibacanada.ca/index.jsp?lang=en

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurry. 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.

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

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

Ontario Ministry of Municipal Affairs and Housing (MMAH), 2020:
Provincial Policy Statement. Queen's Printer for Ontario.

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

Ontario Ministry of Natural Resources and Forestry (MNRF), 2007a:
Provincially Significant Lower Humber River Wetland Complex Evaluation Report. January 2007.

Ontario Ministry of Natural Resources and Forestry (MNRF), 2007b:
Ecological Land Classification Primer: Central and Southern Ontario. March, 2007.

Ontario Ministry of Natural Resources and Forestry (MNRF). March 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 (MNRF), 2020:
Make-a-Map: Natural Heritage Areas and NHIC Rare Species Records. Accessed November 2020. Available: http://www.giscoeapp.lrc.gov.on.ca/web/MNR/NHLUPS/NaturalHeritage/Viewer/Viewer.html

Ontario Ministry of Natural Resources and Forestry (MNRF), 2015:
Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E. Accessed September 2015. Available: http://www.ontario.ca/document/significant-wildlife-habitat-ecoregional-criteria-schedules-ecoregion-7e
Ontario Nature, 2019 Ontario Reptile and Amphibian Atlas. Last Modified in 2019. Accessed November 2020. Available: http://www.ontarionature.org/protect/species/reptiles_and_amphibians/

Redside Dace Recovery Team. 2010: Recovery Strategy for Redside Dace (*Clinostomus elongatus*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario

Rowe, J.S., 1972:
Forest Regions of Canada. Department of the Environment, Canadian Forestry Service Publication No. 1300. Ottawa.

Toronto Entomologists' Association, 2020:
Ontario Butterfly Atlas Online. Accessed December 2020.
Available: https://www.ontarioinsects.org/atlas/ Accessed November 2020

Toronto and Region Conservation Authority (TRCA), 2008.
Humber River Watershed Plan. Accessed December 2020. Available:
http://www.trca.on.ca/dotAsset/50159.pdf

Toronto and Region Conservation Authority (TRCA), 2020:
TRCA Open Data & Information. Accessed December 2020. Available: https://data.trca.ca/