City of Toronto

Natural Heritage Impact Study

Bloor West Village Avenue Study

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EXECUTIVE SUMMARY

The City of Toronto's natural heritage resources are an important source of habitat for resident flora and fauna, function as migratory stopover areas for birds, and provide corridors through the City's urban environment for the movement and dispersal of wildlife. As the most populated region in Canada, the health of Southern Ontario's ecological systems has many threats, including habitat loss, invasive species, loss of biodiversity, and overuse. To address these threats, local, provincial, and federal policies, guidelines, and strategies have been put in place to preserve, protect, avoid impacts to, and enhance natural heritage features and functions throughout the province.

Dougan & Associates (D&A) has prepared this Natural Heritage Impact Study (NHIS) as a component of the Bloor Street West Avenue Study being conducted by DTAH. The Bloor Street West Avenue Study assesses land uses, transportation and servicing infrastructure, community services and facilities, built form character, and redevelopment potential of Bloor Street West from the Humber River to Keele St/Parkside Drive. Public consultation demonstrates that the potential for impacts to natural heritage due to intensification along corridor has been a major concern of stakeholders; this area of Toronto is characterized by extensive urban tree canopy, prominent and significant green spaces including High Park, the "jewel" in the City's park system, and remnant ravine features.

This NHIS addresses natural heritage impacts to "significant" features and ecological functions which may occur as a result of proposed intensification along the Bloor Street West corridor, in conformity with the PPS (2014) and City of Toronto OP Policy 3.4.3. The corridor is already a built area, and at present there are conceptual plans for future redevelopment; thus the NHIS focuses on impacts that already exist and/or may occur, their mitigation, and site-specific study requirements for future development applications.

Study Area

The Bloor Street West Avenue Study area extends approximately 2.75 km along Bloor Street West between Keele Street and the Humber River, and includes all properties fronting onto Bloor Street (Map 1). A broader 'Area of Influence' incorporating neighbourhoods and natural features has been included as a secondary study area in the NHIS, this Area of Influence includes the Apartment Neighbourhood Area-Based Character Area (bounded by Bloor Street West, Keele Street, Glenlake Avenue and Gothic Avenue) for which a concurrent planning process is underway by the City of Toronto.

Study Process

This NHIS has been prepared to fulfil Policy 3.4.12 of the City of Toronto's Official Plan when development is proposed in or near the City's natural heritage system (NHS) and the requirement of Policy 3.4.14 for development on 'adjacent lands to natural heritage features and areas' i.e. Provincial Areas of Natural and Scientific Interest (ANSI), and Provincially Significant Wetlands (PSW) as defined in Policy 2.1.8 of the PPS (2014) and the Natural Heritage Reference Manual (2010). A site visit and existing information was used to characterize the natural heritage features in, and adjacent to, the Bloor Street West Avenue Study area, to identify potential direct and indirect impacts of intensification on existing natural heritage features and functions, and to recommend mitigation for impacts when future development occurs.

D&A undertook a comprehensive review of background documents available for this project in order to identify natural heritage features and functions, consulted with City and Toronto Region Conservation Authority (TRCA) staff, and participated in two consultation events to incorporate input from the public. Based on the findings, D&A described the key natural heritage sensitivities of the study areas and identified data gaps which could be filled by future studies. Federal, Provincial, and local natural heritage policies were analyzed to determine their applicability to the features, functions, and policy areas in the study area. Using the recommendations from the Bloor Street West Avenue Study and current methods of impact assessment, potential direct and indirect impacts of intensification in the Bloor Street West Avenue Study area were identified and described. Finally, recommendations for mitigation, compensation, and enhancement were developed.

Concurrent to the NHIS, a Desktop Hydrogeological Investigation by WSP (2017) provides recommendations on mitigating potential groundwater impacts from intensification along Bloor St, and Toronto Water has prepared an appendix to the Bloor Street West Avenue Study (2018) which contains recommendations for improvements to water quality and quantity from development sites which could affect downstream aquatic and riparian systems. These studies should be read and considered along with the recommendations of this NHIS.

As many of the receptors of indirect impacts are on public lands, the recommendations in this report need to be considered in the context of existing management plans, including but not limited to the High Park Woodland & Savannah Management Plan (2002), the Humber River Watershed Plan (2008), implementation of the Toronto Ravine Strategy (2017), and existing City policies.

Key Findings

Highlights from our findings include:

1. **Ecologically important areas**

The Bloor Street West Avenue Study area has localized flora and fauna resources, but the Area of Influence includes significant natural features, including Environmentally Sensitive Areas designated by the City of Toronto. Significant natural heritage areas include the High Park Oak Woodlands Area of Natural and Scientific Interest (ANSI), the Lower Humber River Provincially Significant Wetland Complex, rare vegetation community (habitat) types and species, migratory bird stopover habitat, and Significant Wildlife Habitat. Background documents, stakeholder input, and site observations highlight the significance of natural features and functions, but also the existing negative impacts on flora and fauna.

2. **Direct impacts are anticipated and readily mitigated**

Direct impacts specifically result from the proposed development layout and/or construction activities. Existing policies, guidelines, and standards from the City, TRCA, provincial and federal levels are already in place to guide applications for site alteration and/or development. The NHIS provides direction on site-specific studies that may be required in the Bloor Street West Avenue Study area, and enhancements to existing mitigation and compensation practices that build on existing requirements.

3. **Indirect impacts are complex, requiring coordinated management, policy enforcement, and cooperation affecting many parties**

Indirect impacts are caused by altered uses and activities after construction is completed; they include consequences of changes in human behaviours resulting from the new development. The potential

for indirect impacts due to intensification has been a major concern of stakeholders throughout the Bloor West Village Avenue Study consultation process. Through consultation with the City and public, D&A has prepared a summary of Inventory, Management and Enhancement Opportunities which would enhance Resource Management Planning, Personnel and Funding, and Monitoring and Adaptive Management for High Park, the Humber River Corridor, and the Area of Influence. The overarching intent of the opportunities is to increase the resilience of natural heritage for High Park.

Summary

The findings of this NHIS can be used to guide future work to enhance the resiliency of High Park, the Humber River Valley, and other natural heritage features in the Area of Influence by closing natural heritage data gaps through monitoring, guiding management strategies to maintain or enhance existing features and functions, enforcing existing City guidelines and By-laws, and implementing enhancement tools to improve upon existing conditions.

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> *Strong communities and a competitive economy need a healthy natural environment. The natural environment is complex. It does not recognize boundaries and there are limits to the stresses resulting from human activity that it can absorb. To be good stewards of the natural environment we must acknowledge that it has no boundaries and we must respect its limits. (City of Toronto Official Plan, 2015)*

1.1 STUDY PURPOSE

Dougan & Associates (D&A) has been retained as part of the DTAH team to provide natural heritage expertise for the Bloor Street West Avenue Study. Our role is to complete a Natural Heritage Impact Study (NHIS) for proposed future development; that will address the City's Official Plan policies and fulfill the Provincial Policy Statement requirement (Policy 2.1.8) to determine if there will be any impacts on the High Park Area of Natural and Scientific Interest or Lower Humber PSW Complex (required when development is proposed in or on lands adjacent to provincially significant natural heritage features). A NHIS is an objective, science-based study, which identifies ecological features and functions of the defined study area, and evaluates the potential impacts of development on the natural heritage system (City of Toronto, 2006).il

The scope of D&A's work is to use existing information to characterize the natural heritage features in, and adjacent to, the Bloor Street West Avenue Study area and to identify potential direct and indirect impacts of intensification along this corridor on existing natural heritage features. Our scope also includes the provision of Avenue Study level guidance for mitigating impacts to these natural features and their ecological functions, and identifying restoration and enhancement opportunities when future development occurs

The main study area is located along Bloor Street and is highly urbanized. The area surrounding the Study Area is characterized by an extensive urban tree canopy, provincially and locally significant green spaces, and remnant ravine features. Key natural heritage features have been identified by the City and stakeholders which vary in their significance and natural heritage policy protections.

Urban ecology interfaces with recreation, inspiration and human well-being, adding complexity in terms of management, and requiring careful programming to address diverse human interests and needs. Some balancing between recreation and natural area protection often occurs, potentially creating conflicts among users, managers, and interest groups. As cities change, impacts often affect the urban ecology that underlies the built and natural landscapes. Maintaining unique biodiverse habitats requires consideration of larger landscape scale influences on valued natural systems, including usership management and urban forest health. This NHIS represents a targeted study of potential impacts from further development on the valued natural elements that form part of the Bloor West Village neighbourhood.

D&A has worked with other members of the study team to incorporate their findings, particularly with respect to urban design, surface water, and hydrogeology, into this NHIS. Consultation sessions with local stakeholders and the general public have provided an opportunity for feedback and streamlining of this report. Public input has been used to guide and refine the contents of this document.

1.1.1 GOALS & OBJECTIVES

The goals of D&A's study are as follows:

1. To **fulfill the Natural Heritage Impact Study requirements** of the Official Plan, the Natural Heritage Reference Manual and the PPS for development applications within 120 m of the High Park Oak Woodland Provincial ANSI, and Lower Humber River PSW Complex;
2. To **evaluate the potential impacts** of future development along Bloor Street West within the study areas defined by the City (see Section 1.2) on the natural and hydrologic features and functions of the NHS and determine whether these impacts can be mitigated as well as recommending specific mitigation strategies.
3. To **identify opportunities to enhance the features and functions** of the NHS with particular focus on the lands surrounding High Park.

In order to accomplish these goals, the objectives of the study are to:

a) **Characterize the natural heritage features and functions** within and adjacent to the Bloor Street West Avenue Study boundary through review of background documents, a scoped field visit, and consultation with City and Agency staff;
b) **Review natural heritage policy** at a federal, provincial, and local level in order to understand the existing natural heritage planning framework for the study area;
c) **Work with the City** to understand the nature of intensification along Bloor Street West between Keele St and the Humber River, in order to identify potential direct, indirect, and cumulative impacts; and
d) **Use best practices in mitigation and management** in an urban context to develop recommendations for protection, mitigation, compensation, and further studies which may be required in order to address potential impacts.

1.2 STUDY AREAS

The Bloor Street West Avenue Study Area extends approximately 2.75 km along Bloor Street West between Keele Street and the Humber River, and includes all properties fronting onto Bloor Street. This study area is shown as "Bloor West Village Avenue Study Boundary" on Figure 1, and is the area where intensification is being proposed, and where direct impacts will occur. Intensification along Bloor is proposed to be mixed-use and mid-rise (i.e. 4 – 6 storey buildings).

Five separate "character areas" (Figure 1) have been identified along the Bloor Street West Avenue study area; these character areas (from west to east) are:

- Humber Gateway;
- West Village;
- Village Main Street;
- East Village; and
- High Park Frontage.

Throughout this NHIS the Bloor Street West Avenue study area will refer to the Bloor West Village Avenue Study Boundary as a whole, with specific character areas identified in the Impacts and Recommendations sections.

Figure 1: Bloor West Village Avenue Study Character Areas (source: DTAH)

A **Secondary study area** which has been defined by the City for consideration of indirect impacts in the NHIS are a broader 'Area of Influence' incorporating neighbourhoods and natural features, which includes the Apartment Neighbourhood Area-Based Character Area (bounded by Bloor Street West, Keele Street, Glenlake Avenue and Gothic Avenue). See Map 1 for the limits of the secondary study areas and their relation to the primary study area.

The Apartment Neighbourhood Area-Based Character Area is a node of ongoing infill development by high-rise buildings. A planning study is ongoing for the Apartment Neighbourhood, to identify principles, policies, and guidelines for this area to guide future development; this study is expected to be completed in 2018 (City of Toronto 2017).

The Area of Influence is a receptor of indirect impacts which could occur as a result of intensification of the Bloor Street West Avenue Study area, the Apartment Neighbourhood, and the City as a whole.

See Map 1 for the boundaries of the primary and secondary study areas, including the Apartment Neighbourhood.

2 METHODS

2.1 BACKGROUND DOCUMENT REVIEW

D&A undertook a comprehensive review of background documents available for this project. Reports and digital data were provided by the City, Local Advisory Committee members, and/or procured online. This information included:

- Submission documents from development proposals along Bloor Street West;
- Natural heritage reports for High Park and the lower Humber River;
- Spatial data for policy area boundaries;
- Vegetation communities and Species at Risk, and;
- Wildlife data from sources including the Fatal Light Awareness Program (FLAP) and the Toronto Ornithological Club.

See Section 9, References, for a full list of resources used in the preparation of this report.

Information was identified in the background resources relating to wetlands, hydrology, hydrogeology, significant physical features and landforms, policy-protected resources (such as significant wetlands, ESA and ANSI features), development impacts, and park usership. Relevant information from these documents informed the preparation of the characterization overview and understanding of known issues.

2.2 FIELD VISIT

On August 29, 2017 D&A staff met with representatives from the City of Toronto for an on-site field tour. The purpose of this visit was to:

- Discuss the NHIS with City representatives;
- Gain an updated understanding of the significant natural heritage features adjacent to the Bloor Street West Avenue Study area;
- Share insights into the current use and management of High Park;
- Understand the character and features within the broader Area of Influence; and
- Identify other information or data to be considered.

The morning was spent examining the north-eastern portion of High Park in order to gain an understanding of:

- Tallgrass savannah restoration and management areas;
- Wetlands;
- Trail and off-trail user behavior (pedestrians, cyclists);
- Off-leash dog impacts and habitat protection measures; and
- Invasive species prevalence.

We made in-depth observations and had discussions with operations staff on the adequacy of current dog control fencing, evident trail and slope erosion, and suspected impacts to significant resources.

The afternoon focused on the Area of Influence (see Map 1), including neighbourhoods, NHS/ravine sites, and the Apartment Neighbourhood in order to gain an understanding of landscape level urban

ecology characteristics. Key areas visited included ravine remnants such as the terminus of Dacre Cres., Rennie Park, and in back yards along streets such as Ellis Park Rd., Wendigo Way, S. Kingsway, Riverside Dr., Rivercrest Rd., Birchview Cres., and Pine Crest Rd. Stops also included review of key aquatic areas including Grenadier, Wendigo, and West Ponds from available vantage points. The Humber River valley corridor was also visited at Etienne Brulé Park. Data was gathered in the form of field notes and photographs; no new detailed characterization data was collected as part of the current study.

2.3 AGENCY LIAISON AND PUBLIC CONSULTATION

Liaison with City of Toronto departments, other stakeholders, and the public has been a major driving factor in the preparation of this report.

In order to collect data and background reports, D&A liaised with the following agency organizations:

- City of Toronto (City Planning; Parks, Forestry and Recreation; Urban Forestry; Urban Forest Renewal, Planning, High Park Nature Centre)
- Toronto and Region Conservation Authority (TRCA); and
- Ministry of Natural Resources and Forestry (MNRF).

City of Toronto staff have had the opportunity to comment on preliminary documents and a presentation provided by D&A on our impact assessment and recommendation findings. Residents have had the opportunity to provide feedback on our presentations at one Local Advisory Committee meeting (October 18, 2017) and one Public Meeting (December 4, 2017).

3 CHARACTERIZATION

The natural heritage features of the study area are discussed in this report in the context of natural heritage features adjacent to the Bloor Street West Avenue Study area and the larger Area of Influence. The Area of Influence includes High Park, the Humber River Corridor, and the remaining neighbourhood areas which include mature urban forest canopy, a number of parks, and remnant ravine features.

3.1 ABIOTIC RESOURCES

The study area is located on the Iroquois Sand Plain, a physiographic feature which was formed at the end of the last ice age when retreating glaciers formed Lake Iroquois and deposited sand and silt along its shoreline (City of Toronto 2002). After the retreat of Lake Iroquois, the sand plain was exposed and subsequent erosion resulted in a landscape of ponds, steep-sided ravines, and rolling uplands (City of Toronto 2002). Studies identified the soils in both High Park and South Humber Park to generally consist of sandy loams with low organic and nutrient content (NSE et al 2012; ABC 2000). These sandy soils are a critical contributing factor to the persistence of the prairie savannah community that dominates High Park, and also help to maintain infiltration that supports watercourses and wetlands (NSE et al 2012). Wetland and pond features exhibit active seeps or, are known to be supported by a shallow groundwater system in the sandy overburden , which is perched above a relatively impervious till layer (aquitard) (Gartner Lee 1995; Varga 2008; WSP 2017a).

The Iroquois Plain, which in Toronto extends nearly 7.5 km inland from the current lakeshore, was a key physical factor in the development of Toronto, with the original business district built entirely on the plain, fronting onto the harbor which is sheltered by the Toronto Islands. The plain is cut into earlier deposits of clay and till, exhibiting historic beach bluffs over 20 m in height at Casa Loma, and at Lambton Mills on the Humber River (Chapman & Putnam 1984).

The majority of High Park's surficial geology is comprised of sand and silty sand soils, with heavier glaciolacustrine till deposits to the southwest of Grenadier Pond. Historically the catchment of Wendigo Creek extended approximately up to St. Clair Ave. West, but this was reduced by about 50% as urban development occurred north of Bloor St. Urban runoff has offset the loss in catchment area, and is now one of the key component that sustains water levels in Grenadier Pond. Groundwater is suspected to be a key source for Grenadier Pond as well, estimated as at least 50% (Gartner Lee 1995). The catchment of Spring Creek is also intensely urbanized, and the valley on the east side of High Park has been retrofitted to handle stormwater flows (Snodgrass, no date), however plant indicators, which suggest historic seepage functions along Spring Creek, are on record (Varga 2008).

The Humber River valley consists mainly of deciduous forested slopes along the river, and lower, flatter floodplain areas on which riverine wetlands are located. The majority of these wetlands contain clay/loam soils, with only 4% containing organic soils (NSE, 2009). The Humber River Coastal Marsh is a. 86.6 ha area that is considered a Regional Candidate Life Science ANSI (NSE & D&A 2009), which contains a mixture of deciduous forest, deciduous swamp, wetland, sand barren, tallgrass prairie and savannah (NSE & D&A 2009). The primary landform is urban greenspace on coarse ground moraine, coarse glaciolacustrine deposits, and alluvial and fluvial deposits, (NSE, 2010). The hydrology of the lower Humber River Marshes is dominated by fluvial flows.

The neighbourhood areas surrounding High Park and the Humber River valley include other natural heritage features such as the South Kingsway (West Flank) Environmentally Significant Area (ESA), Rennie Park and Ellis Ave ESAs, and ravine fragments within residential areas of the High Park, Swansea, Old Mill, and Bloor West Village neighbourhoods. The ravine fragments have complex topography, remnant from the landscape prior to its development. These neighbourhoods have extensive urban forest canopy, which provides supporting functions to the larger ecological features of High Park and the Humber River valley.

3.2 FLORA

The following sections discuss the prominent natural cover and urban canopy conditions in the vicinity of the Bloor Street West Avenue Study area.

3.2.1 BLOOR STREET WEST AVENUE STUDY AREA

The Bloor Street West Avenue Study area, running from the Humber River to Keele St and Parkside Dr, is heavily urbanized with limited vegetation resources. Some urban forest resources are present, however the primary areas of natural heritage significance along this corridor are natural features located directly adjacent to the Bloor Street West Avenue Study area.

Natural features are present adjacent to the Bloor St. W. corridor in the following character areas, from west to east. See Figure 1 (page 3) for the spatial locations of the character areas.

1. Humber Gateway

Deciduous forest and wetlands of the Humber River corridor are adjacent to Brule Terrace and along Riverside Drive on the north side of Bloor St. The Humber River corridor lands consist of steep valley walls consisting of Dry-Fresh Red Oak Deciduous Forest (FOD1-1), and wetland bottomlands which are part of the Lower Humber River Provincially Significant Wetland Complex (described in detail in Section 3.2.2.2). The FOD1-1 community type is considered to be regionally significant, ranked L1 by TRCA; In the TRCA jurisdiction, L1 status indicates a community which is "of high level of concern in TRCA jurisdiction due to rarity, stringent habitat needs, and/or threat to habitat" (TRCA 2017a). In addition, rare flora and fauna have been recorded within "adjacent lands" (per PPS 2014) for properties backing onto the Humber River corridor. The Humber River lands are regulated by the TRCA and also under the City's Ravine and Natural Features Protection By-law (RNFP). These ravines are part of the City's Natural Heritage System (NHS), and are a candidate Regional Life Science Area of Natural and Scientific Interest (ANSI). This corridor has been extensively studied by the City and TRCA, although the currency of data is variable.

The Humber Gateway character area extends from the Humber River to Riverside Drive both north and south of Bloor St. The existing built form of this area is 3-4 storey buildings, with all lots developed, except a small piece of land northwest of the intersection of Riverside Drive (north) and Bloor St, which is constrained by the presence of TTC subway infrastructure.

2. Village Main Street

A natural feature exists on a parcel of privately-owned land on the south side of Bloor St from Kennedy Ave to Harcroft Rd. At Bloor St the parcel is used as a parking lot for a No Frills grocery store, with the natural feature beginning at the top of slope. The natural feature contains steep valley walls with

Deciduous Forest cover, and a wetland at the bottom of slope with a small area with Thicket Swamp, Meadow Marsh, and Shallow Aquatic communities. This natural feature is also regulated by the TRCA and the City's RNFP, and is part of the City's NHS. Although ELC mapping is available for this feature, limited additional data is available and so its precise limits and sensitivities are not known.

3. Bloor Street West

Privately-owned lands on the south side of Bloor St from Harcroft Rd to Wendigo Way are regulated by the TRCA and the City's RNFP, and are partly within the City's NHS. Plant community cover is not mapped or otherwise detailed in the available background information, but our site observations noted an extensive urban forest canopy with mature native trees.

A remnant ravine feature exists on the north side of Bloor St from Kennedy Park Rd to Clendenan Ave; these lands are privately owned, and consist of treed lands in the back or side yards of individual homes. Plant community cover is not mapped or otherwise detailed in the available background information, but this feature is regulated by the City's RNFP, and is partly within the City's NHS.

4. High Park Frontage

This section of the study area extending from Wendigo Way to Keele St/Parkside Dr fronts onto High Park; this approximately 300-metre span of park includes contiguous Dry Black Oak – Pine Tallgrass Prairie Savannah (TPS1-1) and Dry-Fresh Oak-Red Maple Deciduous Forest (FOD2-1), which are two of the most sensitive vegetation communities present within the park (NSE & D&A 2009, Varga 1989), designated as a Provincial Life Science ANSI. Rare species records are present within 120m of Bloor St W. High Park is entirely within the City's RNFP area and the City's NHS and portions are designated as Environmentally Significant Area. Portions of the park, including areas adjacent to Bloor St are also regulated by the TRCA.

3.2.2 AREA OF INFLUENCE

3.2.2.1 HIGH PARK

The majority of High Park has been mapped by the City of Toronto using the Ecological Land Classification System for Southern Ontario (Lee et al., 1998). Of the ELC features mapped in High Park, the dominant vegetation community is Dry Black Oak – Pine Tallgrass Prairie Savannah (TPS1-1), which comprises 40.4% of the vegetation cover. Savannahs typically consist of tree cover between 25% and 35%, with an understory of prairie graminoids and forbs (Lee et al., 1998). This savannah community is followed in abundance by Deciduous Forest types and Open Aquatic, which make up 16.2% and 15.6% of the cover respectively. Table 1 provides the area in hectares and percent cover for each of the vegetation communities present within the High Park ESA, according to mapping provided by the City of Toronto and TRCA. Note that this summary includes only areas of the park located within the ESA; the City and TRCA mapping does not include community descriptions for the remaining 78 ha of High Park.

Table 1. Vegetation Communities in High Park ESA

Vegetation Type	Area (ha)	% Cover
Anthropogenic	**0.41**	**0.5%**
M (Manicured)	0.41	0.5%
CUM (Cultural Meadow)	**0.30**	**0.4%**
CUM (Cultural Meadow)	0.04	0.1%
CUM1 (Mineral Cultural Meadow)	0.26	0.3%
CUM/CUT (Cultural Meadow / Cultural Thicket)	**1.59**	**1.9%**
CUM/CUT (Cultural Meadow / Cultural Thicket)	1.59	1.9%
CUP	**0.08**	**0.1%**
CUP3 (Coniferous Plantation)	0.08	0.1%
CUP/TPS	**0.22**	**0.3%**
CUP3/TPS1 (Coniferous Plantation / Dry Tallgrass Savannah)	0.22	0.3%
CUW	**3.86**	**4.6%**
CUW1 (Mineral Cultural Woodland)	3.86	4.6%
CUW/CUM (Cultural Woodland / Cultural Meadow)	**2.54**	**3.0%**
CUW1/CUM (Mineral Cultural Woodland / Cultural Meadow)	0.24	0.3%
CUW1/CUM1 (Mineral Cultural Woodland / Mineral Cultural Meadow)	2.30	2.8%
CUW/TPS/CUM	**4.98**	**6.0%**
CUW1/TPS1-1/CUM (Mineral Cultural Woodland / Dry Black Oak – Pine Tallgrass Prairie Savannah / Cultural Meadow)	4.98	6.0%
FOD (Deciduous Forest)	**13.62**	**16.3%**
FOD1-1 (Dry-Fresh Red Oak)	3.00	3.6%
FOD1-4 (Dry-Fresh Mixed Oak)	0.88	1.1%
FOD2-1 (Dry-Fresh Oak-Red Maple)	5.44	6.5%
FOD2-4 (Dry-Fresh Oak-Hardwood)	4.09	4.9%
FOD4-2 (Dry-Fresh White Ash)	0.22	0.3%
FOD/CUW	**0.07**	**0.1%**
FOD1-4 / CUW1 (Dry-Fresh Mixed Oak Deciduous Forest / Cultural Woodland)	0.07	0.1%
FOM (Mixed Forest)	**0.17**	**0.2%**
FOM3-1 (Dry – Fresh Hardwood – Hemlock Mixed Forest)	0.17	0.2%
MAM (Meadow Marsh) / SWT (Swamp Thicket)	**0.32**	**0.4%**
MAM2-1 (Bluejoint Mineral Meadow Marsh)	0.32	0.4%
MAM/SWT	**0.17**	**0.2%**
MAM2-1 / SWT2-5 (Bluejoint Mineral Meadow Marsh / Red-osier Mineral Thicket Swamp)	0.17	0.2%
MAS (Shallow Marsh)	**2.08**	**2.5%**
MAS2-1 (Cattail Mineral Shallow Marsh)	2.08	2.5%
OAO (Open Aquatic)	**13.15**	**15.7%**
OAO (Open Aquatic)	13.15	15.7%
SAM (Mixed Shallow Aquatic)	**4.83**	**5.8%**
SAM1-4 (Pondweed Mixed Shallow Aquatic)	4.83	5.8%
SWD (Deciduous Swamp)	**1.29**	**1.5%**

Vegetation Type	Area (ha)	% Cover
SWD3-4 (Manitoba Maple Mineral Deciduous Swamp)	1.29	1.5%
SWT (Thicket Swamp)	**0.34**	**0.4%**
SWT2-1 (Alder Mineral Thicket Swamp)	0.20	0.2%
SWT2-5 (Red-osier Mineral Thicket Swamp)	0.14	0.2%
TPS (Tallgrass Savannah)	**33.96**	**40.6%**
TPS1-1 (Dry Black Oak – Pine Tallgrass Prairie Savannah)	33.96	40.6%
Grand Total	**83.57**	**100.0%**

Six of the vegetation communities in the High Park ESA are of local and/or provincial conservation concern (Table 2). G-ranks, S-ranks, and L-ranks are the conservation status of a species or plant community at a global, subnational, and local scale. These rankings rate vegetation communities on a five-point scale from critically imperiled (G1/N1/S1) to secure (G5/N5/S5) (NatureServe 2017) (Table 2).

Table 2. Vegetation Communities of Conservation Concern in High Park

Vegetation Community Name	Vegetation Community Code (per Lee et al 1998)	Srank	Lrank
Dry Black Oak-Pine Tallgrass Prairie Savannah	TPS 1-1	S1	L1
Dry-Fresh Red Oak Deciduous Forest	FOD1-1	S5	L2
Dry-Fresh Mixed Oak Deciduous Forest	FOD 1-4	S3S4	L2
Dry - Fresh Oak - Red Maple Deciduous Forest Type	FOD 2-1	S5	L3
Dry-Fresh Oak-Red Maple Deciduous Forest	FOM 3-1	S4S5	L3
Pondweed Mixed Shallow Aquatic	SAM 1-4	S5	L3

See Map 3 for the limits of vegetation communities within the primary and secondary study areas, including High Park.

TRCA defines L3 communities as those which are typically able to withstand minor disturbance and are generally secure, however they are considered to be of regional concern. L1 and L2 communities are defined as being unable to withstand disturbance and typically only occur in high-quality natural areas. Of these communities, L1 are often regionally rare, and both are of regional concern (TRCA 2017a).

Vascular plants / locally significant species

A botanical inventory of High Park conducted by Steve Varga of the OMNR in 1989 detected thirty-five (35) regionally rare species, including Black Oak (*Quercus velutina)*, Sycamore (*Platanus occidentalis)*, Little Bluestem (*Schizachyrium scoparium)*, Cylindric Blazing Star (*Liatris cylindracea)*, and Sassafras (*Sassafrass albidum)* (Varga, 1989). Varga (1989) also detected five (5) nationally and provincially rare species, including Wild Lupine (*Lupinus perennis)*, Woodland Fern-leaf (*Aureolaria pedicularia*), Cup Plant (*Silphium perfoliatum)*, Shrubby St. John's-wort (*Hypericum prolificum*), and Bushy cinquefoil (*Potentilla paradoxa*).

A subsequent inventory of vascular plants in the High Park area conducted by S. Varga in 2008 detected over 100 locally/regionally rare species and six (6) provincially rare species, including: Shrubby St. John's Wort, Schreber's Aster (*Aster schreberi*) (S2), Cylindric Blazing Star (S3), Wild Lupine (S3), Cup-Plant (S2) and Nuttall's Waterweed (*Elodea nuttallii*). Butternut (*Juglans cinerea)* was also detected, which is listed an Endangered species both provincially and federally (Varga, 2008).

In a 2009 botanical inventory of High Park conducted by J. Kamstra, 56 locally/regionally rare species, 12 regionally uncommon species, and three (3) provincially rare plant species were detected, including Cylindric Blazing Star, Wild Lupine, and Cup Plant (Kamstra, 2009).

According to the 2012 High Park ESA Fact Sheet, the eastern portion of the High Park ESA contains Spring Creek Ravine, which has slopes comprised mainly of fresh-moist deciduous forests, marshes dominated by Bluejoint Reedgrass (*Calamagrostis canadensis)* and thicket swamps dominated by Red-osier Dogwood (*Cornus sericea*) and Speckled Alder (*Alnus incana)* (Toronto ESA Study, 2012). Twenty-three (23) vegetation communities are reported within the ESA, and a total of 136 locally significant plant species (ranked L1 to L4) have been detected (Toronto ESA Study, 2012).

Disturbance and Invasive Species

Prescribed burns used to maintain the Black Oak Savannah have somewhat limited the spread of invasive species. However, the presence of invasive plants throughout the High Park ESA has been noted in several of the studies reviewed. Despite the prescribed burning in High Park, certain exotics have been able to persist in the area and can out-compete native species.

The majority of invasive species that were noted in Varga's 1989 report were detected in the formerly disturbed uplands within High Park, including honeysuckle (*Lonicera sp)*, European Buckthorn (*Rhamnus cathartica)*, White Mulberry (*Morus alba)*, Siberian Elm (*Ulmus pumila),* Norway Maple (*Acer platanoides),* Sweet Cherry (*Prunus avium),* Orange Day-lily (*Hemerocallis fulva)* and Japanese Knotweed (*Reynoutria japonica)*. Purple Jewelweed (*Impatiens glandulifera)* was also detected, and was typically restricted to the bottomlands, while Purple Loosestrife (*Lythrum salicaria)* was abundant in the emergent marshes around Grenadier Pond and in some meadow marshes along Spring Road Ravine.

In Kamstra's 2009 inventory of High Park, he found that Tartarian Honeysuckle (*Lonicera tatarica)* and European Spindle-tree (*Euonymus europaeus)* were the most abundant and problematic species, while European Buckthorn and Dog-strangling Vine (*Vincetoxicum rossicum)* were present but not abundant. This was likely due to control measures implemented by the City to limit the spread of those two species (Kamstra, 2009). According to the High Park Woodland & Savannah Management Plan (City of Toronto, 2002) and the Oak Savannah Restoration in the Toronto Progress Report (City of Toronto, undated), the prescribed burns do not prevent the re-sprouting of those two species, but in combination with chemical and manual control, such as herbicide applications and cutting, the ability to control them has been greatly improved. Kamstra (2009) also notes that Japanese Hedge-parsley (*Torilis japonica)* seemed to be spreading, while Garlic Mustard (*Alliaria petiolata)* and Wood Bluegrass (*Poa nemoralis*) were abundant groundcover in the southeast corner with Black Oak dominant canopy (Kamstra, 2009).

According to the High Park Woodlands & Savannah Management Plan (2002), restoration priorities are as follows: 1) heavily degraded lowland forests with an exotic understory, 2) open fields and thickets, and, 3) forests dominated by exotic trees. This plan recommended the use of Integrated Pest Management to control for invasive species, using physical, chemical and biological control measures while propagating rare native species (City of Toronto, 2002) and prescribed burns to help maintain the Black Oak Savannah.

In addition to invasive plants, the High Park ESA Study (2012) noted that grazing by Canada Geese has also limited the success rate of native plantings. Increased populations of these birds in the park could be due to increased feeding opportunities from park users.

3.2.2.2 LOWER HUMBER RIVER VALLEY

Along the lower Humber River Corridor, the majority of land cover is comprised of Deciduous Forest (29.3%) and Submerged Shallow Aquatic wetland, comprising 29.3% and 27.8% of the corridor, respectively (Map 3). Deciduous Forest is classified as tree cover greater than 60% with deciduous tree species making up more than 75% of the canopy (Lee et al., 1998). Specifically, Dry-Fresh Red Oak Deciduous Forest (FOD1-1) makes up 22.3% of the natural cover while Fresh-Moist Ash Lowland Deciduous Forest (FOD7-2) contributes to 7.0% of the land cover. The Red Oak Deciduous Forest community is dominated by Red Oak, with understory plants adapted to dry sandy soil conditions. The Ash Lowland Deciduous Forest community is dominated by Green Ash and is expected to support a mixture of water-tolerant plants and upland species. The Red Oak Deciduous Forest communities were typically associated with the valley slopes along the west side of the Humber River, while the more water-tolerant Ash Lowland Deciduous Forest communities were associated with the lowlands

Two communities contribute to the Submerged Shallow Aquatic cover which tends to be located adjacent to the Humber River system. These community types include Water Milfoil Submerged Shallow Aquatic with 21.5% cover, and Pondweed Submerged Shallow Aquatic with 0.65% cover. Submerged Shallow Aquatic ecosites are characterized by water depth up to 2 metres, no tree or shrub cover, and over 25% cover by submerged macrophytes. Table 3 summarizes the area and percent cover of vegetation communities in the Humber River Corridor within the Area of Influence.

Table 3. Vegetation Communities along the Humber River Corridor within the Area of Influence

Vegetation Community	Area (ha)	% Cover
BLO (Mineral Open Bluff)	**0.04**	**0.1%**
BLO1 (Mineral Open Bluff)	0.04	0.1%
BLS (Shrub Bluff)	**0.44**	**1.6%**
BLS1 (Mineral Shrub Bluff)	0.44	1.6%
CUW (Cultural Woodland)	**0.2**	**0.8%**
CUW1 (Mineral Cultural Woodland)	0.2	0.8%
FOD (Deciduous Forest)	**7.93**	**29.3%**
FOD1-1 (Dry-Fresh Red Oak Deciduous Forest)	6.03	22.3%
FOD7-2 (Fresh-Moist Ash Lowland Deciduous Forest)	1.89	7.0%
MAM (Meadow Marsh)	**0.9**	**3.3%**
MAM2 (Mineral Meadow Marsh)	0.17	0.6%
MAM2-10 (Forb Mineral Meadow Marsh)	0.54	2.0%
MAM2-2 (Reed-canary Grass Mineral Meadow Marsh)	0.14	0.5%
MAM2-6 (Broad-leaved Sedge Mineral Meadow Marsh)	0.05	0.2%
MAS (Shallow Marsh)	**2.08**	**7.7%**
MAS2 (Mineral Shallow Marsh)	0.11	0.4%

Vegetation Community	Area (ha)	% Cover
MAS2-1(Cattail Mineral Shallow Marsh)	1.97	7.3%
OAO (Open Aquatic)	**3.52**	**13.0%**
OAO1-T (Turbid Open Aquatic (disturbed unvegetated)	3.52	13.0%
SAF (Floating-leaved Shallow Aquatic)	**2.53**	**9.3%**
SAF1-1 (Water Lily-Bullhead Lilly Floating-Leaved Shallow Aquatic)	2.53	9.3%
SAS (Submerged Shallow Aquatic)	**7.52**	**27.8%**
SAS1 (Submerged Shallow Aquatic)	1.53	5.6%
SAS1-1 (Pondweed Submerged Shallow Aquatic)	0.18	0.7%
SAS1-4 (Water Milfoil Submerged Shallow Aquatic)	5.81	21.5%
SWD (Deciduous Swamp)	**1.93**	**7.1%**
SWD2-2 (Green Ash Mineral Deciduous Swamp)	0.9	3.3%
SWD4-1 (Willow Mineral Deciduous Swamp)	1.03	3.8%
Total	**27.09**	**100.00%**

Three (3) of the vegetation communities along the Humber River Corridor are locally significant as per the TRCA (2017) L-rankings (Table 4):

Table 4. Vegetation Communities of Conservation Concern in the Humber River Corridor in the AOI

Vegetation Community Name	Vegetation Community Code (per Lee et all 1998)	Srank	Lrank
Dry-Fresh Red Oak Deciduous Forest	FOD1-1	S3S4	L2
Broad-leaved Sedge Mineral Meadow Marsh	MAM 2-6	S5	L3
Water Lily-Bullhead Lily Floating-Leaved Shallow Aquatic	SAF 1-1	S5	L3

See Map 3 for the limits of vegetation communities within the primary and secondary study areas, including the Humber River corridor.

Vascular plants / locally significant species

According to the 2009 Review of PSWs in the City of Toronto, the following provincially, regionally and locally significant plant species were reported for the Lower Humber River Wetland Complex (NSE, 2009):

Provincially Significant

- Cup Plant (*Silphium perfoliatum*).

Regionally Significant

- Awned Sedge (*Carex atherodes)*; and
- Nuttall's Waterweed (*Elodea nuttalii*).

Locally Significant

- Three-parted Beggar's Ticks *(Bidens tripartitus);*
- Purple Cress *(Cardamine douglassii);*
- Smooth-sheathed Sedge *(Carex laevivaginata);*
- Common Coontail *(Ceratophyllum demersum);*
- Wood-reed Grass *(Cinna arundinacea);*
- Yellow Pond-lily *(Nuphar variegata);*
- White Water-lily *(Nymphaea odorata);*
- Water Smartweed *(Polygonum amphibium);*
- Leafy Pondweed *(Potamogeton foliosus);*
- Black Willow *(Salix nigra);*
- River Bulrush *(Scirpus fluviatilis);*
- Common Three-square *(Scirpus pungens);*
- Rough-leaved Goldenrod *(Solidago patula);*
- Giant Bur-reed *(Sparganium eurycarpum);*
- Greater Duckweed *(Spirodela polyrhiza);*
- Skunk-cabbage *(Symplocarpus foetidus);*
- Wood-sage *(Teucrium canadense);* and
- Golden Alexanders *(Zizia aurea).*

3.2.2.3 AREA OF INFLUENCE

The majority of the natural vegetation communities outside of High Park and the Humber River Corridor, within the area of influence, are comprised of various Deciduous Forest types (75.7% of natural cover) and Open Aquatic (14.8% of natural cover). The most common deciduous forest type, which makes up 28.5% of the cover, is Dry-Fresh Mixed Oak Deciduous Forest (FOD1-4). This community typically has a somewhat open canopy with more than two Oak species dominant, and common associates include Red Maple, White Pine, Black Cherry and Bracken Fern (Lee et al., 1998). Open Aquatic communities are characterized by water depth greater than 2 metres, with no macrophyte vegetation or tree and shrub cover (Lee et al., 1998). Table 5 summarizes these communities present in the Area of Influence outside of High Park and the Humber River Corridor.

Table 5. Vegetation Communities in the Area of Influence, Exclusive of High Park and the Humber River Corridor

Vegetation Community	Area (ha)	% Cover
CUM	**0.17**	**1.3%**
CUM1 (Mineral Cultural Meadow)	0.17	1.3%
CUS	**0.17**	**1.3%**
CUS1-3 (Dry Red Oak Cultural Savannah)	0.17	1.3%
CUW	**0.07**	**0.6%**
CUW1 (Mineral Cultural Woodland)	0.07	0.6%
FOD (Deciduous Forest)	**9.67**	**75.7%**
FOD1-1 (Dry-Fresh Red Oak Deciduous Forest)	2.18	17.1%
FOD1-2 (Dry-Fresh White Oak Deciduous Forest)	0.42	3.3%
FOD1-4 (Dry-Fresh Mixed Oak Deciduous Forest)	3.64	28.5%
FOD4-2 (Dry-Fresh White Ash Deciduous Forest)	0.77	6.0%
FOD4-b (Dry-Fresh Manitoba Maple Deciduous Forest)	1.04	8.2%
FOD4-d (Dry-Fresh Norway Maple Deciduous Forest)	0.83	6.5%
FOD7-a (Fresh-Moist Manitoba Maple Lowland Deciduous Forest)	0.65	5.1%
FOD8-1 (Fresh-Moist Poplar Deciduous Forest)	0.12	1.0%
MAM	**0.43**	**3.4%**
MAM2-6 (Broad-leaved Sedge Mineral Meadow Marsh)	0.43	3.4%
MAS	**0.10**	**0.8%**
MAS2-1 (Cattail Mineral Meadow Marsh)	0.10	0.8%
OAO	**1.89**	**14.8%**
OAO (Open Aquatic)	1.89	14.8%
SAF	**0.18**	**1.4%**
SAF1-3 (Duckweed Floating-leaved Shallow Aquatic)	0.18	1.4%
SAM (Mixed Shallow Aquatic)	**0.02**	**0.2%**
SAM1-3 (Watercress Mixed Shallow Aquatic)	0.02	0.1%
SAM1-4 (Pondweed Mixed Shallow Aquatic)	0.00	0.0%
SWT/MAM	**0.07**	**0.5%**
SWT2-5/MAM2-6 (Red-osier Mineral Thicket Swamp / Broad-leaved Sedge Mineral Meadow Marsh)	0.07	0.5%
Grand Total	**12.77**	**100.0%**

According to TRCA (2014b) L-rankings, six (6) of the above vegetation communities are considered to be provincially and/or locally significant (Table 6):

Table 6. Vegetation Communities of Conservation Concern in the AOI

Vegetation Community Name	Vegetation Community Code (per Lee et all 1998)	Srank	Lrank
Dry-Fresh Red Oak Deciduous Forest	FOD1-1	S3S4	L2
Dry-Fresh Mixed Oak Deciduous Forest	FOD 1-4	S5	L2
Broad-leaved Sedge Mineral Meadow Marsh	MAM 2-6	S5	L3
Dry Red Oak Cultural Savannah	CUS 1-3	S?	L3
Watercress Mixed Shallow Aquatic	SAM 1-3	S4	L3
Pondweed Mixed Shallow Aquatic	SAM 1-4	S5	L3

See Map 3 for the limits of vegetation communities within the primary and secondary study areas, including the Area of Influence. The communities in Table 6 are found in the South Kingsway West Flank and Rennie Park ESAs.

There are areas to the north and west of the study area, mapped on Map 2.2 as part of the City's Natural Heritage System, ESA, or Ravine and Natural Feature Protection By-law area, for which ELC data was not available. This mainly pertains to the Humber River Corridor north of Bloor Street West, as well as some smaller ravine features north of Bloor Street West between Keele Street and Runnymede Road.

Rennie Park ESA includes a small (<2ha) woodland/wetland complex located between Kennedy Avenue and Ellis Park Road, just west of the High Park ESA that may provide linkage for wildlife (i.e. birds) to wooded areas north of Bloor Street West surrounding a Red-osier Dogwood Mineral Thicket Swamp / Meadow Marsh complex located. The forested vegetation communities include:

- Dry-Fresh Norway Maple Deciduous Forest;
- Dry-Fresh White Oak Deciduous Forest; and
- Dry-Fresh White Ash Deciduous Forest.

The South Kingsway West Flank ESA is a potential linkage feature at the far west end of the study area between South Kingsway and the Humber River. Additional wooded features exist both north and south of Bloor St West, some of which have not been classified according to ELC due to their location in the backyards of private residences. The density of tree canopy, however, could provide linkage to additional wooded backyards just north of Bloor St West.

See Map 3 for available ELC vegetation community mapping for the Area of Influence.

3.2.2.4 URBAN FOREST

The City of Toronto has an estimated 26.6 - 28% tree canopy cover, representing 10.2 million trees (City of Toronto, 2013). The City's current strategic goal (2013) is to achieve 40% canopy cover. Of the total tree population, 6.1 million (60%) trees are on private property, 3.5 million (34%) trees are in parks and ravines, and 0.6 million (6%) trees are on city streets (City of Toronto 2013). The urban forest provides the equivalent of more than $28.2 million dollars in ecological services each year (City of Toronto 2013). For example, Toronto's urban forest is estimated to reduce energy use from heating and cooling of residential buildings by $10.2 million annually; air quality improvements, through the interception of pollutants equal $16.9 million per year. Toronto's trees store 1.1 million metric tons of carbon, or the yearly equivalent of 733,000 car emissions. The structural value of Toronto's urban

forest is estimated at $7.1 billion. The benefits derived from Toronto's urban forest exceed the annual cost of management (City of Toronto 2013).

Ravines and other remaining natural features represent a significant component of Toronto's urban forest. In most of the city, tree cover has been established since the areas were initially cleared and developed. In the Area of Influence for the Bloor West Village Avenue Study, there are mapped Natural Heritage System features that lie outside of designated open space (see Maps 2.2, 4.6), some of which likely pre-date settlement and development; they represent remnant ravine fragments that are prevalent in the Area of Influence, now forming part of the canopy cover in built residential areas. Map 4.1 summarizes steep slopes in the Area of Influence, which contain further wooded features beyond those identified in Map 3. Map 4.5 indicates the generalized location of significant species as documented by TRCA; in the area between Grenadier Pond and the Humber valley, the neighbourhood contains Black Oak trees, a fire-adapted savannah species with a TRCA rank of L2, or "unable to withstand disturbance; some criteria are very limiting factors; generally occur in high-quality natural areas, in natural matrix; probably rare in the TRCA jurisdiction; of concern regionally" (TRCA 2014b). There are trees are present in these areas which pre-date settlement; City documents estimate ages of greater than 150 years, representing part of the 'living history' of the City (City of Toronto Urban Forestry, 2013).

According to City of Toronto Parks, Forestry and Recreation (2013), the biggest threat to the urban forest is Emerald Ash Borer because at the time there were no known control methods; if ash tree mortality reached 100%, canopy cover across the City would be reduced by over 2%. European Gypsy Moth and Asian Long-horned Beetle are two other examples of pest outbreaks prior to 2010 from invasive species that required a management program (City of Toronto 2002).

3.3 FAUNA

3.3.1 BLOOR STREET WEST AVENUE STUDY AREA

3.3.1.1 AVIFAUNA (BIRDS)

Breeding Birds

Many of the species of conservation concern (SAR, Sranks of S1 to S3, L-Ranks of L1 to L3, area sensitive) known from the AOI would occur only within natural habitats within High Park and the Humber River Valley. However, many species of birds breed in the northern end of High Park as well as treed neighbourhoods, parks/parkettes, and backyards within the Bloor West Village and Apartment Neighbourhood study areas and their adjacent lands. Most of these urban-adapted species are not of conservation concern but nonetheless may be impacted by development; in addition, some are protected by legislation such as the federal Migratory Bird Convention Act (MBCA 1994) and the provincial Fish and Wildlife Conservation Act (2002).

The list of birds potentially found in these areas, which are common and widespread within the City and southern Ontario, is as follows:

- American Crow;
- American Robin;
- American Goldfinch;
- Baltimore Oriole;
- Black-capped Chickadee;
- Blue Jay;
- Brown-headed Cowbird;
- Cedar Waxwing;
- Chipping Sparrow;
- Common Grackle;
- Downy Woodpecker;
- Eastern Screech-Owl;
- Gray Catbird;
- Great Horned Owl;
- House Wren;
- Indigo Bunting;
- Mourning Dove;
- Northern Cardinal;
- Northern Flicker;
- Red-tailed Hawk;
- Red-winged Blackbird;
- Song Sparrow; and
- Warbling Vireo.

Four introduced (non-native) species are also known to occur:

- European Starling;
- House Finch;
- House Sparrow; and
- Rock Pigeon.

The following species found within these areas are noteworthy, with conservation status in brackets:

- Chimney Swift (THR);
- Common Nighthawk (SC); and
- Eastern Wood-Pewee (SC).

Refer to Section 3.3.3.2 and Appendix 1 for details on these three avian SAR, including anticipated habitat in the study area.

Migratory Birds

Given its proximity to Lake Ontario, High Park and the Humber River Valley, with their mixture of natural habitats, attract many migratory birds in spring and fall. These migrants include waterbirds and landbirds, as well as species that migrate at night (e.g. warblers) and by day (e.g. raptors, waterfowl). Therefore, it is not surprising that records from the Toronto Ornithology Club (TOC) and other sources (e.g. Ontbirds listserv) indicate that approximately 150 species of migratory birds have been recorded within the City, with many of these within the AOI. This list is of species that were

migratory only (i.e., non-breeding) so that there are many additional species that, although they breed within the AOI and City, many individuals of these breeding species also migrate through to points further north. Therefore, the true list of migratory species likely exceeds 200.

It is important to note that, while most of the landbird migrants stopping over within the AOI do so in High Park and the Humber River Valley, many will also be found in other vegetated habitats within small parks, backyards, ravine remnants, hedgerows, etc. Therefore, migrant landbirds may utilize vegetated areas adjacent to the Bloor West Village study area and treed areas within the Apartment Neighbourhood.

3.3.1.2 AMPHIBIANS

Overall, the diversity of amphibians within the study area is quite low, and all species would be confined to wetlands and ponds within High Park, the Humber River Valley, and Catfish Pond in Rennie Park. There is also potential for these species to utilize seep habitats such as the ravine fragment at the end of Dacre Cres, but no there is no amphibian data for these features. It is not likely that any of these species would occur within the Bloor West Village study area except potentially where it intersects Wendigo and Spring Creeks, and at the seepage wetlands in the Dacre Cres ravine feature (see Map 3).

3.3.1.3 REPTILES

All of the species of reptile recorded in background data would remain in natural areas so would be mostly likely encountered only in High Park and the Humber River Valley. If they persist along the Bloor West Village study area, it would be in very low numbers, and survivorship would be low as there are many sources of mortality for terrestrial animals in urban areas.

3.3.1.4 MAMMALS

Of the fifteen species of mammal known to persist within the AOI, some of them (e.g. Gray Squirrel, Raccoon, and Striped Skunk) are well adapted to the urban matrix and likely exist in areas outside of High Park and the Humber River Valley. This would include residential and remnant ravine areas adjacent to the Bloor West Village study area.

3.3.1.5 INSECTS

Few records for this group were found in the background review and database queries; two SAR insects are possible within the AOI: Monarch (Endangered federally, Special Concern provincially) and the Yellow-banded Bumble Bee (Special Concern). Monarch undoubtedly occurs in open areas, most likely in High Park and the Humber River Valley, and although it may occur in the Bloor Street corridor the probability is lower than in open, naturalized habitats.

3.3.1.6 SIGNIFICANT WILDLIFE HABITAT

As part of the background review, the habitats within the Bloor West Village Avenue Study Boundary and adjacent lands were screened against the Significant Wildlife Habitat (SWH) categories contained within the *Significant Wildlife Habitat Technical Guide* (OMNR 2000) and the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (OMNRF 2015).

Of the 38 categories of SWH, the following four are "Confirmed" within the study area and adjacent lands:

Rare Vegetation Communities:

- **Sand Barren** – small areas of Sand Barren occur at the north end of High Park (see Map 3).
- **Tallgrass Prairie** – Tallgrass Prairie occurs at the north end of High Park (see Maps 3 and 4.3).
- **Savannah** – Savannah occurs at the north end of High Park, (see Maps 3 and 4.3).

Specialized Habitat for Wildlife:

- **Seeps and Springs** – a seep was observed in the ravine located just north of the north end of Dacre Crescent, which is within adjacent lands. This small wetland is depicted as a small wetland feature (within a deciduous forest) on Map 3.

Of the 38 categories of SWH, three (3) are considered as "Candidate" within the study area and adjacent lands. Map 4.4 shows confirmed and candidate SWH throughout the AOI, specific locations for SWH adjacent to the Bloor West Village study area are described in the text below. The areas where these categories were flagged would require additional field studies in order to determine whether or not the categories are confirmed.

Seasonal Concentration Areas of Animals:

- **Bat Maternity Colonies –** suitable forested habitats exist in the northern portions of High Park (within adjacent lands).
- **Landbird Migratory Stopover Areas** – suitable stopover areas exist within the study area, mostly in the north end of High Park. There are no high quality stopover areas within the remainder of the Bloor West Village study area. It is unknown if the numbers and diversity of migratory landbirds in habitats adjacent to the study area would meet significance thresholds, although they are definitely met for the entire Area of Influence (which includes all of High Park).

Habitat for Species of Conservation Concern:

- **Special Concern and Rare Wildlife Species** – only a few Special Concern (SC) or Rare species (e.g. with provincial Sranks of S1 to S3) are possible within 120 metres of the study area. These include Common Nighthawk (SC) on gravel roof tops; Red-headed Woodpecker (SC) in the savannah of High Park; Eastern Wood-Pewee (SC) and Wood Thrush (SC) in woodlands in the north end of High Park; and Monarch (SC) in open areas at the north end of High Park. There are no confirmed breeding records for these species within the study area and adjacent lands, however Red-headed Woodpecker has historically been known to breed in High Park. Other SC and S1 to S3 birds may be found during migration (i.e., not breeding); however, these species are covered under the "Landbird Migratory Stopover Areas" category.

The full SWH screening table is found in Appendix 2. Map 4.4 shows the location of all Confirmed and Candidate SWH within the AOI.

3.3.2 AREA OF INFLUENCE

3.3.2.1 AVIFAUNA (BIRDS)

Discussion of avifauna in NHIS reports typically is restricted to those which are known or suspected to be breeding in the study area, as maintaining the ability of birds to breed is an important

consideration in impact avoidance and mitigation. However, due to the location of the study area in proximity to the shoreline of Lake Ontario, High Park and the Humber River Valley are potential migratory bird stopover areas, so a discussion of migratory birds is also included in this report.

Breeding Birds

An estimated total of 64 species of birds have been documented as breeding within High Park, and 56 species within the Humber River Valley. There are likely additional species that breed elsewhere within the AOI, and other species that have formally bred in the area but are now considered extirpated (e.g. Black Tern, Prothonotary Warbler).

Federal and Provincial Species at Risk

Within the entire AOI, when including extirpated species, there is an extensive list of breeding SAR birds found in the background data (see Appendix 1). However, of the extant species, many of them would not nest within 120 metres of the Bloor West Village study area or within the Apartment Neighbourhood. For a discussion of SAR birds that are known from, or could likely occur in, these areas, refer to Sections 3.3.1.1 and 3.3.2.1.

Provincially Significant

Of the more than 80 species known to breed within the AOI, most of them are common and widespread within southern Ontario, with provincial Sranks of S4 or S5. This indicates that their populations within Ontario are "apparently secure" or "secure", respectively (NHIC, 2017); as such, they are not of a conservation concern. Species with Sranks of S1 to S3, indicating that they are of conservation concern within the province owing to threatened and declining populations, are as follows:

- Black Tern (S3), Black-crowned Night-Heron (S3), Caspian Tern (S3), and Red-necked Grebe (S3).

Note that, if the above four S3 species are still breeding within the AOI, they would be confined to the Humber River valley in areas closer to Lake Ontario. There is no suitable breeding habitat for these four species within the Bloor West Village study area.

Locally Significant

In addition, most of the 80 or so species known to breed within the AOI have local L-Ranks (per TRCA) of L4 and L5, indicating that they are not of a conservation concern with the City. Species with L-Ranks of L1 to L3, that is, with threatened populations within the City (TRCA, 2015), are as follows:

- L2 – American Coot, Double-crested Cormorant, and Least Bittern; and
- L3 – American Woodcock, Black-crowned Night-Heron, Brown Thrasher, Common Tern, Green Heron, Osprey, Pine Warbler, Red-headed Woodpecker, Red-necked Grebe, Wood Duck, Wood Thrush, and Yellow-throated Vireo.

Note that most of these species would occur within the forested portions of High Park or within the Humber River Valley. Most of the Bloor West Village study area and the Apartment Neighbourhood area would contain no suitable breeding habitat for them.

Although there are no background records, additional L1 to L3 breeding bird species, such as Eastern Screech-Owl (L3) and Sharp-shinned Hawk (L3), likely occur within the AOI.

Area Sensitive species

The MNRF considers some species within the province to be 'area sensitive' with regards to breeding, indicating that they require larger areas of suitable breeding habitat to successfully carry out their nesting activities (OMNR 2000). The list of breeding birds known to breed (or have bred in the past) within the AOI that are considered area sensitive is as follows:

- American Coot;
- Black Tern;
- Blue-gray Gnatcatcher;
- Cooper's Hawk; Hairy Woodpecker;
- Least Bittern;
- Pine Warbler;
- Red-breasted Nuthatch Red-necked Grebe;
- White-breasted Nuthatch; and
- Yellow-throated Vireo.

All of these species, if still breeding within the AOI, would be found in forests or wetlands within High Park and the Humber River valley. There is no suitable breeding habitat for any of these species within the Bloor West Village study area.

Migratory Birds

Of the 17,845 bird records on file with the TOC from 1990 to 2007, approximately 20% of them were from High Park, which indicates the high number of landbird migrants present during spring and fall. It is also a reflection of the high usage of the area by local bird-watchers. The Humber River Valley, which is not nearly as accessible as High Park, had less than 5% of the total TOC records, despite likely having as many landbird migrants. This likely reflects the general lack of access for bird-watchers as well as no buildings present that would provide FLAP data.

FLAP data (41,000+ records from 1993 to 2007) reveals that many species rarely seen during stopover migration are passing over the City at night. Tragically, adverse weather conditions often force these nocturnal migrants lower and, further confused by lights from the buildings, windows, etc., they collide with buildings. Often, species that stop over within the natural habitats in the AOI also fly into windows during the day, as recorded by FLAP.

As indicated in Appendix 1, many SAR birds migrate through the City, including the AOI. Some of these are diurnal migrants (e.g. Common Nighthawk), while others are both nocturnal and stopover migrants (e.g. Canada Warbler). The FLAP data shows that many migrants fly over the City at night, in numbers higher than the stopover data (from daytime, per TOC) would indicate. For example, species like Eastern Whip-poor-will, which are rarely reported during the day, have a relatively high number of records with FLAP.

SAR that do not breed within the AOI, but have occurred during migration (either as stopover migrants (TOC data, etc.) or revealed through FLAP data for the City in general), include:

- Acadian Flycatcher (END)
- Bobolink (THR)
- Canada Warbler (THR)
- Cerulean Warbler (THR)
- Eastern Meadowlark (THR)
- Golden-winged Warbler (SC)
- Grasshopper Sparrow (SC)
- Henslow's Sparrow (END)
- Kirtland's Warbler (END)
- Loggerhead Shrike (END)
- Louisiana Waterthrush (THR)
- Olive-sided Flycatcher (SC)
- Rusty Blackbird (SC)
- Short-eared Owl (SC)
- Yellow-breasted Chat (END), and
- Yellow Rail (SC)

There are many other SAR that likely are occasionally migrating through or over the City that have not yet been detected. These include species that are also of conservation concern on a provincial (i.e., Sranks of S1 to S3) and local level (L-Rank of L1 to L3).

3.3.2.2 AMPHIBIANS

Three species of amphibians are known to be currently present in High Park and the Humber River Valley:

- American Toad;
- Green Frog; and
- Northern Leopard Frog.

A fourth species, Spotted Salamander, was formerly present in the Humber River Valley but recent records are unconfirmed. All four of these species have Sranks of S4 and S5, indicating that their provincial populations are "apparently secure" or "secure", respectively (NHIC 2017). None of them are considered SAR, provincially or federally (OMNRF 2017; COSEWIC 2016). Within the City of Toronto, two of these species have L-Ranks (per TRCA 2015) of L1 to L3, indicating that they are of conservation concern within the TRCA jurisdictional area: Spotted Salamander (L1) and Northern Leopard Frog (L3).

Other species that may be present within the AOI, likely within High Park and the Humber River Valley, are Gray Treefrog (L2), Spring Peeper (L2), and Eastern Red-backed Salamander (L3). Blue-spotted Salamander is considered extirpated from the City (LX) but may have occurred historically (TRCA 2015). Overall, the diversity of amphibians within the AOI is fairly low, and all species would be confined to wetlands and ponds within High Park and the Humber River Valley.

3.3.2.3 REPTILES

Seven species of reptiles are known to have recent records from High Park and the Humber River Valley, although for some their current status is unclear:

- Blanding's Turtle,
- Dekay's Brownsnake,
- Eastern Gartersnake,
- Northern Map Turtle,
- Painted Turtle,
- Red-eared Slider*, and
- Snapping Turtle.

(*non-native species)

There are apparently recent sightings (June 2013) of Blanding's Turtle from High Park (Grenadier Pond and Lower Duck Pond) although, if still present, the population would likely be low. The NHIC database also has a record from the vicinity of the AOI for May 1999. Similarly, there is a record for Northern Map Turtle from 1988 in the NHIC database, but no subsequent records for the AOI were found.

Five additional species may have occurred historically within the AOI, but are now considered extirpated from the City of Toronto (TRCA 2015): Eastern Musk Turtle, Eastern Ribbonsnake, Northern Watersnake, Queensnake, and Ring-necked Snake. Eastern Musk Turtle, Eastern Ribbonsnake, and Queensnake are considered SAR and are covered in Appendix 1.

Further field studies may reveal that three other species of snakes, known to be present within the City and surrounding areas (TRCA 2015), are extant within the AOI (High Park and the Humber River Valley only): Milksnake (L3), Red-bellied Snake (L3), and Smooth Greensnake (L2). These three species have provincial Sranks of S4 or S5, indicating that their provincial populations are "apparently secure" or "secure" (NHIC 2017). However, since they all have TRCA L-Ranks of L1 to L3, they would be of conservation concern if populations did exist in the AOI.

Of the seven species of reptiles that are known to be or likely extant within the AOI, three of these are SAR, have provincial Sranks of S1 to S3 (indicating that their provincial populations are threatened), and TRCA L-Ranks of L1 to L3: Blanding's Turtle (Threatened; S3; L1), Northern Map Turtle (Special Concern; S3; L2), and Snapping Turtle (Special Concern; S3; L3). The remaining four species (Dekay's Brownsnake, Eastern Gartersnake, Painted Turtle, and Red-eared Slider) have Sranks of S4 or S5, indicating that their provincial populations are "apparently secure" or "secure" (NHIC 2017). However, the L-Rank for Painted Turtle is L3 which indicates that it would be of conservation concern within the AOI. Note that Red-eared Slider is an introduced species that overwinters within the AOI, and is thus considered established.

3.3.2.4 MAMMALS

Twenty-one (21) species of native mammals have been recently recorded within High Park and the Humber River Valley, as follows:

- Beaver,
- Big Brown Bat,
- Coyote,
- Deer Mouse,
- Eastern Chipmunk,
- Eastern Cottontail,
- Gray Squirrel,
- Hoary Bat,
- Meadow Vole,
- Mink,
- Muskrat,
- Raccoon,
- Red Bat,
- Red Fox,
- Red Squirrel,
- Silver-haired Bat,
- Striped Skunk,
- Tri-colored Bat,
- Virginia Opossum,
- White-tailed Deer, and
- Woodchuck.

All of these species except for Tri-colored Bat have provincial Sranks of S4 or S5, indicating that their provincial populations are "apparently secure" or "secure" (NHIC 2017), and none of them are considered SAR, either provincially (MNRF 2017) or federally (COSEWIC 2016). Tri-colored Bat is Endangered Federally and Provincially.

Other than Endangered bats (see HPNC 2015), the background review and database queries did not reveal any records, historic or otherwise, of SAR mammals for High Park, the Humber River Valley, or the rest of the AOI. However, Little Brown Myotis is extant within the City (L-Rank of L4) and is considered Endangered, both provincially (OMNRF 2017) and federally (COSEWIC 2016). This species may be present in treed areas (including residential neighbourhoods) within the AOI. There are two additional Endangered bats – Eastern Small-footed Myotis and Northern Myotis – that may be present within the AOI if specific field studies were undertaken (see Appendix 1). Note that the TRCA (2015) does not assign L-Ranks (including LX, indicating extirpated) for these two species which presumably indicates there are no known breeding colonies within the TRCA's jurisdiction.

There are additional mammal species that may occur within the AOI. However, many mammals are nocturnal and thus hard to detect, and intensive mammal surveys (using trapping and other detection methods) have generally not been undertaken within the AOI. Therefore, some species of conservation concern in the City (i.e., L-Ranks of L1 to L3) may be present (e.g. Common Shrew), as well as more widespread L4 or L5 species, which are not of conservation concern in the City e.g. White-

footed Mouse). In addition, there are introduced species (L-Rank of L+) that are known or likely present in the AOI (e.g. Domestic Cat (feral), European Hare, House Mouse, and Norway Rat).

Hoary Bat and Red Bat are considered extirpated in the City (TRCA 2015). However, migrants are known to occur in High Park and could occasionally occur in other treed areas within the AOI (most likely in the Humber River Valley but also within smaller ravines and well treed neighbourhoods).

The High Park Woodlands and Savannah Management Plan indicated that Grey Squirrel populations could have negative impact on Black Oak regeneration, re-introduction of Flying Squirrel, and the survival of breeding birds (Toronto Parks & Recreation, 2002). If future studies support this, Grey Squirrel predators may need to be introduced to limit population growth, in conjunction with educating the public to prevent the feeding of squirrels.

3.3.2.5 INSECTS

Few records for this group were found in the background review and database queries. However, given the range of natural habitats available, numerous species are no doubt present within the AOI. Note that the TRCA does not provide L-Ranks for this group so it is unknown what species are of local conservation concern within the AOI.

Only two SAR insects are possible within the AOI: Monarch (Endangered federally, Special Concern provincially) and the Yellow-banded Bumble Bee (Special Concern). There are no records for the latter, but Monarch undoubtedly occurs in open areas, most likely in High Park and the Humber River Valley. Its hostplants, Common Milkweed and Butterfly-weed, are common in open, disturbed areas, and restored prairie savanna, respectively, so Monarch likely breeds within the AOI. Its numbers would be highest during fall migration, but it is unknown if they ever reach significant levels (per Significant Wildlife Habitat criteria; see Section 3.3.1.6) in the AOI. See Appendix 1.

Butterflies

Although no other SAR butterflies are likely within the AOI, there are four species of butterflies with Sranks of S1 to S3, indicating that their provincial populations are not secure, that have been recorded in High Park:

- **Southern Cloudywing** (S3) – a hypothetical specimen in the ROM (historic); unlikely to still persist in the AOI.
- **Black Dash** (S3) – one record from July 16, 2004, at Grenadier Pond; this species is expanding its range so may occur again in the AOI. This species uses sedges (*Carex* sp.) as its hostplant so is most likely to occur in High Park or the Humber River Valley.
- **Giant Swallowtail** (S3) – almost annual in High Park since 2011, and a rare breeder (on non-native ornamentals as well as native host plants).
- **Hickory Hairstreak** (S3) – a few records from High Park; a rare breeder.

Mottled Duskywing (END) used to occur in High Park into the early 20th century (Yukich 2015) but it no longer occurs. An additional S3 species that could occur is Dion Skipper which, like Black Dash, is a sedge specialist; as such, future field studies within appropriate habitat in High Park and the Humber River Valley may reveal small populations.

Dragonflies and Damselflies

No SAR odonates (dragonflies and damselflies) are known from the AOI. There are five species with provincial Sranks of S1 to S3 that are known from High Park (Yukich 2010), indicating that their provincial populations are not secure:

- **Green-striped Darner** (S3) – historical record from 1909; present status unknown.
- **Swamp Darner** (S2S3) – uncommon migrant and occasional breeder.
- **Lilypad Clubtail** (S3) – historical record from 1913; present status unknown.
- **Unicorn Clubtail** (S2S3) – two recorded on Ridout Pond on June 26, 2005; none recorded since.
- **Painted Skimmer** (S2) – uncommon in June, may breed.

In addition, further intensive field work within High Park and along the Humber River Valley may reveal breeding populations of the following four species with Sranks of S3: Blue-tipped Dancer, Double-striped Bluet, Slender Bluet, and Horned Clubtail.

3.3.3 SPECIES AT RISK

The following sub-sections are focused primarily on provincially-designated Species at Risk (SAR). Section 4 (Policy Analysis) summarizes applicable federal and provincial SAR legislation. Note that site-specific surveys could potentially locate additional Species at Risk.

3.3.3.1 VEGETATION

Butternut (*Juglans cinerea)* has been recorded in High Park; this species is listed as Endangered both provincially and federally. The 2009 AECOM recorded one (1) Butternut in High Park, however this report notes that the tree had suffered crown loss due to another tree falling onto it, and it also had a trace of canker on the trunk. An update would be required to determine the current status of Butternut in High Park.

Although surveys conducted in High Park have documented provincially rare species (those with a Srank of S1 – S3), Butternut is the only vegetation Species at Risk that has been recorded. None of the documents available for review provided details about vegetation Species at Risk in the Humber River corridor.

3.3.3.2 WILDLIFE

As presented in the respective wildlife groups above, and in Appendix 1, there are a number of wildlife SAR that are known from the Bloor West Village study area as well as the larger Area of Influence. The following is a summary of SAR for the study area:

Birds

i. Breeding

The following is a list of Species at Risk breeding birds that are known or possible from the Bloor West Village area, and adjacent lands (to 120 metres). This area includes northern portions of High Park. Their status (federal/provincial) is shown in brackets.

- Chimney Swift (Threatened);
- Common Nighthawk (Special Concern);
- Eastern Wood-Pewee (Special Concern);
- Red-headed Woodpecker (Special Concern); and
- Wood Thrush (Special Concern).

Chimney Swift has been confirmed as breeding along the Bloor West Village, with six active nests found between 2010 and 2014 (BSC 2014). Note that there are very few FLAP records (< 5) for both Common Nighthawk and Chimney Swift. This indicates that neither species is very susceptible to building collisions, despite foraging extensively in areas with tall buildings.

Other SAR are possible within the greater AOI (see Appendix 1) but, given the habitat within the Bloor West Village study area, most of them are not likely to breed in the primary study area.

ii. Migratory

The following is a list of additional SAR that are migratory birds (i.e., not known to breed in the AOI) that are known and/or possible in the Bloor West Village and greater AOI, both as nocturnal migrants (known from FLAP data) or as diurnal passage migrants (per TOC data). Their status (federal/provincial) is shown in brackets.

- Acadian Flycatcher (Endangered);
- Bald Eagle (Special Concern);
- Bank Swallow (Threatened);
- Bobolink (Threatened);
- Canada Warbler (Threatened / Special Concern);
- Cerulean Warbler (Endangered / Threatened);
- Eastern Meadowlark (Threatened);
- Eastern Whip-poor-will (Threatened);
- Golden Eagle (Endangered);
- Golden-winged Warbler (Special Concern);
- Grasshopper Sparrow (Special Concern);
- Henslow's Sparrow (Endangered);
- Louisiana Waterthrush (Special Concern);
- Olive-sided Flycatcher (Special Concern);
- Peregrine Falcon (Special Concern);
- Prothonotary Warbler (Endangered);
- Rusty Blackbird (Special Concern);
- Short-eared Owl (Special Concern); and
- Yellow-breasted Chat (Endangered).

Note that there are only small portions of suitable stopover habitat within the Bloor West Village study area, most of this being within High Park. Therefore, most of these stopover migrants will not be found along Bloor Street and adjacent lands owing to a lack of suitable habitat. Nocturnal migrants, however, will be passing over the entire AOI, including Bloor Street, and under certain weather conditions these birds will be vulnerable to building collisions, fatal attraction to lighting, etc.

iii. High Park

The following SAR have been confirmed as breeding in High Park: Eastern Wood-Pewee, Red-headed Woodpecker, and Wood Thrush. It is suspected that Chimney Swift and Common Nighthawk nest in suitable habitat (i.e., gravel rooftops and chimneys, respectively) in the area (North-South 2010).

iv. Humber River Valley

A total of six SAR have been confirmed as breeding in the Humber River Valley. However, many of these are found along portions closer to Lake Ontario. It is not known if all of these species are extant in the area. The species are:

- Barn Swallow (Threatened);
- Black Tern (Special Concern);
- Chimney Swift (Threatened),
- Least Bittern (Threatened);
- Red-headed Woodpecker (Special Concern); and
- Wood Thrush (Special Concern).

See Appendix 1 for details on these species.

Mammals

There were no SAR mammal records found in any of the background literature. However, four species of Endangered bats may be present in High Park and/or the Humber River Valley: Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, and Tri-colored Bat. Suitable maternity roost habitat, as well as temporary roosting habitat, exists within the AOI, especially in High Park and the Humber River Valley. These species could also potentially roost within large trees and houses (i.e., attics) in surrounding areas.

Long term monitoring for bats undertaken in High Park in 2014 and 2015 detected Tri-colored Bat but in very low numbers, indicating that they were occasionally present but not likely breeding (HPNC 2015). The other three species were not confirmed, however, very low numbers of Myotis species were detected, which may be any, or all, of the four species. Like Tri-colored Bat, if these unidentified Myotis calls pertain to one or more of the remaining Endangered bat species, they are only present on an occasional basis and not likely breeding (HPNC 2015). Additional monitoring in other parts of High Park or within the Humber River Valley may determine that maternity roosts for any of these four Endangered bat species are present.

Reptiles and Amphibians

Three SAR reptiles and amphibians are known or possibly present in the AOI, although the current status of two of them (Blanding's Turtle (THR) and Northern Map Turtle (SC)) is not known. Snapping Turtle occurs primarily in High Park (e.g. Grenadier Pond) and the Humber River Valley, but could also occur in smaller ponds and watercourses. Note that two species formally occurred in this area but are now considered extirpated: Eastern Ribbonsnake and Eastern Musk Turtle. Also, two species had historic records in the NHIC database but have no TRCA L-Ranks, indicating that they are no longer considered present: Queensnake (NHIC record from 1858) and Spiny Softshell (NHIC record from 1982).

Insects

Only two currently-listed SAR insects are likely within the AOI: Monarch (END/SC) and Yellow-banded Bumble Bee (SC). Monarch passes through the AOI in fall, and often in large numbers. Although the habitat within the Bloor West Village study area is mostly not suitable for either of these species, there would be limited amounts of it in the north end of High Park.

3.3.4 AQUATIC NATURAL HERITAGE FEATURES AND FUNCTIONS

3.3.4.1 BLOOR STREET WEST AVENUE STUDY AREA

There are no surface water features, wetlands, or aquatic habitat within the Bloor Street West Avenue Study area itself, however the two watercourses within High Park (Wendigo and Spring Creeks) originate just south of Bloor St. These creeks outlet from storm sewers which drain the developed catchment areas to the north of Bloor St; runoff from properties within all character areas except the Humber River Gateway (see Figure 1) drain to High Park and thus contribute to water quality and quantity in the park (Appendix 4).

3.3.4.2 AREA OF INFLUENCE

3.3.4.2.1 HIGH PARK

There are two watercourses in High Park, Wendigo and Spring Creeks. Wendigo Creek runs north-south along the west side of High Park, feeding Grenadier Pond, and Spring Creek runs north-south on the east side of the park, flowing into the man-made Lower Duck Pond (NSE et al 2012). Grenadier Pond is land-locked aquatic habitat; historically this pond was separated from Lake Ontario by a barrier beach but major roads have since disrupted this function and created major barriers to flora and fauna movement (Toronto ESA Study, 2012). Grenadier Pond is also fed by groundwater discharge, with up to 50% of its water supplied by groundwater (Gartner Lee 1995). Spring Creek also is fed by storm sewers as well as groundwater, and has been highly modified for stormwater management purposes. Together, the marshes, swamps and other wetland/open water areas within the park provide 22.3 ha of water storage (Toronto ESA Study, 2012).

Fish habitat is present in Grenadier Pond, with twelve fish species on record (High Park Nature, 2017), including Largemouth bass, Black crappie , White perch , Yellow perch , White sucker, Golden shiner, Brown bullhead, Bluegill, Pumpkinseed, Common carp (introduced invasive species) , and Goldfish (introduced). Northern Pike was introduced in the 1990's but was not detected in TRCA's surveys in 2016. Grenadier Pond supports a popular recreational fishery. No fish data is available for Spring Creek.

The High Park Woodlands & Savannah Management Plan (Toronto Parks & Recreation, 2002) noted that a decline in wetland and other aquatic habitat in the Park over the past few decades has led to a decrease in amphibian species present. Grenadier Pond, located in the southwestern corner of the High Park ESA, was reduced in size from 19 ha to 14.2 ha due to surrounding development (Toronto Parks & Recreation, 2002). The eastern part of the High Park ESA contains Spring Creek Ravine, of which the natural recharge has been impacted by development of roads and picnic areas in former floodplain, and a weir used for storm water management may be decreasing the water quality and damaging plant communities (Toronto Parks & Recreation, 2002). The Management Plan recommended restoring and creating wetlands, and re-introducing native plant cover along Spring

Creek Ravine (Toronto Parks & Recreation, 2002). The Plan notes that there have been efforts to restore Grenadier Pond through fish stocking, native plantings, and water quality testing (Toronto Parks & Recreation, 2002).

3.3.4.2.2 HUMBER RIVER VALLEY

The portion of the Humber River located within the AOI consists of estuarine or coastal wetland habitat, which extends northward for a distance of 5.5 km. This habitat is characterized by very low slope (0.03%), slow moving, turbid water, and is directly influenced by the water level in Lake Ontario (NSE & D&A 2009). The Lower Humber River Wetland Provincially Significant Wetland Complex provides spawning, nursery and feeding areas for many normally lake resident fish species such as northern pike, bowfin, longnose gar, yellow perch and many minnow species. As well, some of the species found in the estuary migrate through and do not live there. Trout, salmon and white sucker move through this habitat on their annual spawning runs (NSE & D&A 2009).

The lower Humber River south of Dundas St. is dominated by the Lower Humber River Wetland Provincially Significant Wetland Complex, which consists of 15 wetlands, comprising 19 wetland community types with an overall area of 25.6 ha, consisting of swamp (84%) and marsh (16%) (NSE and D&A 2009). The complex consists of 86.7% lacustrine wetlands (wetlands primarily supported by lake processes) at the river mouth and 9.7% riverine wetlands (wetlands supported by river flooding) above the lake level within the floodplain. One small wetland (3.6% of the wetland complex) just north of Bloor Street is palustrine (a wetland with an outflow but no inflow), based on groundwater discharge. 95% of the wetland is underlain by clay/loam soils, with 4% underlain by organic soils (NSE & D&A 2009).

Coldwater habitats are present in the upper reaches of the West Humber and main branch, associated with groundwater discharge on the Niagara Escarpment and oak Ridges Moraine. However, the portion of the Humber River which runs through the AOI is a warmwater fishery (NSE & D&A 2009).

3.3.4.2.3 NEIGHBOURHOOD AREAS

One open water feature, localized wetlands, and potential seeps are present in the neighbourhood areas of the Area of Interest. The open water feature is located in the Rennie Park ESA, which is bounded by Ellis Ave, Ellis Gardens, and Coe Hill Dr. It is characterized as Turbid Open Aquatic (OAO 1-T) with pockets of Water Lily – Bullhead Lily Floating-leaved Shallow Aquatic (SAF 1-1). The upstream riparian zone is classified as Willow Mineral Deciduous Swamp (SWD 4-1); outside these wetland zones, steep slopes comprised of Dry-Fresh Red Oak Deciduous Forest (FOD 1-1) extend up to the adjacent residential areas. Rennie Park ESA's marshes and open water provides 2.7 ha of water storage area, and contains breeding habitat for American Toad (NSE & D&A 2012). Water from Rennie Park ESA drains to Grenadier Pond via storm sewers under Ellis Ave.

ELC mapping by the City of Toronto and TRCA has identified a wetland community in the privately-owned wooded area at the terminus of Dacre Cres. This wetland includes Swamp Thicket (SWT), Meadow Marsh (MAM), and Shallow Marsh (SAM) habitat. During the August 29, 2017 site visit this area was identified as a seepage zone. Given the local topography and sandy soils of the neighbourhood areas, other seeps likely occur throughout the residential area. These seeps and wetland likely contribute to the aquatic systems in High Park and the Humber River Valley through infiltration into the shallow groundwater table.

3.4 FIELD VISIT

The study area tour held with key City staff on August 29, 2017 provided a useful overview of current conditions in High Park, the Bloor St. corridor, the Area of Influence, and the Apartment Neighbourhood. The following summarizes key observations and issues relevant to the NHIS as discussed with staff, organized by area.

3.4.1 HIGH PARK

The site visit to High Park, where D&A ecologists were accompanied by City staff, took place on a late summer weekday morning when there were many park users present. The tour began in the northeast corner of the park in one of the original prescribed burn management areas, then proceeded southward along primary and secondary trails, with extensive review along several branches of the Spring Creek Nature Trails system.

The following were key points of intensive discussion and information exchange with City staff in attendance:

- **Area of Influence is a system** - all (natural heritage) features in the AOI are connected in a system; oaks are extensively present in the AOI residential areas; tree removals in the neighbourhood are regulated by by-laws but are loss of mature trees is a concern, according to staff; the use of replacement black oaks in the High Park neighbourhood has been limited; the success rate of these plantings was not specifically discussed; there is a need for study of appropriate technical methods for Black Oak replacement;
- **Park role vs capacity** – There were high levels of overall park use in 2017; publicity for City parks has attracted more users; High Park is identified as a "destination park"; washrooms have been found to be deficient for events;
- **Public concerns** - some local residents believe that High Park is at a "tipping point" in terms of usership, and have been pressing for a study to assess the physical environment. Fears expressed to date are that the groundwater will dry up, the savannah will die out, and that the park will be overrun with people/dogs.
- **Park studies and planning** - staff are reticent to collect new data until a planning process proceeds; usership studies pre-date 2002; there have not be any overall systematic studies completed lately that would be comparable to the 2002 Management Plan; a new Master Plan would take multiple years to complete, and monitoring to better understand immediate concerns would be useful and perhaps a precursor to a Master Plan update; park user permits are tracked; vehicle traffic was monitored in spring 2017; a "way-finding" pilot study is underway at High Park, primarily focused on user safety and security issues. Staff indicated that TRCA has undertaken botanical data collection and trail surveys; Steve Varga, biologist from MNRF, has made visits almost yearly to assess plants. Updating this data was indicated as important by staff, given obvious pressure on sensitive areas.
- **Initiatives** - volunteers are raising funds for an Interpretive Centre; they have been advocating for more varied trails in the system; staff indicated that bicycle issues are somewhat less since a dedicated BMX area was built, which has reduced the modification of trails using jumps etc. A city ambassador / parks ranger position may be helpful for communicating need to contain impacts / off-leash dogs to designated areas.

- **Tree impacts of events** - Impacts to trees could be assessed as was done for Queen's Park, where a tree impact study sponsored by University of Toronto and the Parks Dept. was undertaken to monitor impacts of major public events on tree health.
- **Dogs** - day-to-day management of off-leash dogs results in "push-back" from public; the Humber River valley and Sherwood Park have similar issues; condo marketing in the neighbourhoods near High Park often includes dog images; enforcement of on-leash policies is haphazard to non-existent, as there are only three By-law enforcement officers to service the entire City; Regarding dogs, an information kit for new condo residents could help
- **Prescribed burns** - condo buildings are vulnerable to smoke intake during prescribed burns; they require adaptive ventilation systems to avoid conflicts with fire management; notification of new condo owners regarding fire management is ongoing; warning clauses are required on title; prescribed burn notification is extensive, and considers condos, seniors etc. Public Health is involved to confirm any risks to health.
- **Grenadier pond** – perceived as somewhat of an 'orphan' within the park from the management side but has a number of jurisdictional managers including City of Toronto Parks, Forestry, and Recreation, Toronto Water, TRCA and MNRF. Issues noted with regards to Grenadier Pond include dogs, fishing, wildlife protection (especially turtles), and weir blockage. There are reports of wildlife crossings (turtles) to nearby Ellis Park. Water levels in GP are supposed to be adjustable. There was a 1995 study of GP hydrology by Gartner Lee Ltd.

The following are key observations made during the High Park site visit:

- **Northeast oak savanna** - management for past 15 years was devoted to converting turf to savanna cover; trails observed through the restored savannah are mostly informal; some dogs were observed on the trails that were not on leash; one active "informal dwelling" was noted;
- **Oak health** - Oak decline is being monitored by the City, as well as Gypsy moth infestations; there has been acorn collection and propagation in the Park; there are restrictions on species plantings are imposed in High Park;
- **Significant plant species** – heavy disturbance (trampling, erosion) in some sensitive habitats was observed; staff are concerned that rare savanna species have been extirpated from the park, an update to the existing significant plant species data would be required to confirm if rare plant abundances have changed;
- **Spring creek natural trails** – this area has many trails, mostly informal; many dogs were observed that were not on leash; fencing including 'post and paddle' and paige wire is in place to manage people and dogs;
- **Invasive plants** - Dog-strangling Vine, Himalayan Balsam, and European Buckthorn were observed as prevalent along Spring Creek trails; Dog-strangling Vine is controlled in the savannah areas but not elsewhere in the park
- **Dog control** – during the visit the Spring Creek natural area was congested with dogs and their owners.; riparian plantings installed several years ago along Spring Creek have been mostly destroyed by trampling; The east side of High Park is most attractive for dog-walking; of the many dogs present, at least 25% were not on leash; broken trailside fences were observed, and some dogs were running freely outside the off-leash facility; these dogs were seen on and off trails, in steeply sloped, eroding areas, and along the Spring Creek riparian zone; control fencing is costly and requires regular monitoring and repairs;

- **Winter usage** - levels remain quite high in winter; fencing maintenance is undertaken in dog off-leash areas in winter.
- **Seepage** - seep indicator wetland plants such as Jewelweed are evident in draws feeding to Spring Creek; the creek now contains significant infrastructure for stormwater management; an artesian condition exists that was discovered when a deep borehole was excavated during planning for the SWM uses, and apparently provides some seepage flow.

3.4.2 HUMBER RIVER VALLEY

The Humber River floodplain was visited, at Etienne Brulé Park, accessed from Catherine St. The floodplain area includes manicured areas and tennis courts, with parking provided. A trail hub is also present, leading to heavy usage by cyclists and joggers. No specific discussion points were made with respect to the condition of the Humber River valley or usership impacts; given the proximity to major residential areas, we expect the usership is similar to High Park with respect to trails, bicycles, dogs, picnicking etc. Relevant reports mentioned by staff included Humber River Management Plan (TRCA), and studies by Bob Yukich who monitors Humber R. butterflies.

3.4.3 AREA OF INFLUENCE

The afternoon portion of the study area visit focused on the Area of Influence (see Map 1), including neighbourhoods and ravine sites in order to gain a more detailed understanding of landscape level urban ecology characteristics. Key areas visited included ravine remnants such as the terminus of Dacre Cres., Rennie Park, and in back yards along streets such as Ellis Park Rd., Wendigo Way, S. Kingsway, Riverside Dr., Rivercrest Rd., Birchview Cres., and Pine Crest Rd. Stops also included review of key aquatic areas including Grenadier, Wendigo, and West Ponds from key vantage points. The Apartment Neighbourhood Area was reviewed along key internal streets.

The following were key observations made during the AOI tour:

- **Oak savannah characteristics** - The residential neighbourhoods immediately north and south of Bloor St. contain strong representations of remnant oak savannah trees, topography and understory elements; some homes have integrated native species in landscaping. Past residential development has been quite sensitive to key trees, some of which are highly emblematic of savannah canopy characteristics. Red, Black and White Oaks, and White Pine are all distinctive indicators of the dry sandy conditions. Sugar Maple and American Beech are evident in some of the lower slope areas around residences. Savannah species prevalence varies but on steeper lots along topographically diverse irregular street pattern they are more numerous.
- **Ravine areas** - Excluding High Park and the Humber River valley north of Bloor St, nearly all ravine remnants are on private property, while south of Bloor St some public lands with ravine remnants remain, such as Rennie Park. On-grid streets display less topographic diversity, have typically smaller trees, lower urban forest cover, and a higher proportion of non-savannah tree species; however some large oaks are still present on lots or in the streetscape. Humber R. ravine associated streets north and south of Bloor contain excellent examples of large savannah-adapted trees; old growth specimens which likely pre-date European settlement were observed in some residential areas.

- **Seepage areas** - A seepage zone was examined just north of the terminus of Dacre Cr, immediately downslope of the No Frills property; active discharge into a small watercourse was observed. Given the local topography, other seeps likely occur throughout the residential area, but are not visible from the street. City staff noted that views from No Frills parking lot are a desirable feature of this property; the forest canopy extends to the edge of the parking lot.
- **Other protected features** - Catfish Pond was visited; steep slopes extend down from Ellis Ave to riparian zone which has stormwater infrastructure. Access to the general public is restricted with fencing. Canopy cover and extent of native species variable, but some large mature trees were observed. City staff noted that Snapping Turtles (or other turtles) may cross Ellis Ave from Catfish Pond to Grenadier Pond, however no studies to this effect were discussed
- **Black oak and other tree plantings** - There was discussion with staff regarding Black Oak in neighbourhoods; these are considered "nearly irreplaceable" due to their size and species. Black Oak are apparently difficult to source from growers, especially the local genotypes, and may be difficult to grow. TRCA has mapped Black Oaks in some residential areas south of Bloor St, west of High Park., but this inventory covers only part of the AOI.
- **Policy and stewardship in the AOI** – Compensation for tree impacts is typically required through City tree, Private tree, and ravine and natural features protection by-laws. There is a strong ratepayers group in the area that may assist with initiatives. Jim Dougan discussed the "Residential Woodland" natural area concept in Mississauga that is an area similar character to the AOI neighbourhoods, which was included in the City of Mississauga Natural Area Inventory as a built area within open woodlands associated with the historic Lake Iroquois lakeshore.

4 POLICY ANALYSIS

Current Federal, Provincial, Regional, and Local land use policy and regulations relevant to the natural heritage features in the AOI, and the proposed development, were reviewed and are summarized in this section. Policy is used in subsequent sections as a context to evaluate the opportunities and constraints imposed by the existing natural heritage features present at the site.

Federal:

- Fisheries Act (1985)
- Species at Risk Act (2002)
- Migratory Birds Convention Act (1994)

Provincial:

- Provincial Policy Statement (2014)
- Endangered Species Act (2007)
- Conservation Authorities Act (2011) and TRCA Living City Policies (2014).

Local:

- City of Toronto Official Plan (2015);
- Toronto Municipal Code Chapter 813, Article II – Street Tree Protection By-law, and Article III - Private Tree Protection By-law (2015)
- Toronto Municipal Code Chapter 658, Ravine and Natural Features Protection Area By-law (2016).
- City of Toronto Parks By-law (2017)

Following are discussion of the portions of the policy documents relevant to the study site. All discussion of impacts, direct and indirect, can be found in Section 6, Impact Assessment.

4.1 FEDERAL POLICY

4.1.1 FISHERIES ACT (1985)

The federal Fisheries Act is enacted to manage threats to the sustainability and ongoing productivity of Canada's commercial, recreational and Aboriginal fisheries. Fish habitat is defined as spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes. Any projects that may impact fish habitat need to complete a self-assessment to determine the requirements for permitting and/or measures to avoid harm to fish (DFO 2016).

Applies to: The Fisheries Act does not apply to the immediate BWVA study area as there are no fisheries present within the study area boundaries.

Site Implications: Grenadier Pond and Spring Creek meet the definition of fish habitat as defined in the Fisheries Act based on recent sampling (TRCA 2016). The presence of a recreational fishery in Grenadier Pond suggests that it is covered under the Act. Any work below the high water mark may require Fisheries and Oceans Canada review; as outlined above projects that may impact fish habitat

need to complete a self-assessment to determine the requirements for permitting and/or measures to avoid harm to fish (DFO 2016).

4.1.2 SPECIES AT RISK ACT (2002)

The Species at Risk Act (SARA 2002) provides legal protection for Species at Risk (SAR) at a federal level. This act also helps to protect species identified as sensitive from becoming extinct and secure the actions for their recovery. This may include protecting critical habitat, and rehabilitation of impacted critical habitat. SARA only applies to federally-owned lands, or lands regulated by federal legislation (such as the Fisheries Act or Railway Safety Act). Therefore, if Federal SAR species were found in Spring or Wendigo Creek, SARA would apply. On private, municipal or conservation authority lands, only fish habitat, and migratory birds protected under the Migratory Birds Convention Act, are protected by SARA.

Applies to: SARA does not apply to the immediate BWVA study area as there are no federal government properties present, and no aquatic SAR species are found within the immediate and adjacent BWVA corridor.

Implications: Species recorded in the AOI and listed under the provincial Endangered Species Act as Endangered, Threatened or Special Concern are present as summarized in Appendix 1; SARA does not apply given the lack of aquatic SAR species within the immediate and adjacent BWVA corridor as well as given the absence of federal lands.

4.1.3 MIGRATORY BIRDS CONVENTION ACT (1994)

This federal legislation protects the nests, eggs and offspring of listed migratory bird species from destruction or disturbance. In its application, it requires best management practices to detect and avoid disturbance to active nests during development activities.

Applies to: Entire BWVA corridor wherever trees or structures are present that can support nesting of listed birds.

Implications: Incidental take of migratory birds, nests or eggs must be avoided by limiting activities during sensitive periods and mitigation measures to ensure appropriate nesting areas are re-established in the site. If any site works are to occur as a result of intensification along Bloor St, vegetation clearing should not take place within the active nesting season between approximately April 1st and August 1st. If the areas proposed for development are thoroughly checked during the active breeding season for bird nests by a qualified biologist during the construction phase, and no nests are found, then construction may be permitted.

4.2 PROVINCIAL POLICY

4.2.1 PROVINCIAL POLICY STATEMENT (2014)

The Provincial Policy Statement (PPS) is issued under the authority of Section 3 of the Planning Act. Section 3 requires that decisions affecting planning matters must be consistent with policy statements under the Act. It should also be noted that Page 2 of the PPS establishes that the PPS is to be read in its entirety and all relevant policies are to be applied to each situation. Planning authorities (such as the

City of Toronto) are required to enact policies which are consistent with the PPS in their Official Plans; the Official Plans may enact policies that exceed the protective standards set by the PPS and its guiding documents (including the Natural Heritage Reference Manual, 2010, and Significant Wildlife Habitat Technical Guide, 2000).

Section 2.1 of the Provincial Policy Statement, which relates specifically to natural heritage, establishes clear direction on the adoption of an ecosystem approach, and the protection of resources that have been identified as 'significant': wetlands, woodlands, valleylands, wildlife habitat, areas of natural and scientific interest, and coastal wetlands.

Portions of Section 2.1 specifically relevant to the Bloor St W study area include the following:

2.1.3 Natural heritage systems shall be identified in Ecoregions 6E & 7E1, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.

2.1.5 Development and site alteration shall not be permitted in:

a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;
b) Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
c) Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
d) Significant wildlife habitat;
e) Significant areas of natural and scientific interest; and
f) Coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)

unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

2.1.6 Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

2.1.8 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

Applies to: Portions of the BWVA corridor located on "adjacent lands" to the High Park Oak Woodland ANSI or the Humber River Provincially Significant Wetland where site alteration or development is proposed (see Maps 2.1, 2.2).

Implications: In accordance with the PPS, the NHIS must investigate potential impacts that development on adjacent lands may have on the ecological functions of the provincially significant features and demonstrate that this development results in no negative impacts on the significant features or their ecological functions. Section 6 of this report describes and evaluates impacts to these features as a result of the proposed development.

- **Section 2.1.5** applies to portions of the Bloor St W. study area, based on the presence of the High Park Oak Woodland Life Science Provincial ANSI, provincially significant wetlands, significant woodlands, and significant wildlife habitat. Development on adjacent lands may

impact some ecological functions associated with these features (directly, indirectly, and/or cumulatively); these impacts are discussed in Section 6.

- **Section 2.1.7** applies where provincially-designated endangered or threatened species are present.
- **Section 2.1.8:** The Natural Heritage Reference Manual (2010) recommends that "adjacent lands" for significant woodlands be all lands within 120m of significant woodlands and life science ANSIs. Site-specific evaluations may increase the extent of an adjacent lands determination.

It is the intent of this report to address impacts related to the High Park Oak Woodland ANSI and the Humber River Provincially Significant Wetland complex; see Sections 6 and y for more details.

4.2.2 ENDANGERED SPECIES ACT (2007)

This legislation provides the provincial mandate for the protection of species identified as Endangered, Threatened or Special Concern at the provincial level. Significant habitats of provincially Endangered and Threatened species are specifically protected from development in the PPS, and habitats of provincial Special Concern species are recognized under the Province's Significant Wildlife Habitat categories.

Applies to: BWVA corridor wherever site alteration or development is proposed that could affect habitat of provincially Threatened or Endangered species.

Implications: Section 3.3.3 of the NHIS and Appendix 1 present a detailed summary and discussion of Species at Risk that are known or potentially present in the High Park, BWVA corridor, and Humber River portions of the AOI. The key SAR that would potentially affect specific development sites include birds and bats that may be utilizing existing buildings or cavity trees; the determination of habitat for these species requires site specific screening assessments in accordance with MNRF protocols. Migrating avian SAR may also be affected by new development.

4.2.3 CONSERVATION AUTHORITIES ACT ONTARIO REGULATION 166/06 (2013) & TRCA LIVING CITY POLICIES (2014)

Toronto and Region Conservation Authority (TRCA) is authorized under Section 28 of the Conservation Authorities Act to implement and enforce the Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 166/06). Permits are required for development or site alteration within the Regional and 100 year storm floodplain, within 15m of the stable top of bank of the Lake Ontario shoreline and confined valleys, hazards lands, in wetlands, and within 120 metres around all Provincially Significant Wetlands (PSWs) and 30m of all non-PSW wetlands.

In addition to O. Reg 166/06, TRCA approved the Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation in 2014; these policies guide the implementation of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process. Key policies applicable to this project from Section 7, Policies for Environmental Planning, are outlined below.

- **Policy 7.3.1: The Natural System**

These policies state that the natural system is comprised of water resources, natural features and areas, natural hazards, and associated natural cover and buffers. Development or site alteration or the siting of infrastructure is not permitted in the natural system, with some exceptions. Delineation of the NHS is to be determined in consultation with the municipality (and the MNRF if required) based on the "outermost limits of the components of the Natural System". The TRCA has a well-established protocol for determining the limits of natural features, as described in the document Natural Feature and Top-of-Bank Staking Procedures (2007). The scope of technical reports for any development in or adjacent to the natural system will be determined through pre-consultation with the TRCA and other environmental agency stakeholders.

- **Policy 7.3.1.4 Potential Natural Cover and Buffers**

This policy states that areas of potential natural cover, as defined in the TRCA's target natural system, should be protected for enhancement and restoration. Policy 7.3.1.4(b) states that a 10-meter buffer is to be applied from the dripline and any contiguous natural features or areas of woodlands. These buffers are be protected from stripping, filling or grading, for restoration and enhancement.

In some cases a buffer of less than 10 metres will be considered (Policy 7.4.2.1a), subject to the following:

i. federal, provincial, or municipal requirements for *buffers*;
ii. the natural hazard policies in section 7.4.3;
iii. no further loss of *buffer* than what currently exists;
iv. consistency with *buffers* in the same corridor reach; and may be subject to:
v. the proponent submitting an Environmental Impact Study (EIS) in accordance with *Provincial standards* and *TRCA standards*. The EIS should contain recommendations for the enhancement and management of both the feature and the *buffer*.

- **Policy 7.5.2: Plan Input and Plan Review**

TRCA provides recommendations to municipalities related to natural heritage impact assessments and any impacts to the "Natural System" as determined through consultation with municipalities and the TRCA's Terrestrial Natural Heritage System Strategy (TNHSS).

- **Policy 8.2.1: Regulated Areas**

Under Ontario Regulation 166/06, TRCA administers a "Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation". This regulation applies to valley and stream corridors, the shoreline of Lake Ontario, hazardous lands, watercourses, wetlands, and areas where development could interfere with the hydrologic function of a wetland.

Applies to*:* Generally this applies to properties adjacent to Wendigo and Spring Creeks, the Humber River valley, and/or where steep slopes associated with watercourses are present (see Map 4.1).

Implications*:* In the BWVA the regulated areas include Wendigo Creek and Grenadier Pond, slopes that abut Bloor St., the Humber River Valley, and slopes and ravine areas within BWVA and the AOI. NHIS Map 2.2 identifies the areas and features that are regulated; to determine whether an individual property contains or is adjacent to regulated lands the TRCA has an online property search tool (TRCA 2017b). In some cases other features that are not shown on TRCA mapping may be regulated if they

fall within the scope of Ontario Regulation 166/06. Site alteration or development that falls within regulated areas will require a permit from TRCA. Special provisions may affect certain developments in the BWVA corridor, such as slope stability setbacks. TRCA's role in managing the natural environment is recognized in the City of Toronto Official Plan, to ensure that natural heritage is adequately addressed in development applications. Enhancements to natural features and ecological features may be recommended by TRCA as part of development in the vicinity of protected features.

4.3 LOCAL POLICY

4.3.1 CITY OF TORONTO OFFICIAL PLAN (JUNE 2015 OFFICE CONSOLIDATION)

The City of Toronto's Official Plan has been developed in conformity with the Provincial Policy Statement, to guide planning and development so that the City "evolves, improves and realizes its full potential in areas such as transit, land use development, and the environment" (City of Toronto 2015). The most current consolidation of Official Plan policies is available on the City's website and is in effect as of June 2015. Section 3 contains the key policies "focusing on the built environment, the human environment, the natural environment, economic health and new neighbourhoods" which are all relevant to the BWVA studies. Natural Environment policies in the Official Plan encompass protection and enhancement of the natural ecosystem, including air, soil, water, noise, and protection of biodiversity. This NHIS is being prepared as required in Policy 3.4.3. Specific policies applicable to the consideration in this NHIS are found in Section 3.4, the Natural Environment, as summarized below. Features that are included in the City's natural heritage system are summarized on Map 2.2.

- **Section 2.2.3** Avenue Study policies and sidebar

This section and its policies give direction to Avenue studies including "a comprehensive assessment of location conditions, including: …. natural features and conservation opportunities… unique local natural or built features"

- **Policy 3.4.1 (a-iii & vi)**

These policies require environment-friendly development, especially in regard to quantity/quality of surface and groundwater, and minimizing/mitigation the proliferation of invasive species.

- **Policy 3.4.1 (b-i-iv)**

These policies speak to protecting, restoring and enhancing the natural ecosystem, with particular attention to natural habitats, water and sediment quality, landforms, ravines, wetlands and associated biophysical processes, and natural linkages.

- **Policy 3.4.1 (d-i-iii)**

These policies require suitable growing environments for trees, increasing canopy coverage and diversity, and regulating injury and destruction of trees.

- **Policies 3.4.1 (f) and 3.4.2**

These policies require 'at source' wet weather flow management, supplemented by conveyance, 'end-of pipe' and alternative management solutions**.**

- **Policy 3.4.8 (a-b)**

This policy establishes a minimum setback of 10m from valleys and ravines, and from areas of potential slope instability.

- **Policy 3.4.10**

Development is generally not permitted in the City's natural heritage system (NHS). Where the underlying land designation or approved secondary plans provides for development in or near the natural heritage system, development will:

a) recognize natural heritage values and potential impacts on the natural ecosystem as much as is reasonable in the context of other objectives for the area; and

b) minimize adverse impacts and when possible, restore and enhance the natural heritage system.

- **Policy 3.4.12**

This policy provides direction on how a proposed development is to be assessed to evaluate impacts on the NHS, i.e. taking into account the consequences for:

a) terrestrial natural habitat features and functions including wetlands and wildlife habitat;
b) known watercourses and hydrologic functions and features;
c) significant physical features and land forms;
d) riparian zones or buffer areas and functions;
e) vegetation communities and species of concern; and
f) significant aquatic features and functions including the shoreline of Lake Ontario.

The City of Toronto's document "Natural Heritage Impact Study Terms of Reference" (2006) provides further information on the requirements for impact studies.

- **Policy 3.4.13**

This policy defines special characteristics of particularly sensitive areas that require additional protection as the following:

a) habitats for vulnerable, rare, threatened or endangered plant and/ or animal species and communities that are vulnerable, threatened or endangered within the City or the Greater Toronto Area; or

b) rare, high quality or unusual landforms created by geomorphological processes within the City or the Greater Toronto Area; or

c) habitats or communities of flora and fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals; or

d) areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a wildlife migratory stopover or concentration point, or serving as a water storage or recharge area.

- **Policy 3.4.14**

This policy reflects the PPS, which states that provincially significant natural heritage features will be protected by the following:

a) prohibiting development or site alteration in provincially significant wetlands or significant portions of the habitat of threatened or endangered species;

b) only permitting development in the following locations if it has been demonstrated, through a study, that there will be no negative impacts on the natural features or the ecological functions for which the area is identified:

i) lands adjacent to provincially significant wetlands or significant portions of the habitat of Threatened or Endangered species;
ii) in or on lands adjacent to fish habitat; and
iii) in or on lands adjacent to provincially significant woodlands, valleylands, wildlife habitat, and areas of natural and scientific interest.

Applies to: The Official Plan applies to the entire BWVA corridor wherever site alteration or development is proposed. This NHIS addresses impacts and mitigation for development in general which occurs within 120 m of identified natural heritage system features; however where NHS features (see Map 2.2) are located on specific properties where development is proposed, scoped studies will be required by the City. See also Endangered Species Act.

Implications: The City policies with respect to natural heritage and environments in the study area require:

a. Protection, restoration and enhancement of the natural heritage system (as represented by features and landforms - High Park, the Humber River valley), other Natural Heritage System elements identified by the City, and their ecological functions;
b. Demonstration through studies that no negative impacts will occur from development;
c. Assessment of potential hazard features (i.e. slopes) and establishment of safe limits for adjacent development;
d. Best management of water to optimize 'at source' controls of surface water quantity and quality, infiltration where feasible to sustain local wetlands and aquifers, and treatment-train management downstream of development; and
e. Best management and enhancement of tree canopy and biodiversity.

4.3.2 CITY OF TORONTO RAVINE AND NATURAL FEATURE PROTECTION BY-LAW (2016)

The purpose of the City of Toronto's Ravine and Natural Feature Protection (RNFP) By-law is to "promote the management, protection and conservation of ravines and associated natural and woodland areas and to prohibit and regulate the injury and destruction of trees, filling, grading and dumping in defined areas" (City of Toronto 2008).

The By-law regulates the injury or destruction of healthy trees and changing of grades within areas designated as ravines as per the City's ravine mapping, in Schedule A of the By-law. Note that the RNFP By-law only regulates changing of grade where TRCA does not regulate. If any cutting of trees or changing of grades are proposed as part of a development project or building alteration, a permit from City of Toronto's Urban Forestry Ravine & Natural Feature Protection department is required. An arborist report completed according to the City of Toronto's Guidelines for Completion of an Arborist Report (2011) is required to accompany the permit application.

If a permit is secured and trees are to be injured or destroyed, a tree replacement plan, woodlot management plan, or rehabilitation plan must be prepared and approved by the City so that the trees can be replaced. If replacement planting is not physically possible on the site, replacement planting at an alternate site or cash in lieu at may be acceptable. If a tree is to be injured, the tree must be

protected in accordance with good arboricultural practices. No replacement ratio is stipulated in the by-law.

Applies to: The By-law applies to properties within the BWVA corridor where site alteration or development is proposed within any ravine features identified by the City (see Map 2.2).

Implications: Portions of the NHS in the Bloor St W study area are also designated as ravine and natural feature protection lands (Map 2.2). Therefore, if grade changes or tree cutting is proposed in these areas the following must be undertaken:

- A tree assessment of the area to be impacted must be carried out, and an arborist report must be prepared;
- The arborist report must contain a Tree Preservation Plan showing trees to be preserved and those to be removed;
- The number of trees within the ravine and natural features boundary must be calculated;
- A tree replacement plan, woodlot management plan, or rehabilitation plan must be prepared and approved by the City;
- A permit is required.

4.3.3 CITY OF TORONTO STREET TREE PROTECTION BY-LAW (2013) AND PRIVATE TREE PROTECTION BY-LAW (2015)

The City of Toronto's Tree Protection By-laws (Toronto Municipal Code, Chapter 813, Articles II and III) states that "No person shall injure, destroy, remove or permit the injury destruction or removal of a tree without a permit." Article II protects street trees of any size. Article III addresses private trees, defined as having at least one stem with a 30 cm diameter at 1.4 m above ground level. If the owner of a private property wishes to remove a tree, they must submit an application which includes a tree survey, an arborist report, a tree preservation plan, and a landscaping / replanting plan.

The permit may be refused for the following reasons:

> A. The application form is not complete.
> B. The information required by § 813-14A has not been provided to the satisfaction of the General Manager. [Amended 2013-02-21 by By-law No. 248-2013]
> C. Trees are healthy.
> D. Environmentally sensitive areas, ecological systems, natural landforms or contours will not be adequately protected and preserved.
> E. Erosion or flood control will be negatively impacted.
> F. Significant vistas will not be adequately protected and preserved.
> G. The tree is a heritage tree, or should in the opinion of the General Manager be recommended for designation as a heritage tree.

To facilitate the protection of trees during development, the City has a document describing tree protection requirements: "Tree Protection Policy and Specifications for Construction Near Trees" (City of Toronto 2016b).

Applies to: The Private Tree By-law applies to any property where trees may be injured or removed as part of site alteration or development. The Street Tree By-law applies to "A common or public highway, road, street, lane or any road allowance or portion thereof under the jurisdiction of the City

of Toronto." Note that the RNFP By-law supersedes the Private Tree By-law in areas where the RNFP By-law applies.

Implications: This by-law is applicable to privately-owned properties within the Bloor St W study area which have trees on or adjacent to their properties which may be removed or injured as a result of development activity. The key issue is loss of mature trees, which have ecological functions that cannot be readily replaced.

The particular tree protection issues in the study area include:

- Environmentally Significant Areas with urban forest canopy and Significant Woodlands are immediately adjacent to a portion of the study area;
- Existing growing conditions for street trees may be inadequate relative to current City standards;
- Local significant vistas may need to be considered in tree planting; and
- Heritage trees representing rare or significant specimens of native species are present in some areas immediately adjacent to the corridor.

4.3.4 CITY OF TORONTO PARKS BY-LAW (2017)

This By-law regulates uses and activities in public parks. It does not affect development activities except with respect to encroachments within, and/or injury or damage to, resources located in parks, including trees, plants or other vegetation. Notably the By-law regulates activities in parks, including acts that damage natural resources and infrastructure, whether by vehicles, bicycles, personally powered 6devices, or pedestrians. Dogs are required to be on a leash of specified length, except in designated off-leash areas. Persons having control of dogs are responsible for removal of excrement, and repair of holes created by dogs. The By-law also requires a permit for Commercial Dog Walkers to access parks.

Applies to: The Parks By-law applies to public parks adjoining the corridor including High Park, Parkview Gardens Parkette, Kennedy-Margdon Parkette, Neil McLellan Park, and George Chater Park.

Implications: This By-law does not directly affect development in the study corridor, except for properties which immediately abut public parkland. However, it is a key tool guiding enforcement of park uses by members of the public, with specific sections addressing prohibited and permitted activities. Our observations in High Park indicated that there are obvious infractions of the By-law which are clearly damaging habitats. The By-law empowers enforcement actions and penalties, but obviously resources must be adequate to implement the By-law. This enforcement is key to mitigation of indirect impacts created by existing and increased levels of public uses.

5 KEY SENSITIVITIES

5.1 IDENTIFICATION OF SENSITIVITIES

Following the synthesis and review of the natural heritage background information presented in Section 3, Characterization, D&A has identified the following six key physical and biological sensitivities for the study area:

Key sensitivities:

- Steep slopes
- Wetlands, Seeps, and Aquatic Habitat
- Prairie Habitats & Species
- Wildlife & Wildlife Habitat
- Species at Risk
- Urban Forest Canopy

These key sensitivities have been highlighted based on their importance to the ecological features and/or functions of the study area, and their vulnerability to land use changes. They are also the focus of legislation, policy and regulations. Using available data, these key sensitivities have been mapped as Maps 4.1 to 4.6.

5.2 GAP ANALYSIS

The desktop review of available natural heritage studies and data used to complete Section 3, Characterization of this report found a number of data gaps for key species and functions (Table 7).

Table 7. Gap Analysis by Key Sensitivity

Key Sensitivity	Mapping / Data Limitations
Steep slopes	• Defined on basis of available contour information; there may be site-specific variations not captured in contour data
Wetlands, Seeps, and Aquatic Habitat	• Seeps are based on background information and limited field observations; they are likely not all mapped • Limited data is available on aquatic habitat quantity and quality
Prairie/Savannah Habitats & Species	• Limited descriptions of plant species composition of each ELC community • Rare species records last updated in 2008 (Varga) and 2009 (AECOM) • Rare species observations outside of ESAs may be incomplete or out of date • Limited/no data on habitat disturbances due to existing uses • Black Oak and other prairie/savannah species records outside High Park are not exhaustive

Key Sensitivity	Mapping / Data Limitations
Wildlife & Wildlife Habitat	• Limited ELC mapping of natural features outside of the ESAs; no ELC data north of Bloor St • Amphibians, reptiles, mammals, and insects not studied in detail; detailed field studies may find additional species • High birder use of High Park may skew data results compared to balance of AOI • Bat populations have been studied on a limited basis to date • Most SWH is "Candidate"; field studies are required to confirm SWH presence
Species at Risk	• Flora and fauna records are not comprehensive across Area of Influence; site-specific studies required to determine SAR presence/absence on particular sites • Quantity/quality of existing SAR habitat in the built environment (chimneys, gravel roofs) not documented in a comprehensive manner; bird data indicate that nesting habitat is present. • Status of species may change over time (i.e. be uplisted or downlisted)
Urban Forest Canopy	• Urban forest canopy mapped in this report is based on interpreted cover. • City of Toronto Urban Forestry has more comprehensive data on street tree species and distribution, however private trees are not documented in comprehensive manner

Because D&A did not complete any detailed field surveys, Table 7 identifies gaps for the key sensitivities; these may be filled through detailed field updates or studies for new developments to confirm site-specific conditions. Section 6 describes potential direct and indirect impacts which may occur to these key sensitivities as a result of development, and Section 6 also summarizes recommended mitigation measures and the requirements for site-specific studies. A checklist for determining which site-specific studies may be required is provided in Appendix 3.

5.3 DESCRIPTION OF KEY SENSITIVITIES

Following are descriptions of the six key sensitivities, how they have been mapped, and a more detailed explanation of the limitations of the available data used in the mapping.

5.3.1 STEEP SLOPES

The Area of Interest for the Bloor West Village Avenue Study is topographically diverse, a result of the historic Iroquois Sand Plain physiographic feature and centuries of erosion following the retreat of Lake Iroquois (City of Toronto 2002). This has resulted in a landscape of ponds, steep-sided ravines, and rolling uplands.

Steep slopes are vulnerable to erosion and stability failure; these vulnerabilities are exacerbated by sandy soils of the study area. Many of the steep slopes in the study area have forest cover, which provides habitat for both resident and migratory wildlife. Maintaining the stability and vegetative cover of these slopes is important for maintaining this habitat, and preventing effects of slope instability such as erosion and siltation. Slopes may also contain localized seepage zones.

On **Map 4.1**, slopes of 15% or greater were mapped using contour information from the City of Toronto and the spatial analyst tool in ArcGIS. However, this does not capture slope stability, and so the calculation of the long-term stable top of bank would be required on a site-specific basis wherever

proposed development is close to a top of bank. The majority of steep slopes are found in High Park, the Humber River Valley, the South Kingsway West and Flank ESAs, and the Rennie Park ESA. They are also present on private properties throughout the Area of Influence, particularly south of Bloor St.

Along the Bloor Street West Avenue Study area, steep slopes are associated with the Humber River, ravine fragments on the south side of Bloor St from Kennedy Ave to Wendigo Way, on the north side of Bloor St at Kennedy Park Rd, and Wendigo and Spring Creeks in High Park.

5.3.2 WETLANDS, SEEPS, AND AQUATIC HABITAT

Wetlands and aquatic habitats are associated with the Humber River, Wendigo and Spring Creeks, and within Rennie Park ESA. Seeps are groundwater discharge areas, usually indicated by wetlands which form when shallow groundwater reaches the surface, or springs within water features; they are typically found in sloping terrain usually (but not always) near the toe of slope. Historically, wetlands were much more extensive north of Bloor St., but were filled in when Bloor St. West was reconstructed and serviced, and the lands to the north were subsequently developed. These changes affected groundwater, resulting in reduced infiltration in some areas, and impediments to historic groundwater flow regimes.

Groundwater discharge areas are vulnerable to changes in hydrology, water balance, and water quality due to changes in overland flow and/or groundwater inputs. Wetland fauna such as amphibians are often sensitive to pollutants, and to fluctuating water levels that change vegetation community composition, or affect survival during life cycle events such as egg laying and maturation.

Wetlands and aquatic habitat are identified on **Map 4.2** through vegetation community mapping from the City of Toronto, TRCA, and MNRF. Seep locations have not been formally identified by the City or Toronto or TRCA, however are likely present based on background data and site observations. The precise connections between infiltration interception areas and seeps have not been mapped or studied at a site-specific scale. However, wetland and pond features are known to be supported by a shallow groundwater system in the sandy overburden, which is perched above a relatively impervious till layer (aquitard) (Gartner Lee 1995; Varga 2008; WSP 2017a). Surface connections to the deeper regional groundwater system are suspected in the vicinity of Spring Creek, and could be affected by deep building foundations.

Please note that discussion of the deep groundwater system can be found in the Bloor West Village Desktop Hydrogeological Study (WSP 2017a).

There are no wetlands, seeps, or aquatic habitat present within the Bloor Street West Avenue Study area itself, but some are known within the 120 m adjacent lands. These features are likely influenced in the urban environment by stormwater management practices, which can influence infiltration, water flow, and water quality. Intensified urban uses often result in increased impervious cover, but new best management practices are emerging which can enhance infiltration and partially address water quantities generated on development sites. It is important that the quality and quantity of wetlands, seeps, and aquatic habitat is maintained or enhanced in order to sustain the diversity of wetland and aquatic species present in the study area.

5.3.3 PRAIRIE / SAVANNAH HABITATS & SPECIES

The dominant vegetation community in the High Park ESA and ANSI is Dry Black Oak – Pine Tallgrass Prairie Savannah. This community is significant both within the City of Toronto and provincially, and supports rare species of flora and fauna. Black Oak, a key canopy species in this vegetation community, has been recorded in the neighbourhoods around High Park, forming part of the urban forest canopy.

Prairie and savannah habitats and species in High Park are vulnerable to disturbance due to trampling, invasive species, and picking; the communities require prescribed burning for continued suppression of undesirable species, regeneration of dryland species; and the management of mature Oak canopy (which is under threat of decline). In the neighbourhoods surrounding High Park. Oak decline and loss of other remnant prairie / savannah species may occur due to redevelopment and/or root zone impacts.

Prairie and savannah habitats and species are identified on **Map 4.3** using vegetation community mapping from the City of Toronto and TRCA. A limitation of this data is that while the boundaries of the vegetation communities are mapped, the extent of existing impacts such as fragmentation and disturbance are not. Records for significant species are of variable currency, with the most recent vascular plant update having been conducted in 2009 (AECOM). Finally, outside of High Park the available records of Black Oak are not exhaustive, and additional site-specific studies may document additional Black Oak or other prairie / savannah species which are not currently on record.

Along the Bloor Street West Avenue Study area, the High Park frontage is predominantly Dry Black Oak – Pine Tallgrass Prairie Savannah. These communities are not part of the development areas, but may be impacted by increased visitor use of High Park. In addition, the periodic smoke resulting from prescribed burns used to manage these communities affects the neighbourhood areas surrounding High Park, yet continued management by burning is essential for the prairie / savannah communities. Finally, although arboricultural resources are limited within the immediate Bloor Street West Avenue Study area, Black Oak may be present on some properties that may undergo development.

5.3.4 WILDLIFE & WILDLIFE HABITAT

An extensive amount of data is available on wildlife use of the AOI, particularly with respect to birds, both resident and migratory. The large habitat patches in High Park and the Humber River valley provide important breeding habitat for many species of wildlife; most species of conservation concern which have been recorded would occur only within natural habitats in these features. However, many other species breed in generalist habitats such as the northern end of High Park as well as treed neighbourhoods, remnant ravine areas, parks/parkettes, and backyards.

Wildlife in an urban environment are vulnerable to predation, disturbance of nests or dens, loss of habitat, bird strikes on buildings, and road mortality. Their habitat is vulnerable to degradation and loss through either site alteration or disturbance.

This NHIS includes a comprehensive Significant Wildlife Habitat (SWH) analysis according to the categories provided in the Significant Wildlife Habitat Technical Guide (MNRF 2000). Habitats were selected in ArcGIS by identifying species and vegetation communities outlined in the technical manual. Of the habitats present, the Dry Black Oak – Pine Tallgrass Prairie Savannah is considered

"Confirmed" SWH, due to the established presence of significant wildlife. Many other vegetation communities are considered "Candidate" SWH, which means that they may be SWH pending the confirmation of specific parameters via a field study. **Map 4.4** shows the SWH information for the AOI.

There are several limitations on the wildlife and wildlife habitat data available, including the fact that data is available only for vegetation communities in City of Toronto ESAs, and that locations of only particular wildlife species are mapped. There are gaps in the data for wildlife species (see Table 7), and the data is mostly out of date. Site-specific monitoring surveys may find species or habitat features which are not currently documented, both in High Park and the AOI.

Along the Bloor Street West Avenue Study area, Candidate SWH has been assigned to the Humber River wetlands, the "No Frills parking lot" property on the on the south side of Bloor St between Kennedy Ave and Harcroft Rd, and within High Park. Ravine fragments and individual trees may also provide habitat for urban-adapted wildlife species. Where specific development is proposed, site-specific impact studies may be warranted depending on location.

5.3.5 SPECIES AT RISK

Species at Risk (SAR) are plants and animals designated as Endangered, Threatened, or Special Concern provincially or federally. Within the entire AOI, there is an extensive list of breeding SAR birds found in the background data, and records for other groups including one vascular plant species, 3 reptiles and amphibians, and the potential for bat and insect SAR. The majority of these are expected to occur exclusively in High Park and the Humber River valley due to the availability of habitat features.

SAR are vulnerable to loss of breeding habitat, which in High Park and the Humber River valley would be forests, wetlands, and prairie habitat. Loss of built structures used in the life cycle by some SAR such as Chimney Swift and Common Nighthawk (chimneys and gravel roofs, respectively) would also reduce available habitat. As with other wildlife, fauna SAR are vulnerable to predation and construction disturbance, and both resident and migratory birds are susceptible to mortality from building strikes.

Map 4.5 shows the locations of known SAR flora and fauna records, with the records extrapolated to a hexagonal grid in order to maintain confidentiality of the exact species locations. The main limitation of this data is that the data points shown are limited to the data available for this study, and may not be comprehensive. Also, habitat features within the built environment have not been studied in detail at the scale of the AOI.

Most species of conservation concern would occur only within natural habitats within High Park and the Humber River Valley. Along the Bloor Street West Avenue Study area itself, SAR habitat is expected to be limited to chimney and gravel roof structures in the built environment, as well as attics or cavity trees that could support bats. While some data is available on built structures known to be used by SAR birds (BSC 2014), it is not comprehensive, and site-specific studies will be required to determine the presence or absence of suitable habitat, and its use by SAR.

5.3.6 URBAN FOREST CANOPY

The Bloor West Village, High Park, and Swansea neighbourhoods have significant urban forest canopy, including vestiges of prairie-savannah communities dating from pre-settlement times, exemplified by large Red, White and Black Oak (*Quercus rubra, Q, alba,* and *Q. velutina*) trees in the streetscape, on residential lots, and in High Park and the Humber River valley. In combination with the steep topographic features, these unique treed areas are among the most emblematic natural and visual features in the City. In addition to their aesthetic value, the urban forest canopy provides supportive natural heritage function to the habitats found in High Park and the Humber River valley.

Map 4.6 displays the urban forest canopy using data from the City of Toronto 2007 Landcover; this data is representative of canopy cover only, and does not incorporate qualitative data such as species, native status, tree ownership, etc. The City's Urban Forestry department may have more comprehensive data on street tree species and distribution, however privately-owned trees remain a data gap.

As is clearly evident in current views on Google Earth ™, apart from the heavily treed frontage on High Park, the tree canopy cover in the Bloor West Village Study area is largely limited to street trees which are relatively young and widely spaced, with older trees in some side yard and backyard areas. There is only one block of forest on private lands, on lands fronting onto Bloor St W in the vicinity of Dacre Cres. The intensity of existing commercial and medium to high density uses on most parcels fronting onto Bloor St. West currently provide very limited rooting area for trees, a limitation that could be addressed as part of redevelopment given current technologies.

6 IMPACT ASSESSMENT

> *The Avenues are important corridors along major streets where reurbanization and intensification can create new housing and employment opportunities while improving the pedestrian environment, the scale and appearance of the street, local shopping opportunities and transportation choices for community residents. Achieving appropriate, high quality development along the Avenues that significantly increases the range of housing choices in the City is a key direction of the Official Plan. (City of Toronto 2017a)*

The activities associated with the proposed intensification of the Bloor Street West Avenue Study area may result in impacts[1] to the existing natural features and functions. This section provides a summary of potential site alterations associated with intensification, the activities associated with these site alterations, and potential effects upon the key sensitivities characterized in Section 5.

6.1 TYPES OF IMPACTS

Impacts can be defined as the consequences that result from an activity or site alteration and can be either positive, neutral, or negative. Impacts can be divided into three general categories:

Direct Impact: Impacts that specifically result from the proposed development layout and/or construction activities.

Indirect Impact: Impacts that may be caused by altered uses and activities after construction is completed; they include consequences of changes in human behaviours resulting from the new development.

Cumulative Impact: The sum of all individual effects occurring over space and time, including those that will occur in the foreseeable future.

It is important to note that not all impacts are negative, and that the PPS definition for "negative impacts" does not dismiss the use of mitigation to prevent, modify or alleviate the impacts to natural heritage features or functions. **Section 7**, **Recommendations**, identifies recommendations for mitigation[2], compensation[3], and enhancement[4] opportunities to address the potential direct and indirect impacts of intensification.

6.2 EXISTING IMPACTS

In an urban area such as the Bloor West Village, it is important to acknowledge that impacts to natural heritage already exist, and that new development is not occurring in a pristine environment. The natural heritage features and functions that are present today in the Bloor Street West Avenue Study area, High Park, the Humber River Valley, and the Area of Influence have been modified by over 100

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[1] Impacts: Degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities (PPS 2014)
[2] Mitigation: actions which modify site alterations to reduce their potential impacts
[3] Compensation: actions which compensate for losses in natural features or functions as a result of impacts
[4] Enhancement: actions which provide added ecological benefit to natural features and functions

years of anthropogenic change. For example, wetlands were historically much more extensive north of Bloor St., but were filled in when Bloor St. West was reconstructed, raised and serviced, and the lands to the north were subsequently developed. Major filling occurred to create the modern Bloor Street profile (Photo 1); this work severed ravines and eliminated low-lying natural habitats north of Boor St., although ravine remnants still exist such as those immediately east of Clendenan Ave. and Kennedy Park Dr. In addition, human attitudes towards the use of natural areas has changed over time, as evidenced by a 1922 photo of residents swimming and washing their cars in the lower Humber River (Photo 2).

Photo 1: Bloor Street construction, 1910 (City of Toronto archives)

Photo 2: Cars and bathers in the Humber River, 1922 (City of Toronto archives)

Existing impacts to wildlife recorded and/or discussed in the background review documents include habitat loss / fragmentation (Dinh, 2015; TRCA, 2008, City of Toronto, 2002); mortality of birds due to strikes on buildings (FLAP 2000 - 2007); road mortality (City of Toronto 2002); disturbance to individual birds and nests by increased human encroachment and domestic pets (Hughes & Macdonald 2013); and decreased quality of fish habitat (TRCA, 2008). For vegetation, existing impacts include increases

in invasive species and pests (Beacon, 2015; Dinh et al., 2015; Kamstra, 2009; Toronto Parks, Forestry and Recreation, 2013; Toronto Parks & Recreation, 2002; Varga, 2009); root zone impacts due to encroachment (by unofficial trails, trampling, off-leash dogs) (Kamstra, 2009; NSE and D&A, 2009; Canadian Press, 2011; Toronto Parks, Forestry and Recreation, 2013; Toronto Parks & Recreation, 2002; Toronto ESA Study, 2012); Oak decline (City of Toronto 2002); decline in tall shrub habitat in High Park (Toronto Parks & Recreation, 2002); and development-related removals of mature trees (Arborfront Consulting 2015).

The identification of existing impacts does not mean that the existing state of the natural heritage features and function is acceptable, but is provided here as context for the complex spatial and temporal ecological context of the study area.

6.3 ANTICIPATED SITE ALTERATIONS

The Bloor West Village Avenue Study will direct and guide future development with clear standards that ensure a comfortable, convenient, safe and high quality public realm. It will also establish the quantitative requirements for the transportation, site servicing and community services infrastructure to support the existing and future population and employment. The Avenue Study will result in a comprehensive planning and urban design framework that addresses: land uses, transportation and servicing infrastructure, community services and facilities, built form character and redevelopment potential.

Bloor Street West from Keele Street to the Humber River is identified as an "Avenue" on Map 2 of the City of Toronto's Official Plan; this designation means that Bloor Street West has been identified as a growth area, where good transit access can be provided along transit routes and at rapid transit stations. The Avenue Study process began in December 2016 and has included extensive community consultation and technical review (City of Toronto 2017a).

Five distinct character areas have been identified within the overall Avenue Study Area which will each have slightly different design requirements. See Figure 1 (page 3) for the spatial locations of the character areas.

Table 8 summarizes the design changes recommended by the Avenue Study. Some important considerations of these recommendations, with respect to this NHIS, are:

- No changes in built form or land use are being proposed for the Humber Gateway character area. It will retain its existing *Neighbourhoods* designation. While some adjustments may be made to the public realm / street design over time, maintaining the *Neighbourhoods* designation means that intensification will not occur in this part of the BWVA;
- While the Avenue Study identifies design standards for built form, land use, and public realm / street design, it does not identify which specific parcels/properties will undergo redevelopment. Therefore the direct impacts discussed in Section 6.4.1 are all described as "potential"; and
- The Avenue Study will not be finalized until February 2018, following the completion of the NHIS. Therefore some of the specific details in Table 8 may change, however the overarching impact being considered in this NHIS that all parts of the BWVA will have the opportunity intensify to mixed-use developments of mid-rise height (between 6 and 9 stories).

Please see the Bloor West Village Avenue Study by DTAH for full details about that effort.

Table 8. Summary of Avenue Study Recommendations

Segment / Character Area	Built Form	Land Use	Public Realm/Street Design
Humber Gateway	No change. Removal from Official Plan *Avenues* Overlay	No change to existing land use *Neighbourhoods* designation. Remove *Avenues* overlay.	Maintain boulevards No new tree planting Maintain travel lanes Add cycling facilities
West Village	Northside: Maximum height 30.0m (9-10 storeys) Maximum streetwall: 24.0m (6-7 storeys) Southside: Maximum height 23.0m (7 storeys) Maximum streetwall 16.0m (4-5 storeys) Rear transitions based on site context	No change to *Mixed Use Areas* land use designation. Midrise built form as defined by Midrise Performance Standards is appropriate. Recommend elevating built form recommendations to Official Plan policy and updating zoning to provide as-of-right height and density permissions.	Follow Mid-Rise Performance Standards and revised standards recommended in Avenue Study. Obtain a minimum 6.0m boulevard from existing face of curb to building face. Improve street tree planting Maintain travel lanes Add cycling facilities
Village Main Street	Maximum height 20.0m (6 storeys) Maximum streetwall 13.5m (4 storeys). Additions at 50% max of existing building. Different rear transitions based on context. Maintain 45 degree on southside but at 13.5m.	No change to *Mixed Use Areas* land use designation. Maximum height 20.0m (6 storeys). Update as-of-right zoning height permissions. Put maximum height and density in Official Plan. Height, density, step-backs, base building height, lot frontage, and other built form principles to be established in zoning for as-of-right development. Regulate form of retail units to reinforce village character Permit modified rear transition in zoning for neighbourhood-adjacent sites in character area south side.	Follow Mid-Rise Performance Standards and revised standards recommended in Avenue Study. Ensure a minimum 4.8m boulevard from existing face of curb to building face. Improve street tree planting Modify travel lanes Add cycling facilities On-street parking where possible
East Village	Maximum height 27.0m (7-8 storeys) Maximum streetwall: 21.8m (6-7 storeys) Rear transitions based on site context. Maintain 45 degree on southside but at 13.5m.	No change to land use designation. Amend Character Area described in 2016 Addendum to Midrise Performance Standards to match boundary of "Village Main Street" (remove East Village from 0.8:1 rule and allow 1:1).	Follow Mid-Rise Performance Standards and revised standards recommended in Avenue Study. Setback new buildings to provide minimum 4.8m boulevard from existing face of curb to building face. Improve street tree planting Modify travel lanes Add cycling facilities On-street parking where possible
High Park Frontage	Maximum height: 27.0m (8-9 storeys) Maximum streetwall: 21.8m (5-6 storeys) Overall height informed by site characteristics, parcel depth. Rear transitions based on site context.	North side only: Change land use designation to *Mixed Use*; retain *Avenues* overlay and permit 1:1 height per Midrise Performance Standards. Require unencumbered landscape setback above and below grade.	Follow Mid-Rise Performance Standards and revised standards recommended in Avenue Study. 4.5m landscape setback to primary building face with 1.5m projection zone for bays, balconies, stoops (up to 50% of primary building face) Improve street tree planting and landscape quality around and in-between buildings Modify travel lanes Add cycling facilities On-street parking where possible

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6.4 IDENTIFICATION OF POTENTIAL IMPACTS

Direct, Indirect, & Cumulative Impacts are possible due to new development along Bloor St. The precise impacts on any one property depend on the existing conditions of that property, its location with respect to natural heritage features adjacent to the Bloor Street West Avenue Study area, and the nature of development proposed; however the following sections identify the range of possible potential impacts.

Following are the direct and indirect impacts that have been identified by D&A, the project team, and refined through public consultation.

6.4.1 POTENTIAL DIRECT IMPACTS – BLOOR WEST AVENUE STUDY AREA

Direct impacts are predictable and have well-established mitigation tools; Table 9 lists the potential direct impacts within the Bloor West Avenue Study Area.

Table 9. Summary of Potential Direct Impacts

#	**Type of Impact** *(alphabetical order)*
1	Construction impacts to wildlife (i.e. nest removal, mortality on construction sites, construction noise)
2	Increased hazard of buildings to migratory & breeding birds
3	Increase in invasive/non-native species on new development sites
4	Loss of tree / forest cover
5	Negative impacts on Species at Risk (Chimney swift, Common nighthawk, SAR bats)
6	Slope destabilization
7	Vitality impacts to remaining mature trees
8	Changes in downstream water quality and quantity

1. Construction impacts to wildlife

Construction activities have the potential to negative impact wildlife through the destruction of bird nests, physical mortality of terrestrial wildlife on construction sites, and disruption of nesting activities from increased noise and/or vibration.

Bird nests may occur on vegetation, buildings, and other structures and removal of these features during the nesting period would result in nest failure and contravention of the Migratory Birds Convention Act. Failing to secure a construction site with silt fence to exclude terrestrial wildlife could result in wildlife being harmed during the construction process; although the likelihood of sensitive terrestrial wildlife such as amphibians, reptiles, and bats along this corridor is low, other wildlife could be present and could be negatively impacted by construction activities. In addition, construction noise has the potential to contribute to nest failure.

Bird nests may be present on any property with existing vegetation and/or structures, whereas the highest potential for construction mortality is in the High Park Frontage character area and properties adjacent to remnant ravine features.

2. Increased hazard of buildings to migratory & breeding birds

An increase in building height along the Bloor Street West Avenue Study area, especially adjacent to High Park, has the potential to create an increased collision hazard for migratory and breeding birds.

Migrant birds moving north in the spring are physiologically challenged by the crossing of the almost 50 kilometre wide lake, thereby making lakeshore areas (lands within two kilometres of lakefront) more important to them. As such, High Park is a very important area for migrant birds in spring, especially during inclement weather (e.g. sudden north winds in the spring, rain or fog, etc.). During migration birds often become disorientated during inclement weather, and are attracted to the artificial light from buildings. Therefore they often strike buildings, resulting in injury or death. During migration, however, High Park would attract these migrants into the park to rest and forage before their next leg of migration. In addition, High Park is a relatively large habitat patch in the City of Toronto and offers breeding opportunities for a variety of bird species. All of these birds would also be vulnerable to building collisions.

Additional bird collisions will contribute to the existing overall cumulative adverse effect of buildings on bird populations, both locally and regionally. Bird species that are already declining due to other factors will be included in these impacts.

Breeding birds are prone to predation by domestic dogs and cats, as well as other urban-affiliated predators (Raccoons, Common Grackles, and Crows etc.).

For stopover migrants that are foraging during the day, the potential exists for these birds to be lured out of larger habitat patches in High Park and the Area of Influence, and to become trapped in courtyards, hit by cars, disturbed by cats or dogs, etc. Note that migrant birds would tend to be less plentiful near Bloor Street West, and those present would be reluctant to cross this significant barrier to enter courtyards of proposed buildings.

The highest potential for these impacts to birds is in the High Park Frontage character area.

3. Increase in invasive/non-native species on new development sites

Use of invasive/non-native species in planting plans for new developments has the potential to act as a source for the spread of non-native seed in the surrounding landscape and reduce biodiversity over time if the non-native species are replacing native species.

Invasive plant species have the potential to impact species diversity and species richness in natural areas, as these plants "compete heavily for resources such as light, moisture and soil nutrients that native plants require to establish and grow" (OISAP 2017). Complicating this matter, many nurseries grow and market plant species known to be invasive such as Winged Euonymus (*Euonymus alatus*), Japanese Knotweed (*Reynoutria japonica var. japonica*), and Periwinkle (*Vinca minor*). Additionally, native plant species support a much higher diversity of insects, which in turn support bird populations. Research has shown that non-native plants support 29 times less biodiversity than do native plants (Tallamy 2004). Plantings used on new development sites therefore have the potential to negatively impact biodiversity if non-native and invasive plant species are used.

This impact has equal potential to occur across the entire Bloor Street West Avenue Study area. However, the potential for seed spread to negatively impact the surrounding landscape would be highest along the High Park Frontage character area and for properties adjacent to remnant ravine features.

4. Loss of tree / forest cover

Redevelopment of properties may result in the removal of existing trees, which would decrease local tree cover.

Although tree cover is limited for the Bloor Street West Avenue Study area due to the urban nature of existing developments, concentrations of trees do exist on side and rear lot areas of some properties, and contribute to the City's urban forest canopy. As discussed in Sections 3.2.2.4 and 5.3.6, tree canopy cover has aesthetic, ecological, and economic benefits to the City of Toronto.

This impact has equal potential to occur across the entire Bloor Street West Avenue Study area, wherever existing trees are present. Forest canopy extends onto private property in the vicinity of Dacre Cres.

5. Negative impacts on Species at Risk

Removal of existing structures in the built environment has the potential to remove habitat structures for Species at Risk, in particular Chimney Swift, Common Nighthawk, and endangered species of Bats.

Common Nighthawk is considered nationally Threatened (COSEWIC 2017) and provincially Special Concern (MNRF 2017a). It breeds in the City of Toronto, and frequently uses gravel rooftops. Chimney Swift is considered Threatened, both federally (COSEWIC 2017) and provincially (MNRF 2017a). A study undertaken by Bird Studies Canada (2014) outlined Chimney Swift monitoring work along the Bloor Street West Avenue Study area, and identified a number of sites with Chimney Swift activity, including six chimneys with active Chimney Swift observations. Bats may use built structures or trees with cavities, cracks, or loose bark as maternity roosts, however the preferred location for maternity roosts is in woodlands, not urban streetscapes (MNRF 2017b); therefore the probability of these species being present within the Bloor Street West Avenue Study area is considered low. Species listed as Endangered or Threatened in Ontario are protected under the Endangered Species Act (ESA) under Regulation 242/08; removal of structures actively being used by Species at Risk will remove breeding habitat, which is prohibited under the ESA.

This impact has potential to occur across the entire Bloor Street West Avenue Study area, wherever existing built structures are present.

6. Slope destabilization

Construction work adjacent to steep slopes has the potential to lead to slope instability, which can result in failure of slopes and destruction of wildlife habitat; in addition uncontrolled runoff can lead to erosion of soils and downstream sedimentation impacts.
Along the Bloor Street West Avenue Study area, steep slopes are associated with the Humber River, ravine fragments on the south side of Bloor St from Kennedy Ave to Wendigo Way, on the north side of Bloor St at Kennedy Park Rd, and Wendigo and Spring Creeks in High Park.

7. Vitality impacts to "high value trees"

Redevelopment of properties may negatively impact remaining "high value trees", by direct damage, increased shade from new buildings, changes in hydrology due to change in permeable surfaces, and/or compaction of soil in root zones.

As discussed under "loss of tree cover", trees along the Bloor West contribute to the City's urban forest canopy and provide supportive functions to the ecology of the Area of Influence. Undertaking

construction in a manner which is sensitive to existing trees will assist in maintaining the health and character of the urban forest in the long term.

This impact has equal potential to occur across the entire Bloor Street West Avenue Study area, wherever existing trees are present.

8. Changes in downstream water quality and quantity

The approaches for stormwater management for new construction, including infiltration approaches, for new development in the Bloor Street West Avenue Study area could impact the water quality and quantity in Wendigo Creek, Grenadier Pond, Spring Creek, and Lower Duck Pond.

Impermeable surfaces, such as the existing condition along Bloor St W, lead to higher quantities of water flowing into the storm system as compared to permeable surfaces such as natural areas, or urban areas with infiltration incorporated into their design. If not mitigated, impermeable surfaces create more intensive pulses of water flow entering water bodies following rainfall events which can lead to bank erosion, downcutting of stream beds, disruption of riparian / wetland vegetation, and negative effects on viability of reliant fauna. Water quality degradation can reduce habitat availability for species which use aquatic and riparian habitats. Toronto Water is working with the DTAH team to understand and interpret groundwater data for the BWVA study. More detail about these systems, and potential impacts on these systems can be found in the report "Desktop Hydrogeological Investigation, Bloor West Village, Toronto, Ontario" (WSP 2017a) and the Toronto Water appendix in the Bloor West Village Avenue Study (DTAH 2018). Please note that impacts to the deep groundwater system are addressed in the Bloor West Village Desktop Hydrogeological Study (WSP 2017a).

As the Bloor Street West Avenue Study area is already developed, this impact is pre-existing. Redevelopment on sites within the catchment areas for Wendigo and Spring Creeks has the potential to improve on existing conditions, providing improved water quality and reducing the flashiness of post-rainfall water rates. See Appendix 4 for Wendigo and Spring Creek catchment area locations.

6.4.2 POTENTIAL INDIRECT IMPACTS

Indirect impacts are less predictable and harder to mitigate than direct impacts, as they can occur outside of the direct development footprint. Existing legislation, and City / TRCA policies offer opportunities to manage these impacts. Table 10 lists the potential indirect impact along the Bloor West Avenue Study Area.

Table 10. Summary of Potential Indirect Impacts

#	**Type of Impact** *(alphabetical order)*
1	Increased recreational use of High Park and Humber River valley

1. Increased use of High Park and Humber River Valley

The City of Toronto has a current population of over 2.7 million people, which is anticipated to continue growing per the City of Toronto's Official Plan (2015) and the updated Places to Grow Act (2017). Correspondingly, the population of the Bloor West Village as well as the Apartment Neighbourhood will increase, although anticipated populations have not been determined. Residents need places to recreate, and parks and natural areas play a key role in serving this need at the local and regional scale. In a survey for the 2013 – 2017 Parks Plan, 93% of respondents said that parks are

an indispensable part of the City (Toronto 2010). Toronto has an extensive system of active and passive parks, trail networks, and natural areas which provide parkland amenities. The City of Toronto's Ravine Strategy (2017) states that "Toronto's ravine system is the heart and soul of a remarkable natural environment system that spills out of the river valleys into the city's parks, neighbourhoods and urban landscape".

As population levels increase in the surrounding neighbourhoods and the City as a whole, increase in usership of natural areas within the AOI, including High Park, Humber River Valley, and other natural areas has the potential to negatively impact their ecological features and functions through:

- Disturbance and predation of wildlife;
- Habitat fragmentation;
- Trampling and predation due to increased human and dog usership;
- Accidental or intentional spread of invasive species; and/or
- Collecting of turtles for the pet trade.

The potential for negative public perception of the prescribed burns in High Park is also a concern, as new members of the adjacent neighbourhoods may not understand the significance of and need for these management events.

The remnant natural areas within the Area of Influence of the Bloor West Village study area are significant natural heritage features, and highly-valued neighbourhood resources which address recreational needs on a City-wide basis. High Park in particular is the "jewel" in Toronto's park system, well known to the regional population for its varied amenities (City of Toronto Parks Plan, 2013): zoo, cherry blossom display, picnic areas, Children's Garden, recreational fishery, bird-watching, as a venue for large public events, nature trails, BMX park, and off-leash dog zone. These amenities attract users from the entire City, as well as tourists, and are also reflected in the marketing for new development in the local vicinity. Many City staff and volunteers, including the High Park Volunteer Stewardship Program, are already engaged in numerous initiatives to make this park more sustainable given its popularity.

Most indirect impacts are cumulative and are ongoing throughout southern Ontario due to urban population growth. The AOI, including High Park and the Humber River valley, are not exceptions to these expanding impacts. While the exact nature and scope of potential impacts is not adequately quantified currently, existing impacts as discussed in Section 6.2 are likely to continue, and if not addressed, will likely be exacerbated, as usership increases.

7 RECOMMENDATIONS

Given the potential impacts identified in Section 6, D&A has developed recommendations for mitigation and compensation in order to avoid and minimize impacts on existing natural heritage features and functions, and enhancement opportunities to improve the resilience of ecological features and functions in High Park and the Area of Influence.

These recommendations include:

- Requirements for further site-specific studies to identify and address impacts at the site level;
- Mitigation measures to address potential impacts;
- Enforcement of existing policies and/or guidelines which are currently in place to address specific impacts; and
- Enhancements to existing policies and guidelines, to be applied to Bloor West Village Avenue Study properties.

7.1 HIGH-LEVEL RECOMMENDATIONS

As described in Sections 3 and 5, the AOI for the Bloor Street West Avenue Study area has complex natural heritage features and functions. In order to define recommendations for site-specific studies for development sites along the Bloor Street West Avenue Study area which are appropriate given this complexity, D&A first developed a series of high-level recommendations (Table 11). These high-level recommendations were presented to the City and Public at a Local Advisory Committee meeting on October 18, 2017, and then refined to the detailed recommendations presented in Section 7.2 of this report for the Public Meeting on December 4, 2017.

Table 11. High-Level Recommendations

#	High-level Recommendation	Description	Responsible Parties
1	**Enhanced Best Management Practices specifically for Bloor West Village Avenue (BWVA)**	**Goal** – develop additional guidelines for: • Design, construction, stewardship, and monitoring • Supplementing current Toronto Green Standards and Living City standards to address known BWVA issues, impacts and mitigation. • Potentially incorporating habitat structures for SAR that use the built environment into building design; planting plan requirements to include pollinator friendly native species; enhanced protection for high-value trees	Defined in this NHIS, to be confirmed and applied by City, TRCA to individual development projects

#	High-level Recommendation	Description	Responsible Parties
2	**Mitigate Direct Impacts**	**Goal** - collect good baseline information, inform good design, and inform stewardship actions. Scoped studies to full NHIS may be required for development proposals based on standard TOR addressing: • Required urban habitat studies (Species at Risk, Significant Wildlife Habitat, trees/woodlands and urban canopy) • Integrated water balance assessment & enhanced infiltration • Informed design with current monitoring data e.g. bird strikes • Required Monitoring Plans post-development • Targeted stewardship recommendations and resident / management engagement	Individual developers under requirements and direction of City and TRCA
3	**Resource Management Planning, Personnel and Funding**	**Goal** - inform existing management and support future park management • Support regular monitoring of usership and impacts to sensitive habitats • Prepare Action plans to address impacts effectively • Improve enforcement tools & support personnel • Dedicate funding through development contributions	City and TRCA
4	**Monitoring and Adaptive Management**	**Goal** - monitor key biophysical conditions and indicators • Use development planning studies and monitoring to inform existing conditions and changes over time • Increase active monitoring of High Park and Humber River natural system health & impacts • Prepare and implement management recommendations and action plans	City and TRCA

D&A has worked with City staff to define appropriate Enhanced Best Management Practices in this report to satisfy Recommendation #1. Where these still need further input and/or approval from the City and TRCA, this has been identified. These Enhanced Best Management Practices and recommendation for site-specific studies to Mitigate Direct Impacts (Recommendation #2) are identified in Table 9 in Section 7.2. Resource Management Planning, Personnel and Funding and Monitoring and Adaptive Management are applicable to lands in the Area of Influence which may be affected by indirect impacts. D&A has provided general recommendations for mitigation strategies in Section 7.3 and a long list of opportunities for inventory, management, and enhancement in Appendix 5.

7.2 MITIGATION OF DIRECT IMPACTS – BLOOR WEST VILLAGE PROPERTIES

Mitigation represents actions taken during the planning, design, construction and operation of works and undertakings to alleviate [avoid or reduce/minimize] potential adverse effects on features and functions. Compensation is distinct from mitigation in that it addresses 'residual' impacts that remain after mitigation measures have been implemented. Compensation can take different forms, however the ultimate objective is to ensure that the project will not result in negative impacts. Compensation is

the replacement and/or enhancement in either the quantity or quality of the existing features and functions. Ideally, a development project should offer opportunities for a 'net gain' in sustainability.

The main principles behind mitigation/compensation are:

1. To limit the extent of impacts through site specific mitigation responses;
2. To plan for the recovery from remaining impacts with effective compensation; and,
3. To identify opportunities for enhancements to improve ecosystem function and overall biodiversity.

Table 12 outlines the potential direct impacts, i.e. those which occur on a development or redevelopment site from the proposed development layout and/or construction activities.

Table 12. Summary of Potential Direct Impacts

#	Potential Impact *(alphabetical order)*	Recommended Mitigation	Existing Policies / Guidelines	Recommended Policies / Guidelines
1	**Construction impacts to wildlife**	Trees to be removed outside migratory and breeding bird seasonal windows; construction sites to be contained with silt fence to minimize accidental mortality	Migratory Birds Convention Act, Erosion & Sediment Control Guideline for Urban Construction	No additional policies / guidelines required
2	**Increased hazard of buildings to migratory & breeding birds**	Require buildings to have bird-friendly façades, design lighting to be bird-friendly, and have bird-friendly building management operations, with recommendation of increased standards within High Park Character Area	Bird Collision Deterrence and Light Pollution, Toronto Green Standard (2018); Bird-Friendly Development Guidelines (2007)	For all development along High Park frontage, require TGS Tier 2 Enhanced Bird Friendly Glazing and Tier 2 Enhanced Lighting and Lighting Control standards for all new building construction Require bird-friendly stewardship guidelines be developed for residents and building operators Monitoring of bird fatalities for 5 years for buildings along High Park frontage may be required
3	**Increase in invasive/non-native species on new development sites**	Require native landscaped areas; restrict use of non-native species along streets abutting natural areas	Toronto Green Standard (2018)	Require Tier 2 Biodiversity in Landscapes standards along Bloor West Avenue study area Increase requirement for native species along High Park frontage and sites adjacent to other natural features to 100%

#	Potential Impact *(alphabetical order)*	Recommended Mitigation	Existing Policies / Guidelines	Recommended Policies / Guidelines
4	**Loss of tree cover**	Require arborist studies for all development sites, minimize tree loss and injury, replant removals with native, site-appropriate trees. Require full NHIS where woodlands extend within or close to development sites.	Private tree by-law, City Tree Protection By-law, Ravine and Natural Features Protection By-law, Toronto Green Standard, Tree Protection Policy and Specifications for Construction Near Trees	City to consider developing area-specific "high-value trees" guideline to enhance retention of mature canopy Require Tier 2 Urban Forest: Increase Tree Canopy TGS standards
5	**Negative impacts on Species at Risk**	Protect species at risk that use urban structures (e.g., Chimney Swifts and Bats), replace habitat if appropriate	If SAR are present, MNRF permitting process applies under Endangered Species Act	Require scoped studies for SAR that use urban structures (e.g., Chimney Swift, Bats) where buildings proposed for removal to determine presence/absence Habitat structure replacement may be appropriate (*requires MNRF consultation*)
6	**Slope destabilization**	Require scoped, site specific studies to determine long-term stable top of slope location for sites including or adjunct to steep slopes	Geotechnical report is required to identify longer term stable top of bank. Official Plan requires 10 m setback from long-term stable top of slope	No additional policies / guidelines required
7	**Vitality (including shade) impacts to "high value trees"**	Design buildings to minimize changes in existing conditions (light, soil conditions, water availability) to "high value trees" that will be retained on and directly adjacent to site	Tree Protection Policy and Specifications for Construction Near Trees, Erosion & Sediment Control Guidelines for Urban Construction	Proponent will need to demonstrate that vitality (including shade) impacts to "High Value Trees" are minimized, and that built surfaces adjacent to existing "High Value Trees" are 'softened' to avoid reflective scorching.
8	**Changes in downstream water quality and quantity**	Improve water quality and reduce "flashiness" of flows through at-source measures within BWV Study Area	Existing City WWFMG (Wet Weather Flow Management Guidelines), Erosion & Sediment Control Guidelines for Urban Construction	Consider site specific study SWM requirements, SWM enhancements in catchments draining to High Park. Sites adjacent to NH features will require a detailed hydrological study to address potential impacts on ravine and water features.

Following are detailed descriptions of the recommended mitigation measures.

1. Construction impacts to wildlife

In order to mitigate the potential impacts that construction and construction sites pose to wildlife, scheduling tree removals during appropriate seasonal windows, and maintaining silt fence around construction sites should be implemented and enforced for all development properties within the Bloor Street West Avenue Study area.

The Migratory Birds Convention Act (MBCA 1994) states that incidental take of migratory birds, nests or eggs must be avoided by limiting activities during sensitive periods. The best practice is to ensure that removal of vegetation, and/or existing buildings and structures that may support nesting, occurs outside the active nesting season (normally April 1st to August 1st, although this window is species dependent. If clearing must occur during the active breeding season, surveys conducted by a qualified biologist should be completed to ascertain if active nests are present; if no nests are found, then removal may be permitted, otherwise protection of nests with buffers or delayed clearing should be practiced. The requirements under the MBCA are a matter of due diligence for developers; Environment Canada is empowered to prosecute if the Act is violated.

Installing and maintaining silt fence around construction sites is a standard part of modern construction activities. Greater Golden Horseshoe Area Conservation Authorities, including GRCA, TRCA, CH, CVC, NVCA, LSRCA, NPCA, and HCA, published Erosion and Sedimentation Control Guidelines for Urban Construction in 2006. This document is intended to "provide sufficient information to assist all parties in the prevention of erosion during the construction process, including dealing with suspended sediment at the source and minimizing sediment transport from leaving the construction site" (GGHACA, 2006; P.4). As part of the Toronto Green Standard, following this guide to prepare a sediment and erosion control plan is a Tier 1 requirement for all mid to high-rise developments. The sediment fence included as part of this plan will help to exclude small terrestrial wildlife from construction sites.

Adherence to the MBCA and the Toronto Green Standard is regulated through City review of development applications. No additional site-specific policies or guidelines are required for this recommendation, however the existing MBCA and sediment and erosion control standards need to be implemented and maintained.

2. Increased hazards of buildings to migratory & breeding birds

Minimizing bird collisions through incorporation of bird-friendly building design standards will help to mitigate bird death and injury caused by buildings. Tier 1 of the 2018 TGS requires buildings to treat a minimum of 85% of all exterior glazing within the first 12 m of the building above grade with visual markers to increase the visibility to flying birds, while Tier 2 increases this requirement to 95%.

As High Park is an important migratory bird stopover site within the City, and also contain breeding habitat for many species, new and renovated buildings in the High Park Frontage character area should be required to comply with Tier 2 of the Toronto Green Standard. Bird-friendly stewardship packages should be developed for residents and owner/operators of new buildings within High Park Frontage character area in order to foster bird-friendly behaviours. Actions which could minimize bird collisions include such as closing curtains and blinds at night during key migration periods. As outlined in the Bird-Friendly Development Guidelines (2007), building management can also adopt appropriate building management operations such as reducing light pollution from interior lights,

office cleaning during the day, proper locating of greenery within hallways and foyers, and posting notices during critical migration periods utilizing resources available from the Fatal Light Awareness Program (FLAP).

Incorporating Site Design Strategy principles laid out in Bird-Friendly Development Guidelines (2007) for proposed new buildings should reduce window strikes from any trapped birds, but birds may also exhaust themselves in trying to escape, or become more vulnerable to predation from numerous urban-sponsored predators in the area (e.g. cats, Common Grackles). Therefore, design of new buildings around courtyards to 'step' green roofs up from the courtyard level to provide views of safer habitats will help attract birds away from courtyards; where this I not feasible, eliminating courtyards altogether from new building designs is recommended. The use of lower-growing vegetation in courtyards could also reduce bird impacts by making the courtyards less attractive to birds.

These recommendations would apply to all properties in the High Park Frontage character area. Tier 1 compliance will be mandatory throughout the rest of the Bloor Street West Avenue Study area per the TGS.

Adherence to the TGS is regulated through City review of development applications; the City may require monitoring of bird fatalities for 5 years post-construction for buildings along High Park frontage.

3. Increase in invasive/non-native species on new development sites

Increasing the use of native species in landscape plans and urban forest plantings is an ongoing best management trend in southern Ontario. Enhancing standards in areas adjacent to natural heritage features along the Bloor Street West Avenue Study area will reduce sources of non-native seed in the immediate landscape of these features, while augmenting 'seed rain' of desirable native species.

The Toronto Green Standard (TGS) currently requires that all landscape plans include: a minimum of 50% native plants; native species only within setbacks from ravine and natural areas; and restrictions on the use of invasive species. An enhanced recommendation for properties within the High Park Frontage character area and adjacent to other natural features (i.e. ravine at back of No Frills parking lot) would require that landscape plans for redevelopment projects include 100% native species. Site plans which include at-grade landscaping, container plantings, and roof gardens, can all support native-dominated plantings. Sites with spatial opportunities for prairie and savannah themed landscaping, including the use of Red, Black and White Oak, should be given a high priority.

This recommendation applies to the entire Bloor Street West Avenue Study area wherever landscaping is proposed.

Adherence to the Toronto Green Standard is regulated through City review of development applications.

4. Loss of tree cover

In order to minimize the loss of tree cover in the Bloor Street West Avenue Study area, enhancement of the standards in the existing City Tree and Private Tree Protection by-laws is required. The goal of this recommendation is to maintain existing mature trees and to increase tree cover through planting as per the TGS.

Due to the importance of the urban forest in the Bloor Street West Avenue Study area and surrounding Area of Influence, we recommend that the City of Toronto develop a "high-value

trees" guideline to enhance retention of mature canopy. "High-value" could be based on size, species rarity in the TRCA watershed (i.e. L1 – L3 designation by TRCA (2017a), oak savannah affiliate species (such as Black, Red and White Oaks), heritage value (i.e. based on the Forests Ontario heritage tree criteria, City of Toronto 2017d), and/or those species noted as intolerant of construction disturbance in the City's Tree Protection Policy and Specifications for Construction Near Trees (2016b). In addition, we recommend that all tree removals should be compensated for according to the City's standards.

Preservation of mature trees would support the City's Strategic Forest Management Plan by maintaining existing canopy cover (City of Toronto 2013). Strategic Goal 1 of the Strategic Forest Management Plan is "Increase canopy cover, Protect, maintain and expand the urban forest to achieve a healthy, sustainable forest with a canopy cover of 40%." According to this plan only 14% of existing private trees and 25% of existing street trees are 30.6 cm DBH or larger (City of Toronto 2013), highlighting the importance of retaining mature trees.

The 2018 TGS has robust requirements for increasing tree canopy. We recommend that Tier 2 standards be applied along the Bloor West Avenue Study area; these include 1 tree for every 3 surface parking spaces, enhanced soil volumes for tree planting, and tree protection zones double the minimum size. Tier 1 standards which would also apply include requirements for trees along street frontages and a watering plan for 2 years following planting.

This recommendation applies to the entire Bloor Street West Avenue Study area wherever there are existing trees. Where woodlands exist close to potential development, (i.e. in vicinity of Dacre Cres), a full NHIS will be required.

Adherence to the City tree by-laws is regulated through City review of development applications and permitting.

5. Negative impacts on Species at Risk (SAR)

Habitat of SAR in the Bloor Street West Avenue Study area needs to be identified through site-specific studies; if SAR habitat is present the Endangered Species Act and its regulations need to be followed in order to avoid impacts to SAR. As described in Section 3.3.3, SAR potentially present outside of High Park or the Humber valley are Chimney Swift, Common Nighthawk, and Endangered bat species; supporting habitat features include chimneys, gravel roofs, and trees with cavities, cracks, or loose bark.

It is the responsibility of individual proponents to determine if SAR habitat is present and being utilized on sites proposed for redevelopment. Site-specific SAR screening studies under MNRF guidance are recommended for any structures or trees to be removed within the Bloor Street West Avenue Study area. If suitable habitat is found, surveys should be undertaken to determine if Chimney Swift, Common Nighthawk, and Endangered species of bats are utilizing them. Surveys for Chimney Swift should follow MNRF-endorsed protocols and be carried out by qualified biologists.

This recommendation applies to the entire Bloor Street West Avenue Study area wherever there are existing structures and/or trees.

Adherence to the ESA is regulated by the MNRF; we recommend that TRCA and the City require as a condition of approval, demonstration that MNRF has approved the studies and approaches to address SAR on site specific development and building permit applications. Notably, relatively minor renovations of buildings may affect SAR; therefore the screening of building permits will help to avoid losses in habitat. Replacement habitat structures, which could be included as part of roof design,

may be required by MNRF; details about the appropriateness of these structures and their design will be determined by proponents through consultation with MNRF.

6. Slope destabilization

Slope stability impacts can be mitigated through adherence to engineering best practices, including respecting the 10m long-term stable top of slope setback. The long-term stable top of slope needs to be determined through a geotechnical engineering study, then a 10m setback would apply per City of Toronto and TRCA policies.

This recommendation applies to a limited number of properties along the Bloor Street West Avenue Study area which include or are immediately adjacent to steep slopes, as indicated by City of Toronto Ravine and Natural Features Protection Area and/or TRCA regulated area mapping. Note that some areas adjacent to RNFP areas are not regulated by TRCA but setbacks / geotechnical studies may still be required by the City. The need for a geotechnical study will be determined through project scoping with City of Toronto staff.

This recommendation applies to properties which include or abut RNFP or TRCA regulated areas.

No additional site-specific policies or guidelines are required for this recommendation, however the existing slope setback requirements need to be implemented and enforced. Adherence to the slope setback requirements is regulated through TRCA review of development applications and permitting.

7. Vitality impacts to "high value trees"

In order to mitigate the potential impacts of new construction on "high value trees", a number of actions may apply depending on the type and age of trees present, the site, and the proposed redevelopment. "High value trees" guidelines are to be developed by the City of Toronto, see text under 4, Loss of Tree cover, for recommended considerations for "high value trees".

Reduction of direct solar exposure may affect tree physiology, create a cooler micro-environment, and elicit various responses (depending on species, age and existing health) including increased leaf area, unbalanced crown growth, less vigorous growth, and increased risk of attack by topical fungal pathogens such as mildews. Where sun exposure is increased, urban 'heat island' effects from introduced hard or reflective surfaces can scorch or desiccate existing trees. In general, younger trees with optimal rooting space and supplies of moisture will be more adaptive than mature trees, especially where the latter already have existing conditions affecting their long-term vitality.

Over time, urban intensification will result in taller and/or more massive buildings which will individually and cumulatively cast more shade, especially in the spring and fall seasons. The extent of new shade is routinely modelled, which is useful to assess potential seasonal changes to sunlight, particularly if existing trees are inserted into the model. Arborist studies should incorporate this information to identify trees potentially vulnerable to increased building shadows.

If new development will create south- to west-facing reflective or radiant surfaces close to existing mature trees, 'softening' of the surfaces with less heat-retaining or less reflective materials can help to mitigate scorching impacts to existing trees.

In order to maximize vitality of existing trees that will remain, arborist analysis of building design and the existing landscape should be required to demonstrate that shade and heat island impacts to existing trees are minimized or mitigated. This recommendation would apply along the entire Bloor Street West Avenue Study area, wherever existing trees are present on sites to be redeveloped.

In order to mitigate trunk and root zone impacts of trees to be preserved the City of Toronto's Tree Protection Policy and Specifications for Construction Near Trees (2016) should be followed. This document describes minimum tree protection zones (TPZ) for City street, private, and parkland trees, acceptable and prohibited activities within the TPZ, acceptable hoarding barriers, and requirements for tree protection plans.

Maintaining or enhancing infiltration will be important to trees, and can be achieved through effective storm water management; see Section 7.3 and the Toronto Water appendix in the Bloor West Village Avenue Study (DTAH 2018) for further details on how this can be achieved along the Bloor Street West Avenue Study area.

The City of Toronto requires an arborist report to be prepared for all development projects where injury or removal of existing trees >30cm DBH is anticipated; this report needs to include recommendations for tree protection and preservation measures for all trees that are to be retained. We recommend that the additional tree mitigation actions outlined in this section be applied to all redevelopment sites along the Bloor Street West Avenue Study area, wherever existing trees are present on sites to be redeveloped.

Adherence to the City tree by-laws is regulated through City review of development applications and permitting.

8. **Changes in downstream water quality and quantity**

As the water features in High Park are fed by storm and ground water from the surrounding landscape (see Section 3.3.3), impacts to water quality and quantity in High Park due to redevelopment can be mitigated through at-source controls.

According to City of Toronto criteria, flow rate is to be controlled to the 2-year target flow and rainfall depth of 5mm must be retained over the entire site (Cole Engineering, 2016a). Previous development along High Park Avenue and Bloor Street West proposed use of a sump system or rainwater harvesting tank to re-use rainwater, and underground storage tanks to achieve water balance (Cole Engineering, 2016a, b). Area drains and erosion control plans have also been proposed to eliminate runoff flowing to adjacent properties and trap sediment (Lithos, 2016). The Toronto Water appendix in the Bloor West Village Avenue Study (DTAH 2018) contains detailed recommendations for at-source quantity and quality controls for redevelopment along the Bloor Street West Avenue Study area.

This recommendation applies to all properties within the Wendigo and Spring Creek catchments within the Bloor Street West Avenue Study area (see Appendix 4). In addition, sites adjacent to NH features (e.g., No Fills parking lot) will require a detailed hydrological study to address potential impacts on ravine and water features.

The City's *Wet Weather Flow Management Guidelines* (WWFMG) require all new developments to provide on-site stormwater management measures in order to control water balance, quality and quantity from each site prior to discharge. These guidelines, supplemented with local recommendations from the ongoing Toronto Water study for the BWVA, will provide the standards for development practices. Implementation of Low-Impact Development (LID) works as outlined in the document Low Impact Development Stormwater Management Planning and Design Guide (CVC, TRCA 2011) would also help to increase at-source infiltration of water.

7.3 OPPORTUNITIES FOR MITIGATION OF INDIRECT IMPACTS (HIGH PARK)

Table 13 outlines the potential indirect impacts which could occur on the ecological features and functions of High Park. These encompass impacts which may be caused by altered uses and activities after construction is completed, including consequences of the changes in human behaviours resulting from the new development.

Table 13. Summary of Potential Indirect Impacts on High Park

#	Potential Impact	Recommended Mitigation	Existing Policies / Guidelines	Recommended Policies / Guidelines
1	**Increased Use of High Park**	City to protect and improve habitat and increase resilience of High Park, in collaboration with TRCA, including continuation of High Park Oak Savannah burn and restoration work	High Park Woodland & Savannah Management Plan	See long list of opportunities for inventory, management, and enhancement (Appendix 5) Require buildings in the High Park character area to be designed to have capacity to prevent smoke intake from annual High Park burn Require on-site dog courtesy areas for new developments and stewardship packages for all dog owners to be provided for all condo site

Following are detailed descriptions of the recommended mitigation measures.

1. **Increased Use of High Park**

The potential for impacts to High Park due to intensification along the Bloor Street West Avenue Study area has been a major concern of stakeholders throughout the consultation process. High Park is a key City resource valued by the entire region for its recreational, natural, and educational attributes, and as described elsewhere in this report, contains unique and provincially significant natural heritage features and functions. Mitigation of indirect usership impacts is complex and requires coordinated management, policy enforcement and cooperation affecting many parties. Our own experience with the Park encompasses knowledge of its resources, involvement in the 2002 management plan, use of the site for university field trips, and recent review of park conditions in the company of operations staff.

The identification of natural heritage data gaps that will inform park management, adequate enforcement of existing park policies (see Section 4.3.4) that include tools to combat user impacts, and opportunities to enhance resource management, monitoring, and adaptive management of the natural areas is an important component of this NHIS. Appendix 5 provides D&A's summary of Inventory, Management and Enhancement Opportunities for High Park and the Humber River Valley. These opportunities address the goals of D&A's Resource Management Planning, Personnel and Funding and Monitoring and Adaptive Management high-level recommendations (Table 11). The overarching intent of the opportunities identified is to increase the resilience of the natural heritage features and functions of High Park. Adoption of the identified opportunities will require City-led initiatives, management plans, and programs. As High Park is a publicly owned and maintained park, the recommendations provided in this report need to be considered in the context of existing

management plans, including the High Park Woodland & Savannah Management Plan (2002) and implementation of the Toronto Ravine Strategy (2017).

As the potential for increased use of High Park grows, so does the importance of maintaining its prairie and savannah vegetation communities. A prescribed burn programme is in place as part of the High Park Woodland & Savannah Management Plan (2002), as fire is a natural process that is essential to the recovery of the oak savannah in High Park. We recommend that buildings in the High Park frontage character area have HVAC systems which are designed to have the capacity to prevent smoke intake from the High Park prescribed burns (e.g. temporary shutoff or reduced operation during High Park burns).

High Park's off-leash dog area is sanctioned by the City, and is well known and heavily used. Unfortunately as noted in the Aug 28, 2017 site walk and identified in background documents, off-leash dog use outside of the designated area is leading to habitat degradation. In order to mitigate potential impacts from increased dog populations, we recommend that new residential developments along the Bloor West Village corridor include on-site dog courtesy areas as well as stewardship packages for all dog owners to be provided for all condo sites.

7.4 OPPORTUNITIES FOR MITIGATION OF INDIRECT IMPACTS (HUMBER RIVER VALLEY)

Table 14 outlines the potential indirect impacts which could occur on the ecological features and functions of the Humber River valley.

Table 14. Summary of Potential Indirect Impacts on Humber River Valley

#	Potential Impact	Recommended Mitigation	Existing Policies / Guidelines	Recommended Policies / Guidelines
1	**Changes in downstream water quality and quantity**	Improve water quality and reduce "flashiness" of flows through at-source measures	Existing City WWFMG (Wet Weather Flow Management Guidelines)	Consider site specific study SWM requirements, SWM enhancements in catchments draining to Humber River
2	**Increased Use of Humber River valley**	City and TRCA to identify opportunities to improve habitat and increase resilience of Humber River valley.	Humber River Watershed Plan, Pathways to a Healthy Humber	Long list of opportunities for inventory, management, and enhancement (Appendix 5)

Following are detailed descriptions of the recommended mitigation measures.

1. Changes in downstream water quality and quantity

The recommendations described for site-specific High Park catchments in Section 7.3 should be applied to redevelopment sites which are within the Humber River's catchment. It should be noted that the inputs to the Humber River from the Bloor West Village corridor consist of 8.1 ha draining via storm sewer and overland flow from approximately Jane St westward (WSP 2017b); the AOI would add

additional storm sewer and overland flow to the Humber River. However, given that the size of the Humber River watershed is 90,300 hectares (TRCA 2008), the overall magnitude of these inputs on the ecology of the Humber River is low. This differs greatly from the magnitude of inputs from the primary study are on High Park, where the storm and surface water flowing into the aquatic systems in the Park are from catchments in the AOI.

See the Toronto Water appendix in the Bloor West Village Avenue Study (DTAH 2018) for more details on site-specific measures for water quality and quantity improvement measures.

This recommendation would only apply to redevelopment of properties which drain to the Humber River; as the Humber River Gateway character area is going to retain its Neighbourhood designation no intensification is anticipated along this portion of Bloor St.

2. Increased Use of Humber River Valley

Increased use of the Humber River valley has been less a focus in public consultations than High Park, however, increased use of this area is also likely to result from intensification along the Bloor Street West Avenue Study area. Appendix 5 also includes recommendations for the Lower Humber River corridor, as well as High Park. These opportunities address the goals of D&A's Resource Management Planning, Personnel and Funding and Monitoring and Adaptive Management high-level recommendations (Table 11). The recommendations in Appendix 5 should to be considered in the context of existing management plans including the Humber River Watershed Plan (2008) and any updates and future implementation of the Toronto Ravine Strategy (2017).

7.5 OPPORTUNITIES FOR MITIGATION OF INDIRECT IMPACTS (NEIGHBOURHOOD AREAS)

Natural areas in the Area of Influence outside of High Park and the Humber River corridor may also experience indirect impacts from increased use. However, the magnitude of these impacts will be less than in High Park and the Humber River corridor because the majority of natural cover in the neighbourhood areas is found in ravine fragments on private land. Rennie Park in particular retains natural features and functions and would benefit from some of the inventory, management, and enhancement recommendations provided in Appendix 5.

Changes to the ecological features and functions of the Area of Influence could potentially occur due to actions such as removals and injury to mature trees, water quantity and quality changes, slope destabilization, Species at Risk impacts, and construction disturbance to wildlife are possible due to redevelopment of properties in the neighbourhood areas. In addition, the area of intensification north of Bloor Street which the City is studying in the Apartment Neighbourhood Character-Based Study could have potential for bird strike and migratory bird impacts due to its location near High Park and the high-rise character of buildings in this neighbourhood.

These changes could have a negative impact on the ecosystems of High Park and the Humber River corridor similar to the potential direct impacts from intensification of the Bloor Street West Avenue Study area described in Section 7.2. Defining development requirements for the neighbourhood areas is outside of the scope of the Bloor West Village Avenue Study but may be followed up on by the City of Toronto in a separate process or processes. The following recommendations could be considered at that time:

1. **New development and redevelopment in the AOI could follow the enhanced best management practices described in Section 7.2 to mitigate direct impacts**

Specific recommendations which would be applicable to the neighbourhood areas include the following**:**

- New buildings to be bird friendly, adhering to Tier 2 of the Toronto Green Standard;
- Developments to incorporate at source measures to improve water quality and reduce peak storm flows (see Toronto Water appendix in the Bloor West Village Avenue Study, DTAH 2018);
- No impacts to groundwater table which would result in discharge of groundwater into storm system (see Toronto Water appendix in the Bloor West Village Avenue Study, DTAH 2018);
- Greater protection for high value trees; and
- Require biodiverse green roofs, use of native species, and pollinator friendly landscaping.

2. **City and TRCA could extend resource management planning, monitoring, and adaptive management to the Area of Influence outside High Park and the Humber River corridor**

Specific recommendations which would be applicable to the neighbourhood areas include the following**:**

- Incorporating Green Streets technology into neighbourhood areas where feasible;
- Further study of flora and fauna resources in ESAs and ravine fragments outside High Park and the Humber River corridor;
- Increased public information and/or education about the unique natural heritage values of High Park; and
- Consider neighbourhood branding which highlights the unique urban forest characteristics and its importance to the neighbourhoods around High Park.

As described in Section 3.2.2.3, the neighbourhood areas provide supporting natural heritage functions to the larger habitat patches in High Park and the Humber River corridor, and have substantial urban forest resources in their own right. Implementing some or all of the recommendations for the neighbourhood areas may help to increase the resiliency of High Park and the Humber River corridor.

8 CONCLUSIONS

Dougan & Associates (D&A) was retained as part of the DTAH team to provide natural heritage expertise for the Bloor Street West Avenue Study. A NHIS is a science-based study that characterizes natural heritage features and functions of a defined study area as well as "adjacent lands" (as defined in the Provincial Policy Statement (2014) and Natural Heritage Reference Manual (2010)), identifies impacts based on proposed development, and recommends tools for mitigation, compensation, and enhancement in order to achieve the standard of "no negative impact" set out in Section 2.1 of the Provincial Policy Statement.

This study used existing information to characterize the natural heritage features in, and adjacent to, the Bloor Street West Avenue Study area and to identify potential direct and indirect impacts of intensification along this corridor on existing natural heritage features. We have provided recommendations for mitigating direct and indirect impacts, including a long list of opportunities for enhancing the resilience of High Park and the Humber River corridor. The main study area located along Bloor Street is highly urbanized, but the broader Area of Influence is characterized by an extensive urban tree canopy, prominent and significant green spaces, and remnant ravine features. Highlights from our findings include:

1. **Significant natural heritage resources exist within the Area of Influence which are influenced by the Bloor West study area and the City as a whole**

These natural heritage resources include the High Park Oak Woodlands Area of Natural and Scientific Interest (ANSI), the Lower Humber River Provincially Significant Wetland Complex, rare vegetation community (habitat) types and species, and Significant Wildlife Habitat. None of these features are anticipated to be directly impacted by intensification along the Bloor Street West Avenue Study area, however natural areas in the City of Toronto are an important recreational resource, and so have a wide variety of existing and potential impacts due to human use. There has been strong direction from the public that natural heritage resources, particularly in High Park, should be a high priority for preservation, protection, and enhancement.

2. **Direct "footprint" impacts from new development are predictable and mitigation tools exist**

Existing policies, guidelines, and standards from the City, TRCA, provincial and federal governments are in place for individual developers to follow when submitting applications for site alteration and/or development. This NHIS provides direction on site-specific studies that may be required along the Bloor Street West Avenue Study area, and enhancements on existing mitigation and compensation practices which will build on existing requirements to lessen direct impacts.

3. **Mitigation of indirect usership impacts is complex and requires coordinated management, policy enforcement and cooperation affecting many parties**

The potential for indirect impacts due to intensification along the Bloor Street West Avenue Study area has been a major concern of stakeholders throughout the Bloor West Village Avenue Study consultation process. This NHIS has identified natural heritage data gaps and summarized existing and potential impacts to features and functions outside the direct footprint of the Bloor Street West Avenue Study area. Through consultation with the City and public, D&A has prepared a summary of Inventory, Management and Enhancement Opportunities (Appendix 5) which would enhance

Resource Management Planning, Personnel and Funding and Monitoring and Adaptive Management for High Park, the Humber River Corridor, and the Area of Influence. The overarching intent of the opportunities identified is to increase the resilience of the natural heritage features and functions of High Park.

Direct impacts on natural heritage features and functions due to future intensification within the Bloor Street West Avenue Study area can be mitigated, and natural heritage enhanced, through the implementation of the recommendations in this report. Mitigation of indirect and cumulative impacts and enhancement activities is complex and requires coordinated management, policy enforcement and cooperation affecting many parties. The findings of this NHIS can be used to guide future work to enhance the resiliency of resiliency of High Park, the Humber River Valley, and other natural heritage features in the Area of Influence by closing natural heritage data gaps through monitoring, guiding management strategies to maintain or enhance existing features and functions, and implementing enhancement tools to improve upon existing conditions.

This NHIS addresses the assessment of impacts that is required under the PPS and City Official Plan Policy 3.4.3, and is also consistent with NHRM guidelines. Where more site-specific study is required, such as for use of buildings and trees as habitat for Species at Risk, or to assess impacts of shade on existing trees, recommendations are included for these studies.

> *As the pressures on ravines increase, so will the need for the maintenance and enhancement of this critical infrastructure and the system as a whole. Significant ongoing investment is needed to ensure that ravines continue to provide the ecological benefits, recreation opportunities and infrastructure the city depends on. (City of Toronto 2017c)*

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10 MAPS

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Map 3. Vegetation Communities
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- 4.3 - Prairie Habitats and Species
- 4.4 - Wildlife & Wildlife Habitats
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- 4.6 - Urban Tree Canopy

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CLIENT: City of Toronto

DATE: 08, December 2017

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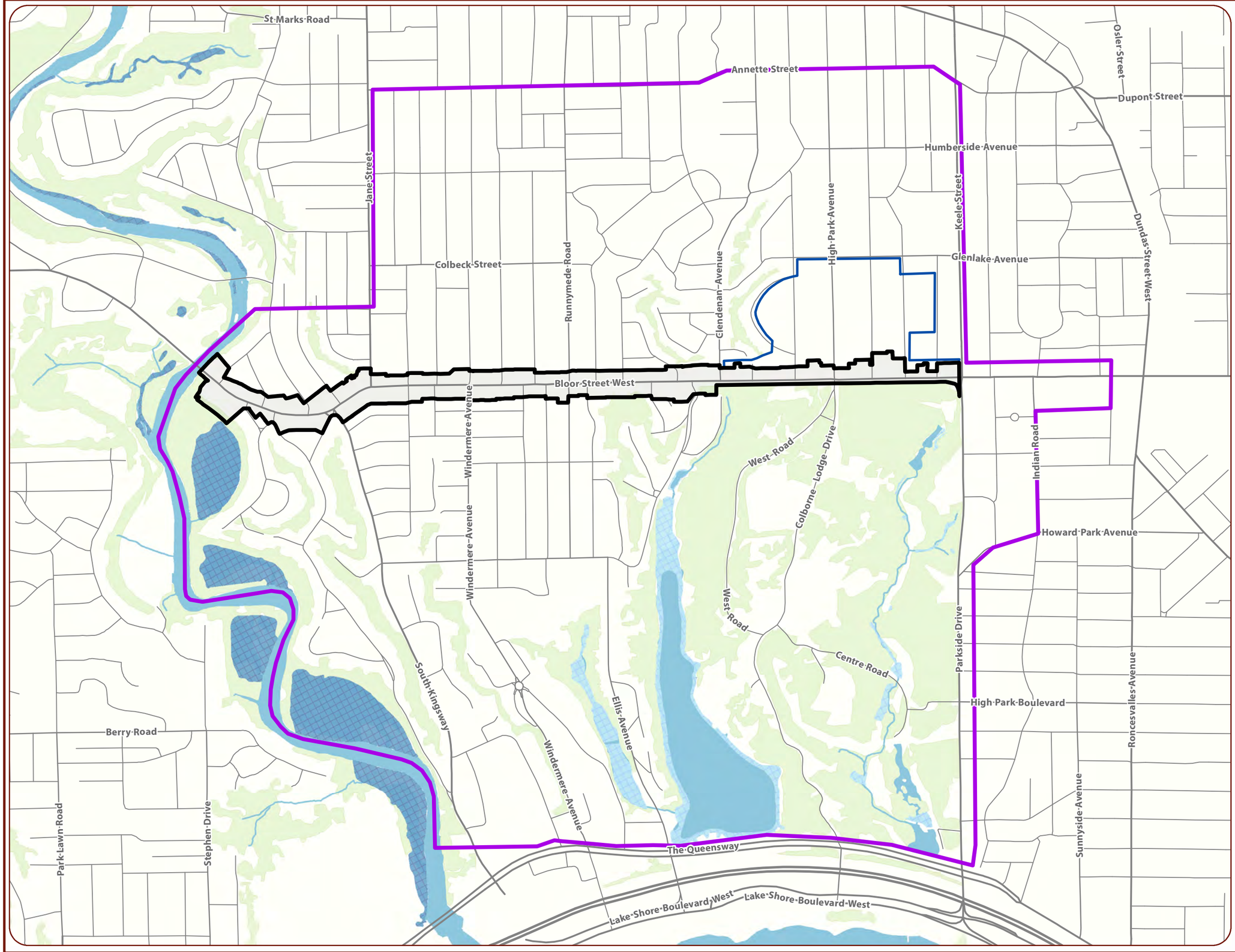
Map 1: Study Area Boundaries

Bloor West Village NHIS



Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Watercourse [2]
- Waterbody [2]
- Wooded Area [2]

Wetlands [2]

- Evaluated-Provincial
- Not evaluated per OWES

Data Source:

1. City of Toronto
2. MNRF

Orthoimagery Source:

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Metres

SCALE: 1:12,500

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CLIENT: City of Toronto

DATE: 20, March 2018

DRAWN BY: L.Wardle

Map 2.1: Provincial Policy Classifications

Bloor West Village NHIS

Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- 120m Study Area Adjacent Lands Boundary
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Provincial ANSI [2]
- Candidate ANSI [2]
- High Park ANSI 120m adjacent lands boundary
- Provincially Significant Wetland [2]
- Humber River PSW 120m adjacent lands boundary

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

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CLIENT: City of Toronto

DATE: 15, March 2018

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Map 2.2: Local Policy Classifications

Bloor West Village NHIS

Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- 120m Study Area Adjacent Lands Boundary
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Ravine and Natural Feature Protection By-law [3]
- TRCA Regulation Limit [3]
- Environmentally Significant Area [1]
- Natural Heritage System [1]
- High Park ANSI 120m adjacent lands boundary
- Humber River PSW 120m adjacent lands boundary

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

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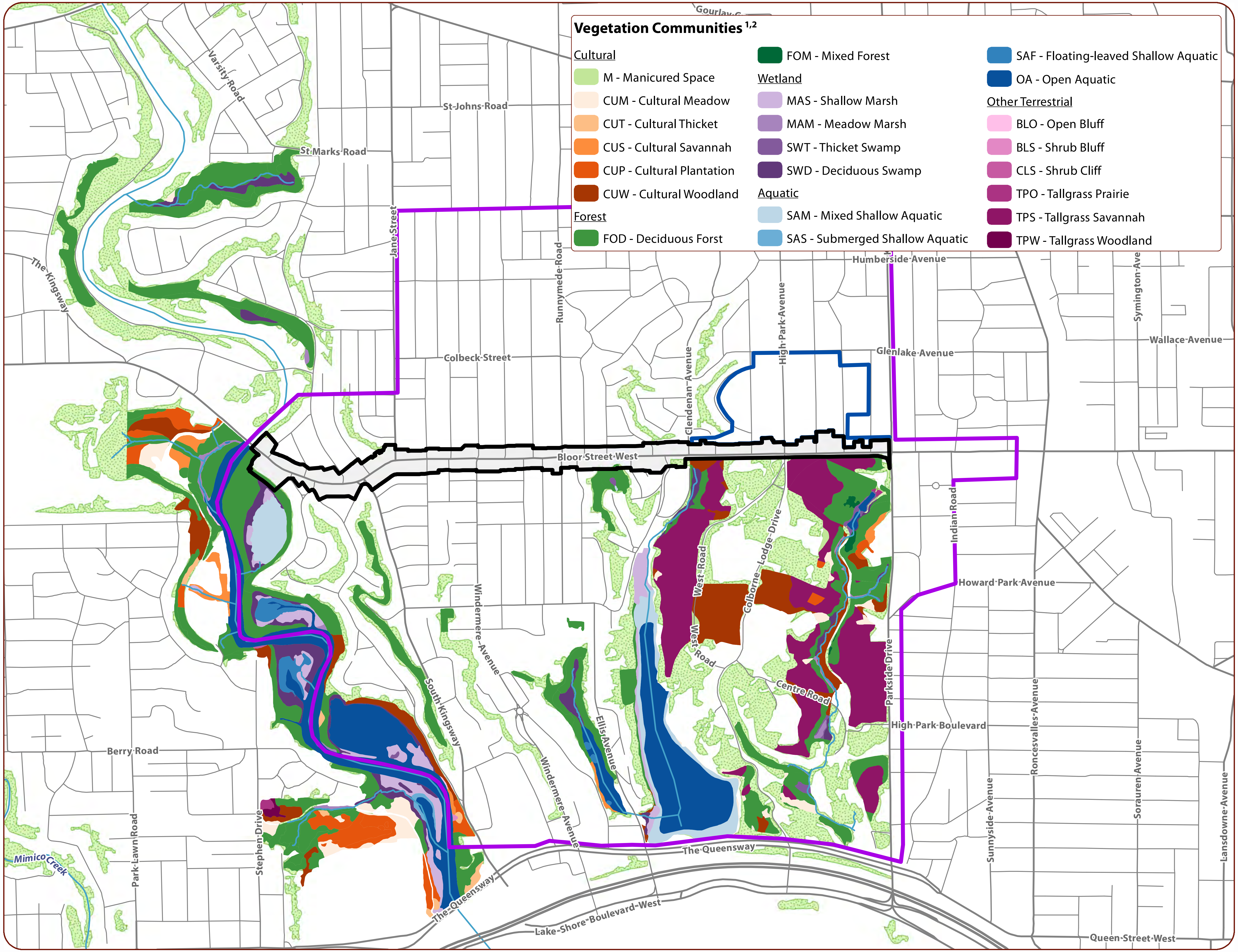

Map 3: Vegetation Communities

Bloor West Village NHIS

Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Watercourse [2]
- Wooded Area [2]

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

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SCALE: 1:15,000

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DATE: 11, December 2017

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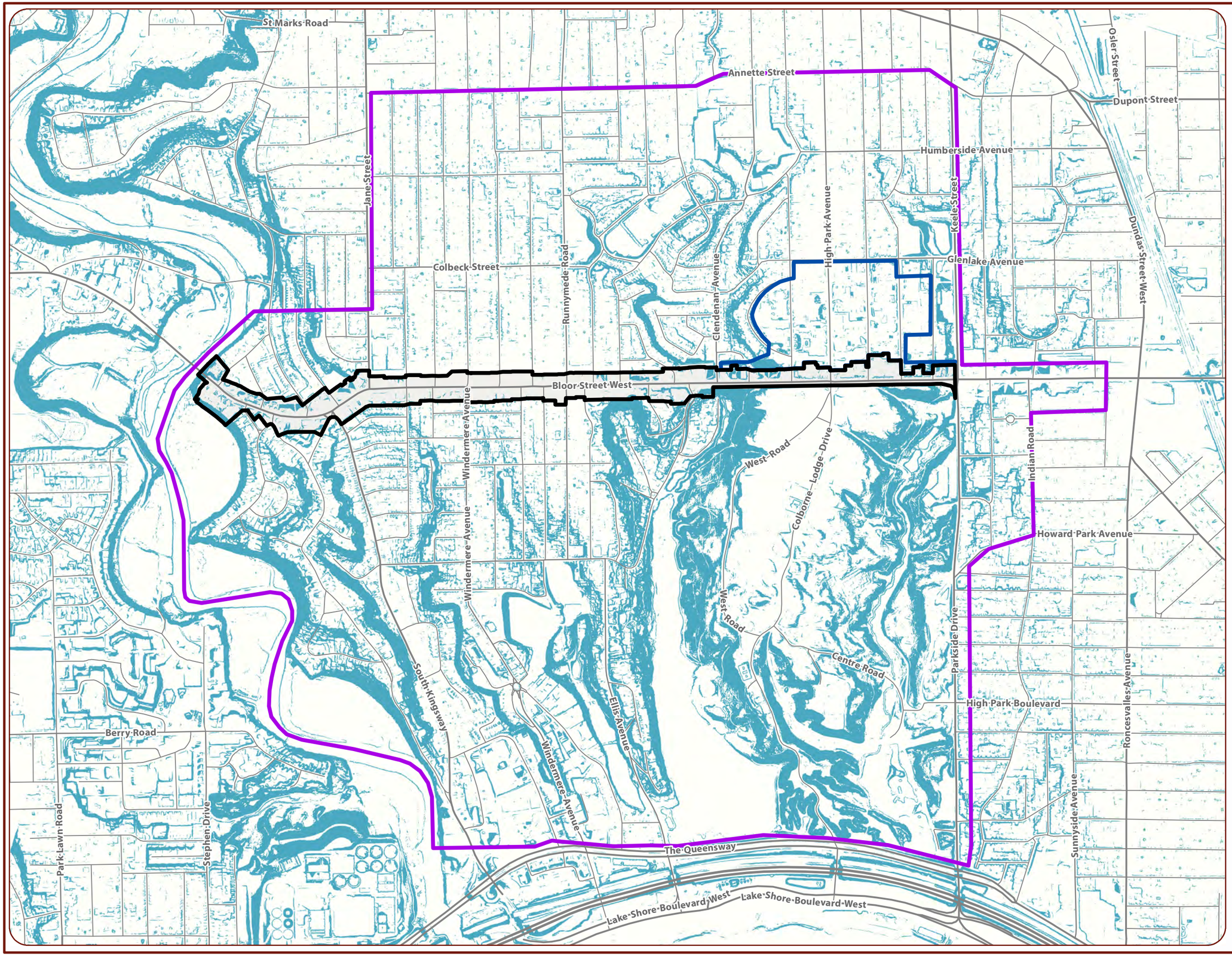
Map 4.1: Key Sensitivities
Steep Slope (≥ 15%)
Bloor West Village NHIS



Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]

Slope

- 0 - 15
- > 15%

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

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Metres

SCALE: 1:12,500

N

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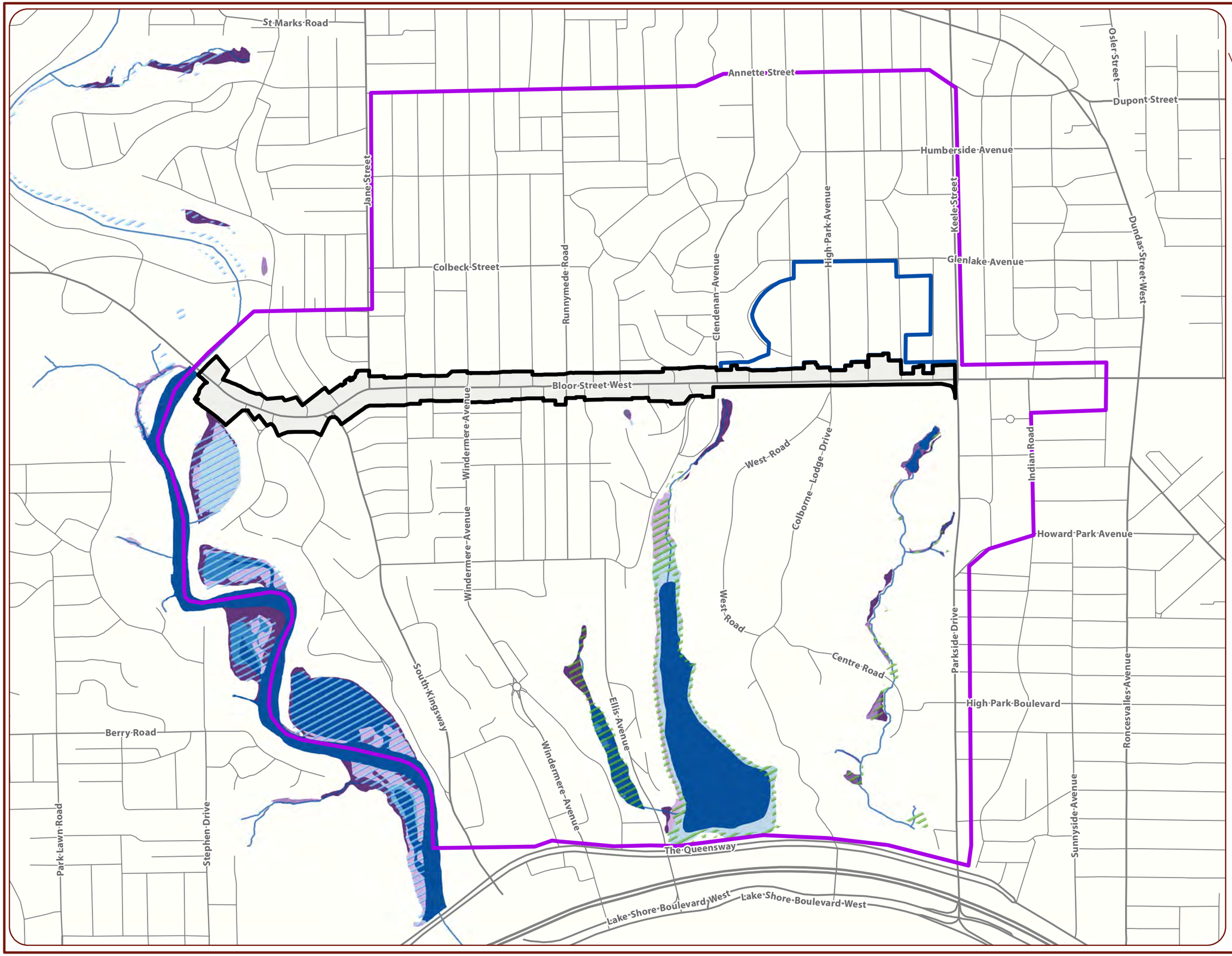
PROJECT: DA17-072-01

CLIENT: City of Toronto

DATE: 12, December 2017

DRAWN BY: L.Wardle

Map 4.2: Key Sensitivities
Wetlands, Seeps*, and Aquatic Habitats
Bloor West Village NHIS



Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Watercourse [2]

Wetlands [2]

- Evaluated-Provincial
- Not evaluated per OWES

Vegetation Communities [1,2]

Wetland

- MAS - Shallow Marsh
- MAM - Meadow Marsh
- SWT - Thicket Swamp
- SWD - Deciduous Swamp

Aquatic

- SAM - Mixed Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SAF - Floating-leaved Shallow Aquatic
- OA - Open Aquatic

NOTE:

* seep locations have not been formally identified by the City or Toronto or TRCA, however may be present based on background data and site observations

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

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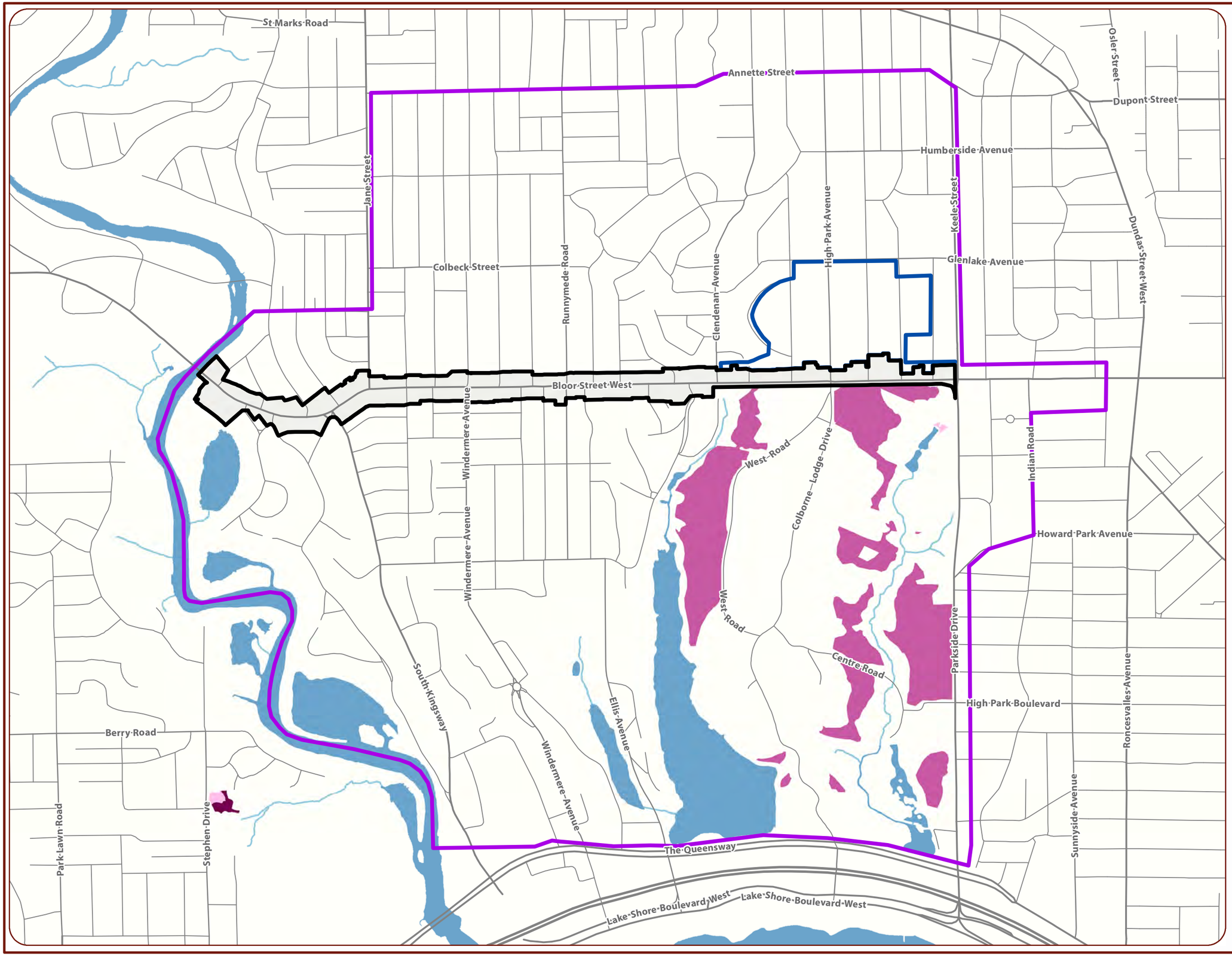
PROJECT: DA17-072-01

CLIENT: City of Toronto

DATE: 11, December 2017

DRAWN BY: L.Wardle

Map 4.3: Key Sensitivities
Prairie Habitats and Species
Bloor West Village NHIS



Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Watercourse [2]
- Waterbody [2]

Vegetation Communities [1,2]

- TPO - Tallgrass Prairie
- TPS - Tallgrass Savannah
- TPW - Tallgrass Woodland

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

0 150 300 600

Metres

SCALE: 1:12,500

N

UTM Zone 17 NAD83

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DATE: 11, December 2017

DRAWN BY: L.Wardle

Map 4.4: Key Sensitivities
Wildlife & Wildlife Habitat
Bloor West Village NHIS

St Marks Road
Annette Street
Osler Street
Dupont Street
Humberside Avenue
Jane Street
Colbeck Street
Runnymede Road
Clendenan Avenue
High Park Avenue
Keele Street
Glenlake Avenue
Dundas Street West
Bloor Street West
Windermere Avenue
West Road
Colborne Lodge Drive
Indian Road
Howard Park Avenue
South Kingsway
Ellis Avenue
Parkside Drive
Centre Road
High Park Boulevard
Roncesvalles Avenue
Sunnyside Avenue
Berry Road
Park Lawn Road
Stephen Drive
The Queensway
Lake Shore Boulevard West

Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]

Significant Wildlife Habitat

- Confirmed
- Candidate
- Not SWH

Data Source:
1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

0 150 300 600
Metres
SCALE: 1:12,500

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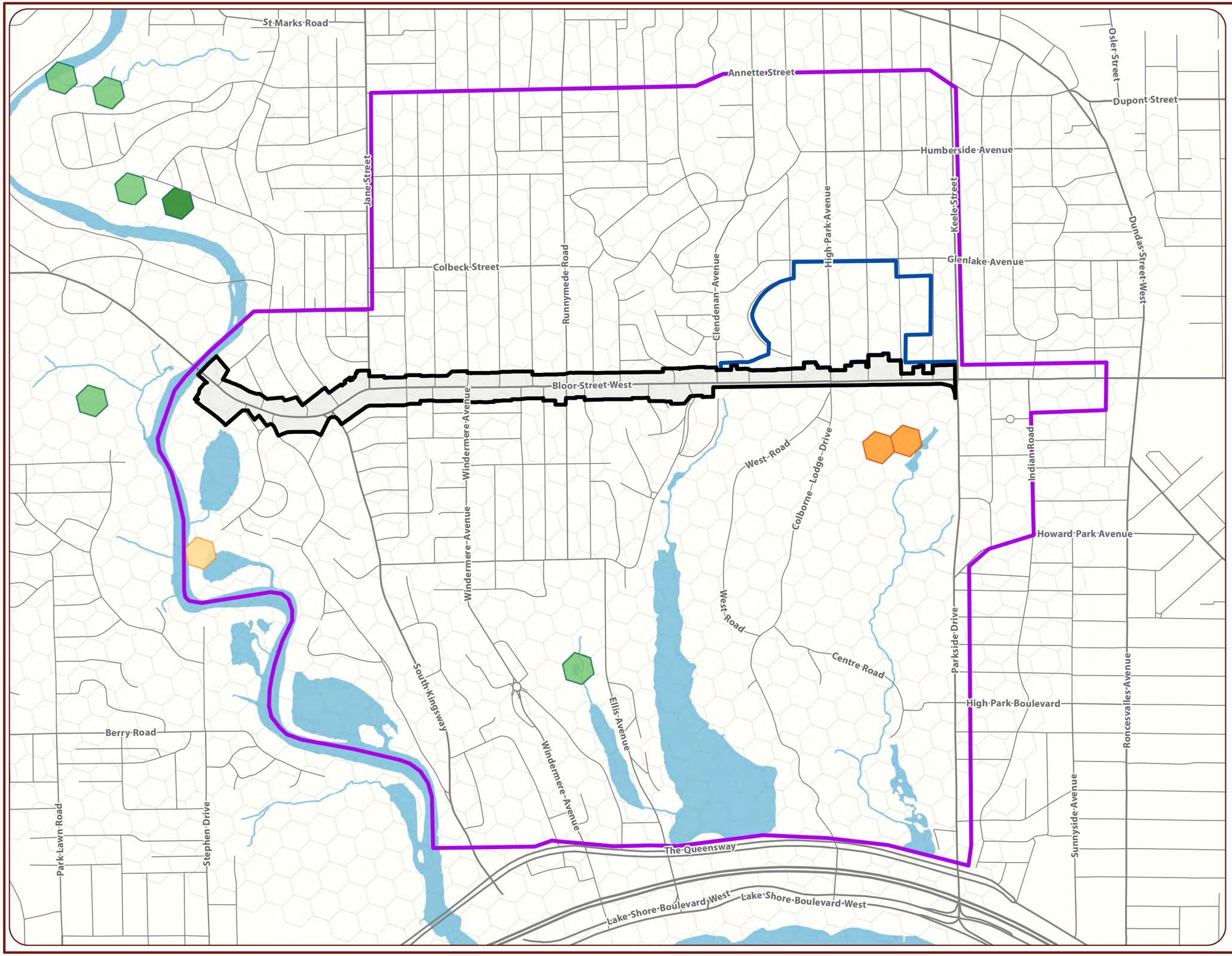
PROJECT: DA17-072-01

CLIENT: City of Toronto

DATE: 11, December 2017

DRAWN BY: L.Wardle

Map 4.5: Key Sensitivities
Species at Risk
Bloor West Village NHIS



Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Watercourse [2]
- Waterbody [2]

Fauna Abundance [3]

- 1 Species-at-Risk record
- 2 Species-at-Risk records

Flora Abundance [3]

- 1 Species-at-Risk record
- 2 Species-at-Risk records

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

0 150 300 600

Metres

SCALE: 1:12,500

N

UTM Zone 17 NAD83

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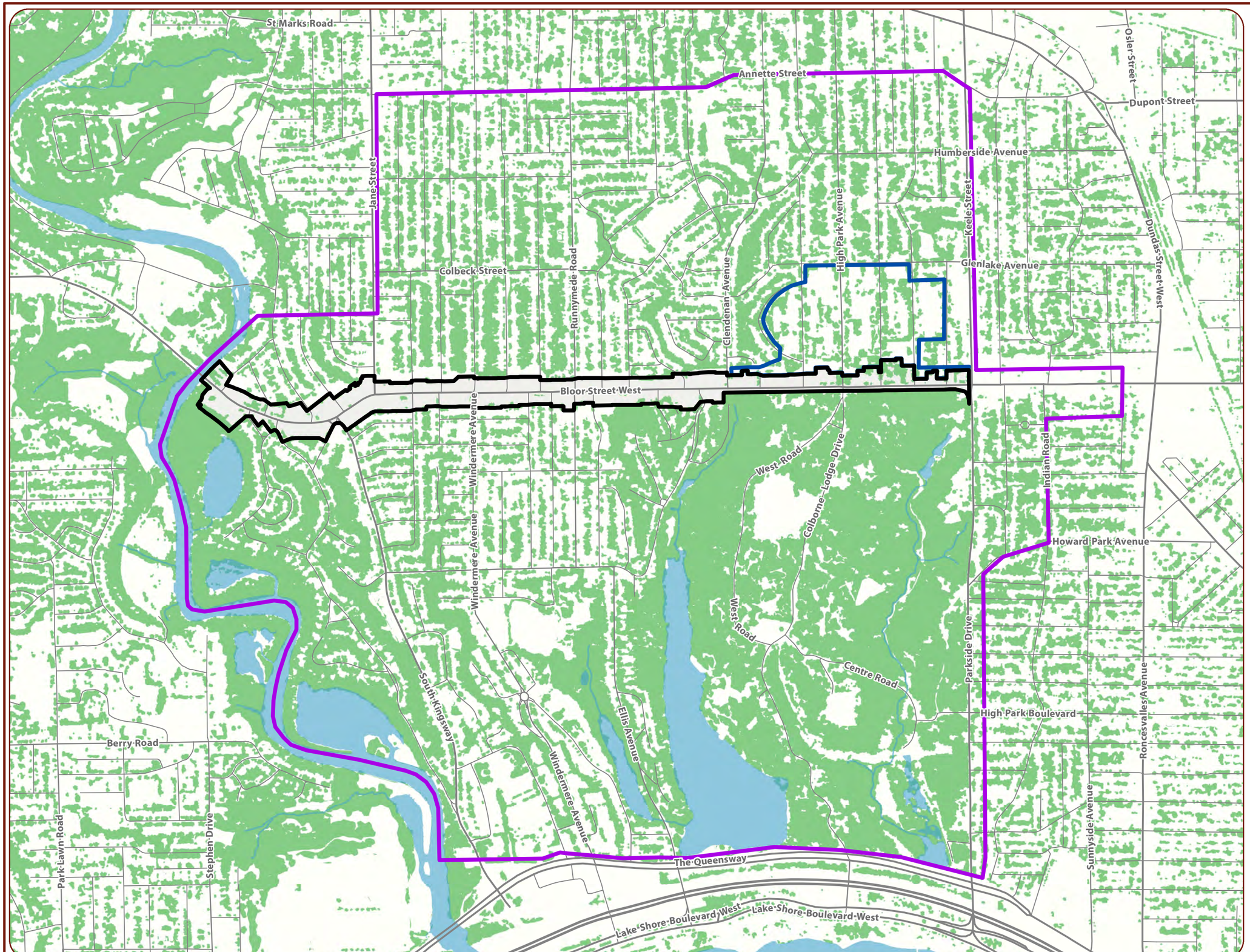
PROJECT: DA17-072-01

CLIENT: City of Toronto

DATE: 11, December 2017

DRAWN BY: L.Wardle

Map 4.6: Key Sensitivities
Urban Tree Canopy
Bloor West Village NHIS



Legend

- Area of Influence [1]
- Bloor West Village Avenue Study Boundary [1]
- Apartment Neighbourhood Area-Based Character Study Boundary [1]
- Watercourse [2]
- Waterbody [2]
- Urban Tree Canopy [1]

Data Source:

1. City of Toronto
2. MNRF
3. TRCA

Orthoimagery Source:

0 150 300 600

Metres

SCALE: 1:12,500

N

UTM Zone 17 NAD83

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11 APPENDICES

APPENDIX 1 – Wildlife SAR screening
APPENDIX 2 – Significant Wildlife Habitat Screening
APPENDIX 3 – Checklist for Required Site-Specific Studies
APPENDIX 4 – Wendigo and Spring Creek Catchment Areas
APPENDIX 5 – Monitoring, Management and Enhancement Opportunities in High Park and the Humber River Valley

Appendix 1 – Wildlife Species at Risk (SAR) Screening

Areas: AOI – Area of Influence
AN – Apartment Neighbourhood Area-Based Character Study Boundary
BWV – Bloor West Village Avenue Study Boundary

Other areas: HP – High Park ESA/ANSI
HRV – Humber River Valley ESA

Data sources: NHIC – Natural Heritage Information Centre database (MNRF)
FLAP – Fatal Light Awareness Program data for entire City (1993 - 2007)
TOC – Toronto Ornithological Club bird data for AOI (1990 – 2007)
ESA – data from ESA/ANSI fact sheets.

Note: For SAR Designation, the Federal (COSEWIC) and Provincial (MNRF) status are the same unless otherwise indicated (federal status / provincial status).

SPECIES	SAR Designation (federal/provincial)	Status in City of Toronto & Surrounding Areas (with TRCA L-Ranks)	Key Habitats Used By Species	Status at Bloor West Village NHIS site and adjacent lands
Jefferson Salamander (*Ambystoma jeffersonianum*)	Endangered	Known to Occur (L-Rank: L1)	Inhabits deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	• **BWV and AOI: No suitable breeding or wintering habitat present.** • **Records: None on file.**
BIRDS				
Acadian Flycatcher (*Empidonax virescens*)	Endangered	Known to Occur (L-Rank: L3)	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines.	• **BWV: No suitable breeding habitat present; may occasionally occur as very rare migrant in High Park (within adjacent lands only).** • **AOI: No breeding habitat present; no breeding records on file.** • **Records: FLAP < 5 records; TOC.** • **Rare spring migrant, mostly likely to be found in HP and HRV.**
Bald Eagle (*Haliaeetus leucocephalus*)	Special Concern (provincial only)	Known to Occur (non-breeder - no L-Rank)	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers; they roost in super canopy trees such as pine.	• **BWV: No suitable breeding or overwintering habitat present; may occur occasionally as migrant, but high overhead only as no foraging habitat present.** • **AOI: Uncommon migrant in AOI, mostly in fall; may forage along HRV.** • **No breeding records from AOI.** • **Records: TOC (all representing migrants and non-breeders).** • **Local overwintering birds found along adjacent Lake Ontario shoreline.**
Bank Swallow (*Riparia riparia*)	Threatened	Known to Occur (L-Rank: L3)	Low areas along rivers, streams, coasts or reservoirs; nest in natural bluffs and eroding streamside banks, also sand and gravel quarries and road cuts	• **BWV: No suitable breeding habitat present; no suitable foraging habitat present so not likely present during spring and fall migration.** • **AOI: Common migrant where it would be mostly likely found within HRV and southern portions of HP (e.g. Grenadier Pond); may be found in other open areas or ponds during migration (e.g. Rennie Pond).** • **Breeding habitat may be available within HRV.** • **Records: TOC.**
Barn Swallow (*Hirundo rustica*)	Threatened	Known to Occur (L-Rank: L4)	Prefers farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs, and wetlands. Nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves, etc.	• **BWV: No suitable breeding habitat present; no suitable foraging habitat present so not likely present during spring and fall migration.** • **AOI: Breeding habitat within HRV and HP only.** • **Common migrant where it would be found foraging in open areas and wetlands/ponds, mostly within southern portions of HP and the entire HRV but also other locations within the AOI (e.g. Rennie Park).** • **Records: FLAP < 5 records; TOC.**

Appendix 1 – Wildlife Species at Risk (SAR) Screening

SPECIES	SAR Designation (federal/provincial)	Status in City of Toronto & Surrounding Areas (with TRCA L-Ranks)	Key Habitats Used By Species	Status at Bloor West Village NHIS site and adjacent lands
Black Tern (*Childonias niger*)	Special Concern (provincial only)	Former breeder, now occurs as migrant only (L-Rank: LX)	Generally prefers freshwater marshes and wetlands; nests either on floating material in a marsh or on the ground very close to water.	• **BWV: No suitable breeding or migratory stopover habitat present.** • **AOI: Rare migrant along HRV and in southern portions of HP only (e.g. Grenadier Pond).** • **Records: None on file.**
Bobolink (*Dolichonyx oryzivorus*)	Threatened	Known to Occur (L-Rank: L2)	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands.	• **BWV: No suitable breeding or migratory stopover habitat present.** • **AOI: No suitable breeding habitat present; very little suitable stopover habitat within AOI (mostly HP and HRV, none in AN).** • **Records: FLAP < 5 records.**
Canada Warbler (*Wilsonia canadensis*)	Threatened / Special Concern	Known to Occur (L-Rank: L2)	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	• **BWV: No suitable breeding habitat available; suitable stopover habitat found within adjacent lands only (mostly HP).** • **AOI: No suitable breeding habitat present.** • **Known stopover migrant (fairly common), mostly within HP and HRV.** • **May occasionally be found in well vegetated yards and parkettes (e.g. within AN) during migration.** • **Records: FLAP 100+ records; TOC.**
Cerulean Warbler *Dendroica cerulea*)	Endangered / Threatened	Former breeder, now occurs as migrant only (L-Rank: LX)	Generally found in mature deciduous forests with an open understorey; also nests in older, second-growth deciduous forests	• **BWV: No suitable breeding habitat present; suitable stopover habitat found within adjacent lands only (mostly HP).** • **AOI: No suitable breeding habitat present.** • **Known stopover migrant (rare), mostly within HP and HRV.** • **Records: FLAP < 5 records; TOC.**
Chimney Swift (*Chaetura pelagica*)	Threatened	Known to Occur (L-Rank: L4)	Historically found in deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys.	• **BWV: six active nests located between 2010 and 2014 (see report for details).** • **AOI: Records during breeding season; likely nesting in suitable chimneys.** • **Records: FLAP < 5 records; TOC; ESA.** • **Fairly common migrant, mostly found foraging high overhead. Migrates during day so the number of building collisions low (per FLAP data).**
Common Nighthawk (*Chordeiles minor*)	Threatened / Special Concern	Known to Occur (L-Rank: L3)	Generally prefers open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nests on flat roof-tops).	• **BWV: Records during breeding season and during fall migration; if suitable gravel rooftops are available then it could potentially breed (see report for details).** • **AOI: Records from AOI during breeding season; likely nesting on suitable gravel rooftops in area, including within AN.** • **Records: FLAP < 5 records; TOC; ESA.** • **Fairly common migrant, particularly in late summer. Migrates during day so the number of building collisions low (per FLAP data).**
Eastern Meadowlark (*Sturnella Magna*)	Threatened	Known to Occur (L-Rank: L3)	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.	• **BWV: No suitable breeding or migratory stopover habitat present.** • **AOI: No suitable breeding habitat present.** • **Little suitable stopover habitat present, mostly within HP and HRV.** • **Records: FLAP < 5 records; TOC.**
Eastern Whip-poor-will *(Caprimlugus vociferus)*	Threatened	Known to Occur (L-Rank: L2)	Generally prefers semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred. In winter they occupy primarily mixed woods near open areas.	• **BWV: No suitable breeding habitat present; limited migratory stopover habitat present within adjacent lands only.** • **AOI: No suitable breeding habitat present.** • **Known stopover migrant (uncommon), within HP and HRV only.** • **Records: FLAP 50+ records; TOC.**
Eastern Wood-Pewee (*Contopus virens*)	Special Concern	Known to Occur (L-Rank: L4)	Found in deciduous, mixed woods, or pine plantations; also found in mature woodlands, urban shade trees, roadsides, and orchards; usually found in clearings and forest edges.	• **BWV: May nest in suitable habitat in adjacent lands only; likely present as migrant in any forested areas.** • **AOI: Likely nests within AOI, but mostly within HP and HRV.**

Appendix 1 – Wildlife Species at Risk (SAR) Screening

SPECIES	SAR Designation (federal/provincial)	Status in City of Toronto & Surrounding Areas (with TRCA L-Ranks)	Key Habitats Used By Species	Status at Bloor West Village NHIS site and adjacent lands
				• **Common stopover migrant, may be found in well vegetated parks and parkettes throughout AOI (including AN).** • **Records: FLAP 50+ records; TOC; ESA.**
Evening Grosbeak (*Coccothraustes vespertinus*)	Special Concern (federal only)	Known to occur as migrant and occasional wintering only (no L-Rank)	Breeds in northern Ontario primarily in second growth and mature mixed forests. Found in winter in deciduous and coniferous forests as well as at feeders.	• **BWV and AOI: May be present as occasional migrant and winter visitor only.** • **Records: FLAP < 5 records; TOC.**
Golden Eagle (*Aquila chrysaetos*)	Endangered (provincial only)	Known to occur as migrant only (no L-Rank)	Nests in remote, undisturbed areas, with nests built on ledges on a steep cliff or riverbank, and occasionally large trees.	• **BWV and AOI: Rare migrant only, mostly in fall. Would only be detected flying overhead as no suitable foraging habitat present.** • **Records: TOC.**
Golden-winged Warbler (*Vermivora chrysoptera*)	Threatened / Special Concern	Known to Occur (L-Rank: L2)	Generally prefers areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas.	• **BWV: No suitable breeding habitat present; suitable stopover habitat found within adjacent lands only (mostly HP).** • **AOI: No suitable breeding habitat present.** • **Known stopover migrant (rare), within HP and HRV only.** • **Records: FLAP < 5 records; TOC.**
Grasshopper Sparrow (*Ammodramus savannarum*)	Special Concern (provincial only)	Known to Occur (L-Rank: L2)	Found 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.	• **BWV: No suitable breeding habitat present; suitable stopover habitat found within adjacent lands only (mostly HP).** • **AOI: No suitable breeding habitat present.** • **Known stopover migrant (rare), within HP and HRV only.** • **Records: FLAP < 5 records; TOC.**
Henslow's Sparrow *(Ammodramus henslowii)*	Endangered	Former breeder, now occurs as migrant only (L-Rank: LX)	Generally found in old fields, pastures and wet meadows. They prefer areas with dense, tall grasses, and thatch, or decaying plant material.	• **BWV: No suitable breeding or migration stopover habitat present.** • **AOI: Extremely rare migrant; no breeding habitat available and considered extirpated from the entire region.** • **Records: None on file.**
Least Bittern *(Ixobrychus exilis)*	Threatened	Known to Occur (L-Rank: L2)	Generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants.	• **BWV: No suitable breeding or migration stopover habitat present.** • **AOI: Suitable breeding and stopover habitat occurs along HRV and southern portions of HP. Not to be found in AN.** • **Records: NHIC – Record from May 22, 1915; TOC.**
Louisiana Waterthrush *(Seiurus motacilla)*	Special Concern	Known to Occur (L-Rank: L1)	Generally inhabits mature forests along steeply sloped ravines adjacent to running water. Prefers clear, cold streams and densely wooded swamps.	• **BWV: No suitable breeding or migration stopover habitat present.** • **AOI: No suitable breeding habitat present.** • **Known stopover migrant (rare), within HP and HRV only.** • **Records: FLAP < 5 records; TOC.**
Olive-sided Flycatcher (*Contopus cooperi*)	Threatened / Special Concern	Known to Occur (L-Rank: L2)	Most often found along natural forest edges and openings, especially coniferous or mixed forest adjacent to rivers or wetlands. Uses forests that have been logged or burned, with ample tall snags and trees to use for foraging perches. Commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.	• **BWV: Does not breed in City of Toronto or surrounding areas; may occur as an occasionally migrant in adjacent lands only.** • **AOI: Does not breed in area. Rare migrant, occurring mostly within HP and HRV but occasionally along treed areas in AN and other neighbourhoods.** • **Records: FLAP < 5 records; TOC.**
Peregrine Falcon (*Falco peregrinus*)	Special Concern	Known to Occur (L-Rank: L4)	Mountain ranges, coastlines, river valleys, and increasingly in cities.	• **BWV and AOI: Does not breed in area but may in future as suitable buildings for nesting and abundant prey items (e.g. Rock Pigeons) exist. Otherwise, occurs as a rare (but increasing) migrant, mostly in fall.** • **Records: FLAP < 5 records; TOC.**
Prothonotary Warbler (*Protonotaria citrea*)	Endangered	Former breeder, now occurs as migrant only (L-Rank: LX)	Generally found in the dead trees of flooded woodlands or deciduous swamp forests; Carolinian Zone	• **BWV: No suitable breeding or migration stopover habitat present.** • **Extremely rare migrant, likely only from southern portions of HP and HRV.** • **Records: None on file.**

Appendix 1 – Wildlife Species at Risk (SAR) Screening

SPECIES	SAR Designation (federal/provincial)	Status in City of Toronto & Surrounding Areas (with TRCA L-Ranks)	Key Habitats Used By Species	Status at Bloor West Village NHIS site and adjacent lands
Red-headed Woodpecker *(Melanerpes erythrocephalus)*	Threatened / Special Concern	Known to Occur (L-Rank: L3)	Generally prefers open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks.	• **BWV: Formally bred within HP but no recent records (within 20 years).** • **AOI: Rare migrant, within HP and HRV only.** • **Records: FLAP < 5 records; TOC; ESA.**
Rusty Blackbird (*Euphagus carolinus*)	Special Concern (federal only)	Known to occur as migrant only (no L-Rank)	Nests in bogs, beaver ponds and wet woods in boreal forests.	• **BWV: No suitable breeding or migration stopover habitat present.** • **AOI: Fairly common migrant in wet areas within HP and HRV.** • **Records: FLAP < 10 records; TOC.**
Short-eared Owl *(Asio flammeus)*	Special Concern	Former breeder, now occurs as migrant only (L-Rank: LX)	Generally prefers a wide variety of open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and agricultural fields.	• **BWV: No suitable breeding or migration stopover habitat present.** • **AOI: Rare migrant in open areas only within HP and HRV.** • **Records: TOC.**
Wood Thrush (*Hylocichla mustelina*)	Threatened / Special Concern	Known to Occur (L-Rank: L3)	Breeds in mature deciduous and mixed forests, most commonly those with American beech, sweet gum, red maple, black gum, eastern hemlock, flowering dogwood, American hornbeam, oaks, or pines; nests less successfully in fragmented forests and suburban parks with enough large trees for a territory; ideal habitat includes trees over 50 feet tall, a moderate understory of saplings/shrubs, an open floor with moist soil and decaying leaf litter, and water nearby.	• **BWV: Suitable breeding habitat found within adjacent lands (mostly HP); limited migratory stopover habitat in adjacent lands only.** • **AOI: Known to nest within forested portions of HP; may nest in HRV.** • **Fairly common migrant, mostly confined to HP and HRV but may occasionally be found in well vegetated areas of AOI (including AN).** • **Records: FLAP 350+ records; TOC; ESA.**
Yellow-breasted Chat *(Icteria virens)*	Endangered	Former breeder, now occurs as migrant only (L-Rank: LX)	Generally prefers dense thickets around wood edges, riparian areas, and in overgrown clearings.	• **BWV: No suitable breeding or migration stopover habitat present.** • **AOI: Very rare migrant; likely in HP and HRV only.** • **Records: FLAP < 5 records.**
INSECTS				
Rusty-patched Bumble Bee (*Bombus affinis*)	Endangered	Formally present	Found in open habitat such as mixed farmland, urban settings, savannah, open woods and sand dunes.	• **BWV and AOI: Unlikely to occur as now restricted to Pinery Provincial Park.** • **Records: NHIC – Record from September 11, 1997.**
Yellow-banded Bumble Bee (*Bombus terricola*)	Special Concern	Unknown status	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.	• **BWV: No suitable habitat present.** • **AOI: Suitable habitat present within HP and HRV only.** • **Records: None on file.**
Mottled Duskywing (*Erynnis martialis*)	Endangered	Former breeder, now extirpated (no L-Rank)	Tends to live in dry habitats with sparse vegetation. These include open barrens, sandy patches among woodlands, and alvars.	• **BWV: No suitable habitat present.** • **AOI: Formally occurred in High Park, suitable habitat still present.** • **Records: Historic records from early 20th century in High Park.**
Monarch *(Danaus plexippus)*	Endangered / Special Concern	Known to Occur	Exist primarily wherever milkweed and wildflowers exist, such as abandoned farmland, along roadsides, and other open spaces.	• **BWV: Limited suitable breeding and/or migratory habitat available, mostly in adjacent lands (if Common Milkweed is present).** • **AOI: May occur during migration in significant numbers during ideal weather conditions from late August through September; only within open areas of HP and HRV.**
MAMMALS				
Eastern Small-footed Myotis (*Myotis leibii*)	Endangered	Status unknown (no L-Rank)	Overwintering habitat: caves and mines that remain above 0°C; maternal roosts are primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses, and under tree bark.	• **BWV and AOI: Suitable maternity roost habitat found within forested portions of HP and HRV; temporary roosting habitat (e.g. during migration) found elsewhere within area, such as in well treed neighbourhoods and attics in houses.** • **No overwintering habitat found within entire AOI.** • **Status in area unknown. Records of Myotis species from HP in 2014/2015 may represent this species; however, based on the very low number of calls detected, not likely a breeding resident.**

Appendix 1 – Wildlife Species at Risk (SAR) Screening

SPECIES	SAR Designation (federal/provincial)	Status in City of Toronto & Surrounding Areas (with TRCA L-Ranks)	Key Habitats Used By Species	Status at Bloor West Village NHIS site and adjacent lands
Little Brown Myotis (*Myotis lucifugus*)	Endangered	Known to Occur (L-Rank: L4)	Overwintering habitat: caves and mines that remain above 0°C; maternal roosts are often associated with buildings (attics, barns, etc.). Occasionally found in trees (25-44 cm DBH).	• **BWV and AOI: Suitable maternity roost habitat found within forested portions of HP and HRV; temporary roosting habitat (e.g. during migration) found elsewhere within area, such as in well treed neighbourhoods and attics in houses.** • **No overwintering habitat found within entire AOI.** • **Status in area unknown. Records of Myotis species from HP in 2014/2015 may represent this species; however, based on the very low number of calls detected, not likely a breeding resident.**
Northern Myotis (*Myotis septentrionalis)*	Endangered	Status unknown (no L-Rank)	Overwintering habitat: caves and mines that remain above 0°C; maternal roosts are often associated with cavities of large diameter trees (25-44 cm DBH). Occasionally found in structures (attics, barns, etc.)	• **BWV and AOI: Suitable maternity roost habitat found within forested portions of HP and HRV; temporary roosting habitat (e.g. during migration) found elsewhere within area, such as in well treed neighbourhoods and attics in houses.** • **No overwintering habitat found within entire AOI.** • **Status in area unknown. Records of Myotis species from HP in 2014/2015 may represent this species; however, based on the very low number of calls detected, not likely a breeding resident.**
Tri-colored Bat (*Perimyotis subflavus*)	Endangered	Status unknown (no L-Rank)	Overwintering habitat: caves and mines that remain above 0°C; maternal roosts can be in trees or dead clusters of leaves or arboreal lichens on trees. May also use barns or similar structures.	• **BWV and AOI: Suitable maternity roost habitat found within forested portions of HP and HRV; temporary roosting habitat (e.g. during migration) found elsewhere within area, such as in well treed neighbourhoods and attics in houses.** • **No overwintering habitat found within entire AOI.** • **Recorded in HP in very low numbers in 2014/2015; not likely resident.**
REPTILES				
Blanding's Turtle *(Emydonidea blandingii)*	Endangered / Threatened	Known to Occur (L-Rank: L1)	Generally occurs in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. Prefers shallow water that is rich in nutrients, organic soil and dense vegetation. Dig nests in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth.	• **BWV: No suitable breeding or overwintering habitat present.** • **AOI: Recent sight records (e.g. June 2013) for HP. If extant, would only be found within HP (e.g. Grenadier Pond) or HRV.** • **Records: NHIC – Record from May 31, 1999.**
Eastern Milksnake (*Lampropeltis triangulum*)	Special Concern (federal only)	Known to Occur (L-Rank: L3)	Found in a variety of habitats but prefers open habitats such as rocky outcrops, fields, and forest edge. May be common in rural areas, especially around barns.	• **BWV: No suitable breeding, foraging, or overwintering habitat present.** • **Records: NHIC – Record from 1933. No recent records for entire AOI.**
Eastern Musk Turtle (*Sternotherus odoratus*)	Special Concern	Formally occurred (L-Rank: LX)	Found in ponds, lakes, marshes and rivers that are generally slow-moving have abundant emergent vegetation and muddy bottoms that they burrow into for winter hibernation.	• **BWV: No suitable breeding or overwintering habitat present.** • **AOI: If present, would only be found within ponds in HP and/or HRV.** • **Records: NHIC – listed as occurring from 1858 to unknown. No recent records.**
Eastern Ribbonsnake *(Thamnophis sauritus)*	Special Concern	Formally occurred (L-Rank: LX)	Generally occurs along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	• **BWV: No suitable breeding or overwintering habitat present.** • **AOI: No longer found within area although habitat is present.** • **If still present, it would only be found in wet areas within HP and HRV.**

Appendix 1 – Wildlife Species at Risk (SAR) Screening

SPECIES	SAR Designation (federal/provincial)	Status in City of Toronto & Surrounding Areas (with TRCA L-Ranks)	Key Habitats Used By Species	Status at Bloor West Village NHIS site and adjacent lands
Northern Map Turtle (*Graptemys geographica*)	Special Concern	Known to Occur (L-Rank: L2)	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.	• **BWV: No suitable breeding or overwintering habitat present.** • **AOI: Unknown status; if still present, it would only be found in wet areas within HP and HRV.** • **Records: NHIC – Record from July 31, 1988.**
Queensnake (*Regina septemvittata*)	Endangered	Formally occurred? No L-Rank.	Prefers rivers, streams and lakes with clear water, rocky or gravel bottoms, lots of places to hide, and an abundance of crayfish. Always found within close proximity to water.	• **BWV and AOI: Presumed extirpated from entire area (no L-Rank with TRCA).** • **Records: NHIC – Record from 1858.**
Spiny Softshell (*Apalone spinifera*)	Endangered / Threatened	Formally occurred? No L-Rank.	Highly aquatic. Found primarily in rivers and lakes but also in creeks and even ditches and ponds near rivers.	• **BWV and AOI: Presumed extirpated from entire area (no L-Rank with TRCA). If still present, it would only be found along the Lake Ontario shoreline and within the HRV.** • **Records: NHIC – Record from June 11, 1982.**
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Known to Occur (L-Rank: L3)	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely 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.	• **BWV: No suitable breeding or overwintering habitat present.** • **AOI: Breeds within southern portions of HP and HRV, and in other wetlands and ponds within area (e.g. Rennie Park).** • **Records: NHIC; ESA.**

Appendix 2: Significant Wildlife Habitat Screening

Screening for Confirmed/Candidate Significant Wildlife Habitat (SWH) at the Bloor West Village (BWV) corridor and adjacent lands (within 120 metres), City of Toronto -- Using Ecoregion 7E Criteria Schedule (Final version: OMNRF, January 2015)

Significant Wildlife Habitat (SWH) Type	ELC Categories indicated for SWH Type	SWH present within BWV or adjacent lands?	Rationale (Habitat Presence or Absence)
Seasonal Concentration Areas of Animals			
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM1; CUT1; plus evidence of spring (Mar – May) flooding; does not include agricultural fields	No	No suitable habitats present within BWV and adjacent lands.
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1; MAS2; MAS3; SAS1; SAM1; SAF1; SWD1; SWD2; SWD3; SWD4; SWD5; SWD6; SWD7	No	No suitable habitats present within BWV and adjacent lands.
Shorebird Migratory Stopover Area	BB01; BB02; BBS1; BBS3; BBT1; BBT2; SDO1; SDS2; SDT1; MAM1; MAM2; MAM3; MAM4; MAM5	No	No suitable habitats present within BWV and adjacent lands.
Raptor Wintering Area	One of FOD, FOM, FOC and one of CUM, CUT, CUS, CUW (20+ ha); least disturbed sites 15+ ha with adjacent woodlands; BAEA: FOD, FOM, FOC, SWD or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water	No	No suitable habitats present within BWV and adjacent lands.
Bat Hibernacula	Big Brown Bat/Tri-colored Bat only; CCR1; CCR2; CCA1; CCA2; does not include buildings	No	No suitable habitats present within BWV and adjacent lands.
Bat Maternity Colonies	Big Brown/Silver-Haired Bats only; all FOD, FOM, SWD, SWM; 10+ snags per hectare of 25+ cm DBH	Candidate	Suitable habitat exists in forested portions of High Park, which is within adjacent lands. Both species are known to be present in HP during breeding season (June to August).
Bat Migratory Stopover Area	No specific ELC types. Long Point, on Lake Erie, only site identified so far.	No	No landforms present to concentrate migrant bats; note that MNRF has not yet determined thresholds/criteria for this category.
Turtle Wintering Areas	SNTU/PATU: SW, MA, OA, SA; FEO and BOO; NMTU: open water areas (e.g. deeper rivers, streams) and lakes.	No	No suitable habitats present within BWV and adjacent lands.

Appendix 2: Significant Wildlife Habitat Screening

Significant Wildlife Habitat (SWH) Type	ELC Categories indicated for SWH Type	SWH present within BWV or adjacent lands?	Rationale (Habitat Presence or Absence)
Reptile Hibernaculum	Snakes: any ecosite except very wet ones; talus, rock barren, crevice, cave, and alvar site may be directly related.	No	No suitable habitats present within BWV and adjacent lands.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	CUM1, CUS1, BLS1, CLO1, CLT1; CUT1; BLO1; BLT1; CLS1	No	No suitable habitats present within BWV and adjacent lands.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	SWM2; SWM3; SWM5; SWM6; SWD1; SWD2; SWD3; SWD4; SWD5; SWD6; SWD7; FET1	No	No suitable habitats present within BWV and adjacent lands.
Colonially - Nesting Bird Breeding Habitat (Ground)	MAM1 – 6; MAS1 – 3; CUM; CUS; CUT	No	No suitable habitats present within BWV and adjacent lands.
Migratory Butterfly Stopover Areas	Field: CUM, CUS, CUT; Forest: FOC, FOD, FOM, CUT; 10+ ha, within 5 km of Lake Ontario	No	No suitable habitats present within BWV and adjacent lands.
Landbird Migratory Stopover Areas	FOC, FOM, FOD, SWC, SWM, SWD; 5+ ha, within 5 km of Lake Ontario; if woodlots rare in area then ones 2-5 ha should be considered.	Candidate	Suitable stopover habitat exists within High Park (HP), which is within adjacent lands. Numbers/diversity present likely meet significance thresholds.
Deer Winter Congregation Areas	FOC; FOM; FOD; SWC; SWM; SWD; typically 100+ ha; identified by MNRF	No	These sites are typically greater than 100 ha, so would not be present within the BWV or in adjacent lands. None identified in the area by MNRF.
Rare Vegetation Communities			
Cliffs and Talus Slopes	TAO; TAS; TAT; CLO; CLS; CLT	No	None identified within BWV or in adjacent lands.
Sand Barren	SBO1; SBS1; SBT1	Confirmed	Small areas identified in the north end of High Park, within adjacent lands (see Figure 1).
Alvar	ALO1; ALS1; ALT1; FOC1; FOC2; CUM2; CUS2; CUT2-1; CUW2; 0.5+ ha	No	None identified within BWV or in adjacent lands.
Old Growth Forest	FOD; FOC; FOM; SWC; SWD; SWM; 0.5+ ha, dominant trees 140+ years old	No	None identified within BWV or in adjacent lands.
Savannah	TPS1; TPS2; TPW1; TPW2; CUS2	Confirmed	Areas identified in the north end of High Park, within adjacent lands (see Figure 1).
Tallgrass Prairie	TPO1; TPO2	Confirmed	Areas identified in the north end of High Park, within adjacent lands (see Figure 1).
Other Rare Vegetation Communities	S1, S2, or S3 vegetation communities	No	None identified within BWV or in adjacent lands.

Appendix 2: Significant Wildlife Habitat Screening

Significant Wildlife Habitat (SWH) Type	ELC Categories indicated for SWH Type	SWH present within BWV or adjacent lands?	Rationale (Habitat Presence or Absence)
Specialized Habitat for Wildlife			
Waterfowl Nesting Area	MAS1; MAS2; MAS3; SAS1; SAM1; SAF1; MAM1; MAM2; MAM3; MAM4; MAM5; MAM6; SWT1; SWT2; SWD1; SWD2; SWD3; SWD4	No	No suitable habitats present within BWV and adjacent lands.
Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	FOD; FOM; FOC; SWD; SWM; SWC; adjacent to riparian areas (rivers, lakes, ponds and wetlands)	No	No suitable habitats present within BWV and adjacent lands.
Woodland Raptor Nesting Habitat	All forested ELC ecosites; also SWC, SWM, SWD, CUP3; 30+ ha with 10+ ha IF (200m buffer)	No	No suitable habitat exists within BWV or in adjacent lands. Forests are within adjacent lands (High Park) but the size (overall and interior forest) do not meet criteria.
Turtle Nesting Areas	MAM1; MAM2; MAM3; MAM4; MAM5; MAM6; SAS1; SAM1; SAF1; BOO1; FEO1	No	No suitable habitats present within BWV and adjacent lands.
Seeps and Springs	Any forested ecosite within headwater area of stream	Confirmed	At least one was identified in adjacent lands, within the ravine feature to the north of the end of Dacre Crescent (see Figure 1).
Amphibian Breeding Habitat (Woodland)	FOC; FOM; FOD; SWC; SWM; SWD	No	None identified within BWV or in adjacent lands.
Amphibian Breeding Habitat (Wetlands)	SW, MA, FE, BO, OA, SA; typically 120+ from woodlands (except AMBU)	No	No suitable habitats present within BWV and adjacent lands.
Woodland Area-Sensitive Bird Breeding Habitat	FOC, FOM, FOD, SWC, SWM, SWD; mature (60+ years), 30+ ha; IF 200+ m from edge	No	No large enough woodlands (30+ ha) with interior forest (greater than 200 m from edge) and 60+ years old are present within the BWV or in adjacent lands.
Habitat for Species of Conservation Concern (not including END or THR species)			
Marsh Breeding Bird Habitat	MAM1; MAM2; MAM3; MAM4; MAM5; MAM6; SAS1; SAM1; SAF1; FEO1; BOO1; GRHE – all SW, MA, CUM1 sites	No	No suitable habitat exists within BWV or in adjacent lands.
Open Country Bird Breeding Habitat	CUM1; CUM2; 30+ ha; not Class 1 or 2 agricultural lands or actively used for farming in last 5 years	No	No suitable habitat exists within BWV or in adjacent lands.
Shrub/Early Successional Bird Breeding Habitat	CUT1; CUT2; CUS1; CUS2; CUW1; CUW2; 10+ ha; not Class 1 or 2 agricultural lands or actively used for farming in last 5 years	No	No suitable habitat exists within BWV or in adjacent lands.

Appendix 2: Significant Wildlife Habitat Screening

Significant Wildlife Habitat (SWH) Type	ELC Categories indicated for SWH Type	SWH present within BWV or adjacent lands?	Rationale (Habitat Presence or Absence)
Terrestrial Crayfish	MAM1; MAM2; MAM3; MAM4; MAM5; MAM6; MAS1; MAS2; MAS3; SWT; SWD; SWM; CUM1 with inclusions of above MAM or swamp ecosites can be used by crayfish	No	No suitable habitat exists within BWV or in adjacent lands.
Special Concern and Rare Wildlife Species	SC and S1, S2, S3, and SH species	Candidate	SC or S1 to S3 species of fauna potentially breeding within the BWV and adjacent lands are Common Nighthawk, Red-headed Woodpecker, Eastern Wood-Pewee, Wood Thrush, and Monarch (all are SC). Note that it is not known if there are gravel rooftops in the study area for use by Common Nighthawk. Red-headed Woodpecker has bred in High Park but not in over 20 years. Other SC/S1-S3 birds may be found during migration, but these are covered under the "Landbird Migratory Stopover Areas" category.
Animal Movement Corridors			
Amphibian Movement Corridors	All ecosites associated with water	No	No suitable habitat exists within BWV or in adjacent lands.

APPENDIX 3 – Screening Checklist for Site-Specific Natural Heritage Studies

This appendix is a checklist for determining site-specific studies and/or Natural Heritage Impact Studies that may be required as part of development applications for sites within the Bloor West Village corridor where direct impacts to natural heritage features and functions are possible due to site alteration, development, and/or building renovation.

This checklist is an appendix to the Dougan & Associates report "Natural Heritage Impact Study, Bloor West Village Avenue Study" and should be read in conjunction with that document. Potential direct impacts are described in NHIS Section 6.4, and recommendations for mitigation measures to address these potential direct impacts are described in Section 7.2. The Bloor West Village Avenue NHIS identifies the natural heritage features and functions for the entire Bloor West Village corridor, but did not include site-specific investigations or recommendations. **It is the responsibility of proponents for any site alteration, development, and/or building renovation projects, to conduct site-specific studies to identify any natural heritage resources on their particular site.**

The Checklist assumes that proponents will undertake the following pre-consultations prior to completing any studies:

- Consult with City regarding any site-specific study requirements (including possible consultation with TRCA, if project is within or partly within TRCA regulated areas)
- Consult with Toronto Water regarding any site specific requirements for stormwater management and groundwater studies;
- Consult with Aurora District MNRF regarding potential Species-at-Risk, by a) submitting an Information Request to MNRF, b) site screening for possible Species at Risk, and c) if required by MNRF, completing an Information Gathering Form (IGF), Alternatives Avoidance Form (AAF), and an Overall Benefit Permit application. The City will require that proponents demonstrate that MNRF is satisfied with the study approach, documentation and any mitigation actions regarding Species at Risk.

The screening checklist provided here will allow proponents of site alteration, development, and/or building renovation projects along the Bloor West Village corridor to determine whether scoped studies or a full NHIS is triggered. **The requirement to complete additional site-specific natural heritage studies to those described in the Checklist must be confirmed with the City of Toronto on a case by case basis as part of the planning application process.**

This checklist should be followed for all development applications within the Bloor West Village Avenue Study Limits.

APPENDIX 3 – Screening Checklist for Site-Specific Natural Heritage Studies

Natural Heritage Screening Checklist: All Sites within Bloor West Village Avenue Study Limits

No.	Question	Answer	Outcome	Study required
1	Does study site contain OR is the study site directly adjacent to a ravine or forest? (>60% tree cover)	☐ Yes	Full NHIS required.	1. Consult with City of Toronto and TRCA to determine Terms of Reference for NHIS.
		☐ No	Proceed to 2	-
2	Is study site within High Park character area?	☐ Yes	Building may experience smoke during controlled burn events in High Park	1. Consult with City regarding any operational requirements during controlled burn events.
		☐ No	Proceed to 3	-
3	Are there existing building(s) on the study site which are proposed for removal or renovation?	☐ Yes	Habitat for Species-at-Risk (SAR) may be present; the Endangered Species Act may be triggered.	1. Existing building needs to be examined for presence of chimneys, gravel roofs, and/or other SAR habitat features which may be identified in MNRF consultation. 2. If potential habitats are present, surveys following Ministry of Natural Resources and Forestry (MNRF)-endorsed protocols need to be undertaken to determine if the habitat is being used. 3. If the habitat is being used by SAR species, the proponent will need to demonstrate that MNRF has approved the studies and mitigation approaches to address SAR on site specific development and building permit applications.
		☐ No	Proceed to 4	-
4	Are there any "High Value Trees" on the property? (*"High Value Trees Guideline are to be developed by City of Toronto, see D&A Bloor West Village NHIS for details)*	☐ Yes	Arborist report, tree protection plan may be required for "high value" trees.	1. As part of standard arborist report, determine whether "High Value Trees" will be impacted as part of site works, or whether construction disturbance will extend within the dripline of high value trees to remain. 2. If the answer to #1 is yes, "High Value Trees" to be identified and protected per City guidelines. 3. During construction, "High Value Trees" to remain are to be protected according to the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees (2016).
		☐ No	Proceed to 5	-

APPENDIX 3 – Screening Checklist for Site-Specific Natural Heritage Studies

No.	Question	Answer	Outcome	Study required
5	Are "High Value Trees" present directly adjacent to the study site?	☐ Yes	Vitality impacts to "High Value Trees" should be identified and minimized.	1. Proponent will need to demonstrate that vitality (including shade) impacts to "High Value Trees" are minimized, and that built surfaces adjacent to existing "High Value Trees" are 'softened' to avoid reflective scorching of existing trees. 2. Protocol to include signoff from proponent's arborist, and to be reviewed and approved by City.
		☐ No	Proceed to 6	-
6	Does study site contain OR is the study site directly adjacent to steep slopes?	☐ Yes	Long-term stable top of slope will need to be determined.	1. Consult with City of Toronto and TRCA regarding geotechnical study and permit requirements 2. Geotechnical study to be completed to determine long-term stable top of slope location and set back requirement.
			City of Toronto Ravine and Natural Feature Protection By-Law may be triggered.	1. Determine whether steep slope (and potentially other portions of site) site is within the City's Ravine and Natural Feature Protection By-Law area 2. Follow by-law requirements for arborist studies, tree protection.
		☐ No	Checklist complete.	-

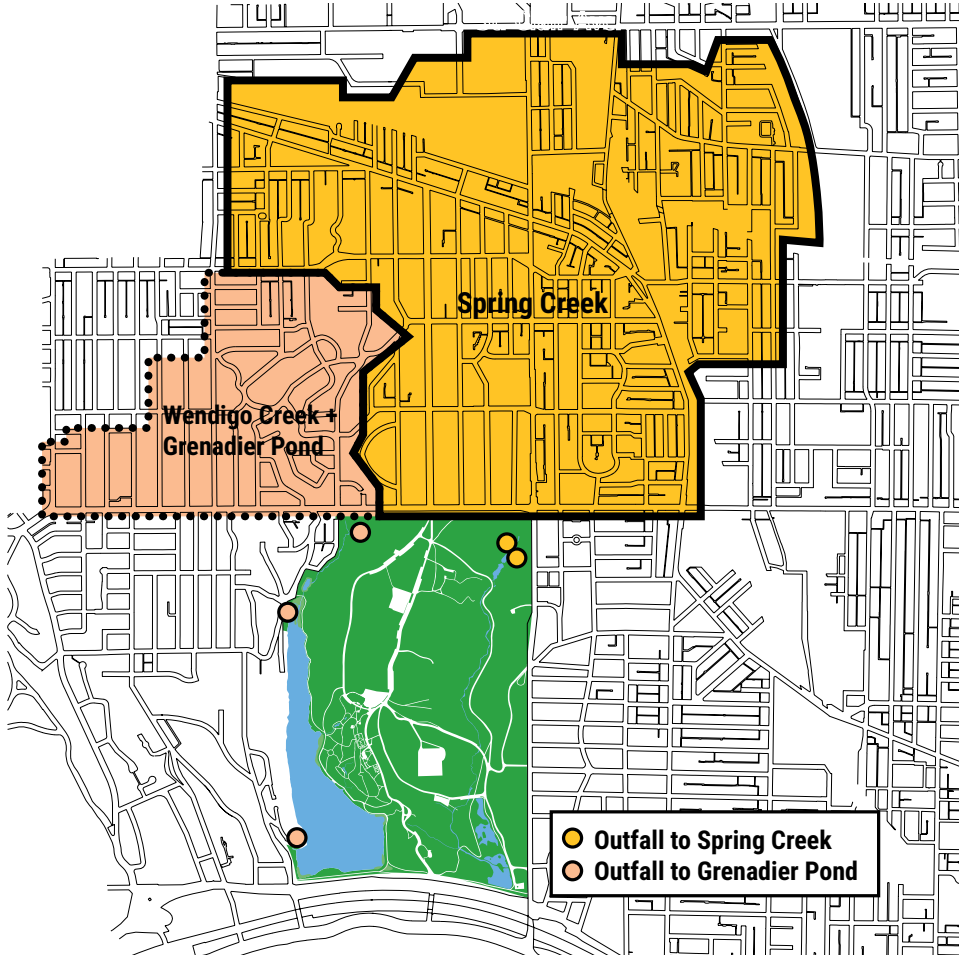
Impacted Sensitive Areas_Characterization

Wendigo Creek (upstream portion of Grenadier Pond)

- Storm Sewer outfall discharges from Total Catchment Area of 120 ha with 56% Impervious cover.
- Bloor St W Village Study area constitutes 8% of total contributing catchment.

Spring Creek

- Outfalls from 2 catchments serviced by SCSO sewers and storm sewers, respectively
- Total Contributing Catchment ~305 ha (out of which only 5 ha resides in the BMV study area)
- Total Catchment Imperviousness ~68%



Stormwater Catchment Areas feeding High Park

APPENDIX 5 – Monitoring, Management and Enhancement Opportunities in High Park and the Humber River Valley

This appendix provides a long list opportunities for inventory, management, and enhancement of natural heritage features and functions in High Park and the Humber River Valley. Based on the review of background documents for the Bloor Street West NHIS, discussion with City staff, and public consultation through the NHIS process, D&A believes that implementing these opportunities would provide improved resilience to the ecosystems of High Park and the Humber River Valley.

> *Resilience: The ability of an ecosystem to recover and maintain the desired condition of diversity, integrity, and ecological processes following disturbances.*

As High Park and the majority of the Humber River Valley are publicly owned and maintained areas, these opportunities will need to be considered in the context of existing management plans, including the High Park Woodland & Savannah Management Plan (2002), the Humber River Watershed Plan (2008), and implementation of the Toronto Ravine Strategy (2017).

Monitoring studies are conducted to update and enhance baseline knowledge of features and functions, following existing protocols for the species or feature being studied. The results should be compiled digitally in a form which is usable for future analysis and incorporation into management studies (i.e. spreadsheet, database, ArcGIS mapping).

Management strategies are implementation plans which respond to monitoring findings, intended to maintain or enhance existing features and functions through specific on-the-ground actions. The strategies proposed here are general recommendations; specific methods need to be determined in the context of existing management plans and in coordination with appropriate staff from the City of Toronto, TRCA and MNRF.

Enhancement opportunities are implementation actions which are undertaken to which are intended to improve upon existing conditions through on-the-ground actions. As with management strategies, specific methods for these opportunities would need to be determined in the context of existing management plans and in coordination with appropriate staff from the City of Toronto and TRCA.

Monitoring

- Vascular plant inventories of High Park and Humber valley should be updated (last formal High Park updates: Varga 2008, Kamstra 2009) in order to reconfirm rare plant species occurrence and trends;
- Informal trail mapping should be undertaken so that trends in trail creation, use and impacts can be quantified;
- Trail usership (including use by cyclists) should be surveyed to help determine trail adequacy and usage patterns;
- Dog usage in High Park should be monitored seasonally/annually to assist in planning for stronger enforcement or alternative off-leash area.
- High-potential erosion locations should be identified, quantified and prioritized for remediation;
- Buildings in High Park should be checked for the presence of gravel roofs or chimneys that may support birds, or cavities that may support bats. If these habitats exist, surveys could be undertaken to determine if bats, Common Nighthawk or Chimney Swifts are utilizing buildings in order to clarify the extent of SAR use of built structures in High Park;
- The 1995 Gartner Lee study of Grenadier Pond should be updated and a similar water balance / wetland enhancement study for Spring Creek should be undertaken to determine current groundwater inputs and to guide future infrastructure management works;
- Turtle populations in High Park vicinity and Humber valley should be studied, including the identification of high-potential nesting areas and road mortality hot spots;
- Invertebrate diversity of Grenadier Pond and Spring Creek systems should be studied; and

APPENDIX 5 – Monitoring, Management and Enhancement Opportunities in High Park and the Humber River Valley

- Consider use of Citizen Science initiatives for inventories and monitoring, including programs to include indigenous youth in data collection exercises;

Management

- Controlled burn regime in High Park prairie and savannah habitats should be maintained, monitored and improved;
- Forest health monitoring programs within High Park should be maintained; an event impact study should be completed (similar to Queen's Park)
- Enforcement of on-leash dog zones should be increased;
- Use of existing custom-built BMX park; (Sunnyside Bike Park) should be encouraged;
- Where high-priority erosion locations are identified, slope stabilization works should be implemented (works may include plantings, soft treatments, hard treatments and/or exclusion fencing, depending on location and nature of existing condition); and
- Turtle basking or nesting areas should be fenced off to deter predation by dogs and illegal capture for pet trade.

Enhancement

- Fencing should be improved for off-leash & on-leash dog areas;
- Maintenance budgets should be increased for off-leash & on-leash dog areas;
- Prairie and savannah species planting program within High Park should be continued and increased in extent;
- Planning & Design and Management recommendations from the Natural Environment Trail Strategy should be applied to High Park and Humber River corridor
- If park or infrastructure or recreational developments potentially that affect habitat quantity or quality, avoidance of impacts is paramount; off-site habitat compensation should be considered as a last-resort measure. Habitat enhancement could occur within the Humber Watershed, but not necessarily within the City of Toronto. Enhancing the upper Humber will provide an ecological gain to the lower Humber;
- Add more custom-designed dog off-leash facilities in less sensitive habitats outside of High Park;
- Depending on off-trail bike use in High Park and Humber River Valley, additional dedicated off-trail cycling facilities should be planned if monitoring identified a need;
- Provide stewardship package for dog owners / walkers in AOI;
- Promote alternative dog activity and/or sanitation zones in development areas (see thesis "City Familiaris: A Study in Domesticating Infrastructures", Gertler 2017 for recommended design interventions);
- Plant Common Milkweed and Butterfly Weed for Monarch (SC) to utilize for breeding;
- Best practices with regard to Endangered bat habitat should be followed when trees are proposed for removal in woodland habitats. See the document "Survey Protocol for Species at Risk Bats within Treed Habitats" (MRNF 2017b) for details;
- Toronto Water and/or TRCA should undertake targeted public education to reduce impact of storm water within catchment areas that feed Spring and Wendigo Creeks; and
- Identify and provide signage for turtle crossing areas in road network.