3. EXISTING AND FUTURE CONDITIONS

In order to generate the design alternatives and assess the associated impacts due to the Scarborough-Malvern LRT, all significant features and sensitive areas along the Scarborough-Malvern corridor were identified. The identification of the environmental features (i.e. transportation infrastructure, natural environment and socio-environment) involved collection of primary and secondary source data derived from field surveys, previous published and unpublished studies, and government databases including consultation with technical agencies. This was done in two steps, an inventory and analysis of existing conditions and an investigation as to how these conditions might change in the future.

3.1 Existing Conditions

In general, the existing conditions can be categorized into following topics and are presented in the associated sections:

- Transportation System / Traffic Operations (Section 3.1.1);
- Natural Environment (Section 3.1.2);
  - Fisheries and Aquatic Ecosystems
  - Vegetation and Vegetation Communities
  - Wildlife and Wildlife Habitat
  - Meander Belt
  - Sub-surface Conditions
  - Air Quality
- Socio-Economic (Section 3.1.3); and
  - Land Use and Economics
  - Contaminated Property
  - Utility
- Cultural Environment (Section 3.1.4).
  - Archaeology
  - Cultural Heritage

The future conditions of the study area are included in Section 3.2. Detailed information for the above categories is provided in the technical reports provided as Appendices to this EPR.

3.1.1 TRANSPORTATION

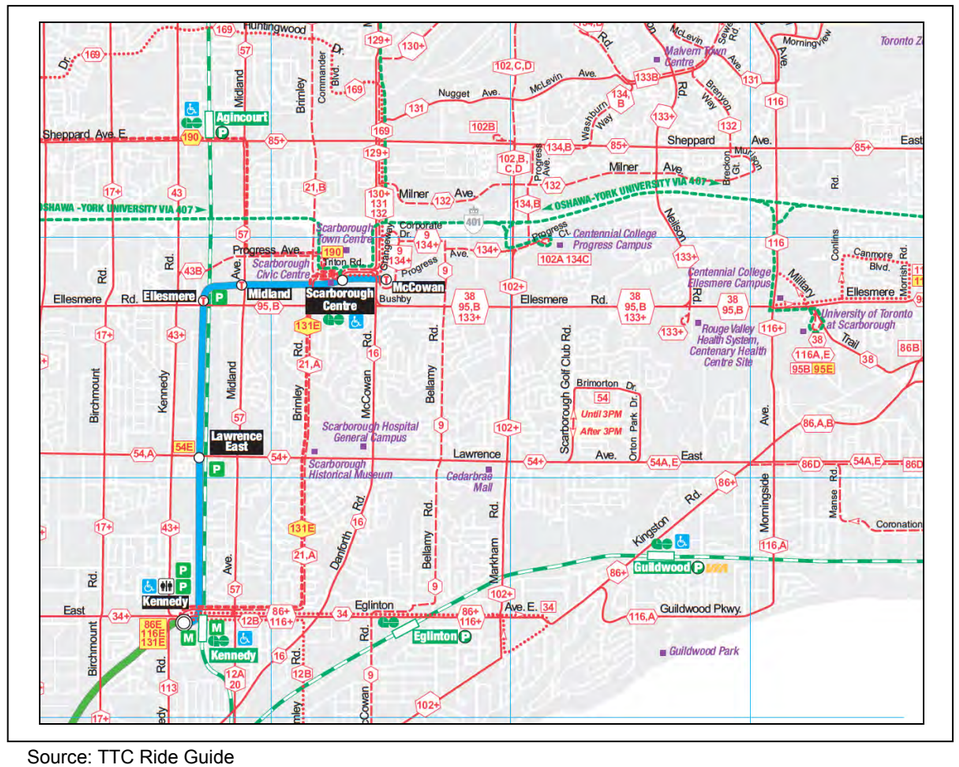
3.1.1.1 Public Transit

The existing bus services running through the study area are shown in Exhibit 3-1. The Toronto Transit Commission currently operates three bus routes in the Scarborough-Malvern corridor, 34 Eglinton East, 86 Scarborough and 116 Morningside. The bus routes are described as follows:

- The 34 Eglinton East bus route operates between Eglinton Station on the Yonge-University-Spadina Subway and the Eglinton Avenue East and Kingston Road area, in an east-west direction. It also serves Kennedy Station on the Bloor-Danforth Subway.
- The 86 Scarborough bus route operates between Kennedy Station on the Bloor-Danforth Subway and the Toronto Zoo with a branch to Lawrence Avenue East and the Beechgrove Drive area.
- The 116 Morningside bus route operates between Kennedy Station on the Bloor-Danforth Subway and, the Morningside Avenue and Old Finch Avenue area with branches to serve the University of Toronto at Scarborough campus, and the Conlins Road and Ellesmere Road area.

As shown in Exhibit 3-1, an additional 12 bus routes cross the Scarborough-Malvern corridor. The existing (2007) weekday ridership for the TTC surface transit routes within the Scarborough-Malvern study area are listed in Exhibit 3-2. The three principal routes noted above have a combined daily ridership of 63,600 and a peak hour peak point ridership of 2,700 persons per hour per direction.

Exhibit 3-1: Existing Transit Services



Source: TTC Ride Guide

Exhibit 3-2: Existing (2007) Ridership in the Scarborough-Malvern Corridor

TTC Bus Route	Typical Weekday Ridership (Passengers/Day)	TTC Bus Route	Typical Weekday Ridership (Passengers/Day)
34 Eglinton East	26,300	16 McCowan	10,300
86 Scarborough	17,100	131 Nugget	6,600
116 Morningside	20,200	21 Brimley	8,600
38 Highland Creek	9,200	9 Bellamy	3,800
95 York Mills	26,500	102 Markham Road	17,600
57 Midland	12,000	54 Lawrence East	33,900
12 Kingston Road	6,400	85 Sheppard East	28,300
20 Cliffside	5,300		

3.1.1.2 GO Transit

GO Transit currently operates four routes within the Scarborough-Malvern study area: the Lakeshore East and Stouffville rail corridors (with complementary bus service in the Stouffville corridor) and the Highway 407 East and UTSC/Centennial College bus services. Details of these routes are provided below:

- The Lakeshore East GO Train route operates from Toronto Union Station to Oshawa, and serves the Danforth, Scarborough, Eglinton, Guildwood, and Rouge Hill stations within the City. During peak hours there are three to four trains per hour in the peak direction and one train per hour during non-peak hours. Within the Study Area the rail corridor has recently been expanded to three tracks from two. The typical AM peak period / peak direction boardings are over 1,000 passengers at both Guildwood and Eglinton Stations on the Lakeshore East rail services.
- The Stouffville GO Train and Bus route serves Lincolnville, Stouffville, Mount Joy, Markham, Centennial, Unionville, Miliken, Agincourt and Kennedy GO Stations en route to Toronto Union Station. During peak hours there are approximately two trains per hour in the peak direction while during non-peak hours there is approximately one bus trip per hour per direction.
- The Highway 407 East GO Bus operates from Pickering and serves UTSC, the Centennial College Ellesmere Campus, Scarborough Town Centre, Richmond Hill and York University. GO Transit provides over 30 daily bus trips in each direction serving the UTSC campus on this route.
- The UTSC / Centennial College GO bus route connects the Scarborough UTSC and Centennial College campus to Unionville. There are a total of six bus trips in each direction on weekdays.

3.1.1.3 Bicycle and Pedestrian Network

At present Eglinton Avenue, Kingston Road and Morningside Avenue do not have designated cycling facilities. However, facilities in these corridors are proposed in the City of Toronto Bicycle Lane Network as part of the City of Toronto's Bike Plan.

Existing pedestrian facilities along Eglinton Avenue, Kingston Road, and Morningside Avenue in the Scarborough-Malvern Corridor currently include sidewalks along both sides of the road. Pedestrian crossings with traffic signals are provided at major crossing streets.

3.1.1.4 Road Network

The existing road network consists of a grid pattern of arterial roads and freeways within the City of Toronto. The major east-west roads include Eglinton Avenue, Ellesmere Road, Highway 401 and Sheppard Avenue. These run perpendicular to Morningside Avenue which runs north-south. Kingston Road runs at a diagonal connecting Eglinton Avenue with Military Trail and beyond to the Region of Durham while Military Trail also runs at a diagonal connecting Kingston Road to Morningside Avenue. Exhibit 3-3 shows the existing arterial road system in the Scarborough-Malvern Study Area according to the City of Toronto Classification System.

Exhibit 3-3: Existing Arterial Road System in the SMLRT Corridor

Arterial	Designated Right of Way Width (m)	Posted Speed (km/h)	Lanes
Eglinton Avenue	36	60	3 Eastbound (E) (2 General Purpose Lanes and 1 High Occupancy Lane), 3 Westbound (W) (2 General Purpose Lanes and 1 High Occupancy Lane) + 1 centre Two Way Left Turn Lane (TWLTL)
Kingston Road	36	60	3E, 3W + 1Raised Median
Morningside Avenue	30 (Lawrence Avenue to Highland Creek) 36 (Highland Creek to Sheppard Avenue)	60	2 Northbound (N), 2Southbound (S) + 1L, 1R. 3 lanes in each direction over the Highway 401 area
Ellesmere Road	36	60	2E, 2W + 1L
Military Trail	27	60	1E, 1W + 1 TWLTL

3.1.1.5 Assessment of Traffic Conditions

Signalized intersections are the main capacity constraint for traffic flow on arterial roads and therefore their operation defines the level of traffic congestion (typically called the "level of service") on that segment of the roadway. A detailed traffic analysis was undertaken to allow the project team to understand the existing traffic operation conditions.

The analysis was conducted using Synchro 6.0 Traffic Signal Coordination Software, following the Highway Capacity Manual (HCM) methodology and 95th percentile queues. The required traffic data including vehicle turning movement counts, pedestrian / bicycle volumes, signal timings and lane configurations were provided by the City of Toronto. In the analysis, intersections were classified as either acceptable or poor existing conditions. Poor existing conditions were assumed to occur where Volume/Capacity (V/C) ratio > 0.85; Level of Service (LOS) = E or F; or, the 95 percentile queue length for a turning movement exceeded its measured lane length.

The detailed documentation of the assessment of the existing traffic operations is included in Appendix B. The analysis shows that 18 out of 30 intersections are currently operating at or over capacity during the AM or PM peak hours. Exhibit 3-4 summarizes the critical movements and highlights the capacity constrained intersections.

Exhibit 3-4: Volume / Capacity Ratio at most Severely Congested Intersections

Intersections	Peak Hour / Critical Movement	V/C Ratio
Eglinton Avenue / Midland Avenue	AM Peak – WB through and SB right-turn movements	V/C > 0.90
	PM Peak – EB left-turn and though movements	V/C > 0.90
Eglinton Avenue / Falmouth Avenue / Gilder Drive	PM Peak – WB left-turn and WB through movements	V/C = 0.86
Eglinton Avenue / Brimley Road	AM Peak – WB through movement	V/C = 0.90
	PM Peak – EB through movement	V/C > 0.90
Eglinton Avenue / Danforth Road	AM Peak – EB left-turn and WB through movements	V/C > 0.85
	PM Peak – EB through, WB left-turn and SB left-turn movements	V/C > 0.90
Eglinton Avenue / Bellamy Road North Road	AM Peak: WB though movement	V/C of 0.90
Eglinton Avenue / Kingston Road	AM Peak: EB left-turn movement	V/C > 0.95
	PM Peak: EB left-turn movement	V/C of 0.95
Kingston Road / Scarborough Golf Club Road	AM Peak: WB &SB through movements	V/C > 0.85
	PM Peak: EB though movement	V/C of 0.87
Kingston Road / Cormwell Road	AM Peak: WB through movement	V/C > 0.85
	PM Peak: EB though movement	V/C > 0.85
Kingston Road / Galloway Road	AM Peak: EB left-turn and NB through movements	V/C ≥ 0.95
Kingston Road / Poplar Road	PM Peak: WB left-turn movement	V/C of 0.85
Kingston Road / Lawrence Avenue	AM Peak: SB left-turn movement	V/C > 0.95
	PM Peak: EB left-turn and NB though movements	V/C = 0.85 and 1.00, respectively
Kingston Road / Morningside Avenue	AM Peak: EB left-turn and WB through movements	V/C > 0.90
	PM Peak: EB and SB though movements	V/C > 0.85
Morningside Avenue / Ellesmere Road	AM Peak: EB left-turn movement	V/C > 0.95
	PM Peak: WB left-turn movement	V/C > 0.95
Morningside Avenue / Military Trail	AM Peak: EB left-turn & through and SB left-turn movements	V/C ≥ 0.85
Morningside Avenue / Highway 401 E-N/S Ramp	AM Peak: EB right-turn movement	V/C > 0.95
	PM Peak: EB right-turn movement	V/C > 0.90
Morningside Avenue / Highway 401 W-N/S Ramp	AM Peak: WB through & right-turn and NB left-turn movements	V/C > 0.90
Morningside Avenue / Milner Avenue	AM Peak: NB left turn movement	V/C > 0.95

3.1.2 NATURAL ENVIRONMENT

A natural heritage investigation was conducted in the spring and summer of 2008 for the Scarborough-Malvern study area. A Natural Heritage Report (see Appendix C1) documents the existing natural resources and provides findings on potential impacts and the associated mitigation measures for the proposed LRT.

The Scarborough-Malvern LRT study area is urbanized with the exception of the Highland Creek area which is the most sensitive area in terms of natural environment. An inventory of the existing natural environment conditions for fisheries and aquatic ecosystem, vegetation and vegetation communities, wildlife and wildlife habitat and designated natural areas are provided in the following sections. A copy of the report is included in Appendix C1. The existing natural environmental features along the corridor have been included in Exhibit 3-5.

3.1.2.1 Fish

Most of the study area is located within the Highland Creek watershed. The main branch of Highland Creek crosses Morningside Avenue within the study area. This watercourse is under the jurisdiction of the Toronto and Region Conservation Authority (TRCA) and the Ministry of Natural Resources (MNR) Aurora District. Transport Canada has designated the Highland Creek crossing under Morningside Ave as a navigable waterway.

As part of this project, aquatic habitat investigations were conducted on July 10, 2008. An aquatic habitat investigation was completed to document fish habitat conditions at watercourse road crossings within the study area. A photographic record of the watercourse is provided in Appendix C1.

In addition, a secondary source information review was undertaken to identify fisheries resources and associated aquatic habitat within the study area. The secondary source review included correspondence with the TRCA regarding fish collection records in the study area watercourses. A summary of these data, which includes data from1954 to 2005, is included in the Appendix C1 and is incorporated into the watercourse discussions below:

Highland Creek

Highland Creek flows in an easterly direction under Morningside Avenue approximately 740 m south of the Ellesmere Road intersection. The river and valley are wide within the study area. The channel upstream contained a mixed morphology of runs and riffles with a single pool. The pool was located downstream of a concrete weir that was approximately 50 cm high. The water was clear and the substrates were comprised of boulder, cobble, gravel and sand. Mean channel width varied from 10 m in riffles to 75 m at the pool. Instream cover is provided by boulders and cobbles. No instream vegetation was observed. Riparian vegetation consisted of mixed forest and open areas associated with pathways and a works yard. The concrete weir was located adjacent to the works yard and the southern bank in that area was reinforced with armourstone blocks.

Downstream (east) of Morningside Avenue, large, angular boulders have been placed in the water to create riffles. As a result, the entire morphology of the downstream 100 m investigated consisted of riffle habitat. The width varied from 15 m to 30 m and depth between 10 cm and 20 cm. Substrates were comprised of boulders, cobble, gravel and sand. Instream cover was provided by boulders and cobbles. A new outfall pipe was present on the southern bank at the bridge and recent work was done on both banks within the downstream area investigated as coconut matting and live stakes were present. Riparian vegetation was similar to upstream. Water temperature during the field investigation was 20.4°C at 11:08 when the air temperature was 25°C.

No formal fish collection was undertaken at this location during the July 10, 2008 site visit but many fish were observed. Most were identified as Blacknose Dace (Rhinichthys atratulus) and there were some Common Shiner (Luxilus cornutus), as well. Historic fisheries data provided by the TRCA indicate that nine species have been captured from this watercourse at four stations located within 500 m of the crossing (two upstream and two downstream). These include warmwater baitfish and sportfish and coldwater sportfish.

Species at Risk

All species historically recorded within or near the study area are considered to be either very common in Ontario (provincial rank of S5), common (provincial rank of S4) or non-native (provincial rank of SE). According to the Natural Heritage Information Centre (NHIC) database, one aquatic species at risk was found within or adjacent to the study area: Redside Dace (Clinostomus elongates). A record of this species from 1928 was reported in the NHIC database. Redside Dace has a provincial rank of S3 (rare to uncommon), is currently being tracked by the Natural Heritage Information Centre (NHIC) of the MNR and has a general provincial status of “At Risk”. It is also ranked as endangered in Ontario by the MNR in the provincial Endangered Species Act 2007 and as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). However, it is unlikely that Redside Dace are found within the Highland Creek watershed at present as the record of its finding is significantly older than 20 years and is no longer considered as representative of a „known occupied range’ for the species.

3.1.2.2 Vegetation

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 natural/semi-natural vegetation were conducted within the study area on July 9, 2008 to ground truth the boundaries of vegetation communities and to conduct a botanical survey. The Morningside ESA area was surveyed on September 3 and September 4, 2008.

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. Plant species status was reviewed for Ontario (Oldham 1999), Toronto and Region Conservation Authority (TRCA 2003a), City of Toronto (City of Toronto 2003), and Regional Municipality of Toronto (Varga *et al*. 2000).

Vegetation Communities – Inclusive of all Route Segments

The majority of the vegetation within the study area is the result of human disturbance being influenced by hydro corridors, rail corridors and residential, commercial and industrial land uses. The natural vegetation communities that are present are fragmented and essentially isolated by these surrounding land uses. A total of ten Ecological Land Classification (ELC) community types have been identified by LGL Limited within the study limits that define the corridors associated with Eglinton Avenue, Kingston Road and Morningside Avenue north of Ellesmere Road. The vegetation communities along these sections include mixed forest, deciduous forest, cultural communities, and wetland communities. More specifically, the vegetation community ecosites are: Dry-Fresh White Cedar Mixed Forest (FOM4), Dry-Fresh Poplar Deciduous Forest (FOD3-1), Dry-Fresh Sugar Maple-Black Cherry Deciduous Forest (FOD5-7), White Cedar Mineral Mixed Swamp (SWM1-1), Willow Mineral Thicket Swamp (SWT2-2), and Mineral Shallow Marsh (MAS2-1). Several cultural vegetation community ecosites are also included in this group: Dry-Moist Old Field Meadows (CUM1-1), Mineral Cultural Thickets (CUT1), Mineral Cultural Savannah (CUS1), and Mineral Cultural Woodland (CUW1).

Notwithstanding the high diversity of vegetation communities found within the total study area, the individual route segments do not exhibit this same characteristic. Along Eglinton Avenue, for example, there is only one area (Bellamy Road at the CN crossing) where vegetative cover is present. On the south side of Eglinton Avenue, a small cultural meadow (CUM1-1) and an alder thicket swamp (SWT2-1) are present, while on the north side, adjacent to and east of the CN rail line, a small(< .07 ha.) cultural woodlot (CUW1) and cultural meadow (CUM1-1) characterize the vegetative cover.

A similar situation exists for Kingston Road. The lands adjacent to the Kingston Road overpass over the CN rail line near the Guildwood GO train station are the only areas where natural cover is found. Cultural meadows and cultural woodlots are present on both sides of Kingston Road. The CUM1-1 parcels range in size between 0.35 and 1.0 ha., while the CUW1 ecosites are between 0.16 and 0.25 ha.

On Morningside Avenue between Kingston Road and Ellesmere Road there is a significant change in both the type and size of vegetation communities that are present as the alignment passes over the Highland Creek Valley which is part of the Morningside Park ESA/ANSI and through the Highland Forest ESA.

North of Ellesmere Road to Sheppard Avenue the vegetative communities present are again typical of those found in an urban landscape. Cultural meadows (CUM1-1), cultural woodlots (CUW1) and cultural thickets (CUT1) are the main ecosite types occurring along this section. Two communities, a white cedar mixed forest (FOM4) and a cattail mineral shallow marsh (MAS2-1), were found in the north west quadrant of the Morningside/Highway 401 interchange, however both are outside the zone of influence for this project.

A more detailed account of the vegetation communities found within the study area that are associated with the overall preferred alignment is presented in the Natural Heritage Report. Locations of the ELC communities are depicted on Exhibit 3-5. The vegetation communities that were identified are considered widespread and common in Ontario, the TRCA watershed (TRCA 2003b) and are secure globally.

Flora – Inclusive of all Route Segments

To date, a total of one-hundred and thirty-five (135) vascular plant taxa have been recorded within the study area. Sixty-seven taxa, representing fifty percent of the recorded flora, are considered introduced and non-native to Ontario. Introduced species were almost entirely located within the existing right-of-way and in cultural communities. A working vascular plant checklist is presented in the Appendix C1 – Natural Heritage Report.

Species at Risk – Inclusive of all Route Segments

No species considered rare, threatened or endangered (R, T, E) by COSEWIC or Committee on the Status of Species at Risk in Ontario (COSSARO)/MNR were noted during field investigations. The study area contains seven (7) plant species that are locally rare to uncommon in Toronto: SWM1-1: round-leaved dogwood (*Cornus rugosa*), FOD5-7: round-leaved hawthorn (*Crataegus chrysocarpa*), hairy Solomon's seal (*Polygonatum pubescens*), white oak (*Quercus alba*), FOM4: witch-hazel (*Hamamelis virginiana*), CUS1: white spruce (*Picea glauca*), and MAS2-1: skunk-cabbage (*Symplocarpus foetidus*).

Vegetation Communities – Morningside Avenue (Highland Creek Segment)

A section of Morningside Avenue passes over the Highland Creek Valley which is part of the Morningside Park ESA/ANSI and is then bordered by the Highland Forest ESA both east and west of Morningside Avenue up to Ellesmere Road. The Morningside Park ESA/ANSI is connected to the Highland Forest ESA and together, they form the largest remaining forested area within the Highland Creek watershed. The Highland Forest ESA also encompasses the Highland Creek Swamp, an extensive area of approximately 16.4 hectares that extends on both sides of Morningside Avenue. Historically this area would have been an extensive, highly diverse, contiguous forest-wetland complex. However, increasing pressures from rapid urbanization in the Highland Creek watershed resulted in the fragmentation of this complex with the construction of Morningside Avenue. Fortuitously, the alignment through the forested – wetland complex that was selected appears to be along the natural ecotone between large coniferous/deciduous forest tracts and smaller deciduous swamps/shallow marsh parcels. A review of the existing ELC communities within 100 m on either side of Morningside Avenue along the section between the Highland Creek valley and Ellesmere Road supports this hypothesis.

On the east side of Morningside Avenue, immediately adjacent to the road, five vegetation community types are present. A cultural meadow (CUM1-1) extends down the valley slope towards Highland Creek; an extensive forested block comprised of three different mixed forest types including Dry-Fresh White Pine-Sugar Maple Forest (FOM2-2), Fresh-Moist White Cedar-Hardwood Forest (FOM7-2), and Fresh-Moist Hemlock Hardwood Mixed Forest (FOM6-2) abuts the road for approximately 53 % of its length and a mineral thicket swamp (SWT2), extends to Ellesmere Road. Three other forest ecosites are located within 100 m of the road allowance, a Fresh-Moist Hemlock Coniferous Forest (FOC3-1), a Fresh-Moist White Cedar Coniferous Forest (FOC4-1) and a Dry-Fresh Hardwood-Hemlock Mixed Forest (FOM3-1). The northern edge of the FOM3-1 community fronts along Ellesmere Road for approximately 125m.

West of Morningside Avenue, the vegetation communities are smaller, more numerous and exhibit a higher diversity of forms. Six different vegetation communities are located within 10 m of the road allowance. A completed list is included in the Natural Heritage Report.

A more detailed account of the vegetation communities found within the Morningside forest and wetland complex is presented in Table 2 in Appendix C1. Locations of the ELC communities are illustrated in Exhibit 3-5.

The vegetation communities that were identified are considered widespread and common in Ontario and secure globally. However, in the TRCA watershed the FOM3-1, SWC2-2 & SWM6-2 are considered regionally rare (L2) vegetation communities; while FOM6-2, SWM4-1, SWM5-1, SWD4-4 & MAM3-9 are considered regionally uncommon (L3) vegetation communities (TRCA 2003b). It should be noted that Morningside Avenue is located within TRCA's Terrestical Natural Habitat Strategy and Habitat Implementation Plan Area; therefore habitat enhancement opportunities will be explored during the detailed design.

Flora – Morningside Avenue (Highland Creek Segment)

To date, a total of one-hundred and sixty-two (162) vascular plant taxa have been recorded within the Morningside Forest and Wetland Complex study area. Forty-four taxa, or twenty-seven (27%) percent of the recorded flora, are considered introduced and non-native to Ontario. Introduced species were almost entirely located within the existing right-of-way and in cultural communities. A working vascular plant checklist is presented in the Natural Heritage Report.

Species at Risk – Morningside Avenue (Highland Creek Segment)

No species designated as Special Concern, Threatened or Endangered by COSEWIC or COSSARO/MNR or regulated under the *Species at Risk Act* or the Endangered *Species Act 2007* were noted during field investigations. The study area contains thirty-three (33) plant species which are rare to uncommon in Toronto are provided in the Natural Heritage Report.

Exhibit 3-5: Existing Natural Environment Conditions

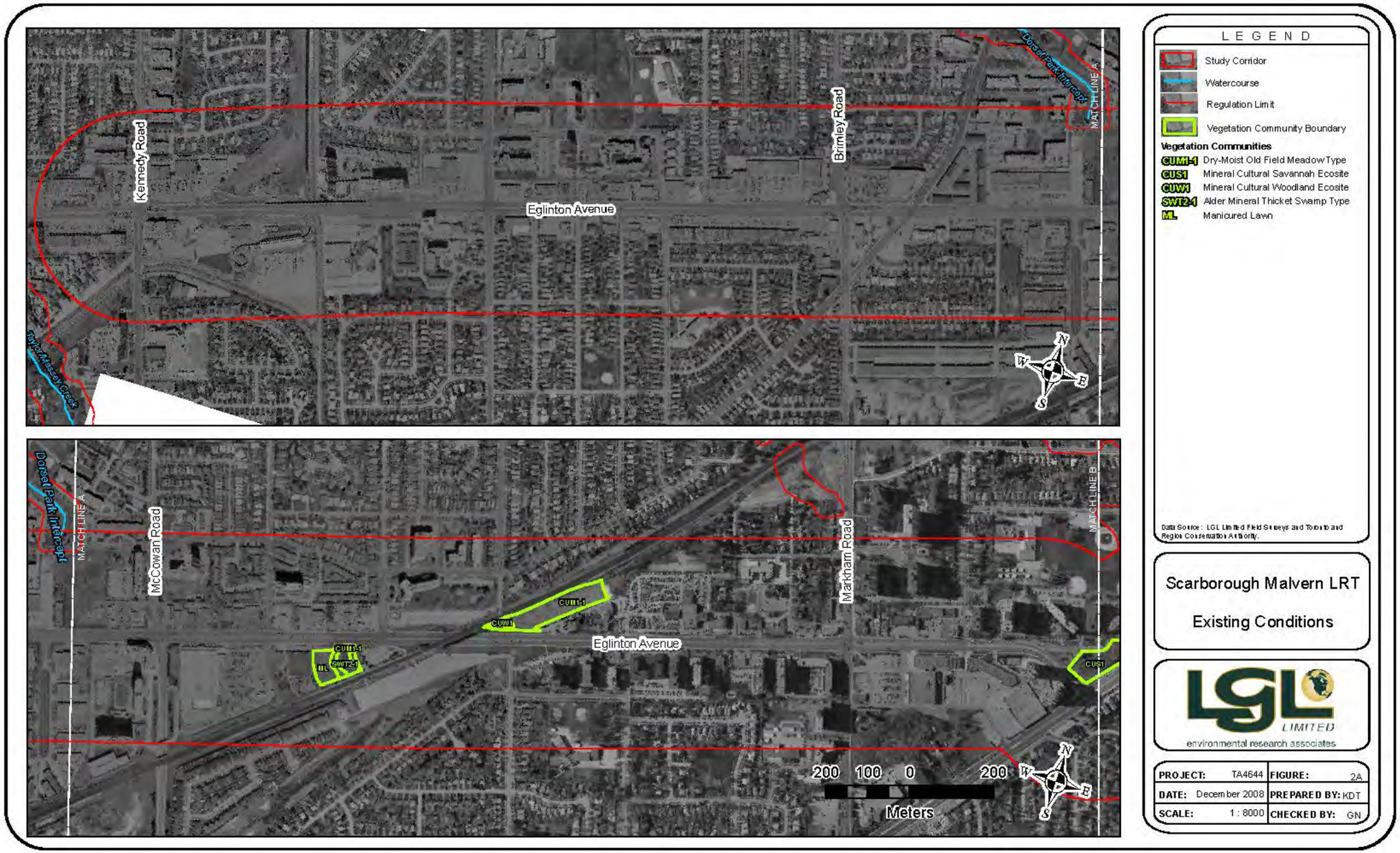


Exhibit 3-5: Existing Natural Environment Conditions (Cont'd)

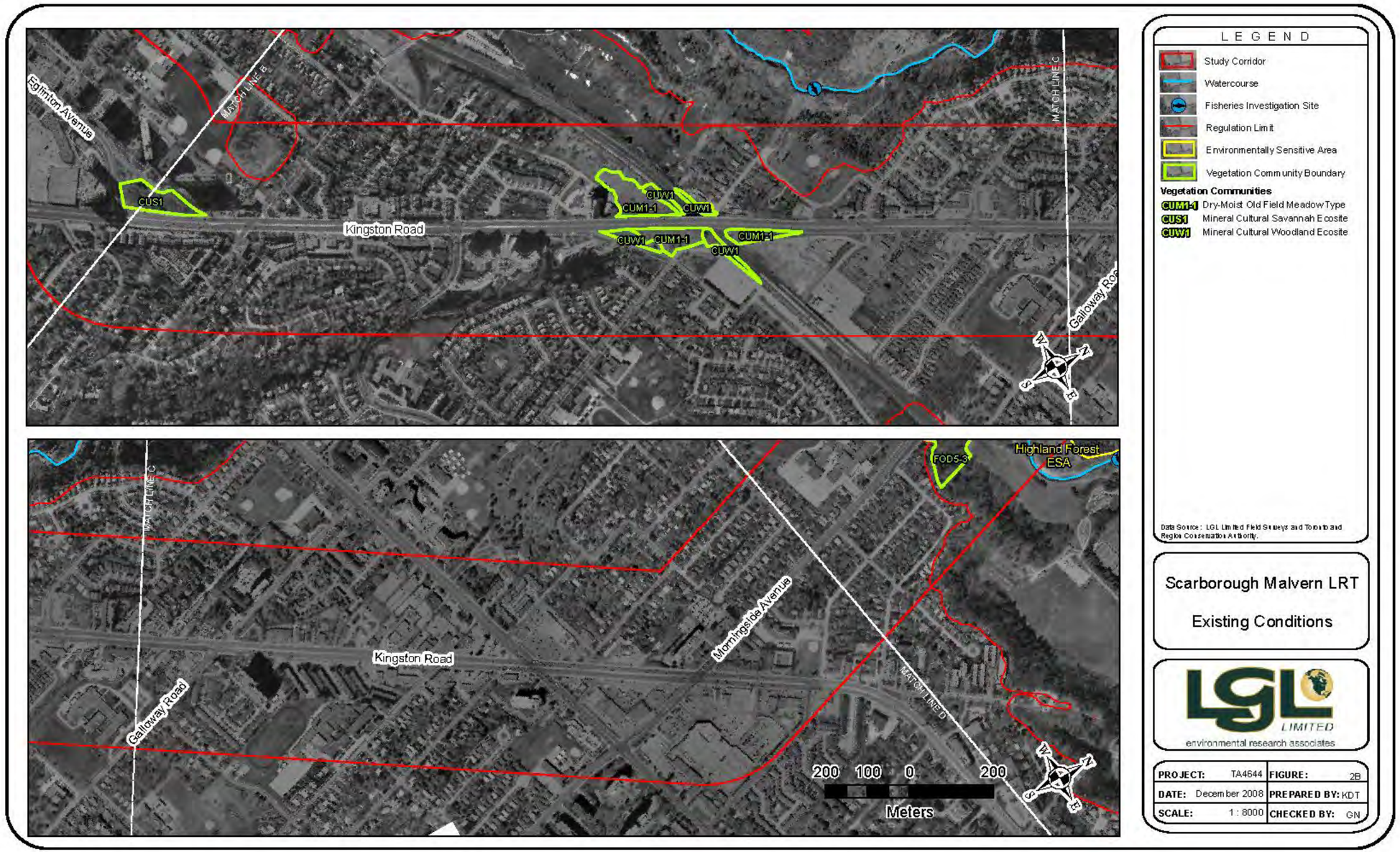
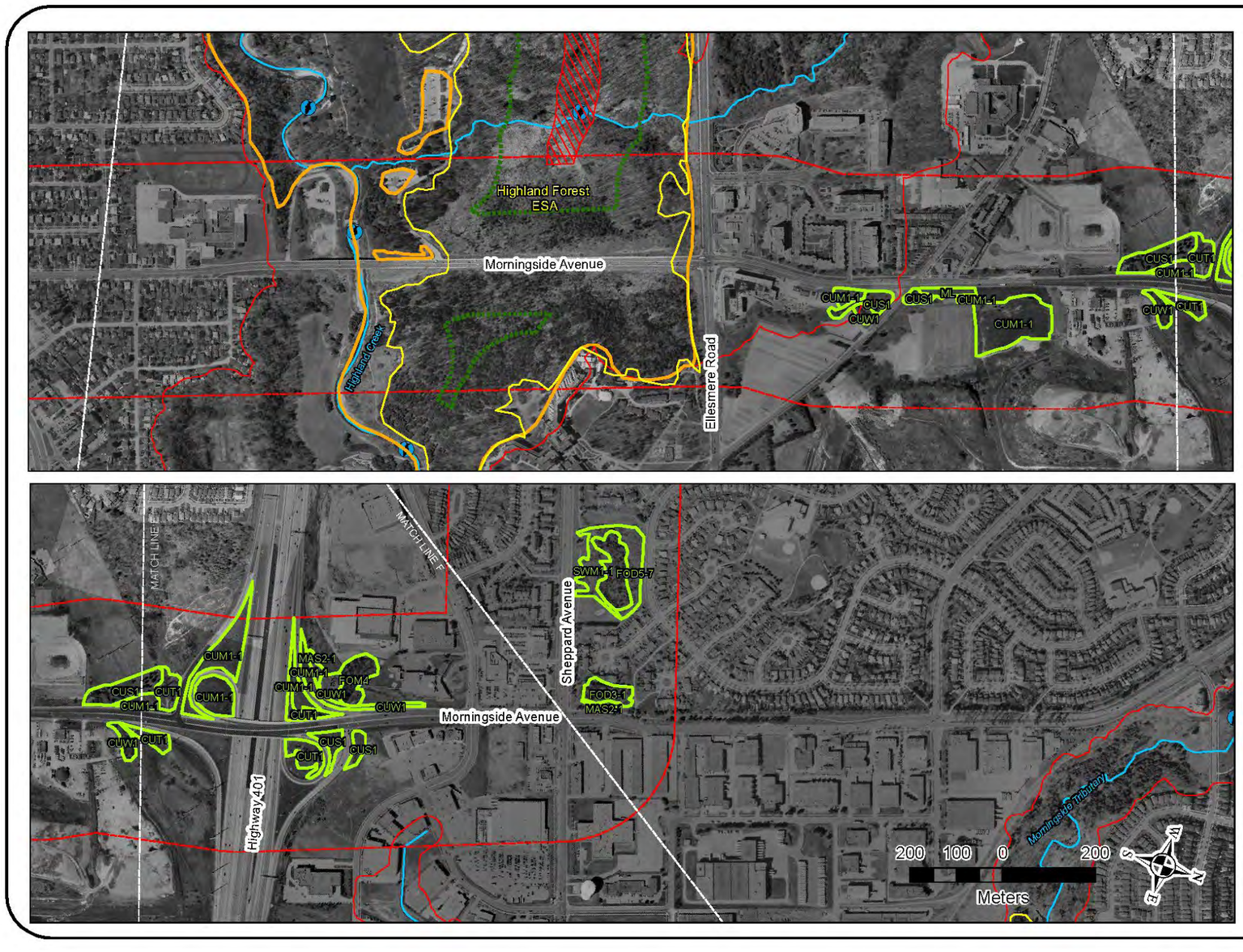


Exhibit 3-5: Existing Natural Environment Conditions (Cont'd)



LEGEND

- Study Corridor
- Watercourse
- Fisheries Investigation Site
- Regulation Limit
- Environmentally Sensitive Area
- Area of Natural and Scientific Interest
- Interior Forest 100 m
- Interior Forest 200 m
- Vegetation Community Boundary

Vegetation Communities

CUM1-1	Dry-Moist Old Field Meadow Type
CUS1	Mineral Cultural Savannah Ecosite
CUT1	Mineral Cultural Thicket Ecosite
CUW1	Mineral Cultural Woodland Ecosite
FOD3-1	Dry-Fresh Poplar Deciduous Forest Type
FOD5-7	Dry-Fresh Sugar Maple-Black Cherry Deciduous Forest Type
FOM4	Dry-Fresh White Cedar Mixed Forest Ecosite
MAS2-1	Cattail Mineral Shallow Marsh Type
SWM1-1	White Cedar-Hardwood Mineral Mixed Swamp Type
ML	Manicured Lawn

Data Source: LGL Limited Field Surveys and Toronto and Region Conservation Authority.

Scarborough Malvern LRT

Existing Conditions

LGL LIMITED
environmental research associates

PROJECT:	TA4644	FIGURE:	2C
DATE:	December 2008	PREPARED BY:	KDT
SCALE:	1 : 8000	CHECKED BY:	GN

Toronto's Urban Forest

Trees in the City of Toronto bestow numerous benefits on the community and need to be allowed to grow to an age that allows the public to reap the benefits of trees. Often in the past, the benefits associated with trees compacted soil inherent to modern-day development as found along the Scarborough-Malvern corridor. The following is a non-exhaustive list of some of the social, ecological, and economic benefits directly associated with a healthy and robust urban forest that has been allowed to mature:

- Health – direct links between green-space, trees, and human health
- Aesthetics – improved aesthetics with trees and shrubs in the landscape
- Recreation – opportunities for hiking, biking, and other passive recreation activities
- Metaphysical – inherent metaphysical role of trees in society
- Education – opportunities for environmental education
- Biodiversity – healthy forests provide niches for a myriad of species and stabilize ecosystems
- Wildlife – enhanced habitats and ecosystem health
- Storm-water Management – urban trees retain water and delay pulses of storm-water runoff
- Soil Conservation – contribute organic matter to the soil and stabilize slopes preventing runoff
- Microclimate – shade in the summer and windscreens in the winter
- Air Quality – uptake of greenhouse gases (e.g. CO^2) as well as other harmful gases and particulates
- Noise Pollution – sonic buffering capabilities
- Energy Consumption – lower cooling/heating costs
- Infrastructure – unlike infrastructure which loses value with time, trees gain value as they age
- Retail Districts – increased willingness to spend in treed retail districts
- Timber and Commodity Values – lumber, maple syrup, mushrooms, fruits, flowers, etc.

The revitalization of the Scarborough-Malvern corridor with the integration of the LRT provides an opportunity to improve the health of the urban forest in this area. This will be achieved in the development and implementation of a comprehensive tree planting strategy. This strategy will reflect the currently applicable City of Toronto by-laws and urban forestry policies. Efforts will be made to limit the impact on existing trees and mitigate impacts where existing trees are affected. Tree planting design will be a reflection of the higher-level objectives and mandates of Toronto Urban Forestry Services.

Tree By-Laws

The SMLRT corridor is situated in the City of Toronto and is therefore subject to all of the policies, by-laws, and higher level mandates that apply to development projects in the City. The following urban-forestry-related by-laws and policies can be specifically applied to the trees along the SMLRT corridor:

- City Street Tree By-law (Article II of Chapter 813);
- Tree Protection Specifications;
- Private Tree By-law (Article III of Chapter 813);
- Arborist Report for Development Applications;
- Municipal Code Chapter 184-FILLING and GRADING; and
- Ravine Protection

3.1.2.3 Wildlife

Field investigations were conducted in the Scarborough-Malvern study area on July 11, July 22, and July 24, 2008. The purpose of the investigations was to document wildlife and wildlife habitat and to characterize the nature, extent and significance of animal usage within the project limits. Direct observations, calls, tracks, scats, runways and scents were used to record the wildlife. The locations of wildlife corridors were recorded to determine areas of concern.

Wildlife Habitat and Fauna

The existing land use along Eglinton Avenue, Kingston Road, Morningside Avenue (excluding the section south of Ellesmere Road, Sheppard Avenue and Neilson Avenue) is primarily industrial, commercial and residential. As a result, terrestrial wildlife habitat is minimal. The wildlife habitat that is present is comprised of isolated patches that are fragmented, relatively small and provide little connectivity for movement. Terrestrial habitat along all of the roads mentioned above is dominated by cultural meadows, cultural thickets and cultural woodlots and consists entirely of edge as they are not large enough to support forest interior. Not surprisingly, the wildlife that was recorded utilizing the isolated habitat patches were species that are tolerant of human disturbance. These opportunistic or habitat generalists include mammalian species such as: raccoon, striped skunk, gray squirrel and avian species were represented by: chipping sparrows, song sparrows, American crow, rock pigeon, common grackle American goldfinch and others.

Without exception, all of the available wildlife habitat that is adjacent to Eglinton Avenue, Kingston Road, Morningside Avenue (excluding the section south of Ellesmere Road, Sheppard Avenue and Neilson Avenue) can best be characterized as being of poor quality, low structural diversity and low habitat diversity.

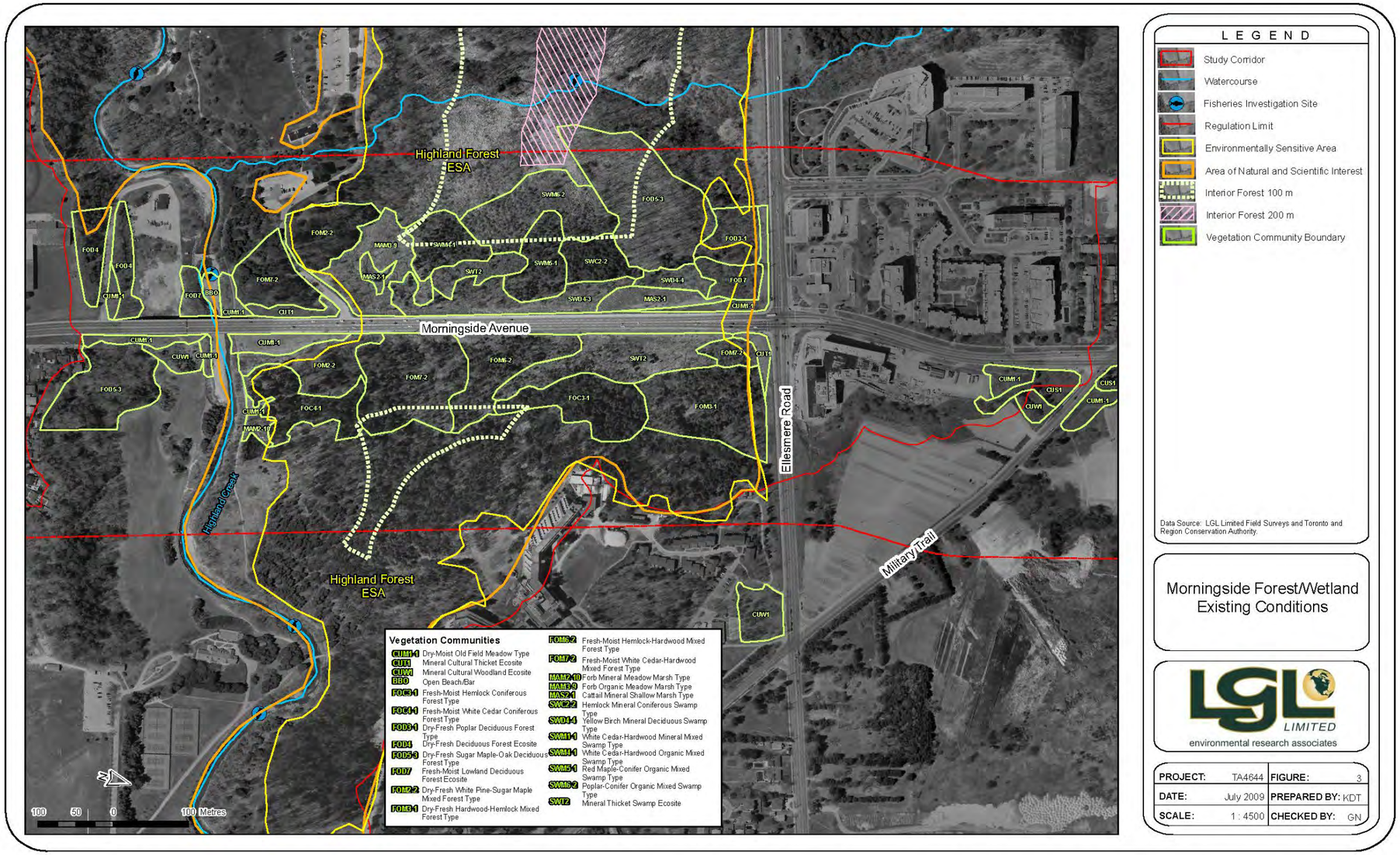
Available habitat in the Highland Forest ESA is significantly different than that found in the rest of the study area. The Morningside Park ESA/ANSI is connected to the Highland Forest ESA at this location and together, they form the largest remaining forested area within the Highland Creek watershed. The Highland Forest ESA also encompasses the Highland Creek Swamp, an extensive area of approximately 16.4 hectares that extends on both sides of Morningside Avenue. Exhibit 3-6 shows the Morningside Forest.

Over 15 different types of natural vegetation communities including deciduous, mixed and coniferous forests; swamp forests and swamp thickets; organic forb and cattail mineral marshes as well as isolated shallow, submerged aquatic habitat are found in this area. This area is the most highly diverse habitat in the Highland Creek watershed. Another significant feature of the Highland Forest ESA is that it contains an area of approximately 6 hectares that is defined as forest interior that is more than 200 metres from an edge.

The faunal diversity was considerably higher at this location than the rest of the study area and this is attributable to the high habitat density. Thirty-four species of birds and 13 species of mammals were recorded as being likely residents of the forest-wetland complex.

It was later in the breeding bird season at the time of the investigation and the only direct evidence for breeding birds in the area was the nesting Cliff Swallow (Petrochelidon pyrrhonota) found on the ceiling of the Highland Creek Bridge. Up to 28 nests were recorded and the birds were still feeding their young at the nests.

Exhibit 3-6: Morningside Forest / Wetland Existing Conditions



The habitat alongside Morningside Avenue is contiguous with the Highland Creek habitat and provides a continuous movement corridor for migratory birds in the spring and fall, and corridors for mammals traveling to and from their feeding and denning areas. Mammal tracks and trails of raccoon (Procyon lotor), white-tailed deer (Odocoileus virginianus) and red fox (Vulpes vulpes) indicated the use of the banks under the bridge along Highland Creek as travel corridors. Deer tracks observed on the west side of Morningside Avenue were generally oriented in southerly direction toward Highland Creek. This suggests that deer avoid crossing over the roadway and elect to use the natural corridor under the Highland Creek bridge as a method of moving to the east of Morningside Avenue. A mink (Mustela vison) was also observed running under the bridge, east along the north shoreline. The habitats, along each side of Morningside Avenue north of Highland Creek, contained east-west mammal trails that showed some connectivity over Morningside Avenue, however no heavily used mammal corridors could be found.

Due to the later time of year for the investigations, herpetofauna were not heard calling or observed during ground checks. However habitat types around the wetland areas, and secondary data sources, indicated there area a few species of herpetofauna in the area.

A wildlife list of all the species recorded in the study area is found in Table 3 in Appendix C1.

Species at Risk

None of the wildlife species recorded in the study area are listed under the Committee on the Status of Wildlife in Canada (COSEWIC), the Committee on the Status of Endangered Wildlife in Ontario (COSSARO) or regulated under the Canadian Species at Risk Act. According to historical records, such as the Natural Heritage Information Centre (NHIC) database, no sensitive species have been recorded in the study area. However, 27 of the 34 bird species recorded are protected under the Migratory Birds convention Act (MBCA). The Fish and Wildlife Conservation Act (FWBA) protects one bird species and 11 of the 13 mammal species recorded. Seven of the migratory bird species recorded in the study area are also recognized as priority species of conservation concern by Bird Studies Canada for the Metropolitan Toronto region. One mammal and one herpetofauna species are considered significant by the Toronto and Region Conservation Authority (TRCA).

3.1.2.4 Designated Natural Areas

There are two ESA's and one ANSI in the study area. The ANSI includes the entire area of the Morningside Park ESA (#77) and adjacent lands along Highland Creek. The Highland Forest ESA (#75) is located on both sides of Morningside Avenue south of Ellesmere Road.

The City of Toronto Official Plan identifies Highland Creek as a "Natural Heritage Area" in the Land Use Schedules contained in the Official Plan.

3.1.2.5 Meander Belt

As a channel naturally erodes and moves across its floodplain, the extent of this movement can be defined by the meander belt width. A meander belt width defines a potential hazard area; or a zone within which the stream can potentially occupy, or has occupied in the past, which usually coincides with the flood plain. For the purposes of this study, a meander belt width was delineated in vicinity of the Morningside Avenue crossing.

For Highland Creek, a meander belt width analysis was undertaken by PARISH Geomorphic in 2008 to delineate the meander belt width follow protocols outlined in the Belt Width Delineation Procedures (PARISH Geomorphic Ltd., 2004). The meander axis was first determined by following the general downvalley orientation of the meander pattern. Following the identification of the meander axis, the preliminary belt width was determined by drawing parallel lines tangential to the outside defining meanders of the platform. Given the dynamic nature of the creek, historic platform information was also taken into consideration in determining the belt width. Based on this approach, the preliminary belt width for Highland Creek at Morningside Avenue was determined to be 165 meters. The detail of the Meander Belt analysis is provided in Appendix C2.

3.1.2.6 Sub Surface Conditions

Regional Geology

The Quaternary deposits of the Toronto region consist predominantly of glacial till, glaciolacustrine and glaciofluvial sand silt, and clay deposits and beach sands and gravels. These deposits were laid down by glaciers and associated glacial rivers and lakes. Recent deposits of alluvium are found in river and stream valleys and their flood plains. The Quaternary soil deposits overlie the bedrock of the Georgian Bay Formation which consists predominantly of shale with interbeds of limestone and siltstone. This bedrock is generally found in the study area at between elevations 60 m and 80 m.

The Quaternary soil deposits overlying the bedrock are believed to have been deposited during the Wisconsinan glacial period which saw several glacial advances and retreats over the course of time. These fluctuations of the glacier front resulted in a complex distribution of glacial till layers separated by interstadial deposits of sand, silts and clays. After the retreat of the last ice sheet from the Toronto region, the melt waters ponded and created shallow lakes, and the resulting lacustrine deposits consists of thin, localized accumulations of sand, silt and clay which overlie the uppermost till sheet.

The site is located in the physiographic region known as the Iroquois Plain where the Iroquois shoreline lies very close to the present shoreline of Lake Ontario. Eastward from the Scarborough Bluffs, the plain widens rapidly. Sand plain located at the old beach in the southeast corner of the City of Scarborough were built up with the sand deposits carried downstream by the Highland Creek and Rouge River. The shallow overburden materials generally consist of alternating deposits of dense sands, silts and gravels; at some locations, these granular deposits are overlain by or interlayered with clayey silt till and sandy silt till deposits.

Local Topography

The Scarborough area is dominated by two main watersheds – the Rouge River which flows through the eastern part of the area and Highland Creek that flows through the western portion. Highland Creek is located within the project study area. Both watersheds empty into Lake Ontario at the eastern end of the Scarborough Bluffs. The confluence of the main branch of Highland Creek and West Highland Creek is located at a short distance upstream before crossing Morningside Avenue. The local topography is much influenced by these two river systems, with the ground surface gradually sloping downwards towards the valleys of the West Highland Creek and Highland Creek. The entire Morningside Avenue section in the study area runs through the watershed. The details of the existing geology conditions are provided in Appendix C3.

3.1.2.7 Air Quality

The Ontario Ministry of the Environment (MOE) measures air contaminants at various locations throughout Ontario, and reports on the state of Ontario's air quality on an annual basis. To assess the current air quality in the study area, historical air quality monitoring data from a nearby MOE monitoring station were considered. Exhibits 3-7 and 3-8 outline year 2007 measurements at the Toronto East (MOE Ref #33003) monitoring location, and presents a summary of the data in terms of mean, 90th percentile, 1-hr maximum and 24-hr

maximum values. Carbon monoxide was not measured at the Toronto East monitoring location; therefore, data from the Toronto Downtown location is provided in Exhibit 3-9.

Exhibit 3-7: Toronto East 2007 Ambient Air Quality Monitoring for PM2.5

Averaging Time	Ambient Air Quality Criteria	Observed Concentration (µg/m3)
24-hr Mean	-	7.8
24-hr 90th Percentile	-	15.9
24-hr Maximum	30*	41
No. of Times above proposed CSW	-	7

* Compliance is measured as the 98th percentile over three years, therefore 22 exceedances (2% of 365x3) of the 24-hr criteria is within compliance for three years or nominally 7 exceedances per year on average.

Note: All values are as calculated from hourly data available from the http://www.airqualityontario.ca/ website.

The tables indicate that historically NOx and PM2.5 have exceeded the standard from time to time by as much as double the allowable concentration (usually during smog events which are regional in nature). CO, PM10, VOCs and GhGs have not been measured at this location during the past five years. In summary, the historical data outlines a typical urban/suburban airshed with occasional smog periods during which air quality is compromised. In Ontario, the smog season occurs from May through September, with most events of compromised air quality occurring due to transboundary pollution from polluted air masses that flow northward from the Ohio Valley in the United States.

Exhibit 3-8: Toronto East 2007 Ambient Air Quality Monitoring for Nitrogen Oxides

Averaging Time	Ambient Air Quality Criteria	Observed Concentration (µg/m3)
1-hr Mean	-	53
24-hr Mean	-	53
1-hr 90th Percentile	-	103
24-hr 90th Percentile	-	92
1-hr Maximum	400	858
24-hr Maximum	200	246
No. of Times above 1-hr AAQC	-	32
No. of Times above 24-hr AAQC	-	1

Note: All values are as calculated from hourly data available from the http://www.airqualityontario.ca/ website.

Exhibit 3-9: Toronto Downtown 2007 Ambient Air Quality Monitoring for Carbon Monoxide

Averaging Time	Ambient Air Quality Criteria	Observed Concentration (µg/m3)
1-hr Mean	-	231
8-hr Mean	-	231
1-hr 90th Percentile	-	412
8-hr 90th Percentile	-	406
1-hr Maximum	36,200	1,947
8-hr Maximum	15,700	1,222
No. of Times above 1-hr AAQC	-	0
No. of Times above 8-hr AAQC	-	0

Note: All values are as calculated from hourly data available from the http://www.airqualityontario.ca/ website.

3.1.3 SOCIO-ECONOMIC ENVIRONMENT

The Study Area predominanty consists of small scale commercial developments. There are several plazas along Eglinton Avenue between Kennedy Station and Kingston Road such as Elane Plaza and Markington Square. A few motels are located on the north side of Kingston Road. There are three shopping centres along Morningside Avenue which are West Hill Shopping Centre, Morningside Mall and Malvern Markeplace. The existing Eglinton Avenue, Kingston Road and Morningside Avenue provide the essential visibility and accessibility needed by these businesses and other economic activities along the corridors. There are no Business Improvement Areas (BIA) within the Study Area.

According to the Toronto Employment Survey (2008), the Scarborough Highway 401 Corridor District (on Highway 401 between Brimley Road and Meadowvale Road) contains 4.9% of the employment found in the 16 Employment Districts with 18,300 jobs. Employment Districts identified in the Toronto Official Plan as structural elements of Toronto's economic future. Both the Manufacturing and Retail sectors declined from 2007 to 2008, by 400 and 200 jobs respectively. The dominant sector in the District is Office, with 9,800 employees, mostly in the Communication and Media sub-sector. From 2003 to 2008, this District's large increase now stands at 2,600.

3.1.3.1 Land Use and Economic Environment

Eglinton Avenue

Eglinton Avenue East between Kennedy Station and Kingston Road predominantly consists of small scale commercial uses low-rise residential areas (i.e. mixed use), with significant concentrations of high-rise residential on the south side of Eglinton Avenue between the CN Rail line (Lakeshore East GO) and Kingston Road. Ten public schools, two parks and the Scarborough Village Community Centre are located within 500 m of the study corridor.

Kingston Road

Kingston Road between Eglinton Avenue and Morningside Avenue predominantly consists of low-rise residential with a few mid to high-rise residential sites distributed along Kingston Road. A number of motels are located on the north side of Kingston Road. The Guildwood GO and VIA station is located west of Galloway Road. There are eight schools and six parks located within 500 m of the study corridor.

South Section of Morningside Avenue

Morningside Avenue between Kingston Road and north of Beath Street predominantly consists of low-density residential developments. Also located on this road is West Hill Collegiate Institute. The land north of Highland Creek extending to Military Trail on the east side of Morningside Avenue is devoted to the University of Toronto Scarborough Campus and Centennial College Ellesmere Campus. A new commercial mall was constructed between Highway 401 and Milner Avenue on the west side of Morningside Avenue. There are four schools, two major open space areas and one community centre located within the 500 m study corridor.

The existing Eglinton Avenue, Kingston Road and Morningside Avenue provide the essential visibility and accessibility needed by businesses and other economic activities along the corridors. There are no Business Improvement Areas (BIA) within the Study Area.

University of Toronto and Centennial College

The University of Toronto Scarborough Campus (UTSC) retained a consultant, Urban Strategies Inc., to develop a Campus Master Plan in January 2008 and is currently in the master planning phase. A new building facility is being proposed in the northwest quadrant of Military Trail and Ellesmere Road as part of the master plan study. UTSC is exploring options at more than academic functions for the area, as this site presents a unique opportunity for a “hub” in eastern Toronto. The governing body of UTSC intends to build a larger profile for the site and to better integrate with the local community. In addition to institutional uses, there is also a potential to develop hotels and restaurants to support conference events. A major sports facility is also proposed in the Scarborough-Malvern study area and is planned to straddle the City/UTSC properties along Morningside Avenue, north of Military Trail

The UTSC site is 300 acres in size, with 125 acres available on the north side of Ellesmere Road. This site has challenges as the western parking lots generally consist of fill, while to the north is an old pit/landfill site. Methane gas testing is ongoing throughout the UTSC property.

In the next 30 years, continuous growth is expected in Ontario. In conjunction with the expected growth, the University of Toronto (UofT) is undertaking a long term strategic plan. Out of the three UofT campus sites, Scarborough has the most land available to meet future needs and is presently below the standard building per student ratio. Currently, there are 10,000 UTSC students and this is expected to double in the future.

Centennial College was Ontario’s first community college, established in 1966, primarily serving the eastern portion of the Greater Toronto Area through four campuses and seven satellite locations. Centennial supports enrolment of 12,000 full-time students and 28,000 in Continuing Education. The Ellesmere Campus is situated at 755 Morningside Avenue on the north side of Ellesmere Road.

There are a total of about 15,000 people accessing the UTSC/Centennial College area of which 10,000 are UTSC students, 3,000-4,000 are Centennial College students, and 800-1000 are staff and employees. The number of people accessing this location is expected to grow to 20,000 in 10 years, and to double in the longer term. There is high potential for development on these campus sites which shows a strong need for the Scarborough-Malvern LRT line.

North Section of Morningside Avenue

According to the Toronto Employment Survey 2008, the Scarborough Highway 401 Corridor District (on Highway 401 between Brimley Road and Meadowvale Road) contains 4.9% of the employment found in the 16 Employment Districts with 18,300 jobs. Employment Districts are identified in the Toronto Official Plan as structural elements of Toronto’s economic future. Both the Manufacturing and Retail sectors declined from 2007 to 2008, by 400 and 200 jobs respectively. The dominant sector in the District is Office, with 9,800 employees, mostly in the Communication and Media sub-sector. From 2003 to 2008, this District’s growth was 2,600 jobs.

3.1.3.2 Contaminated Property

Golder Associates Ltd was retained to provide preliminary screening information on properties that have the potential to contribute to environmental contamination along the proposed LRT route in the Scarborough-Malvern area. Properties located within 200m of the proposed route were included in the review databases and were contemplated in the preliminary screening exercise. Based on the information presented, properties within the 200 m buffer zone were categorized as having low, moderate, or high potential to contribute to environmental contamination in the project area. The criteria used to assign a risk rating to each property are summarized in Exhibit 3-10. Exhibit 3-11 shows the number of properties associated with the risk ratings that are located within the 200m buffer zone for the Scarborough-Malvern LRT corridor. The location details of the potentially contaminated property are provided in Appendix C3.

Exhibit 3-10: Contamination Risk Rating Criteria

High Potential (H) to Contribute to Environmental Contamination	Moderate Potential (M) to Contribute to Environmental Contamination	Low Potential (L) to Contribute to Environmental Contamination
A high risk rating was assigned when, based on a collective review of records, a property met one or more of the following criteria: ▪ Underground storage tanks (USTs) or above-ground storage tanks (ASTs) within 50 m of the proposed route; ▪ Landfill sites (historic) within 50 m of the proposed route; ▪ >15 years use and storage of new and used hydrocarbon products and non-chlorinated solvents; ▪ >15 years of liquid industrial and hazardous waste generation (e.g. oils and lubricants, photo processing chemicals, non-chlorinated solvents); ▪ Bulk fuel handling and storage facilities, primary business; ▪ PCB storage sites, reported PCB spills; ▪ Storage and use of new and used chlorinated solvents (non-laboratory use); ▪ Radioactive material; and ▪ One-time spill event to the soil (>100L)	A moderate risk rating was assigned when, based on a collective review of records, a property met one or more of the following criteria: ▪ USTs/ASTs between 50 and 100 m from the proposed route; ▪ Landfill sites (historic) between 50 and 100 m from proposed route; ▪ 10-15 years use and storage of new and used hydrocarbon products and non-chlorinated solvents; ▪ 10-15 years of liquid industrial and hazardous waste generation (e.g. oils and lubricants, photo processing chemicals, non-chlorinated solvents); ▪ Bulk fuel storage, secondary business (incidental use); ▪ Mixing, bulking, and application of pesticides (operator use); ▪ Automobile wrecking and recycling facilities; ▪ Storage and use of new and used chlorinated solvents (laboratory use only); and ▪ One-time spill events to the soil between 50L and 100L	A low risk rating was assigned when, based on a collective review of records, a property met one or more of the following criteria: ▪ USTs/ASTs greater than 100 m from the proposed route; ▪ Landfill sites (historic) greater than 100 m from proposed route; ▪ <10 years use and storage of new and used hydrocarbon products and non-chlorinated solvents; ▪ <10 years of liquid industrial and hazardous waste generation (e.g. oils and lubricants, photo processing chemicals, non-chlorinated solvents); ▪ Propane handling and storage facilities; ▪ Storage and handling of pesticides (vendors only); ▪ Active or closed waste disposal sites with potential hazard to humans (Class A or B); ▪ Pathogical waste; and ▪ One-time spill events <50 L (to paved areas or to storm sewers)

Exhibit 3-11: Number of Potential Contaminated Sites

Potential to Contribute to Environmental Contamination	Number of Sites
Low	64
Moderate	20
High	62
Total	146

3.1.3.3 Utilities

Based on the review of the utility mapping provided by the City and a detailed site investigation, no major watermains (i.e. over 600mm), pipelines, or fibre optic lines were identified. There is a Hydro One corridor crossing Morningside Avenue just south of Highway 401, which presently provides no horizontal or vertical clearance issues.

3.1.4 CULTURAL ENVIRONMENT

3.1.4.1 Archaeology

Archaeology Services Inc. (ASI) conducted a Stage 1 Archaeological Assessment as part of the Transit City Light Rail Plan for the Scarborough-Malvern Corridor. The Stage 1 Archaeological Assessment Report is included in Appendix C5. Background research determined that there are no previously registered sites within the study area or within two kilometres of it; however, a review of the general physiographic and local nineteenth century land uses of the study area suggests that the following locations exhibit archaeological site potential. The exact locations are provided in the archaeological assessment report on Figures 8-1 to 8-4 of Appendix C-5.

- West side of Morningside Avenue between Warnsworth Street and Highland Creek
- East side of Morningside Avenue adjacent to Highland Creek valley
- North side of Military Trail between Ellesmere Road and the Morningside Avenue / Military Trail intersection
- East side of Morningside Avenue between 100 m south of Morningside / Military Trail intersection and 275 m north of the intersection

3.1.4.2 Cultural Heritage

Historic research shows that the study area has origins in a nineteenth century survey and that settlement has been substantially altered by urbanization; however, this is not to say that the study area does not retain a wide number of cultural heritage resources. While significant traces of mid-nineteenth century settlement patterns have largely diminished in the study area, vestiges are still present amidst a wider array of built forms and landscapes that are associated with early urban development patterns in the City of Toronto generally

and Scarborough specifically. Exhibit 3-12 is a summary of the structures and cultural landscapes of heritage interest that have been identified within the study area:

Exhibit 3-12: Identified Built Heritage Resources (BHR) and Cultural Heritage Landscapes (CHL) Located within the Scarborough-Malvern LRT Corridor

Feature	Location	Designation*	Description and Comments	Figure No.
BHR 1	27 Old Kingston Road	Designated	John-Richardson House, By-law: 18852	Appendix C5 Figure 7-5
BHR 2	21 Old Kingston Road	Designated	Richard-Corson House, By-law: 19474	Appendix C5 Figure 7-5
BHR 3	4234 Kingston Road	Identified	Early 20th century residence	Appendix C5 Figure 7-3
BHR 4	156 Galloway Rd	Designated	Richard Eade House, By-law: 20972	Appendix C5 Figure 7-3
BHR 5	3750 Kingston Road	Designated	Jeremiah Annis House, By-law: 18102	Appendix C5 Figure 7-1
BHR 6	344 Morningside Drive	Identified	Early 20th century residence	Appendix C5 Figure 8-1
BHR 7	Guildwood Inn	Identified	Entrance way to Guildwood Inn was constructed in 1957 and is located in close proximity to the Kingston Road right-of-way	Appendix C5 Figure 7-2
CHL 1	Highland Creek	Identified	The creek traverses the study area at Morningside Avenue, just north of Kingston Road.	Appendix C5 Figure 8-2
CHL 2	Post-War Residential Streetscape	Identified	Located on the east and west sides of Morningside Drive, from approximately Fairwood Crescent southward to Teft Road.	Appendix C5 Figure 8-1
CHL 3	CNR Double Tracks – East-West Orientation	Identified	The first of these tracks were originally laid in 1856 by the Grand Trunk Railway, connecting Toronto to the towns to the east along the northern shore of Lake Ontario. The second track was laid to the north of the first one by the Grand Trunk Railway. The portion connecting Scarborough Junction to Toronto was constructed between 1884 and 1887. The portion connecting Scarborough Junction to the towns to the east was built in 1892. The tracks are still in use, and are now operated by CNR.	Appendix C5 Figure 6-5
CHL 4	CNR Single Track – North-South Orientation	Identified	This single track was originally laid in 1871 by the Grand Trunk Railway, connecting Scarborough Junction with Stouffville. In the 1878 Atlas, it is known as the Toronto Nipissing Railway. The track remains in use, and is now owned and operated by Go Transit / Metrolinx	Appendix C5 Figure 6-2

* *Designated*: Designated under Part IV or Part V of the *Ontario Heritage Act*
Listed: Listed on the City of Toronto's Inventory of Heritage Properties
Identified: Identified during review of historic mappings or field assessment

The results of background historic research and a review of secondary source material, including the City of Toronto's Heritage Properties Database and the Ontario Ministry of Culture's Heritage Properties Database, revealed a study area with a long history of Euro-Canadian occupation containing twenty previously identified heritage areas and properties. As such, proposed transit improvements within the Scarborough-Malvern LRT Corridor study area can have a variety of impacts upon these identified built heritage features and cultural landscapes. These include the loss or displacement of resources through removal or demolition and the disruption of resources by introducing physical, visual, audible or atmospheric elements that are not in keeping with the resources and/or their setting. A copy of the Built Heritage Report is available in Appendix C5.

3.2 Future Conditions

In this section the future conditions are investigated as they would be without implementation of the LRT system.

3.2.1 TRANSPORTATION

3.2.1.1 Transit

Without the Scarborough-Malvern LRT, transit services would continue to be offered mainly by buses operating in mixed traffic. As described previously this would not meet the needs of the population, employment and educational facilities along the route.

3.2.1.2 GO Transit

GO Transit has recently completed the construction of a third track through most of the study area on the Lakeshore East rail line. Improvements will also be implemented on the Stouffville line. It can be expected that GO Transit levels of service will continue to be increased.

3.2.1.3 Bicycle and Pedestrian Network

The City of Toronto is planning to implement bicycle lanes along a number of arterial roads in the area.

3.2.1.4 Road Network

No major road improvements are proposed for the area.

3.2.1.5 Assessment of Traffic Conditions

Traffic conditions in the area are expected to worsen as population, employment and the numbers of students increase. More detail is found in Appendix B.

3.2.2 NATURAL ENVIRONMENT

No major changes to the natural environment are expected with respect to fish, wildlife, vegetation and designated areas over the next 20 years.

3.2.2.1 Meander Belt

It is anticipated the Meander Belt width for the existing Highland Creek at the Morningside area will have minor change in the next 20 years.

3.2.2.2 Sub-Surface Conditions

It is anticipated the future conditions of the sub-surface is similar with the existing conditions in the next 20 years.

3.2.2.3 Air Quality

To compare the future air quality between the construction of the LRT and without the LRT construction, a pollutant burden analysis within the Study Area was undertaken. The pollutant burdens for the primary concerned contaminants are CO2-e, NOx and PM10. The estimated pollutant levels for the Future No Build scenario in 2031 for contaminants are shown in Exhibit 3-13.

Exhibit 3-13: Expected/Changes in Airborne Emissions

2031 Without LRT	Existing Pollutant Burden in ktonnes/year	Estimated Pollutant Burden in ktonnes/year
CO_2-e	51.2	64.2
NO_x	212	35.4
PM_{10}	22.1	21.3

3.2.3 SOCIO-ECONOMIC ENVIRONMENT

Some future intensification of land use can be expected in this area, particularly along the designated avenues, Eglinton Avenue East, Kingston Road and Morningside Avenue. One major change that can be expected with or without the Scarborough-Malvern LRT are increases in the number of students travelling to the University of Toronto Scarborough Campus and the Centennial College Ellesmere Campus. [Dictated]

The City wants to ensure that any improved transit in this corridor supports its objectives for making the street more lively, more attractive, and more pedestrian-oriented. Improvements to the streetscape will support Toronto's Climate Change and Clean and Beautiful City initiatives to make all of Toronto a more liveable and pleasant place to live and work.

Growth areas rely on an efficient transportation network to support the growing travel needs of residents and workers. The Official Plan identifies both Higher Order Transit Corridors and Surface Transit Priority Networks that are potential areas for future investment and expansion of the transit system, including subways and LRT. These areas have the potential for reducing car dependency due to high population and employment densities – two factors that increase the likelihood of transit use.

The mixed-use areas within Avenues will perform a „Main Street' function and become meeting places for local neighbours and the wider community. By promoting alternative forms of travel, these areas become vibrant communities centred on the people and uses instead of automobiles.

By directing growth to areas such as Avenues, the Official Plan provides greater certainty for land owners, businesses, and residents about what type of growth can be anticipated, and where growth will occur.

Highland Creek Secondary Plan

The Toronto Official Plan includes a Secondary Plan for the Highland Creek Community. A Secondary Plan establishes local development policies to guide growth and change in a defined area of the City. It guides the creation of new neighbourhoods and employment districts while ensuring adequate public infrastructure and environmental protection. Secondary Plan policies adapt and implement the objectives, policies, land use designations and overall planning approach of the Official Plan to fit local contexts and are adopted as amendments to the Official Plan.

The Highland Creek Community encompasses residential areas characterized by detached dwellings on spacious, treed lots. The preservation of this character within the residential areas of the Community will be the principal criterion in evaluating development proposals. Residential infill and redevelopment will be compatible with the existing residential character.

The core area of the Highland Creek Community, which is located in the Highland Creek Village in the vicinity of Kingston and Morrish Roads, is designated Mixed Use Areas, providing for a variety of uses, including residential uses at a density not exceeding 37 units per hectare. Development within the Village will proceed in accordance with the urban design guidelines for the area.

Lands east of Morningside Avenue, north of Ellesmere Road and west of Conlins Road are within the area of potential influence of the previous landfill site. As such, the construction of any buildings, structures, services and hard surface paving will only be permitted subject to the following policies and in accordance with the underlying land use designation:

1. Engineering studies have been carried out, and such studies will indicate that development can safely take place;

2. Construction and phasing of any residential development will coincide with the control of any problems identified by engineering studies; and

3. Studies of gas, leachate and hydrogeology will be carried out by a qualified engineer.

A major sports facility is proposed to be built on the University of Toronto Scarborough Campus (UTSC), in conjunction with the City and is planned to straddle the City/UTSC properties along Morningside, north of Military Trail. The UTSC is looking for a "creative partnership" to build facilities for high performance athletics which will be part of the PanAm Games submission (submitted in Oct 2008). Plans include a 5500 seat aquatics centre, and a 6500 seat hockey / multi-purpose arena. The development will be a total of 462,000 sq. ft, at a cost of $150-200 million. The PanAm Games (2015) are to leave "legacy" sites, including the development of brownfield sites. Regardless of a successful bid, a scaled down version of the sports facility may be built.

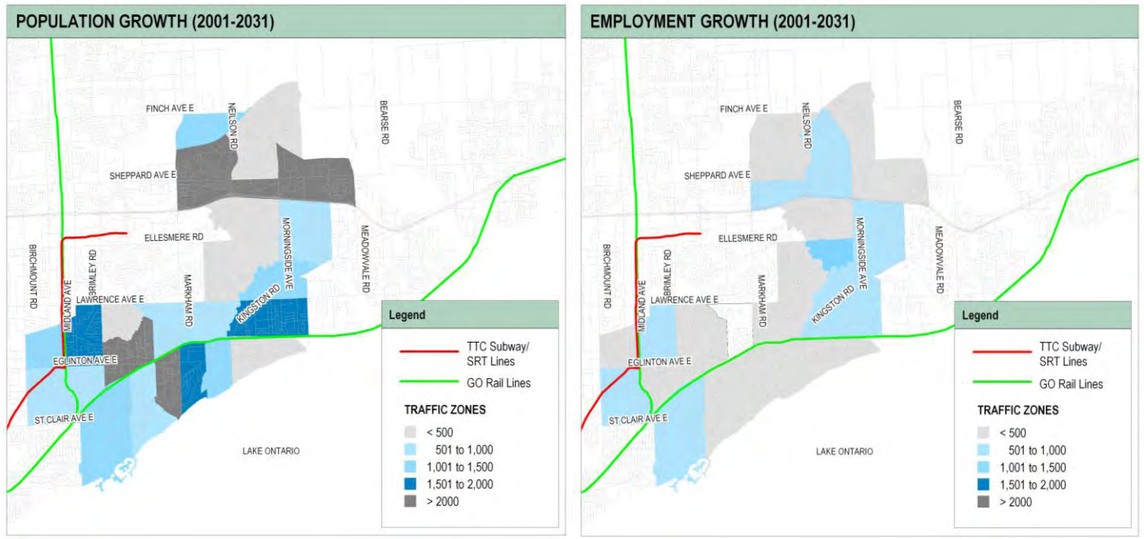
UTSC is currently engaged in a master planning study for the entire campus, and new Secondary Plan policies are expected to follow from this work.

Future Population and Employment

Exhibit 3-14 illustrates the population and employment increases projected for the areas in the Scarborough-Malvern Corridor. Based on the growth in population and employment projected for this corridor, and the

future forecast travel patterns in this area, the peak hour travel demand is estimated to be 4,600 – 5,000 people at the busiest point along the route.

Exhibit 3-14: Future Population and Employment Growth (2031)



Future Development

The active Development Applications within the study area are included in the table provided as Appendix E. As of June 23, 2008, there were over 200 development applications submitted to the City, including OPA/re-zoning or site plan approval.

3.2.3.1 Noise and Vibration

As part of this study, a detailed noise analysis was carried out to determine any mitigation measures are required due to the LRT operations. The future predicted sound levels in 2029 without building the LRT range from 53.6 dBA to 72.8 dBA during the day time and between 50.0 dBA 66.5 dBA during the night. These predicted noise levels formulate the noise analysis criteria required to determine if any mitigation measures are required for the proposed LRT facility as described in Section 4.6.

3.2.3.2 Contaminated Property

It is anticipated that the condition of existing contaminated property will remain the same as described above as existing conditions.

3.2.3.3 Utilities

The future utilities will be similar to existing utility conditions. No major utility construction is anticipated to occur.

3.2.4 CULTURAL ENVIRONMENT

No major changes are expected in the cultural environment in this area.