



McNicoll Bus Garage



ENVIRONMENTAL PROJECT REPORT

Transit Project Assessment Process

Toronto Transit Commission
May 2015

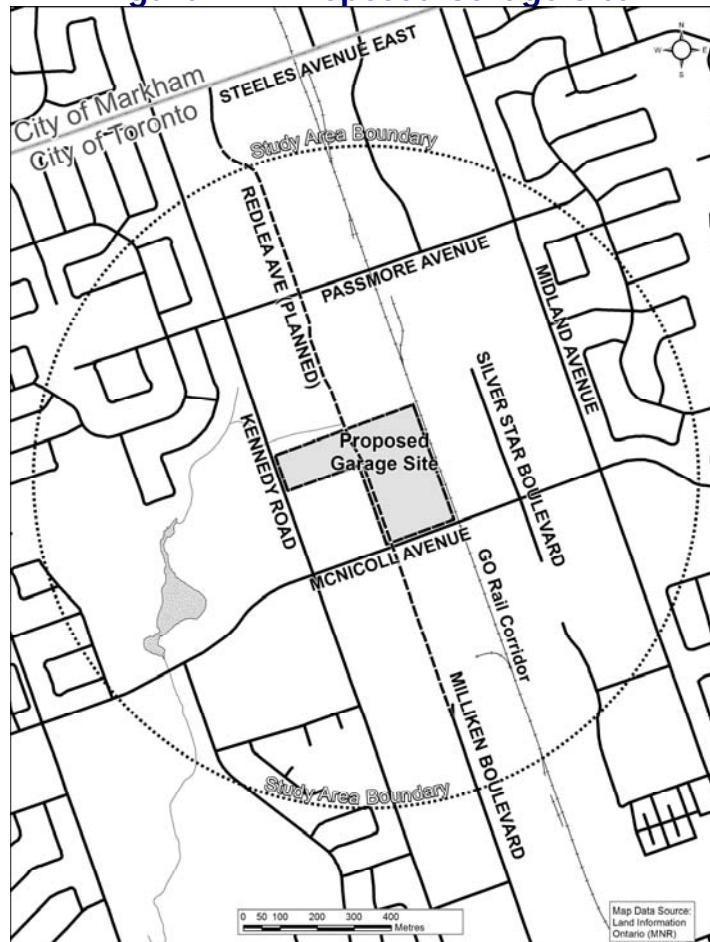


EXECUTIVE SUMMARY

The Toronto Transit Commission (TTC) operates and maintains a fleet of approximately 1,700 bus transit vehicles as part of its transit network of subways, streetcar lines and bus routes. The existing bus garages are currently operating overcapacity and range in age from approximately 10 to 60 years old. As of 2014, forecasted growth in transit ridership is projected to require the acquisition of approximately 220 buses by 2018, some of which will be the significantly longer articulated buses (6.1 m longer in length than the current standard size buses). As a result, bus garage capacity must be increased by over 200 buses within the next five years.

The TTC has undertaken the Transit Project Assessment Process (TPAP) as prescribed in Ontario Regulation 231/08, Transit Projects and Metrolinx Undertakings, for a new bus garage. The proposed site for the McNicoll Bus Garage (MBG) is located near the intersection of Kennedy Road and McNicoll Avenue in the northeast end of the City of Toronto (**Figure E-1**).

Figure E-1: Proposed Garage Site



The project includes the design of an indoor storage facility that can accommodate 250 conventional buses, a maintenance shop and office, a transportation office and a bus service area.

The maintenance shop includes maintenance bays, brake shop, degrease shop, body shop, touch-up paint shop, inspection shop and tire shop. The MBG will include:

- Indoor storage for 250 buses in the storage barn, on hoists, pits, body shop, paint shop, bus cleaning area and service lines
- Bus Maintenance and Transportation offices (including spaces required for the bus operators and management)
- Indoor fueling capability
- Two service lines with exterior wash system
- Bus special cleaning area
- Repair Bay, including 15 hoists (eight articulated buses and seven standard buses), two inspection bays, paint shop, body shop with two bays (with hoists)
- Degrease Shop with hoist
- Materials receiving, storage and distribution area (including loading docks)
- Appropriate building systems (HVAC, plumbing, electrical, communications, etc.) including a centralized building automated controls system
- Employee amenities (parking, male / female washrooms and locker rooms, lunch room / cafeteria) appropriate for three shifts
- Access / egress to the facility will be via Redlea Avenue

Refer to **Chapter 3 and Figure E-2** for the details of the proposed facility.

The MBG is not anticipated to result in any significant negative environmental or community impacts:

- A traffic impact assessment was undertaken as part of this study. Employee and bus activity from the facility will occur primarily during off-peak hours. Site generated traffic during the peak periods of the adjacent road network is minimal, resulting in negligible changes to local traffic operations. Refer to **Section 5.1** for more details.
- An air quality assessment was undertaken as part of this study. The maximum combined concentrations were all below their respective MOECC (Ministry of the Environment and Climate Change) guidelines or Canada Wide Standards, with the exception of PM₁₀ and benzene. Frequency analysis determined that the project would cause cumulative exceedances of the PM₁₀ and benzene guidelines one and six additional days, respectively, over the 5-year period. This equates to <1% of the time. Refer to **Section 5.3.2** for more details.
- A human health risk assessment (at a screening level) of the potential air quality impacts was undertaken as part of this study. Based on the results of the assessment, and given the considerable conservatism built into both the air quality assessment and the human health risk assessment itself, no unacceptable health risks related to emissions from the proposed bus garage and associated vehicle traffic would be expected. Refer to **Section 5.3.2.4** for more details.
- A noise assessment was undertaken as part of this study. Unmitigated noise impacts were predicted to exceed NPC-300 requirements. A noise mitigation plan has been

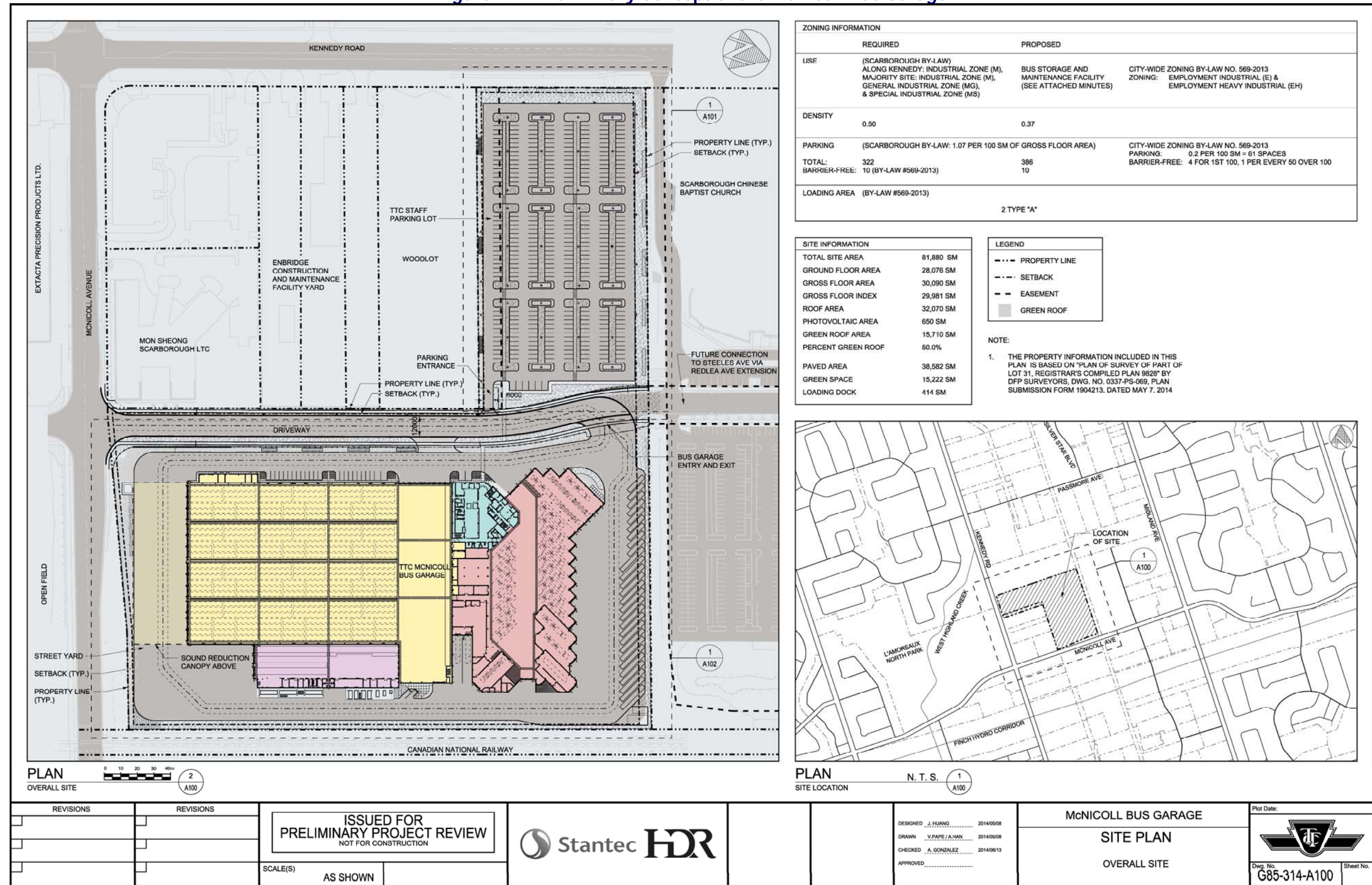
developed. With the inclusion of the recommended mitigation measures, the proposed facility is expected to meet MOECC Publication NPC-300 requirements at all surrounding noise sensitive receptors during all periods of the day and night. A screening level assessment of the impact of bus traffic on off-site noise levels was also conducted. Due to high background traffic volumes, the change in road traffic noise levels due to the addition of the buses will generally be insignificant and less than 3 dB for the vast majority of the time. Refer to **Section 5.3.3** for more details.

- A natural sciences assessment was undertaken to assess the impact to the natural features and functions located on the site. The site is dominated primarily by a significant non-native plant species that is typical for abandoned agriculture fields. No rare or endangered species (Species at Risk) were encountered during field work. A small portion of the north end of the site is located in the Toronto and Region Conservation Authority (TRCA) regulated area (a permit will be obtained from TRCA during the design stage). Refer to **Section 5.2** for more details.
- A tree survey was conducted as part of this study to determine if the Toronto Tree Protection By-law will apply to this site. The Toronto Tree Protection By-law requires a permit to injure or destroy trees having a diameter equal to or greater than 30 cm. There are 35 trees over 30 cm in diameter on the proposed site. A permit will be required prior to construction. Refer to **Section 5.2** for more details.
- The Archaeological Assessment undertaken as part of this study identified no significant archaeological resources on the site. As such, the site is considered cleared of further archaeological concern. Refer to **Section 5.4** for more details.
- The tree survey undertaken as part of this study identified one English Oak (*Quercus robur*) located on the southern edge of a small forested area along the western property boundary. These trees are locally referred to as “Vimy Oak” trees and are associated with seeds brought back and planted by a World War I veteran and are therefore considered to have cultural importance. The English Oak tree located on the site is proposed to be retained. Refer to **Section 5.4** for more details.
- Stormwater management measures have been built into the design of the MBG to provide the required water quality and quantity control. Refer to **Section 5.2.3** for more details.

Refer to **Chapter 5** for a description of the potential environmental impacts and corresponding mitigation measures.

Various meetings were held with external agencies and key stakeholders throughout the duration of the study. The general public and property owners were able to choose their level of involvement through attending public open houses and/or contacting the Project Team directly. At the public open houses, information about the project was presented on display panels. Project staff were available at the open houses to answer directly any questions or concerns raised by a member of the public. Three formal rounds of public consultation were undertaken. Aboriginal communities and government review agencies were also contacted. An overview of the consultation activities and input received is outlined in **Chapter 6**.

Figure E-2: Preliminary Concept of the McNicoll Bus Garage



REVISIONS	REVISIONS

ISSUED FOR
PRELIMINARY PROJECT REVIEW
NOT FOR CONSTRUCTION

SCALE(S)
AS SHOWN



DESIGNED J. HUANG 2014/05/08
DRAWN V. PAPE / A. HAN 2014/05/08
CHECKED A. GONZALEZ 2014/08/13
APPROVED

McNICOLL BUS GARAGE
SITE PLAN
OVERALL SITE

Plot Date:

Dwg. No. G85-314-A100 Sheet No.

*subject to refinement during detail design

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1.0 INTRODUCTION

1.1 Study Background

The Toronto Transit Commission (TTC) operates and maintains a fleet of approximately 1,700 bus transit vehicles as part of its transit network of subways, streetcar lines and bus routes. However, the TTC's actual overall garage capacity including 7% spares is 1,630 buses. As a result, the garages are currently operating overcapacity. The buses are stored, repaired and serviced from eight bus garage facilities located throughout the urban area of the City of Toronto (**Figure 1-1**). The garages range in age from approximately 10 to 60 years old. The primary functions carried out at these garages include vehicle fuelling, cleaning, running repairs and preventative maintenance. The heavy repair functions (transmission and engine rebuilds), body repair and brake replacement are currently undertaken at the Hillcrest Complex (west of Bathurst Street, north of Dupont Street) and not in the garages.

Figure 1-1: Existing Bus Garages



As of 2014, forecasted growth in transit ridership is projected to require the acquisition of approximately 220 buses by 2018, some of which will be the significantly longer articulated

buses (6.1 m longer in length than the current standard size buses). As a result, bus garage capacity must be increased by over 200 buses within the next five years.

In the late 1980s Metropolitan Toronto purchased a property south-east of Markham Road and Steeles Avenue East to serve as a location for a future TTC bus garage. By the early 2000s, growth in the north-east part of the city was not progressing as quickly as anticipated, making the Markham Road and Steeles Avenue East property less desirable as a bus maintenance and storage location. As a result, when a developer group approached the City and TTC in 2004 with a proposal to acquire the property, it was viewed as an opportunity to find a more suitable location for a future bus garage. A property search identified the current site. Compared to the Markham Road and Steeles Avenue East site, the current site offers a significant reduction in bus operating costs (this strategic location helps reduce deadhead time which will result in cost savings that can be channelled back into improving service, including northern Scarborough) and it is closer to the routes it would service. The McNicoll Bus Garage (MBG) site was purchased by the City of Toronto in 2005.

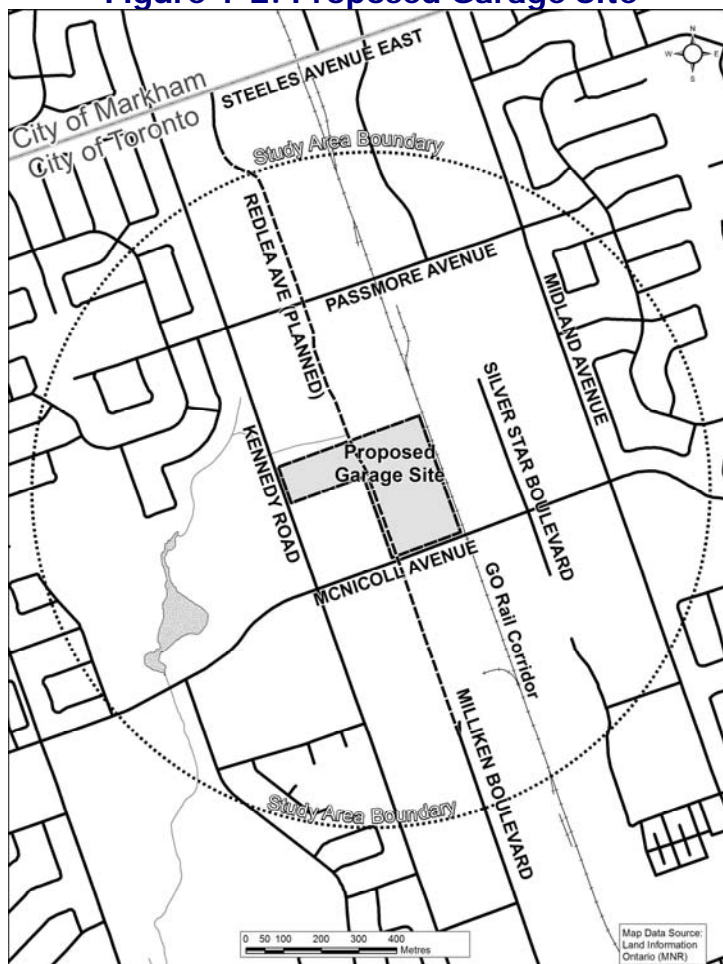
1.2 Study Purpose and Scope

The TTC has undertaken the Transit Project Assessment Process (TPAP) as prescribed in Ontario Regulation 231/08, Transit Projects and Metrolinx Undertakings, for a new bus garage on the north side of McNicoll Avenue, east of Kennedy Road. The project includes the design of an indoor storage facility that can accommodate 250 conventional buses, a maintenance shop and office, a transportation office and a bus service area. The maintenance shop includes maintenance bays, brake shop, degrease shop, body shop, touch-up paint shop, inspection shop and tire shop. The transportation office includes the spaces required for the bus operators and management. The bus service area includes four fuel bays, two automatic drive-through exterior bus wash bays and four special bus clean bays (refer to **Figure 3-2**).

1.3 The Proposed Facility Site and Study Area

The proposed facility site for the MBG is located near the intersection of Kennedy Road and McNicoll Avenue in the northeast end of the City of Toronto (**Figure 1-2**). The study area for this study includes the MBG site and surrounding lands necessary to assess potential environmental impacts of the construction and operations of the facility.

Figure 1-2: Proposed Garage Site



1.4 The Transit Project Assessment Process (2008)

The MBG project is being carried out under the new Transit Project Assessment Process (TPAP). In June of 2008, Ontario Regulation 231/08, the Transit Project Regulation (*Transit Projects and Metrolinx Undertakings*), was made under the *Environmental Assessment Act* for undertaking transit-related projects in the Greater Toronto and Hamilton Area. Under this Regulation, a list of public transit projects (see Schedule 2, Ontario Regulation 231/08) were conditionally exempted from the requirements of the *Environmental Assessment Act* provided that the requirements outlined in the Ontario Regulation 231/08 are successfully completed.

The Ontario's TPAP Guide was developed by the Ministry of the Environment and Climate Change (MOECC) in March 2009 to highlight the key features of the new process. The TPAP Regulation provides a framework for an accelerated and focused consultation and objection process for completing the assessment of potential environmental impacts of a transit project, so that decision-making can be completed within six months. In general, the key steps in the TPAP, as recommended by the Ontario's TPAP Guide, are:

- Contact the Director of the Environmental Assessment and Approvals Branch (EAAB) for a list of bodies to contact and contact these bodies to help identify aboriginal communities that may be interested in the transit project, e.g. Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada;
- Distribute a Notice of Commencement;
- Take up to 120 days to consult with interested persons, including regulatory agencies and aboriginal communities and document the process;
- Includes a “time out” provision with respect to potential negative impacts on a matter of provincial importance or on constitutionally protected aboriginal or treaty rights;
- Publish a Notice of Completion of the Environmental Project Report (EPR). The Notice will be published within 120 days of the Notice of Commencement;
- Provide 30 days for the public, regulatory agencies, aboriginal communities and other interested persons to review the EPR. Objections may be submitted to the Minister during this period; and
- 35 days for the Minister to act.

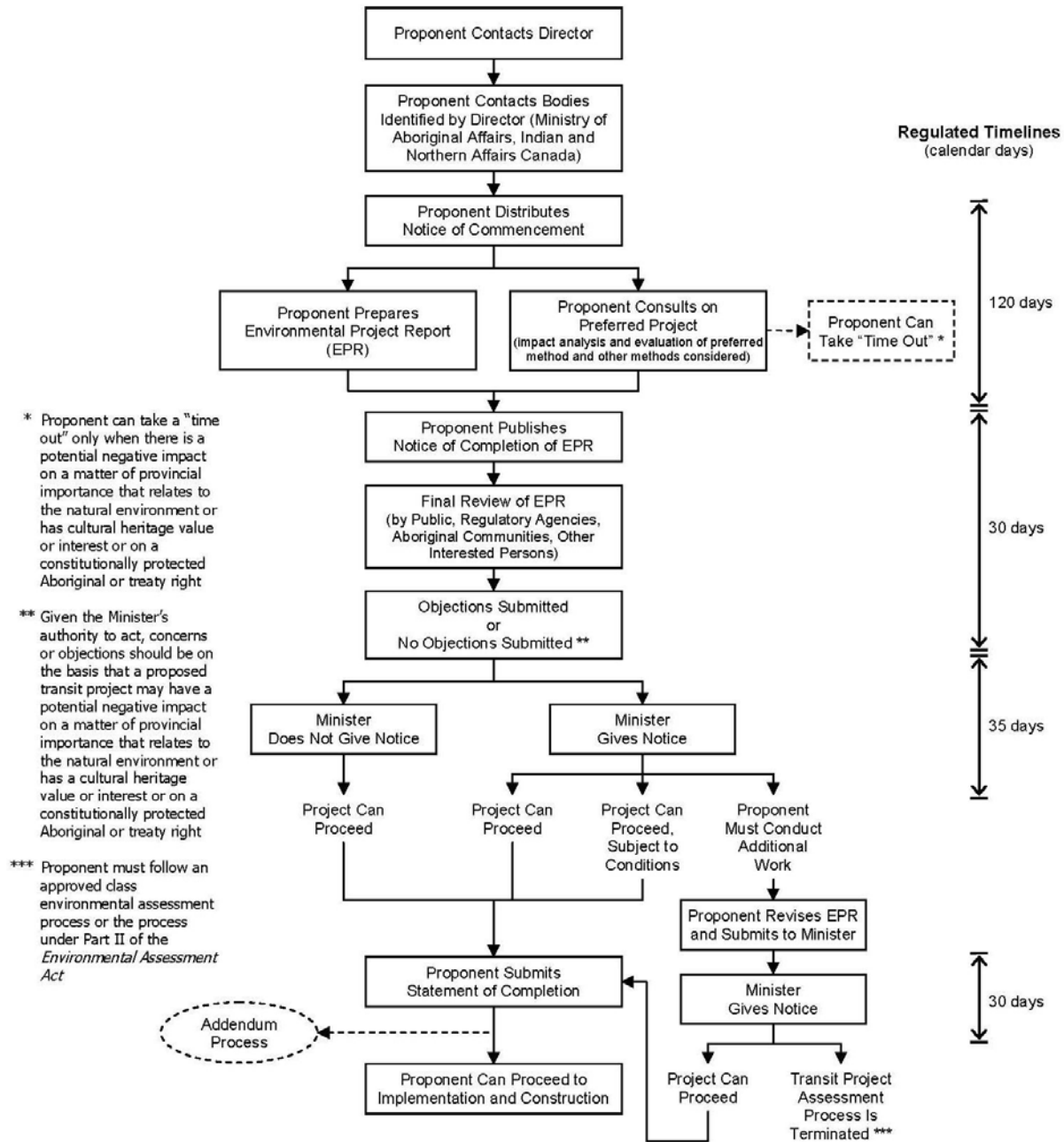
A summary of this process is provided in the following sections and an outline of the TPAP is provided in **Figure 1-3**.

1.4.1 Environmental Project Report

Documentation of the TPAP is to be submitted to MOECC within 120 days of distributing the Notice of Commencement. The document, known as the Environmental Project Report (EPR), documents the TPAP, the conclusions reached, the impacts, the associated mitigation measures, and the future commitments for the transit project. This report provides a comprehensive summary of each step in the assessment study.

MOECC expects that the EPR will be updated throughout the 120-day period to reflect input from aboriginal communities, adjacent property owners, regulatory agencies, general public and other stakeholders.

Figure 1-3: Outline of TPAP



Source: Ontario, Ministry of the Environment, 2009, Guide: Ontario's TPAP

1.4.2 Transit Project Assessment Approval Process

If a person, including members of the public, regulatory agencies and aboriginal communities has concerns about this transit project, objections can be submitted to MOECC (Environmental Approvals Access and Service Integration Branch, 2 St. Clair Avenue West, Floor 12A, Toronto, ON, M4V 1L5) within 30 days of the Notice of Completion being distributed at MOECC.

Proponents will be given an opportunity to comment on the concerns raised in an objection before the Minister acts. After the 30-day review period has ended, the Minister has 35 days within which certain authority may be exercised. A proponent may not proceed with the transit project before the end of the 35-day period unless the Minister gives a notice allowing the proponent to proceed. Objections received after the 30-day objection period will not be considered by the Minister.

Whether there is an objection or not, if the Minister acts within the 35-day period, one of three notices may be issued to the proponent:

- A notice to proceed with the transit project as planned in its EPR;
- A notice that requires the proponent to take further steps, which may include further study or consultation; or
- A notice allowing the proponent to proceed with the transit project subject to conditions.

If the Minister does not act within the 35-day period, the transit project may proceed as planned. The Minister may also terminate the proponent's TPAP and require that either an individual environmental assessment or a class environmental assessment process be followed.

If the Minister gives notice requiring the proponent to take further steps, and within 30 days of receiving a revised EPR, is of the opinion that it still does not appropriately address negative impacts, the Minister can terminate the TPAP and require the proponent to comply with Part II of the *Environmental Assessment Act* or to comply with an approved class environmental assessment before proceeding with the transit project.

1.4.3 McNicoll Bus Garage Pre-Planning Activities

Pre-planning activities were carried out from July 2013 to present, before the "Notice of Commencement" was issued. The activities undertaken included:

- Initial contact with MOECC regarding the project and intent to follow the TPAP.
- Obtain from the Director of the MOECC EAAB a list of bodies that can assist in identifying interested aboriginal communities.
- Complete environmental inventory and impact assessment work:
 - Noise;
 - Air quality;
 - Screening level human health risk assessment;
 - Land use;
 - Traffic;
 - Cultural environment; and
 - Natural environment (terrestrial and aquatic).
- Undertaken initial agency consultation with MOECC, Toronto and Region Conservation Authority (TRCA), Toronto Hydro, Toronto Water, etc.

- Initial contact with the interested and/or potentially affected property owners and other stakeholders in close proximity to the proposed facility.

1.5 Study Organization

The study is undertaken under the direction of the TTC. AECOM (Legacy URS) was retained by the TTC as the prime consultant to undertake the TPAP and associated technical work, including archaeological and cultural heritage assessments, traffic impact assessment, environmental assessment process, consultation and preparation of the EPR. A project team was formed with the assistance from the following specialists to provide the expertise required to complete the study:

- Stantec / HDR – conceptual design of the facility;
- Novus Environmental Inc. – Air Quality and Noise;
- Intrinsik Inc. – Screening Level Human Health Risk Assessment of Air Quality Impacts; and
- SLR Consulting – Natural Environment Assessment.

1.6 Background and Context

1.6.1 Provincial Planning Policies

There are a number of provincial policies that are relevant to this project, presented as follows:

Provincial Policy Statement

The 2014 Provincial Policy Statement (PPS) is issued under Section 3 of the *Ontario Planning Act*. The PPS provides policy direction on matters of provincial interest related to land use planning and development. This project is consistent with the PPS, supporting transportation choices that increase the use of active transportation and transit before other modes of travel.

Growth Plan for Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe was prepared under the Ontario *Places to Grow Act*, 2005. This project is consistent with the objectives of the Growth Plan for the Greater Golden Horseshoe. Some of these objectives are:

- Support opportunities for multi-modal use where feasible, in particular prioritizing transit and goods movement needs over those of single occupant automobiles.
- Public transit will be the first priority for transportation infrastructure planning and major transportation investments.

Transit Priority Statement

In 2008, the Government of Ontario approved the Transit Priority Statement, which discusses the need for expanded public transit infrastructure. Public transit is identified as a priority to relieve traffic congestion, reduce greenhouse gas emissions and support sustainable urban development.

The rationale and need for creating a six month environmental assessment process for transit projects is described, setting the context and eventual development of Ontario Regulation 231/08 the Transit Assessment Regulation (*Transit Projects and Metrolinx Undertakings*).

1.6.2 City of Toronto Policies

Official Plan

The Official Plan of the City of Toronto presents a vision for a more livable city and directs growth to specific areas within the City. As described in the Official Plan on page 1-2, its vision is about “creating an attractive and safe city that evokes pride, passion and a sense of belonging – a city where people of all ages and abilities can enjoy a good quality of life”. The Official Plan attempts, among other things, to balance the needs of a growing city with the needs of maintaining the livability and economic vitality of established neighbourhoods and commercial areas.

The Official Plan establishes land use designations to assist in “guiding major growth to some parts of the City and away from others” and “describe where housing can be built, where stores, offices and industry can locate and where a mix of uses is desired. The land uses provided for in each designation are generalized, leaving it to the Zoning by-law to prescribe the precise numerical figures and land use permissions that will reflect the tremendous variety of communities across the City”.

Transportation Planning

The City of Toronto’s Transportation Planning division delivers a number of services including identifying strategic improvement opportunities, assessing transportation needs that focus on implementing the Official Plan, and developing policies on major transportation initiatives in the City and the Greater Toronto Area. Transportation Planning works closely with Transportation Services, the TTC, Metrolinx, and other transportation agencies in the many areas of mutual interest. The City of Toronto is currently undertaking an inter-divisional and agency review process which was undertaken as part of the “Feeling Congested?” Draft Transportation Policies initiative. This initiative is part of the City’s larger, ongoing Five Year Official Plan Review and Municipal Comprehensive Review process. Developing a comprehensive rapid transit network plan and accompanying surface transit strategy is being examined under this initiative.

Toronto Public Health

This project is consistent with Toronto Public Health’s missions and vision, which is to reduce health inequities and improve the health of the whole population. It is stated in a report by Toronto Public Health, *Next Stop Health: Transit Access and Health Inequities in Toronto*, 2013, that “access to public transit contributes to the health of individuals, neighbourhoods, and to the city overall” and “it is critical that the barriers to accessing public transit be addressed through improving the affordability and availability of transit.”

1.6.3 TTC Policies

In August 2014, the TTC Board approved the Opportunities to Improve Transit in Toronto report which outlined numerous ridership growth strategies for surface transit. These service initiatives include reducing crowding in the peak, implementing new and enhanced express bus services, and improving service reliability. By 2019, these service initiatives have increased the TTC's need for bus storage by approximately 150 buses over and above current forecasted needs and advanced the need for a new bus garage.

1.6.4 Related Studies

Redlea Avenue – City of Toronto

The Official Plan for the former City of Scarborough defines the area bounded by Steeles Avenue, Kennedy Road, Midland Avenue and Finch Avenue East as the Milliken Employment District. To support this initiative, future north-south road connections of Redlea Avenue and Silver Star Boulevard parallel to the Stouffville GO Transit corridor are identified in the Secondary Plan. The City of Toronto completed the Redlea Avenue and Silver Star Boulevard Class Environmental Assessment Study in October 2007 and is undertaking the design of Redlea Avenue, which will connect the MBG site to McNicoll Avenue. The extension of Redlea Avenue from its current terminus south of Steeles Avenue East will connect with Milliken Boulevard, which is a north-south dead end street extending north from Finch Avenue East, resulting in a continuous north-south street between Finch Avenue East and Steeles Avenue East. Refer to **Figure 1-2** for the location of Redlea Avenue in relation to the site. Construction is anticipated to commence in 2015.

Stouffville Railway Corridor Expansion – GO Transit / Metrolinx

The Metrolinx-owned railway corridor used by the GO Transit Stouffville line runs along the east side of the MBG site, and there is an at-grade rail crossing at McNicoll Avenue (refer to **Figure 4-2**). Metrolinx is moving forward with plans to expand rail service on this line. An environmental assessment to examine and identify the appropriate infrastructure improvements needed to improve the quality of service was completed in September 2014 for a 17 km segment of the corridor, including the portion adjacent to the MBG site. In February 2015, Metrolinx announced that construction of the improvements identified in the environmental assessment would begin that spring.

For more information about this study, visit:

<http://www.metrolinx.com/RERscarboroughmarkham>

2.0 BUS GARAGE LAYOUT SELECTION PROCESS

2.1 Bus Garage Layout Design Approach

The new McNicoll Bus Garage (MBG) models the recently completed (opened in November 2008) Mount Dennis Bus Garage (**Figure 2-1**), located at 121 Industry Street (east of Jane Street and north of Weston Road), with appropriate revisions and improvements identified through discussions with the TTC Groups.

Figure 2-1: A View of the Bays at the North End of Mount Dennis Bus Garage

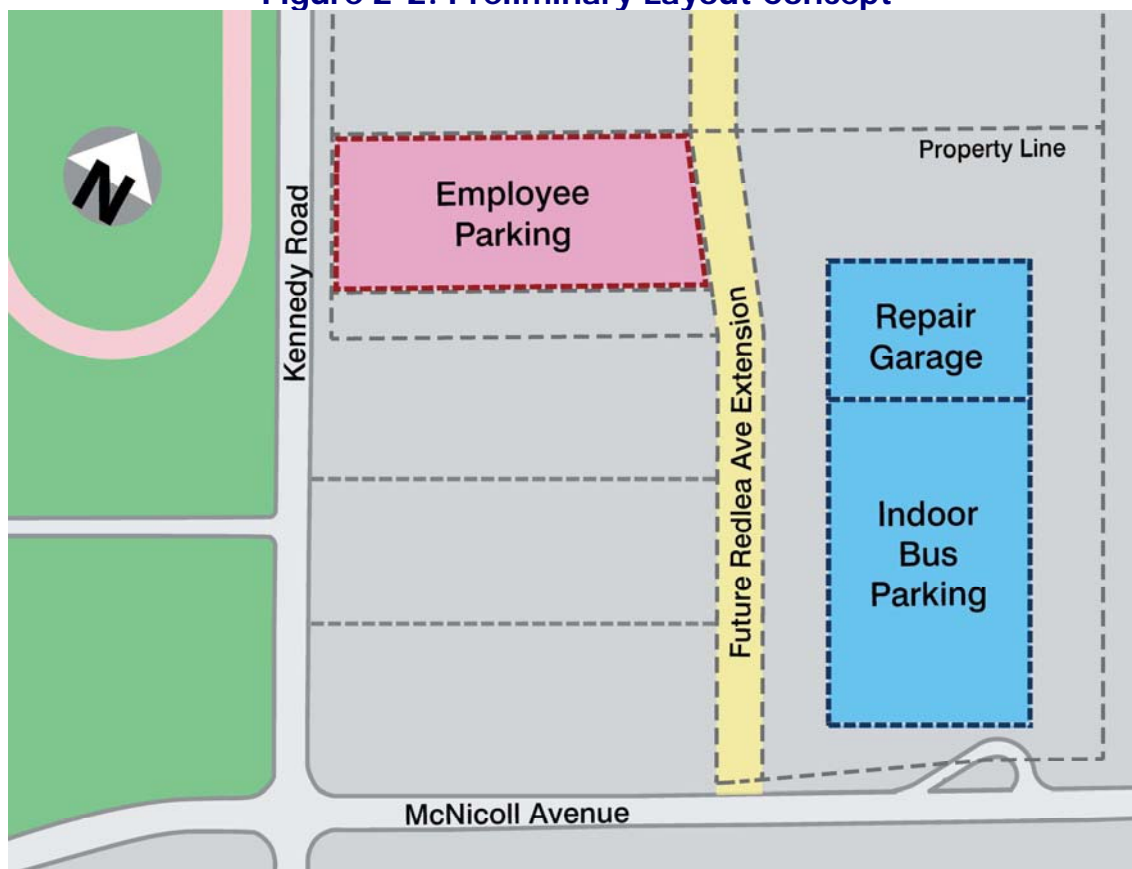


The design of MBG incorporates input from multiple user groups within the TTC, taking advantages of lessons learned and the experiences of a diverse group of experts.

2.2 Design Layout

Various facility layout options were considered in the process of developing a preferred site layout. Options considered included various orientations of the parking, access and bus maintenance and office locations and design. A preliminary facility layout (**Figure 2-2**) was presented at the first Public Open House that was held on November 27, 2013 as part of the Preliminary Planning stage (refer to **Section 6.4.1** for more details).

Figure 2-2: Preliminary Layout Concept

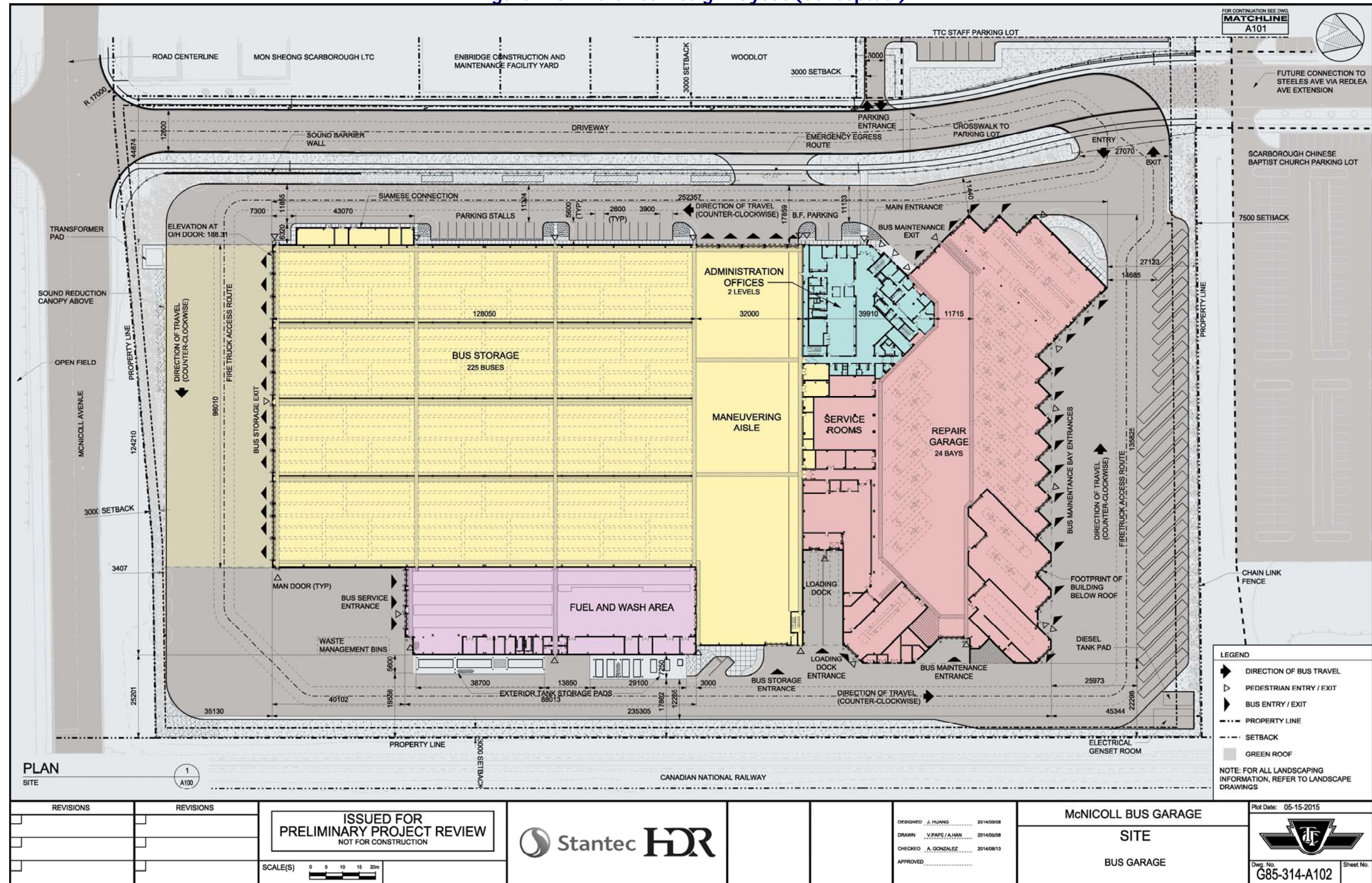


Based on the community input received at and subsequent to the Public Open House #1, changes were incorporated into the design layout, including:

- Reorientation of the fuelling lanes from the west side of the building to the east side of the building to reduce nighttime noise and shield the high activity from the nearby noise-sensitive receivers.
- Relocation of the repair bays from the south side of the facility to the north side to reduce noise impact on the nearby noise-sensitive receivers.
- Relocation of the vehicle entrance / exit to the north side of the property (off Redlea Avenue) to increase the distance from the nearby noise-sensitive receivers.

Figure 2-3 presents the preferred design layout that TTC intends to carry forward to detail design and ultimately construction.

Figure 2-3: Preferred Design Layout (Conceptual)



*subject to refinement during detail design

3.0 PROJECT DESCRIPTION

The McNicoll Bus Garage (MBG) includes a 19,000 m² lot (used for TTC staff parking) to the west of the proposed Redlea Avenue. There will be approximately 350 parking spots. Access to the parking lot will be from the proposed Redlea Avenue. The main facility is approximately 29,000 m² located on a 62,000 m² property to the east of Redlea Avenue. The main entrance / exit will be on the north side of the property off the proposed Redlea Avenue, with a second entrance on the south side of the property off the proposed Redlea Avenue. The facility will operate 24 hours a day and 7 days a week with approximately 100 bus maintenance staff and 400 operators reporting into the facility. The bus garage will also include the following elements:

- Indoor storage for 250 buses in the barn, on hoists, pits, body shop, paint shop, bus cleaning area and service lines
- Bus Maintenance and Transportation offices
- Two service lines with exterior wash system
- Indoor fueling capability
- Bus special cleaning area
- Repair Bay, including 15 hoists (eight articulated buses and seven standard buses), two inspection bays, paint shop, body shop with two bays (with hoists)
- Degrease Shop with hoist
- Materials receiving, storage and distribution area (including loading docks)
- Appropriate building systems (HVAC, plumbing, electrical, communications, etc.) including a centralized building automated controls system
- Employee amenities (parking, male / female washrooms and locker rooms, lunch room / cafeteria) appropriate for three shifts
- Access / egress to the facility will be via Redlea Avenue

Refer to **Figure 3-1** for the preliminary concept plan of the MBG. The following sections provide an overview of additional details regarding the preliminary design elements and site works associated with the MBG site.

3.1 Site Preparation

Clearing and grubbing will be performed on the site where required for the facility. Existing topsoil will be removed offsite or stored on site for re-use in grading and landscaping of the site. Swales and ditches will be graded to provide appropriate drainage. All site preparation and subsequent construction activities will be in accordance with an approved sediment and erosion control plan that will be established during subsequent project stages in accordance with the EPA Document No. EPA 832/R-92-005 requirements. Erosion and Sediment Control will comply with the Best Management Practices described in the Erosion and Sediment Control Guidelines for Urban Construction by Greater Golden Horseshoe Area Conservation Authorities, December 2006.

3.2 Proposed Site Servicing

Water, sewer, and storm service connection to the municipal systems will be required for this site. These services will be designed according to local standards. A preliminary review has deemed the existing utilities to be adequate to support the addition of this facility.

3.3 Stormwater Management

The proposed stormwater management system will be designed to the City of Toronto Municipal design guidelines, Wet Weather Flow Management Guidelines as well as the MOECC Stormwater Management Planning and Design Manual.

Separate Stormwater tie-in will be required for the southeast side of the Redlea Avenue extension where the bus garage will be built and another for the northwest side of the Redlea Avenue extension where the parking lot is proposed. In both cases peak run-off flow rates will be controlled to predevelopment conditions by making use of orifice plates and weir controls and subsurface storage facilities. Run-off quality will be treated to meet MOECC requirements with the use of Oil and Grit Separators.

Stormwater drainage for the bus garage site will be achieved with a series of catchbasins, catchbasin manholes, manholes and drainage swales. Run-off will be collected from impervious areas and routed to the southwest corner of the site where it will tie to an existing manhole at the intersection of McNicoll Avenue and Redlea Avenue. Run-off generated from the proposed building's roof will be collected for re-use. Overflow from the roof will be directed overland towards catchbasins where it will enter the proposed site stormwater system. A control flow, roof storm drainage system is included as part of the design for the proposed facility. Stormwater from the roof will be stored in two underground site tanks and re-used for bus washing. These tanks will have an overflow connected to the site stormwater piping.

Stormwater drainage for the parking lot site will be achieved with a series of catchbasins and manholes. Run-off will be collected from impervious areas and routed to the southeast corner of the site where it will tie to a proposed manhole on the Redlea Avenue extension.

3.4 Design Standards

The following design standards and other code requirements will guide the design of the facility during the subsequent design stage:

- Accessibility for *Ontarians with Disabilities Act*;
- National Fire Protection Association 13 “Standard for the Installation of Sprinkler Systems”;
- Technical Standard and Safety Authority requirements;
- Tier 1 of the Toronto Green Standards Version 2.0;

- Draft TTC Bus Garage Design Manual;
- City of Toronto Accessibility Guidelines; and
- Ontario Building Code, Ministry of Municipal Affairs and Housing Supplementary Standard SB-10.

3.5 Other Specific Site Features

3.5.1 Storage Tanks (Fuel, Oil, Fluids, etc.)

The site will have three storage tank areas – the main storage area, the diesel tank for the emergency generator and the waste fluid tanks. The main storage area is proposed to be located east of the Service Bays on the exterior of the building.

3.5.2 HVAC System

HVAC system includes gas-fired roof top units and heaters to provide for heating and ventilation into the shops and storage areas. The supply air will be distributed through ducts at lower levels within the garage, whereas the exhaust will be collected by overhead ducts. Low level exhaust shall be provided where required to collect fumes heavier than air or for efficient exhaust capture near source.

3.5.3 Roof Top Equipment

All rooftop units will be provided with equipment screens. Where possible, exhaust fans will be located towards the center of the roof, to further mitigate visual and noise impacts.

3.5.4 Exterior Lighting

Two main types of luminaires are proposed to provide exterior lighting. The first type is wall-mount LED lights to be mounted high up on building exterior walls to provide general illumination up to 10 m (horizontal) distance from building perimeter. The second type is pole-mount LED area lights to provide general illumination in areas where wall-mount LED lights cannot reach, specifically parking areas and vehicular lanes far away from the building. All exterior light fixtures will be provided with optical control for full cut-off to mitigate light pollution. In addition, where lights are mounted near property lines, house-side shields will be provided to limit light trespass into neighbouring properties.

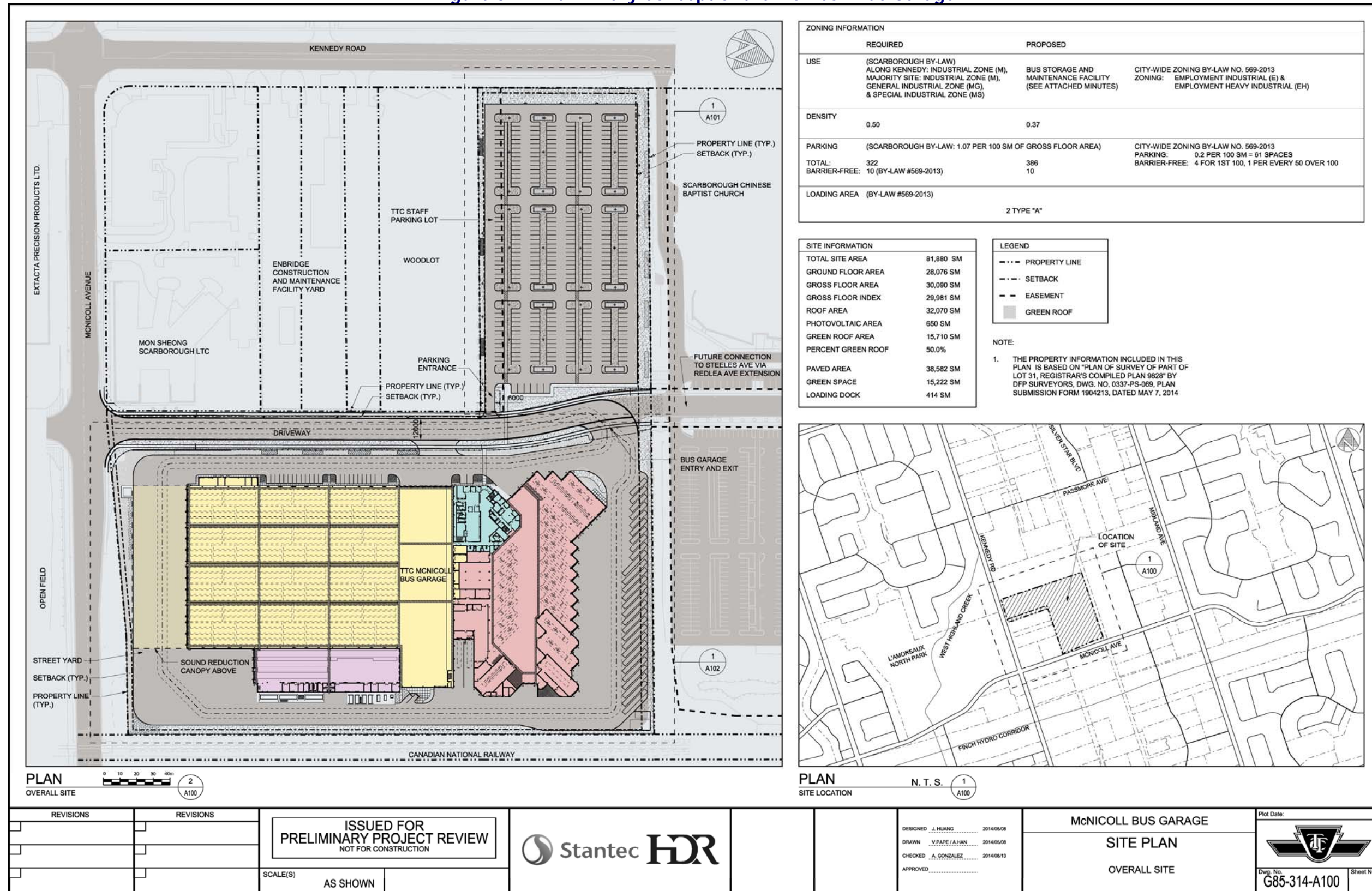
3.5.5 Site Landscaping

The landscape components for the project will include perimeter landscaping in the form of drought tolerant native tree and shrub species. The primary focus will be placed along the western boundary of the site to provide screening along the future Redlea Avenue and to buffer the development from the neighbouring properties to the west. Additional landscape planting

areas will be provided along McNicoll Avenue to enhance the street view of the facility and to integrate with the existing streetscape. Opportunities for landscape plantings adjacent to the woodlot on the south side of the proposed employee parking area and along the north edge of the site (to provide buffering to the adjacent watercourse) will be investigated at the detail design stage.

The employee parking area will be designed to incorporate landscape medians with native deciduous trees, providing shade and reducing the heat island effect.

Figure 3-1: Preliminary Concept of the McNicoll Bus Garage



*subject to refinement during detail design

4.0 EXISTING AND FUTURE CONDITIONS

4.1 Existing Conditions

Chapter 4 describes the existing and future conditions (without the implications of the McNicoll Bus Garage (MBG)) found within and adjacent to the site. The description of existing and future conditions provided a baseline for the assessment of environmental impacts and the identification of environmental protection measures and a monitoring plan. The identification of the environmental features (i.e. transportation infrastructure, as well as natural, socio-economic and cultural environments) involved collection of primary and secondary sourced data including consultation with technical agencies. The existing and future conditions can be categorized into the following topics and are presented in the associated sections:

- Transportation system;
- Natural environment;
- Socio-economic environment; and
- Cultural environment.

4.1.1 Transportation

4.1.1.1 Transit System

TTC transit services that operate in the vicinity of the MBG site include bus routes 42 Cumber, 43 Kennedy and 57 Midland. The 42 Cumber bus route operates between Finch Station on the Yonge-University-Spadina Subway, the area of Gordon Baker Road and Victoria Park Avenue, the area of McNicoll Avenue and Kennedy Road, and the area of Middlefield Road and Passmore Avenue, generally in an east-west direction. The 43 Kennedy bus route operates between Kennedy Station on the Bloor-Danforth Subway, the area of Kennedy Road and Steeles Avenue East, and Scarborough Centre Station on the Scarborough RT, generally in a north-south direction. The 57 Midland bus route operates between Kennedy Station on the Bloor-Danforth Subway and the area of Midland Avenue and Steeles Avenue East, generally in a north-south direction. It also serves the Midland Station on the Scarborough RT.

4.1.1.2 Boundary Road Network

The following roads represent the local road network in the proximity of the proposed facility:

Kennedy Road is a north-south arterial road under the jurisdiction of the City of Toronto. It has a 4-lane urban cross-section. The speed limit is 60 km/h in the vicinity of the site. There is a traffic control signal at the Kennedy Road / McNicoll Avenue intersection.

Midland Avenue is a north-south arterial road under the jurisdiction of the City of Toronto. It has a 4-lane urban cross-section and a posted speed of 60 km/h in the vicinity of the site. There is a traffic control signal at the Midland Avenue / McNicoll Avenue intersection.

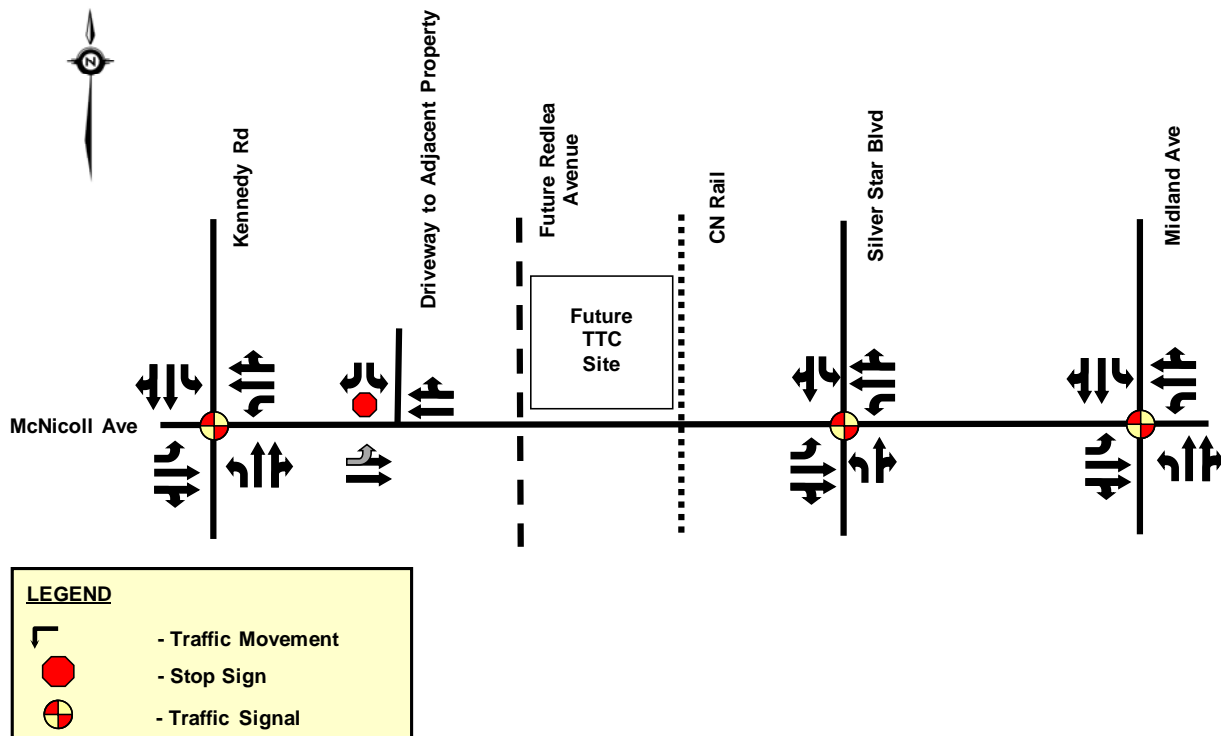
Silver Star Boulevard is a north-south collector road under the jurisdiction of the City of Toronto. Segmented, awaiting completion, it runs from Steeles Avenue East to just north of Finch Avenue where it joins with Midland Avenue. It currently has a 2-lane urban cross-section and a posted speed of 50 km/h in the vicinity of the site. It provides access to two multiple retail and commercial establishments on both sides of McNicoll Avenue. In addition to traffic signals for the roads mentioned above, the former Canadian National Railway Stouffville rail line (now owned and operated by GO Transit) running adjacent to the east extremity of the MBG site has gated signals for the at-grade crossing.

McNicoll Avenue is an east-west arterial road under the jurisdiction of the City of Toronto. It has a 4-lane urban cross-section and a posted speed of 50 km/h.

Redlea Avenue currently terminates with a cul-de-sac south of Steeles Avenue. An Environmental Assessment Study for Redlea Avenue extension was completed in 2007, which recommends the City of Toronto to extend Redlea Avenue southerly to Milliken Boulevard. The future extension is proposed to have 3-lane urban cross-section (with a shared 2-way centre left turn lane) in the vicinity of the site. Traffic control signals are anticipated at the future McNicoll Avenue / Redlea Avenue intersection. Refer to **Section 1.6.4** for more details.

Refer to **Figure 4-1** for the boundary road network in relation to the site.

Figure 4-1: Boundary Road Network



4.1.1.3 Rail Crossing

The Stouffville GO Transit corridor runs along the east side of the site, and there is an at-grade rail crossing at McNicoll Avenue (Figure 4-2). The City is protecting for future grade separation at this rail crossing. While this is presently a single track rail line, Metrolinx plans to begin construction in spring 2015 to add a second track to the rail corridor adjacent to the MBG site. This is part of a broader plan to double-track the line between Unionville GO Station and the Scarborough Junction that was subject to an environmental assessment completed in September 2014.

Figure 4-2: At-Grade Rail Crossing at McNicoll Avenue



4.1.1.4 Existing Traffic Assessment

The traffic assessment was based on observed and forecasted a.m. and p.m. peak hour volumes on adjacent roads in the vicinity of the site as well as peak periods for the MBG site in order to assess the impacts associated with the proposed bus garage. Existing a.m. and p.m. peak hour traffic data for the Kennedy Road / McNicoll Avenue and Midland Avenue / McNicoll Avenue intersections were collected from the City of Toronto. The counts were taken on May 12 and June 8, 2011. Similarly, new data was collected for Silver Star Boulevard and the driveway to the adjacent property (the Mon Sheong Long-Term Care Facility located to the west of the site) on February 27, 2014. In order to provide volumes that modeled current conditions, the City of Toronto 2011 traffic counts were brought to the 2014 level through balancing with the most recent traffic data (2014). The operations of the boundary road intersections were analyzed using provided signal timings on the basis of the above noted traffic volumes. This analysis reflects the existing lane configurations.

The analysis of the existing intersection conditions revealed satisfactory overall intersection Levels of Service (LOS) during the weekday a.m. and p.m. peak hours. The exception was at the Kennedy Road / McNicoll Avenue intersection, specifically eastbound and northbound through

movements in the p.m. peak hour where operations near capacity were noted. A large factor in the delay can be attributed to the absence of exclusive right turn lanes on all approaches. Similarly, the westbound and eastbound approaches at the Midland Avenue / McNicoll Avenue intersection experience long delays due to the absence of an exclusive right turn lane.

Refer to **Appendix A** for the Traffic Impact Study for more details.

4.1.2 Natural Environment

A secondary source review and desktop analysis of the site was performed to identify known natural heritage features and functions within and adjacent to the site. This information was used in concert with data collected during field investigations undertaken in July 2013 to develop the description of the natural environment and to identify potential impacts of the preferred layout of the MBG.

4.1.2.1 Physiography and Soils

The MBG site is located in the South Slope physiographic region of southern Ontario. The South Slope consists of the south slope of the Oak Ridges Moraine and the strip south of the Peel Plain. This physiographic region is underlain by carbonate rich Palaeozoic rock with a variety of overlying glacial deposits. In the region of the site, the slope is smoothed, faintly drumlinized and intersected by tributaries to the Humber, Rouge and Don Rivers (Chapman and Putman 1984).

A number of South Slope soil types are well-suited to agricultural use. Generally, soils vary in an east-west direction according to till content. Clay and shale content in soils increases moving west from the Regional Municipality of Durham. At the site, soils include a small amount of black and grey shales and are slightly acidic. Scarborough's Woburn loam is considered the best agricultural soil in the South Slope region and prior to urbanization this area was farmland (Chapman and Putman 1984).

4.1.2.2 Topography

The general pre-development topography of the site gently slopes to the southwest where it is collected by a small watercourse (drainage feature) which inlets into the municipal storm system on McNicoll Avenue. The north portion of the site drains to the north where it is collected by an existing small watercourse (drainage feature) which runs between the north boundary of the site and the existing Scarborough Chinese Baptist Church property.

4.1.2.3 Fish and Fish Habitat

No fish habitat or watercourses were found within the site. The Redlea Avenue / Silver Star Boulevard Class Environmental Assessment Study (2007) also did not identify any significant aquatic habitat within the site. The Toronto and Region Conservation Authority (TRCA) identified a small watercourse that indirectly support fish habitat through water conveyance

(drainage feature) located at the northern end of the site on the adjacent property, flowing toward the west and proceeding underneath Kennedy Road. As seen in **Figure 4-3**, a portion of the subject site is positioned in the TRCA regulated area for this small watercourse. In summary, no significant aquatic habitat was identified within the site.

Refer to **Appendix B** for the Natural Heritage Characterization Study for more details.

4.1.2.4 Terrestrial Ecosystems

Vegetation Communities

Vegetation communities found on the MBG site include cultural, forest and wetland. The cultural communities are classified as Cultural Meadow and Cultural Woodland. Other vegetation communities within and adjacent to the site were noted as Deciduous Forest, Cultural Woodland, Deciduous Swamp and Meadow Marsh. These communities were further classified from community class to finer categories of community series, Ecosites and vegetation type where appropriate (within or adjacent to the site). All vegetation units within and adjacent to the site are described in greater detail below and illustrated on **Figure 4-3**. Based on species composition of the vegetation features, there was no evidence of groundwater seepage areas observed within the site.

CUM1 – Mineral Cultural Meadow Ecosite

Cultural meadows typically arise as a result of disturbed lands and abandoned agricultural fields; they are usually composed of a mixture of grass and herbaceous plant species. This polygon forms the entirety of the subject site. The dominant species in this single polygon include Sweet White Clover (*Melilotus alba*), Red Clover (*Trifolium pretense*), Bird Vetch (*Vicia cracca*), Queen Anne's Lace (*Daucus carota*), Canada Goldenrod (*Solidago Canadensis*), Yellow Avens (*Geum aleppicum*) and Teasel (*Dipsacus fallonum*); the dominant species typically are non-native invaders of disturbed habitats. The lack of a thatch layer indicates that the site was likely disturbed (tilled) within the last few years.

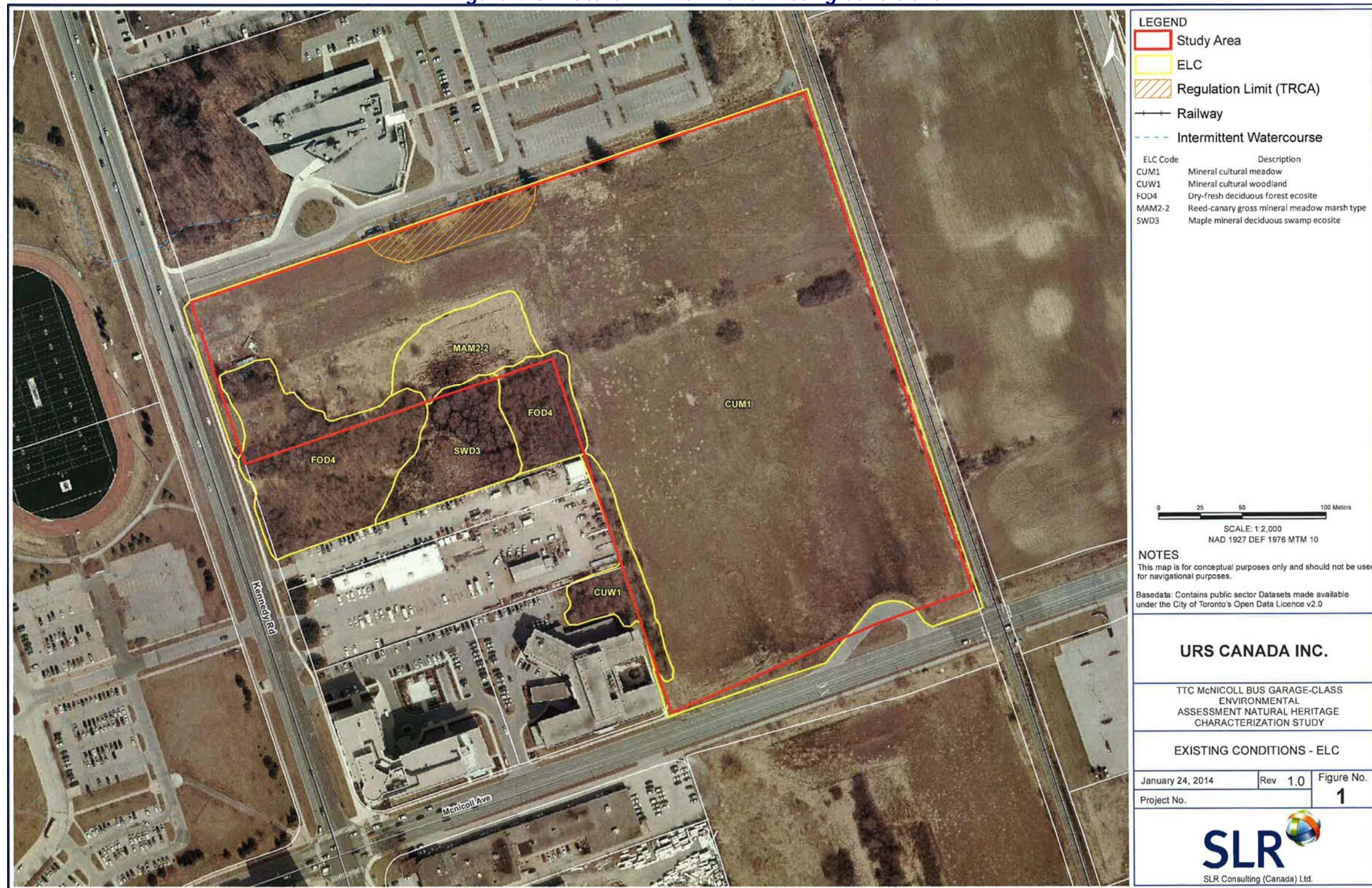
CUW1 – Mineral Cultural Woodland

This polygon is located along the south-western edge of the site. Cultural woodlands are defined as an area with a relatively recent history of human disturbance, with tree canopy cover between 35% and 60%. Dominant species appear to be comprised of Basswood (*Tilia Americana*), Maple (*Acer sp.*) and Common Buckthorn (*Rhamnus cathartica*).

FOD4 – Dry-Fresh Deciduous Forest Ecosite

This forest appears to be relatively disturbed in nature and contains Basswood, White Elm (*Ulmus Americana*), Maples, Black Cherry (*Prunus serotina*) and very dense sections of Common Buckthorn. It is located east of Kennedy Road. Looking into the woodlot on the adjacent property's portion, the ground cover can vary from sparse due to the dense shade, dominated by Common Buckthorn, yet some higher quality indicators are noted including patches of Canada May-apple (*Podphyllum peltatum*) and Trilliums (*Trillium sp.*).

Figure 4-3: Natural Environment Existing Conditions



SWD3 – Maple Mineral Deciduous Swamp Ecosite

A clear deciduous swamp is present and located adjacent to the forest; it is primarily composed of Maples, with the boundaries being delineated via air photo interpretation.

MAM2-2 – Reed-canary Grass Mineral Meadow Marsh Ecosite

This polygon is located adjacent to the forest and Cultural Meadow with a small inclusion of Red-osier (*Cornus stolonifera*) and Willow (*Salix sp.*) swamp thicket along the woodland edge. The marsh is dominated entirely by Reed Canary Grass (*Phalaris arundinacea*).

Significance and Sensitivity

The site is dominated primarily by a significant non-native component that is typical for abandoned agricultural fields. The site itself is surrounded by urban development with no direct links to other natural areas in the region. The woodlots located along the western border of the property are showing signs of degradation with the increasing dominance of Common Buckthorn, which is a highly aggressive non-native invader that will take over the understory of various habitats suppressing the regeneration of native species. It is likely that these woodlots will continue to degrade given the level of urbanization in the area. No rare or endangered species were encountered on the site during field work.

A tree survey was conducted as part of this study to identify and size the trees found on the proposed site to determine if the Toronto Tree Protection By-law will apply to this site. The Toronto Tree Protection By-law requires a permit to injure or destroy trees having a diameter equal to or greater than 30 cm. There are 35 trees over 30 cm in diameter on the proposed site. A permit will be required prior to construction. Refer to **Appendix C** for the Tree Survey Report for more details.

Wildlife

The breeding bird survey identified only species common in urban landscapes. Breeding pairs of Redwing Blackbirds (*Agelaius phoeniceus*), European Starlings (*Sturnus vulgaris*), and Song Sparrows (*Melospiza melodia*) were found within the Cultural Meadow that comprises the site. In the adjacent woodlot, one breeding pair of Red Cardinals (*Cardinalis cardinalis*) and American Robin (*Turdus migratorius*) was noted. Other species identified (by call or by sight) in the area included American Crow (*Corvus brachyrhynchos*), Common Grackles (*Quiscalus quiscula*), Brown-headed Cowbird (*Molothrus ater*), and American Goldfinch (*Carduelis tristis*).

No Bobolink (*Dolichonyx oryzivorus*) or Eastern Meadowlark (*Sturnella magna*) were heard or seen within the site.

During the field investigation, incidental wildlife observations and other encountered wildlife species (e.g. mammals, reptile and amphibians) were recorded. The Eastern Grey Squirrel (*Sciurus carolinensis*) was recorded on site. Evidence of Common Racoons (*Procyon lotor*) was also found. No other wildlife was encountered during field investigations.

Designated Areas

There are no provincially or regionally designated Area of Natural and Scientific Interest or Environmentally Sensitive Area within or adjacent to the site.

Species at Risk (SAR)

No Endangered or Threatened species are known to exist or were observed in the site. The Redlea Avenue / Silver Boulevard Class Environmental Assessment Study also did not identify any SAR records for the site and their field work did not identify any rare or endangered species in the subject site.

The Ontario Natural Heritage Information Centre (NHIC) compiles, maintains and distributes information on natural species, plant communities and spaces of conservation concern in Ontario. According to the NHIC, none of the communities identified at the site are significant or rare within the province of Ontario. Site surveys for endangered species found no Butternut (*Juglans cinerea*) during 2013 field investigations. The bird species recorded along with the incidental wildlife observations are all urban tolerant species. No SAR were encountered during field investigations.

Refer to **Appendix B** for the Natural Heritage Characterization Study for more details.

4.1.2.5 Drainage and Hydrogeology

The site is situated in the Highland Creek Watershed which is classified as a Low Volume Groundwater Recharge Area (LGRA). Groundwater was encountered at a monitoring well with depths ranging from 0.76 m to 18.03 m below the ground surface. Groundwater flows laterally in a south westerly direction from the northeastern corner to the western site boundary. Groundwater flow in the most northwestern corner of the site (the proposed parking lot) is to the northwest.

The study has identified a small portion of the north end of the site that lies within the TRCA Regulation limit. The existing site can generally be divided into three catchment areas. Stormwater generated on the western side of the site (west of the proposed Redlea Avenue extension) flows to the north of the property where it is collected in an existing swale. Runoff generated on the northeastern portion of the site currently flows to the north where it is intercepted by a drainage swale along the north perimeter of the property. Run-off generated on the southeast end of the property currently flows southwesterly where it is collected in a drainage swale and inlets to the municipal system through a 0.9 m x 1.1 m culvert on the southwest corner of the property.

As a result of the *Clean Water Act*, communities in Ontario are required to develop source protection plans in order to protect their municipal sources of drinking water. The key objectives of the source protection plan are outlined within the *Clean Water Act* and require existing and future drinking water sources within the source protection area be protected. This project is located within the Toronto and Region Source Protection Area. The approved assessment report for the Toronto and Region Source Protection Area identifies vulnerable areas including

wellhead protection areas, highly vulnerable aquifers (**Figure 4-4**), significant groundwater recharge areas (**Figure 4-5**), and intake protection zones, and to delineate the vulnerable ratings within these vulnerable area (a vulnerability score of high, medium, or low).

The vulnerability scores of an aquifer are determined by factors such as the thickness of the aquifer, the soil type, how quickly water can travel through the ground (time of travel), and how fast a contaminant can travel to an intake. In addition, the risk level of a specific contaminant is also taken into account of the vulnerability ratings. Based on the approved assessment report, the study area is not within the Wellhead Protection Area and is located in Low Groundwater Recharge Area (less than 150 mm/year). The score for the Highly Vulnerable Aquifer for the study area is considered to be between two and four (from low to medium, toward to south and southwest portion of the study area, refer to **Figure 4-6**). As such, it has been determined that no significant impact / threat to drinking water aquifer within the project area are anticipated as a result of the proposed bus garage.

Figure 4-4: Highly Vulnerable Aquifers

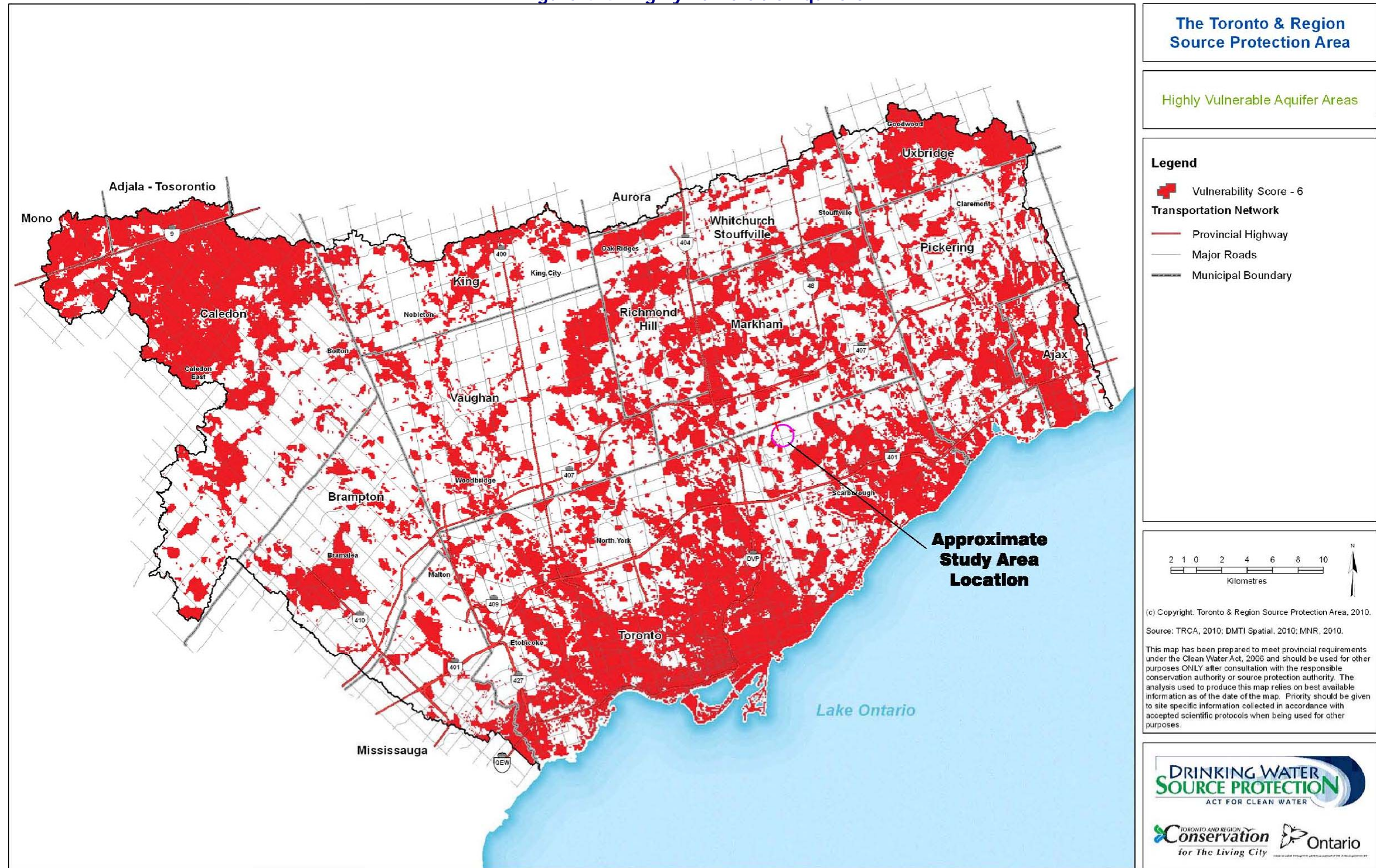


Figure 4-5: Significant Groundwater Recharge Areas

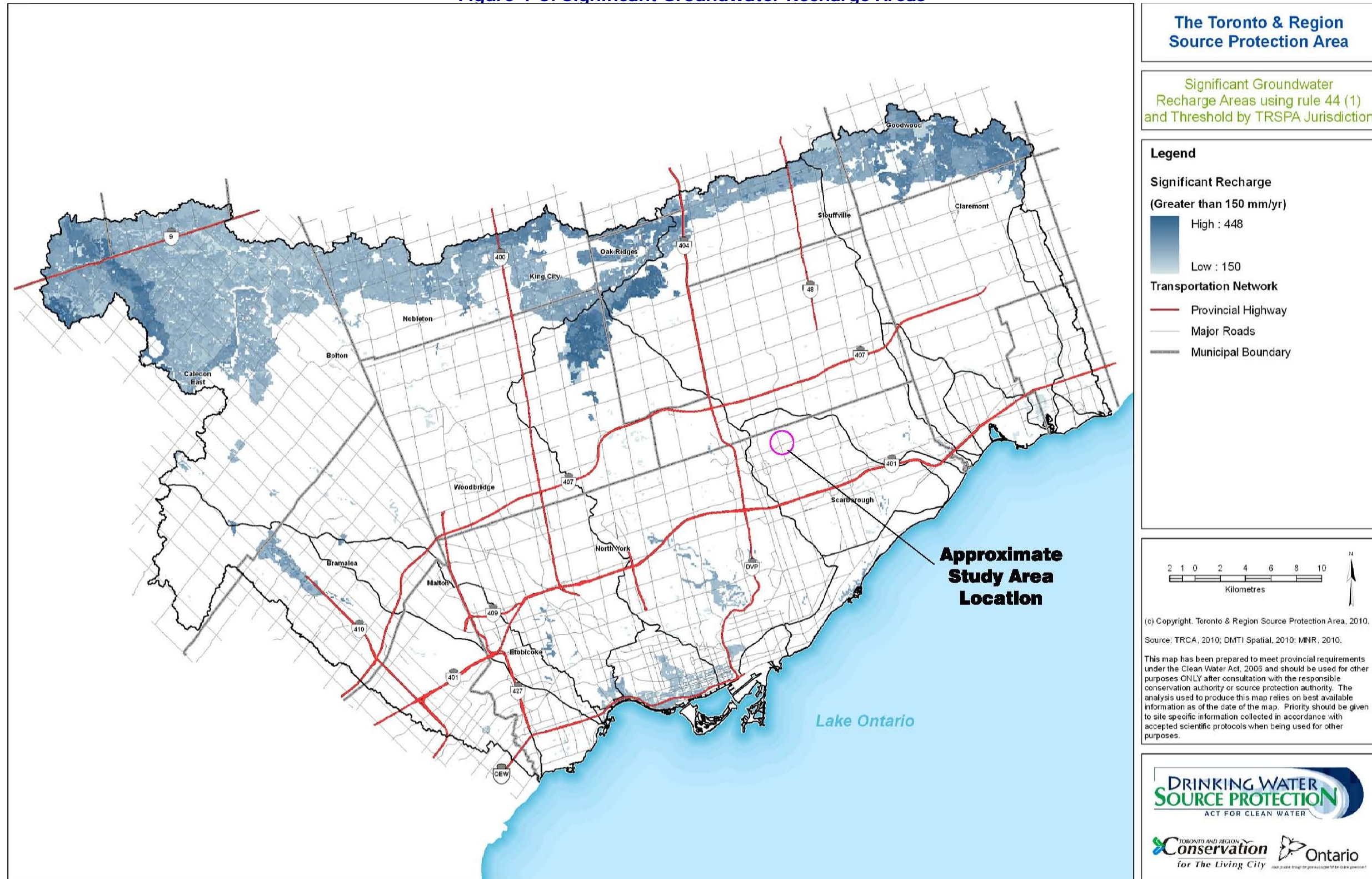
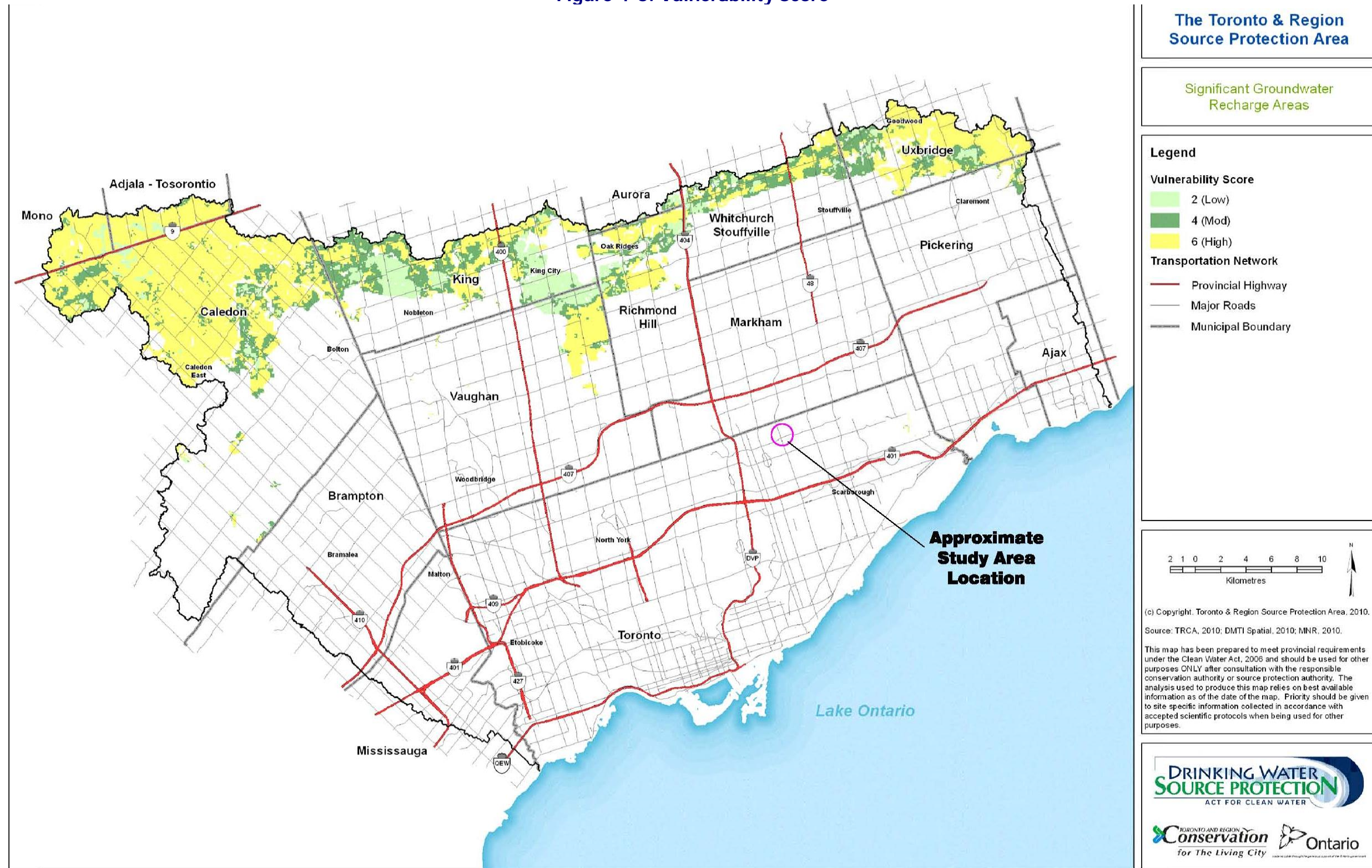


Figure 4-6: Vulnerability Score



4.1.3 Socio-Economic Environment

Refer to **Figure 4-8** for the land use features surrounding the MBG site.

4.1.3.1 Land Use

The MBG Site is presently vacant. The surrounding area is suburban to urban with a mix of residential and commercial properties (in the southwest and southeast quadrants of the Kennedy Road and McNicoll Avenue intersection), parks and public recreation facilities (Mary Ward Catholic Secondary School / L'Amoreaux Community and Recreation Centre at the northwest quadrant of the Kennedy Road and McNicoll Avenue intersection). A bus access loop enters the property on the southern end from McNicoll Avenue (**Figure 4-7**).

Figure 4-7: Bus Access Loop at the Site



The MBG Site is located in an area identified as an Employment land use in the City of Toronto Official Plan, as shown in **Figure 4-8**. The Official Plan describes areas in the employment land use as the “hothouses where we grow our enterprises and jobs”. Uses envisioned in Employment Areas include seven policies related to the growth of employment areas use appear in the Official Plan, two of which, Policy 6 and Policy 7, focus on development aspects of employment uses. That policies state:

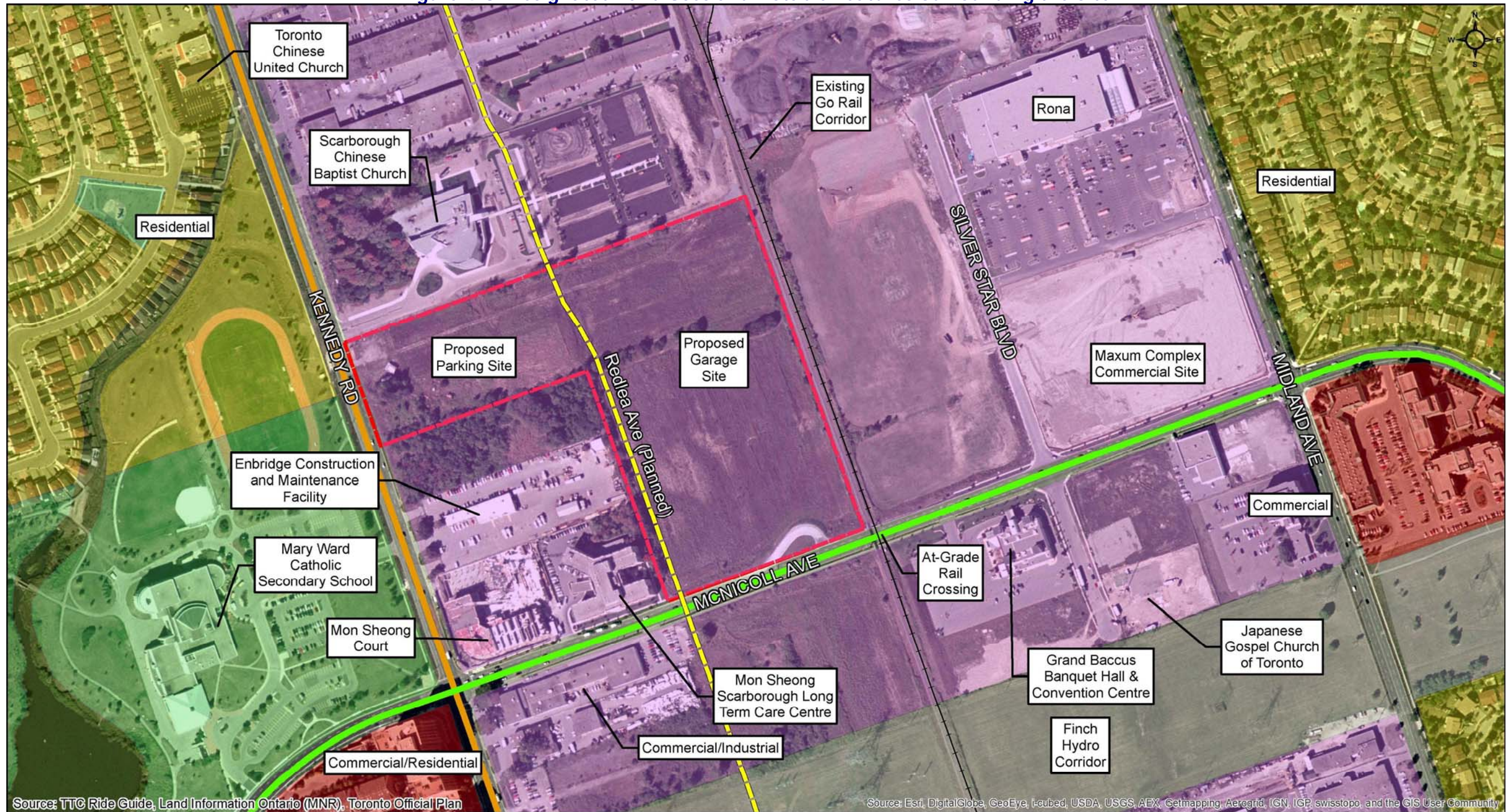
6. Development will contribute to the creation of competitive, attractive, highly functional Employment Areas by:
 - a) supporting the economic function of the Employment Areas and the amenity of adjacent areas;
 - b) encouraging the establishment of key clusters of economic activity with significant value – added employment and assessment;
 - c) avoiding excessive car and truck traffic on the road system within the Employment Areas and adjacent areas;

- d) providing adequate parking and loading on-site;
 - e) sharing driveways and parking areas wherever possible;
 - f) mitigating the effects of noise, vibration, dust, odours or particulate matter that will be detrimental to other businesses or the amenity of neighbouring areas;
 - g) providing landscaping on the front and any flanking yard and adjacent to any public parks and open space to create an attractive streetscape and screening parking, loading and service areas;
 - h) treating the boundary between Employment Areas and residential lands with landscaping, fencing or other measures to minimize nuisance impacts; and
 - i) ensuring that outside storage and outside processing is:
 - i. limited in extent;
 - ii. generally located at the rear of the property;
 - iii. well screened by fencing and landscaping where viewed from adjacent streets, highways, parks and neighbouring land uses; and
 - iv. not detrimental to neighbouring land uses in terms of dust, noise and odours.
7. Where the Zoning By-law permits outside storage or outside processing of goods and materials as the primary use on a property in Employment Areas, the outside storage or processing will:
- a) be well-screened by fencing and landscaping where viewed from adjacent streets, highways, parks and neighbouring land uses; and
 - b) not detrimental to neighbouring land uses in terms of dust, noise and odours.

A planned new road (subject of a separate Municipal Class EA study undertaken by the City of Toronto in October 2007), Redlea Avenue, bisects the site. Refer to **Section 1.6.4** for additional details.

The Scarborough Chinese Baptist Church borders the north edge of the site and the Mon Sheong Long-Term Care Facility and Mon Sheong Court (condominium) borders the western edge of the site. The City of Toronto approved Mon Sheong Foundations' plan to build the long-term care facility and the condominium complex in 2002 and 2004, respectively. At the time the site was already zoned for industrial uses.

Figure 4-8: Designated Land Uses and Notable Features Surrounding the Site



URS
 Ontario, Canada
 19 Jun, 2014

4.1.3.2 Zoning

Whereas the Official Plan presents the vision for the future growth and development of the City of Toronto, the Zoning by-law provides the legal and regulatory means to implement that vision.

When the City of Toronto amalgamated in 1998, the City inherited the separate zoning by-laws of each of the former municipalities that comprise the current City of Toronto. Those zoning by-laws of the former municipalities continue to be in force until such time that a newer city-wide zoning by-law is enacted and comes into force. By 2013, the City of Toronto had prepared a new city-wide zoning by-law to supersede those of the former municipalities; however, that by-law is currently under appeal before the Ontario Municipal Board (OMB). The appeal effectively places a stay to the effective date of the new by-law until the OMB renders a decision. Consequently, in the case of the MBG project, the zoning by-law of the former City of Scarborough currently governs the site. Nonetheless, because the city-wide by-law is expected to come to force in the near future, development proposals are reviewed by the City of Toronto under both the zoning by-law of the former municipality in which the project site is located and the new city-wide by-law.

Under the former City of Scarborough Zoning By-law, the MBG Site is situated in zoning classifications M (Industrial), MG (General Industrial) and MS (Special Industrial under the Milliken Employment District Zoning By-law #24982). Additionally, the zoning by-law includes site design standards relative to setbacks, bulk, density, lot coverage, parking, and other site requirements. Under the City-wide Zoning By-law, the MBG Site is situated in zoning classifications Employment Industrial (E) and Employment Heavy Industrial (EH) under the City-wide Zoning By-law No. 569-2013, as amended. Additionally, the zoning by-law includes site design standards relative to setbacks, bulk, density, lot coverage, parking, and other site requirements.

4.1.3.3 Contamination

Both Phase I and II Environmental Site Assessment (ESA) were undertaken for the site. Areas of potential environmental concern (APECs) that may have been previously impacted, or may be impacting soil and groundwater quality at the site were identified in the Phase I ESA. Phase II ESA assessed the general environmental quality of soil and ground water conditions at the site for due diligence purposes.

4.1.3.4 Air Quality

Background (ambient) conditions are contaminant concentrations that are exclusive of emissions from the proposed project infrastructure. These emissions are typically the result of trans-boundary (macro-scale), regional (meso-scale), and local (micro-scale) emission sources and result due to both primary and secondary formation. Primary contaminants are emitted directly by the source and secondary contaminants are formed by complex chemical reactions in the atmosphere. Secondary pollution is generally formed over great distances in the presence of

sunlight and heat and most noticeably results in the formation of fine particulate matter (PM_{2.5}) and ground-level ozone (O₃), also considered smog.

In Ontario, a significant amount of smog originates from emission sources in the United States which is the major contributor during smog events, usually occurring in the summer season (MOECC, 2005). During smog episodes, the U.S. contribution to PM_{2.5} can be as much as 90% near the southwest U.S. border and approximately 50% in the Greater Toronto Area (GTA).

Air pollution is strongly influenced by weather systems (i.e. meteorology) that typically move out of central Canada into the mid-west of the U.S. then eastward to the Atlantic coast. This weather system generally produces winds with a southerly component that travel over major emission sources in the U.S. and result in the transport of pollution into Ontario.

In this assessment, background conditions were characterized utilizing existing ambient monitoring data from MOECC and NAPS (National Air Pollution Surveillance) Network stations and added to the modelled predictions in order to conservatively estimate the combined concentration. A review of MOECC and NAPS ambient monitoring stations in Ontario was undertaken to identify the monitoring stations that are in relevant proximity to the study area and that would be representative of background contaminant concentrations in the study area. Four MOECC (Toronto East, Toronto North, Toronto West and Toronto Downtown) and six NAPS (Toronto Downtown, Etobicoke South, Etobicoke North, Newmarket, Egbert and Windsor) stations were determined to be representative. The locations of the relevant ambient monitoring stations in relation to the study area are shown in **Figure 4-9**.

Since the study area is surrounded by many monitoring stations, a comparison was performed for the available data on a contaminant basis, to determine the worst-case representative background concentration. Selecting the worst-case ambient data will result in a conservative combined assessment.

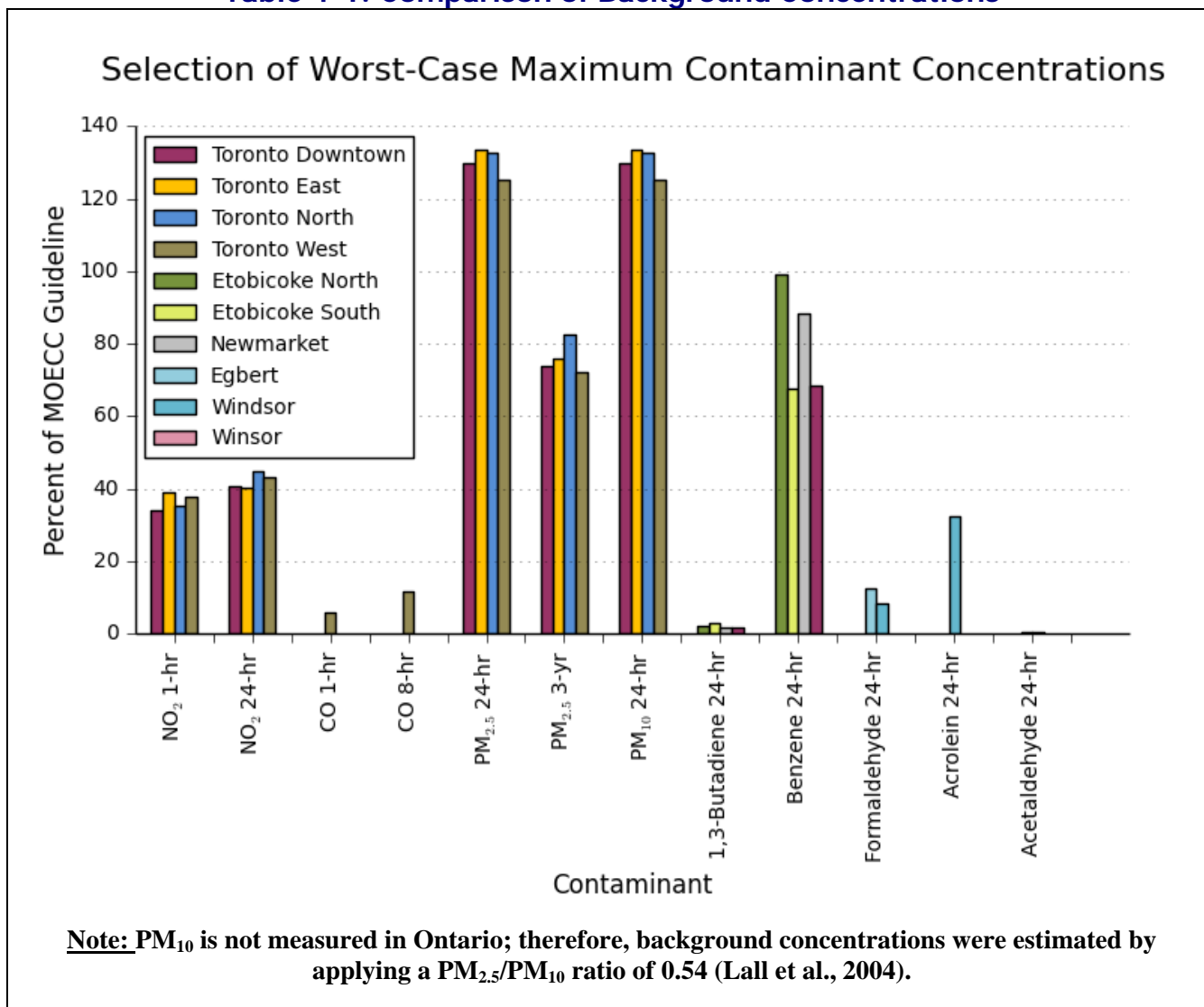
Figure 4-9: Relevant MOECC and NAPS Monitoring Stations



The most recent five years of ambient monitoring data publically available from the selected stations were statistically summarized for the desired averaging periods, 1, 8 and 24-hour. For the criteria air contaminants (i.e. nitrogen dioxide, carbon monoxide, fine particulate matter and coarse particulate matter), data was available for the years 2009-2013 and for the volatile organic compounds (i.e. acetaldehyde, acrolein, benzene, 1,3-butadiene and formaldehyde) data was available for 2008-2012 at all stations except for Egbert, at which measurements were no longer recorded after 2010. For the contaminants with hourly monitoring data (NO_2 , CO and $\text{PM}_{2.5}$), the station with the highest maximum value over the 5-year period for each contaminant and averaging period was selected to represent background concentrations in the study area. Using the maximum concentration is a very conservative assumption because it represents an absolute worst-case background scenario, which likely only occurred for one hour or one day over the 5-year period. For this reason, it is often suggested that the 90th percentile background concentration be selected to represent a reasonable worst-case scenario. However, in order to build conservatism into the results, the maximum background concentration was selected.

Ambient volatile organic compounds data is not monitored hourly, but is typically measured every six days. To combine this dataset with the hourly modelled concentrations, each measured 6-day value was applied to all hours between measurement dates, when there were six days between measurements. When there were greater than six days between measurements, the 90th percentile measured value for the year in question was applied for those days in order to determine combined concentrations. This method is conservative in determining combined impacts as it assumed the 10th percentile highest concentrations whenever data was not available. **Table 4-1** shows a comparison of the relevant stations for each contaminant of interest, and the selection of the worst-case station.

Table 4-1: Comparison of Background Concentrations



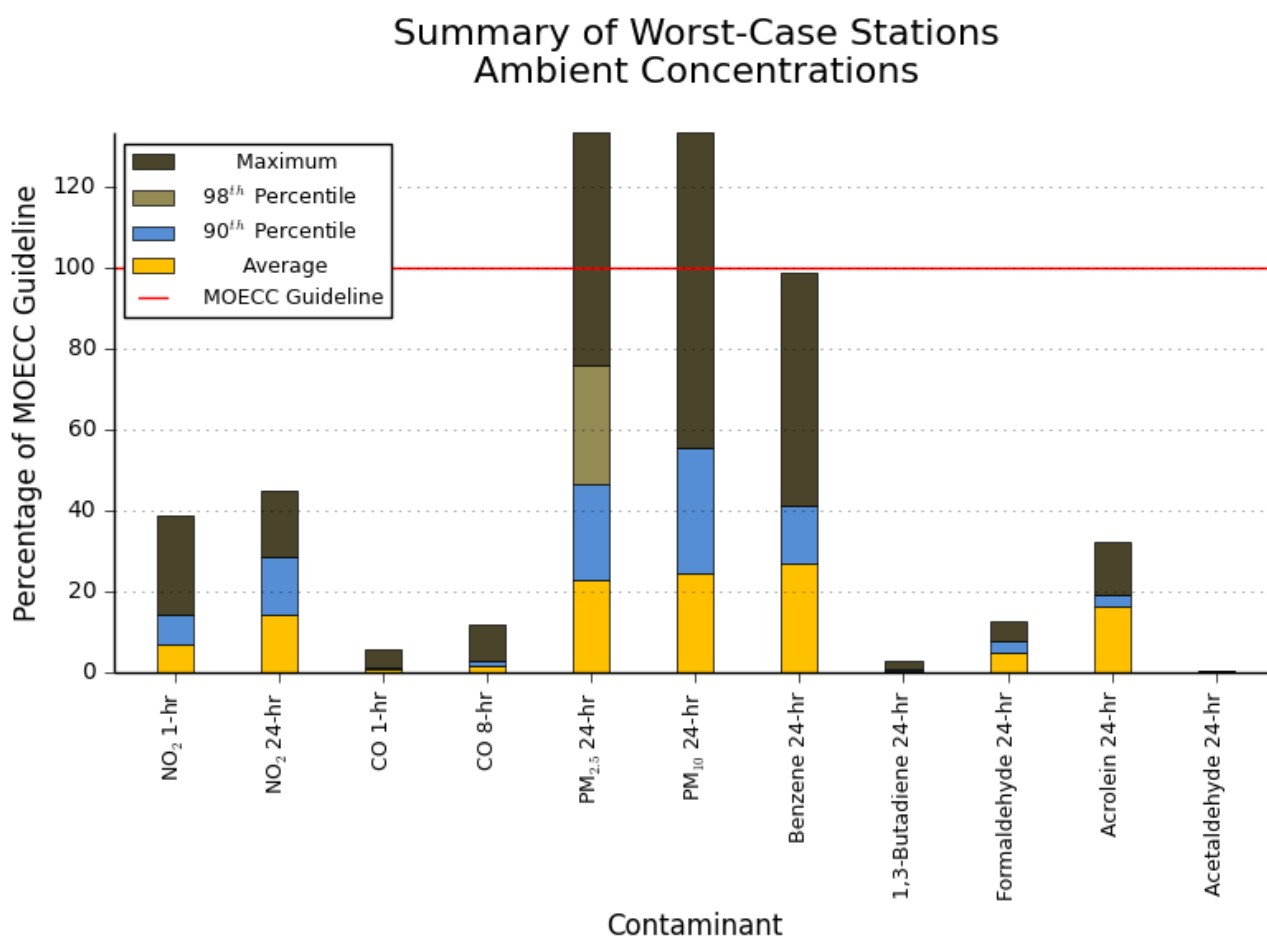
Contaminant	Worst-Case Station	Contaminant	Worst-Case Station
NO ₂ (1-hr)	Toronto East	1,3-Butadiene	Etobicoke South
NO ₂ (24-hr)	Toronto North	Benzene	Etobicoke North
CO (1-hr)	Toronto West	Formaldehyde	Egbert
CO (8-hr)	Toronto West	Acrolein	Windsor
PM _{2.5} (24-hr)	Toronto East	Acetaldehyde	Egbert
PM _{2.5} (3-yr)	Toronto North		
PM ₁₀	Toronto East		

Based on a review of the most recent ambient monitoring dataset, all contaminants were below their respective MOECC criteria with the exception of PM₁₀. PM₁₀ concentrations were calculated based on their relationship to PM_{2.5}. It should be noted that the guideline for PM_{2.5} is based on an average annual 98th percentile concentration, averaged over three consecutive years.

Though the maximum measured PM_{2.5} concentration, obtained from MOECC, is above the guideline (if comparing numbers alone), given that the guideline for PM_{2.5} is based on an average annual 98th percentile concentration, averaged over three consecutive years, as mentioned earlier, the maximum three-year rolling 98th percentile average for PM_{2.5} was 20.5 µg/m³, which is less than the guideline. Therefore, it was determined that the ambient PM_{2.5} concentrations do not exceed the guideline.

A summary of the background concentrations as a percentage of their respective MOECC guidelines or CWS is presented in **Figure 4-10**. Also presented is the number of days that the monitoring data was above the MOECC guideline or CWS.

Figure 4-10: Summary of Background Conditions



Refer to **Appendix D** for the Air Quality Assessment Report for more details.

4.1.3.5 Noise

Background sound levels in the vicinity of the proposed MBG are dominated by local road traffic from the neighbouring McNicoll Avenue, Kennedy Road, Midland Avenue, as well as rail

traffic from the GO Rail line to the east. In addition, the future Redlea Avenue extension is predicted to contribute to the ambient environment in the area. Ambient road traffic modelling has been included in this assessment per NPC-300. Rail traffic volumes are not currently high enough to contribute to ambient levels per NPC-300. Although rail volumes are anticipated to significantly increase, rail noise has conservatively not been included in the ambient noise modelling calculations.

Noise sensitive locations surrounding the proposed Facility are as follows:

- Japanese Gospel Church of Toronto to the east;
- Mon Sheong Long-Term Care Facility to the southwest;
- Mon Sheong Court to the southwest;
- Residential properties to the east, northwest, and southwest;
- Mary Ward Catholic Secondary School to the west;
- Scarborough Chinese Baptist Church to the north; and
- Toronto Chinese United Church to the northwest.

Refer to **Appendix F** for the Environmental Noise Assessment Report for more details.

4.1.4 Cultural Environment

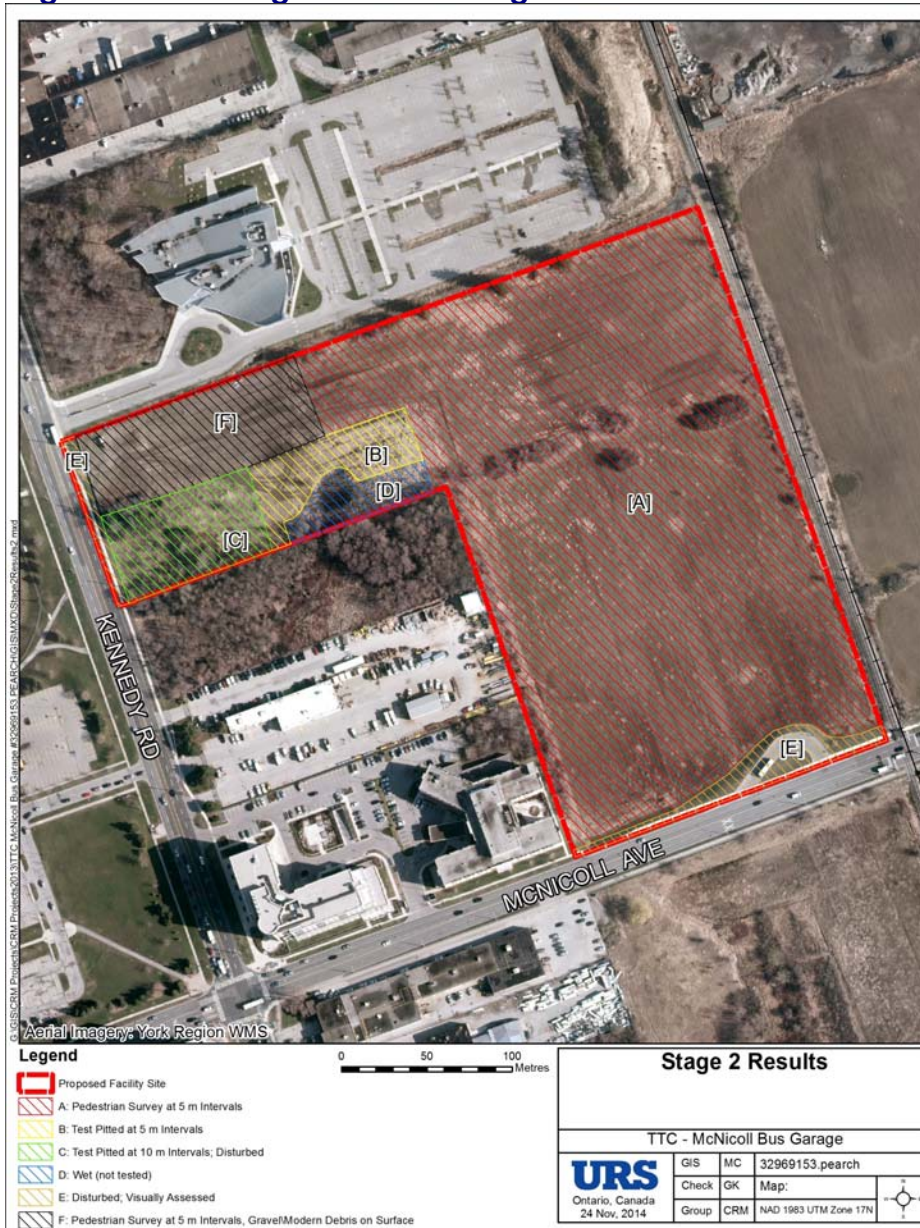
A Stage 1 Archaeological Assessment was undertaken as part of this study. It involved background research to describe the geography, land use history, previous archaeological fieldwork and current condition of the lands within the site in order to evaluate their archaeological potential and to support recommendations for Stage 2 survey for all or parts of these parcels. While a field review was not conducted on this property due to winter weather, satellite imagery, aerial photographs, thematic and historic maps and past archaeological reports were analyzed in order to evaluate the archaeological potential of the site.

The City of Toronto's Archaeological Master Plan previously evaluated this area as having some archaeological potential but the extent of that potential was not clearly defined. According to the Ontario Archaeological Sites Database (OASD) maintained by the Ministry of Tourism, Culture and Sport (MTCS), there is one site previously registered within 1 km of the site. The Alexandra site (AkGt-53) is located less than 500 m from the northwest corner of the site. The Alexandra site is a Late Woodland Iroquoian Village, approximately 2.5 ha in size with 17 longhouses, 29 features, 3 middens and numerous palisades. This site was subject to Stage 4 mitigation by Archaeological Services Inc. (2008). According to the OASD no previous archaeological fieldwork has been done within 50 m of the site.

The results of assessment indicate that portions of the lands within the site contain archaeological potential due to the proximity or inclusion of watercourses, historic travel routes, historic roadways and homesteads, previously registered sites and areas of the study corridor that have not been previously assessed or have not been identified as disturbed. Refer to **Appendix G** for the Stage 1 Archaeological Assessment Report for more details.

As a result of the Stage 1 Archaeological Assessment, a Stage 2 Archaeological Assessment was conducted on the MBG site in August 2014. Because of the varied conditions on the site, the site was divided into sections (A-F, refer to **Figure 4-11**) in order to better describe the Stage 2 Archaeological Assessment methods and results. Sections A and F were subject to pedestrian survey at 5 m intervals as per Section 2.1.1 of the Standards and Guidelines (MTCS 2011). Sections B and C were the only sections to be test pitted. Test pits were excavated a minimum of 30 cm by 30 cm in diameter and extended at least 5cm into sterile subsoil, as per Section 2.1.2, Standards 5-6 of the Standards and Guidelines (MTCS 2011). Section D consisted of a low, permanently wet area and was not test pitted. Section E was visually assessed and determined to be disturbed by previous road construction and grading activities. No archaeological materials were found during the Stage 2 Archaeological Assessment and therefore the site is considered to be free of archaeological resources. Refer to **Appendix H** for the Stage 2 Archaeological Assessment Report for more details.

Figure 4-11: Stage 2 Archaeological Assessment Methods



The tree survey undertaken as part of this study identified one English Oak (*Quercus robur*) located on the southern edge of a small forested area along the western property boundary (refer to **Figure 4-12**). It is 29 cm in diameter, and is in good health. It was brought from Vimy Ridge during World War I and planted by a war veteran. As such, it is considered to have cultural importance.

4.2 Future Conditions and Developments

The following sections present future conditions as they would be without the implementation of the MBG.

4.2.1 Transportation

4.2.1.1 Regional Transit System

In September 2014, Metrolinx completed an environmental assessment study to examine and identify the appropriate infrastructure improvements needed to improve the quality of service of the Stouffville GO Transit rail corridor. The purposes of this environmental assessment study were:

- Assess capacity impacts along the rail corridor;
- Allow for double tracking of the corridor, between the Scarborough Junction and Unionville GO Station, to meet 2020/2025 growth demands;
- Investigate future requirements for existing stations;
- Develop improved connectivity with other transportation services; and
- Complete various studies to identify potential impacts.

In February 2015, Metrolinx announced it would begin a multi-year construction program to deliver the infrastructure improvements identified in this environmental assessment. The first part of the project, adding a second track to an approximately 5 km subsection of the corridor between Kennedy Road in Markham and Marilyn Avenue in Scarborough, will begin in spring 2015. This subsection includes the railway corridor property to the east of the MBG site.

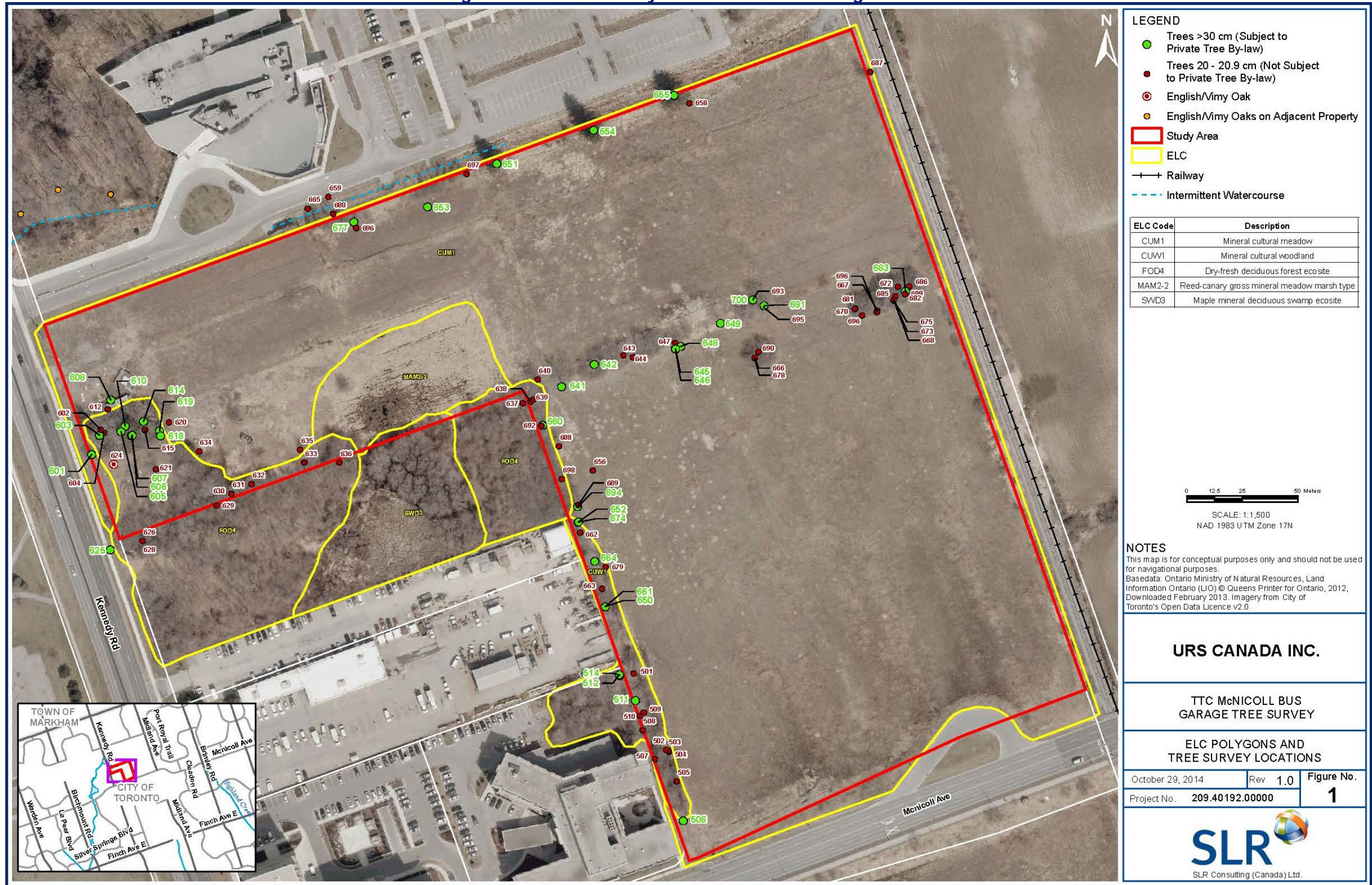
For more information about this study, visit:

<http://www.metrolinx.com/RERscarboroughmarkham>

4.2.1.2 Redlea Avenue

Construction for Redlea Avenue is anticipated to commence in 2015. Refer to **Section 1.6.4** for more details.

Figure 4-12: Tree Survey and Location of the English Oak



4.2.1.3 Future Background Traffic Assessment

The analyses of the future background traffic conditions revealed poor overall Level of Service (LOS) at the Kennedy Road / McNicoll Avenue intersection, and some critical movements at the Midland Avenue / McNicoll Avenue intersection during both peak hours. There are critical movements on nearly every approach at the Kennedy Road / McNicoll Avenue intersection. The eastbound and westbound through movements exhibited longest delays and queues, especially in the p.m. peak hour. At the Midland Avenue / McNicoll Avenue intersection, northbound through movement and eastbound left turn movement are critical with delays of up to 91 seconds.

The future Redlea Avenue / McNicoll Avenue intersection is anticipated to operate at a good LOS with minor delays for all movements. The Kennedy Road / McNicoll Avenue intersection is expected to operate above capacity by 2019.

Refer to **Appendix A** for the Traffic Impact Study for more details.

4.2.2 Natural Environment

No major changes to the natural environment are expected with respect to fish and fish habitat; terrestrial ecosystems (vegetation communities, wildlife and designated areas) in this area.

4.2.3 Socio-Economic Environment

No major changes to the land use designations surrounding the MBG site are expected other than the implementation of the Redlea Avenue extension along the westerly portion of the site.

4.2.4 Cultural Environment

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

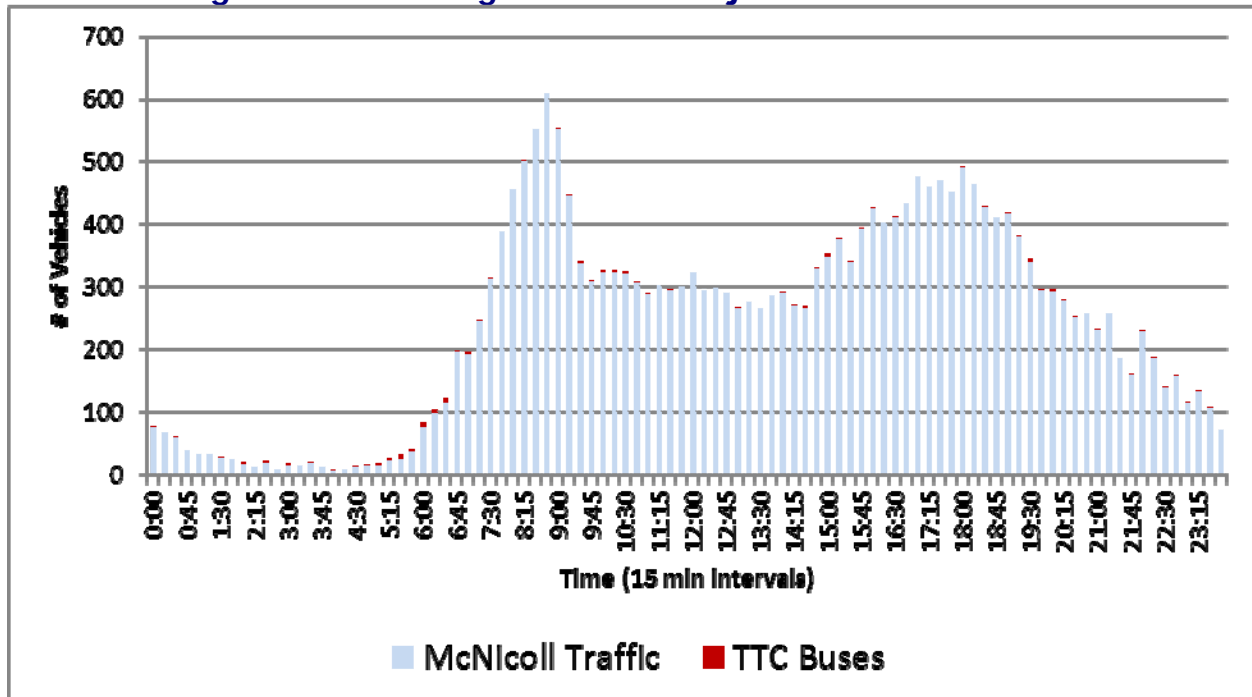
5.0 PREFERRED PROJECT ENVIRONMENTAL IMPACTS AND MITIGATION

The purpose of **Chapter 5** is to document the potential environmental and traffic impacts of the McNicoll Bus Garage (MBG) and corresponding mitigation measures and proposed monitoring activities.

5.1 Transportation

The peak operating periods of the MBG do not coincide with the a.m. and p.m. peak periods of traffic on the boundary road network. Recognizing that the peak periods for the local road network and buses occurs at different times of day, peak period for buses and the local road network conditions were examined separately. The MBG will generate relatively low bus traffic activity during roadway peak periods on the adjacent road network (entering and exiting the facility off peak periods) and the addition of site traffic onto the network only accounts for a minor incremental change in the total traffic volume resulting in a negligible impact to the local road system (refer to **Figure 5-1**).

Figure 5-1: Existing Traffic vs. Projected TTC Bus Traffic



Total future traffic on the boundary road network is based on the sum of the future background traffic and the site traffic for the proposed bus garage. Overall, the intersections in the vicinity of the site are expected to operate poorly during both peak hours. Poor operations at the subject

intersections (Kennedy Road / McNicoll Avenue and Midland Avenue / McNicoll Avenue) are generally due to background traffic growth in the area, and are not related to the MBG. Refer to **Appendix A** for the Traffic Impact Study for more details.

5.2 Natural Environment

5.2.1 Fish and Fish Habitat

No fish habitat or watercourses were found within the subject site. The TRCA identified a small watercourse (drainage feature) that indirectly support fish habitat through water conveyance located at the northern end of the site, flowing toward the west and proceeding underneath Kennedy Road. A portion of the site is positioned in the TRCA regulated area for this small watercourse. Further discussion with TRCA will be undertaken during subsequent planning and phases as a TRCA permit is likely required for any earthworks or placement of a structure within the regulated area.

As there is no significant aquatic habitat identified within or adjacent to the site, no specific mitigation measures for fish and fish habitat are developed. Standard Best Management Practices for: erosion and sediment control (refer to *Erosion and Sediment Control Guidelines for Urban Construction* by the Greater Golden Horseshoe Area Conservation Authorities); debris containment and management; clearing and grubbing; and construction access together with site controls and operational constraints, site rehabilitation and construction monitoring and inspection to protect the aquatic environment and reduce the risk to fish and fish habitat are recommended.

Refer to **Appendix B** for the Natural Heritage Characterization Study for more details.

5.2.2 Terrestrial Ecosystems

The site is dominated primarily by a significant non-native component that is typical for abandoned agricultural fields. The site itself is surrounded by urban development with no direct links to other natural areas in the region. The woodlots located along the western border of the property are showing signs of degradation with the increasing dominance of Common Buckthorn, which is a highly aggressive non-native invader that will take over the understory of various habitats suppressing the regeneration of native species. It is likely that these woodlots will continue to degrade given the level of urbanization in the area. There are 35 trees over 30 cm in diameter on the proposed site. The Toronto Tree Protection By-law will apply to this site. The wetland associated with the adjacent properties has been considered when designing stormwater management controls. No rare or endangered species were encountered during field work.

The following mitigation measures are proposed to minimize potential terrestrial impacts and protect the natural environment:

- The Toronto Tree Protection By-law requires a permit to injure or destroy trees having a diameter equal to or greater than 30 cm. There are 35 trees over 30 cm in diameter on the

proposed site. A vegetation removals plan will be prepared at the design stage to support tree removal permits;

- All replacement plantings will be species that are native to this geographical region;
- All clearing activities will take place outside of the breeding bird window (April 1 – July 31) in order to comply with the *Migratory Birds Convention Act*. If works are proposed during the breeding bird window, the area of disturbance will be surveyed by a qualified avian specialist to ensure that no active nest will be destroyed by the construction activity;
- Sediment containment fencing will be established along the edge of adjacent natural features at the limit of construction. The fence will be maintained and monitored on a scheduled basis during construction;
- A construction work plan will designate specific locations for stockpiling of soils / other materials, equipment maintenance and/or fueling outside of adjacent natural areas;
- Stormwater discharge during construction will be directed away from adjacent natural areas found on the site; and
- Opportunities for buffer plantings, where warranted, will be reviewed at the detail design stage in consultation with TRCA.
- Post construction, any exposed soils will be re-vegetated as soon as possible with native seed mixes to promote native biodiversity where possible to reduce erosion. If stabilization is not possible by plantings, then erosion mats will be applied in the interim.

Refer to **Appendix B** for the Natural Heritage Characterization Study for more details.

5.2.3 Drainage and Stormwater Management

As mentioned in **Section 3.3**, the proposed stormwater management system will be designed to the City of Toronto Municipal design guidelines, Design Criteria for Sewers and Watermains, Wet Weather Flow Management Guidelines as well as the MOECC Stormwater Management Planning and Design Manual.

The MBG site will be kept operational in the event of high precipitations. Strategies to reduce stormwater release from the MBG may include the following types of treatment:

- Roof leader soakaway pits (quantity control);
- Pervious pipes (quantity control);
- Pervious catch-basins (quantity control);
- Infiltration trench (quantity and quality control); and
- Oil / grit separator (offline or bypass) (quality control).

Separate stormwater tie-in will be required for the southeast side of the Redlea Avenue extension where the bus garage will be built and another for the northwest side of the Redlea Avenue extension where the parking lot is proposed. In both cases peak run-off flow rates will be controlled to predevelopment conditions by making use of orifice plates and weir controls and

subsurface storage facilities. Run-off quality will be treated to meet MOECC requirements with the use of Oil and Grit Separators.

Stormwater drainage for the bus garage site will be achieved with a series of catchbasins, catchbasin manholes, manholes and drainage swales. Run-off will be collected from impervious areas and routed to the southwest corner of the site where it will tie to an existing manhole at the intersection of McNicoll Avenue and Redlea Avenue. Run-off generated from the proposed building's roof will be collected for re-use. Overflow from the roof will be directed overland towards catchbasins where it will enter the proposed site stormwater system. A control flow, roof storm drainage system is included as part of the design for the proposed facility. Stormwater from the roof will be stored in two underground site tanks and re-used for bus washing. These tanks will have an overflow connected to the site stormwater piping.

Stormwater drainage for the parking lot site will be achieved with a series of catchbasins and manholes. Run-off will be collected from impervious areas and routed to the southeast corner of the site where it will tie to a proposed manhole on the Redlea Avenue extension.

The details of the above stormwater management measures will be address during the design stage as part of the Site Plan Approval process.

5.2.4 Groundwater

As mentioned in **Section 4.1.2.5**, this project is located within the Toronto and Region Source Protection Area. The approved assessment report for the Toronto and Region Source Protection Area identifies vulnerable areas including wellhead protection areas, highly vulnerable aquifers (**Figure 4-4**), significant groundwater recharge areas (**Figure 4-5**), and intake protection zones, and to delineate the vulnerable ratings within these vulnerable area (a vulnerability score of high, medium, or low).

The vulnerability scores of an aquifer are determined by factors such as the thickness of the aquifer, the soil type, how quickly water can travel through the ground (time of travel), and how fast a contaminant can travel to an intake. In addition, the risk level of a specific contaminant is also taken into account of the vulnerability ratings. Based on the approved assessment report, the study area is not within the Wellhead Protection Area and is located in Low Groundwater Recharge Area (less than 150 mm/year). The score for the Highly Vulnerable Aquifer for the study area is considered to be between two and four (from low to medium, toward to south and southwest portion of the study area, refer to **Figure 4-6**). As such, it has been determined that no significant impact / threat to drinking water aquifer within the project area are anticipated as a result of the proposed bus garage.

There is the potential for interaction with groundwater associated with the excavation required for the foundations of the MBG (particularly at the north end of the site, where groundwater levels are anticipated to be higher). The potential for groundwater interaction will be examined further at the detail design stage and the need for a Permit to Take Water (for dewatering in excess of 50 m³/day) will be identified and subsequently obtained from MOECC, if necessary.

5.3 Socio-Economic Environment

5.3.1 Official Plan

Employment areas identified in the Official Plan of the City of Toronto include uses such as storage and processing. The MBG project, consisting of the storage and maintenance of buses, is consistent with the vision of the Plan. With regard to Policy 6 and Policy 7 of Employment Areas in the Official Plan, the MBG project has been determined to be consistent with the Plan. The MBG Project will support, through the increased transit service capacity through increased bus storage and maintenance capability, the economic function of Employment Areas, the development of key clusters and the avoidance of excessive cars and trucks. Additionally, the MBG project includes landscaping and other treatments that address the visual quality of the site in relation to the surrounding area, and as described in this Chapter, the MBG project includes measures to mitigate effects upon neighbouring sensitive properties.

5.3.2 Zoning

The TTC has begun consultation with the City of Toronto to apply for zoning approval for the MBG. Consultation will continue through the design phase. Should any zoning amendments or minor variances be required, the TTC will comply with the appropriate approval process.

5.3.3 Property

No private property is required to accommodate the MBG.

5.3.4 Contamination

Should any contaminated materials be encountered during the undertaking, caution will be exercised while handling and disposing of contaminated materials. Excess material will be generated during construction and require proper management (i.e. removal, storage and disposal). Excess materials will be managed in accordance with provincial regulations (OPSS 180). Any monitoring wells located within the site will be decommissioned in accordance with Ontario Water Resources Act, Regulation 903 – Wells.

5.3.5 Air Quality

Provincial requirements for the assessment of air quality are described in **Section 5.3.4.1** and were considered in the air quality assessment for the MGP. Additionally, in response to stakeholder requests, additional air quality assessments were undertaken. All assessments related to air quality are discussed in the following sections.

5.3.5.1 Provincial Requirement - Ambient Air Quality Criteria

In order to assess the impact of the project, the predicted effects at sensitive receptors were predicted using detailed dispersion modelling, and compared to published guidelines. Relevant agencies and organizations in Ontario and their applicable contaminant guidelines are:

- MOECC Ambient Air Quality Criteria (AAQC)
- Canadian Council of Ministers of the Environment (CCME) Canada Wide Standards (CWSs)

Within the guidelines, the threshold value for each contaminant and its applicable averaging period was used to assess the maximum predicted effect at sensitive receptors derived from computer simulations. The applicable averaging periods for the contaminants of interest are based on 1-, 8- and 24-hour acute (short-term) exposures. The threshold values and averaging periods used in this assessment for the main contaminants of concern are presented in **Table 5-2**. It should be noted that the CWS for PM_{2.5} is not based on the maximum threshold value. Instead, it is based on the annual 98th percentile value, averaged over three consecutive years. Guidelines for the chemicals contained in the various products used onsite in the paint booth and shop areas are presented in appendices of the air quality assessment report, available under separate cover (refer to **Appendix D**).

Table 5-2: Applicable Contaminant Guidelines

Type	Pollutant	Averaging Period	Guideline (µg/m ³)	Source
Criteria Air Contaminants (CACs)	NO ₂	1 hr	400	AAQC
		24 hr	200	AAQC
	CO	1 hr	36,200	AAQC
		8 hr	15,700	AAQC
	PM _{2.5}	24 hr	27*	AAQC (CWS)
PM ₁₀	24 hr	50	Interim AAQC	
Volatile Organic Compounds (VOCs)	Acetaldehyde	24 hr	500	AAQC
	Acrolein	1 hr	4.5	Environmental Registry
		24 hr	0.4	
	Benzene	24 hr	2.3	Environmental Registry
	1,3-Butadiene	24 hr	10	Environmental Registry
Formaldehyde	24 hr	65	AAQC	

* The CWS is based on the annual 98th percentile concentration, averaged over three consecutive years. The standard becomes 27 in year 2020.

In order to estimate the worst-case impacts resulting from emissions from the MBG the following were conducted:

- Emission rates were estimated from vehicles (buses and employee parking lot), heating equipment and standby generator, paint booth and shop areas, and liquid storage tanks based on U.S. EPA and MOECC published values;
- Air dispersion modelling was conducted. The model inputs include local building information, topography, sensitive receptor locations, meteorology, emission rates and stack parameters. The model uses this information to calculate hourly, 8-hour or 24-hour averages for the contaminants of interest at the identified sensitive receptor locations; and
- Maximum model results were combined with maximum background concentrations to provide conservative predictions of worst-case impacts.

The nearest sensitive area is the Mon Sheong Long-Term Care Facility and Mon Sheong Court, located just west of the facility, approximately 23 m from the facility’s property boundary line. Receptors were placed at ground level and in 3 m height increments to measure impacts at operable windows at all levels on the long-term care facility. Three churches were identified near the facility, located 80 to 400 m from the property boundary line. It should be noted that since a sensitive-receptor, the long-term care facility, was identified nearby the proposed site, the relaxed standard for assessing emergency generators was not applied. Total NO_x emissions from the site were assessed against the ambient air quality guideline or 400 µ/m³ for a 1-hour and averaging period for NO_x at the long-term care facility.

The maximum impacts were predicted to occur at the long-term care facility, at ground level for all contaminants. Note that NO₂ impacts are due to emissions from buses, heating equipment, generators and vehicles in the parking lot. The benzene impacts are due to emissions from buses, vehicles in the parking lot and fugitive emissions from the tanks. The remaining pollutants are emitted only from buses and vehicles in the parking lot. The maximum facility induced concentrations were added to the maximum, 90th percentile and average 5-year background concentrations to show worst-case and reasonable worst-case impacts. Note that this methodology results in conservative worst-case concentrations as the maximum facility induced concentration likely does not occur at the same time as the maximum background concentration. The worst-case concentrations are shown in **Table 5-3**.

Table 5-3: Worst-Case Predicted Concentrations as a Percentage of the Guideline

Contaminant	Averaging Period	Maximum Concentration Due to Facility Alone (µg/m ³)	Maximum Concentration Due to Facility Alone (as % of Standard)	Combined Concentration as % of Standard (Ambient + Project)			Additional # of Guideline Exceedances due to Project Over 5 Years
				Maximum	90 th Percentile	Average	
NO ₂	1-hour	158	40%	79%	53%	47%	
	24-hour	33	17%	62%	41%	31%	
CO	1-hour	79	0.2%	6%	1%	1%	
	8-hour	22	0.1%	12%	3%	2%	
PM _{2.5} ¹	24-hour	1.6	6%	139%	53%	30%	3

Contaminant	Averaging Period	Maximum Concentration Due to Facility Alone ($\mu\text{g}/\text{m}^3$)	Maximum Concentration Due to Facility Alone (as % of Standard)	Combined Concentration as % of Standard (Ambient + Project)			Additional # of Guideline Exceedances due to Project Over 5 Years
				Maximum	90 th Percentile	Average	
PM ₁₀	24-hour	2	4%	137%	51%	29%	1
Acetaldehyde	24-hour	0.11	0.02%	1%	<1%	<1%	
Acrolein	24-hour	0.02	5%	38%	25%	20%	
Benzene	24-hour	0.06	3%	101%	44%	30%	6
1,3-Butadiene	24-hour	0.01	0.1%	3%	1%	1%	
Formaldehyde	24-hour	0.25	0.4%	13%	8%	5%	

1 – CWS guideline for PM_{2.5} is based on an average annual 98th percentile concentration, averaged over 3 consecutive years. The maximum combined 3-year rolling average of the annual 98th percentile concentration was 22.14, which is 82% of the guideline.

Overall, the maximum concentrations due to the facility alone are 6% or less of the applicable standard, except for NO₂ concentrations, for which the worst-case concentration is 40% of the NO₂ 1-hour guideline. Combined with the maximum measured background concentration, two pollutants are above the guideline: PM₁₀ and benzene. Note that though maximum concentration of PM_{2.5} exceeded the CWS, the guideline for PM_{2.5} is based on an average annual 98th percentile concentration, averaged over three consecutive years. Combining the maximum facility induced concentration with the background 98th percentile concentration of PM_{2.5} for each of the five years modelled, the maximum rolling 98th percentile average was 20.5 $\mu\text{g}/\text{m}^3$, which is below the guideline.

Background PM₁₀ concentrations already exceed the guideline 12 times in five years. Combining the maximum facility induced concentration with background concentrations, one additional exceedances of the guideline are predicted to occur for a total of 13 times, which is less than 1% of the time.

The maximum background benzene concentration is 99% of the standard. Combining the maximum facility induced concentrations with background concentrations causes a slight exceedance of the standard. As mentioned earlier, ambient measured benzene concentrations are monitored infrequently, typically every 6 days. To complete the dataset, the measured concentration was applied for all days between measurements when there were 6 days or less between measurements. The maximum benzene concentration, which was 99% of the standard, was based on one measured value and then applied to six days of the 5-year dataset. Therefore, combined concentrations add slightly to the background for a combined concentration of 101% of the guideline, conservatively predicted to occur for six days due to the methods described.

It is important to note that these exceedances are primarily due to background concentrations and the contribution from the facility is small.

All other contaminants met the guidelines with no exceedances. It should be noted that this approach, combining the maximum values to the maximum ambient measurements is extremely conservative. It is not likely that the maximum facility concentration will occur at the same time as the maximum ambient concentration. Furthermore, it is likely that the combined maximum concentration will only occur for one hour of one day, and it is not representative of what can be expected on a typical day.

From the paint booth and shop areas, 29 of the 66 contaminants were found to have negligible emissions. The remaining contaminants were modelled in the air dispersion modelling. Results of the modelling showed that all contaminants met their respective guidelines at the nearest sensitive receptor.

The following conclusions and recommendations are a result of this air quality assessment:

- The maximum combined concentrations were all below their respective MOECC guidelines or CWS, with the exception of PM₁₀ and benzene.
- Frequency analysis determined that the project exceeded the PM₁₀ and benzene guidelines one and six additional days, respectively, over the 5-year period. This equates to <1% of the time.
- It is recommended that low-NO_x burners be installed on all heating equipment, in accordance with this assessment.
- It is recommended that the design team select a generator unit with a maximum NO_x emission rate of 2 g/bhp-hr.
- Upon final selection of equipment and exhaust fans for the facility, an Environmental Compliance Assessment will need to be completed and submitted to the MOECC.

Refer to **Appendix D** for the Air Quality Assessment Report for more details.

5.3.5.2 Air Quality during Construction

Construction activities will involve heavy equipment that generates air pollutants and dust, however, these impacts are temporary in nature. The emissions are highly variable and depending on the specific activities that are taking place. The best manner to deal with these emissions is through the implementation of operating procedures, such as application of dust suppressants, reduced travel speeds for heavy vehicles, efficient staging of activities, covering stockpiles, minimizing excavation activities on windy days, etc. In order to minimize potential air quality impacts during construction, the Contractor will be required to implement Best Management Practices for control of dust and other emissions.

5.3.5.3 Guideline D-6

The D-series of guidelines were developed by the MOECC in 1995 as a means to assess recommended separation distances and other control measures for land use planning proposals in an effort to prevent or minimize ‘adverse effects’ from the encroachment of incompatible land

uses where a facility either exists or is proposed. The guideline specifically addresses issues of odour, dust, noise and litter.

Guideline D-6 *Compatibility between Industrial Facilities and Sensitive Land Uses* addresses industrial land uses similar to the proposed bus facility. From the Guideline’s synopsis, Guideline D-6 is “intended to be applied in the land use planning process to prevent or minimize future land use problems due to the encroachment of sensitive land uses and industrial land uses on one another.” As the proposed project does not require a land use planning assessment, Guideline D-6 does not strictly apply. Regardless, it has been used to consider what would generally be considered acceptable in response to issues raised through stakeholder consultation.

Guideline D-6 defines an Area of Influence and a Recommended Minimum Setback distance for three classes of industrial operation: light, medium, and heavy industrial uses. These distances are determined by industry class and are shown in **Table 5-1**.

Table 5-1: Guideline D-6 Potential Influence Areas and Recommended Minimum Setback Distances for Industrial Land Uses

Industry Classification	Area of Influence	Recommended Setback Distance
Class I – Light Industrial	70 m	20 m
Class II – Medium Industrial	300 m	70 m
Class III – Heavy Industrial	1000 m	300 m

Based on the size of the facility and the nature of the use, the proposed MBG is consistent with a Class 2 industry, with an Area of Influence of 300 m, and a Recommended Minimum Setback Distance of 70 m.

Guideline D-6 recommends that detailed assessments be conducted where sensitive land uses are located within the Area of Influence of the industrial facility. There are several sensitive receptors within the Area of Influence. The closest sensitive use is the Mon Sheong Court and Long-Term Care Facility. The detailed analyses presented in the EPR meet this requirement of Guideline D-6.

Guideline D-6 also provides a Recommended Minimum Setback Distance of 70 m for Class 2 facilities. The distances between the Mon Sheong Long-Term Care Facility and the MBG are:

- Property line to property line – 23 m
- Mon Sheong Long-Term Care Facility to closest on-site bus route – 30 m

While the Mon Sheong Long-Term Care Facility lies within the Recommended Minimum Setback Distance from the proposed MBG, Guideline D-6 is clear that the Minimum Setback Distance is a *recommendation* only. Section 4.10 of the Guideline allows for development to occur within the minimum setback for “redevelopment, infilling and mixed use” areas. This project would qualify as redevelopment since the land is already zoned as industrial rather than re-zoning of the lands. In such cases, Section 4.10 of the Guideline requires that a detailed assessment be conducted to show that the relevant air quality guidelines are met. The detailed

analyses presented in the subsequent sections of the EPR show that this is the case. Thus, the minimum setback requirements of Guideline D-6 have been addressed.

5.3.5.4 Screening Level Human Health Risk Assessment

The Screening Level Human Health Risk Assessment (SLHHRA) undertaken as part of this study was conducted according to widely accepted risk assessment methodologies and guidance published and endorsed by regulatory agencies including MOECC, Health Canada, the Canadian Council of the Ministers of the Environment (CCME), and the United States Environmental Protection Agency (US EPA). The SLHHRA is not a provincial requirement, but was undertaken to address stakeholder issues and concerns regarding potential effects on human health.

A SLHHRA is a qualitative or quantitative evaluation of risk typically based on a “worst-case” exposure scenario rather than verifiable site-specific conditions. As an initial scoping of potential risk, the SLHHRA approach relies on available data to provide conservative estimates of exposure and risk based on a worst-case scenario, so that exposures and risks are not underestimated. The intent is to determine whether there is the potential for adverse health impacts under these worst-case exposure scenarios for the chemicals of concern (COCs) emitted from the proposed facility, identify any data gaps limiting the assessments ability to estimate exposures and risk, and eliminate any COCs and pathways of exposure which are not a concern moving forward for any future analyses.

Should the SLHHRA indicate the potential for the risk, the process provides an excellent foundation on which additional data gathering and analysis can be conducted, in support of a more detailed quantitative human health risk assessment (HHRA). Ultimately, due to the conservative approach and assumptions used, a SLHHRA cannot predict whether potential health risks will occur. Rather, a SLHHRA can only determine if significant human health risks are unlikely. In many cases, a detailed HHRA may be necessary to address the inherent conservatism and uncertainty built into the SLHHRA process, to permit a detailed quantification of actual human health risks related to airborne emissions from the bus garage, should the SLHHRA indicate the potential for human health impacts.

Overall, the SLHHRA follows the standard HHRA framework that is composed of the following steps:

- Problem formulation;
- Exposure assessment;
- Hazard assessment; and
- Risk characterization.

Typically, the assessment results provided in the risk characterization step can be used by risk managers to develop appropriate mitigation plans to prevent adverse health risks, should they be warranted. However, given that this is a screening level assessment, it is likely that should the

potential for health risks be identified, a more detailed human health risk assessment would be recommended to provide a more comprehensive evaluation of site-specific health risks around the proposed bus garage.

The closest sensitive receptor to the proposed facility is an existing senior citizens' residence, located approximately 23 m west of the facility's property boundary line. As part of the air dispersion modelling, the maximum ground-level air concentrations were predicted at 21 discrete sensitive receptor locations within the study area, including the existing senior citizen's residence, any proposed daycare facility on the nearby property to the east, and three churches.

The primary concern for the current assessment is emissions from the TTC buses using the proposed MBG and surrounding roadways, and the potential health implications associated with emissions from these diesel-powered vehicles on the surrounding community. As such, one must understand the typical contaminants emitted by diesel engines to properly select the COCs for the current assessment. Sulphur dioxide was not included as a COC in the current assessment due to the use of low sulphur fuels by the TTC.

Potential emissions from a backup diesel generator and heating equipment within the garage were also considered as part of the air quality assessment. The main concern associated with boiler exhaust due to the combustion of natural gas would be the release of oxides of nitrogen (NO_x).

Based upon the primary components present in diesel exhaust from the worst case vehicle fleet using the proposed garage, as well as the boiler exhaust from the proposed garage itself, the following contaminants were evaluated in the air quality assessment and selected as COCs for the SLHHRA:

Table 5-4: Chemicals of Concern

Criteria Air Contaminants (CACs)	Volatile Organic Contaminants (VOCs)
<ul style="list-style-type: none"> Carbon monoxide (CO) Oxides of nitrogen (NO_x) Inhalable coarse particulate matter (PM₁₀) Respirable fine particulate matter (PM_{2.5}) 	<ul style="list-style-type: none"> 1,3-Butadiene Acetaldehyde Acrolein Benzene Formaldehyde
Polycyclic Aromatic Hydrocarbons (PAHs)	
Benzo[a]pyrene (as a surrogate for the carcinogenic PAH group)	

Each of the COCs was evaluated on both a short-term "acute" and long-term "chronic" basis. Where relevant for the specific chemical, both cancer and non-cancer end-points were evaluated. Finally, the predicted worst-case contributions from both the proposed facility and associated increased roadway traffic to local air quality, as well as the overall cumulative air quality (i.e., typical regional background concentrations plus the contribution from the proposed facility and associated vehicle traffic on adjacent roadways) in the community, were evaluated at each of the key sensitive receptor locations identified.

Based on the results of the assessment, and given the considerable conservatism built into both the air quality assessment and the SLHHRA itself, no unacceptable health risks related to emissions from the proposed bus garage and associated vehicle traffic would be expected. In fact, estimated emissions from the proposed garage represent a minimal to negligible contribution of the overall cumulative exposures for all of the COCs predicted for the sensitive receptor locations around the proposed facility.

Refer to **Appendix E** for the full SLHHRA for more details.

5.3.6 Noise

The purpose of the noise assessment is to evaluate the overall noise emissions of the proposed MBG with respect to relevant noise guidelines. The guideline most applicable to this project is the Ontario Ministry of the Environment and Climate Change (MOECC) publication NPC-300 (MOECC 2013). Similar to the air quality assessment described earlier, the TTC also assessed the potential noise effects of the MBG using MOECC Guideline D-6.

5.3.6.1 MOECC Publication NPC-300

Due to significant road traffic noise from surrounding roadways, the area is considered to be a Class 1 area under MOECC Publication NPC-300. A Class 1 Area is defined as “an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as ‘urban hum’.” The Exclusion Limit Values for 1-hour equivalent sound level (L_{eq} , dBA) for points of reception in a Class 1 area are summarized in **Table 5-5**. There are no impulsive noise sources anticipated from the proposed Facility.

Table 5-5: NPC-300 Exclusion Sound Level Limit Values

Time Period	Exclusionary Sound Level Limits, 1h- L_{eq} (dBA) ^[1]
0700-1900h	50
1900-2300h	50
2300-0700h	45

Sound level limits do not apply to emergency equipment operating during emergency situations. However, emergency equipment operating in non-emergency situations, such as testing or maintenance of such equipment, requires assessment under NPC-300. The sound level limits for emergency equipment operating in non-emergency situations are 5 dB greater than the sound level limits otherwise applicable to stationary sources, as described above. Additionally, emergency equipment operating in non-emergency situations is to be assessed independently of all other stationary sources of noise.

There are two vacant lots near the project. The vacant lot to the south of the proposed MBG located south of McNicoll Avenue and west of the GO railway line falls under City of Toronto

Zoning By-law 569-2013. The property is zoned EH – Employment Heavy Industrial Zone (EH 0.5). There are no sensitive uses permitted under the EH 0.5 zoning. The vacant lot to the west of the proposed facility, north of McNicoll Ave and east of the GO railway line, falls under the former City of Scarborough General Zoning By-law 24892. This property is zoned as Industrial, General Industrial, and Special Industrial (M, MG, MS-414-913-991-1054). Under the M, MG and MS zonings, the following potentially sensitive land uses are permitted:

- Day nurseries
- Places of worship
- Educational and training facilities.

As a result, in accordance with NPC-300 requirements, a vacant lot surrogate receptor (V1) has been considered. As no building permit has been filed for the site, in accordance with NPC-300 requirements the receptor has been located at the centre of a 1 ha portion of the lot consistent with the building pattern of the area, at height of 4.5 m above grade.

Detailed sound level measurements were completed at the existing TTC Mount Dennis Bus Garage on July 11, 2013. The measured sound levels, in addition to mechanical data, engineering calculations, historical data, and data from the DEFRA Construction Noise Database were used as inputs to a predictive acoustical model to quantify outdoor noise emission associated with the proposed Facility. Exhaust fan sound levels were based on mechanical specifications and engineering calculations. Packaged Heating Ventilation and Air-Conditioning units (HVAC) were modelled based on provided manufacturer data. Since the standby generator make and model number were not available at the time of this analysis, sound levels for the generator were assumed based on the sound data for a stage 1 environmental enclosure for a similarly sized unit. Noise emissions from Bay Doors were estimated based on sound level measurements of idling buses, pressure washers, and an impact wrench taken on July 11, 2013. Sound level measurements were inputted into a spreadsheet model of the indoor configuration of each of the respective bays. Accounting for sound emissions, indoor reflections, and acoustic absorptions, noise emitted through bay doors was calculated. Based on the approximate dimensions of the doors, directivity patterns were applied to the sound emissions. Emissions from the bus route were based on sound level measurements of bus pass-bys with and without acceleration. Estimated sound level emissions used these composite bus noise emissions, estimated speeds, distances travelled, and worst-case predicted number of buses travelling the route. Refuelling of the buses was modelled based on sound levels from the DEFRA Construction Noise Database. The modelled source level was noted in the DEFRA database as a “Fuel Tanker Pumping.”

Based on information from TTC personnel, preliminary noise modelling has assumed two potential worst-case scenarios, described briefly below:

- 3 a.m. – Storage Bay at capacity, all HVAC at capacity, the Repair Bay at capacity, Wash Bays operational, all Bay Doors open, and minimal bus traffic
- 6 a.m. – 103 buses exiting the facility, HVAC and bays operating at reduced capacity (approximately 25% of HVAC and Exhaust Fans operational over the given worst-case hour)

Maximum capacity emissions for each of the Bays are based on the following assumptions:

- Approximately 50 buses idling per bay (the Storage Bay is split into four bays oriented north / south, and one bay intersecting these bays and the Wash Bay, to the east, oriented north / south)
- Wash Bay – Two buses being washed at a time, on average, for the entire worst-case hour
- Repair Bay – Approximately 15 buses idling, as well as a pressure washer and impact wrench each operating in worst-case locations for a total of 10 minutes per hour

In addition to the above operations, a 10 minute idling policy will be in place, meaning that buses will idle for a maximum of 10 minutes per worst-case hour. Maximum capacity emissions for the bus route were estimated based on a speed of 20 km/hr. Standby generator testing will be limited to daytime only testing. In addition to the two worst-case maximum capacity scenarios, an additional daytime, regular operations scenario was considered.

Unmitigated noise impacts were predicted to exceed NPC-300 requirements. A noise mitigation plan has been developed, which includes the following:

- HVAC
 - Rotate all HVAC such that the louvres face north and/or east
- Storage bay doors and bus exit route
 - A canopy over top of the Storage Bay doors
 - Must be free of gaps or cracks, and must be a minimum of 10 kg/m²
 - A 5 m high noise barrier along the western property line, between the Storage Bay doors and Mon Shoeng Long-Term Care Facility to the west
 - Must be free of gaps or cracks, and must be a minimum of 20 kg/m²
- Standby generator
 - Testing to be conducted during daytime hours only
 - An acoustic enclosure (stage 1 or better)
- Transpired Solar Collector HVAC outdoor air inlets
 - Relocate to the east of the Facility, eliminate, or silence
- Bus entrance route
 - Divert to northern entrance
- Maintenance bay doors on western façade
 - Keep shut at night

Mitigated noise impacts modelled ambient noise, and resulting compliance were evaluated at all surrounding noise sensitive areas for the daytime, 3 a.m., and 6 a.m. periods, respectively. Results are summarized in **Table 5-6**. The location of each receptor is shown on **Figure 5-2**. With the inclusion of the recommended mitigation measures, noise impacts are predicted to meet NPC-300 sound level requirements at all noise sensitive receptors.

Table 5-6: Predicted Mitigated Noise Levels – Normal Operations

Receptor No.	Time Period	Predicted TTC Facility Sound Level [1]	Guideline Limit [1]	Excess Over Guideline [2]
R1	Daytime (7 am – 11 pm)	33 - 55	57 - 66	0
	Night-time, 3 am	29 - 49	46 - 55	0
	Night-time, 6 am	33 - 49	53 - 62	0
	Daytime (7 am – 11 pm)	48	61	0
	Night-time, 3 am	n/a	n/a	0
	Night-time, 6 am	n/a	n/a	0
R2	Daytime (7 am – 11 pm)	27 - 50	57 - 66	0
	Night-time, 3 am	22 - 45	45 - 56	0
	Night-time, 6 am	26 - 44	47 - 63	0
R3	Daytime (7 am – 11 pm)	41	65	0
	Night-time, 3 am	39	55	0
	Night-time, 6 am	39	62	0
R4	Daytime (7 am – 11 pm)	44	57	0
	Night-time, 3 am	n/a	n/a	0
	Night-time, 6 am	n/a	n/a	0
R5	Daytime (7 am – 11 pm)	42	58	0
	Night-time, 3 am	43	48	0
	Night-time, 6 am	41	55	0
R6	Daytime (7 am – 11 pm)	43	66	0
	Night-time, 3 am	n/a	n/a	0
	Night-time, 6 am	n/a	n/a	0
R7	Daytime (7 am – 11 pm)	50	58	0
	Night-time, 3 am	n/a	n/a	0
	Night-time, 6 am	n/a	n/a	0
R8	Daytime (7 am – 11 pm)	46	63	0
	Night-time, 3 am	51	52	0
	Night-time, 6 am	47	60	0
R9	Daytime (7 am – 11 pm)	47	59	0
	Night-time, 3 am	n/a	n/a	0
	Night-time, 6 am	n/a	n/a	0
V1	Daytime (7 am – 11 pm)	-88	57	0
	Night-time, 3 am	n/a	n/a	0
	Night-time, 6 am	n/a	n/a	0

Note:

- All values are L_{eq} (1-hr) sound exposures measured in dBA unless otherwise noted.
- [1] Values represent the range of predicted sound levels over the exposed façade
- [2] Excesses shown are calculated by subtracting the location-specific guideline limit from the corresponding location-specific facility sound level.

While the vacant lot located to the east of the proposed MBG is zoned for M, MG, and MS heavy and special industrial uses, including chemical manufacturing and metal smelting, the allowed uses also include educational facilities, daycares and places of worship. There have been no uses announced for the lot, and there are no current building permits for construction of any use at this location. The modelling results presented above, conducted in accordance with NPC-300 requirements, show noise levels at the modelled VLSR location to be in compliance with the guideline limits. The future construction of any of the allowed noise-sensitive uses on the lot would be subject to Site Plan Approval from the City, and would require a noise impact assessment to be conducted for the proposed use. The TTC will work with any future developer of the property, though the City's Site Plan Approval process and through the MOECC's Environmental Compliance Approval process to ensure that compliance with the noise guidelines is maintained should a future noise sensitive use be proposed and installed at the lot.

Figure 5-2: Location of Receptor



There are no applicable guidelines for assessing the increases in road traffic noise due to traffic from an industrial-type facility. In the absence of specific requirements, this assessment has considered both the MOECC *Guideline for Noise and Vibration Assessment of Transit Projects* and the *Noise Guidelines for Landfill Sites*. Under both guidelines, changes in sound levels due to the increase in bus traffic are unlikely to create an adverse effect. Neither guideline would

require investigation of noise mitigation measures or changed to the selected route. Therefore, it is concluded that the additional bus traffic on local roadways will not result in impacts at off-site receptors.

Refer to **Appendix F** for the Environmental Noise Assessment Report for more details.

5.3.6.2 Noise during Construction

Construction noise is temporary in nature and varies depending on the type of construction equipment and processes used, and the time of day that the construction will take place. During construction, the Contractor will be required to abide by the City of Toronto noise control bylaws and will be responsible for employing Best Management Practices to control and minimize noise generated by construction activities, which include such measures as:

- Equipment will be maintained in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts.
- Idling of equipment will be restricted to the minimum necessary to perform the specified work.
- Any initial noise complaint will trigger verification that the general noise control measures agreed to are in effect. In the presence of persistent noise complaints and subject to the results of a field investigation, alternative noise control measures may be required, where reasonably available.

Measures to mitigate construction noise will be finalized during the design stage.

5.3.6.3 Guideline D-6

Refer to **Section 5.3.2** for details on MOECC Guideline D-6. While the Mon Sheong Long-Term Care Facility lies within the Recommended Minimum Setback Distance from the proposed MBG, Guideline D-6 is clear that the Minimum Setback Distance is a recommendation only. Section 4.10 of the Guideline allows for development to occur within the minimum setback for “redevelopment, infilling and mixed use” areas. This project would qualify as redevelopment or infilling since the land is already zoned as industrial rather than re-zoning of the lands. In such cases, Section 4.10 of the Guideline requires that a detailed assessment be conducted to show that the relevant noise guidelines are met (in this case, MOECC Publication NPC-300, the successor guideline to former MOE Publication LU-131). The detailed analyses presented in the subsequent sections of the EPR show that this is the case. Thus, the minimum setback requirements of Guideline D-6 have been addressed.

5.3.7 Landscaping

The landscape components for the project will include perimeter landscaping in the form of drought tolerant native tree and shrub species. The primary focus will be placed along the western boundary of the site to provide screening along the future Redlea Avenue and to buffer

the development from the neighbouring properties to the west. Additional landscape planting areas will be provided along McNicoll Avenue to enhance the street view of the facility and to integrate with the existing streetscape. In addition, opportunities for landscape treatments adjacent to the woodlot on the south side of the proposed employee parking area and along the north edge of the site (to provide buffering to the adjacent watercourse) will be investigated during the detail design stage.

5.4 Cultural Environment

The results of the Stage 1 Archaeological Assessment indicate that, while some of the lands within the site appear to have been disturbed by past development, much of the site has archaeological potential. This is based on the presence of historic homesteads, the proximity of historic roads, and certain physiographic features of the site and surrounding area. As such, a Stage 2 Archaeological Assessment was conducted on the proposed MBG site. The assessment consisted of both the pedestrian survey of ploughed fields and the test pitting survey of forested and scrub lands that could not be ploughed. The results of the Stage 2 Archaeological Assessment revealed that the some of the subject property consisted of disturbed or graded lands associated with previous construction / infill activities. No archaeological resources were found as a result of the Stage 2 assessment. As such, the proposed MBG site is considered cleared of further archaeological concern. The following recommendations are offered:

- In the event that deeply buried archaeological remains are encountered on the property during construction activities, the Heritage Operations Unit of the Ministry of Tourism, Culture and Sport, be notified immediately at (416) 314-7146 as well as the City of Toronto, Heritage Preservation Services Unit (416) 338-1096.
- In the event that human remains are encountered during construction, the proponent shall immediately contact both the Ministry of Tourism, Culture and Sport, and the Registrar or Deputy Registrar of Cemeteries at the Cemeteries Regulation Unit, Ministry of Government Services, (416) 326-8393.
- If any expansions to the boundaries of the subject property are proposed, further archaeological assessment work may be required.

Refer to **Appendices F and G** for the Stage 1 / 2 Archaeological Assessment Reports for more details.

The tree survey undertaken as part of this study identified one English Oak (*Quercus robur*) located on the southern edge of a small forested area along the western property boundary (refer to **Figure 4-12**). It is 29 cm in diameter, and is in good health. It was brought from Vimy Ridge during World War II and planted by a war veteran. As such, it is considered to have cultural importance and will be preserved.

5.5 Consideration of Potential Cumulative Effects on the Environment

The MBG is not anticipated to result in any notable cumulative effects to the natural, socio-economic or cultural environments within and adjacent to the site.

With respect to the natural environment, there is no significant aquatic or terrestrial habitat identified within or adjacent to the site. The site is considered to contain natural values that are typical of abandoned agricultural lands. The removal of vegetation on the site is a localized impact and is not expected to result in broader reaching cumulative impacts (i.e. at a watershed or ecosystem level).

The effects on stormwater management are also considered to be localized to the bus garage site as design measures are proposed to mitigate the increase in permeable surface and manage drainage on site (as outlined in **Section 5.2.3** of the EPR).

With respect to air quality and noise, an examination of potential cumulative effects is built into the assessment methodology. The noise and air quality assessments examined both ambient (background) existing and future conditions in combination with the localized effects associated with the development of the MBG. The cumulative noise effects are localized to the bus garage site and are proposed to be mitigated through design measures for the facility. With respect to air quality, the air quality assessment identified that the MBG will result in a negligible change to provincially / federally regulated threshold contaminant levels (AAQS and CWS).

5.6 Consideration to Climate Change

The Government of Ontario approved the Transit Priority Statement in 2008, which discusses the need for expanded public transit infrastructure. Public transit is identified as a priority to relieve traffic congestion, reduce greenhouse gas emissions and support sustainable urban development. At a regional level, addressing the need to increase the TTC's bus fleet and bus garage capacity has a significant positive effect in reducing the number of single occupant vehicles on roadways within the Greater Toronto Area, and associated greenhouse gas emissions. In addition, the TTC has been steadily 'greening' the bus fleet over recent years including the introduction of Hybrid and Biodiesel buses which reduce greenhouse gases emissions and provide air quality benefits relative to conventional buses.

The design of the MBG will adopt green design measures to achieve improved energy efficiency over the current Ontario Building Code and positively contributes to managing climate change. The facility will be built to Toronto Green Development Standard (TGDS), which is a 2-tier set of performance measures, with supporting guidelines for new development. The purpose of the TGDS is to promote sustainable site and building designs that address Toronto's urban environmental pressures: air quality, climate change and energy efficiency, water quality and efficiency, ecology and solid waste (above and beyond the current Ontario Building Code).

6.0 CONSULTATION

6.1 Overview of Consultation Process

Chapter 6 outlines the consultation carried out during the Preliminary Planning phase and during the formal TPAP. An extensive consultation process was undertaken to assist in the planning and impact assessment process for the McNicoll Bus Garage (MBG) project. The consultation process was designed to address the requirements of *Ontario Regulation 231/08*.

During the Preliminary Planning phase, a letter was sent to MOECC EAAB Director requesting input for aboriginal communities consultation. The general public and property owners were able to choose their level of involvement from one or more of the following options:

- Public open houses; and/or
- Contacting the project team directly.

At the public open houses, information about the project was presented on display panels arranged in sequence in a public meeting place. Project staff was available at the open houses to answer directly any questions or concerns raised by a member of the public. Two public open houses were held during the preliminary Planning Phase and a third open house was held during the TPAP.

Details of the consultation process are presented in the following sections.

6.2 Notice of Commencement

The TPAP was launched on January 29, 2015. The TPAP included a public open house held on February 5, 2015 (refer to **Section 6.4.3** for more information on this public open house).

6.3 External Agency and Aboriginal Consultation

6.3.1 External Agency Consultation

The following federal and provincial ministries and agencies, municipality, emergency services providers and interest groups were consulted:

Government

- Aboriginal Affairs and Northern Development Canada
- Ministry of Aboriginal Affairs
- Ministry of the Environment and Climate Change
- Ministry of Natural Resources and Forestry
- Ministry of Tourism, Culture and Sport

- City of Toronto (Planning and Transportation)
- City of Toronto EMS
- City of Toronto Fire Services
- Toronto Police Service
- Toronto Public Health

Elected Officials

- Arnold Chan, MP, Scarborough – Agincourt
- Soo Wong, MPP, Scarborough – Agincourt
- Jim Karygiannis, Councillor, Ward 39 Scarborough-Agincourt
- Mike Del Grande, Toronto Catholic District School Board, Trustee Ward 7 and Chair Scarborough-Agincourt
- Shaun Chen. Toronto District School Board- Trustee Ward 21 and Chair

Interest Groups

- Metrolinx / GO Transit
- Toronto and Region Conservation Authority
- Toronto Catholic District School Board
- Mary Ward Catholic Secondary School
- Toronto District School Board
- CN Rail
- Heathwood Ratepayers Association
- Mon Sheong Foundation
- Bamburg Gate Manor Condominium Complex
- Scarborough Chinese Baptist Church
- Enbridge Gas Maintenance Yard

Utilities

- City of Toronto Water
- Hydro One Inc.
- Union Gas Limited
- Sarnia Products Pipe Line / Imperial Oil
- Sun-Canadian Pipe Line Company Ltd.
- Trans Northern Pipelines Inc.
- Bell Canada
- Rogers Communications
- Enbridge Inc.
- Toronto Hydro

- Allstream
- Cogeco Data Services
- Beanfield Technologies Inc.
- Enwave Energy Corporation
- Telus

In addition, the TTC undertook the following consultation activities with representatives for various external agencies and interest groups (**Table 6-1**):

Table 6-1: Consultative Activities Undertaken with External Agencies and Aboriginal Communities during the Study

Date	Agency Consulted / Consultation Activity	Purpose
March 18, 2013	Construction notice for borehole testing	Informed the community of the drilling activity on the site
April 19, 2013	Door to door visits to adjacent businesses	Provided high level information on the project and advised of upcoming soil testing on the site
October 21, 2013	Aboriginal communities, Ministry of Aboriginal Affairs and MOECC	Invitation to meet and/or provide additional project information prior to Public Open House #1
October 23, 2013	Mon Sheong Long-Term Care Facility and Mon Sheong Condominium Board Members – Property Management	Key stakeholder meeting in advance of the broader public meeting
November 4, 2013	Scarborough Chinese Baptist Church	Key stakeholder meeting in advance of the broader public meeting
March 3, 2014	City of Toronto	Provided updates on the project
March 6, 2014	Mon Sheong Long-Term Care Facility and Mon Sheong Condominium Board Members	Provided project updates and addressed specific issues
April 11, 2014	Scarborough Chinese Baptist Church	Provided project update since the last meeting and addressed questions related to traffic and access into the facility
April 22, 2014	TRCA	Reviewed waterway and TRCA requirements
April 23, 2014	Aboriginal communities, Ministry of Aboriginal Affairs and MOECC	Invitation to meet and/or provide additional project information prior to Public Open House #2
May 21, 2014	Mon Sheong Long-Term Care Facility and Mon Sheong Condominium Residents	Provided project updates and addressed questions
May 26, 2014	Scarborough Chinese Baptist Church	Reviewed the MBG design to date

Date	Agency Consulted / Consultation Activity	Purpose
May 27, 2014	Bamburgh Gate Condominium Residents	Provided project details and addressed questions
July 23, 2014	TTC Board Meeting	The draft EPR was delivered to the TTC Board and received public deputations. The Board voted to accept recommendations.
August 7, 2014	Planning and Growth Management Committee	The draft EPR was delivered to the Planning and Growth Management Committee and received public deputations. Committee voted to defer to next meeting.
August 28, 2014	City Council Meeting	<p>City Council direct the following:</p> <ul style="list-style-type: none"> • CEO to report back to the TTC Board to demonstrate that MOECC requirements have been met, as well as provide feedback on the consultation with Toronto Public Health; • Provision of a green roof in excess of Toronto Green Standard requirements; • Maximizing tree canopy on site; • Minimizing or eliminating storm-water runoff from the site; • Installation of rooftop photovoltaic cells; • Consult with the public on perimeter landscape design and other opportunities to enhance the building exterior; and • Hire a third party consultant with cultural competencies for consultations on: <ul style="list-style-type: none"> ○ Enhanced architectural features for delineating the new bus garage from the other nearby users ○ Ways to better integrate the bus garage into the neighbourhood; ○ Communications to the larger community on the true benefits of improved transit service; and ○ Other outreach measures into the surrounding communities. <p>The TTC will comply with all requests.</p>
November 17, 2014	Board of Health	<p>The motion that the Medical Officer of Health assess the health impact of the MBG on the neighbourhood population based on best available evidence from both the TTC and the community, and provide his findings to the Toronto Transit Commission and the community was carried forward.</p> <p>The TTC defers the launch of TPAP to allow Toronto Public Health to complete this assessment and provide its findings to the TTC and the community.</p>

Table 6-2 presents a brief summary of the comments received from some of the key stakeholders during the study. A correspondence log is included in Appendix I. Attachments associated with comments and responses received are also included in Appendix I.

Table 6-2: Comments Received from Key Stakeholders

Comment	Response
Supportive of the project because of job creation.	Support noted.
Requested that no through bus traffic be allowed in the residential Heathwood Community.	Request noted.
Concerns regarding above ground diesel tanks and their proximity to the adjacent GO Transit rail line.	<p>Although the facility is located in close proximity to the GO Rail corridor, the track alignment in the vicinity of the facility runs straight without any crossovers or switches. Straight track presents the least risk for train derailments compared to special track work. In addition, trains are not anticipated to travel past the facility at full speed. The probability of a derailment at the site is extremely unlikely. The design of the facility will follow the GO Rail guidelines (i.e. regarding minimal setback requirements).</p> <p>The risks associated with storing diesel fuel on site are far lower than what has been suggested:</p> <ul style="list-style-type: none"> • Flash point of diesel is much higher (+38°C) than that of gasoline (-43°C) or propane (-98°C) which can burn or explode much more easily. • Storage tanks will be double-walled and continuously monitored for leaks. • Storage tanks will be protected by appropriate concrete structures. • Storage tanks will meet all applicable safety standards. • Storage tanks will be set back from the GO rail line, exceeding all minimum setbacks.
The future Redlea Avenue extension should be built wide enough to accommodate buses in and out of the facility.	The Redlea Avenue extension is a separate study. The design of the Redlea Avenue extension is not within the scope of this study.
Redlea Avenue from Steeles Avenue or Finch Avenue should be the preferred north / south access route together with McNicoll Avenue.	Noted.
Are there any plans for a crosswalk or signals at the future Redlea Avenue extension to accommodate the pedestrian movement at the church property?	The City of Toronto will not be able to investigate the pedestrian movement in this area before Redlea Avenue is fully operational.
Concerns regarding the future Redlea Avenue extension not designed to accommodate a high volume of buses and heavy vehicles.	The future Redlea Avenue extension will be a 3-lane urban cross-section collector road with a shared 2-way centre left-turn lane, as per the Environmental Assessment Study approved by MOECC. Typically, collector roads can expect to carry traffic volumes in the range of 1,000-12,000 vehicles per day which is in keeping with the projections for the future Redlea Avenue extension.

Comment	Response
<p>It is the TCDSB's preference that, with respect to the safety of pedestrians and drivers safely entering and leaving the Mary Ward school site, vehicular access to the TTC property be provided via an extension of Redlea Avenue, or alternatively, directly from McNicoll Avenue.</p>	<p>Noted.</p>
<p>Concerns regarding how the residents would be evacuated if there were ever an explosion at the facility.</p>	<p>In regards to safety, the TTC is building a safe facility, meeting all environmental and safety guidelines.</p> <p>The TTC has bus facilities beside many residential areas and has bus routes that run beside long term care homes, residents, and hospitals, with much higher bus volumes and have had no issues, such as at Dufferin and Eglinton, where two of the busiest bus routes in the city are located.</p> <p>Toronto Public Health (TPH) was being consulted and all the reports reviewed the TTC's reports.</p> <p>Long term care facilities are required by law to have evacuation plans in the event of an emergency. Evacuation of a building is undertaken by trained emergency personnel such as Toronto Fire, Police and Medical Services. If requested by Emergency Services, the TTC would make its buses available for temporary shelters as it has done in other cases.</p>
<p>Design of the facility and how it might impact the view from the upper levels of the Long-Term Care Facility.</p>	<p>The landscape components for the project will include perimeter landscaping in the form of drought tolerant native tree and shrub species. The primary focus will be placed along the western boundary of the site to provide screening along the future Redlea Avenue and to buffer the development from the neighbouring properties to the west.</p>
<p>Concerns regarding noise impacts.</p>	<p>As part of this TPAP, a noise assessment was undertaken. With the inclusion of the recommended noise mitigation, noise impacts are predicted to meet MOECC sound level requirements in all noise-sensitive locations. Refer to Section 5.3.3 for more information.</p>
<p>Traffic impact to intersections.</p>	<p>As part of this TPAP, a traffic impact study was undertaken. The MBG will generate relatively low traffic activity during peak periods on the adjacent road network (entering and exiting the facility off peak periods) and the addition of site traffic onto the network only accounts for a minor incremental change in the total traffic volume resulting in a negligible impact to the local road system. Refer to Section 5.1 for more information.</p>
<p>Concerns regarding air quality and health effects associated with diesel buses.</p>	<p>This project is subject to the TPAP which includes reports on air quality assessment. Findings suggest that</p>

Comment	Response
	no unacceptable health risks related to emissions from the proposed bus garage would be expected. In fact, estimated emissions from the proposed project represent a minimal to negligible contribution to the overall cumulative exposures for each of the chemicals of concern predicted for the sensitive receptor locations around the proposed facility. Refer to Section 5.3.2 for more information.
Requested a site visit to one of TTC's existing bus garages to understand the operations	Request noted.
Inquired why this site was chosen (surrounded by senior residences and condominium buildings) and suggested that this project is contrary to the objectives of the Provincial policies and City Official Plan.	<p>The TTC confirmed that the site is properly zoned "Heavy Industrial" which permits the use of a transit facility. It is appropriately sized and situated in an area serviced by buses. This strategic location helps reduce deadhead time which will result in cost savings that can be channelled back into improving service, including north east Scarborough.</p> <p>The proposed site was the only suitable, available site at the time of purchase. The TTC is unaware of an alternate suitable site that would meet the current schedule. Considering a site further from the routes that are being serviced would increase dead-head time and operating costs.</p> <p>With respect to the objectives of the Provincial policies and City Official Plan, the TTC is proposing to place an employment use in lands designated for employment uses. Furthermore, there are many policies in the City of Toronto's Official Plan that support the provision of good public transit. Ancillary facilities like the MBG are required to achieve this goal.</p>
Question the need for a bus garage if Scarborough gets a subway.	The facility will still be required. The TTC is currently operating over capacity, and with continued ridership growth, the need for the additional bus garage will still be required. Also there will be an additional requirement for buses to feed into the subway system.
Concerns regarding pedestrian safety.	Traffic requirements are governed by provincial regulations. Pedestrian right-of-way is regulated by the City of Toronto. The addition of site traffic onto the network only accounts for a minor incremental change in the total traffic volume on the road system. The facility does not anticipate to negatively impacting pedestrian safety. In addition, the TTC conducts safety audits and training prior to initiation of any contract and the TTC operators undergo recertification every five years in the operations of buses and every three years for streetcars. The TTC will assess potential dangers and implement

Comment	Response
	safety procedure to address the concerns.
Suggestion to follow a full Environmental Assessment.	The TTC has consulted with MOECC and it was confirmed that the TPAP is the proper channel for this project. Furthermore the Project Team received direction from the TTC Board and City Council in August 2014 to proceed with the TPAP. Requirements outlined in the Ontario Regulation 231/08 which is approved under the <i>Environmental Assessment Act</i> , will be fulfilled as part of the TPAP.
Suggestion to protect the McNicoll Avenue corridor for senior services.	Although this falls outside of the TTC's area of responsibility, the TTC will comply with all zoning and regulatory requirements for this project.
Concerns that this project does not take into account the plans for GO Transit (the Downtown Relief Line).	Initially, the TTC was unaware that the Province was protecting these lands for future GO electrification. The TTC has since engaged Metrolinx through the course of this study.
Inquired if this project is compatible with Policy 104.	This concern will be best addressed by the Province and City Planning.
The proposed MBG site is prime real estate – consider alternate sites / options.	<p>A new search would result in delays amounting to \$13 million annually. Notwithstanding this, the TTC has reviewed your suggestions for alternate site and offers the following comments:</p> <p>Co-develop the garage with the new Scarborough Subway: A large bus garage is not a suitable facility to locate near a rapid transit terminal station – it would reduce the ability to intensify the station with transit-support development and would be consistent with the City's development goals. In addition the lengthy time required to consult, approve and design any subway extension would significantly delay the construction of a co-located garage.</p> <p>Move it to another city-owned location: City of Toronto works yard is not feasible as these sites are generally not large enough for the needs.</p> <p>Buy / build alongside the CP Rail yard facility: The property along Markham Road is not currently on the market. The City cannot expropriate from a federally-regulated railway. Former railway lands can be significantly contaminated, which would substantially increase the cost of making any railway property suitable. The location is too far east to be optimal from a deadhead point of view.</p> <p>Remodel an existing garage: Converting an existing garage would likely require that the garage be shut down completely during construction. In order to facilitate the construction, a maintenance facility would be required in</p>

Comment	Response
	the interim – it would be challenging to find a big enough space. Construction costs would also be higher.
<p>Inquiry about if anticipated traffic created by new condo developments in the area were taken into consideration for the traffic impact study undertaken as part of this study.</p>	<p>Traffic volumes associated with the new condo development was not specifically incorporated in the analysis as no traffic report in support of the development has been provided. The forecast in the traffic study was based on traffic volumes on Redlea Avenue derived from the Redlea Avenue and Silver Star Boulevard Extensions Class Environmental Assessment report by Read, Voorhees & Associates (January 2006). This study included anticipated population and employment projections from developments in the area by their ultimate horizon year.</p>
<p>Inquiries regarding the articulated buses (make, model, number, accident rates, etc.).</p>	<p>The TTC purchased 153 articulated buses (Nova Bus's LFS Artic 9000). The use of 60-foot Articulated Low Floor Buses in place of 40-foot Low Floor Buses will result in better service through increased capacity.</p> <p>With respect to accident rates, the TTC's rate of bus collisions has remained relatively stable year after year. As of the end of 2014, the TTC Total Bus Collision Rate was 36.1 collisions per million miles which is comparable to large urban public transit agencies in North America. The TTC does not distinguish between its 40ft and articulated buses in its collision statistics. However, we have not seen an increase in the bus collision rate since the introduction of the articulated buses.</p> <p>The precise number of articulated buses and standard bus to be stored and maintained at the MBG will be known closer to the completion date when routes being served are finalized. Ridership numbers in the area will certainly factor into this decision. The facility will have a capacity for 250 40 feet buses.</p> <p>Although articulated buses are 60 feet long, they have similar operating characteristics (including turning radius) as the 40 feet buses. They are able to service the same city streets as the 40 feet buses and thus TTC does not anticipate issues operating them on Redlea Avenue.</p>
<p>What are the steps that TTC has taken, are taking and will take to ensure that the proposed MBG will be completed within the approved budget and within the projected time frame?</p>	<p>Construction of the MBG is scheduled to begin in 2016 and be completed in 2019. The TTC has a rigorous tendering process which prequalifies suitable contractors based on such criteria as past work, bonding, safety performance and size. The successful bidder is bound by a lump sum price and a fixed number of days to complete the work. Breach of the contract may be subject to a number of actions including daily financial penalties, poor performance reviews, which would impact future</p>

Comment	Response
	opportunities with the TTC, and in the event of extreme violations, removal from the project. These performance requirements and penalties apply throughout the life of the contract – the only instance where adjustments to costs and/or schedules are made is when unforeseen circumstances (i.e., conditions that are not known at the commencement of construction) are uncovered during the execution of the project.

Refer to **Appendix I** for all relevant correspondence with stakeholders.

6.3.2 Aboriginal Consultation

The following aboriginal communities were consulted as part of this study:

- Métis Nation of Ontario
- Mississaugas of Scugog Island First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Mnjikaning First Nation
- Hiawatha First Nation
- Beausoleil First Nation
- Alderville First Nation
- Curve Lake First Nation
- Williams Treaties First Nations
- Kawartha Nishnawbe First Nation
- Huron Wendat Nation

Refer to **Table 6-1** for consultation with the aboriginal communities during the study and **Table 6-3** presents a brief summary of the correspondence with the aboriginal communities during the study.

Table 6-3: Comments Received from Aboriginal Communities

Aboriginal Community	Comment	Response
Hiawatha First Nation	Acknowledged receipt of public open house invitations and advised that this project has minimal potential to impact First Nation Rights. Requested to be kept updated of future meetings and progress. Also requested archaeological reports.	Contact kept on the mailing list and reports will be provided as soon as available
Alderville First Nation	Acknowledged receipt of public open house invitations and advised that project has minimal potential to impact First Nation Rights. Requested to	Contact kept on the contact list.

Aboriginal Community	Comment	Response
	be kept updated on project.	
Chippewas of Rama First Nation	Acknowledged receipt of public open house invitations and advised that copy has been forwarded to their lawyer, Sandy-McKenzie. Future correspondence should be directed to her with a copy to Rama First Nation.	Contact list updated to include Sandy-McKenzie.
Curve Lake First Nation	Acknowledged receipt of the Stage 1 and Stage 2 Archaeological Assessment Reports.	The Project Team will notify Curve Lake First Nation if there are any unforeseen environmental concerns, however none is anticipated.
Six Nations Council	Acknowledged receipt of Stage 1 and Stage 2 Archaeological Assessment Reports.	The Project Team will notify Curve Lake First Nation if there are any unforeseen environmental concerns, however none is anticipated.
Mississaugas of Scugog Island First Nation	Mississaugas of Scugog Island First Nation have no issues pertaining to the project and while the project location is within Williams Treaty Clause 2 lands and while the Williams Treaty is currently being litigated in the Federal Court of Canada, the litigation does not involve or give us any ability to impede such processes as this one. And given that the location is within heavily settled urban lands we have no issues other than from an archaeological perspective which you have documented as having no historic or archaeological potential.	Contact was kept on file for future consultation purpose, if necessary.
Mississaugas of the New Credit First Nation (MNCFN)	MNCFN has no outstanding environmental or archaeological concerns regarding the proposed project. I would like to reiterate MNCFN's policy that our First Nation is properly engaged during planning and development activities within the traditional territory. It is also MNCFN policy that our trained Field Liaison Representatives are permitted to participate during environmental and archaeological assessments. This should have included the Stage 2 property assessment conducted by URS Canada Inc. We would hope that you bear this in mind for future developments in which you may be involved.	The TTC will certainly consider MNCFN's involvement in future developments.

6.4 Public Open House

6.4.1 Public Open House #1 (during Pre-Planning)

On November 27, 2013, the TTC held its first Public Open House for the construction of the new MBG at the Kennedy Public School from 6:30 p.m. to 8:30 p.m. Approximately 40 individuals attended the first Public Open House. The event was promoted as follows:

- 3,000 notices distributed via Canada Post to an area bound by Passmore Avenue, Midland Avenue, Finch Avenue East and Morebank Avenue.
- Flyer posted on the TTC project website – proj.ttc.ca.
- Ad in the local paper (Scarborough Mirror November 21, 2013).
- Chinese and English Notices sent to Scarborough Community Baptist Church for its congregation.
- Chinese and English Notices sent to Mon Sheong Foundation for the Long-Term Care Facility and the condo complex.
- Chinese and English Notices sent to the property manager at the Villa Elegance condominium at 1833 Kennedy Road.
- Email blast and mailing to all properties on the project mailing list (from past personal visit by the Senior Community Liaison Officer).

Local stakeholders were consulted in advance of the meeting and encouraged to promote the event through their networks. The local Councillors office, MPP and MP were also informed of the event and encouraged to participate.

TTC presented information panels showing the preliminary plans for the facility including details on location, layout, operations and schedules. Comments and suggestions collected through evening have been channelled through the Senior Community Liaison Officer (CLO) to the project team for review and action. Key comments received at this Public Open House include the following:

Table 6-4: Comments Raised at the First Public Open House

Comment	Response
Reconsider the development of the current site – residential or commercial development seems more suitable for this community.	The facility is permitted under the current zoning of the site.
Future notices should include a map to the Public Open House venue.	This suggestion was incorporated for future public notices.
Inquiry if the City has to consult with the community and obtain	Because a bus garage is permitted under the current zoning, consultation and permission regarding zoning is not required.

Comment	Response
permission prior to the construction of the facility.	
Concerns regarding air quality, traffic operations, noise, pedestrian safety, and existing woodlot were raised.	Refer to Chapter 5 for information on the potential impacts and the proposed mitigation measures.
This project should be subject to a full environmental assessment and not just the TPAP.	The TTC has consulted with MOECC and it was confirmed that the TPAP is the proper channel for this project. Furthermore the Project Team received direction from the TTC Board and City Council in August 2014 to proceed with the TPAP. Requirements outlined in the Ontario Regulation 231/08 which is approved under the <i>Environmental Assessment Act</i> , will be fulfilled as part of the TPAP.
Would the community have any input in the design?	The TTC is working with adjacent property owners who will look onto the facility. Comments will be considered by the designer. The facility will be built to Toronto Green Development Standards.
What precautions are being taken to ensure public safety from the fuel tanks?	<p>Above ground tanks are safer when it comes to detecting fuel leaks and thus pose a low environmental risk. Slow leaks of petroleum products can lead to major environmental contamination, leading to costly clean up and remediation.</p> <p>The tanks used by TTC have double steel walls (sealed tank within another sealed tank) and are fire rated. If the primary tank was to develop a leak, it would be safely contained within the secondary tank. The space between the tanks contains a vacuum and is equipped with a fuel leak detection system, so any perforation of the primary tank is quickly detected. Tanks have a two-hour fire rating. This rating protects the tank contents from fire for a minimum of two hours, which will provide time for Emergency Services to respond in the event of a fire. Tanks have also passed impact-testing will be protected with a combination of jersey barriers and bollards. All tanks are ULC- approved fire rated.</p>
Where will buses enter and exit the facility?	The buses will enter and exit the facility from the future Redlea Avenue extension.
Will the TTC be sharing parking facilities with the adjacent Scarborough Community Baptist Church?	The TTC has not entered into any formal discussion or agreements related to shared parking with the Scarborough Community Baptist Church. There are no plans to pursue such an arrangement at this time.
When will the buses operate?	Most activities (bus entering and exiting) will take place during off peak hours. The facility will operate 24/7.
What types of buses will be maintained at the facility?	The facility will be equipped to service both conventional and articulated buses.
What is the status of the Redlea Avenue extension?	Construction is anticipated to begin in 2014 and complete in 2015.

Refer to **Appendix J** for the Consultation Summary Report for the first Public Open House for more details.

6.4.2 Public Open House #2 (during Pre-Planning)

On May 14, 2014, the TTC held the second Public Open House for the construction of the new MBG at the Kennedy Public School from 6:30 p.m. to 8:30 p.m. Approximately 55 individuals attended the second Public Open House. The TTC extended an invitation to First Nations identified by the Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada, as potentially interested in projects within Toronto. The TTC presented information panels showing the preliminary plans for the facility, including details on location, layout, operations and schedule. The event was promoted as follows:

- Over 3,300 invitations / notices distributed via Canada Post to an area bound by Passmore Avenue, Midland Avenue, Finch Avenue East and Morebank Avenue.
- Consultation notice posted on the TTC project website – projects.ttc.ca.
- Chinese and English event notices were prepared and sent to key stakeholders in the community, including Scarborough Community Baptist Church for distribution to its congregation, Mon Sheong Foundation for the Long-Term Care Facility, Mon Sheong Condominium Complex (adjacent to project site) and the Bamburgh Gate Condominium.
- Notice was sent via e-mail blast and regular mail to all those on the project list. This includes individuals who attended previous meetings or have asked to be kept abreast of the project.
- Paid advertising in the Scarborough Mirror – May 8, 2014

Local elected officials were informed of the meeting and encouraged to promote the event through their own networks. Additional meetings with local stakeholders and adjacent property owners were held following the Open House. This provided an opportunity for the Project Team to identify and address property-specific concerns.

Comments and suggestions collected through evening have been channelled through the Senior CLO to the Project Team for review and action. A Senior CLO has been assigned to this project and will be the single point of contact for the community. This will ensure a timely response to queries related to this project. Key comments received at this Public Open House include the following:

Table 6-5: Comments Raised at the Second Public Open House

Comment	Response
<p>Inquired about the current zoning and concerned with the location of the proposed TTC bus garage.</p>	<p>The TTC confirmed that the site is properly zoned “Heavy Industrial” which permits the use of a transit facility. It is appropriately sized and situated in an area serviced by buses. This strategic location helps reduce deadhead time which will result in cost savings that can be channelled back into improving service, including north east Scarborough.</p> <p>The proposed site was the only suitable, available site at the time of purchase. The TTC is unaware of an alternate</p>

Comment	Response
	suitable site that would meet the current schedule. Considering a site further from the routes that are being serviced would increase dead-head time and operating costs.
Would the upcoming municipal election affect plans for this site?	The TTC staff take direction from its Board which includes members of Council.
Concerns regarding air quality, traffic operations, noise, pedestrian safety and employment growth in this part of the city.	Refer to Chapter 5 for information on air quality, traffic operations and noise. With regard to pedestrian safety, the TTC conducts safety audits and training prior to initiation of any contract. The TTC will assess potential dangers and implement safety procedure to deal with the concerns. With regard to employment growth, it is a matter that is best addressed by City Planning.
Any plans for bike lanes on the planned Redlea Avenue extension?	The design of the planned Redlea Avenue extension is not within the scope of this study.
Are there any plans to incorporate traffic lanes on Redlea Avenue?	The TTC is working closely with the City of Toronto and sharing the results of the Traffic Impact Study.
Will there be a Milliken GO Station connection?	The TTC is not aware of a future GO Station at this location.
Will there be a crosswalk or light signal on Redlea Avenue?	This will be determined by the City. The City will not be able to investigate pedestrian movement in this area before Redlea Avenue is fully operational. Only when warranted will the City Council approve a new crossing.
Will the facility include employee parking?	Yes, approximately 350 parking stalls are planned, subject to change as the design progresses.
Will there be a new traffic count after Redlea Avenue is built?	Traffic counts are undertaken by the City of Toronto on an as-required basis. Should there be a need for a study, one will be undertaken.
Will there be any hazardous materials transported on the CN / GO line?	This line is currently used as a passenger rail line for GO Transit.
Requests were made to present a landscape plan and 3D rendering of the proposed facility at the next Public Open House.	Requests will be taken into consideration for the next Public Open House.
Safety and traffic concerns regarding buses crossing at-grade rail crossings.	<p>Buses travelling between an operating Division and their assigned route may have to use a road that passes over a level railway crossing as do the many buses that provide scheduled transit service on these roads. As these level railway crossings employ audible and visual warnings and physical barriers to stop vehicular traffic when a train is approaching, TTC does not have safety concerns related to the crossing protection that is provided.</p> <p>From a traffic operations perspective, a level railway crossing is similar to a signalised intersection. Given the operating characteristics of trains (i.e. they require a very long distance to stop), they are detected far enough upstream of the crossing to allow the crossing protection system to provide an adequate visual and audible warning and to lower the gates</p>

Comment	Response
	<p>before the train reaches the level crossing enters the roadway.</p> <p>The impact of level railway crossings on a TTC Bus Operating Division would be no different than on any other land use that generates vehicular traffic in the vicinity of the level crossing. The traffic capacity of a road at a level railway crossing is determined by the number of trains using the level crossing, the length of the trains and the length of time between consecutive trains. As the bus and employee traffic generated by the proposed Bus Division would occur outside the peak traffic periods when traffic would be much lower, TTC does not expect that there would be traffic congestion at these railway crossings during these periods.</p> <p>Virtually all the bus and employee traffic generated by a TTC Bus Operating Division occurs outside the peak traffic hours when traffic volumes on the road network are much lower than during the peak traffic periods. Given the operating characteristics of TTC Bus Operating Divisions, there will be few buses entering or leaving the facility during the AM or PM peak traffic periods. The majority of bus traffic to and from the Division will occur outside the busy traffic periods. In the evening transit service is reduced only a few buses assigned to provide overnight transit service on the Blue Night Network remain on the street during the overnight period.</p> <p>Similarly most of the employee traffic generated by the facility would be outside the peak roadway traffic periods since most employees at such facilities are Bus Operators and Bus Maintenance employees whose shifts begin and end outside the peak traffic periods.</p>
Requested for copies of reports and studies associated with this study.	The TTC has completed a draft EPR which will be made available on the TTC website (www.ttc.ca).
Inquired if MOECC Certificate of Approval will be required.	The TTC will comply with all legislative requirements. It is anticipated that Environmental Compliance Approvals (former CofA) will be required from MOECC.
Inquired about the decision to change the entering / exiting route to/from the facility since the first public open house and concerned the decision was not made known to key stakeholder prior to the second public open house.	<p>Community consultation in the development of new transit infrastructure is a key aspect of the TPAP and the TTC's Good Neighbour Policy. Some changes incorporated into the design based on the community input include the relocation of the vehicle entrance / exit to the north side of the property off Redlea Avenue to increase the distance from adjacent noise sensitive areas.</p> <p>The public open houses provide equal opportunities for all interested parties and stakeholders to receive the information on the project to date. In addition to the public open houses, the TTC has been meeting with key stakeholders throughout the duration of the project at key project milestone.</p>

Refer to **Appendix K** for the Consultation Summary Report for the second Public Open House for more details.

6.4.3 Public Open House #3

On February 5, 2015, the TTC held the third Public Open House for the construction of the new MBG at the Mary Ward Catholic Secondary School. The purpose of this Public Open House was to identify potential impacts resulting from the project as well as mitigation measures which may be required. The Open House portion of the evening was held from 6:30 p.m. to 7:00 p.m., during which the TTC presented panels showing the preliminary plans for the facility, including details on location, layout, operations and schedule and description of how public feedback has resulted in improvements to the planned facility. The TTC staff as well as air and noise quality specialists were on hand for one-on-one conversations with participants. City staff from Planning and Transportation Departments also attended to address questions related to their areas.

The TTC delivered a presentation from 7:00 p.m. to 8:30 p.m. which was followed by a period for questions and answers. Given the number of Chinese-speaking residents adjacent to the project site, the TTC engaged the services of Cantonese and Mandarin speaking translators. Non-English speaking participants were provided headsets which allowed them to follow and participate in simultaneous translation of the presentation and the question and answer period. Approximately 150 individuals attended this event.

The TTC extended an invitation to First Nations identified by the Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada, as potentially interested in projects within Toronto. Invitations to the Open House were also extended to Provincial and Federal Departments who may have an interest in First Nation Consultations.

Prior to the public meeting, TTC met with Toronto Public Health and the Ministry of Environment and Climate Change to identify and address issues raised by the community. These were addressed by the project team and details were posted on the project site and shared with the community.

The event was promoted as follows:

- Notice of Commencement and Public Open House was advertised in two issues of the Scarborough Mirror – January 29 and February 5, 2015 as per the requirements of the TPAP.
- Notice of Commencement and Public Open House was also advertised in the Chinese local paper, Sing Tao on January 29, 2015.
- Over 4,000 invitations / notices distributed via Canada Post to an area bound by Birchmount Avenue, Midland Avenue, Finch Avenue East and Steeles Avenue.
- Notice of Commencement and Public Open House was posted on the TTC project website - projects.ttc.ca.

- Chinese and English Event Notices were prepared and sent to stakeholders in the community, including Scarborough Community Baptist Church for distribution to its congregation, Mon Sheong Foundation for the Long Term Care Facility, Mon Sheong Condominium Complex (adjacent to project site) and the Bamburgh Gate Condominium.
- Soft copies of the English and Chinese Notices were also emailed to stakeholders and posted on the TTC project page.
- Notice of Commencement and Public Open House was sent via e-mail and regular mail to all those on the project list. This included individuals who attended previous meetings or expressed interest and asked to be kept abreast of the project.

Comments and suggestions collected through evening have been channeled through the Senior CLO to the project team for review and action. A Senior CLO has been assigned to this project and is the single point of contact for the community. The following is a high-level summary of the discussion and feedback from the meeting.

Table 6-6: Comments Raised at the Third Public Open House

Comment	Response
Selection of Site	
Inquired about the possibility of a land swap (parking lot) with the Scarborough Chinese Baptist Church.	The TTC is working closely with City staff and exploring whether a land swap is possible.
When was approval given for this site for the TTC, and by which Councillor?	The land was purchased by the City specifically for TTC use as a bus garage in 2005. Councillor Del Grande (former Councillor Ward 39) was consulted on this and the sale was approved by City Council.
Why was the unused land near Warden Avenue not used for a bus garage?	Strategically, the TTC plans for bus garages to be spread across the City. They need to be close to arterial roads and bus routes. Locating a bus garage across the street from another existing TTC garage would be inefficient from an operational standpoint.
Why would the TTC build a garage adjacent to an existing senior's home? What criteria did the TTC use to select this site?	<p>The TTC has bus garages across the city near many residential areas. When the developer bought the land (where Mon Sheong now stands), they re-zoned their site to residential mixed use. In recognition of potential future issues with a seniors long term care facility being across from land zoned Employment-Heavy Industrial, the City required very specific language in the buyers' agreements for the Mon Sheong property. There was a requirement to warn buyers that there was heavy industrial zoned land adjacent to their site that could operate 24/7.</p> <p>The site was selected because it is appropriately zoned and sized. It is also close to the routes that would be served by the buses being stored and maintained at the facility.</p>
Inquiry on the application of D6 guidelines.	MOECC advised the TTC that the D-6 guideline is not applicable for this project because the guideline is a land use planning document used for the purpose of developing official

Comment	Response
	plans and zoning. One of the guidelines for D6 provides the recommended distance, but this can be exempted as long as environmental effects are mitigated, such as noise. This is the case for the MBG.
If the Mon Sheong Foundation were to find an alternative site, would the TTC consider it?	City Council has given staff direction to proceed with this location. The TTC has a commitment and direction to provide improved transit service as soon as possible. A move to another location would significantly delay this commitment.
Will this garage be in the way of future GO Train / SmartTrack? What about Stouffville GO line impacts?	SmartTrack is in the early stages. This project will improve bus service and thus complement SmartTrack. The TTC is exceeding setback requirements from the Stouffville GO line and is consulting with GO Transit.
How long as the proposed site been zoned as heavy industrial?	The proposed site has been zoned as heavy industrial since the 1960s.
Safety	
Concerns regarding pedestrian safety.	The TTC has a safe record. The ratio of accidents to the number of kilometres driven by TTC operators is very low. The TTC takes safety very seriously and has implemented a number of new policies as well as exploring new technologies to ensure the system is as safe as possible.
Inquiry about the operations and safety of articulated buses.	The traffic analysis took into account heavy vehicles, which included buses; however, it did not differentiate between types of heavy vehicles in the traffic stream. Although it takes an articulated bus longer to clear an intersection, the overall impact on its operations would be negligible compared to a regular bus due to low bus volumes overall during peak periods and significantly lower proportions of articulated buses. The TTC's rate of bus collisions has remained relatively stable year after year. As of the end of 2014, the TTC Total Bus Collision Rate was 36.1 collisions per million miles which is comparable to large urban public transit agencies in North America. The TTC does not distinguish between its 40 ft and articulated buses in its collision statistics. However, the TTC has not seen an increase in the bus collision rate since the introduction of the articulated buses.
Request for clarification on the type of fuel that will be used.	This facility and buses will only use ultralow sulphur diesel (sometimes referred to as "clean diesel"). This was corrected and presented, including to the TTC Board after the term "bio-diesel" was incorrectly used.
Traffic	
Is the traffic study based on existing traffic volumes? The completion date is 2019. Do you have a study estimate for 2019?	The traffic study is based on existing traffic volumes. Buses and transit are part of the solution to traffic congestion.
According to City by-law, all buses need to stop at a crossing. Imagine how	The TTC is aware of the traffic issues that exist today. Buses are a very small fraction of the overall traffic volume. The

Comment	Response
<p>many buses will need to stop at the crossing resulting in traffic, pollution and emissions.</p>	<p>vast majority of buses leave the facility before morning rush hours and return after evening rush hours. They will cross the Go crossing, just as all cars and vehicles do today.</p> <p>When it is busy at Kennedy Road and McNicoll Avenue, buses will already be distributed across the City serving customers. Adding capacity to our bus network here can alleviate traffic in this area, Scarborough and the rest of the neighborhood.</p> <p>Service is planned to largely avoid the Kennedy Road and McNicoll Avenue intersection (3% of buses travel through Kennedy Road and McNicoll Avenue).</p>
<p>The current noise report shows a secondary access from Redlea Avenue on the southwest corner from the site. What kind of bus activities would be expected along the west side of the TTC property?</p>	<p>TTC originally planned a secondary exit to the facility which has since been eliminated. All buses will enter and exit from a single access point at the north end of facility on Redlea, away from Mon Sheong.</p>
<p>Air Quality</p>	
<p>The air quality assessment undertaken as part of this study did not take emissions coming from buses running down Redlea Avenue and across McNicoll Avenue into consideration.</p>	<p>The Screening Level Human Health Risk Assessment undertaken as part of this study has reviewed sensitive populations and taken the worst case scenarios into account.</p> <p>The worst case scenario of existing air quality was taken into account for the air quality monitoring and the modeling also assumed worst case scenarios from the facility and buses. Compiling the three worst case scenarios indicated a less than 1% chance of exceeding air quality standards.</p>
<p>General</p>	
<p>Did the TTC discuss with Mayor Tory the effects this garage will have on area residents?</p>	<p>The Mayor's office has been briefed on the project, community concerns and how they will be addressed. The City is supportive of transit and bus service improvements immediately, including the purchase of 50 additional buses which requires a new facility to store and maintain vehicles.</p>
<p>What is the purpose of this public meeting if the Minister of the Environment and Climate Change has the final say on the project?</p>	<p>There is a formal TPAP that is being followed. The TTC is working to address community concerns within the 120-day period.</p> <p>Consultation with the community is important to improve the plan, before a final report is submitted to MOECC.</p>

Refer to **Appendix L** for the Consultation Summary Report for the third Public Open House for more details.

A correspondence log for this project can be found in Appendix I, highlighting the extent and breadth of consultation as early as March 2013. Corresponding attachments are available in Appendix I.

6.5 Public Review Period / Notice of Completion

The Notice of Completion was released on May 21, 2015. As per the TPAP requirements, the Notice was posted in the Scarborough Mirror on May 21, 2015 and May 28, 2015, as well as posted on the TTC project page, projects.ttc.ca. The Notice was translated and placed in the Chinese Sing Tao Newspaper on May 21, 2015.

Copies of the Notice were distributed by email and regular mail to the MBG mailing list. This includes adjacent property owners as well as all those who indicated they had an interest in this project and wished to be kept informed. To ensure a broad reach, the TTC also distributed the Notice door-to-door to all residents and businesses within a radius of approximately 1 km of the site.

The public and agencies will have 30 days to review and comment on the EPR. The document will be available at various locations around the site (see Notice for details, **Appendix M**) as well as posted on the TTC website projects.ttc.ca.

6.6 Statement of Completion

The TPAP for the MBG project will be completed when the TTC submits a Statement of Completion to the Director of MOECC's Environmental Approvals Branch and the MOECC Regional Director.

The Statement of Completion must indicate that the proponent intends to proceed with the transit project in accordance with either:

- The EPR;
- The EPR, subject to conditions set out by the Minister; or
- The Revised EPR.

The TTC will also post the Statement of Completion on the TTC website projects.ttc.ca. Construction activities associated with the MBG project that are subject to the TPAP cannot begin until the requirements of the TPAP have been met. If compliance is achieved, the project may proceed subject to any other applicable approvals, permits, authorizations or certifications (refer to Chapters 5 and 7).

7.0 COMMITMENTS TO FUTURE ACTION

During the pre-planning stage, the TTC has worked closely with key stakeholders to address and resolve all issues or concerns identified. The following sections present the TTC's commitments to future action during preliminary and detail design.

7.1 Consultation

The TTC's commitments include the following:

- Undertake consultation through planning and design process;
- Assign a Community Liaison Officer (CLO) to this project who will respond to all questions and advocate for the community interest;
- Meet with stakeholders: residents, businesses and the stakeholder groups to address specific enquiries;
- Provide updates on project information; and
- Post regular updates on a dedicated project page at projects.ttc.ca.

7.2 Environmental Monitoring During Design and Construction

An Environmental Monitoring Plan (EMP) will be prepared during the design stage and prior to construction in accordance with subsection 9.2.8 of Ontario Regulation 231/08 to monitor and verify the effectiveness of mitigation measures outlined in Chapter 5.0 of this EPR.

The project will progress from a design phase through the construction phase. For each phase, TTC will appoint an Environmental Compliance Manager (ECM), who will be responsible for:

- Preparing an inventory and monitor the project requirements / activities which contribute to the fulfillment of the requirements of the EPR.
- Confirm that the specific commitments listed in the EPR have been met in a satisfactory manner.
- Maintain records of the monitoring program tasks highlighting changes to the project and any non-compliance of commitments.

During the design phase, all design-related commitments will be fulfilled by the TTC and built into the contract package for construction. The Contractor will be responsible for meeting the necessary EPR and EMP requirements during construction. In accordance with stipulated contracting arrangements, the party contracted to carry out the construction will be required to meet all relevant commitments related to the mitigation of construction effects while the TTC will monitor the Contractor's actions. A Complaints Protocol will also be established which will outline how the TTC will deal with and respond to inquiries and complaints received during the construction of the project.

During the design stage, the TTC will conduct further research and analysis for the construction of the MBG, including, but not limited to the following activities:

- Include noise and air quality monitoring and mitigation measures and construction site maintenance / upkeep requirements in construction contract documents;
- Prepare and implement arborist reports, tree protection plans, edge management and streetscape plans;
- In consultation with TRCA and the City of Toronto, determine areas where compensation for vegetation loss will be required; determine quantity and type of species to be used; and identify sites where restoration efforts would be maximized;
- Opportunities for buffer plantings, where warranted, will be reviewed at the detail design stage in consultation with TRCA.
- Develop procedures for disposal of excavated materials, including excess soils, in accordance with MOECC requirements;
- Prepare and implement a Soil and Groundwater Management Strategy, including water treatment methods, which results in discharge water quality complying with prevailing TRCA and City of Toronto water guidelines and requirements; and contaminated soils management, in accordance with environmental legislation, regulations and guidelines; and
- Prepare an erosion and sedimentation control plan, which complies with prevailing TRCA and the City of Toronto water guidelines and requirements.

Monitoring at the construction stage will focus on making certain that the requirements for mitigation and outlined in the EPR including Best Management Practices / Construction Codes of Practice are appropriately employed and adhered to.

7.3 Permits and Approvals

The TTC will secure necessary permits and approvals for the implementation of the MBG, including, but not limited to:

- Planning approvals (including Site Plan Approval) through the City of Toronto;
- Building Permit through the City of Toronto;
- Permit(s) to Take Water from MOECC if dewatering exceeds 50 m³/day;
- Ontario Regulation 166/06 (Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses) permits through TRCA for work within regulated areas;
- Stormwater management, in accordance with City of Toronto, TRCA and MOECC requirements;
- Sewer discharge approvals, in accordance with City of Toronto and TRCA requirements;
- Permits and approvals for tree protection and removal / injury through TRCA and the City of Toronto as applicable;

- Comply with City of Toronto Ravine and Natural Feature Protection By-law, as applicable; and
- MOECC Environmental Compliance Approval (ECA) for air and noise.

Refer to **Table 7-1** for a summary of environmental effects, mitigation and commitments to future work.

Table 7-1: Summary of Environmental Concerns, Mitigating Measures and Commitments to Future Work

ID#	ENVIRONMENTAL CONCERN AND POTENTIAL IMPACT	CONCERNED AGENCIES	MITIGATION / COMMITMENT TO FUTURE WORK
1	Traffic	City of Toronto TTC Area residents / businesses	The MBG will generate relatively low bus traffic activity during roadway peak periods on the adjacent road network (entering and exiting the facility off peak periods) and the addition of site traffic onto the network only accounts for a minor incremental change in the total traffic volume resulting in a negligible impact to the local road system
2	Fish and Fish Habitat	TRCA	<ul style="list-style-type: none"> ▪ A portion of the site is positioned in the TRCA regulated area for the small watercourse located just outside of the site (to the north). Further discussion with TRCA will be undertaken during subsequent planning and phases as a TRCA permit is likely required for any earthworks or placement of a structure within the regulated area. ▪ Standard Best Management Practices for: erosion and sediment control (refer to Erosion and Sediment Control Guidelines for Urban Construction by the Greater Golden Horseshoe Area Conservation Authorities); debris containment and management; clearing and grubbing; and construction access together with site controls and operational constraints, site rehabilitation and construction monitoring and inspection to protect the aquatic environment and reduce the risk to fish and fish habitat are recommended.
3	Terrestrial Ecosystems	TRCA	<ul style="list-style-type: none"> ▪ The Toronto Tree Protection By-law requires a permit to injure or destroy trees having a diameter equal to or greater than 30 cm. There are 35 trees over 30 cm in diameter on the proposed site. A vegetation removals plan will be prepared at the design stage to support tree removal permits; ▪ All replacement plantings will be species that are native to this geographical region; ▪ All clearing activities will take place outside of the breeding bird window (April 1 – July 31) in order to comply with the Migratory Birds Convention Act. If works are proposed during the breeding bird window, the area of disturbance will be surveyed by a qualified avian specialist to ensure that no active nest will be destroyed by the construction activity; ▪ Sediment containment fencing will be established along the edge of adjacent natural features at the limit of construction. The fence will be maintained and monitored on a scheduled basis during construction; ▪ A construction work plan will designate specific locations for stockpiling of soils / other materials, equipment maintenance and/or fueling outside of adjacent natural areas; ▪ Stormwater discharge during construction will be directed away from adjacent natural areas found on the site; and ▪ Opportunities for buffer plantings, where warranted, will be reviewed at the detail design stage in consultation with TRCA. ▪ Post construction, any exposed soils will be re-vegetated as soon as possible with native seed mixes to promote native biodiversity where possible to reduce erosion. If stabilization is not possible by plantings, then erosion mats will be applied in the interim.
4	Drainage and Stormwater Management	TRCA City of Toronto	<ul style="list-style-type: none"> ▪ The proposed stormwater management system will be designed to the City of Toronto Municipal design guidelines, Wet Weather Flow Management Guidelines as well as the MOECC Stormwater Management Planning and Design Manual. ▪ Peak run-off flow rates will be controlled to predevelopment conditions by making use of orifice plates and weir controls and subsurface storage facilities. Run-off quality will be treated to meet MOECC requirements with the use of Oil and Grit Separators. ▪ Stormwater drainage for the bus garage site will be achieved with a series of catchbasins, catchbasin manholes, manholes and drainage swales. Run-off will be collected from impervious areas and routed to the southwest corner of the site. Run-off generated from the proposed building's roof will be collected for re-use. ▪ A control flow, roof storm drainage system is included as part of the design for the proposed facility. ▪ Stormwater drainage for the parking lot site will be achieved with a series of catchbasins and manholes. ▪ The City of Toronto's Design Criteria for Sewers and Watermains will be followed. Strategies to reduce stormwater release from the MBG may include the following types of treatment: <ul style="list-style-type: none"> ○ Roof leader soakaway pits (quantity control); ○ Pervious pipes (quantity control); ○ Pervious catch-basins (quantity control); ○ Infiltration trench (quantity and quality control); and ○ Oil / grit separator (offline or bypass) (quality control).

ID#	ENVIRONMENTAL CONCERN AND POTENTIAL IMPACT	CONCERNED AGENCIES	MITIGATION / COMMITMENT TO FUTURE WORK
5	Groundwater	TRCA	No significant impact / threat to drinking water aquifer within the project area are anticipated as a result of the proposed bus garage. There is the potential for interaction with groundwater associated with the excavation required for the foundations of the MBG (particularly at the north end of the site, where groundwater levels are anticipated to be higher). The potential for groundwater interaction will be examined further at the detail design stage and the need for a Permit to Take Water (for dewatering in excess of 50 m ³ /day) will be identified and subsequently obtained from MOECC, if necessary.
6	Property Impacts	Area residents / businesses	No private property is required to accommodate the MBG.
7	Air Quality	MOECC Area residents / businesses	<ul style="list-style-type: none"> ▪ The maximum combined concentrations were all below their respective MOECC guidelines or CWS, with the exception of PM10 and benzene. ▪ Frequency analysis determined that the project exceeded the PM10 and benzene guidelines one and six additional days, respectively, over the 5-year period. This equates to <1% of the time. ▪ It is recommended that low-NOx burners be installed on all heating equipment, in accordance with this assessment. ▪ It is recommended that the design team select a generator unit with a maximum NOx emission rate of 2 g/bhp-hr. ▪ Upon final selection of equipment and exhaust fans for the facility, an Environmental Compliance Assessment will need to be completed and submitted to the MOECC.
8	Noise	MOECC Area residents / businesses	<p>A noise mitigation plan has been developed, which includes the following:</p> <ul style="list-style-type: none"> ▪ HVAC <ul style="list-style-type: none"> ○ Rotate all HVAC such that the louvres face north and/or east ▪ Storage bay doors and bus exit route <ul style="list-style-type: none"> ○ A canopy over top of the Storage Bay doors <ul style="list-style-type: none"> ▪ Must be free of gaps or cracks, and must be a minimum of 10 kg/m² ○ A 5 m high noise barrier along the western property line, between the Storage Bay doors and Mon Shoeng Long-Term Care Facility to the west <ul style="list-style-type: none"> ▪ Must be free of gaps or cracks, and must be a minimum of 20 kg/m² ▪ Standby generator <ul style="list-style-type: none"> ○ Testing to be conducted during daytime hours only ○ An acoustic enclosure (stage 1 or better) ▪ Transpired Solar Collector HVAC outdoor air inlets <ul style="list-style-type: none"> ○ Relocate to the east of the Facility, eliminate, or silence ▪ Bus entrance route <ul style="list-style-type: none"> ○ Divert to northern entrance ▪ Maintenance bay doors on western façade <ul style="list-style-type: none"> ○ Keep shut at night <p>During construction:</p> <ul style="list-style-type: none"> ▪ Equipment will be maintained in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts. ▪ Idling of equipment will be restricted to the minimum necessary to perform the specified work. ▪ Any initial noise complaint will trigger verification that the general noise control measures agreed to are in effect. In the presence of persistent noise complaints and subject to the results of a field investigation, alternative noise control measures may be required, where reasonably available. <p>Measures to mitigate construction noise will be finalized during the design stage.</p>
9	Landscaping	Area residents / businesses	<ul style="list-style-type: none"> ▪ The landscape components for the project will include perimeter landscaping in the form of drought tolerant native tree and shrub species. ▪ Additional landscape planting areas will be provided along McNicoll Avenue to enhance the street view of the facility and to integrate with the existing streetscape as well as adjacent to the woodlot on the south side of the proposed employee parking area and along the north edge of the site to provide buffering to the adjacent watercourse.
10	Archaeology	City of Toronto MTCS	<ul style="list-style-type: none"> ▪ In the event that deeply buried archaeological remains are encountered on the property during construction activities, the Heritage Operations Unit of the Ministry of Tourism, Culture and Sport, be notified immediately at (416) 314-7146 as well as the City of Toronto, Heritage Preservation Services Unit (416) 338-1096. ▪ In the event that human remains are encountered during construction, the proponent shall immediately contact both the Ministry of Tourism, Culture and Sport, and the Registrar or Deputy Registrar of Cemeteries at the Cemeteries Regulation Unit, Ministry of Government Services, (416) 326-8393.

ID#	ENVIRONMENTAL CONCERN AND POTENTIAL IMPACT	CONCERNED AGENCIES	MITIGATION / COMMITMENT TO FUTURE WORK
11	Built Heritage	City of Toronto MTCS	<ul style="list-style-type: none"> ▪ If any expansions to the boundaries of the subject property are proposed, further archaeological assessment work may be required. <p>The English Oak (<i>Quercus robur</i>) located on the southern edge of a small forested area along the western property boundary is considered to have cultural importance and will be preserved.</p>
12	Consultation	TTC	<ul style="list-style-type: none"> ▪ Undertake consultation through planning and design process; ▪ Assign a Community Liaison Officer (CLO) to this project who will respond to all questions and advocate for the community interest; ▪ Meet with stakeholders: residents, businesses and the stakeholder groups to address specific enquiries; ▪ Provide updates on project information; and ▪ Post regular updates on a dedicated project page at projects.ttc.ca.
13	Environmental Monitoring	TTC	<p>An Environmental Monitoring Plan (EMP) will be prepared during the design stage and prior to construction in accordance with subsection 9.2.8 of Ontario Regulation 231/08 to monitor and verify the effectiveness of mitigation measures outlined in Chapter 5.0 of this EPR.</p>
14	Permits and Approvals	TTC	<p>The TTC will secure necessary permits and approvals for the implementation of the MBG, including, but not limited to:</p> <ul style="list-style-type: none"> ▪ Planning approvals (including Site Plan Approval) through the City of Toronto; ▪ Building Permit through the City of Toronto; ▪ Permit(s) to Take Water from MOECC if dewatering exceeds 50 m³/day; ▪ Ontario Regulation 166/06 (Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses) permits through TRCA for work within regulated areas; ▪ Stormwater management, in accordance with City of Toronto, TRCA and MOECC requirements; ▪ Sewer discharge approvals, in accordance with City of Toronto and TRCA requirements; ▪ Permits and approvals for tree protection and removal / injury through TRCA and the City of Toronto as applicable; ▪ Comply with City of Toronto Ravine and Natural Feature Protection By-law, as applicable; and ▪ MOECC Environmental Compliance Approval (ECA) for air and noise.