

### 4.1.3 Drainage

The study area is located in the upstream areas of the Humber River, Don River and Rouge River watersheds. Locally, watercourse slopes are generally less than 1%. The general direction of drainage is from the north side of Highway 407, south and east towards Lake Ontario. Tributaries at the Rouge River flow in a northerly direction before entering the Rouge River which generally flows in south east direction.

The existing drainage system consists of open ditches, culverts and storm sewers. The Highway 407 corridor has a total of 21 stormwater management facilities with an average depth of 1.0 metre. Drainage along the centre median of Highway 407 is provided by a system of storm sewers/culverts and/or ditch inlet catchbasins that outlet either directly to the transverse drainage crossings or to the outside ditches and ponds. The drainage along the outside edge of Highway 407 varies. At some locations there is a curb or concrete barrier wall. Surface runoff from the outside lanes, speed change land and paved shoulder drains toward the curb/concrete barrier wall and is picked up by catchbasins and/or outlet directly to the adjacent roadside ditch. At other locations, the highway has a "rural" type cross-section and the highway runoff flows across the shoulder and directly into the ditch.

### 4.1.4 Groundwater

Groundwater conditions are expected to vary considerably within the study area limits. Groundwater levels are generally controlled by the local subsurface stratigraphy, with shallow groundwater flow associated with watercourses and deeper regional groundwater flow expected further south of the study area.

Groundwater recharge areas relate to local topographic and geologic conditions, with recharge areas located throughout the study area away from watercourses, which are generally associated with areas of discharge. Groundwater discharge areas are associated with the watercourses, including Black Creek, West Don River, East Don River, German Mills Creek, Apple Creek, and Beaver Creek.

An inventory of the water supply wells that historically have been present in the study area was compiled, based on the MOE database of water supply wells, and verbal reports from municipal public works staff. The MOE database records indicate the historic presence of about 143 water supply wells within the study area. Additional water supply wells may be located in the study area, but their records are not included in the MOE database.

The construction details of supply wells that are still in use are not known from available data. There are at least 44 wells listed as historically located in the study area that are of shallow/dug well construction.

Hydrogeologic cross-sections were taken based on the analysis of borehole data and/or well elevations on MOE water well records. The cross-sections indicate that the study area consists of thick overburden resting on bedrock). The thickness of overburden varies and is generally undefined as wells do not reach bedrock surface when drilled. The Paleozoic bedrock is primarily Georgian Bay Formation, including shale, siltstone, sandstone and limestone. Bedrock depths within the study area will likely exceed conventional excavation necessary for construction of the transitway.

### 4.1.5 Fish and Aquatic Habitat

The study area is located within the Humber River, Don River, and Rouge River watersheds. The watercourses in the study area support a diversity of warmwater, coolwater, and coldwater fish communities. Many of the aquatic habitats have been altered and degraded by historical and recent urban development activities resulting in poor quality habitat throughout most of the study area. The larger watercourse systems generally support healthy populations of native and non-native species including many which are migratory from Lake Ontario (i.e. salmonids). However, all of the watercourses in the study area have experienced some type of impact from urbanization. The highly altered hydrology of the watercourses resulting from the surrounding urbanization has caused widespread degradation to the natural channel form and function. Barriers in the form of weirs and lengthy enclosures have created impassable structures to upstream fish migration, further leading to a loss in aquatic productivity and natural function.

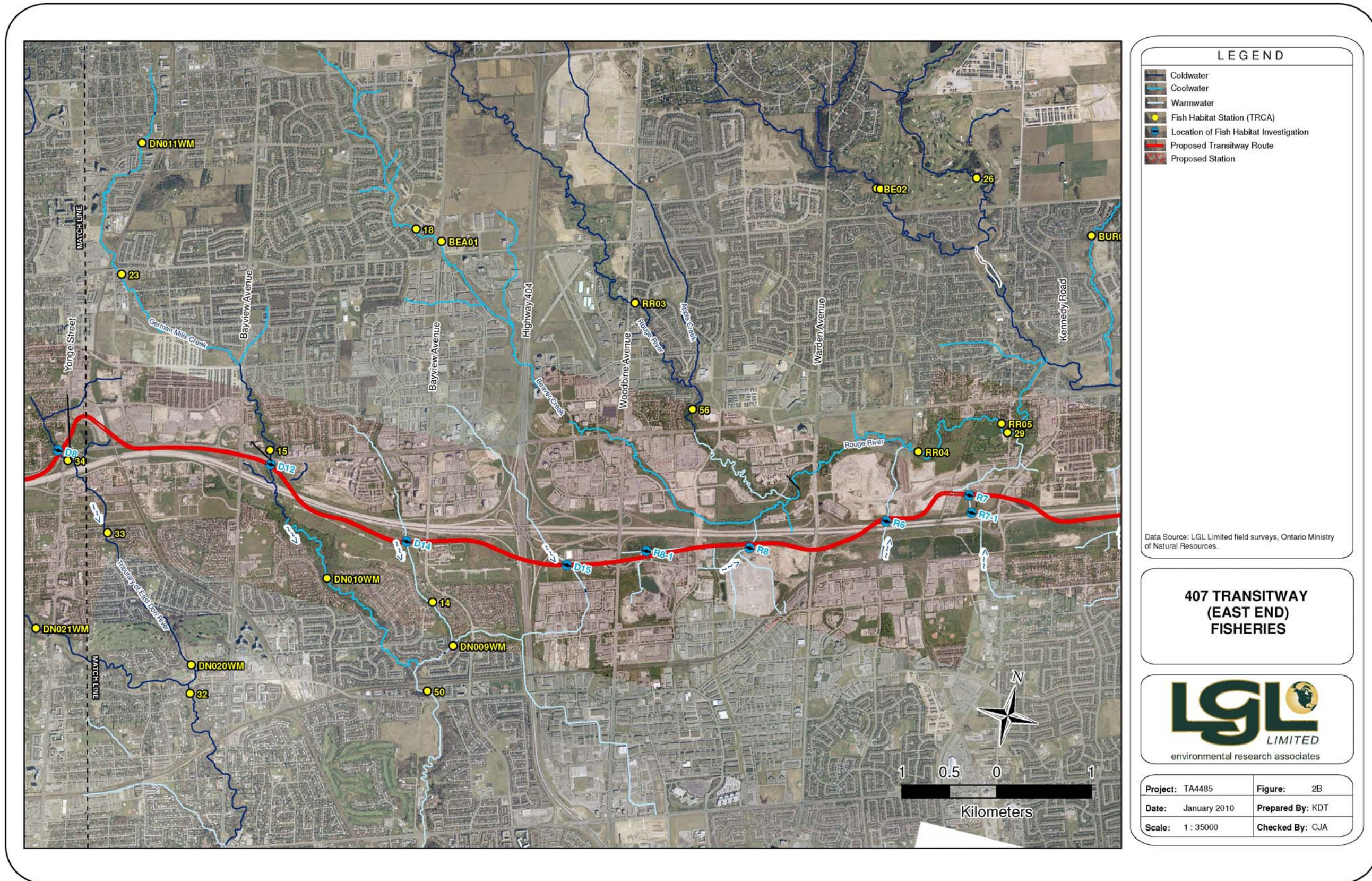
There are 16 watercourse crossings in the study area. **Table 4-1** illustrates all the watercourse crossings located along the 407 Transitway alignment from west to east:

**Table 4-1: Watercourse Crossings Within the Study Area**

Reference Number	Watercourse Name	Location	Fish Community
H1	Tributary 1 of Black Creek	east of Highway 400	warmwater
H4	Black Creek	east of Jane Street	warmwater
H5	Tributary 2 of Black Creek	east of Jane Street	warmwater
D1	Tributary 1 of West Don River	east of GO Barrie line	warmwater
D3	West Don River	west of Centre Street	warmwater
D17	Westminster Creek	west of Dufferin Street and Highway 7	warmwater
D22	Tributary 1 of East Don River	west of Bathurst Street	warmwater
D6	Tributary 2 of East Don River	east of Bathurst Street	warmwater
D7	East Don River	west of Yonge Street	coldwater
D8	Pomona Mills Creek	west of CN Rail Bala	coldwater
D12	German Mills Creek	east of Bayview Street and Highway 407	coolwater
D14	Tributary 1 of German Mills Creek	west of Leslie Street	warmwater
D15	Tributary 2 of German Mills Creek	Highway 404/Highway 407	warmwater
R8	Tributary of Beaver Creek	west of Warden Avenue	warmwater
R8-1	Unknown	west of Warden Avenue	warmwater
R6	Markham Centre Tributary of Rouge River	east of Warden Avenue	warmwater
R7	Kennedy Tributary of Rouge River	west of Kennedy Road	warmwater

**Figures 4-1(a) and 4-1(b)** show the watercourse crossings in the study area.

Figure 4-1(b): Watercourse Crossing and Fish Habitat



### Humber River

The western portion of the study area, from Weston Road to immediately east of Jane Street passes through the Humber River watershed. Tributary systems of the Humber River watershed crossed by the proposed 407 Transitway are limited to Black Creek and its tributary.

Station H1 is a tributary of Black Creek and is designated as a warmwater system by the TRCA. The area affected by the 407 Transitway is found 25 metres south of the on-ramp from Highway 400 to Highway 407 and 520 metres east of Highway 400. Station H4 is located on Black Creek, approximately 125 metres south of Highway 407 and 110 metres east of Jane Street. Black Creek is designated as a warmwater system by the TRCA. A tributary of Black Creek, Station H5, is designated as a warmwater system by the TRCA and located approximately 75 metres south of Highway 407 and 850 metres east of Jane Street.

### Don River

The central portion of the study area, from east of Keele Street to Highway 404, passes through the Don River watershed. Tributary systems of the Don River watershed crossed by the proposed 407 Transitway include both the East and West Don River and their tributaries, including German Mills Creek and its tributaries.

Station D1 is approximately 75 metres northwest of Highway 407 and 825 metres west of Dufferin Street. More specifically they are located at the confluence of the West Don River and a tributary, which are both designated as warmwater systems by the TRCA. From this location, the 407 Transitway will cross the West Don River at Station D3

Station D17, is located on Westminster Creek, approximately 30 metres northwest of Highway 407 and 185 metres west of Dufferin Street. Station D18, a tributary of Westminster Creek, is located approximately 535 metres south of Highway 407 and 485 metres east of Dufferin Street. This watercourse is disconnected from other watercourses and is now a grassed swale.

Station D22, a tributary of the East Don River would be crossed by the 407 Transitway approximately 30 metres north of Highway 407 and 460 metres west of Bathurst Street. This watercourse has been realigned to flow eastward toward Bathurst Street for approximately 350 metres before being piped under Highway 407. This watercourse is designated as a warmwater system by the TRCA.

Station D6 located, approximately 85 metres north of Highway 407 and 135 metres east of Bathurst Street. This station is a now a drainage ditch that is connected to the next fisheries station via a pipe. Station 6-1 is a Tributary of East Don River and is located approximately 65 metres north of Highway 407 and 440 metres east of Bathurst Street. This tributary also has an associated storm water pond and is classified as a warmwater system by the TRCA. The East Don River is crossed by the 407 Transitway, at Station D7, between Highway 407 and Highway 7 approximately 975 metres east of the Bathurst Street. The East Don River is classified as a coldwater system by the TRCA.

Pomona Creek is crossed by the proposed 407 Transitway (Station D8) at the northwest corner of Yonge Street and Highway 7. Pomona Creek is designated a cold water system by the TRCA. There is also a large storm water pond located adjacent to Station D11.

German Mills Creek at Station D12 is crossed by the 407 Transitway just south of Highway 7, approximately 315 metres east of Bayview Avenue. German Mills Creek is a tributary of the East Don River and is designated as a coldwater system by the TRCA. Station D13, a tributary of German Mills Creek, is located approximately 150 metres north of Highway 407 and 580 metres east of Bayview Avenue. This tributary was previously designated as a coolwater system by the TRCA, but only a grassy swale now exists at this station as it has been disconnected. Station D14 is located approximately 90 metres south of Highway 407 and 200 metres east of Leslie Street. This tributary of German Mills Creek is designated as a warmwater system by the TRCA. Station D15 is crossed by the 407 Transitway approximately 390 metres south of Highway 407 and 445 metres east of Highway 404. This watercourse is also a tributary of German Mills Creek and is designated as a warmwater system by the TRCA. During the site investigation only a swale containing cattails (*Typha sp.*) was present.

### Rouge River

The middle and eastern portions of the study area, between Highway 404 and Kennedy Road, pass through the Lower Rouge River watershed.

Station R8, a tributary of Beaver Creek, is crossed by the proposed 407 Transitway approximately 115 metres south of Highway 407 and 620 metres west of Warden Avenue. This tributary is designated as a warmwater system by the TRCA. Station R6 is crossed by the proposed 407 Transitway just north of Highway 407, approximately 720 metres east of Warden Avenue. This tributary of the Lower Rouge River, known as the Markham Centre Tributary, is designated as a warmwater system by the TRCA. Station R7, the Kennedy Tributary of the Lower Rouge River, is crossed by the proposed 407 Transitway approximately 210 metres north of Highway 407 and 260 metres west of Kennedy Road. The Kennedy Tributary is designated as a warmwater system by the TRCA, and during a site investigation in September 2008, it appeared to be a seasonal system.

Watercourse/drainage feature (R8-1) are present within the proposed Woodbine/Rodick Station area, which appear to be intermittent watercourse systems. The features flow in a northerly direction into a poorly defined swale within the woodland swamp adjacent to Highway 407. The swale eventually flows into the Tributary of Beaver Creek (R8) and as such likely supports a seasonal warmwater fish community. Further analysis of these features and the design of the crossing structure will need to be addressed at the Detailed Design Stage of this project.

### Rare, Threatened or Endangered Species

Redside Dace (*Clinostomus elongatus*) is designated Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and by the Committee on the Status of Species at Risk in Ontario (COSSARO).

This species was recorded within Black Creek and its tributaries and collected by the TRCA in the main branch of the West Don River, East Don River and Upper Rouge River.

American brook lamprey was also collected by the TRCA in the main branch of the East Don River and the Upper Rouge River. American brook lamprey has a Provincial Rank (Srank) of Rare to Uncommon, but it is not listed by COSEWIC or MNR.

Highway 407 to the east of Woodbine Avenue. According to the Rouge Park North Management Plan, valleylands surrounding the Rouge River to the north of Highway 407 between Woodbine Avenue and Warden Avenue are designated 'Special Management Zones.' According to the Rouge Park North Management Plan, land surrounding Walden Pond to the northwest of the intersection of Highway 7 and Kennedy Road is designated a 'Natural Area.'

#### Natural Features/Natural Systems

The study area is located within the Humber River, Don River, and Rouge River watersheds. The major watercourses crossing the corridor are Black Creek, West Don River, Westminster Creek, Pomona Mills Creek, East Don River, German Mills Creek, Beaver Creek and the Rouge River.

Baker's Woods Environmentally Sensitive Area is located west of Bathurst Street and north of Highway 7. This area is also of historical significance as it includes the Jonathan Baker Farmhouse, which is included on the Vaughan Heritage Inventory and on the Register as a Class A building. In addition, Baker's Woods is also a provincially significant ANSI.

#### 4.1.9 Noise and Vibration

Similar to the air quality assessment, three scenarios were reviewed: existing conditions, future without the 407 Transitway (2041, 10-year horizon beyond planned commencement of 407 Transitway operations), future with the 407 Transitway (2041). Details for the future with the 407 Transitway will be discussed in **Section 7**.

A total of ten noise sensitive areas were selected for assessment, including nine residences and one school area. Traffic data for existing conditions for Highway 407 were used in the assessment. Highway 407 is regarded as the dominant source of background traffic noise within the study area.

The MTO has a policy agreement with MOE in the assessment of noise impacts on transportation projects. The Policy states that where there is a noise increase greater than 5 decibels (dB) or the resulting sound level at the noise sensitive area is greater than 65 A-weighted decibels (dBA), mitigation must be considered.

The existing conditions at the nine noise sensitive area do not exceed the 65 dBA. There are **three** noise sensitive areas **within the study area that are predicted to experience** greater than 65 dBA in the future scenario without the 407 Transitway. **Two of the noise sensitive** areas are in the northeast quadrant of Dufferin Street and Highway 7 (68.1 dBA) and **one** in the northeast corner of Warden Avenue and Highway 407 (65.7 dBA).

#### 4.1.10 Air Quality

To assess the current air quality in the study area, historical air quality monitoring data from the closest MOE monitoring stations to the study area were considered. This data was used as the existing background level of air quality for the study. A model was used to simulate the impact of the proposed transitway as well as the contribution of Highway 407. A total of ten sensitive receptors were chosen to summarize the modelling results and at which a comparison was made to applicable standards and criteria. The chosen sensitive receptors included nearby existing/future residential areas or schools located throughout the study area at varying distances from Highway 407 corridor.

To place the project into perspective over its lifetime, the air quality assessment covered three different scenarios: existing conditions (2008), future without the 407 Transitway (2031), and future with the 407 Transitway (2031).

The study concluded that the existing condition concentrations for carbon monoxide (CO), nitrogen dioxides (NO<sub>x</sub>) and particulate matter less than 2.5 microns (PM<sub>2.5</sub>) were well within MOE Air Ambient Quality Criteria (AAQC). Exceedances of the PM<sub>10</sub> AAQC at three sensitive receptors within the study area for the existing conditions scenario were identified.

Air quality in both future scenarios will slightly improve for most gaseous pollutants (e.g. CO, NO<sub>x</sub>) due to newer engine technologies and fuels, despite predicted increases in traffic due to population growth. The pollutant burden of carbon dioxide (CO<sub>2</sub>) is expected to increase in the future due to increased traffic volumes from population growth. Without mitigation, air quality is predicted to degrade for particulate based compounds (i.e. PM<sub>2.5</sub>, PM<sub>10</sub> and TSP) due to increased traffic flow on Highway 407 resulting from population growth in the future.

The air quality study predicts a negligible difference in gaseous pollutant concentrations between the future with and future without the 407 Transitway scenarios. The study does predict that implementation of the 407 transitway will result in an increase in particulate matter concentrations, however, when recommended mitigation measures (planting of vegetation or where planned for safety and/or noise issues solid barriers) are considered it is expected that particulate matter concentrations at sensitive receptor locations will be within MOE standards.

## 4.2 Socio-Economic and Cultural Environment

### 4.2.1 Land Use

#### Parkway Belt West Plan

The study area is predominantly located within the Parkway Belt West Plan (PBWP), which was implemented for the purposes of creating a multi-purpose utility corridor, urban separator, inter-urban transit corridor and linked open space system. Its purpose is to link urban areas with each other by providing space for the movement of people, goods, energy, and information, without disrupting community integrity and function.

The area covered by the Plan is divided into two general land use categories; the Public Use Area and the Complementary Use Area. Public Use Areas are defined as presently used or to be predominantly used in the future for public uses. The Public Use Areas consist of areas designated as: Public Open Space and Buffer Area, Utility, Electric Power Facility, Road and Inter-Urban Transit. Complementary Use Areas are to be predominantly used for private uses that aid in the PBWP's objective of preserving the country landscape and encouraging land uses such as agricultural, recreational and institutional pursuits that do not require intense urbanization. The Complementary Use Area consists of the General Complementary Use Area and the Special Complementary Use Area.

Several pockets of lands designated as General Complementary Use Area are located in: the southeast quadrant of Highway 407 and Jane intersection (Beechwood Cemetery); the southeast quadrant of Highway 7 and Dufferin Street Interchange, northeast quadrant of Highway 407 and Bayview Avenue interchange; southeast quadrant of Highway 407 and Leslie Street Interchange, and southwest and southeast quadrant of Highway 407 and

Table 4-2: Identified Cultural Heritage Landscapes (CHL) and Built Heritage Resources (BHR) Within the 407 Transitway Study Corridor

Site #	Resource	Type	Location	Description	Within or Adjacent the Preferred Transitway Route
1.	CHL	Funerary	No. 7241 Jane Street, east side, adjacent Highway 407, City of Vaughan.	Beechwood Cemetery: A mid 20th century cemetery established in 1965.	Adjacent to preferred transitway route.
2.	BHR	Transportation	Jane Street at Pellar Road, City of Vaughan.	401 Underpass: Concrete rigid frame overpass, date unknown. It carries Jane Street over Pellar Road.	Within larger study corridor.
3.	CHL	Railscape	Crosses north-south at Highway 407 to west of Keele Street, City of Vaughan.	CN Line: It connects with CN Rail Freight Yard north of Highway 7.	Within larger study corridor.
4.	CHL	Transportation	Railscape Crosses under Highway 407 to east of Keele Street, City of Vaughan.	CN Line: It runs north-south at Highway 407.	Within the proposed preferred transitway route.
5.	BHR	Residential	No. 1929 Highway 7, south side, City of Vaughan.	Residence: This 19th Century, 1_ storey brick residence has a multi gable roof and with one storey bay windows, decorative dichromatic bands of brickwork and dichromatic voussoirs and segmental window openings. Included on the Vaughan Heritage Inventory and on the Register.	Within larger study corridor
6.	BHR	Transportation	Railway Subway Highway 7 west of Centre Street, City of Vaughan.	CN Overpass: Steel girder overpass with steel sidewalls and concrete abutments, datestone of 1963. Associated with the mid 19th Century. Ontario Simcoe and Huron Railway. Later the Grand Trunk and then CN.	Within larger study corridor.
7.	CHL	Waterscape	Crosses under Highway 407 to west of Centre Street, City of Vaughan.	An East Don River tributary.	Within larger study corridor.
8.	BHR	Residential	1889 Highway 7 to east of railway bridge, City of Vaughan.	Former Residence Now a commercial site, date undetermined, this building is 1 _ storeys with a side gable roof, and modern siding; much altered. Associated with former community of Concord.	Within larger study corridor.
9.	BHR	Residential	1841 Highway 7, south side, to east of railway bridge, City of Vaughan.	Former Residence: Now in commercial use, this mid 20th century residence is 1 _ storeys, with a side gable roof and gable dormers and clad in modern siding; much altered. Associated with former community of Concord.	Adjacent to preferred transitway route
10.	BHR	Commercial	1890 Highway 7, north side immediately east of railway bridge, west of Centre Street, City of Vaughan.	Concord Floral Company Limited: Comprises a 20th century residence and several greenhouses to north. Fred Miller established the Concord Greenhouses, in the early 20th C. that became the Concord Floral Company. Associated with former community of Concord. Included on the Vaughan Heritage Inventory.	Within larger study area.
11.	CHL	Transportation	Former Highway 7 alignment Southwest quadrant of Highway 407 and Centre Street, City of Vaughan.	Highway 7 ROW: Abandoned alignment off Centre Street that was severed during construction of Highway 407 in the 1990s.	Within larger study area.
12.	BHR	Public	7894 Dufferin Street, west side, City of Vaughan.	Patricia Kemp Community Centre: Built in 1931 as a schoolhouse, this one storey brick building has a flat roof, centre projecting bay with main entrance flanked by sidelights and four windows to either side of entrance; decorative semi-circle panel and transom over main entrance; date stone above main entrance, indicating construction date of 1931; little altered. Included on the Vaughan Heritage Inventory and on the Register.	Within larger study area.
13.	BHR	Residential	No municipal address on-site, it is located immediately east of No. 8090 Dufferin Street (Vaughan Parks Department), City of Vaughan.	Residence: 19th century, 1 _ storey frame residence with side gable roof and front verandah; a frame shed to rear; little altered. Property backs onto Highway 407 and appears to be abandoned. Included on the Vaughan Heritage Inventory.	Within larger study corridor.
14.	CHL	Recreational	Thornhill Woods, located at the northwest corner of Highway 7 and Bathurst Street, City of Vaughan.	Park Land/Baker Farm: The park includes the Jonathan Baker Farmhouse, built 1853, at 91 Thornhill Woods, which is also of historical significance: The Baker family produced maple sugar from the 1820s until 1999. Included on the Vaughan Heritage Inventory and on the Register as a Class A building.	Within larger study corridor.
15.	BHR	Residential	Old Langstaff Road, Richmond Hill Golf & Country Club. Town of Richmond Hill.	Residence: Isaac Reaman Residence, built in 1905, two storey, brick residence with cross gable roof and verandah in ell; little altered. Included on the Town of Richmond Hill Inventory Register.	Within the larger study corridor.

Table 4-2: Identified Cultural Heritage Landscapes (CHL) and Built Heritage Resources (BHR) Within the 407 Transitway Study Corridor

Site #	Resource	Type	Location	Description	Within or Adjacent the Preferred Transitway Route
16.	BHR	Transportation	Old Langstaff Road, Town of Richmond Hill.	Road Bridge: Concrete road bridge with concrete posts and metal railing over Don River. MTO has commented that the bridge over the Don River of Old Langstaff Road is a MTO structure, as this was the former alignment of Highway 7.	Within the larger study corridor.
17.	BHR	Transportation	Under Highway 7 at Old Langstaff Road bridge, Town of Richmond Hill.	Culvert: Double, rectangular concrete box culvert under Highway 7, date unknown.	Within the larger study corridor.
18.	BHR	Religious	28 Langstaff Road, west side, Town of Markham.	Church: A 1 storey, 20th Century church building with a front gable roof and a vestibule set on a raised concrete block foundation.	Within the larger study corridor.
19.	CHL	Residential	Ruggles Street, Town of Markham.	Streetscape: A small grouping of an early 19th Century (No. 20) and some early 20th century houses on the west side of street (Nos. 10, 20, 24, 26 and 32). Nos. 10, 20 and 24 are listed on the Markham Register of Property of Cultural Heritage Value or Interest. Markham.	Within the larger study corridor.
20.	CHL	Funerary	8361 Yonge Street (Thornhill) Town of Markham.	Cemetery: The Archdiocese of Toronto established Holy Cross cemetery in 1954 as an alternate burial ground for Catholics in Toronto.	Within the larger study corridor.
21.	BHR	Residential	75 Langstaff Road, south side, Town of Markham.	Residence: LeMasurier House, built in 1931, a one storey brick cottage with hip roof and stucco cladding, little altered. Listed on the Markham Register of Property of Cultural Heritage Value or Interest.	Within the larger study corridor.
22.	BHR	Residential	79 Langstaff Road, south side, Town of Markham.	Residence: A 20th Century. 2 storey brick house with hip roof, front bay window, exhibits Four Square details; altered.	Within the larger study corridor.
23.	CHL	Transportation	Langstaff GO Transit Station, under Highway 407 to east of Yonge Street, Town of Markham.	CN Railway Line. Former early 20th Century. Northern Railway, later CN.	Within the preferred transitway route.
24.	BHR	Residential	89 Langstaff Road, south side, Matthews Bros., Town of Markham.	Residence Much altered, built c1900.	Within the larger study corridor.
25.	BHR	Residential	139 Langstaff Road East, south side. Town of Markham.	Residence: Armand Robineau, a one storey frame bungalow, built c. 1928. Listed on the Markham Register of Property of Cultural Heritage Value or Interest.	Within the larger study corridor.
26.	CHL	Funerary	8050 Warden Avenue, northwest quadrant of Highway 407 and Warden Avenue (Part of N.E. Lot 8, Concession 4). Town of Markham.	Bethel/Lunau Cemetery: Former site of a Primitive Methodist Church, the earliest cemetery marker is dated to 1862. Listed on the Markham Register of Property of Cultural Heritage Value or Interest.	Within the larger study corridor.
27.	BHR	Residential	Located on blocks, north side of Enterprise Road, Town of Markham.	Residence: 19th century, 2 storey brick residence that has been relocated to this site. Municipally designated under Part IV of the <i>Ontario Heritage Act</i> .	Within the larger study corridor.
28.	BHR	Residential	99 YMCA Boulevard, Town of Markham (Formerly No. 7996 Kennedy Road.	Residence: Ravis-Wolfe Residence, a mid 19th century brick residence of Regency-influenced Georgian architecture with a side gable roof, eave returns, cornice, 6/6 pane upper windows and Flemish bond brick pattern on front. It is now used as a meeting centre for the YMCA. Municipally designated under Part IV of the <i>Ontario Heritage Act</i> . Municipal Heritage Conservation Easement.	Adjacent to the preferred transitway route.
29.	BHR	Residential	31 Helen Street, Town of Markham.	Residence: Helmke-Whiteoak House, a 19th century, 2 storey, brick residence. Municipally designated under Part IV of the <i>Ontario Heritage Act</i> .	Adjacent to the preferred transitway route.
30.	BHR	Transportation	Kennedy Road south of Highway 407.	Railway Bridge: Datestone indicates construction in 1963, crosses over Kennedy Road.	Within the larger study corridor.
31.	BHR	Residential	7931 Kennedy Road, east side, southeast quadrant Highway 407.	Residence: Abandoned farmhouse, 1-storey, centre gable roof, frame construction with vertical beaded boards. Set back from the road. Documented in Highway 407 Central Section, Cultural Resource Documentation Report, Volume 1, Indirect Impacts, Built Heritage Features and Cultural Landscapes [March 2001]. Listed on the Markham Register of Property of Cultural Heritage Value or Interest.	Within the larger study corridor

A Stage 2 Archaeological Assessment is recommended for all undisturbed lands located outside the existing Highway 407 ROW which are considered to have archaeological site potential and are to be disturbed by the proposed 407 Transitway construction.

Undisturbed areas suggested for a Stage 2 Archaeological Assessment within the study area to be likely disturbed by the implementation of the 407 Transitway alignment and stations are:

- from Highway 400 to east of Jane Street;
- southeast quadrant of Highway 407 and Keele Street;
- location of the proposed GO Barrie (Concord) Station;
- southwest quadrant of Highway 407 and Leslie Street; and,
- east of Rodick Road.

The Stage 1 Archaeological Assessment field review determined that although parts of the study corridor have been previously disturbed by typical road construction and commercial development, portions of the study area have remained undisturbed require a Stage 1 Archaeological Assessment. Additional areas requiring further assessment are:

- west and east of Dufferin Street;
- east of Yonge Street, north of Highway 7;
- southwest quadrant of Highway 400 and Highway 407 interchange;
- east of Warden Avenue; and,
- west of Kennedy Road.

### 4.3 Transportation

The following section outlines the existing transportation systems and networks as they pertain to the 407 Transitway study area. All existing transportation conditions 500 metres north and south of the Highway 407 Corridor within the Regional Municipality of York, City of Vaughan, Town of Richmond Hill and Town of Markham are described.

#### 4.3.1 Transit Services within the Study Area

Currently within the Highway 407 Corridor, there exist four transit operators including GO Transit, YRT/Viva, Brampton Transit and the TTC. These transit operators are providing service within the Highway 407 Corridor and adjacent areas. The interconnectivity of these services occurs with other rapid transit systems such as the TTC Subway lines, GO Rail lines and YRT/Viva services. The connectivity characteristic of the existing transit networks facilitates accessibility by individuals to major UGC and activity hubs, such as employment areas, commercial centers, and post-secondary schools within the GTA.

The following figures illustrate the existing transit service within the transitway study area. Specifically **Figure 4-4** depicts the YRT/Viva as of September 5, 2010. These services consist of major station terminals where transfers are made easier between the different transit service providers. The major terminal stations are: Promenade Terminal, Richmond Hill Centre Terminal, Vaughan Mills Terminal, York University Terminal, and Finch GO Bus Terminal.

**Figure 4-3** illustrates the existing GO Transit services within the central section of the transitway with bus and rail service. As well, the indication of TTC subway station transfer points is also illustrated. The system of rail and bus lines connects key metropolitan nodes and UGCs within the City of Vaughan, the Town of Richmond Hill, and the Town of Markham. The UGCs of significance are the Vaughan Metropolitan Centre, Richmond Hill/Langstaff Centre, and Markham Centre. As well, the GO transit services assist in the connectivity to existing subway and LRT lines as well as the proposed 407 Transitway.

**Figure 4-3: Existing GO Transit Services within the 407 Transitway Central Section**



Three GO Rail Stations are located within or adjacent to the study area, consisting of:

1. **York University GO Station:** On the GO Barrie Line and located on Canarctic Drive near Keele Street and Steeles Avenue;
2. **Langstaff GO Station** is located on Langstaff Road, south of Highway 7 and Highway 407, in the Yonge Corridor just east of Yonge Street, in Markham; and,
3. **Unionville GO Station:** is located at the intersection of Kennedy Road and YMCA Boulevard in Markham, on the GO Stouffville Line with primary access via Kennedy Road.

1. Viva Blue:
  - Northbound-Southbound directional service;
  - Service between Finch GO Bus Terminal and Newmarket GO Terminal; and,
  - Service along Yonge Street.
2. Viva Blue-A:
  - Northbound-Southbound directional service;
  - Terminus stations of Finch GO Bus Station and Newmarket GO Terminal; and,
  - Service exclusively along Yonge Street between the terminus stations.
3. Viva Purple:
  - Eastbound-Westbound directional service;
  - Terminus station of York University and Markham Stouffville Hospital; and,
  - Service along Highway 7.
4. Viva Orange:
  - Northbound-Southbound directional service;
  - Terminus stations of Downsview Station and Highway 7/Martin Grove; and,
  - Service along Keele Street and Highway 7.
5. Viva Green:
  - Northbound-Southbound directional service; and,
  - Terminus stations of Don Mills Station and Highway 7/McCowan.
6. Viva Pink:
  - Northbound-Southbound directional service;
  - Terminus stations of Finch GO Bus Terminal and Unionville GO Station;
  - Service along Yonge Street and Highway 7; and,
  - Peak period service.

The YRT/Viva services currently operate in mixed traffic with queue-jump lanes as well as traffic signal priority at certain intersections. Service is provided every three to ten minutes during peak periods and less than fifteen minutes during off-peak hours.

YRT's routes (including Viva) connectivity, connect to the existing Highway 407 GO Bus at York University, Langstaff GO Station and Unionville GO Station. As well, connections to the TTC's Yonge, Spadina, and Sheppard subway lines and to a number of TTC bus routes is in place.

#### 4.3.1.3 Toronto Transit Commission (TTC)

The TTC is responsible for services in the City of Toronto (i.e. south of Steeles Avenue). TTC also operates several routes on major north-south arterials north of Steeles Avenue in York Region. These services are operated under contract to York Region.

There are currently no east-west TTC routes that operate within the Highway 407 Corridor. However, the TTC operates a number of routes on the major north-south roads intersecting Highway 407 as well as serving York University connecting to its subway system. Through the following planned TTC subway extensions, direct connections between the subway system in Toronto with the Highway 407 Corridor will be facilitated:

- TTC Spadina Subway – the line currently terminates at Downsview Station, southeast of York University at Sheppard Avenue and Allen Road. Through a subway extension, the route will be extended to Highway 7 at the Vaughan Metropolitan Centre.
- TTC Yonge subway – the line currently terminates at Finch Avenue. This subway route will be extended to Highway 7 at Langstaff GO Station/RHC Terminal.

#### 4.3.1.4 Brampton Transit

Brampton Transit consists of the local bus services as well as the Brampton Züm BRT services. The transit service is comprised of 35 regular routes as well as a Canada's Wonderland express route and a GO shuttle route. Incentives for Brampton Transit passengers connecting to GO Stations within Brampton are provisioned for with reduced fare passes when connecting to the following GO Transit Stations: Malton, Bramalea, Mount Pleasant, Brampton GO Stations, and Downtown Brampton's Bus Terminal. Proof of GO Transit ticket purchased from GO Transit's York University Highway 407 Bus service also give passengers the opportunity to transfer onto Brampton Transit at a reduced fare.

Another transit service offered by Brampton Transit is the Brampton Züm. Introduced by the City of Brampton to provide connectivity along the city's major north-south and east-west corridors, the system was implemented as a BRT to meet the demands of high-route capacities within the City of Brampton.

#### 4.3.2 Existing Road Network

A grid network of arterial roads as well as minor provincial and major 400-series highways make up the road-based transportation system within the Highway 407 Corridor. There are three major provincial 400-series highway facilities within the corridor, including:

1. Highway 407
  - East-west facility that defines the corridor alignment
  - Lane width varies between six and eight lanes, with interchanges at all major north-south facilities within the study area;
  - Currently, the highway extends from the junction of the Queen Elizabeth Way and Highway 403 in the west to Brock Road in the east; and,
  - Plans for extension farther eastward to Highway 35/115.
2. Highway 400
  - North-south facility in the western portion of the proposed 407 Transitway Central Section;
  - Eight lane wide across the study area with a major interchange with Highway 407; and,
  - Extends from Highway 401 in the south, within the City of Toronto, to the City of Sudbury in the north.