

# APPENDIX E

# NATURAL HERITAGE REPORT



# NATURAL HERITAGE REPORT

SPADINA SUBWAY EXTENSION  
DOWNSVIEW STATION TO STEELES AVENUE

*prepared for:*



**TORONTO TRANSIT COMMISSION**

*prepared by:*



FEBRUARY 2006

# NATURAL HERITAGE REPORT

SPADINA SUBWAY EXTENSION  
DOWNSVIEW STATION TO STEELES AVENUE

*prepared by:*

A handwritten signature in black ink, reading 'G. N. Kauffman'.

Grant N. Kauffman, M.E.S.  
Vice President, Ontario Region

A handwritten signature in black ink, reading 'Leslie L. Collins'.

Leslie L. Collins, M.Sc.  
Botanist

LGL Limited  
environmental research associates  
22 Fisher Street, P.O. Box 280  
King City, Ontario L7B 1A6  
Tel: 905-833-1244 Fax: 905-833-1255  
E-mail: [kingcity@lgl.com](mailto:kingcity@lgl.com)  
URL: [www.lgl.com](http://www.lgl.com)

FEBRUARY 2006

LGL Project # TA4106

## TABLE OF CONTENTS

<b>1.0 INTRODUCTION</b>	<b>1</b>
<b>2.0 EXISTING CONDITIONS</b>	<b>1</b>
<b>2.1 Physiography and Soils</b>	<b>3</b>
2.1.1 Chinguacousey clay loam	3
2.1.2 Oneida clay loam	3
2.1.3 Jeddo clay loam	3
2.1.4 Peel clay	3
2.1.5 Bottom Lands	3
<b>2.2 Aquatic Habitats and Communities</b>	<b>4</b>
2.2.1 Aquatic Habitat	4
2.2.2 Aquatic Communities	6
2.2.3 Species at Risk	6
<b>2.3 Vegetation and Vegetation Communities</b>	<b>9</b>
2.3.1 Vegetation Communities	9
2.3.2 Flora	9
2.3.3 Tree Survey	9
2.3.4 Species at Risk	21
<b>2.4 Wildlife and Wildlife Habitat</b>	<b>22</b>
2.4.1 Wildlife Habitat	22
2.4.2 Fauna	22
2.4.3 Species at Risk	27
<b>2.5 Designated Natural Areas</b>	<b>27</b>
2.5.1 Environmentally Significant/Sensitive Areas	27
2.5.2 Significant Wetlands	27
2.5.3 Areas of Natural and Scientific Interest	27
2.5.4 Natural Corridors	27
2.5.5 Natural Heritage System	27
2.5.6 Other Natural Heritage Features/Areas	28
<b>3.0 PROJECT DESCRIPTION</b>	<b>30</b>
<b>4.0 IMPACT ASSESSMENT AND ENVIRONMENTAL PROTECTION</b>	<b>30</b>
<b>4.1 Physiography and Soils</b>	<b>30</b>
<b>4.2 Aquatic Habitats and Communities</b>	<b>32</b>
<b>4.3 Vegetation and Vegetation Communities</b>	<b>32</b>
4.3.1 Displacement of Vegetation and Vegetation Communities	32
4.3.2 Disturbance to Vegetation and Vegetation Communities	34
4.3.3 Displacement of Rare, Threatened or Endangered Vegetation or Significant Vegetation Communities	36

<b>4.4 Wildlife and Wildlife Habitat</b>	<b>36</b>
4.4.1 Displacement of Wildlife and Wildlife Habitat	36
4.4.2 Barrier Effects on Wildlife Passage	37
4.4.3 Wildlife/Vehicle Conflicts	37
4.4.4 Disturbance to Wildlife from Noise, Light and Visual Intrusion	38
4.4.5 Displacement of Rare, Threatened or Endangered Wildlife or Significant Wildlife Habitat	38
<b>5.0 MONITORING</b>	<b>39</b>
<b>6.0 REFERENCES</b>	<b>40</b>

## LIST OF FIGURES

Figure 1. Key Plan of the Secondary Study Area .....	2
Figure 2. Natural Heritage .....	5
Figure 3. Preferred Alignment and Station Concepts .....	31

## LIST OF TABLES

Table 1. Dufferin Creek Fish Habitat Assessment Summary .....	7
Table 2. Fish Species Collected by TRCA Within and Adjacent to the Study Area .....	8
Table 3. Summary of Ecological Land Classification Vegetation Communities .....	10
Table 4. Working Vascular Plant Checklist.....	13
Table 5. Wildlife Habitat Assessment Summary .....	23
Table 6. Wildlife Documented in the Study Area by LGL and TRCA.....	25
Table 7. Flora Recorded by TRCA at York University Campus and Fauna Recorded by TRCA within Secondary Study Area .....	29
Table 8. Summary of Proposed Vegetation Removals, Mitigation Measures and Net Environmental Effects .....	33

## LIST OF APPENDICES

Appendix A. Photographic Record
Appendix B. Tree Inventory Summary Tables

## 1.0 INTRODUCTION

The City of Toronto and the Toronto Transit Commission (TTC) are conducting an Individual Environmental Assessment (EA) which updates and enhances the 1994 Approved Undertaking for the extension of the Spadina Subway from Downsview Station to York University. The new EA will consider alternative alignments and station locations for the extension of the Spadina Subway from Downsview Station to York University, and a terminal station at Steeles Avenue in the context of a radial extension of the subway into York Region instead of a loop over to the Yonge Subway. Therefore, the Undertaking is the extension of the Spadina Subway from Downsview Station to Steeles Avenue via York University.

LGL Limited, as a sub-consultant to URS Canada Inc., was retained by the TTC to conduct a natural heritage investigation in support of the Spadina Subway Extension EA. Field investigations for this study were conducted in June and July, 2005. The natural heritage investigation builds on two previous investigations conducted by LGL Limited within the study area for TTC:

- a natural heritage investigation conducted in 2003 in support of the Spadina Bus-Only Lanes from Downsview Station to York University, a Schedule “C” Municipal Class Environmental Assessment; and,
- a natural heritage investigation conducted in July and August 2004 prior to the commencement of the Spadina Subway Extension EA in November 2004.

This report documents the results of the natural heritage investigation conducted over these three years and describes the environmental effects, mitigation and monitoring measures associated with the Spadina Subway Extension.

## 2.0 EXISTING CONDITIONS

This section describes the existing conditions in the study area related to natural heritage, including physiography and soils, aquatic habitat and communities, vegetation and vegetation communities, wildlife and wildlife habitat and designated natural areas. The primary study area includes an approximately 30 m wide right-of-way located along the preferred subway alignment, the area to be occupied by subway facilities such as stations, bus terminals, commuter parking lots, passenger pick up and drop off areas and other ancillary facilities. The secondary study area is bounded by Wilmington Avenue, Finch Avenue, Dufferin Street, Steeles Avenue and Keele Street on the east, Highway 7 on the north, Edgeley Boulevard and Black Creek on the west and Sheppard Avenue on the south. The study area is presented in Figure 1.

Previous investigations by Ecoplans Limited for the 1994 EA Approved Undertaking identified the area as a developed, urban centre with residential, industrial and commercial development. Open and greenspace areas were identified as the West Don River valley, the G. Ross Lord Reservoir and Park, the Ontario Hydro corridor, the Dufferin Creek valley and two small arboretum woodlots managed by York University (Ecoplans Limited 1992). The Black Creek valley was outside of the study area investigated by Ecoplans.



FIGURE 1: KEY PLAN OF THE STUDY AREA

## 2.1 Physiography and Soils

The study area is located within the South Slope physiographic region, which extends from the Niagara Escarpment and the Regional Municipality of Halton in the west to Northumberland County in the east. This region passes through the north and central portions of the City of Toronto. The South Slope is the southern slope of the interlobate moraine and is smoothed, faintly drumlinized and scored by valleys trending southward from the Oak Ridges Moraine to Lake Ontario (Chapman and Putnam 1984).

The soils in the study area are classified as Chinguacousey clay loam, Oneida clay loam, Jeddo clay loam, Peel clay and Bottom Lands (Hoffman and Richards 1955). Soils in the study area are predominantly Chinguacousey clay loam. Soil in the southwest corner of the study area, near the intersection of Sheppard Avenue/Keele Street, is classified as Oneida clay loam. Soil in the northeast corner of the study area, near the intersections of Steeles Avenue/Dufferin Street and Highway 7/Keele Street, is classified as Peel clay. Soil to the south of Sheppard Avenue between Keele Street and Dufferin Street is classified as Jeddo clay loam. Bottom Lands surround watercourses within the study area.

### 2.1.1 Chinguacousey clay loam

Chinguacousey clay loam soils are imperfectly drained with a smooth, gently sloping topography. This soil type consists of shaly, calcareous clay till. Erosion is slight with this soil type as a result of the combination of gently sloping topography and low friability.

### 2.1.2 Oneida clay loam

Oneida clay loam soils exhibit good drainage with a smooth, moderately sloping topography. This soil type consists of shaly, calcareous clay till. This soil type is susceptible to erosion.

### 2.1.3 Jeddo clay loam

Jeddo clay loam soils are poorly drained with a smooth, very gently sloping topography. This soil type consists of shaly, calcareous clay till. Erosion is slight with this soil type as a result of its very gently sloping topography.

### 2.1.4 Peel clay

Peel clay soils are imperfectly drained and exhibit a smooth, gently sloping topography. This soil type consists of lacustrine clay over gritty clay, which can be up to one metre deep. Erosion is slight with this soil type.

### 2.1.5 Bottom Lands

Bottom Land soils are comprised of recent alluvial deposits. They have variable drainage, variable to level topography and erosion is variable. This soil type surrounds the watercourses that are located within the study area.

## 2.2 Aquatic Habitats and Communities

The study area lies within the Don River and Humber River watersheds with the approximate watershed divide being Keele Street. The West Don River subwatershed is located east of Keele Street and includes the G. Ross Lord Reservoir, Dufferin Creek and several small unnamed tributaries. The area west of Keele Street is located in the Black Creek subwatershed (a tributary of the Humber River) and includes Black Creek and several small unnamed tributaries. All watercourses fall within the jurisdiction of the Toronto and Region Conservation Authority (TRCA) and the Ontario Ministry of Natural Resources (OMNR) Aurora District. The location of watersheds, watercourses and waterbodies within the study area is presented in Figure 2. Representative photographs of the study area are presented in Appendix A.

### 2.2.1 Aquatic Habitat

There are several watercourses/waterbodies located within the study area including:

- Black Creek Pioneer Village Ponds;
- Dufferin Creek;
- Stong Pond; and,
- York University Pond.



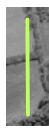
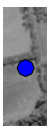
#### 2.2.1.1 Black Creek Pioneer Village Ponds

Two ponds are located on the Black Creek Pioneer Village property. The northern pond is located south of Steeles Ave and east of Black Creek. A spillway controls the water level of the pond, which had dropped approximately 40 cm prior to the July 4, 2005 field investigations, as indicated by the extent of bare mud areas. The pond is devoid of vegetation on three sides with bare mud flats extending 2 to 3 m to permanently vegetated areas surrounding the pond. The southern edge of this pond is lined with a narrow band of cattails (*Typha* sp.), which constitute the only emergent vegetation within the pond. The pond has a silt substrate and no aquatic vegetation was observed. The riparian edge surrounding the pond is narrow as Black Creek Pioneer Village paths and buildings are in close proximity. Riparian vegetation consists of cattails, red maple (*Acer rubrum*), silver maple (*A. saccharinum*), riverbank grape (*Vitis riparia*), raspberry (*Rubus* sp.), willow (*Salix* sp.), goldenrod (*Solidago* sp.), red osier dogwood (*Cornus stolonifera*), black locust (*Robinia pseudoacacia*) and manicured grass. Fish were noted breaching in the pond, and small cyprinids were observed near the cattails. These species could not be identified. This pond drains into a second pond (discussed below) through the spillway noted earlier.

This pond is located at the eastern boundary of the Black Creek Pioneer Village property, to the south of pond discussed above, which feeds directly into it. The water level in this pond was down approximately 50 cm at the time of field investigations, as indicated by the extent of bare mud areas. Like the pond to the north, this pond has a silt substrate and contains no aquatic vegetation. On the eastern and southern edges of this pond the riparian area is comprised of mature trees and shrubs including willows, black locust, basswood (*Tilia americana*), staghorn sumac (*Rhus typhina*), white birch (*Betula papyrifera*), red maple and eastern white cedar (*Thuja occidentalis*). The western and southern edges are lined by a narrow band of willows, sumac, cedar and red pine (*Pinus resinosa*), the widths of which are limited by a walking trail and small footbridge. In-water cover is provided by fallen willow limbs. Cyprinids were observed, but could not be identified to species. This pond drains directly into Black Creek via a spillway. The length of the spillway between the pond and Black Creek is approximately 6 m. This spillway forms a barrier to fish movement between the pond and Black Creek. However, the spillway consists of a wooden plank which regulates the water level of the pond and can be removed. When removed, fish movement between the pond and the creek is possible.



**LEGEND**

-  Study Area
-  Watercourse
-  Vegetation Community Boundary
-  TRCA Fish Dot

**Vegetation Communities**

- AGR** Agricultural
- GUM1-1** Dry-Moist Old Field Meadow Type
- GUT1** Mineral Cultural Thicket Ecosite
- CUW** Cultural Woodland
- GUW1** Mineral Cultural Woodland Ecosite
- FOD4** Dry-Fresh Deciduous Forest Ecosite
- FOD5** Dry-Fresh Sugar Maple Deciduous Forest Ecosite
- FOD6-5** Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type
- FOD7** Fresh-Moist Lowland Deciduous Forest Ecosite
- FOD7-3** Fresh-Moist Willow Lowland Deciduous Forest Type
- MAM2-2** Reed-canary Grass Mineral Meadow Marsh Type
- MAS2-1** Cattail Mineral Shallow Marsh Type
- OAO** Open Aquatic


**Rare Plants**

- 1** Red Cedar
- 2** Red Cedar, Dudley's Rush
- 3** Black Walnut
- 4** Black Walnut, Sandbar Willow
- 5** White Oak, Sassafras
- 6** White Oak, Poison Ivy -vine form, Swamp Red Current,

**NATURAL HERITAGE**

<b>Project:</b> TA4106	<b>Figure:</b> 2
<b>Date:</b> December 2005	<b>Prepared By:</b> MWF
<b>Scale:</b> 1 : 28,900	<b>Checked By:</b> GNK

Data Sources: LGL Limited field survey's, Toronto and Region Conservation Authority, Toronto Transit Commission.



LGL Limited  
environmental research associates



**2.2.1.2 Dufferin Creek**

Dufferin Creek daylights from a storm sewer outfall located approximately 500 m upstream (west) of Dufferin Street, then flows easterly under Dufferin Street and then northerly under Finch Avenue to the G. Ross Lord Reservoir. Dufferin Creek is a heavily urbanized watercourse that responds rapidly and intensely to rain events. The twin celled concrete box culvert located at Dufferin Street is perched approximately 1.5 m at its outlet and therefore presents a significant barrier to fish and wildlife migration. The watercourse is considered Type II (Important) habitat, although no fish were observed in the reach between the storm sewer outfall and Dufferin Street. The absence of fish in this reach is likely attributed to poor water quality, extreme flows following rain events, and the barrier to fish migration located at Dufferin Street. A summary of fish habitat in Dufferin Creek is presented in Table 1.

**2.2.1.3 Stong Pond**

This pond is located to the east of Pond Road within the York University Campus. The pond is in a park-like setting and has a manicured grass to the water’s edge along approximately 80 percent of its bank. A few willow shrubs are present on the banks along the southern and western portions of the pond. A large number (>50) of Canada Geese were occupying the pond at the time of the July 4, 2005 field investigations, which could result in high nutrient inputs to the pond. Both small cyprinids and centrarchids were observed in the pond. The pond has a silt substrate and no aquatic vegetation was noted. The pond’s outflow drops over a 1.25 m concrete spillway leading into a concrete channel under Pond Road. This flat-bottomed channel then has another vertical drop before entering a natural stream channel downstream of Pond Road. Both of these vertical drops would constitute a barrier to upstream fish passage during any flow period. From Pond Road, this watercourse follows a south-westerly route towards its confluence with Black Creek.

**2.2.1.4 York University Pond**

A small pond is located approximately 130 m west of Keele Street between Murray Ross Parkway and Pond Road. This pond has no inlet watercourse associated with it. The pond outlets to a ditch located on the northwest side of the pond, which carries flow westerly to a catch basin. The ditch is ephemeral, has a rocky barrier across it approximately 35 m west of the pond and is densely vegetated with cattails. The pond is shallow (8 to 10 cm) and mostly choked with cattails and reed-canary grass (*Phalaris arundinacea*), and its potential for use as fish habitat is very low. No fish were observed during site visits on July 29, 2004 and July 4, 2005.

**2.2.2 Aquatic Communities**

The TRCA classifies the Don River as intermediate riverine warmwater and Dufferin Creek as small riverine warmwater (TRCA 1998). Black Creek is classified by TRCA as intermediate riverine warmwater south of Steeles Avenue and as small riverine warmwater north of Steeles Avenue and along its minor tributaries (TRCA 1998). Black Creek is located in TRCA Management Zone 4 that targets darter species (TRCA 1998). A summary of fish species documented within the study area by TRCA is presented in Table 2.

**2.2.3 Species at Risk**

No species at risk are located within the study area. A 1946 record for reddsides dace (*Clinostomus elongates*) exists for Black Creek at Sheppard Avenue. Redside dace is designated “Threatened” by the OMNR and “Special Concern” by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Given the historic date of this record and the absence of recent records for reddsides dace in this reach of Black Creek, the presence of reddsides dace within the study area is unlikely.

**TABLE 1.  
 DUFFERIN CREEK FISH HABITAT ASSESSMENT SUMMARY**

Feature Name	GPS Location	Fish Community	Habitat Summary	Habitat Type (I, II, III)	Flow Conditions	Waterbody Sensitivity	Drainage Connectivity	Comments
Dufferin Creek	0623059E 4846791N	warmwater; no fish observed and very few aquatic organisms observed (snails and striders)	<ul style="list-style-type: none"> <li>watercourse daylights from a large pipe approximately 150 m upstream of the crossing location, and then meanders through a steeply sloped valley</li> <li>watercourse is a mix of 50% runs, 25% riffles and 25% pools</li> <li>runs range in width from 3 to 5 m, riffles are 1 to 3 m wide, and pools are on average 3 m wide</li> <li>depths range from 0.1 m in riffles to 0.4 m in pools</li> <li>bankfull depth is up to 2 m, and during site visit (July 2004) the top of the bank was estimated at 1.5 m above water level</li> <li>banks unstable in some areas and stabilized by riparian vegetation in other areas</li> <li>substrates composed of small boulders, cobbles, sand and some exposed clay</li> <li>water colour is clear but contains suspended (whitish) particulate matter</li> <li>filamentous algae growth was present on instream rocks</li> <li>riparian vegetation provides significant shading over much of the area investigated</li> <li>riparian vegetation is very diverse and variable, consisting of a mix of buckthorn, dogwood, elm and hawthorn trees, and raspberry, vines, cattails, goldenrod and tall grasses</li> </ul>	II – Important	moderate flow; permanent; very flashy	low	poor drainage connectivity upstream (piped) and downstream (culvert perched at Dufferin St.)	<ul style="list-style-type: none"> <li>considerable refuse caught in riparian vegetation and on banks from flash flooding; some debris 3 m above water level</li> <li>downstream of the crossing location an area along the northern bank exhibited leaching of a rust-coloured material</li> </ul>

**TABLE 2.**  
**FISH SPECIES COLLECTED BY TRCA WITHIN AND ADJACENT TO THE STUDY AREA**

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status*	Fish Sampling Station Numbers and Years of Observation												
						West Don River Watershed				Black Creek Watershed								
						4	12	42	43	44	45	225	226	BC01	BC02			
<i>Carrasius auratus</i>	goldfish					1991	1991	1991										
<i>Catostomus commersoni</i>	white sucker					1991	1991	1991	1991	1984	1991		1991			2000		2000
<i>Clinostomus elongatus</i>	redside dace	SC	THR	SC	SARA(3)													
<i>Culaea inconstans</i>	brook stickleback					1991	1994	1994		1985		1991						
<i>Cyprinus carpio</i>	common carp							1994										
<i>Etheostoma caeruleum</i>	rainbow darter										1946							
<i>Etheostoma flabellare</i>	fantail darter										1946							
<i>Etheostoma nigrum</i>	johnny darter										1946							
<i>Lepomis gibbosus</i>	pumpkinseed							1999		1984								2000
<i>Luxilus cornutus</i>	common shiner						1991	1991			1946	1991	1991					
<i>Pimephales notatus</i>	bluntnose minnow								1991		1946	1991	1991					2000
<i>Pimephales promelas</i>	fathead minnow						1991	1991	1991	1984	1985							
<i>Rhinichthys atratulus</i>	blacknose dace								1991	1991								2000
<i>Semotilus atromaculatus</i>	creek chub						1998	1991	1991	1991	1984	1985	1991	1991	1991	1991	1991	2000

**Station Locations**

4 – West Don River, 250 m upstream of Finch Ave., between Dufferin St. and Bathurst St.  
 12 – West Don River, 500 m downstream of Steeles Ave., east of Dufferin St.  
 42 – Black Creek, at the crossing of Jane St. and Steeles Ave.  
 43 – Black Creek, at the crossing of Finch Ave., between Jane St. and Keele St.  
 44 – Black Creek, at the crossing of Shoreham Drive, east of Jane St.  
 45 – Black Creek, at the crossing of Sheppard Ave., between Jane St. and Keele St.  
 225 – Black Creek, at the crossing of Highway 7, just east of Jane St.  
 226 – Black Creek, 500 m downstream of Highway 407, west of Jane St.  
 BC01 – Black Creek, at the eastern terminus of Niska Rd., within Black Creek Parkland.  
 BC02 – Black Creek, 500 m upstream of Jane St. and south of Sheppard Ave.

COSEWIC - Committee on the Status of Endangered Wildlife in Canada:  
 END – Endangered  
 THR – Threatened  
 SC – Special Concern

MNR - Ministry of Natural Resources:  
 END – Endangered  
 THR – Threatened  
 SC – Special Concern

Local Status:  
 U – Uncommon  
 R – Rare  
 SC – Species of Concern

Legal Status:  
 \*In addition to the *Fisheries Act*, which protects all fish species  
 SARA - Species at Risk Act; Schedule (1), (2) or (3)

LGL Limited

### 2.3 Vegetation and Vegetation Communities

The geographical extent, composition, structure and function of vegetation communities were identified through air photo interpretation and field investigations. Air photos were interpreted to determine the limits and characteristics of vegetation communities. Field investigations of vegetation were conducted within the primary and secondary study areas on July 4, 15, 21 and November 6, 2003 and July 23, 28, August 3, 2004 and June 15 and December 19 to 21, 2005 to ground truth the boundaries of vegetation communities and to conduct a botanical survey. Vegetation communities were identified within the primary and secondary study area, while botanical inventories were completed within the primary study area.

Vegetation communities were classified according to the *Ecological Land Classification for Southern Ontario: First Approximation and Its Application* (Lee et al. 1998). The community was sampled using a plotless method for the purpose of determining general composition and structure of the vegetation. Vascular plant nomenclature follows Morton and Venn (1990) with a few exceptions.

#### 2.3.1 Vegetation Communities

Much of the vegetation within the secondary study area is of anthropogenic origin, resulting from past/present land use. Land use is predominantly industrial, institutional, commercial and residential. A number of parks are located within the study area including William Baker Park, located between Keele Street and Sheppard Avenue just north of John Drury Crescent. Several parks are also located along Black Creek including Black Creek Parkland, Derrydowns Park, Topcliff Park and Northwood Park. A large urban park is proposed at the former Downsview Airforce Base.

A total of ten ELC vegetation communities have been identified within the primary study area. These communities include cultural meadows, cultural thickets, cultural woodlands, deciduous forests, meadow marshes, shallow marshes and open aquatic communities. These communities are delineated in Figure 2 and described in Table 3.

#### 2.3.2 Flora

To date, a total of 190 vascular plant taxa have been recorded within the primary study area. One-hundred-and-six (106) taxa, 56 percent of the recorded flora, are considered introduced and non-native to southern Ontario. A list of vascular plants identified within the primary study area is presented in Table 4.

#### 2.3.3 Tree Survey

A total of 1,400 trees and shrubs are located within the footprint of the proposed Spadina Subway Extension and its ancillary facilities. Of these, approximately 708 are greater than 10 cm in diameter at breast height (dbh) and approximately 692 are less than 10 cm dbh. These trees are predominantly cultivated tree species such as 191 Norway maple (*Acer platanoides*), 172 Austrian pine (*Pinus nigra*), 66 Freeman's maple (*Acer X freemanii*), and 53 red ash (*Fraxinus pennsylvanica*). A number of large tree saplings and shrubs were also located within the study area, including 125 Russian olive (*Elaeagnus angustifolia*), 100 balsam poplar (*Populus balsamifera*), 84 common buckthorn (*Rhamnus cathartica*), and 56 choke cherry (*Prunus virginiana* ssp. *virginiana*).

LGL Limited

**TABLE 3.**  
**SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES**

ELC Code	Vegetation Type	Species Association	Comments
<b>Terrestrial – Natural/Semi-natural</b>			
<b>DECIDUOUS FOREST</b>			
FOD4	Dry-Fresh Deciduous Forest Ecosite	Manitoba maple ( <i>Acer negundo</i> ), sugar maple ( <i>A. saccharum</i> ), white ash ( <i>Fraxinus americana</i> ), ironwood ( <i>Ostrya virginiana</i> ), Tartarian honeysuckle ( <i>Lonicera tatarica</i> ), white pine ( <i>P. strobus</i> ), trembling aspen ( <i>Populus tremuloides</i> ), choke cherry ( <i>Prunus virginiana</i> ), red oak ( <i>Quercus rubra</i> ), black locust ( <i>Robinia pseudo-acacia</i> ), common buckthorn ( <i>Rhamnus cathartica</i> ), basswood ( <i>Tilia americana</i> ), white elm ( <i>Ulmus americana</i> ) and sparse ground cover including Canada mayflower ( <i>Maianthemum canadense</i> ) and garlic mustard ( <i>Alliaria petiolata</i> )	This species association is the result of past and present disturbance. In the study area this community type is associated with Toronto parks and trails and at the top of bank of Black Creek and Dufferin Creek in some locations.
FOD5	Dry-Fresh Sugar Maple Deciduous Forest Ecosite	Similar to species composition of FOD4 but with a greater sugar maple component	On the north shore of Dufferin Creek and to the east of proposed Alignments A and B, this community is home to a few old growth ironwood ( <i>Ostrya virginiana</i> ), each with a diameter at breast height (dbh) of approx. 45 cm. This community type is located on the top of steep banks adjacent to Black Creek.
FOD6-5	Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type	Sugar maple, hybrid maple ( <i>Acer X freemanii</i> ), silver maple ( <i>A. saccharinum</i> ), red maple ( <i>A. rubrum</i> ), green ash, white ash, basswood, red oak, bur oak ( <i>Quercus macrocarpa</i> ), white birch ( <i>Betula papyrifera</i> ), American beech ( <i>Fagus grandifolia</i> ), ironwood, white pine, eastern white cedar ( <i>Thuja occidentalis</i> ) and ground cover species including thickket creeper ( <i>Parthenocissus inserta</i> ), enchanters'-nightshade ( <i>Circaea lutetiana canadensis</i> ), spotted touch-me-not ( <i>Impatiens capensis</i> ), Jack-in-the-pulpit ( <i>Arisaema triphyllum</i> ), Mayapple ( <i>Podophyllum peltatum</i> ), poison ivy ( <i>Rhus radicans</i> ), garlic mustard	This community type has complex microtopography and moist depressional areas. A storm drain and ditch are located in the centre of one FOD6-5 community.
FOD7	Fresh-Moist Lowland Deciduous Forest Type	Crack willow ( <i>Salix X rubens</i> ), Manitoba maple, black walnut ( <i>Juglans nigra</i> ), trembling aspen, Carolina poplar ( <i>Populus X canadensis</i> ), white elm, basswood, green ash ( <i>Fraxinus pennsylvanica</i> ), alternate-leaved dogwood ( <i>Cornus stolonifera</i> ), riverbank grape, thickket creeper, poison ivy, spotted touch-me-not	In the study area this community type has a more open canopy (<60% cover in some locations) and is associated with CUM1-1 in some locations.
			This community type is associated with Black Creek and Dufferin Creek in the study area.

LGL Limited

**TABLE 3.**  
**SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES**

ELC Code	Vegetation Type	Species Association	Comments
<b>Terrestrial – Cultural</b>			
<b>CULTURAL MEADOW</b>			
CUM1-1	Dry-Moist Old Field Meadow Type	Grasses such as brome ( <i>Bromus inermis inermis</i> ), timothy ( <i>Phleum pratense</i> ), Canada bluegrass ( <i>Poa compressa</i> ), Kentucky bluegrass ( <i>P. pratensis pratensis</i> ) and forbs, including common buttercup ( <i>Ranunculus acris</i> ), rough-fruited cinquefoil ( <i>Potentilla recta</i> ), black medic ( <i>Medicago lupulina</i> ), common dandelion ( <i>Taraxacum officinale</i> ), purple clover ( <i>Trifolium pratense</i> ), bird vetch ( <i>Vicia cracca</i> ), butter-and-eggs ( <i>Linaria vulgaris</i> ), ox-eye daisy ( <i>Chrysanthemum leucanthemum</i> ), wild strawberry ( <i>Fragaria virginiana</i> ), goat's beard ( <i>Trigonopogon dubius</i> ), common milkweed ( <i>Asclepias syriaca</i> )	This community type is located in areas that have been previously cleared, such as in hydro corridors and in association with institutions and industrial/commercial lands.
CUT	CULTURAL THICKET		Portions of a number of the CUM1-1 communities in the study area have been planted with wheat ( <i>Triticum aestivum</i> ). This community type has a higher incidence of non-native species.
CUT1	Mineral Cultural Thicket Ecosite	European buckthorn, tartarian honeysuckle, hawthorns ( <i>Crataegus spp.</i> ), riverbank grape, red-osier dogwood, wild red raspberry ( <i>Rubus idaeus melanolasius</i> ), white elm plus herbaceous species listed in CUM1-1 as well as Canada goldenrod ( <i>Solidago canadensis</i> ) and tall goldenrod ( <i>S. altissima</i> )	In these locations shrubs have colonized these previously cleared areas. This community type has a higher incidence of non-native species.
CUCW	CULTURAL WOODLAND		A grove of sassafras ( <i>Sassafras albidum</i> ) was found within this vegetation community along the south top of bank of the Dufferin Creek valley.
CUCW1	Mineral Cultural Woodland Ecosite	Manitoba maple, crack willow, sugar maple, Norway maple ( <i>Acer platanoides</i> ), white ash, tartarian honeysuckle, trembling aspen, choke cherry, black locust, common buckthorn, basswood, white elm and variable ground cover including garlic mustard, dame's rocket ( <i>Hesperis matronalis</i> ) and many species also found in CUM1-1 communities	These are wooded areas with a canopy cover of less than 60 percent. This community has a higher incidence of non-native species.

LGL Limited

**TABLE 3.**  
**SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES**

ELC Code	Vegetation Type	Species Association	Comments
<b>Wetland</b>			
MAM	MEADOW MARSH		
MAM2-2	Reed-canary Grass Mineral Meadow Marsh Type	Reed-canary grass ( <i>Phalaris arundinacea</i> ) dominates with softstem bulrush ( <i>Scirpus validus</i> ) and sedges ( <i>Carex spp.</i> )	This community is associated with a pond on York University campus and is also complexed with a CUM1-1 community along the hydro corridor to the east of Keele Street in the study area.
MAS	SHALLOW MARSH		
MAS2-1	Cattail Mineral Shallow Marsh Type	Common cattail ( <i>Typha latifolia</i> ) dominates with narrow-leaved cattail ( <i>Typha angustifolia</i> ), water-plantain ( <i>Alisma plantago-aquatica</i> ), softstem bulrush	This community is associated with two ponds in the study area.
OAO	OPEN AQUATIC	N/A	Open water portions of ponds in the study area.

LGL Limited

**TABLE 4.**  
**WORKING VASCULAR PLANT CHECKLIST**

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status	Ecological Land Classification Community														
						CUM1-1	CUT1	CUM1	FOD4	FOD5	FOD6-5	FOD7	MAM2-2	MAS2-1						
<i>Acer negundo</i>	Manitoba maple							X	X											
* <i>Acer platanoides</i>	Norway maple								X											
<i>Acer rubrum</i>	red maple									X										
<i>Acer saccharinum</i>	silver maple										X									
<i>Acer saccharum</i> ssp. <i>saccharum</i>	sugar maple									X	X	X	X							
<i>Acer X freemanii</i>	hybrid maple													X						
* <i>Achillea millefolium</i> ssp. <i>millefolium</i>	yarrow									X										
* <i>Aesculus hippocastanum</i>	horse-chestnut									X										
* <i>Agrostis gigantea</i>	redtop									X										
<i>Alisma plantago-aquatica</i>	water-plantain																			
* <i>Alliaria petiolata</i>	garlic mustard									X	X	X	X	X						
<i>Ambrosia artemisiifolia</i>	common ragweed																			
<i>Amelanchier arborea</i>	Juneberry																			
* <i>Anagallis arvensis</i>	scarlet pimpernel																			
* <i>Anthemis cotula</i>	stinking Mayweed																			
* <i>Arctium minus</i>	common burdock									X										
<i>Arisaema triphyllum</i> ssp. <i>triphyllum</i>	Jack-in-the-pulpit																			
<i>Asclepias syriaca</i>	common milkweed									X										
<i>Aster ericoides</i>	heath aster									X										
<i>Aster novae-angliae</i>	New England aster									X										
<i>Betula papyrifera</i>	paper birch																			
* <i>Betula pendula</i>	European white birch																			
<i>Bidens cernua</i>	nodding bur-marigold																			
* <i>Brassica nigra</i>	black mustard																			
* <i>Bromus inermis</i> ssp. <i>inermis</i>	smooth brome									X										
* <i>Bromus tectorum</i>	downy brome									X										
* <i>Campanula rapunculoides</i>	European bellflower																			
* <i>Capsella bursa-pastoris</i>	shepherd's purse									X										

LGL Limited

**TABLE 4.**  
**WORKING VASCULAR PLANT CHECKLIST**

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status	Ecological Land Classification Community											
						CUM1-1	CUT1	CW1	FOD4	FOD5	FOD6-5	FOD7	MAM2-2	MAS2-1			
<i>Carex bebbii</i>	bebb's sedge																
* <i>Carex spicata</i>	prickly sedge					X											X
<i>Carex stipata</i>	awl-fruited sedge					X											X
<i>Carex vulpinoidea</i>	fox sedge					X											X
* <i>Catalpa speciosa</i>	northern catalpa							X									
* <i>Centaurea jacea</i>	brown knapweed					X											
* <i>Centaurea maculosa</i>	spotted knapweed					X											
* <i>Cerastium arvense</i>	field chickweed					X											
* <i>Chenopodium album</i>	lamb's quarters					X											
* <i>Chrysanthemum leucanthemum</i>	ox-eye daisy					X											
* <i>Cichorium intybus</i>	chickory					X											
<i>Circaea lutetiana</i> ssp. <i>canadensis</i>	enchanter's-nighshade							X									
* <i>Cirsium arvense</i>	Canada thistle					X											
* <i>Cirsium vulgare</i>	bull-thistle					X											
* <i>Convolvulus arvensis</i>	field bindweed					X											
<i>Cornus foemina</i> ssp. <i>racemosa</i>	gray dogwood							X									
<i>Cornus stolonifera</i>	red-osier dogwood							X									
* <i>Coronilla varia</i>	crown-vetch					X											
<i>Crataegus</i> spp.	hawthorns							X									
* <i>Cynanchum nigrum</i>	dog strangling vine					X		X									
* <i>Dactylis glomerata</i>	orchard grass					X		X									
* <i>Daucus carota</i>	wild carrot					X		X									
* <i>Dianthus armeria</i>	deftford pink					X		X									
<i>Diervilla lonicera</i>	bush honeysuckle																
* <i>Dipsacus fullonum</i> ssp. <i>sylvestris</i>	common teasel					X											
<i>Echinocystis lobata</i>	wild cucumber																
* <i>Echium vulgare</i>	viper's bugloss					X											
* <i>Elaeagnus angustifolia</i>	Russian-olive																X

LGL Limited

**TABLE 4.**  
**WORKING VASCULAR PLANT CHECKLIST**

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status	Ecological Land Classification Community											
						CUM1-1	CUT1	CW1	FOD4	FOD5	FOD6-5	FOD7	MAM2-2	MAS2-1			
<i>Eleocharis</i> sp.	spike-rush					X											
* <i>Elymus repens</i>	quack grass					X											
* <i>Epilobium parviflorum</i>	willow-herb					X											
* <i>Epipactis helleborine</i>	heleborine								X								
<i>Equisetum arvense</i>	field horsetail							X									
<i>Erigeron annuus</i>	annual fleabane					X											
<i>Erigeron strigosus</i>	daisy fleabane					X											
* <i>Euphorbia helioscopia</i>	wartweed					X											
<i>Euthamia graminifolia</i>	grass-leaved goldenrod					X											
<i>Fagus grandifolia</i>	American beech								X								
* <i>Festuca pratensis</i>	meadow fescue					X											
<i>Fragaria virginiana</i>	wild strawberry					X		X									
<i>Fraxinus americana</i>	white ash							X									
<i>Fraxinus pennsylvanica</i>	green/red ash							X									
* <i>Geranium robertianum</i>	herb robert							X									
<i>Geum aleppicum</i>	yellow avens																
* <i>Geum urbanum</i>	urban avens								X								
<i>Glyceria striata</i>	fowl manna grass								X								
* <i>Hesperis matronalis</i>	dame's rocket					X		X									X
* <i>Hieracium caespitosum</i>	king-devil					X											
* <i>Hordeum jubatum</i> spp. <i>jubatum</i>	squirrel-tail grass					X											
<i>Hydrophyllum virginianum</i>	Virginia waterleaf																
* <i>Hypericum perforatum</i>	common St. John's-wort					X											
<i>Impatiens capensis</i>	spotted touch-me-not																
* <i>Imula helenium</i>	elecampane					X											
<i>Juglans nigra</i>	black walnut																
<i>Juncus dudleyi</i>	dudley's rush																X
* <i>Juncus gerardi</i>	black-grass					X											X

LGL Limited

TABLE 4.  
WORKING VASCULAR PLANT CHECKLIST

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status	Ecological Land Classification Community									
						CUM1-1	CUT1	CUM1	FOD4	FOD5	FOD6-5	FOD7	MAM2-2	MAM2-1	
<i>Juncus tenuis</i>	path rush					X		X							
<i>Juniperus virginiana</i>	red cedar			U <sup>1,3</sup> , R <sup>2</sup>				X							
* <i>Larix decidua</i>	European larch							X							
* <i>Lathyrus latifolius</i>	everlasting pea					X	X								
* <i>Lactuca serriola</i>	prickly lettuce					X									
* <i>Leonurus cardiaca</i> ssp. <i>cardiaca</i>	motherwort					X		X							
* <i>Lepidium campestre</i>	field cress					X									
* <i>Lepidium densiflorum</i>	small peppergrass					X									
* <i>Linaria vulgaris</i>	butter-and-eggs					X									
* <i>Lonicera tatarica</i>	tartarian honeysuckle					X	X	X	X	X					
* <i>Lotus corniculatus</i>	birdsfoot trefoil					X									
<i>Lycopus americanus</i>	common water horehound												X	X	X
<i>Lysimachia ciliata</i>	fringed loosestrife												X	X	
* <i>Lythrum salicaria</i>	purple loosestrife					X							X	X	
<i>Maianthemum racemosum</i>	false Solomon's seal								X	X					
ssp. <i>Racemosum</i>															
* <i>Malus</i> spp.	apples							X	X						
* <i>Matricaria perforata</i>	scentless chamomile					X									
* <i>Matricaria matricarioides</i>	pineapple-weed					X									
* <i>Medicago lupulina</i>	black medick					X									
* <i>Medicago sativa</i>	alfalfa					X									
* <i>Melilotus alba</i>	white sweet clover					X									
* <i>Melilotus officinalis</i>	yellow sweet clover					X									
<i>Monarda fistulosa</i>	wild bergamot			U <sup>3</sup>				X							
* <i>Nepeta cataria</i>	catnip					X									
<i>Oenothera biennis</i>	common evening primrose														
<i>Ostrya virginiana</i>	ironwood								X	X					
* <i>Oxalis corniculata</i>	creeping wood-sorrel							X	X	X	X				

LGL Limited

TABLE 4.  
WORKING VASCULAR PLANT CHECKLIST

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status	Ecological Land Classification Community									
						CUM1-1	CUT1	CUM1	FOD4	FOD5	FOD6-5	FOD7	MAM2-2	MAM2-1	
<i>Parthenocissus inserta</i>	thicket creeper						X								
<i>Phalaris arundinacea</i>	reed canary grass							X	X	X	X	X	X	X	X
* <i>Phleum pratense</i>	timothy					X								X	
<i>Phragmites australis</i>	common reed							X							
* <i>Picea abies</i>	Norway spruce							X	X	X	X				
* <i>Picea pungens</i>	Colorado spruce							X	X	X	X				
* <i>Pinus nigra</i>	Austrian pine							X	X	X	X				
<i>Pinus resinosa</i>	red pine							X	X	X	X				
<i>Pinus strobus</i>	white pine							X	X	X	X				
* <i>Pinus sylvestris</i>	Scots pine							X	X	X	X				
* <i>Plantago lanceolata</i>	lance-leaved plantain					X									
* <i>Plantago major</i>	common plantain					X									
<i>Poa compressa</i>	Canada bluegrass					X									
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky bluegrass					X									
<i>Podophyllum peltatum</i>	mayapple												X		
* <i>Polygonum cuspidatum</i>	Japanese knotweed					X	X								
* <i>Polygonum persicaria</i>	lady's thumb												X		
<i>Populus deltoides</i>	eastern cottonwood							X	X						
<i>Populus grandidentata</i>	large-toothed aspen							X	X						
<i>Populus tremuloides</i>	trembling aspen							X	X						
<i>Populus X canadensis</i>	Carolina poplar							X	X						
* <i>Potentilla recta</i>	rough-fruited cinquefoil					X	X	X	X						
* <i>Prunella vulgaris</i> ssp. <i>vulgaris</i>	lawn prunella					X	X								
* <i>Prunus avium</i>	sweet cherry												X		
<i>Prunus virginiana</i> ssp. <i>virginiana</i>	choke cherry							X	X	X	X	X	X	X	X
<i>Quercus alba</i>	white oak			R <sup>3</sup> , SC <sup>4</sup>					X	X	X	X	X	X	X
<i>Quercus macrocarpa</i>	bur oak								X	X	X	X	X	X	X

LGL Limited

TABLE 4.  
WORKING VASCULAR PLANT CHECKLIST

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status	Ecological Land Classification Community									
						CUM1-1	CUT1	CUM1	FOD4	FOD5	FOD6-5	FOD7	MAM2-2	MAS2-1	
* <i>Quercus robur</i>	English oak							X							
<i>Quercus rubra</i>	red oak								X		X				
* <i>Ranunculus acris</i>	common buttercup							X							
* <i>Rhamnus cathartica</i>	common buckthorn							X	X	X	X	X			
<i>Rhus radicans</i>	poison-ivy (incl. vine form)			R <sup>2,3</sup>				X	X	X	X	X			
<i>Rhus typhina</i>	staghorn sumac							X	X	X	X	X			
* <i>Ribes rubrum</i>	red currant									X	X	X			
<i>Ribes triste</i>	swamp red currant			U <sup>3</sup> , R <sup>2</sup>									X		
* <i>Robinia pseudo-acacia</i>	black locust							X							
<i>Rosa</i> spp.	Roses							X	X						
<i>Rubus idaeus</i> ssp. <i>melanolasius</i>	wild red raspberry							X	X	X	X	X			
<i>Rubus occidentalis</i>	black raspberry									X	X	X			
* <i>Rumex crispus</i>	curled dock							X							
* <i>Salix alba</i>	white willow							X					X		
<i>Salix exigua</i>	bebb's willow			U <sup>3</sup>									X		
<i>Salix viminalis</i>	sandbar willow												X		
* <i>Salix X rubens</i>	crack willow												X		
* <i>Saponaria officinalis</i>	bouncing bet									X	X	X			
<i>Sassafras albidum</i>	sassafras			R <sup>1,2</sup>				X							
<i>Scirpus validus</i>	softstem bulrush							X							X
* <i>Sedum acre</i>	stonecrop							X							
* <i>Setaria pumila</i>	yellow foxtail							X							
* <i>Solanum dulcamara</i>	bittersweet nightshade							X	X	X	X	X			
<i>Solidago altissima</i>	tall goldenrod							X	X	X	X	X			
<i>Solidago canadensis</i>	Canada goldenrod							X	X	X	X	X			
<i>Solidago flexicanalis</i>	broad-leaved goldenrod							X	X	X	X	X			
* <i>Sonchus arvensis</i>	sow thistle							X							
* <i>Sorbus aucuparia</i>	European mountain ash							X	X						

LGL Limited

TABLE 4.  
WORKING VASCULAR PLANT CHECKLIST

Scientific Name	Common Name	COSEWIC	MNR	Local Status	Legal Status	Ecological Land Classification Community									
						CUM1-1	CUT1	CUM1	FOD4	FOD5	FOD6-5	FOD7	MAM2-2	MAS2-1	
* <i>Syringa vulgaris</i>	common lilac							X	X						
* <i>Tanacetum vulgare</i>	garden tansy							X							
* <i>Taraxacum officinale</i>	common dandelion							X				X			
<i>Thalictrum dioicum</i>	early meadow-rue										X				
* <i>Thlaspi arvense</i>	penny cress							X							
<i>Thuja occidentalis</i>	eastern white cedar								X	X	X	X			
<i>Tilia americana</i>	basswood								X	X	X	X			
* <i>Tilia cordata</i>	little-leaf linden								X	X	X	X			
* <i>Tragopogon dubius</i>	goat's beard							X							
* <i>Trifolium campestre</i>	low hop clover							X							
* <i>Trifolium pratense</i>	red clover							X							
* <i>Trifolium repens</i>	white clover							X							
* <i>Tussilago farfara</i>	coltsfoot							X		X					
<i>Typha angustifolia</i>	narrow-leaved cattail												X	X	
<i>Typha latifolia</i>	common cattail												X	X	
<i>Ulmus americana</i>	white elm								X	X	X	X			
* <i>Ulmus pumila</i>	siberian elm								X						
* <i>Verbascum thapsus</i>	common mullein							X							
<i>Verbena hastata</i>	blue vervain													X	
<i>Verbena urticifolia</i>	white vervain													X	
* <i>Viburnum opulus</i>	european highbush cranberry								X						
* <i>Vicia cracca</i>	bird vetch												X		
* <i>Vinca minor</i>	periwinkle												X	X	
<i>Vitis riparia</i>	riverbank grape								X	X	X	X	X	X	

LGL Limited

**TABLE 4 LEGEND**

\*Introduced species  
COSEWIC – Committee on the Status of Endangered Wildlife in Canada:  
END – Endangered  
THR – Threatened  
SC – Special Concern  
Local:  
U – Uncommon  
R – Rare  
C – Species of Concern  
1 – Greater Toronto Area  
2 – City of Toronto  
3 – Region of York  
4 – Toronto and Region Conservation Authority

OMNR – Ontario Ministry of Natural Resources:  
END – Endangered  
THR – Threatened  
VUL – Vulnerable  
Legal Status:  
SARA – Species at Risk Act  
ESA – Endangered Species Act

LGL Limited

A relatively low number of trees and shrubs are located in the vicinity of the Sheppard West Station, as this area is currently an open field. At the Finch West Station, trees are located along Keele Street and Tangier Road, as well as cultivated trees around the commercial area and early successional trees in the Hydro corridor. A relatively high number of trees are located in the vicinity of the Steeles West Station including along Steeles Avenue and in the Hydro corridor. A summary of these tree species is presented in Appendix B.

#### 2.3.4 Species at Risk

Plant species status was reviewed for the Greater Toronto Area, the City of Toronto and York Region (Varga et al. 2000; City of Toronto & TRCA 2001) and Ontario (Oldham 1999). No plant species considered rare, threatened or endangered (R,T,E) in Ontario were noted during field investigations. Several species considered regionally or locally uncommon or rare were documented during field investigations, as well as species of concern listed by the TRCA. The status of these species is presented in Table 4.

Red cedar (*Juniperus virginiana*) is planted and not naturally occurring in the Study Area. The red cedar has a dbh of 2 cm and is located within the Dry-Moist Old field Meadow Type (CUM1-1) community along the Finch hydro corridor. Red cedar is uncommon in the Greater Toronto Area and York Region, and is rare in the City of Toronto.

Black walnut (*Juglans nigra*) is both planted and naturally occurring in the study area. Planted specimens are located on existing lawns. A few naturally occurring individuals are located within Fresh-Moist Lowland Deciduous Forest (FOD7) and Mineral Cultural Woodland (CUW1) communities surrounding Black Creek and Dufferin Creek. One mature black walnut is located along Dufferin Creek in close proximity to Alignments A and B. Black walnut is rare in York Region, but has no status in the City of Toronto.

White oak (*Quercus alba*) is naturally occurring and located deep within the centre of a small number of Deciduous Forest (FOD) communities in the study area. White oak is considered rare in York Region and a species of concern by the TRCA. No white oaks were observed along the preferred alignment.

The vine form of poison ivy (*Rhus radicans*) and swamp red currant (*Ribes triste*) are located deep within the centre of the Fresh-Moist Sugar Maple-Hardwood Deciduous Forest (FOD6-5) communities on the campus of York University. The vine form of poison ivy is rare in the City of Toronto and York Region, while swamp red currant is rare in the City of Toronto and uncommon in York Region.

Sandbar willow (*Salix exigua*) is located within Fresh-Moist Lowland Deciduous Forest (FOD7) communities surrounding Black Creek and Dufferin Creek in the study area. No sandbar willows were observed along the preferred alignment, and they are only considered uncommon in York Region.

Wild bergamot (*Monarda fistulosa*) is located at the edge of one forest in the study area. One individual of this species was observed during field investigations and it is not situated along the preferred alignment. Wild bergamot is considered uncommon in York Region, and the observed individual was within the City of Toronto.

Dudley's rush (*Juncus dudleyi*) is located within the Dry-Moist Old Field Meadow (CUM1-1) and Reed-canary Grass Mineral Meadow Marsh (MAM2-2) communities along hydro corridors in the vicinity of Keele Street in the study area. All proposed alignments pass through these communities. Dudley's rush is uncommon in the City of Toronto.

LGL Limited



Sassafras (*Sassafras albidum*) is reported by others within the Dufferin Creek valley west of Dufferin Street (Ecoplans 1992) and was noted during LGL Limited’s 2004 field investigations. It is located within the Mineral Cultural Thicket (CUT1) community at the top of the south bank of Dufferin Creek, west of Dufferin Street. The grove consists of one mature “parent tree” with a diameter at breast height (dbh) of 30 cm, 17 trees with a dbh ranging from 7 to 12 cm and approximately 20 other specimens with a dbh of less than 7 cm. The presence of saplings and seedlings suggests that new colonization is actively occurring within this grove. The origin of the “parent tree” is not determinable, although an old page wire fence at the base of this tree was noted during field investigations. Sassafras is considered rare in the City of Toronto with only five known occurrences. It is also considered rare in the Greater Toronto Area. Photographs of this grove of sassafras are presented in Appendix A.

Vegetation community status was reviewed for Ontario (NHIC 1997) and for the City of Toronto (City of Toronto & TRCA 2001). The vegetation communities identified within the primary and secondary study areas are considered widespread and common in Ontario and secure globally (NHIC 1997) and locally (City of Toronto & TRCA 2001).

**2.4 Wildlife and Wildlife Habitat**

The secondary study area consists of industrial, institutional and commercial areas. The majority of the study area is open habitat of anthropogenic origin with few natural heritage features. Wildlife habitat is typical of an urban setting with species that are very tolerant of human disturbance.

A field reconnaissance of the primary study area was carried out on July 28, 2004 to identify potential wildlife habitat on or adjacent to the preferred alignment. Identified sites were walked on the mornings of July 28 and 29, and August 2 and 3, 2004, and June 15, 2005. Wildlife species or their tracks, scat, sign or important habitat were documented.

**2.4.1 Wildlife Habitat**

The majority of the study area is open habitat of anthropogenic origin with few natural heritage features. Wildlife habitat is typical of an urban setting with species that are very tolerant of human disturbance. The CNR right-of-way, hydro corridors, and stream corridors and valley lands in the study area act as wildlife corridors for wildlife tolerant of an urban environment and may serve to link locally important habitat units for wildlife occupants. These areas allow for wildlife movement along the watercourses to and from more protected areas surrounding the study area such as ESAs and ANSIs. The study area is highly urbanized and very few natural areas in locations other than along watercourses are linked together. A summary of wildlife habitat located within the primary study area is provided in Table 5.

**2.4.2 Fauna**

During the July 2004 and June 2005 field investigations of the subway alignment, 37 species of animals were observed, including three species of mammals, 36 species of birds, one species of amphibian and one species of crustacean. A list of observed wildlife species with local and/or regional significance is presented in Table 6.

**TABLE 5.  
WILDLIFE HABITAT ASSESSMENT SUMMARY**

Feature	Type of Habitat	Habitat Function				Comments
		Seasonal Concentration of Animals <sup>1</sup>	Rare Vegetation Communities <sup>2</sup> or Specialized Habitats for Wildlife <sup>3</sup>	Species of Conservation Concern <sup>4</sup>	Animal Movement Corridors <sup>5</sup>	
Disused fields, hydro rights-of-way, Federal Downsview lands, Dufferin Creek ravine	Dry-Moist Old Field Meadow Type (CUM1-1)	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• locally significant species</li> </ul>	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• few, common species of meadow, grassland, scrub and urban wildlife requiring small to moderately-sized habitat patches</li> </ul>
Disused fields, hydro rights-of-way	Reed-canary Grass Mineral Meadow Marsh Type (MAM2-2), Cattail Mineral Shallow Marsh Type (MAS2-1)	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• locally significant species</li> </ul>	<ul style="list-style-type: none"> <li>• local upland corridor along hydro rights-of-way</li> </ul>	<ul style="list-style-type: none"> <li>• few, common species of wet-meadow and marsh wildlife requiring small to moderately-sized habitat patches</li> </ul>
Dufferin Creek ravine, York University woodlots, Black Creek valley	Dry-Fresh Deciduous Forest Ecosite (FOD4), Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type (FOD6-5), Fresh-Moist Lowland Deciduous Forest Type (FOD7), Fresh-Moist Willow Lowland Deciduous Forest Type (FOD7-3)	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• mature/old growth deciduous and coniferous trees present</li> </ul>	<ul style="list-style-type: none"> <li>• locally significant species</li> </ul>	<ul style="list-style-type: none"> <li>• local valleyland corridors along Dufferin Creek connecting to G. Ross Lord Reservoir, and along Black Creek valley and tributaries</li> </ul>	<ul style="list-style-type: none"> <li>• very few common species of forest-edge and urban wildlife requiring small habitat patches</li> <li>• road embankment and perched culvert at Dufferin Street creates barrier for wildlife within corridor; corridor terminates at storm sewer outfall</li> <li>• only habitat type with wood frog</li> </ul>
Abandoned farmstead and shelterbelt	CUM1-1, Mineral Cultural Thicket Ecosite (CUT1), Mineral Cultural Woodland Ecosite (CUW1)	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• locally significant species</li> </ul>	<ul style="list-style-type: none"> <li>• local upland corridor along hydro rights-of-way</li> </ul>	<ul style="list-style-type: none"> <li>• few, common species of scrub, woodland edge and meadow wildlife requiring small to moderately-sized habitat patches</li> </ul>

**TABLE 5.  
WILDLIFE HABITAT ASSESSMENT SUMMARY**

Feature	Type of Habitat	Habitat Function				Comments
		Seasonal Concentration of Animals <sup>1</sup>	Rare Vegetation Communities <sup>2</sup> or Specialized Habitats for Wildlife <sup>3</sup>	Species of Conservation Concern <sup>4</sup>	Animal Movement Corridors <sup>5</sup>	
Vacant land	Agricultural (AGR), CUMI-1	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• locally significant species</li> </ul>	<ul style="list-style-type: none"> <li>• none recorded</li> </ul>	<ul style="list-style-type: none"> <li>• few, common species of grassland and wet-meadow wildlife requiring small habitat patches</li> <li>• one of two habitat types with frogs</li> </ul>

<sup>1</sup> Seasonal concentration of animals includes: winter deer yards; moose late winter habitat; colonial bird nesting sites; waterfowl stopover and staging areas; waterfowl nesting areas; shorebird migratory stopover areas; land bird migratory stopover areas; raptor winter feeding and roosting areas; wild turkey winter range; turkey vulture summer roosting areas; reptile hibernacula; bat hibernacula; bullfrog concentration areas; and, migratory butterfly stopover areas.

<sup>2</sup> Rare vegetation communities include: alvars; tall-grass prairies; savannahs; rare forest types; talus slopes; rock barrens; sand barrens; and, Great Lakes dunes.

<sup>3</sup> Specialized habitats for wildlife include: habitat for area-sensitive species; forests providing a high diversity of habitats; old-growth or mature forest stands; foraging areas with abundant mast; amphibian woodland breeding ponds; turtle nesting habitat; specialized raptor nesting habitat; spectral moose habitat (calving areas, aquatic feeding areas and mineral licks); and, mink otter, marten or fisher denning sites; cliffs and caves; and, seeps and springs.

<sup>4</sup> Species of conservation concern include: globally rare; provincially rare; regionally rare; locally rare; and, species of concern to the planning authority.

<sup>5</sup> Animal movement corridors include dwelling habitat for plants and animals; and, conduits for daily and seasonal movements of animals, dispersal of organisms and genes and long-distance range shifts of species.

LGL Limited

**TABLE 6.  
WILDLIFE DOCUMENTED IN THE STUDY AREA BY LGL AND TRCA**

Group	Scientific Name	Common Name	COSEWIC	OMNR	Local Status	Legal Status	TRCA Data
<b>Mammals</b>	<i>Sylvilagus floridanus</i>	eastern cottontail			C	FWCA(G)	
	<i>Sciurus carolinensis</i>	grey squirrel					
	<i>Mustela vison</i>	mink			C	FWCA(F)	X
	<i>Procyon lotor</i>	raccoon					
<b>Birds</b>	<i>Carduelis tristis</i>	American Goldfinch			BSC	MBCA	
	<i>Falco sparverius</i>	American Kestrel			BSC	FWCA(P)	
	<i>Setophaga ruticilla</i>	American Redstart			C, BSC	MBCA	
	<i>Turdus migratorius</i>	American Robin				MBCA	
	<i>Scolopax minor</i>	American Woodcock			C, BSC	MBCA	
	<i>Icterus galbula</i>	Baltimore Oriole				MBCA	
	<i>Hirundo rustica</i>	Barn Swallow			BSC	MBCA	
	<i>Ceryle alcyon</i>	Belted Kingfisher			C	FWCA(P)	
	<i>Poecile atricapillus</i>	Black-capped Chickadee			BSC	MBCA	
	<i>Dolichonyx oryzivorus</i>	Bobolink			C, BSC	MBCA	
	<i>Toxostoma rufum</i>	Brown Thrasher			C, BSC	MBCA	X
	<i>Bombycilla cedrorum</i>	Cedar Waxwing				MBCA	
	<i>Quiscalus quiscula</i>	Common Grackle					
	<i>Geothlypis trichas</i>	Common Yellowthroat			C	MBCA	
	<i>Picoides pubescens</i>	Downy Woodpecker				MBCA	
	<i>Tyrannus tyrannus</i>	Eastern Kingbird			BSC	MBCA	
	<i>Sturnella magna</i>	Eastern Meadowlark			C, BSC	MBCA	
	<i>Sayornis phoebe</i>	Eastern Phoebe			C	MBCA	X
	<i>Contopus virens</i>	Eastern Wood-Pewee			C	MBCA	
	<i>Sturnus vulgaris</i>	European Starling					
	<i>Coccothraustes vespertinus</i>	Evening Grosbeak				MBCA	
	<i>Dumetella carolinensis</i>	Gray Catbird			C, BSC	MBCA	
	<i>Myiarchus crinitus</i>	Great Crested Flycatcher			C	MBCA	X
	<i>Charadrius vociferus</i>	Killdeer				MBCA	
	<i>Picoides villosus</i>	Hairy Woodpecker			C	MBCA	X
	<i>Carpodacus mexicanus</i>	House Finch				MBCA	
	<i>Passer domesticus</i>	House Sparrow					
	<i>Colaptes auratus</i>	Northern Flicker				MBCA	
	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow			BSC	MBCA	
	<i>Zenaidura macroura</i>	Mourning Dove				MBCA	
	<i>Oporornis philadelphia</i>	Mourning Warbler			C, BSC	MBCA	
	<i>Cardinalis cardinalis</i>	Northern Cardinal				MBCA	
<i>Colaptes auratus</i>	Northern Flicker			C	MBCA		
<i>Mimus polyglottos</i>	Northern Mockingbird			C, BSC	MBCA		
<i>Porzana carolina</i>	Sora			C, BSC	MBCA		
<i>Sitta canadensis</i>	Red-breasted Nuthatch			C	MBCA	X	
<i>Vireo olivaceus</i>	Red-eyed Vireo			C	MBCA		
<i>Agelaius phoeniceus</i>	Red-winged Blackbird						
<i>Buteo jamaicensis</i>	Red-tailed Hawk				FWCA(P)		
<i>Passerculus sandwichensis</i>	Savannah Sparrow			C	MBCA		

LGL Limited

**TABLE 6.**  
**WILDLIFE DOCUMENTED IN THE STUDY AREA BY LGL AND TRCA**

Group	Scientific Name	Common Name	COSEWIC	OMNR	Local Status	Legal Status	TRCA Data
<b>Birds</b> <b>(continued)</b>	<i>Actitis macularius</i>	Spotted Sandpiper			C, BSC	MBCA	
	<i>Melospiza melodia</i>	Song Sparrow				MBCA	
	<i>Melospiza georgiana</i>	Swamp Sparrow			C, BSC	MBCA	
	<i>Vireo gilvus</i>	Warbling Vireo				MBCA	
	<i>Empidonax traillii</i>	Willow Flycatcher			C	MBCA	
	<i>Gallinago delicata</i>	Wilson's Snipe			C	MBCA	
	<i>Hylocichla mustelina</i>	Wood Thrush			C	MBCA	X
	<i>Dendroica petechia</i>	Yellow Warbler				MBCA	
<b>Amphibians</b>	<i>Rana sylvatica</i>	wood frog			C	FWCA(P)	

COSEWIC - Committee on the Status of Endangered Wildlife in Canada:

END - Endangered  
THR - Threatened  
SC - Special Concern

Local:

BSC - Bird Studies Canada species of conservation priority in the City of Toronto  
C - Species of Concern (TRCA 2003)

OMNR - Ontario Ministry of Natural Resources:

END - Endangered  
THR - Threatened  
SC - Special Concern

Legal Status:

MBCA - *Migratory Birds Convention Act*  
FWCA - *Fish and Wildlife Conservation Act*  
ESA - *Endangered Species Act*  
SARA - *Species at Risk Act*

### 2.4.3 Species at Risk

No wildlife species of management concern beyond the local (upper tier municipal jurisdiction) level were noted during field investigations. Sixteen breeding bird species observed in the study area have been identified by Bird Studies Canada (BSC) as species of conservation priority. However, all of these BSC annotated species are distributed widely, and are encountered commonly, in a range of habitats in the GTA and throughout their Ontario range. In addition, three species of birds (Eastern Wood-Pewee, Black-capped Chickadee and Eastern Meadowlark) have been identified by TRCA as species of concern within the City of Toronto (City of Toronto & TRCA 2001).

Many species of wildlife are regulated including Red-tailed Hawk, a protected bird under the *Fish and Wildlife Conservation Act*, and 28 species of birds are protected under the *Migratory Birds Convention Act*. No terrestrial wildlife listed under the *Species at Risk Act* or the *Endangered Species Act* were recorded in the primary study area. Crayfish are defined as “fish” under the *Fisheries Act* and hence are regulated. However, regulatory agencies have typically not invoked the *Fisheries Act* to protect crayfish.

## 2.5 Designated Natural Areas

### 2.5.1 Environmentally Significant/Sensitive Areas

There are no Environmentally Significant/Sensitive Areas (ESAs) located within the secondary study area. One environmentally significant area, Earl Bales Woods, is located approximately 3.0 km southwest of the secondary study area near the intersection of Sheppard Avenue and Bathurst Street. Three other ESAs - Glendon Forest, Burke Brook Forest and Wilket Creek Forest - are located along the main branch of the West Don River downstream of the study area.

### 2.5.2 Significant Wetlands

There are no provincially or non-provincially significant wetlands located within the secondary study area.

### 2.5.3 Areas of Natural and Scientific Interest

There are no Areas of Natural and Scientific Interest (ANSIs) located within the secondary study area. One locally significant life science ANSI, Earl Bales Woods, is located approximately 3 km southwest of the secondary study area near the intersection of Sheppard Avenue and Bathurst Street.

### 2.5.4 Natural Corridors

The CNR right-of-way, hydro corridors, and stream corridors and valleylands in the secondary study area act as corridors/wildlife pathways for wildlife tolerant of an urban environment and may serve to link locally important habitat units for wildlife occupants. These areas allow for wildlife movement along the watercourses to and from more protected areas surrounding the study area such as ESAs and ANSIs. The study area is highly urbanized and very few natural areas in locations other than along watercourses are linked together.

### 2.5.5 Natural Heritage System

#### 2.5.5.1 City of Toronto Official Plan

The City of Toronto Natural Heritage System includes the following natural heritage areas within the secondary study area:

- William Baker Park in the northeast corner of Keele Street and Sheppard Avenue;
- Downsview Airforce Base along the south side of Sheppard Avenue;
- Dufferin Creek valleylands south of Finch Avenue;
- Black Creek and its valleylands;
- West Don River and its valleylands;
- portions of the hydro corridor located between Finch Avenue and Steeles Avenue; and,
- several small isolated woodlots.

The policy for these “Natural Areas” is to maintain them primarily in a natural state, while allowing for compatible uses and conservation projects.

#### 2.5.5.2 York Region Official Plan

The York Region Greenlands System does not include any natural heritage areas within the secondary study area.

#### 2.5.5.3 City of Vaughan Official Plan

The City of Vaughan Official Plan as amended by OPA 600 identifies Black Creek and its tributaries within the secondary study area as “major open space and valley lands” and highly sensitive “hydrogeologically sensitive areas.” Several small isolated woodlots are also identified. The environmental policies identified in the official plan are designed to retain and protect these natural areas.

#### 2.5.6 Other Natural Heritage Features/Areas

The draft “Natural Sciences Report – Existing Conditions” for the Spadina Subway Extension EA was submitted to TRCA for review and comment. To supplement the information contained in the draft report, the TRCA identified additional species of flora recorded within the York University Campus and fauna recorded within the secondary study area. These species are presented in Table 7.

The TRCA also provided a map showing target areas identified in support of a terrestrial natural heritage system. The target areas included existing forest, existing wetland and potential natural cover. Target areas identified by TRCA within the primary study area include:

- a vacant field located on the west side of Dufferin Street mid-way between Sheppard Avenue and Finch Avenue;
- the Dufferin Creek valley located west and east of Dufferin Street;
- the hydro corridor right-of-way located north of Finch Avenue;
- the York University Pond and surrounding cultural thickets, cultural meadows and marshes; and,
- the two woodlots and cultural meadows located west of Keele Street on the York University Campus.

The goals for these target areas is to maintain the natural heritage present and restore areas of potential natural cover to the extent feasible during development in support of a terrestrial natural heritage system.

**TABLE 7.  
FLORA RECORDED BY TRCA AT YORK UNIVERSITY CAMPUS AND FAUNA RECORDED BY TRCA  
WITHIN SECONDARY STUDY AREA**

Scientific Name	Common Name	COSEWIC	MNR	Local	Legal Status*
<i>Allium tricoccum</i>	Wild Leek				
<i>Andropogon gerardii</i>	Big Bluestem			R <sup>1,2</sup>	
<i>Aster oolentangiensis</i>	Sky Blue Aster			R <sup>1,2</sup>	
<i>Carex grayi</i>	Gray’s Sedge			R <sup>1,2</sup>	
<i>Claytonia virginica</i>	Virginia Spring Beauty			C,R <sup>2</sup> ,U <sup>1</sup>	
<i>Juglans cinerea</i>	Butternut	END	END	C	SARA(1), PPS
<i>Lilium michiganense</i>	Michigan Lily			U <sup>1</sup>	
<i>Panicum virgatum</i>	Switch Grass			C,R <sup>1</sup>	
<i>Prunus nigra</i>	Canada Plum			C,U <sup>1,2</sup>	
<i>Salix petiolaris</i>	Slender Willow			C	
<i>Sorghastrum nutans</i>	Indian Grass			C,R <sup>1,2</sup>	
<i>Trillium erectum</i>	Purple Trillium			C	
<i>Trillium grandiflorum</i>	White Trillium				
<i>Actitis macularia</i>	Spotted Sandpiper			BSC	MBCA
<i>Colaptes auratus</i>	Northern Flicker				MBCA
<i>Contopus virens</i>	Eastern Wood-pewee				MBCA
<i>Dolichonyx oryzivorus</i>	Bobolink			C, BSC	MBCA
<i>Dumetella carolinensis</i>	Gray Catbird				MBCA
<i>Gallinago delicata</i>	Wilson’s Snipe			C, BSC	MBCA
<i>Hylocichla mustelina</i>	Wood Thrush			C	MBCA
<i>Mimus polyglottos</i>	Northern Mockingbird			BSC	MBCA
<i>Myiarchus crinitus</i>	Great Crested Flycatcher				MBCA
<i>Passerculus sandwichensis</i>	Savannah Sparrow			BSC	MBCA
<i>Picoides villosus</i>	Hairy Woodpecker				MBCA
<i>Sayornis phoebe</i>	Eastern Phoebe			BSC	MBCA
<i>Scolopax minor</i>	American Woodcock			C, BSC	MBCA
<i>Sitta canadensis</i>	Red-breasted Nuthatch			BSC	MBCA
<i>Sturnella magna</i>	Eastern Meadowlark			BSC	MBCA
<i>Toxostoma rufum</i>	Brown Thrasher			C, BSC	MBCA
<i>Vireo olivaceus</i>	Red-eyed Vireo				MBCA
<i>Mustela vison</i>	Mink				FWCA(F)

**COSEWIC (Committee on the Status of Endangered Wildlife in Canada):**

END Endangered  
THR Threatened  
SC Special Concern

**Local Status:**

BSC Bird Studies Canada species of conservation priority for the City of Toronto.  
U Uncommon (after Varga et al. 2000)  
R Rare (after Varga et al. 2000)  
<sup>1</sup> Status in the Greater Toronto Area (GTA)  
<sup>2</sup> Status in the City of Toronto  
C Species of Concern (TRCA 2003)

**OMNR (Ontario Ministry of Natural Resources):**

END Endangered  
THR Threatened  
SC Special Concern

**Legal Status:**

SARA *Species at Risk Act* – Schedules (1), (2), (3)  
ESA *Endangered Species Act*  
FWCA *Fish and Wildlife Conservation Act*  
(P) Protected Species  
(G) Game Species  
(F) Furbearing Mammals  
PPS Species afforded habitat protection under the Provincial Policy Statement of the *Planning Act*

### 3.0 PROJECT DESCRIPTION

The Spadina Subway Extension comprises the construction and operation of the extension the Spadina Lines from the existing Downsview Station to a new terminal station located at Steeles Avenue. The plan in general calls for subway extensions of the Spadina Line from the Downsview Station, through Downsview Park, along Keele Street (from Ashwarren Road to Pond Road, and then through York University to the terminal station on Steeles Avenue, approximately 800 m to the east of Jane Street). The total length of the extension will be approximately 6.2 km.

Four stations will be located along the subway line including: 1) Sheppard West Station, located at the southwest corner of the Bradford GO Line and Sheppard Avenue; 2) Finch West Station, located at the intersection of Finch Avenue at Keele Street; 3) the York University Station, located in the east end of the Common; and, 4) Steeles West Station, located at the intersection of Steeles Avenue and Northwest Gate. Commuter parking lots will be located at the Finch West Station in the hydro corridor and at the Steeles West Station in the hydro corridor. Bus terminals will be located at the Finch West Station and Steeles West Station, with the Steeles West Station accommodating a major inter-regional bus terminal with over 30 bus bays. Passenger pick up and drop off facilities will also be located at subway stations. Crossovers and three track structures will be constructed at subway stations. The preferred alignment and station concepts are presented in Figure 3.

The Spadina Subway Extension will be constructed using a tunnel boring machine, except at Parc Downsview Park, where cut-and-cover construction will occur. Open cut excavation will occur at station boxes, special track structures, and ventilation shafts. The subway extension will be constructed continuously over a time frame estimated at seven years.

### 4.0 IMPACT ASSESSMENT AND ENVIRONMENTAL PROTECTION

#### 4.1 Physiography and Soils

Clay soils located within the project limits have slight susceptibility to erosion. However, soil disturbance associated with excavations, cut-and-cover, drainage alterations, etc. may result in erosion of, and sedimentation to, sensitive receiving watercourses. Site-specific erosion and sedimentation control measures to be implemented prior to construction will be identified during detail design. Erosion and sedimentation control measures will include:

- limiting the geographical extent and duration that soils are exposed to the elements;
- implementing standard erosion and sedimentation control measures in accordance with Ontario Provincial Standard Specification (OPSS) 577 including: straw bale and/or rock flow checks placed at regular intervals in ditches down gradient from areas of soil disturbance; silt fence placed along the perimeter of work areas; applying conventional seed and mulch, tackifiers and/or erosion control blanket in areas of soil disturbance to provide adequate slope protection and long-term slope stabilization; and,
- managing surface water outside of work areas to prevent surface water from coming in contact with exposed soils.

Monitoring of erosion and sedimentation control measures during construction will be implemented to ensure their effectiveness. These environmental protection measures will greatly reduce the potential for soil erosion and impairment of water quality.



**LEGEND**

- Study Area
- Preferred Alignment
- Watercourse
- Vegetation Community Boundary
- TRCA Fish Dot

**Vegetation Communities**

- AGR** Agricultural
- GUM1-1** Dry-Moist Old Field Meadow Type
- GUT1** Mineral Cultural Thicket Ecosite
- CUW** Cultural Woodland
- GUW1** Mineral Cultural Woodland Ecosite
- FOD4** Dry-Fresh Deciduous Forest Ecosite
- FOD5** Dry-Fresh Sugar Maple Deciduous Forest Ecosite
- FOD6-5** Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type
- FOD7** Fresh-Moist Lowland Deciduous Forest Ecosite
- FOD7-3** Fresh-Moist Willow Lowland Deciduous Forest Type
- MAM2-2** Reed-canary Grass Mineral Meadow Marsh Type
- MAS2-1** Cattail Mineral Shallow Marsh Type
- OAO** Open Aquatic

**Rare Plants**

- 1** Red Cedar
- 2** Red Cedar, Dudley's Rush
- 3** Black Walnut
- 4** Black Walnut, Sandbar Willow
- 5** White Oak, Sassafras
- 6** White Oak, Poison Ivy -vine form, Swamp Red Current,

**NATURAL HERITAGE AND PREFERRED ALIGNMENT AND STATION CONCEPTS**

<b>Project:</b> TA4106	<b>Figure:</b> 3
<b>Date:</b> December 2005	<b>Prepared By:</b> MWF
<b>Scale:</b> 1 : 28,900	<b>Checked By:</b> GNK

Data Sources: LGL Limited field survey's, Toronto and Region Conservation Authority, Toronto Transit Commission.



## 4.2 Aquatic Habitats and Communities

No aquatic habitats or communities are located within the zone of the influence of the Spadina Subway Extension. As a result, no significant adverse effects on aquatic habitat or communities will occur as a result of this project. Potential effects on surface water quality and quantity are addressed in a separate report.

## 4.3 Vegetation and Vegetation Communities

Construction of the Spadina Subway Extension has the potential to result in the displacement of and disturbance to vegetation and vegetation communities. Effects on vegetation related to these improvements may include:

- displacement of vegetation and vegetation communities;
- disturbance to vegetation through edge effects (windthrow, sunscald, changes in light conditions and invasion by exotic species) and drainage modifications; and,
- displacement of rare, threatened or endangered vegetation or significant vegetation communities.

Over time these disturbances may alter community structure, composition and function. Effects are most prominent in areas that have not been previously disturbed.

### 4.3.1 Displacement of Vegetation and Vegetation Communities

Minor clearing will be required, primarily within and surrounding proposed subway station locations, for the construction of the Spadina Subway Extension. The vegetation in these locations is primarily cultural and/or agricultural in nature, and is infrequently to frequently subject to mowing or other sources of disturbance. This vegetation provides habitat for birds and small mammals, soil stabilization, and carbon cycling through respiration. For this reason, efforts should be made to protect vegetation that does not need to be removed for the construction of the Spadina Subway Extension.

Displacement of existing vegetation communities located within areas to be occupied by subway facilities will occur in four locations, including:

- the Dry-Moist Old Field Meadow (CUM1-1)/Agricultural (AGR) community located on the north side of Steeles Avenue between Jane Street and Keele Street;
- the Dry-Moist Old Field Meadow (CUM1-1) community located west of Keele Street in the vicinity of Murray Ross Parkway;
- the Dry-Moist Old Field Meadow (CUM1-1)/Reed-canary Grass Mineral Meadow Marsh (MAM2-2) community located east of Keele Street in the vicinity of Murray Ross Parkway; and,
- the Dry-Moist Old Field Meadow (CUM1-1) community located south of Sheppard Avenue between Keele Street and Dufferin Street (Canadian Forces Base Downsview property).

A summary of the potential removals of vegetation communities located within the project limits is presented in Table 8.

**TABLE 8. SUMMARY OF PROPOSED VEGETATION REMOVALS, MITIGATION MEASURES AND NET ENVIRONMENTAL EFFECTS**

ELC Community	Location (s)	Site Specific Impacts	Proposed Mitigation	Net Environmental Effect
CUM1-1/ AGR	<ul style="list-style-type: none"> <li>• north side of Steeles Avenue midway between Jane Street and Keele Street for the Steeles West Station box and parking facilities</li> </ul>	<ul style="list-style-type: none"> <li>• removal of approximately 11.9 ha of CUM1-1/AGR</li> </ul>	<ul style="list-style-type: none"> <li>• incorporate vegetation communities into site design, where practical</li> <li>• delineate work zone using construction fencing/tree protection barrier</li> <li>• restore disturbed areas with native species, where practical</li> <li>• transplant suitable plant material into nearby protected areas</li> </ul>	<ul style="list-style-type: none"> <li>• loss of approximately 11.9 ha of CUM1-1/AGR on site</li> <li>• little opportunity to restore vegetation on site</li> <li>• opportunities for restoration in hydro corridor and Black Creek valley/lands</li> </ul>
CUM1-1	<ul style="list-style-type: none"> <li>• west side of Keele Street south of Murray Ross Parkway for the Finch West Station parking facilities</li> </ul>	<ul style="list-style-type: none"> <li>• removal of approximately 0.16 ha of CUM1-1</li> </ul>	<ul style="list-style-type: none"> <li>• incorporate vegetation communities into site design, where practical</li> <li>• delineate work zone using construction fencing/tree protection barrier</li> <li>• restore disturbed areas with native species, where practical</li> <li>• transplant suitable plant material into nearby protected areas</li> </ul>	<ul style="list-style-type: none"> <li>• loss of approximately 0.16 ha of CUM1-1 on site</li> <li>• little opportunity to restore vegetation on site</li> <li>• opportunities for restoration in hydro corridor</li> </ul>
CUM1-1/ MAM2-2	<ul style="list-style-type: none"> <li>• east side of Keele Street south of the eastern terminus of Murray Ross Parkway for the Finch West Station parking facilities</li> </ul>	<ul style="list-style-type: none"> <li>• removal of approximately 1.7 ha of CUM1-1/MAM2-2</li> </ul>	<ul style="list-style-type: none"> <li>• incorporate vegetation communities into site design, where practical</li> <li>• delineate work zone using construction fencing/tree protection barrier</li> <li>• restore disturbed areas with native species, where practical</li> <li>• transplant suitable plant material into nearby protected areas</li> </ul>	<ul style="list-style-type: none"> <li>• loss of approximately 1.7 ha of CUM1-1/MAM2-2</li> <li>• little opportunity to restore vegetation on site</li> <li>• opportunities for restoration in hydro corridor</li> </ul>
CUM1-1	<ul style="list-style-type: none"> <li>• south side of Sheppard Avenue midway between Keele Street and Dufferin Street for the Sheppard West Station box and cut-and-cover tunnel construction on Parc Downsview Park lands</li> </ul>	<ul style="list-style-type: none"> <li>• removal of approximately 2.33 ha of CUM1-1</li> </ul>	<ul style="list-style-type: none"> <li>• incorporate vegetation communities into site design, where practical</li> <li>• delineate work zone using construction fencing/tree protection barrier</li> <li>• restore disturbed areas with native species, where practical</li> <li>• transplant suitable plant material into nearby protected areas</li> </ul>	<ul style="list-style-type: none"> <li>• loss of approximately 2.33 ha of CUM1-1 on site</li> <li>• opportunities for restoration of approximately 1.50 ha on site in areas of cut-and-cover construction</li> <li>• other opportunities for restoration within Park Downsview Park</li> </ul>

Given the area, type, significance and sensitivity of vegetation communities/ecosystems to be displaced by the Spadina Subway Extension, mitigation measures are limited. During design, efforts should be made to incorporate vegetation communities/ecosystems into subway design to the extent possible. In areas where no vegetation removals are required, construction fencing should be used to isolate the work area. Suitable plant material located in areas to be cleared should be transplanted to nearby protected areas. Following construction of the subway tunnel in areas of cut-and-cover construction, soil should be placed over the subway tunnel and vegetation should be restored through induced or natural regeneration. Restoration plans to be prepared during detail design should follow a net gain approach.

Ornamental vegetation is located along City streets and on private land within the study area. This planted vegetation provides habitat for birds and small mammals, shade, soil stabilization, aesthetic appeal and carbon cycling through respiration. In areas of cut-and-cover construction, open excavation and ground disturbance, ornamental and regenerating vegetation will be displaced. An inventory of trees and shrubs was conducted in areas to be displaced by subway facilities. Based on this inventory, it is estimated that approximately 1,400 trees and shrubs will be lost, including 708 trees with a dbh greater than 10 cm, 240 tree saplings and 452 shrubs. These trees and shrubs will be lost primarily at the Sheppard West Station, the Finch West Station and the Steeles West Station.

The City of Toronto's Parks and Recreation Division regularly updates and verifies the type, ownership, condition and status of all street trees use the Toronto Maintenance Management System. It also sets out schedules for replacement of damaged, dying or dead trees, usually during the following growing season. TTC will work closely with the City of Toronto's Urban Forestry staff and the City of Vaughan's Parks and Recreation Division ensure that current standards for tree plantings, including species, sizes, tree pits, and pit covers are applied. They will also assist in reviewing appropriate locations where additional tree plantings may occur.

Normal practice is to avoid disturbing soil within the drip line of trees and shrubs that are to remain.<sup>1</sup> Areas that are not required for subway development will be isolated from the work area using construction fencing.

In the event that works must be undertaken within vegetation communities/ecosystems, TTC will monitor the health of the trees during construction. Vegetation communities that have been restored will be monitored for one year following construction to ensure the survival of vegetation. If it is determined that the tree health is failing or has failed, then the tree (or shrub) will be replaced with the identical species and growth.<sup>2</sup>

TTC will monitor the health of the trees during construction. Once all construction activities are complete, this monitoring program will continue into the following growing season. For vegetation that need not be removed to facilitate the construction of permanent works, TTC will avoid disturbing soil within the drip line of trees and shrubs.<sup>3</sup> Areas that are not required for subway construction will be isolated from the work area using construction fencing.

#### 4.3.2 Disturbance to Vegetation and Vegetation Communities

Disturbance to vegetation as a result of construction of the Spadina Subway Extension is considered negligible since the majority of the vegetation located adjacent to the right-of-way and in areas of proposed stations and parking locations has been previously disturbed by agricultural practices and/or

<sup>1</sup> Toronto Transit Commission Master Specification 05-06-28 – Section 02300 – subsection 3.4.2

<sup>2</sup> Toronto Transit Commission Master Specification 05-06-28 – Section 02300 – subsection 3.6.2

<sup>3</sup> Toronto Transit Commission Master Specification 05-06-28 – Section 02910 – subsection 3.2.1

urban development. Impacts on vegetation communities will likely be due to grading activities rather than the need to clear portions of communities.

Wetland communities adjacent to the proposed Spadina Subway Extension right-of-way are small and fragmented. These communities do not currently provide interior habitat for more conservative vegetation or wildlife species. Minimal clearing will occur in wetland areas and the majority of clearing will occur along the community edge.

The subway extension will be tunnelled under two woodlots located at York University: Boynton Woods, a Dry-Fresh Sugar Maple-Hardwood Deciduous Forest (FOD6-5); and, Boyer Woods, a Dry-Fresh Deciduous Forest (FOD4). Groundwater drawdown associated with tunnelling activities may upset the water balance in the York University woodlots by creating a water deficit, or drought conditions. A temporary water deficit may result in inhibited growth and wilting of vegetation. A prolonged water deficit may lead to mortality or changes in the composition, structure or function of the woodlot. The relationship between the forest ecosystem water balance and the ability of vegetation to regulate any differences in water potential is influenced by the physical features of the site (topography, soils), the characteristics of the forest community (species composition, seral stage), moisture inputs (rain, snow) during the dewatering period, and the rate at which the water table is drawn down by the dewatering process and its duration.

The subway tunnel in the vicinity of the York University woodlots will be approximately 15 m below ground level, a sufficient depth to avoid all root structures as well as the surface drainage regime. The subway tunnels will also be lined, so there will be no long-term loss of groundwater to the tunnels or migration laterally along the tunnel. The tunnel boring machine will advance at a rate of approximately 15 m per day. As a result, tunnelling will only occur in the vicinity of the woodlots for several weeks.

TTC proposes to use earth pressure balance (EPB) tunnelling technology so that the face of the tunnel boring machine (TBM) remains pressurized at all times and no dewatering will be required. Given the depth of the tunnel, the short duration of tunnelling activities in the vicinity of the woodlots and the use of an earth pressure balanced tunnel boring machine, potential effects on the York University woodlots as a result of tunnelling activities are considered negligible.

Groundwater drawdown may be required at the Finch West Station, York University Station and Steeles West Station to allow open cut construction of the subway station. The zone of influence for groundwater drawdown at the subway stations will be confirmed through pumping tests and interpretation of groundwater conditions. If it is determined through further investigation that the York University woodlots are located within the zone of influence for groundwater drawdown, an Environmental Management Plan will be prepared detailing monitoring requirements, triggers/thresholds and contingency measures.

In the event that works must be undertaken within vegetation communities/ecosystems, TTC will monitor the health of the trees during construction. Once all construction activities are complete, this monitoring program will continue into the following growing season. If it is determined that tree health is failing or has failed, then the tree (or shrub) will be replaced with the identical species and growth.<sup>4</sup>

<sup>4</sup> Toronto Transit Commission Master Specification 05-06-28 – Section 02300 – subsection 3.6.2



#### 4.3.3 Displacement of Rare, Threatened or Endangered Vegetation or Significant Vegetation Communities

Two species of conservation concern are located in areas of vegetation removals. Red cedar (*Juniperus virginiana*) is planted and not naturally occurring in the Study Area. The red cedar has a dbh of 2 cm and is located within the Dry-Moist Old Field Meadow Type (CUM1-1) community along the Finch hydro corridor. Red cedar is uncommon in the Greater Toronto Area and is rare in the City of Toronto. As this specimen is planted, its significance is diminished. Dudley's rush (*Juncus dudleyi*) occurs in a dense population scattered throughout the Dry-Moist Old Field Meadow Type (CUM1-1) and Reed-Canary Grass Mineral Meadow Marsh Type (MAM2-2) communities along the Finch hydro corridor in the vicinity of Keele Street. Dudley's rush is uncommon in the City of Toronto.

In accordance with TTC's Design Manual, TTC will preserve existing landforms and vegetation wherever possible and will encourage naturalization in suitable low use areas to minimize the need for landscape maintenance.<sup>5</sup> TTC will investigate opportunities during detail design to transplant species of conservation concern into secure areas prior to site clearing. Suitable plant material will also be identified for transplanting to nearby protected areas. While the red cedar specimen can be transplanted readily, Dudley's rush would require stripping off the turf layer, moving the turf layer to a suitable location and laying the turf layer down. The turf layer would also contain invasive/exotic species that should not be transplanted. As a result, transplanting Dudley's rush may not be practical.

#### 4.4 Wildlife and Wildlife Habitat

Construction of the Spadina Subway Extension has the potential to result in the displacement of and disturbance to wildlife and wildlife habitat. Effects on wildlife related to these improvements may include:

- displacement of wildlife and wildlife habitat;
- barrier effects on wildlife passage;
- wildlife/vehicle conflicts;
- disturbance to wildlife from noise, light and visual intrusion; and,
- displacement of rare, threatened or endangered wildlife and significant wildlife habitat.

Effects are most prominent in areas that have not been previously disturbed.

##### 4.4.1 Displacement of Wildlife and Wildlife Habitat

The Spadina Subway Extension will be constructed primarily within or below existing road rights-of-way in the City of Toronto. These locations consist primarily of previously modified/disturbed terrestrial wildlife habitat with low habitat structure and diversity and limited habitat capability. Consequently, the construction of the Spadina Subway Extension will have no significant effect on wildlife and wildlife habitat.

No wildlife species of management concern beyond the local (municipal jurisdiction) level were noted during field investigations. Ten breeding bird species observed in the study area have been identified by Bird Studies Canada (BSC) as species of conservation priority. In addition, three species of birds (Eastern Wood-pewee, Black-capped Chickadee and Eastern Meadowlark) have been identified by TRCA as species of concern with the City of Toronto. These bird species are distributed widely, and are

<sup>5</sup> Toronto Transit Commission Design Manual, DM-0408-01, subsection 4.1 (94-01-14)

encountered commonly, in a range of habitats in the GTA and throughout their Ontario range. However, these species should be protected from harm during site clearing activities.

The Eastern Wood-Pewee (*Contopus virens*) is a common, small, plain-coloured flycatcher of woodlands throughout most of eastern North America. Unless it is calling, it is generally inconspicuous. Eastern Wood-Pewees arrive in the study area in May and most have departed by mid September. Nesting activities (incubation and raising of the brood) occur primarily during June and July. Nesting occurs in a wide variety of wooded areas, including urban shade trees, roadsides, woodlots, orchards, and extensive tracts of deciduous forest.

The familiar Black-capped Chickadee (*Poecile atricapillus*) is a common and widespread species. It ranges from coast to coast across southern Canada and the northern United States. Black-capped Chickadees generally are resident throughout their range; that is, they do not migrate regularly but remain within a limited home range throughout the year. Habitats used by this species include deciduous and mixed deciduous/coniferous woodlands, parklands, and willow thickets and even more disturbed areas such as old fields and suburban areas. There often is an association with birch (*Betula* sp.) or alder (*Alnus* sp.) trees. Chickadees feed primarily on invertebrates (mostly insect) and plant (seeds, fruits) materials. Black-capped Chickadees nest in cavities in trees. Most egg-laying and incubation occur during May, with brood rearing extending into June and early July.

The Eastern Meadowlark (*Sturnella magna*) is a widespread bird of farmland and open country throughout eastern North America, and occurs commonly in agricultural areas of southern Ontario. It is an early migrant, arriving in southern Ontario in March, although some winter in the area. Nesting occurs during May, June, and July and most individuals have departed by mid-November (James 1991). The Eastern Meadowlark nests on the ground. Foraging also is done almost entirely on the ground, where food consists primarily of insects and seeds.

The "incidental take" of migratory birds and the disturbance, destruction or taking of the nest of a migratory bird are prohibited under Section 6 of the Migratory Bird Regulations. "Incidental take" is the killing or harming of migratory birds due to actions, such as economic development, which are not primarily focused on taking migratory birds. No permit can be issued for the incidental take of migratory birds or their nests as a result of economic activities.

TTC will implement construction timing restrictions to avoid nesting/breeding periods for wildlife, including migratory birds. As a result, wildlife habitat will not be removed from April 1 to July 31, where possible. If vegetation clearing is required during the nesting season, TTC will retain a qualified avian biologist to conduct a nesting survey. If active nests are found, TTC will prepare a site-specific mitigation plan in consultation with the Canadian Wildlife Service. Prior to vegetation clearing, wildlife capture/relocation and dispersal techniques will be used to protect wildlife from physical harm. As a result, the subway extension will have no significant adverse effects on wildlife species/populations.

##### 4.4.2 Barrier Effects on Wildlife Passage

No new barriers to wildlife passage will be created as a result of construction of the Spadina Subway Extension.

##### 4.4.3 Wildlife/Vehicle Conflicts

No wildlife/vehicle conflicts are anticipated as a result of the construction of the Spadina Subway Extension.

#### 4.4.4 *Disturbance to Wildlife from Noise, Light and Visual Intrusion*

Noise, light and visual intrusion may alter wildlife activities and patterns. In residential/urban, commercial, industrial and institutional settings, such as the study area, wildlife have become acclimatized to the surrounding conditions and only those fauna that are tolerant of human activities remain. Given that wildlife are acclimatized to the presence of the network of City of Toronto streets in the study area, the tolerance of the wildlife assemblage to human activities and the limited zone of influence of the subway extension, disturbance to wildlife from noise, light and visual intrusion will have no significant adverse effects.

#### 4.4.5 *Displacement of Rare, Threatened or Endangered Wildlife or Significant Wildlife Habitat*

No rare, threatened or endangered wildlife or significant wildlife habitat will be adversely affected by this project.

## 5.0 MONITORING

The use of an earth pressure balance TBM will avoid any adverse environmental effects on the Boynton and Boyer woodlots. As a precaution, a monitoring program is proposed at these two woodlots to confirm the accuracy of impact predictions and to respond to any unforeseen events. The monitoring program includes the use of visual inspection of vegetation health during tunneling activities to determine evidence of stress on vegetation and soil moisture measurements prior to, during and following tunnelling activities to measure for drought conditions. Monitoring will also include measurement of groundwater levels. In the vicinity of the woodlots, the monitoring program will be implemented one year prior to tunnelling, during tunnelling, and for one year following completion of the tunnelling contract. The monitoring period may be reduced or extended based on the results of monitoring.

Measurements of soil moisture should be taken in each woodlot using moisture probes located at various depths in the soil. A nearby control plot beyond the zone of influence of the subway extension will also be established. When compared to the control plot, these measures will help to determine if soil moisture in the rooting zone of vegetation is impacted by tunnelling and possible relationships with vegetation growth.

TTC will discuss opportunities for a collaborative monitoring program with York University.

If it is determined that tunneling activities are having an adverse effect on the York University woodlots, a corrective course of action will be taken. The appropriate course of action will be determined at that time in response to the specific observed effects. TTC will consult with York University and the TRCA prior to implementing any contingency measures.

## 6.0 REFERENCES

- Cadman, M.D. et al. 1987. *Atlas of the Breeding Birds of Ontario*. University of Waterloo Press, Don Mills, Ontario.
- Chapman, L.J. and D.F. Putnam. 1984. *The Physiography of Southern Ontario, 3<sup>rd</sup> Edition*. Ontario Geological Survey Special Volume 2.
- City of Toronto. 2002. *City of Toronto Official Plan (Adopted by City Council November 2002)*. Toronto, Ontario.
- City of Toronto and Toronto and Region Conservation Authority. 2001. *City of Toronto Natural Heritage Study - Final Report*. Toronto, Ontario.
- City of Vaughan. 2003. *City of Vaughan Official Plan Amendment 600*. Vaughan, Ontario.
- Committee on the Status of Endangered Wildlife in Canada. 2003. *Canadian Species at Risk*. Ottawa, Ontario.
- Couturier, A. 1999. *Conservation Priorities for the Birds of Southern Ontario*. Unpublished Bird Studies Canada Report. 17pp.
- Ecoplans Limited. 1992. *Technical Natural and Cultural Environmental Review: TTC Yonge-Spadina Subway Loop, Toronto Transit Commission, City of Toronto, Ontario*. Prepared for McCormick Rankin Limited.
- Farrar, J.L. 1995. *Trees in Canada*. Fitzhenry and Whiteside Limited and the Canadian Forest Service. Markham, Ontario. 502 pp.
- Hoffman, D.W. and Richards N.R. 1955. *Soil Survey of York County – Report No. 19 of the Ontario Soil Survey*. Guelph, Ontario.
- James, R.D. 1991. Annotated checklist of the birds of Ontario. Second edition, revised and expanded. Royal Ontario Museum Life Sciences Miscellaneous Publication. 128 pp.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. *Ecological Land Classification for Southern Ontario: First Approximation and Its Application*. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02. North Bay, Ontario. 225 pp.
- LGL Limited. 2003. *Draft Natural Sciences Report - Existing Conditions: Spadina Transitway from the Downsview Subway Station to York University*. Prepared for URS Canada Inc. and the Toronto Transit Commission.
- Lanyon, W.E. 1995. Eastern Meadowlark (*Sturnella magna*). In *The Birds of North America*, No. 160 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

- McCarty, J.P. 1996. Eastern Wood-Pewee (*Contopus virens*). In *The Birds of North America*, No. 245 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.
- McLachlin, D.L., W.D. McIlveen, W.I.Gizyn, D.E. Corrigan, R.G. Pearson and R. Arnup. No Date. A numerical decline index rating for hardwood forest species. Ontario Ministry of Environment. Mimeo Report. 2 p.
- Metropolitan Toronto and Region Conservation Authority. 1994. *Forty Steps to A New Don: The Report of the Don Watershed Taskforce*. Toronto.
- Morton, J.K. and J.M. Venn. 1990. *A Checklist of the Flora of Ontario Vascular Plants*. University of Waterloo Biology Series No. 34. Department of Biology, University of Waterloo. Waterloo, Ontario. 218 pp.
- Natural Heritage Information Centre. 1997. *Southern Ontario Vegetation Communities List*. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario. Last revised January 1997.
- Natural Heritage Information Centre. 2004. *Lists of Ontario Plants, Birds, Reptiles, Amphibians, Mammals, Fish and Crustaceans*. Peterborough, Ontario.
- Newcomb, L. 1977. *Newcomb's Wildflower Guide*. Little, Brown and Company. Boston, Massachusetts. 490 pp.
- Newmaster, S.G., A. Lehela, P.W.C. Uhlig, S. McMurray and M.J. Oldham. 1998. *Ontario Plant List*. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario, Forest Research Information Paper No. 123, 550 pp. + appendices.
- Oldham, M.J. 1999. *Natural Heritage Resources of Ontario: Rare Vascular Plants*. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario. 56 pp.
- Ontario Ministry of Natural Resources. 2000. *Significant Wildlife Habitat Technical Guide*. Peterborough, Ontario.
- Ontario Ministry of Natural Resources. 2003. *Vulnerable, Threatened, Endangered, Extirpated or Extinct Species of Ontario*. Species at Risk Project. Peterborough, Ontario.
- Peck, G.K. and R.D. James. 1987. Breeding birds of Ontario Nidology and Distribution. Volume 2: Passerines. Royal Ontario Museum Life Sciences Miscellaneous Publication. 387 pp.
- Regional Municipality of York. 1994. *Official Plan*. As approved by the Minister of Municipal Affairs on October 17, 1994.
- Scott, W.B. and E.J. Crossman. 1973. *Freshwater Fishes of Canada*. Fisheries Resource Board Canada, Bulletin 184.
- Smith, S.M. 1993. Black-capped Chickadee (*Parus atricapillus*). In *The Birds of North America*, No. 39 (A. Poole, P. Stettenheim, and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

- Soper, J.H. and M.L. Heimburger. 1982. *Shrubs of Ontario*. The Royal Ontario Museum. Toronto, Ontario. 495 pp.
- Toronto and Region Conservation Authority. 1998. *Humber River Watershed Fisheries Management Plan*. Toronto.
- Toronto and Region Conservation Authority. 2004. *Digital Database and Mapping of ESAs, Wetlands, ANSIs and Fish Sampling Locations*.
- Toronto Transit Commission and the City of Toronto. 2004. *Environmental Assessment Terms of Reference – Spadina Subway Extension Downsview Station to Steeles Avenue*. Toronto.
- Van Horn, M. and K. Van Horn. 1996. Quantitative photomonitoring for restoration projects. *Restoration and Management Notes* 14(1): 30-34.
- Varga, S., D. Leadbeater, J. Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C. Kingsley, C. Jacobsen, K. Mewa, L. Tebby, E. Mosley and E. Zajc. 2000. *Distribution and Status of the Vascular Plants of the Greater Toronto Area*. Ontario Ministry of Natural Resources. Aurora, Ontario. 103 pp.

**APPENDIX A**  
**PHOTOGRAPHIC RECORD**



Photo 1: Dufferin Creek crossing of Alignment A and B, facing upstream (west) towards where the watercourse daylights.

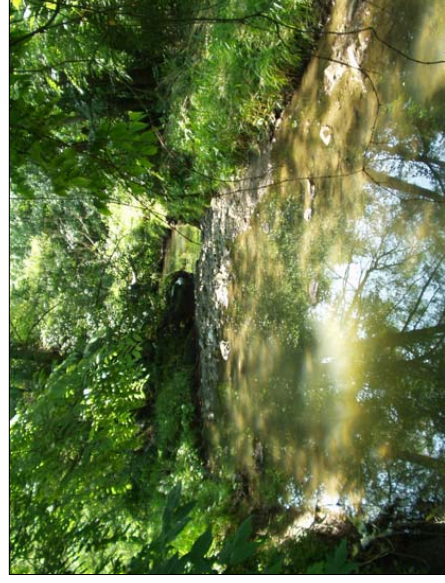


Photo 2: Dufferin Creek crossing of Alignment A and B, facing downstream (east) towards Dufferin Street.



Photo 3: Location of daylighting of Dufferin Creek facing upstream (south).



Photo 4: Leaching from north bank of Dufferin Creek facing north, downstream of the crossing of Alignment A and B.



Photo 5: Dufferin Creek upstream of Dufferin Street crossing and downstream of Alignment A and B, facing east.



Photo 6: Dufferin Creek crossing at Dufferin Street facing upstream (south) from the culvert.



Photo 7: Dufferin Creek crossing at Dufferin Street facing downstream (north) towards the culvert.



Photo 8: Dufferin Creek crossing at Dufferin Street facing upstream (west) towards the culvert.

**APPENDIX B**  
**TREE INVENTORY SUMMARY TABLES**

**Appendix B.**  
**Tree and Shrub Inventory - Dufferin Street and Sheppard Avenue Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road
1	Willow ( <i>Salix</i> sp.)	2-8	0	15	Good	Hedgerow	West of train tracks	South of Sheppard Avenue
2	Balsam Poplar ( <i>Populus balsamifera</i> )	2-13	0	100	Good	Hedgerow		
3	Silver Poplar ( <i>Populus alba</i> )	2-6	0	20	Good	Hedgerow		
4	American Elm ( <i>Ulmus americana</i> )	4-6	0	2	Good	Hedgerow	West side of train tracks	
5	European Mountain Ash ( <i>Sorbus aucuparia</i> )	4-12	0	4	Good	Hedgerow & Multi-stem		
6	Choke Cherry ( <i>Prunus virginiana</i> ssp. <i>virginiana</i> )	2	0	17	Good	Hedgerow	West side of train tracks	
7	Tartarian Honeysuckle ( <i>Lonicera tatarica</i> )	1-4	0	6	Good	Hedgerow & Multi-stem		
8	Russian Olive ( <i>Eleagnus angustifolia</i> )	2-16	0	6	Good	Hedgerow	West side of train tracks	
9	Common Buckthorn ( <i>Rhamnus cathartica</i> )	1-5	0	3	Good	Hedgerow & Multi-stem		
10	Eastern Cottonwood ( <i>Populus deltoides</i> )	55	0	1	Good	Hedgerow	East side of train tracks	
11	Manitoba Maple ( <i>Acer negundo</i> )	3-13	0	6	Good	Hedgerow & Multi-stem		
12	Dog Rose ( <i>Rosa canina</i> )	1-3	0	1	Good	Hedgerow	Street trees	
13	Sugar Maple ( <i>Acer saccharum</i> ssp. <i>saccharum</i> )	3	0	1	Good	Hedgerow		
14	Common Buckthorn	2-4	0	20	Good	Hedgerow	Street trees	
15	Willow	2-3	0	30	Good	Hedgerow		
16	Common Buckthorn	2-6	0	1	Good	Hedgerow & Multi-stem	Street trees	
17	Small Leaf Linden ( <i>Tilia cordata</i> )	2-14	0	20	Good	Hedgerow		
18	Red Ash ( <i>Fraxinus pennsylvanica</i> )	13	0	5	Good	Open Grown	Street trees	

**Appendix B.**  
**Tree and Shrub Inventory - Steeles Avenue Between Jane Street and Keele Street Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road	
1	Norway Maple	11-33	0	14	Good	Open Grown	Street Trees	South of Steeles Avenue	
2	Norway Maple	20-45	0	35	Good	Open Grown	Northern Edge of Sports Field		
3	Colorado Spruce	10-15	<10m South	8	Good	Open Grown			
4	Red Ash	8-15	<10m South	11	Good	Open Grown			
5	Colorado Spruce	8-16	0	10	Good	Open Grown			
6	Red Ash	4-12	0	7	Good	Open Grown			
7	Norway Maple	16-28	0	10	Good	Open Grown			
8	Red Ash	8	0	2	Good	Open Grown	Street Trees East side of North Westgate Drive	Boulevard Trees of North Westgate Drive	
9	Freeman's Maple	20-25	0	10	Poor-Good	Open Grown			
10	Small Leaf Linden	30	0	9	Poor-Good	Open Grown	Central Part of North Westgate Parking Lot		
11	Red Ash	20-35	0	3	Poor-Good	Open Grown			
12	Honey Locust	15-20	0	4	Poor-Good	Open Grown			
13	Black Locust ( <i>Robinia pseudo-acacia</i> )	20-35	0	5	Poor-Good	Open Grown			
14	Common Catalpa	30	0	1	Poor-Good	Open Grown			
15	Horse Chestnut	28	0	1	Poor-Good	Open Grown			
16	Austrian Pine	20-30	0	10	Good	Open Grown			North Side of Northwest Gate Parking Lot
17	Norway Spruce ( <i>Picea abies</i> )	20	0	1	Good	Open Grown			
18	Eastern White Pine ( <i>Pinus strobus</i> )	13	0	1	Good	Open Grown			
19	Silver Maple ( <i>Acer saccharinum</i> )	26-45	0	2	Good	Open Grown			
20	Red Ash	22-32	0	5	Good	Open Grown			

**Appendix B.**  
**Tree and Shrub Inventory - Steeles Avenue Between Jane Street and Keele Street Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road
21	Russian Olive	3-4	0	2	Good	Open Grown	East Side of Northwest Gate Parking Lot	
22	Austrian Pine	10-40	0	34	Good	Open Grown		
23	Austrian Pine	15-30	0	66	Good	Open Grown	East Side of Track Fence on the Eastern Side of Northwest Gate Parking Lot	
24	Siberian Elm ( <i>Ulmus pumila</i> )	32-37	0	3	Good	Open Grown		
25	Small Leaf Linden	20	0	1	Good	Open Grown	West side of North Westgate parking lot	
26	Eastern White Pine	13	0	1	Good	Open Grown		
27	Red Ash	20-40	0	7	Good	Open Grown		
28	Austrian Pine	18-45	0	19	Good	Open Grown		
29	Colorado Spruce	22-30	0	2	Good	Open Grown		
30	Common Catalpa ( <i>Catalpa bignonioides</i> )	20-35	0	3	Good	Open Grown		
31	Siberian Crabapple	20-25	0	3	Good	Open Grown		
32	Red Oak ( <i>Quercus rubra</i> )	8	0	1	Good	Open Grown		
33	White Spruce	30	0	1	Good	Open Grown		
34	Siberian Crabapple	12	0	1	Good	Open Grown		
35	Scotch Pine ( <i>Pinus sylvestris</i> )	15-35	0	4	Good	Open Grown		
36	Honey Locust	12	0	1	Poor	Open Grown		
37	Red Ash	7-30	0	3	Good	Open Grown		
38	Austrian Pine	24-42	0	6	Good	Open Grown		
39	Silver Maple	7-14	0	3	Good-Poor	Open Grown & Multi-stem		
40	Paper Birch ( <i>Betula papyrifera</i> )	12-22	0	6	Good	Open Grown		
41	Bur Oak ( <i>Quercus macrocarpa</i> )	13	0	2	Good	Open Grown		
42	London Plane Tree ( <i>Platanus X acerifolia</i> )	10	0	1	Good-Poor	Open Grown		
43	Sugar Maple	13	0	1	Fair	Open Grown		
44	Horse Chestnut ( <i>Aesculus hippocastanum</i> )	11-13	0	2	Good	Open Grown		
45	Black Walnut ( <i>Juglans nigra</i> )	10	0	1	Good	Open Grown		

**Appendix B.**  
**Tree and Shrub Inventory - Steeles Avenue Between Jane Street and Keele Street Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road
46	Austrian Pine	15-30	0	5	Good	Open Grown	South Side of Ian Macdonald Boulevard	
47	Small Leaf Linden	20-23	0	4	Good	Open Grown	Street Trees	North Side of Steeles Avenue
48	Mugo Pine ( <i>Pinus mugo</i> )	2	0	10	Good	Open Grown		
49	Colorado Spruce	20-25	0	8	Good	Open Grown		
50	Norway Maple	12-17	0	7	Good	Open Grown		
51	Norway Maple	2-25	0	39	Good	Open Grown		
52	Russian Olive	5-7	<10m North	2	Good	Open Grown		
53	Manitoba Maple	2-4	>10m North	1	Good	Open Grown & Multi-stem		
54	White Spruce	10	>10m North	1	Good	Open Grown		
55	Austrian Pine	20-28	>10m North	23	Good	Open Grown	Street Trees in Western Section	
56	Colorado Spruce	25	>10m North	2	Good	Open Grown		
57	Siberian Crabapple	12-15	0	5	Good	Open Grown		
58	Siberian Crabapple	10-12	<10m North	4	Good	Open Grown		
59	Russian Olive	3-13	0	10	Good	Open Grown & Multi-stem		
60	Norway Maple	15-25	0	36	Good	Open Grown		
61	Bur Oak	40-80	0	20	Good	Canopy		
62	Bur Oak	2-10	0	20	Good	Understorey	CUW1 in Northeast Corner/Commuter Parking	
63	Hawthorn ( <i>Crataegus</i> sp.)	4-10	0	1	Good	Understorey		
64	Common Buckthorn	2-10	0	50	Good	Understorey & Multi-stem		
65	American Basswood ( <i>Tilia americana</i> )	6-20	0	4	Good	Subcanopy & Understorey		

**Appendix B.**  
**Tree and Shrub Inventory - Steeles Avenue Between Jane Street and Keele Street Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road
66	American Elm	4-13	0	7	Good	Understorey		
67	Red Ash	4-10	0	3	Good	Understorey		
68	Freeman's Maple	2-25	0	55	Good	Subcanopy & Understorey & Multi-stem		
69	Golden Willow ( <i>Salix alba</i> )	2-13	0	2	Good	Understorey		
70	Ironwood	4-20	0	5	Good	Subcanopy & Understorey		
71	Freeman's Maple	60-70	0	1	Good	Canopy & Multi-stem		
72	Common Pear ( <i>Pyrus communis</i> )	5-25	0	2	Good	Subcanopy & Understorey & Multi-stem		
73	Hawthorn	2-16	<10m West	1	Good	Multi-stem	East of UPS Building & Southwest of Commuter Parking	
74	Russian Olive	5-15	<10m West	2	Good	Multi-stem		
75	Manitoba Maple	2-6	0	4	Good	Open Grown	Southeast Part of Bus Terminal	
76	Russian Olive	2-8	0	11	Good	Open Grown & Multi-stem		
77	Willow	4-8	0	3	Good	Open Grown		
78	Russian Olive	4-12	0	6	Good	Open Grown & Multi-stem	Southwestern Portion of Bus Terminal	
79	Hybrid Crack Willow ( <i>Salix X rubens</i> )	29-80	0	23	Good-Fair	Canopy		
80	Large-fruited Thorn ( <i>Crataegus punctata</i> )	2-15	0	8	Good	Understorey		
81	Choke Cherry	2-5	0	13	Good	Understorey		
82	Bur Oak	4	0	1	Good	Understorey	East Central Portion of Proposed Street C	
83	Manitoba Maple	10	0	1	Good	Understorey		
84	American Elm	3-5	0	2	Poor	Understorey		
85	Common Buckthorn	5-7	0	2	Good	Open Grown		
86	American Elm	3-55	0	7	Good	Open Grown	Central Portion of Commuter	
87	Hawthorn	5-14	0	4	Good	Open Grown & Multi-stem		



**Appendix B.**  
**Tree and Shrub Inventory - Steeles Avenue Between Jane Street and Keele Street Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road
88	High Bush Cranberry ( <i>Viburnum trilobum</i> )	1-2	0	2	Good	Open Grown & Multi-stem	Parking Lot	
89	Manitoba Maple	2	0	1	Good	Open Grown		
90	Tartarian Honeysuckle	1-4	0	3	Good	Open Grown & Multi-stem	Eastern Portion of Commuter Parking Lot	
91	Slender Willow ( <i>Salix petiolaris</i> )	2-5	0	6	Good	Open Grown		
92	Common Buckthorn	3-14	0	1	Good	Open Grown & Multi-stem		
93	Siberian Crabapple	2-4	0	10	Good-Fair	Hedgerow		
94	Common Buckthorn	2-3	0	3	Good	Open Grown & Multi-stem	Western Portion of Commuter Parking Lot	
95	Russian Olive	2-6	0	4	Good	Open Grown & Multi-stem		
96	Willow	2-3	0	5	Good	Open Grown & Multi-stem		
97	Manitoba Maple	5	0	1	Good	Open Grown		
98	American Elm	5	0	2	Good	Open Grown		
99	Bur Oak	5-6	0	4	Good	Open Grown		
100	Russian Olive	2-15	0	25	Good	Open Grown & Multi-stem		
101	Hawthorn	2-18	0	4	Good	Open Grown & Multi-stem		
102	Bur Oak	4-8	0	4	Good	Open Grown		
103	Choke Cherry	2-10	0	26	Good	Open Grown		
104	Golden Willow	2-25	0	20	Good	Open Grown & Multi-stem		
105	American Elm	13-55	0	5	Good-Fair	Open Grown		
106	Large-fruited Thorn	4-25	0	9	Good	Open Grown		
107	Manitoba Maple	2-13	0	4	Good	Open Grown & Multi-stem		
108	Red Ash	3	0	1	Good	Open Grown		
109	Common Pear	3-20	0	2	Good	Open Grown		
110	Common Lilac ( <i>Syringa vulgaris</i> )	1-7	0	1	Good	Open Grown & Multi-stem		

**Appendix B.**  
**Tree and Shrub Inventory - Finch Avenue and Keele Street Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road
1	European Ash ( <i>Fraxinus excelsior</i> )	45	0	8	Good	Open Grown	Street Trees Between Finch Avenue & Four Wind Drive	West Side of Keele Street
2	Norway Maple	23-30	0	3	Good	Open Grown		
3	European Ash	27-45	0	5	Good	Open Grown	Street Trees	South Side of Four Winds Drive
4	White Spruce	18-25	0	4	Good	Open Grown	Secondary Station	North Side of Four Winds Drive
5	Norway Maple	12-28	0	4	Good	Open Grown	Street Trees Between Four Winds Drive & Murray Ross Parkway	West Side of Keele Street
6	Norway Spruce	43	0	1	Good	Open Grown		
7	Norway Maple	15-36	0	15	Good	Open Grown	North Side of Murray Ross Parkway	East Side of Keele Street
8	Austrian Pine	20	0	4	Good	Open Grown		
9	Red Ash	14-30	0	2	Good	Open Grown		
10	Colorado Spruce	20-25	0	5	Good	Open Grown	Northern Edge of Commuter Parking Lot	
11	Russian Olive	15-25	0	12	Good	Open Grown & Multi-stem		
12	American Elm	6-16	0	4	Good	Open Grown		
13	Staghorn Sumac ( <i>Rhus typhina</i> )	2-10	0	30	Good	Open Grown		
14	Red Ash	20	0	1	Good	Open Grown	Northern Edge of Commuter Parking Lot	
15	Common Buckthorn	1-5	0	1	Good	Open Grown & Multi-stem		
16	Manitoba Maple	20-25	0	1	Good	Open Grown & Multi-stem		

**Appendix B.  
Tree and Shrub Inventory - Finch Avenue and Keele Street Subway Segment**

#	Species	DBH (cm)	Distance (m)	No. of Trees	Condition	Growth Form	Notes & Location	Side of Road
17	Siberian Crabapple	8-15	0	1	Good	Open Grown & Multi-stem	Western Edge of Commuter Parking Lot	
18	Small Leaf Linden	20-22	0	2	Good	Open Grown		
19	Paper Birch	3-15	0	1	Good	Open Grown & Multi-stem	Center of Commuter Parking Lot	
20	Russian Olive	2-8	0	23	Good	Open Grown & Multi-stem		
21	Eastern Red Cedar	2	0	1	Good	Open Grown & Naturally Occurring	Southern Edge of Commuter Parking Lot	
22	Russian Olive	5-20	0	22	Good	Open Grown & Multi-stem		
23	Common Buckthorn	4-12	0	3	Good	Open Grown & Multi-stem	Southern Edge of Commuter Parking Lot	
24	Staghorn Sumac	2-8	0	20	Good	Open Grown		
25	Tartarian Honeysuckle	1-4	0	1	Good	Open Grown & Multi-stem	Northern Portion of Subway Station	
26	Red Ash	22-33	0	3	Good	Open Grown		
27	Honey Locust	12-18	0	7	Good	Open Grown	Central Portion of Subway Station	
28	Eastern White Cedar ( <i>Thuja occidentalis</i> )	1-13	0	29	Good	Open Grown		
29	Norway Maple	19-26	0	3	Good	Open Grown	Southern Portion of Subway Station	
30	Austrian Pine	18	0	1	Good	Open Grown		
31	Honey Locust	16-23	0	7	Good	Open Grown	Tangiers Road	
32	Colorado Spruce	14-20	0	2	Good	Open Grown		
33	Austrian Pine	16-20	0	4	Good	Open Grown	Open Grown & Multi-stem	
34	Downy Serviceberry ( <i>Amelanchier arborescens</i> )	2-6	0	2	Good	Open Grown & Multi-stem		
35	Norway Maple	20-25	0	25	Good	Open Grown	Open Grown & Multi-stem	
36	White Mulberry ( <i>Morus alba</i> )	2-3	0	1	Good	Open Grown & Multi-stem		
37	Siberian Crabapple	2	0	1	Good	Open Grown	Open Grown	
38	White Spruce	6-8	0	2	Good	Open Grown		