June 2014

NOISE ASSESSMENT REPORT

Midtown Oakville Class Environmental Assessment

Submitted to:
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REPORT

Report **Number:** 1401739

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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Cole Engineering Ltd. (Cole) to prepare a Noise Assessment Report (the Report) in support of the Midtown Oakville Municipal Class Environmental Assessment (the Project). This Report will present the Project's selected Preferred Plan (the Preferred Plan), proposed modifications to the existing transportation network and the respective potential noise impacts due to road traffic noise on the neighbouring sensitive areas. This Report also outlines the applicable noise by-laws of the Town of Oakville, a noise complaint process for construction activities and a general discussion regarding noise arising from construction activities.

The Ontario Ministry of Transportation (MTO) Noise Protocols described in the MTO's Environmental Guide for Noise, October 2006, (MTO Noise Guideline), the Region of Halton's Noise Abatement Policy (Halton's Noise Abatement Policy) and the Ontario Ministry of Environment's (MOE's) Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning – Publication NPC-300 (NPC-300) formed the basis of the assessment criteria and methodology for this Report.

2.0 PROJECT DESCRIPTION

As described by the Town of Oakville, the purpose of the Project is to develop a practical, long-term strategy to guide the development of the transportation and municipal storm water network needed to accommodate the planned growth in Midtown Oakville area to 2031, as identified in the Town of Oakville's official plan. The Midtown Oakville area is identified as a designated urban growth centre in both the Ontario Ministry of Infrastructure Growth Plan for the Greater Golden Horseshoe 2006 and Metrolinx's Regional Transportation Plan The Big Move 2008 documents.

2.1 Project Background

The Midtown Oakville area is located in the vicinity of the Oakville GO Station, located near the Trafalgar Road interchange along the Queen Elizabeth Way (QEW). Midtown Oakville is bordered by the QEW, Chartwell Road, Cornwall Road and Sixteen Mile Creek. It is expected by 2031, that Midtown Oakville will have 12,000 residents and 8,000 jobs. It is expected this expansion would result in higher traffic volumes and more people commuting through Oakville. As a result, there is a need for increased traffic distribution and effective transportation alternatives.

The Project's Preferred Plan has been selected upon an evaluation of alternative designs that met a list of criteria and took advantage of opportunities developed by the Project team. The Preferred Plan consists of various proposed modifications to the existing transportation network. Refer to Appendix A for a figure of the Preferred Plan.

2.2 Existing Conditions

The Midtown Oakville area currently consists of primarily retail and commercial land uses. The modes of transportation largely consist of road and rail with minimal cycling and pedestrian travel routes. This Report will focus on potential noise impacts along the transportation road networks which are modified, as identified in the Preferred Plan. This Report does not include a noise assessment of stationary sources, air traffic or the rail network.

The roadways proposed to be modified within the Midtown Oakville area, and assessed in this Report consist of the following:

- Trafalgar Road;
- Cross Avenue;
- Royal Windsor Drive;
- Eighth Line;
- North Service Road;
- South Service Road; and
- Iroquois Shore Road.

However, to better characterize the acoustic environment in the vicinity of the Midtown Oakville area, additional nearby major and local roads were included when road traffic data was available. They include the following:

- QEW;
- Chartwell Road;
- Cornwall Road;
- Dorval Drive;
- Ford Drive;
- Speers Road; and
- Various local roads within the residential area located south east of Trafalgar Road and Cornwall Road.

Trafalgar Road is the only road in the Midtown Oakville area that crosses the QEW. The Average Annual Daily Traffic (AADT) count ranges from 1,380 to 147,000 vehicles per day, with the QEW having the highest traffic volumes and represents a mixture of vehicles, including automobiles and different types of trucks on local roads.

2.3 Proposed Future Conditions with the Project

The Preferred Plan consists of the following modifications to the road network;

- construct a new North South Corridor crossing over the QEW;
- improvements to the Trafalgar Road Interchange;
- extending Cross Avenue east of Trafalgar Road;
- widening of Iroquois Shore Road;
- improvements to the Royal Windsor Drive Interchange;
- extension of Royal Windsor Drive west of the QEW;
- bus Loop located just east of Trafalgar Road on Cross Avenue; and
- development of a New pedestrian connections and facilities.

The future AADT counts are expected to range between 1,932 and 173,600 vehicles per day, with the QEW having the highest traffic volumes.

3.0 TECHNICAL TERMS

Acoustic values can be described in terms of noise or sound. While noise is defined as unwanted sound, the terms noise and sound are often used interchangeably. An introduction to key concepts used in the assessment of outdoor acoustics is provided below:

- "**Noise**" or "**noise levels**" refers to the levels that can be heard or measured at a point of reception.
- A noise "**Point of Reception**" or "**Receptor**" is a location where measurements or predictions of noise levels are carried out.
- The "**level**" of a noise is expressed on a logarithmic scale, in units called decibels (dB). Since the scale is logarithmic, a noise source that emits twice the noise energy as another will only be three decibels (3 dB) higher.
- Noise emissions and noise levels have an associated frequency content. The human ear does not respond to all frequencies in the same way. Mid-range frequencies are most readily detected by the human ear, while low and high frequencies are harder to hear. Environmental noise levels used in this report are presented as "**A-weighted decibels**" (or dBA), which incorporates the frequency response of the human ear.
- Outdoor noise is usually expressed as an "**equivalent continuous noise level**" ($L_{eq,T}$), which is a logarithmic average (i.e., energy average) of the measured or predicted noise levels over a given period of time (T). An equivalent noise level measured or predicted over the nighttime period would be referred to as $L_{eq,\ night}$.
- The "**daytime**" noise levels occur for the period from 7 am to 11 pm. The "**nighttime**" noise levels occur for the period from 11 pm to 7 am.

4.0 RELEVANT GUIDELINES AND POLICIES

The potential noise impacts due to the Project are assessed based on the following relevant guidelines and policies;

- MTO Noise Guideline;
- Halton's Noise Abatement Policy; and
- MOE NPC-300.

4.1 MTO's Environmental Guide for Noise, October 2006, (MTO Noise Guideline)

The MTO Noise Guideline provides requirements for noise assessments and mitigation relating to the construction of new or the expansion of existing Provincial Highways. These requirements have been summarized into the following two Environmental Protection Requirement(s) (EPR(s)) for noise according to the *MTO Environmental Protection Requirements Section 6* and the MTO Noise Guideline and are summarized below:

EPR NOISE-1 *During design of a new or modified highway, a noise assessment by a qualified acoustical specialist is required for the Most Exposed Side and the Outdoor Living Areas of Noise Sensitive Areas. As an initial screening, future sound levels shall be assessed with and without the proposed improvements for the Most Exposed Side. The objective for outdoor sound levels is to achieve the future predicted ambient that would occur without the proposed highway. The significance of a noise impact will be quantified by using this objective in addition to the change in sound level above the ambient (i.e. the future sound level without the proposed improvements is compared to the future sound level with the proposed improvement).*

The determination of the provision of mitigation is based on the analysis of the predicted noise level at the Outdoor Living Areas.

Table 1 below, which is a copy of Table 2.1 of the MTO Noise Guideline, summarizes the MTO criteria for the requirement of noise mitigation efforts:

Table 1: MTO Mitigation Effort Required for the Projected Noise Level with the Proposed Improvements above the Ambient

Change in Noise Level Above Ambient / Projected Noise levels with Proposed Improvements	Mitigation Effort Required
■ < 5 dB change & <65 dBA	■ None
■ ≥ 5 dB change or ■ ≥ 65 dBA	■ Investigate noise control measures on right-of-way. ■ Introduce noise control measures within right-of-way and mitigate to ambient if technically, economically and administratively feasible. ■ Noise control measures, where introduced, should achieve a minimum of 5 dB attenuation, over first row receivers.

EPR NOISE-2 *Highway construction shall be undertaken in a manner to minimize noise levels and identify a process for dealing with public complaints during construction. Pile driving and blasting operations shall be in accordance with Ontario Provincial Standard Specifications (OPSS 120) and Ministry of the Environment Publication NPC-119.*

In addition, Appendix B of the MTO Noise Guideline defines *Candidate Sites* for the MTO's Noise Barrier Retrofit Policy as all those Noise Sensitive Areas (NSAs) "*which meet the criteria for inclusion on the Candidate Sites for Noise Barrier Retrofit List"*. This includes locations where NSAs receive noise levels in excess of 60 dBA ($L_{eq\ 24\ hours}$) and a reduction in noise levels by at least 5 dB is possible with a noise barrier.

As described in the MTO Noise Guideline, the noise analysis is carried out as follows during the Transportation Planning stage to meet EPR Noise-1:

- identification of the area of investigation;
- identification of noise sensitive areas (NSAs);
- determination of future ambient noise levels (i.e., without the Project);
- determination of future noise levels with the undertaking (i.e., with the Project);
- determination of potential impact;
- determination of significance;
- assessment of mitigation; and
- summarize the noise analysis in a Noise Report.

4.2 Halton's Noise Abatement Policy

Halton's Noise Abatement Policy provides requirements for noise assessments and mitigation relating to the construction of new or the expansion of existing Regional Roads. According to the Halton's website, the Regional Council adopted the *Region of Halton Noise Abatement Policy* on November 1, 2000. This policy identifies the requirements regarding noise control measures for the following scenarios:

a) Existing Residential Development (Retrofit Situations) – The objective sound level is 60 dBA ($L_{eq\ DAY\ -\ 16\ hours}$) after attenuation and if a noise barrier is constructed as part of the retrofitting policy the noise barrier must provide a minimum sound insertion loss of 5 dB when averaged over the first rows of points of reception. Points of reception subject to sound levels lower than 60 dBA ($L_{eq\ DAY\ -\ 16\ hours}$) at a majority of the OLA's will not qualify. Noise predictions will be based on a future, 10 year traffic forecast for the Regional Road being evaluated.

b) Regional Road Projects – Noise mitigation controls will be considered as part of the public process under the Environmental Assessment Act of the Planning Act with the noise mitigation controls designed to mitigate noise from the future traffic projections for the design life of the road.

c) New Development Policy – The developer or homeowner will be required to abate noise originating from traffic, industrial and commercial plazas and/or other noise sources which exceed MOE guidelines. Noise predictions will be based on a future, 20 year traffic forecast for the Regional Road being evaluated. The noise level criteria's are; 45 dBA for the indoor living area during the daytime, 40 dBA for the indoor bedroom area during the nighttime and 55 dBA for the outdoor patio area during the daytime. When a new development road will be constructed near existing homes, noise mitigation controls will need to be included in the design of the new roadway when there is a 5 dBA net change in road traffic noise between the road's design life traffic volumes and the existing traffic volumes.

It is Golder's understanding this policy is based on the MTO Noise Guideline's Appendix B 'Noise Barrier Retrofit Policy' and previous MOE noise guidelines that have recently been replaced with NPC-300. This policy defines items such as noise sensitive land uses, the noise calculation method, sound level limits criteria, noise barrier technical criteria and the responsibilities of the Region of Halton and the developer.

4.3 MOE Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning – Publication NPC-300

This guideline focuses on the control of noise source emissions into the environment and serves the following four (4) purposes:

- provides sound level limits that are applied by the MOE to Stationary Sources which can include, industrial, commercial, or auxiliary transportation facilities;
- provides advice, sound level criteria and guidance to land use planning approval authorities (municipalities, planning boards and other ministries, developers and consultants) for planning decisions made under the Planning Act concerning noise sensitive land uses in support of the Provincial Policy Statement.;
- provides sound level limits that may be included in noise control by-laws which may be developed by municipalities in accordance with the Municipality Act and/or other enabling legislation; and
- provide sound level limits that may be applied for licensing activities of aggregate resource extraction activities applied under the provisions of the Aggregate Resources Act.

This guideline provides guidance for land use planning purposes as it relates to transportation and stationary sources of noise (Part C). As stated in NPC-300, the MOE has no authority under the Planning Act regarding the land use planning approval process. Similar to *Publication LU-131 – Noise Assessment Criteria in Land Use Planning: Requirements, Procedures and Implementation,* NPC-300 provides guidance for land use planning authorities that exercise decision-making authority under the Planning Act, developers and consultants to address environmental noise in the land use planning process. It is the MOE's opinion the proponent/developer of the new noise sensitive land use is responsible for ensuring the sound level criteria are met including; the feasibility of the project, outdoor and indoor acoustical environments, ensuring any required noise control measures are included in the development and describing the technical details and clarifying the responsibility for the implementation and maintenance of the required noise controls. However, it is the responsibility of the owner of the stationary source to comply with the applicable sound level limits in regards to MOE approvals, but it is the responsibility of the proponent/developer of a noise sensitive land use being developed or redeveloped, to ensure compliance with the applicable sound level limits, when building near an existing stationary source. Therefore, a cooperative effort between the developer and stationary source owner is preferred since it typically results in more efficient and cost effective results. The noise impact assessment of transportation sources considers road, rail and aircraft. Future noise level predictions due to road and rail are based on a minimum 10 year traffic forecast. The sound level limits due to road traffic noise sources are; 45 dBA for the indoor living area during the daytime, 40 dBA for the indoor bedroom area during the nighttime and 55 dBA for the outdoor living area during the daytime.

It is also recommended that feasibility and/or detailed noise impact studies be required by the land use planning authority in the early stages of the land use planning stages to support the development for a noise sensitive land use proposal. NPC-300 highlights the requirements of these studies.

5.0 METHODOLOGY

The methodology used to assess the potential noise impacts due to the Project is primarily according to the MTO Noise Guideline as described above in Section 4.1 and the assessment criteria described in Halton's Noise Abatement Policy. It will be noted in the following sections when either Halton's Noise Abatement Policy or MOE NPC-300 guideline was used to supplement the MTO Noise Guideline.

5.1 Noise Sensitive Area (s)

In assessing potential noise effects, receptor locations within Noise Sensitive Area's (NSAs) that satisfied requirements for both the MTO Noise Guideline and MOE NPC-300 were identified. The MTO Noise Guideline requires NSAs to be identified within an *Area of Investigation,* which is determined using one of the following methods:

- using 5 decibel contour lines extending from the source to a NSA where there is no increase above the future ambient sound level; or
- identifying NSA's where there is no increase above the future ambient sound level; or
- defining a boundary with a perpendicular distance of 600 m from the closest edge of pavement associated with the project.

The following land uses, existing or future, were considered to identify NSAs within the Area of Investigation;

- Hotel
- Motel
- Nursing Home
- Residence
- Educational Facility
- Day Nursery
- Hospital
- Healthcare Facility
- Shelter for Emergency Housing
- Community Centre
- Place of Worship including cemeteries (unless located in commercial/industrial zoned lands)
- Detention Centre

5.1.1 NSA Identification

An Area of Investigation was developed following the approach of creating a 600 m buffer region from the main segments of the Project's edge of pavement (the Project Site). Figure 1 illustrates the Project Site and Area of Investigation developed for completing this Noise Assessment. Figure 2 shows the roads included in this Noise Assessment. The surrounding existing lands are used for industrial, residential, commercial and open spaces. Figure 3 shows the existing land use zoning information around the Project Site.

A total of nine NSAs were selected that were representative of; the acoustic environment around the Project Site and the potential impact due to the Project. Figure 4 show the NSAs adjacent to the Project Site and the representative receptor for each NSA, for carrying out the Noise Assessment for this Report, respectively. Twenty-two representative receptor locations were identified within the nine NSAs, two being representative of the possible future land uses (FR01 and FR02). Noise predictions were completed for the Most Exposed Side (MES) of the representative receptor, at a height of 1.5 m, for each selected NSA.

The following table summarizes the identified representative receptor for each NSA and provides a brief description.

Table 2: Description of representative receptor(s) for each selected NSAs around the Project Site

NSA ID	Receptor(s)	Description
NSA_1	R01, R02, R03	Residential buildings located northwest of the QEW/Trafalgar Road interchange along North Service Road. This NSA is representative of the group of residential buildings located immediately north of the QEW and primarily exposed to the road traffic noise along the QEW. An acoustic barrier, at an approximate height of 4 m, is located between this NSA and the QEW.
NSA_2	R04, R05, R06, FR01	Residential, hotel and daycare buildings located southwest of the QEW/Trafalgar Road interchange in the vicinity of Cross Avenue. This NSA is representative of the group of residential buildings located immediately south of the QEW and primarily exposed to the road traffic noise along the QEW.
NSA_3	R07, R08	Residential buildings located northwest of the QEW/Trafalgar Road interchange along Trafalgar Road. This NSA is representative of the group of residential buildings located west of Trafalgar Road.
NSA_4	R09,	Residential buildings located northeast of the QEW/Trafalgar Road interchange along Trafalgar Road. This NSA is representative of the group of residential buildings located east of Trafalgar Road.
NSA_5	R10, R11, R12	Educational and healthcare buildings located northeast of the QEW/Trafalgar Road interchange. This NSA is representative of the group of buildings located in the vicinity of Iroquois Shore Road and North South Corridor/North Service Road.
NSA_6	R13, R14,	Residential buildings located east of Eighth Line and north of the QEW/Royal Windsor Road interchange. This NSA is representative of the group of residential buildings located east of Trafalgar Road north of the QEW/Royal Windsor Road interchange.
NSA_7	R15	Place of worship building located north of the QEW/Royal Windsor Road interchange, among industrial buildings.
NSA_8	R16, FR02	Hotel building located southeast of the QEW/Trafalgar Road interchange along Trafalgar Road.
NSA_9	R17, R18, R19, R20	Residential buildings located southeast of the QEW/Trafalgar Road interchange along Cornwall Road. This NSA is representative of the group of residential buildings located south of Cornwall Road.

5.2 Field Study

A site visit was carried out by Golder on May 7, 2014 to further understand the existing acoustic environment due to local road traffic including the QEW, Trafalgar Road and Cornwall Road. Noise from the QEW and Trafalgar Road dominated noise levels at most of the identified receptor locations. Noise measurements were taken during the site visit and assisted in calibrating the noise prediction models.

5.3 Traffic Volumes - Existing, Future without (Ambient) and with the Project

Existing and future traffic volumes for the road networks, which will be modified due to the Project, and the QEW were provided by Cole to Golder. The existing traffic volume data provided by Cole was supplemented with additional road traffic volumes from the Town of Oakville "2012 Oakville Road System Report". It is Golder's understanding that the future traffic volumes provided by Cole were with the Project in place. The future traffic volumes without the Project were calculated for all roads to 2031 assuming a nominal traffic growth rate of 2% other than the QEW where Cole was able to provide the 2031 volumes. The daytime/nighttime percentages, truck type percentages and speed limits for each road were based on the information provided by Cole to Golder. Appendix B provides the summary of traffic volumes used in the determination of future noise levels without and with the Project as presented in this Report.

For the purposes of this Noise Assessment, a 16 hour equivalent sound level (Leq 16 hr) was considered for the daytime period (0700 to 2300) and an 8 hour equivalent sound level (Leq 8 hr) was considered for the nighttime period (2300 to 0700) for all types of roads (i.e., Provincial, Regional and Local) to be consistent with Halton's Noise Abatement Policy.

5.4 Noise Prediction Modelling

The future noise levels without (ambient) and with the Project, noise prediction modelling was carried out with the aid of Computer Aided Noise Attenuation (CadnaA) noise prediction modelling software (version 4.3.143), developed by DataKustik GmbH. As previously discussed, the noise prediction modelling for this Report only focused on the transportation road network and did not include noise emissions related to air traffic, rail traffic or stationary sources.

CadnaA can implement a number of modelling algorithms for the different types of noise sources one may select when developing a noise prediction model. For the Project, the Traffic Noise Model Version 2.5 (TNM), within the CadnaA software environment was selected for the road sources. TNM was originally developed in April 2004 by the United States Federal Highway Administration (FHWA) as the computerized noise prediction modelling software for use on all U.S. Federal-aid highway projects. According to the FHWA TNM Version 1.0 User Guide, TNM and its technical manuals replaces the previous computerized noise prediction modelling software STAMINA 2.0/OPTIMA and previous prediction model FHWA-RD-77-108. The Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) was developed by the MOE in 1989. ORNAMENT is the basis of the STAMSON modelling software, and is a modification of the FHWA-RD-77-108 model to simplify calculations and to account for Ontario's then-current vehicle fleet. Upon review of the MTO Noise Guideline, both ORNAMENT and STAMINA 2.0 are the two noise prediction models approved for use by

the MOE and the MTO. Although both TNM and STAMSON are considered acceptable computerized noise prediction models for use in Ontario, TNM within CadnaA was selected for the purposes of assessing noise effects associated with the road sources. In selecting TNM within CadnaA, consideration was given to the capabilities of CadnaA in dealing with GIS Data, complex topography, if applicable and performance in generating noise contours. Noise contours provide a visual representation of the existing acoustical environment associated with the road traffic sources, and are therefore useful in identifying potential noise concerns.

In addition to using the TNM modelling algorithm within CadnaA, the following modelling techniques and assumptions were incorporated into the noise prediction models developed in CadnaA:

- The prediction noise modelling did not consider the potential attenuation due to the presence of any woodlot(s) between a roadway and a NSA.
- The existing Digital Terrain Model (DTM) provided by Cole was also used for the future scenarios (i.e., with and without the Project).
- The DTM in the vicinity of the Trafalgar Road and North South Corridor QEW crossings were the only two areas modified to represent the overpass.
- Any existing or future buildings were not included.
- Average asphalt conditions as per TNM were considered.
- A uniform ground absorption across the entire Area of Investigation, representative of a more acoustically hard ground condition than absorptive was used.
- TNM was modified to include the enhancements provided by Cadna.
- Only one existing acoustic barrier was included in the noise prediction modelling. The existing acoustic barrier between NSA_1 and the QEW westbound traffic was modelled with a consistent height of 4 m.
- Noise predictions at all representative receptor locations were carried out at a height of 1.5 m at the MES.

5.5 Assessment Criteria

The assessment criteria for the Project is summarized below in Table 3. It is Golder's understanding the Project does not substantially affect the future QEW traffic volumes. Therefore, this assessment criteria, generally consistent with both; the MTO Noise Guideline, and Halton's Noise Abatement Policy, was focused on regional and local roads.

Table 3: Assessment Criteria Summary

Future Daytime Noise Level due to Regional and Local Roads	Mitigation Effort Required
■ < 5 dB change in future noise levels (without and with the Project) and ■ Future daytime noise levels with the project <60 dBA	■ None
■ ≥ 5 dB change in future noise levels (without and with the Project) or ■ Future daytime noise levels with the project ≥ 60 dBA, and future daytime noise level without the project was <60 dBA	■ Investigate noise control measures on right-of-way. ■ Introduce noise control measures within right-of-way and mitigate to ambient if technically, economically and administratively feasible. ■ Noise control measures, where introduced, should achieve a minimum of 5 dB attenuation, over first row receivers.
■ Future daytime noise levels with the project ≥ 60 dBA and future daytime noise level without the project was >60 dBA	■ May meet criteria for Retrofit Noise Barrier Program

In the event representative receptor locations may meet the criteria of assessment under the Retrofit Noise Barrier Program (the Program) outlined in Halton's Noise Abatement Policy, the Region of Halton will need to confirm if a residential location is a candidate site for the Program. Therefore, a separate noise assessment investigating implementing the Program at any specific representative receptor locations identified in this Report may need to be carried out.

6.0 RESULTS

Following the methodology described in Section 5.0, noise prediction modelling was completed using the CadnaA noise prediction models for regional and local roads and summarized in Table 4.

Table 4: Summary of Predicted Future Daytime Noise Levels due to Project Regional and Local Roads at the Representative Receptors

Receiver Location	Without the Project (2031) (dBA)	With the Project (2031) (dBA)	With the Project (2031) >60 dBA?	Change due to the Project (dB)	Further Mitigation Investigation
R01	54	54	No	-0.1	No
R02	52	52	No	-0.2	No
R03	54	53	No	-0.4	No
R04	66	68	Yes	2.1	Possibly Retrofit Program
R05	58	59	No	0.8	No
R06	57	57	No	0.0	No
R07	58	57	No	-0.6	No
R08	65	64	Yes	-0.4	Possibly Retrofit Program
R09	67	66	Yes	-0.4	Possibly Retrofit Program
R10	62	62	Yes	0.3	Possibly Retrofit Program
R11	63	64	Yes	1.7	Possibly Retrofit Program
R12	56	57	No	0.6	No
R13	59	57	No	-1.2	No
R14	49	50	No	0.4	No
R15	53	54	No	1.2	No
R16	62	62	Yes	0.4	Possibly Retrofit Program
R17	66	66	Yes	0.0	Possibly Retrofit Program
R18	60	63	Yes	3.3	No
R19	61	62	Yes	0.7	Possibly Retrofit Program
R20	56	57	No	0.2	No
FR01	55	55	No	0.3	No
FR02	65	66	Yes	1.4	Possibly Retrofit Program

The predicted changes in noise levels with and without the Project at the MES are expected to range between -1.2 and 3.3 dB. The greatest increase is expected at R18 while the greatest reduction in noise levels is expected at R13. To put these predicted changes into context, it is generally accepted that humans can barely perceive a change of 3 dB in noise levels.

With the QEW being a dominant source, Table 5 below summarizes the noise prediction result with the QEW included, representing noise levels that are likely to occur at the representative receptor locations.

Table 5: Summary of Predicted Future Daytime Noise Levels due to all Project roads at the representative receptors

Receiver Location	Without the Project (2031) (dBA)	With the Project (2031) (dBA)	Change due to the Project (dB)
R01	69.9	69.9	0.0
R02	64.7	64.7	0.0
R03	65.6	65.5	-0.1
R04	68.8	69.9	1.1
R05	69.2	69.2	0.0
R06	73.1	73.1	0.0
R07	61.3	61.0	-0.3
R08	65.2	64.8	-0.4
R09	67.1	66.8	-0.3
R10	71.4	71.3	-0.1
R11	67.5	68.1	0.6
R12	65.2	65.3	0.1
R13	62.2	61.8	-0.4
R14	63.2	63.2	0.0
R15	66.0	66.0	0.0
R16	75.1	75.1	0.0
R17	67.3	67.3	0.0
R18	64.9	66.1	1.2
R19	65.4	65.7	0.3
R20	59.4	59.5	0.1
FR01	75.4	75.4	0.0
FR02	77.2	77.3	0.1

In considering traffic associated with the QEW, the predicted changes in noise levels with and without the Project at the MES are expected to range between -0.4 and 1.2 dB. Three sets of noise contours are provided for illustrative purposes only, including the QEW; the Existing, without and with the Project, and presented in Figures 5 to 7 respectively. The information summarized in the figures can be a useful tool during the future detailed design stage phase. Considering topography and shielding can affect noise propagation, these predicted noise contours are provided for reference purposes only as they can change during modelling refinements to reflect the final design.

6.1 Determination of Significance and Mitigation Investigation

For the purposes of this Noise Assessment, an assessment of mitigation will be limited to identifying which representative receptor locations could potentially require noise mitigation. The specifics of the mitigation would be determined during the detailed design of the Project. For any new sensitive development project, the responsibility lies with the developer of the future NSA.

7.0 ENVIRONMENTAL PROTECTION REQUIREMENT NOISE (EPR)-2

In regards to EPR Noise-2, the construction phase of any project is typically considered temporary or short term relative to the entire life cycle of a project. The following is a summary of the items to be considered relating to construction noise according to the MTO Noise Guideline.

7.1 Construction Equipment and Activities

As construction noise could impact receptors in the vicinity of the Project, some general recommendations to assist in minimizing noise impacts due to the Project's construction equipment and activities are provided below:

- All construction equipment should be properly maintained according to manufacturer's recommendations and be in accordance MOE Model Municipal Noise Control by-law (i.e., NPC-115, etc.).
- If any of the construction activities involve Piling or Blasting, they will need to be carried out in accordance with OPSS 120 and MOE NPC-119.
- Construction equipment and/or activities typically known to be of annoyance (e.g., piling) should consider one of the following:
  - limit operating time within the daytime period when ambient noise levels are expected to be higher;
  - maintain an acceptable setback distance from the identified nearby NSAs;
  - carry out additional noise studies or monitoring program to verify and document noise levels;
  - implement temporary noise barriers or other localized noise mitigation measures; and
  - investigate other alternative construction equipment or process to complete the task.

7.2 Noise Complaints Process

A process for dealing with noise complaints during the construction phase should be considered. Noise complaints are usually received directly from the complainant or a municipal by-law officer. Compliance with noise guidelines or regulations does not ensure noise complaints will not occur. The following is a general recommended process dealing with noise complaints based on Golder's past project experiences:

- identify an individual or group on the Project (i.e., Site Supervisor, Health and Safety representative, etc.) to handle the noise complaints and someone that can be easily contacted.
- document the noise compliant. Include the date, time and the individuals contact information from whom the noise complaint was received. Specific information such as the location, duration, time and type of sound heard (i.e., steady, impulsive, etc.) should be included as it will assist in the investigation process. Be aware of any time constraints put in place by the municipality for the noise complaint to be addressed.
- investigate the noise complaint and identify the source of the noise complaint. Document the investigation.

- If the noise complaint is justified, in that excessive noise levels were generated, minimize or eliminate the source of the noise complaint. Document the action taken.
- follow up with the complainant and provide the results of the noise complaint investigation.

7.3 Applicable By-Laws

Golder reviewed applicable by-laws to investigate the requirements for a noise by-law exemption for proposed Project activities. Generally, each regulating jurisdiction has a by-law dealing with noise, with often slightly differing by-law requirements.

Through an initial review of the noise by-law of the Town of Oakville, a noise by-law exemption will need to be obtained if construction activities are to be carried out on Sundays or between the hours of 1900 and 0700. The Supervisor of Licensing and By-Law Enforcement for the Town of Oakville can be reached at 905-845-6601 extension 3256 for further information and reference.

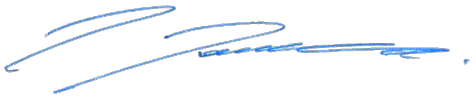
8.0 CONCLUSIONS

Based on the Noise Assessment carried out by Golder Associates Ltd. for Cole Engineering Ltd., the following conclusions were determined:

- Elevated noise levels are expected to exist at all Noise Sensitive Areas in the vicinity of the Project with and without the proposed undertaking for the year 2031.
- The predicted changes in noise levels with and without the Project, not including the QEW, at the Most Exposed Side are expected to range between -1.2 and 3.3 dB.
- The predicted changes in noise levels with and without the Project, including the QEW, at the Most Exposed Side are expected to range between -0.4 and 1.2 dB.
- Based on the assessment criteria for this Noise Assessment, Noise mitigation is not required as a part of the Midtown Oakville Class Environment Assessment but some representative receptor locations may meet the criteria for the Retrofit Noise Barrier Program outlined in Halton's Noise Abatement Policy.

Report Signature Page

GOLDER ASSOCIATES LTD.



Stefan Cicak, B.A.Sc., P.Eng.
Acoustics, Noise and Vibration Engineer

Joe Tomaselli, M.Eng., P.Eng.
Associate / Acoustics, Noise and Vibration Engineer

MS/SC/JT/ng

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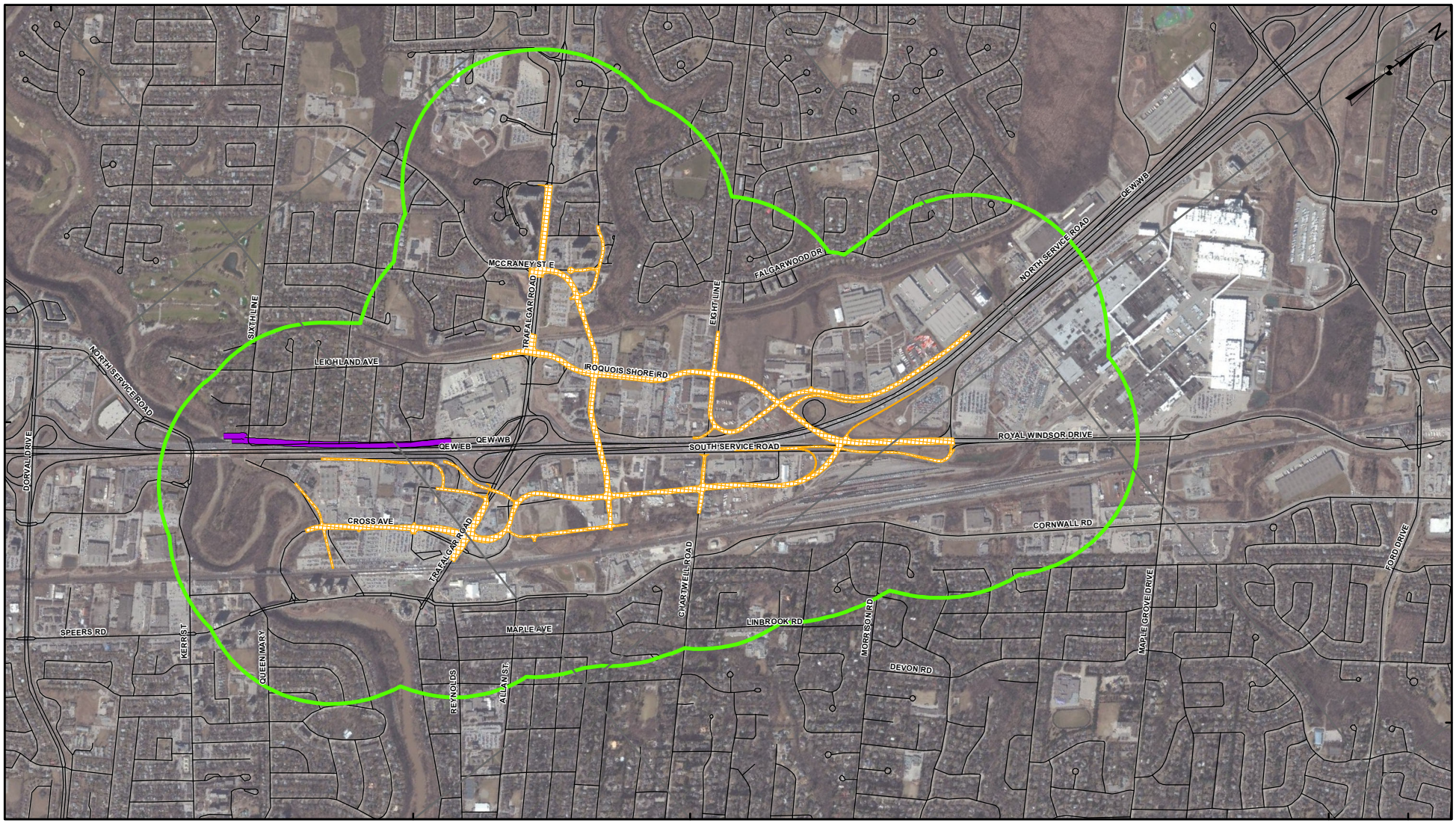
FIGURES



LEGEND

- EXISTING ROADS
- EXISTING ACOUSTIC BARRIER
- AREA OF INVESTIGATION
- PROJECT SITE

750 0 750

SCALE 1:25,000 METRES

REFERENCE

Imagery Provided by ESRI
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

PROJECT
MIDTOWN OAKVILLE CLASS ENVIRONMENTAL ASSESSMENT - NOISE ASSESSMENT REPORT

TITLE
AREA OF INVESTIGATION

Golder Associates
Mississauga, Ontario

PROJECT NO. 1401739			SCALE AS SHOWN	REV. 0.0
DESIGN	SMC	20 May. 2014		
GIS	SMC	26 May. 2014		
CHECK	SC	26 May. 2014		
REVIEW	JT	26 May. 2014		

FIGURE: 1

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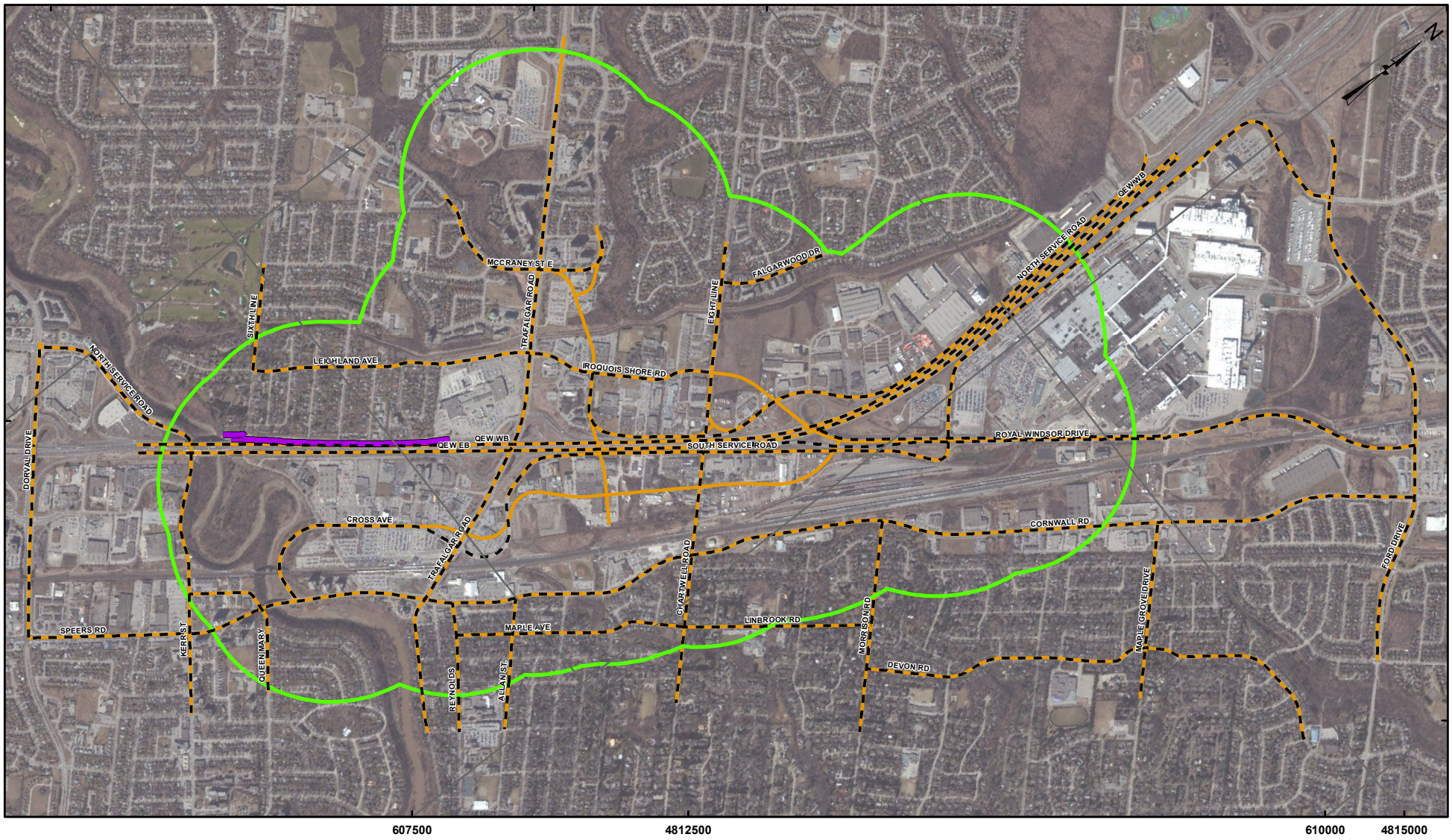

LEGEND

- EXISTING ASSESSED ROAD CENTERLINES
- FUTURE ASSESSED ROAD CENTERLINES
- EXISTING ACOUSTIC BARRIER
- AREA OF INVESTIGATION

REFERENCE

Imagery Provided by ESRI
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

PROJECT
MIDTOWN OAKVILLE CLASS ENVIRONMENTAL ASSESSMENT - NOISE ASSESSMENT REPORT

TITLE
EXISTING AND FUTURE ASSESSED ROADS

Golder Associates
Mississauga, Ontario

PROJECT NO. 1401739			SCALE AS SHOWN	REV. 0.0
DESIGN	SMC	20 May. 2014		
GIS	SMC	26 May. 2014		
CHECK	SC	26 May. 2014		
REVIEW	JT	26 May. 2014		

FIGURE: 2

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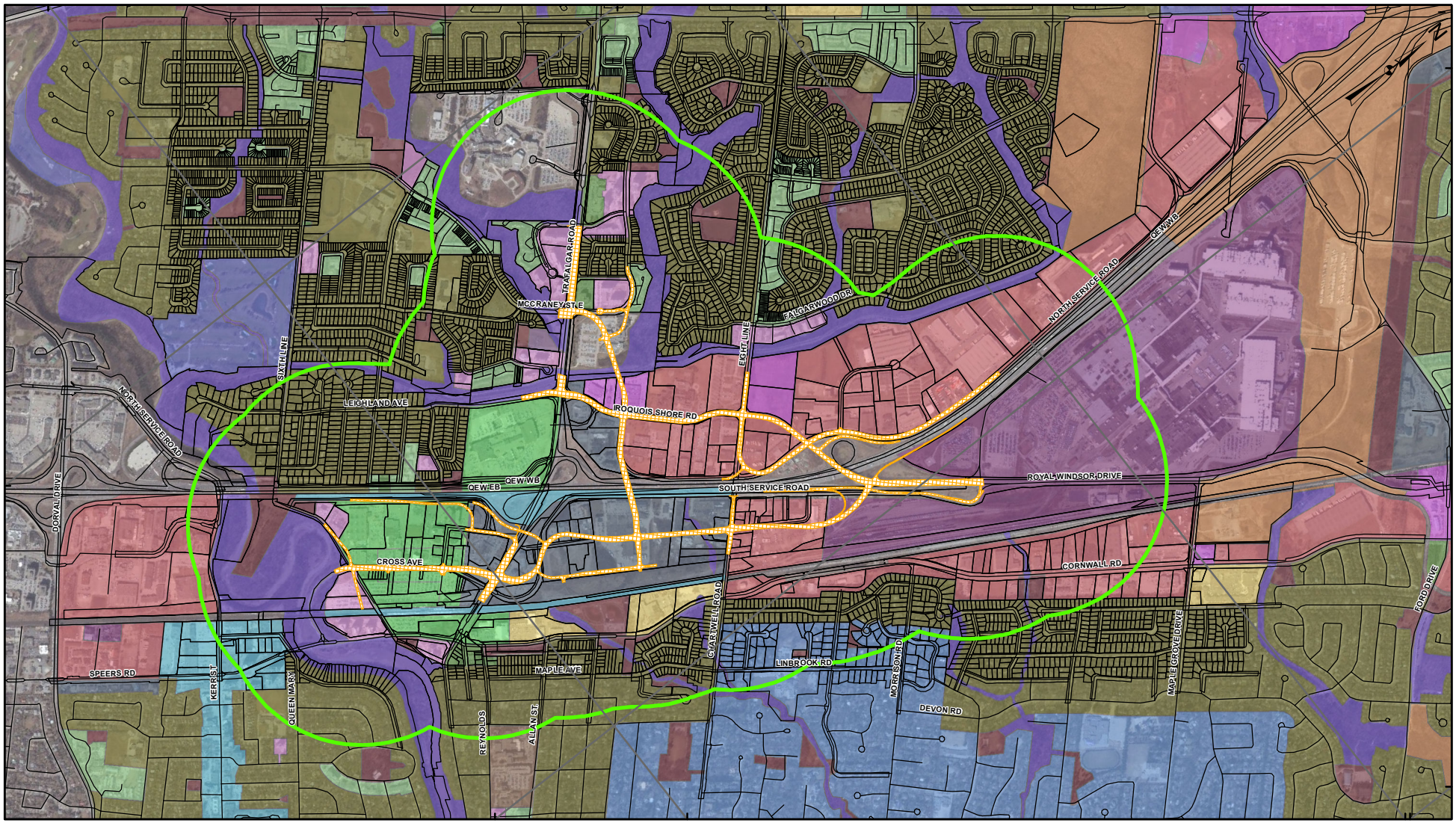

LEGEND

- EXISTING ROADS
- AREA OF INVESTIGATION
- PROJECT SITE
- PARCEL

LAND USE

- BUSINESS COMMERCIAL
- BUSINESS EMPLOYMENT
- COMMUNITY COMMERCIAL
- CORE COMMERCIAL
- GROWTH AREA
- HIGH DENSITY RESIDENTIAL
- INDUSTRIAL
- INSTITUTIONAL - SPECIAL POLICY
- LOW DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL - SPECIAL POLICY
- MEDIUM DENSITY RESIDENTIAL
- NATURAL AREA
- NEIGHBOURHOOD COMMERCIAL
- OFFICE EMPLOYMENT
- PARKS AND OPEN SPACE
- PARKWAY BELT
- PRIVATE OPEN SPACE
- UTILITY

REFERENCE

Imagery Provided by ESRI
Landuse Provided by Cole Engineering (Filename: T11-767 Land Use Planning Map.dwg) and the Town of Oakville (Filename: East_Landuse.shp and Southeast_Landuse.shp)
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

750 0 750
SCALE 1:25,000 METRES

PROJECT
MIDTOWN OAKVILLE CLASS ENVIRONMENTAL ASSESSMENT - NOISE ASSESSMENT REPORT

TITLE
EXISTING LAND USE

Golder Associates
Mississauga, Ontario

PROJECT NO. 1401739			SCALE AS SHOWN	REV. 0.0
DESIGN	SMC	20 May. 2014	FIGURE: 3	
GIS	SMC	26 May. 2014		
CHECK	SC	26 May. 2014		
REVIEW	JT	26 May. 2014		

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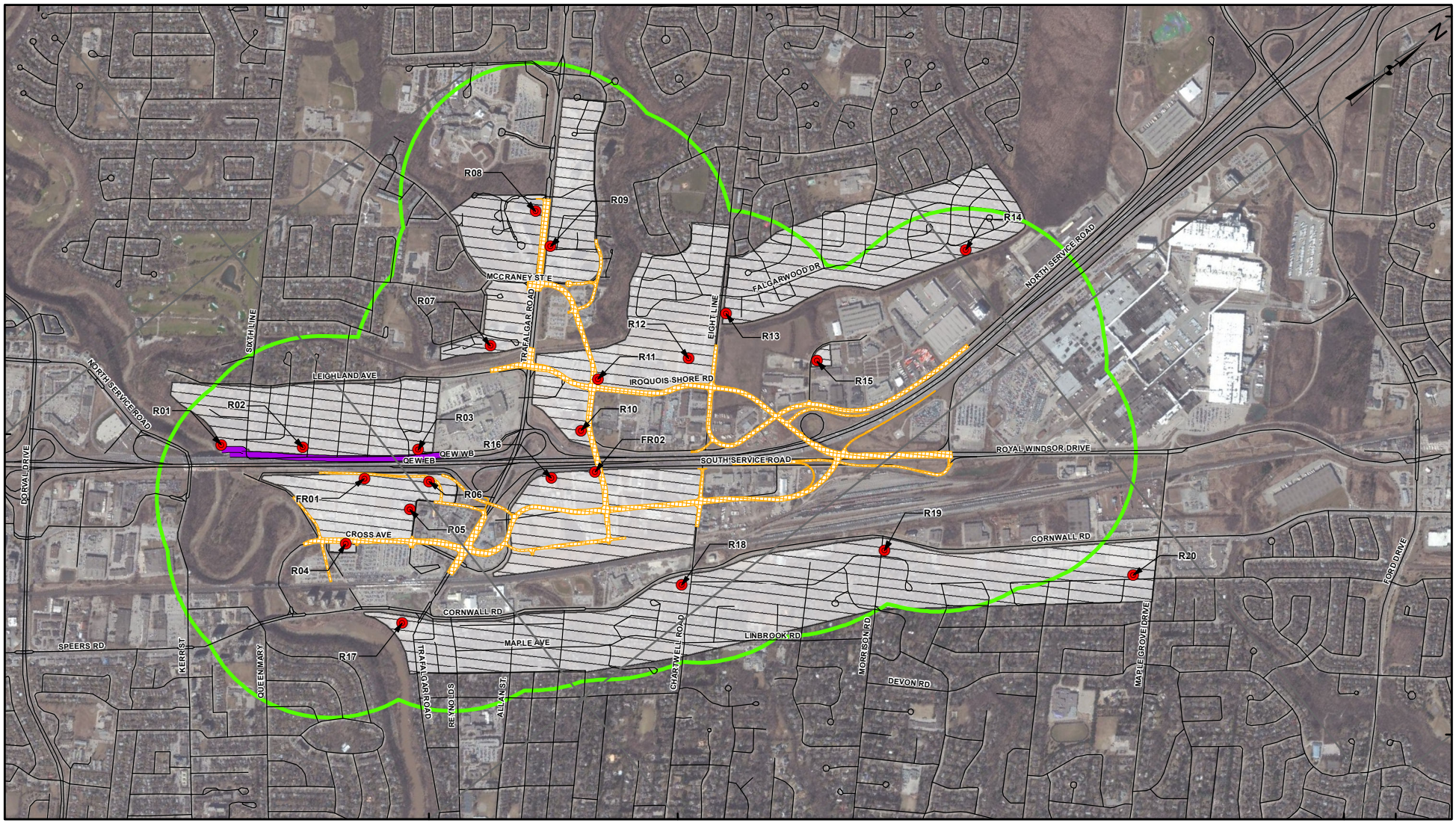

LEGEND

- REPRESENTIVE RECEPTOR
- EXISTING ROADS
- EXISTING ACOUSTIC BARRIER
- AREA OF INVESTIGATION
- PROJECT SITE
- NOISE SENSITIVE AREA

750 0 750

SCALE 1:25,000 METRES

REFERENCE

Imagery Provided by ESRI
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

PROJECT
MIDTOWN OAKVILLE CLASS ENVIRONMENTAL ASSESSMENT - NOISE ASSESSMENT REPORT

TITLE
PROJECT NOISE SENSITIVE AREAS AND REPRESENTATIVE RECEPTORS

Golder Associates
Mississauga, Ontario

PROJECT NO. 1401739			SCALE AS SHOWN	REV. 0.0
DESIGN	SMC	20 May. 2014	FIGURE: 4	
GIS	SMC	26 May. 2014		
CHECK	SC	26 May. 2014		
REVIEW	JT	26 May. 2014		

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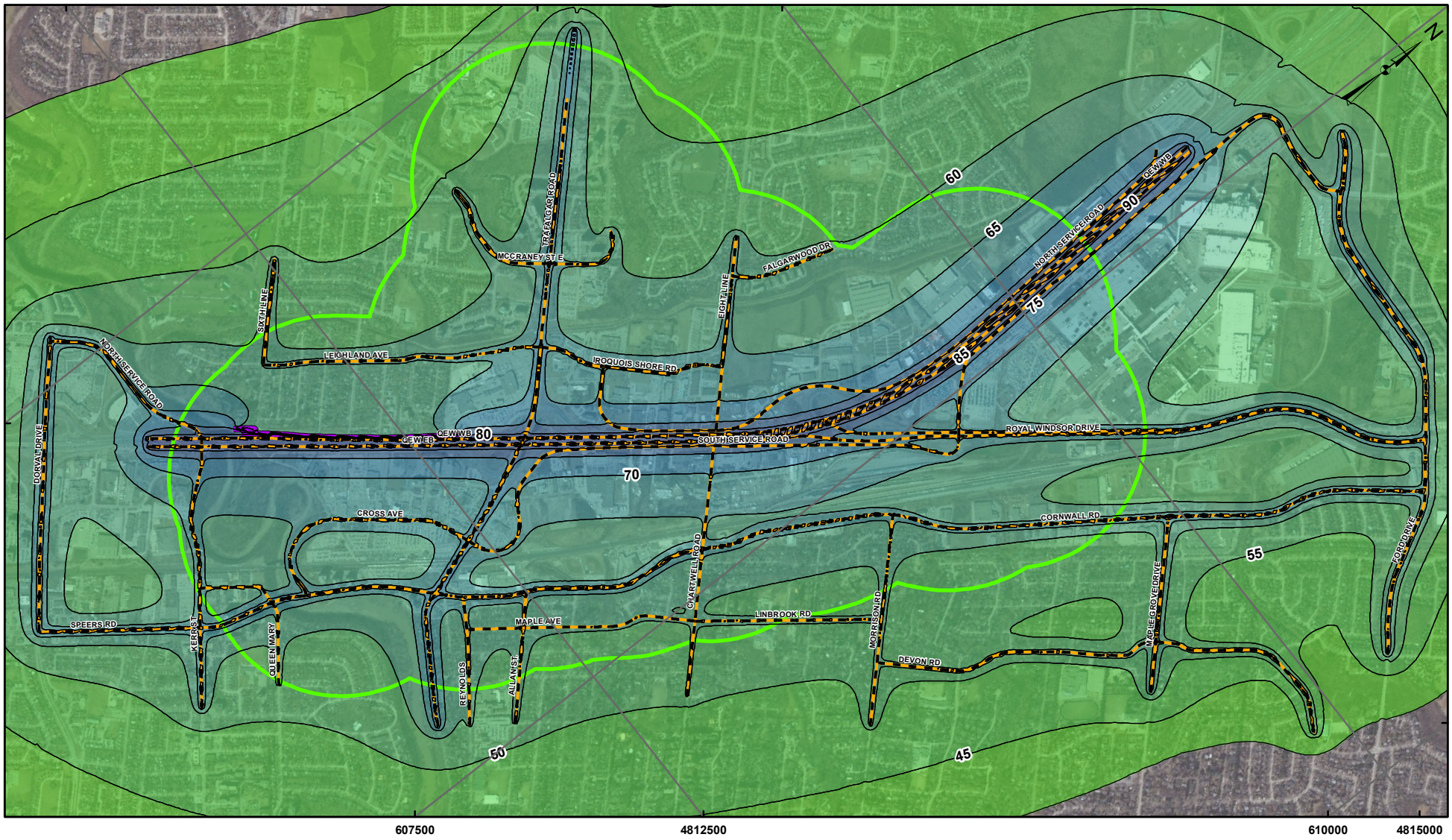


LEGEND

- EXISTING ASSESSED ROAD CENTERLINES
- EXISTING ACOUSTIC BARRIER
- AREA OF INVESTIGATION

Predicted Noise Levels (dBA)

- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90

REFERENCE

Imagery Provided by ESRI
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

750 0 750
SCALE 1:25,000 METRES

PROJECT
MIDTOWN OAKVILLE CLASS ENVIRONMENTAL ASSESSMENT - NOISE ASSESSMENT REPORT

TITLE
ILLUSTRATIVE PURPOSES - PREDICTED EXISTING NOISE LEVELS @ 1.5 M INCLUDING QEW - WITHOUT DTM

Golder Associates
Mississauga, Ontario

PROJECT NO. 1401739			SCALE AS SHOWN	REV. 0.0
DESIGN	SMC	20 May. 2014		
GIS	SMC	26 May. 2014		
CHECK	SC	26 May. 2014		
REVIEW	JT	26 May. 2014		

FIGURE: 5

N:\SIM\Clients\Cole\Oakville\99_PROJ\1401739_Cole_Noise\40_PROD\001_Noise\1401739_001_Existing_NoiseLevels_0004.mxd

LEGEND

- EXISTING ASSESSED ROAD CENTERLINES
- EXISTING ACOUSTIC BARRIER
- AREA OF INVESTIGATION

Predicted Noise Levels (dBA)

- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90

REFERENCE

Imagery Provided by ESRI
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

750 0 750
SCALE 1:25,000 METRES

PROJECT
MIDTOWN OAKVILLE CLASS ENVIRONMENTAL ASSESSMENT - NOISE ASSESSMENT REPORT

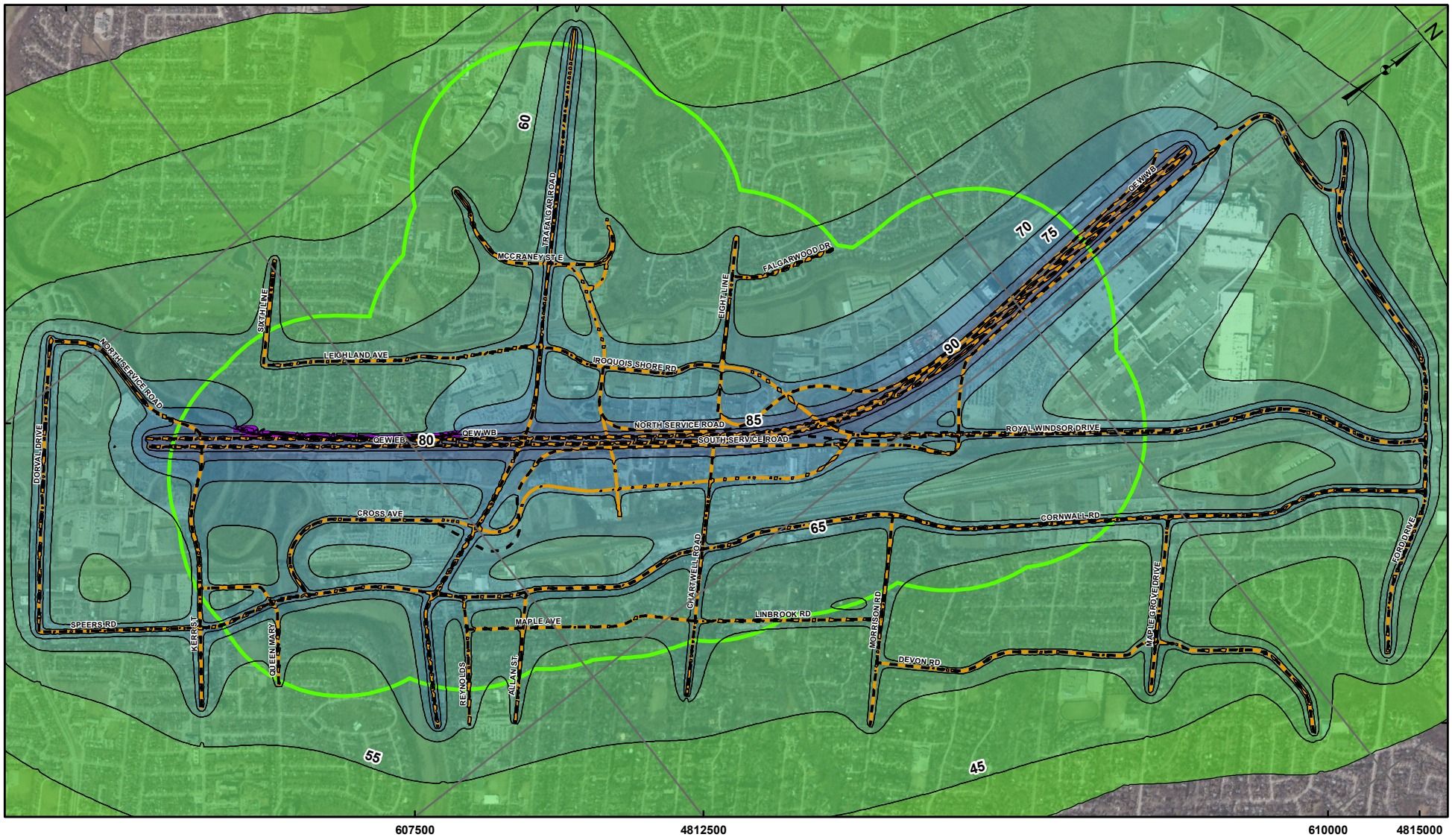
TITLE
ILLUSTRATIVE PURPOSES - PREDICTED FUTURE NOISE LEVELS WITHOUT THE PROJECT (AMBIENT) @ 1.5 M INCLUDING QEW - WITHOUT DTM

Golder Associates
Mississauga, Ontario

PROJECT NO. 1401739			SCALE AS SHOWN	REV. 0.0
DESIGN	SMC	20 May. 2014		
GIS	SMC	26 May. 2014		
CHECK	SC	26 May. 2014		
REVIEW	JT	26 May. 2014		

FIGURE: 6

N:\SIM\Clients\Cole\Oakville\99_PROJ\1401739_Cole_Noise\40_PROD\001_Noise\1401739_001_FurtureNoProject_NoiseLevels_0005.mxd



LEGEND

- EXISTING ASSESSED ROAD CENTERLINES
- FUTURE ASSESSED ROAD CENTERLINES
- EXISTING ACOUSTIC BARRIER
- AREA OF INVESTIGATION

Predicted Noise Levels (dBA)

- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90

REFERENCE

Imagery Provided by ESRI
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

750 0 750
SCALE 1:25,000 METRES

PROJECT
MIDTOWN OAKVILLE CLASS ENVIRONMENTAL ASSESSMENT - NOISE ASSESSMENT REPORT

TITLE
ILLUSTRATIVE PURPOSES - PREDICTED FUTURE NOISE LEVELS WITH THE PROJECT (AMBIENT) @ 1.5 M INCLUDING QEW - WITHOUT DTM

Golder Associates
Mississauga, Ontario

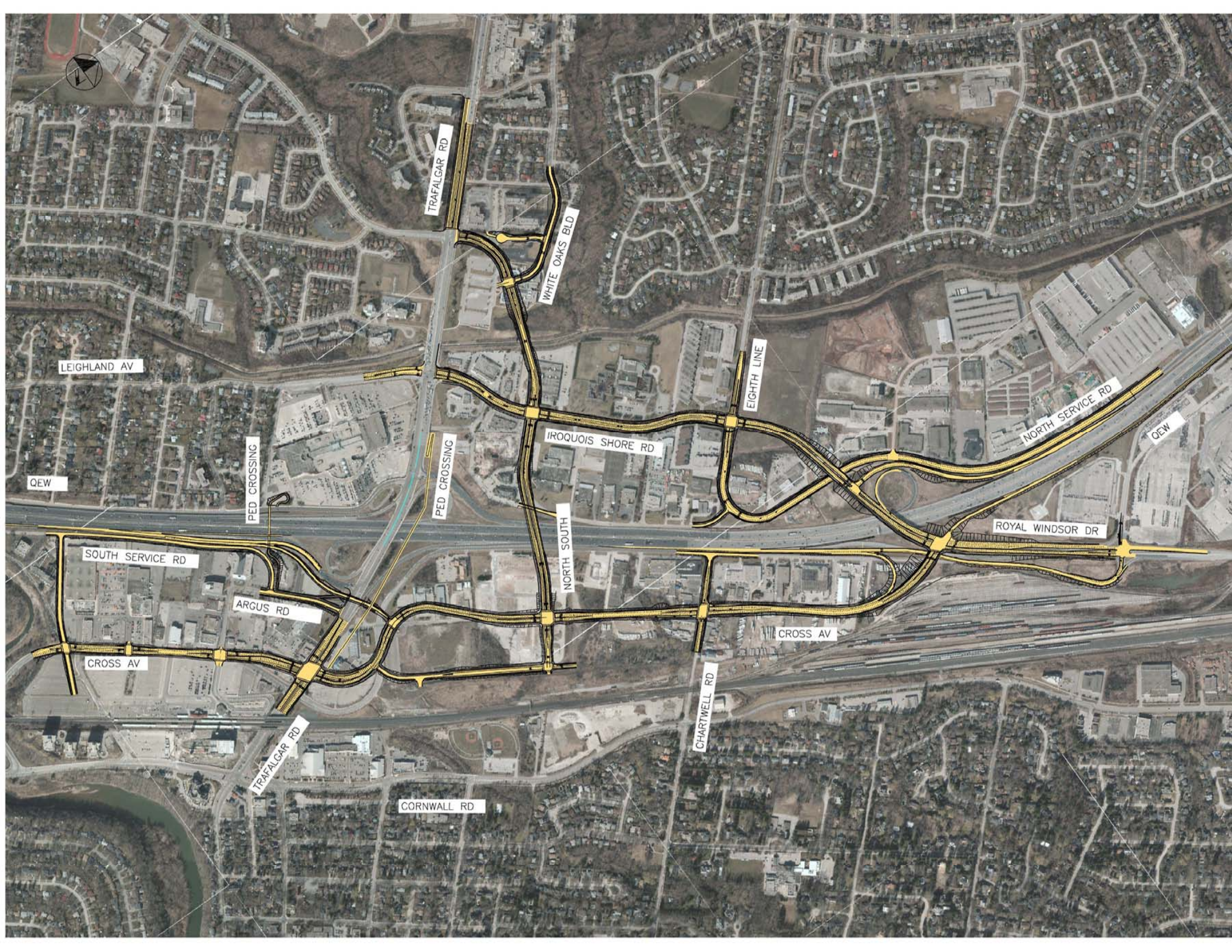
PROJECT NO. 1401739			SCALE AS SHOWN	REV. 0.0
DESIGN	SMC	20 May. 2014		
GIS	SMC	26 May. 2014		
CHECK	SC	26 May. 2014		
REVIEW	JT	26 May. 2014		

FIGURE: 7

N:\SIM\Clients\Cole\Oakville\99_PROJ\1401739_Cole_Noise\40_PROD\001_Noise\1401739_001_FutureWProject_NoiseLevels_0006.mxd

APPENDIX A

Project Proposed Modifications


TRAFALGAR RD
WHITE OAKS BLD
LEIGHLAND AV
EIGHTH LINE
NORTH SERVICE RD
QEW
IROQUOIS SHORE RD
PED CROSSING
PED CROSSING
QEW
NORTH SOUTH
ROYAL WINDSOR DR
SOUTH SERVICE RD
ARGUS RD
CROSS AV
CROSS AV
CHARTWELL RD
TRAFALGAR RD
CORNWALL RD

APPENDIX B

Road Traffic Data

Town of Oakville Data	MAP 2 - 2012 TRAFFIC VOLUMES.PDF
Cole Data	
Golder Assumption	

GLOBAL ANNUAL GROWTH 2%

				PRESENT IN	PRESENT IN	SPEED	# OF ROADS MODELLED ALONG ALIGNMENT	EXISTING DATA						ALIGNMENT ANNUAL GROWTH %	FUTURE DATA WITH PROJECT						AADT		
ALIGNEMENT	**LIMITS**		**ROAD SEGMENT**	**2014**	**2031**			**AADT**	**YEAR**	**DAYTIME %**	**NIGHTTIME %**	**% MEDIUM TRUCKS**	**% HEAVY TRUCKS**		**AADT**	**YEAR**	**DAYTIME %**	**NIGHTTIME %**	**% MEDIUM TRUCKS**	**% HEAVY TRUCKS**	**EXISTING 2014**	**FUTURE W/O PROJECT 2031**	**FUTURE W/PROECT 2031**
ALLAN ST.	MACDONALD	CORNWALL RD	_01	X	X	**50**	**1**	**4700**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	4890	6847	6847
ALLAN ST.	LAKESHORE RD E	MACDONALD	_02	X	X	**50**	**1**	**4000**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	4162	5827	5827
CHARTWELL ROAD	SOUTH OF SOUTH SERVICE RD		_03	X		**50**	**1**	**1600**	**2014**	**94%**	**6%**	**2%**	**3%**	-	**0**	**0**	**0%**	**0%**	**0%**	**0%**	1600	2240	0
CORNWALL RD	MAPLE GROVE DRIVE	FORD DRIVE	_04	X	X	**60**	**1**	**13500**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	14326	20060	20060
CORNWALL RD	MORRISON RD	MAPLE GROVE DRIVE	_05	X	X	**60**	**1**	**12100**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	12589	17627	17627
CORNWALL RD	CHARTWELL RD	MORRISON RD	_06	X	X	**60**	**1**	**11900**	**2014**	**91%**	**9%**	**2%**	**3%**	-	**28600**	**2031**	**91%**	**9%**	**2%**	**3%**	11900	16663	28600
CORNWALL RD	ALLAN ST.	CHARTWELL RD	_07	X	X	**60**	**1**	**17600**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	18311	25640	25640
CORNWALL RD	TRAFALGAR	ALLAN ST.	_08	X	X	**60**	**1**	**21300**	**2014**	**91%**	**9%**	**2%**	**3%**	-	**31600**	**2031**	**91%**	**9%**	**2%**	**3%**	21300	29825	31600
CROSS AVE	WEST OF TRAFALGAR ROAD		_09	X		**50**	**1**	**14000**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**0**	**0**	**0%**	**0%**	**0%**	**0%**	14000	19603	0
DEVON RD	MORRISON RD	1/2 WAY TO MAPLE GROVE DRIVE	_10	X	X	**50**	**1**	**2600**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	2759	3863	3863
DEVON RD	1/2 WAY TO MAPLE GROVE DRIVE	MAPLE GROVE DRIVE	_11	X	X	**50**	**1**	**3700**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	3926	5498	5498
DEVON RD	MAPLE GROVE DRIVE	1/2 WAY TO FORD DRIVE	_12	X	X	**50**	**1**	**2900**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	3078	4309	4309
DEVON RD	1/2 WAY TO FORD DRIVE	FORD DRIVE	_13	X	X	**50**	**1**	**2400**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	2547	3566	3566
EIGHT LINE	NORTH OF IROQUOIS SHORE ROAD		_14	X	X	**50**	**1**	**15100**	**2014**	**91%**	**9%**	**2%**	**3%**	-	**13400**	**2031**	**93%**	**7%**	**2%**	**3%**	15100	21144	13400
EIGHT LINE	SOUTH OF IROQUOIS SHORE ROAD		_15	X	X	**50**	**1**	**1900**	**2014**	**89%**	**11%**	**2%**	**3%**	-	**5400**	**2031**	**93%**	**7%**	**2%**	**3%**	1900	2660	5400
FALGARWOOD DR	EIGHT LINE	GRAND BLVD	_16	X	X	**50**	**1**	**3200**	**2009**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	3533	4947	4947
FORD DRIVE	NORTH SERVICE ROAD	SHERIDAN GDN. DR	_17	X	X	**60**	**1**	**22800**	**2012**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	23721	33215	33215
FORD DRIVE	SHERIDAN GDN. DR	DEVON	_18	X	X	**60**	**1**	**8000**	**2011**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	8490	11888	11888
DORVAL DRIVE	QEW	NORTH SERVICE ROAD	_19	X	X	**60**	**1**	**25800**	**2012**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	26842	37586	37586
DORVAL DRIVE	QEW	SPEERS RD	_20	X	X	**60**	**1**	**26700**	**2012**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	27779	38897	38897
IROQUOIS SHORE RD	EAST OF NORTH SOUTH CORRIDOR/NORTH SERVICE ROAD		_21	X	X	**50**	**1**	**13700**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**23700**	**2031**	**93%**	**7%**	**2%**	**5%**	13700	19183	23700
IROQUOIS SHORE RD	WEST OF NORTH SOUTH CORRIDOR/NORTH SERVICE ROAD		_22	X	X	**50**	**1**	**19400**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**21000**	**2031**	**93%**	**7%**	**2%**	**5%**	19400	27165	21000
KERR ST	MARY ST	SPEERS RD	_23	X	X	**60**	**1**	**11800**	**2012**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	12277	17190	17190
KERR ST	SPEERS RD	1/2 WAY QEW	_24	X	X	**60**	**1**	**12000**	**2012**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	12485	17482	17482
KERR ST	1/2 WAY QEW	QEW	_25	X	X	**60**	**1**	**15100**	**2012**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	15710	21998	21998
LEIGHLAND AVE	TRAFALGAR	SIXTH LINE	_26	X	X	**50**	**1**	**12300**	**2014**	**91%**	**9%**	**2%**	**3%**	-	**15000**	**2031**	**91%**	**9%**	**2%**	**3%**	12300	17223	15000
LINBROOK RD	CHARTWELL RD	MORRISON RD	_27	X	X	**50**	**1**	**2700**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	2865	4012	4012
MAPLE AVE	REYNOLDS	CHARTWELL RD	_28	X	X	**50**	**1**	**1300**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	1380	1932	1932
MAPLE GROVE DRIVE	CORNWALL	DEVON	_29	X	X	**50**	**1**	**10400**	**2011**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	11037	15454	15454
MCCRANEY ST E	TRAFALGAR	SIXTH LINE	_30	X	X	**50**	**1**	**8800**	**2014**	**91%**	**9%**	**2%**	**3%**	-	**8300**	**2031**	**91%**	**9%**	**2%**	**3%**	8800	12322	8300
MORRISON RD	CORNWALL	DEVON	_31	X	X	**50**	**1**	**3700**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	3849	5390	5390
NORTH SERVICE ROAD	UPPER MIDDLE ROAD	EIGHT LINE	_32	X	X	**60**	**1**	**5400**	**2010**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	5845	8185	8185
NORTH SERVICE ROAD	EIGHT LINE	IROQUOIS	_33	X		**60**	**1**	**6400**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**0**	**0**	**0%**	**0%**	**0%**	**0%**	6400	8962	0
NORTH SERVICE ROAD	QEW	DORVAL DR	_34	X	X	**60**	**1**	**13900**	**2011**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	14751	20655	20655
QEW EB	EAST OF ROYAL WINDSOR DRIVE		_35	X	X	**100**	**2**	**123100**	**2014**	**84%**	**16%**	**5%**	**10%**	-	**162600**	**2031**	**84%**	**16%**	**5%**	**10%**	123100	162600	162600
QEW EB	EAST OF TRAFALGAR ROAD		_36	X	X	**100**	**2**	**140100**	**2014**	**82%**	**18%**	**5%**	**10%**	-	**167800**	**2031**	**82%**	**18%**	**5%**	**10%**	140100	167800	167800
QEW EB	WEST OF TRAFALGAR ROAD		_37	X	X	**100**	**2**	**147000**	**2014**	**79%**	**21%**	**5%**	**10%**	-	**173600**	**2031**	**79%**	**21%**	**5%**	**10%**	147000	173600	173600
QEW WB	EAST OF ROYAL WINDSOR DRIVE		_38	X	X	**100**	**2**	**123100**	**2014**	**84%**	**16%**	**5%**	**10%**	-	**162600**	**2031**	**84%**	**16%**	**5%**	**10%**	123100	162600	162600
QEW WB	EAST OF ROYAL TRAFALGAR ROAD		_39	X	X	**100**	**2**	**140100**	**2014**	**82%**	**18%**	**5%**	**10%**	-	**167800**	**2031**	**82%**	**18%**	**5%**	**10%**	140100	167800	167800
QEW WB	WEST OF TRAFALGAR ROAD		_40	X	X	**100**	**2**	**147000**	**2014**	**79%**	**21%**	**5%**	**10%**	-	**173600**	**2031**	**79%**	**21%**	**5%**	**10%**	147000	173600	173600
QUEEN MARY	KERR	REBECCA	_41	X	X	**50**	**1**	**3000**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	3121	4370	4370
REYNOLDS	MACDONALD	CORNWALL RD	_42	X	X	**50**	**1**	**6700**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	6971	9761	9761
REYNOLDS	LAKESHORE RD E	MACDONALD	_43	X	X	**50**	**1**	**3100**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	3225	4516	4516
ROYAL WINDSOR DRIVE	EAST OF QEW		_44	X	X	**60**	**1**	**17200**	**2014**	**91%**	**9%**	**2%**	**7%**	-	**32300**	**2031**	**93%**	**7%**	**2%**	**5%**	17200	24084	32300
ROYAL WINDSOR DRIVE	EAST OF QEW		_45	X		**60**	**2**	**17200**	**2014**	**91%**	**9%**	**2%**	**7%**	-	**0**	**0**	**0%**	**0%**	**0%**	**0%**	17200	24084	0
ROYAL WINDSOR DRIVE	EAST OF QEW		_46	X		**60**	**2**	**17200**	**2014**	**91%**	**9%**	**2%**	**7%**	-	**0**	**0**	**0%**	**0%**	**0%**	**0%**	17200	24084	0
SIXTH LINE	LEIGHLAND AVE	MCCRANEY ST E	_47	X	X	**50**	**1**	**7400**	**2012**	**91%**	**9%**	**2%**	**3%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**3%**	7699	10780	10780
SOUTH SERVICE ROAD	EAST OF TRAFALGAR ROAD		_48	X	X	**60**	**1**	**5700**	**2014**	**91%**	**9%**	**2%**	**5%**	**2%**	**0%**	**0%**	**91%**	**9%**	**2%**	**5%**	5700	7981	7981
SOUTH SERVICE ROAD	EAST OF TRAFALGAR ROAD		_49	X	X	**60**	**1**	**5700**	**2014**	**91%**	**9%**	**2%**	**5%**	**2%**	**0%**	**0%**	**91%**	**9%**	**2%**	**5%**	5700	7981	7981
SOUTH SERVICE ROAD	EAST OF TRAFALGAR ROAD		_50	X		**60**	**1**	**5700**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**0**	**0**	**0%**	**0%**	**0%**	**0%**	5700	7981	0
SPEERS RD	TRAFALGAR	CROSS AVE	_51	X	X	**60**	**1**	**16700**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**27300**	**2031**	**91%**	**9%**	**2%**	**5%**	16700	23384	27300
SPEERS RD	CROSS AVE	KERR ST	_52	X	X	**60**	**1**	**29600**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**39100**	**2031**	**91%**	**9%**	**2%**	**5%**	29600	41447	39100
SPEERS RD	KERR ST	DORVAL DR	_53	X	X	**60**	**1**	**14200**	**2012**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	14774	20687	20687
TRAFALGAR ROAD	NORTH OF IROQUOIS SHORE ROAD		_54	X	X	**60**	**1**	**34000**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**42200**	**2031**	**93%**	**7%**	**2%**	**5%**	34000	47608	42200
TRAFALGAR ROAD	NORTH OF QEW		_55	X	X	**60**	**1**	**51400**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**42400**	**2031**	**93%**	**7%**	**2%**	**5%**	51400	71972	42400
TRAFALGAR ROAD	SOUTH OF QEW		_56	X	X	**60**	**1**	**40000**	**2014**	**91%**	**9%**	**2%**	**5%**	-	**48000**	**2031**	**93%**	**7%**	**2%**	**5%**	40000	56010	48000
WHITE OAKS BLVD	TRAFALGAR	TRAFALGAR	_57	X	X	**50**	**1**	**6500**	**2014**	**91%**	**9%**	**2%**	**3%**	-	**10600**	**2031**	**91%**	**9%**			6500	9102	10600
CHARTWELL ROAD	NORTH OF CROSS AVE		_N_01		X	**50**	**1**	-	-	-	-	-	-	-	**8300**	**2031**	**93%**	**7%**	**2%**	**3%**	-		8300
CHARTWELL ROAD	SOUTH OF CROSS AVE		_N_02		X	**50**	**1**	-	-	-	-	-	-	-	**19900**	**2031**	**93%**	**7%**	**2%**	**3%**	-		19900
CROSS AVE	WEST OF TRAFALGAR ROAD		_N_03		X	**50**	**1**	-	-	-	-	-	-	-	**32300**	**2031**	**93%**	**7%**	**2%**	**5%**	-		32300
CROSS AVE	WEST OF NS CORRIDOR		_N_04		X	**50**	**1**	-	-	-	-	-	-	-	**24300**	**2031**	**93%**	**7%**	**2%**	**5%**	-		24300
CROSS AVE	EAST OF NS CORRIDOR		_N_05		X	**50**	**1**	-	-	-	-	-	-	-	**21300**	**2031**	**93%**	**7%**	**2%**	**5%**	-		21300
CROSS AVE	EAST OF CHARTWELL ROAD		_N_06		X	**50**	**1**	-	-	-	-	-	-	-	**26200**	**2031**	**93%**	**7%**	**2%**	**5%**	-		26200
EIGHT LINE	SOUTH OF IROQUOIS SHORE ROAD		_N_07		X	**50**	**1**	**1900**	**2014**	**89%**	**11%**	**2%**	**3%**	-	**5400**	**2031**	**93%**	**7%**	**2%**	**3%**	-		5400
NORTH SERVICE ROAD	UPPER MIDDLE ROAD	EIGHT LINE	_N_08		X	**60**	**1**	**5400**	**2010**	**91%**	**9%**	**2%**	**5%**	**2%**	**0**	**0**	**91%**	**9%**	**2%**	**5%**	-		8185
NORTH SERVICE ROAD	EAST OF EIGHT LINE		_N_09		X	**60**	**1**	-	-	-	-	-	-	-	**3900**	**2031**	**92%**	**8%**	**2%**	**5%**	-		3900
NORTH SOUTH CORRIDOR	EAST OF TRAFALGAR		_N_10		X	**50**	**1**	-	-	-	-	-	-	-	**8200**	**2031**	**94%**	**6%**	**2%**	**3%**	-		8200
NORTH SOUTH CORRIDOR	NORTH OF IROQUOIS SHORE ROAD		_N_11		X	**50**	**1**	-	-	-	-	-	-	-	**8200**	**2031**	**94%**	**6%**	**2%**	**3%**	-		8200
NORTH SOUTH CORRIDOR	NORTH OF QEW		_N_12		X	**50**	**1**	-	-	-	-	-	-	-	**16600**	**2031**	**93%**	**7%**	**2%**	**3%**	-		16600
NORTH SOUTH CORRIDOR	SOUTH OF QEW		_N_13		X	**50**	**1**	-	-	-	-	-	-	-	**16300**	**2031**	**93%**	**7%**	**2%**	**3%**	-		16300
ROYAL WINDSOR DRIVE	EAST OF QEW		_N_14		X	**60**	**1**	-	-	-	-	-	-	-	**32300**	**2031**	**93%**	**7%**	**2%**	**5%**	-		32300
ROYAL WINDSOR DRIVE	WEST OF QEW		_N_15		X	**60**	**1**	-	-	-	-	-	-	-	**17800**	**2031**	**93%**	**7%**	**2%**	**5%**	-		17800
SOUTH SERVICE ROAD	EAST OF TRAFALGAR ROAD		_N_16		X	**60**	**1**	**5700**	**2014**	**91%**	**9%**	**2%**	**5%**	**2%**	**0%**	**0%**	**91%**	**9%**	**2%**	**5%**	-		7981
WHITE OAKS BLVD	NORTH OF NORTH SOUTH CORRIDOR		_N_17		X	**50**	**1**	-	-	-	-	-	-	-	**2600**	**2031**	**92%**	**8%**	**2%**	**2%**	-		2600

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