

# Environmental Noise Assessment

## 26, 28, 30, 34, 36, 38, 42 Mill Street and 3 and 11 Dayfoot Drive

### Proposed Condominium Development

Mill Street and Dayfoot Drive  
Georgetown, Halton Hills

September 7, 2016  
Project: 116-0217

Prepared for

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**VALCOUSTICS**

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## **Environmental Noise Assessment**

# **26, 28, 30, 34, 36, 38, 42 Mill Street and 3 and 11 Dayfoot Drive**

## **Proposed Condominium Development**

Mill Street and Dayfoot Drive  
Georgetown, Halton Hills

### **EXECUTIVE SUMMARY**

Valcoustics Canada Ltd. (VCL) was retained by Amico Properties Inc. to prepare an Environmental Noise Assessment in support of the Site Plan Approval (SPA) application submission to the Town of Halton Hills. The main topic of this assessment addresses the noise impact from the existing environment onto the proposed development; in addition, this assessment addresses the noise impact of the proposed development on adjacent land uses and the noise impact of the proposed development on itself. The proposed project will consist of two 6-storey condominium buildings and one 5-storey retirement residence.

The significant noise sources in the vicinity are rail traffic on the Canadian National Railways (CN) Halton Subdivision north of the proposed development and road traffic on Guelph Street located south of the proposed development.

The sound levels on site have been determined and compared with the applicable Ministry of the Environment and Climate Change (MOE) noise guideline limits to determine the need for noise mitigation.

To meet the applicable transportation noise guideline limits:

- central air conditioning is required for all three buildings;
- windows with Sound Transmission Class (STC) ratings up to 39 are required, depending on exposure to the CN rail line; and
- exterior walls meeting STC 54 are required at all buildings.

The above STC requirements are based on conservative assumptions and may change (be lowered) once more detailed designs are available.

## **1.0 INTRODUCTION**

VCL was retained by Amico Properties Inc. to prepare an Environmental Noise Assessment in support of an SPA application submission to the Town of Halton Hills. The potential sound levels have been predicted and compared to the applicable MOE noise guideline limits. Where sound level excesses above these guideline limits occur, noise mitigation measures have been recommended.

### **1.1 THE SITE AND SURROUNDING AREA**

The site is located at the northwest corner of Guelph Street and Mill Street in Georgetown. The site was previously occupied by the Georgetown Memorial Arena.

The site is bounded by:

- Mill Street, with existing detached residential dwellings beyond, to the east;
- Dayfoot Drive, with existing detached residential dwellings beyond, to the north;
- existing residential development (detached and apartment) to the west; and
- an existing church (Sacre-Coeur Church), with Guelph Street beyond, to the south. The church (Sacre-Coeur Church) is located directly at the northwest corner of Guelph Street and Mill Street.

The CN rail line runs east-west to the north of the site. The closest distance from the rail line to the site is about 100 metres. The Georgetown GO Rail Station is located to the northeast of the site, beyond the existing residential area. The closest distance from the GO station to the site is about 400 metres. The closest distance from the site to the main road traffic corridor (Guelph Street) is about 40 metres.

Small commercial businesses and residences are located on the south side of Guelph Street.

A Key Plan is included as Figure 1.

This report is based on a Masterplan, prepared by Holabird and Root, dated August 23, 2016. The Masterplan is included as Figure 2, which shows the site with the three buildings.

### **1.2 THE PROPOSED DEVELOPMENT**

The development consists of three buildings, constructed in three phases:

- Phase I: Building 1 - 6-storey condominium building on the south side of the site.
- Phase II: Building 2 - 6-storey condominium building on the northwest side of the site.
- Phase III: Building 3 - 5-storey retirement residence on the northeast side of the site.

The conceptual design of the site and the buildings is shown in Figure 2. The entrance to the site will be from Mill Street, with the entrance/access road located between Building 1 and Building 3.

All three buildings are anticipated to have balconies, all less than 4 metres deep. Building 1 will have a ground level outdoor patio area (Outdoor Living Area - "OLA") on the west side of the building. Building 3 will have a ground level OLA on the west side of the building. Building 2 will not be equipped with any OLA's. The locations of the OLA's are shown on Figure 2.

## **2.0 ENVIRONMENTAL NOISE ASSESSMENT**

### **2.1 NOISE SOURCES**

The noise sources with potential to impact the proposed development are rail traffic on the CN Halton Subdivision north of the proposed development and road traffic on Guelph Street located south of the proposed development. Traffic volumes on the other adjacent roads are considered to be minor and no significant noise impact is expected.

#### **2.1.1 Rail Transportation Sources**

##### **2.1.1.1 CN**

Rail traffic data for the CN Halton Subdivision applicable to the year 2016 was obtained directly from CN. The CN rail traffic data was escalated to the year 2026 design condition using a growth rate of 2.5% compounded annually. This escalation rate is suggested by the MOE for preparing environmental noise studies.

CN rail activity includes freight and passenger traffic. Current trackage at this point consists of a double mainline track, continuously welded throughout the study area.

##### **2.1.1.2 GO Transit**

Commuter rail traffic for the GO Kitchener line, applicable to the year 2025, was obtained directly from GO Transit /Metrolinx. The GO Transit rail traffic data was escalated to the year 2026 design condition using a growth rate of 2.5% compounded annually.

GO Transit rail activity includes commuter trains only.

#### **2.1.2 Road Transportation Sources**

For Guelph Street, a turning movement count applicable to the year 2012 was provided by the Town of Halton Hills. It was also assumed that the traffic volumes would approximately follow the typical ITE traffic distribution model. Thus, the 8-hour count is 54.3% of the 24-hour data. The full 24-hour traffic volume was then calculated based on this percentage. A growth rate of 2%, compounded annually, was used to obtain future (year 2026) traffic volumes. Truck percentages were obtained from the turning movement counts. Medium and heavy truck percentages were calculated as 3.8% and 2.8%, respectively, of the total traffic volume. A day/night split of 90%/10% was used as is typical for well travelled roadways.

The road traffic data is summarized in Table 1. Correspondence is included as Appendix A.

## 2.2 ENVIRONMENTAL NOISE GUIDELINES

### 2.2.1 MOE Publication NPC-300

The applicable noise guidelines for new residential development are those in MOE Publication NPC-300, “*Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*”. These noise guidelines are discussed briefly below and summarized in Appendix B.

#### 2.2.1.1 Architectural Elements

In the daytime (0700 hours to 2300 hours), the indoor criterion for road noise is  $L_{eq Day}^{(1)}$  of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road noise is  $L_{eq Night}^{(2)}$  of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms. The indoor criteria for rail noise are 5 dBA more stringent than those for road; that is, 40 dBA for living/dining rooms and dens during the daytime and nighttime periods, 40 dBA for bedrooms during the daytime period and 35 dBA for bedrooms during the nighttime period.

The architectural design of the building envelope (walls, windows, etc.) must provide adequate sound isolation to achieve these indoor sound level limits, based on the applicable outdoor sound level on the facades.

#### 2.2.1.2 Ventilation

In accordance with the MOE noise guidelines for road traffic sources, if the daytime sound level,  $L_{eq Day}$ , at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. A warning clause advising the occupant of the potential interference with some activities is also required. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ( $L_{eq Night}$ ) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

#### 2.2.1.3 Outdoors

For OLA's, the guideline is  $L_{eq Day}$  of 55 dBA, with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, providing warning clauses are registered on title. Note that for road traffic sources, a balcony is not considered an OLA, unless it is the only OLA for the occupant and it is:

- at least 4 m in depth; and
- unenclosed.

(1)  $L_{eq Day}$ : 16-hour energy equivalent sound level (0700-2300 hours).  
(2)  $L_{eq Night}$ : 8-hour energy equivalent sound level (2300-0700 hours).

## 2.2.2 Halton Region

The proposed development is not immediately adjacent to any Regional Roads. Thus, there are no regional requirements over and above those of the MOE that apply.

## 2.2.3 Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC)

The standard mitigation requirements outlined in the FCM/RAC guidelines suggest a dwelling setback of 30 m for a residential development adjacent to a principal main line, in combination with a safety berm at least 2.5 m above the property line grade. A 5.5 m high sound barrier is also suggested (e.g., 3.0 m high acoustic fence atop 2.5 m high safety berm).

Note that the site is well beyond the 30 m setback. In addition, there is existing residential development between the subject site and the rail line. Thus, the safety berm requirements are not applicable in this case.

Warning clauses are also recommended.

Aside from “standard” requirements regarding the setback of dwellings and safety berm/sound barrier configuration, the sound level design objectives of FCM/RAC are similar to those of the MOE.

## 2.3 NOISE IMPACT ASSESSMENT

Using the road traffic data in Table 1A and rail traffic data in Table 1B, the sound levels in terms of  $L_{eq\ Day}$  and  $L_{eq\ Night}$  were determined using STAMSON V5.04 – ORNAMENT, the computerized road traffic noise prediction models of the MOE.

In calculating the sound levels at the facades, the calculations were performed at the highest storeys (worst case) and at anticipated window locations. The daytime OLA sound levels were calculated in the two OLA's at Buildings 1 and 3. The calculation was performed at the centre of the OLA, at a height of 1.5 m above grade. Inherent screening of each building face due to its orientation to the noise source as well as that provided by the subject development itself were taken into account.

Note that the development will be built in three phases. Screening from the previous phases, but not the future phases, was included in the sound level assessments at each building.

The surrounding residential developments are primarily low-rise, with the exception of the apartment building to the west of the site. To be conservative, screening from the neighbouring developments were not included in the assessment of the sound levels at the building facades. Since both of the OLA's are at grade level, it is anticipated that there would be a significant amount of screening from the neighbouring developments. Thus, screening from the surrounding developments was included in the OLA sound level assessment.

Tables 2-1, 2-2 and 2-3 summarize the predicted sound levels outdoors at specific locations.

A sample sound level calculation is included in Appendix C.



The highest daytime/nighttime sound levels would occur in the northwest corners of each building, with highest sound levels of 63 dBA/65 dBA at the north west corner of Building 2. The highest daytime OLA sound level is 52 dBA.

### **3.0 NOISE ABATEMENT REQUIREMENTS**

In general, the noise control measures can be classified into two categories:

- (a) Architectural elements to achieve acceptable indoor noise guidelines for transportation sources; and
- (b) Design features to protect the OLA's.

Noise abatement requirements are summarized in Table 3 and notes to Table 3.

#### **3.1 INDOORS**

##### **3.1.1 Architectural Requirements**

The indoor noise level guidelines for the transportation sources can be achieved by using appropriate construction for exterior walls, windows and doors. In determining the worst-case architectural requirements for the dwellings, wall and window areas were assumed to be 20% and 80%, respectively, of the associated floor area, on the facades directly exposed to and at an angle to the noise sources, for both living/dining rooms and bedrooms.

For all three buildings (residential units) in this development, the STC requirements depend on the location and orientation of the exterior walls and windows. The exterior walls are required to meet a minimum STC value of 54. In order to meet the MOE criteria, the most onerous requirements for the windows is a minimum STC value of 39. See Table 3 for details.

The above STC requirements are based on conservative assumptions and may change (be lowered) once more detailed designs are available.

##### **3.1.2 Ventilation Requirements**

Based on the predicted daytime and nighttime sound levels, all three buildings (residential units) in this development will be required to include central air conditioning.

#### **3.2 OUTDOORS**

There are two ground level outdoor amenity areas that were considered and assessed as OLA's. The first OLA is located at the southwest facade of Building 1 and the second is located on the west side of the Retirement Residence (Building 3). The unmitigated daytime OLA sound levels are within the 55 dBA design guideline. Thus, no sound barriers or other mitigation is required for noise control purposes.

### **3.3 WARNING CLAUSES**

Where the sound level guidelines are exceeded, appropriate MOE warning clauses should be registered on title and make future occupants aware of the potential noise situation. Locations requiring warning clauses and the appropriate wording are given in Table 3 and in notes to Table 3, respectively.

## **4.0 THE EFFECT OF THE PROJECT ON THE NEIGHBOURHOOD**

The main source of noise associated with potential noise impact of this development on surrounding uses/receptors is the mechanical equipment.

Mechanical equipment interfacing to the outdoors is required to comply with the MOE noise guideline limits in NPC-300. By proper engineering design, all requirements can be met and no adverse noise impact would be created for surrounding uses. Appropriate choice of location, equipment type, and noise control features should be considered during detailed design for such items as rooftop equipment and air intakes and exhausts, including underground parking garage ventilation systems. Any parking garage air shafts located immediately adjacent to residential uses, in addition to appropriate choice of fan type, may need special noise control treatment such as acoustically lining the shaft or providing silencers.

For any emergency generators, appropriate steps should be taken to ensure that the equipment placement, treatment, and the routine testing schedule will not generate adverse noise impact on neighbouring properties. For generators under 700 kW, the installation must comply with Ontario Regulation 346/12.

The additional road traffic generated by this project will be small relative to existing traffic volumes within the general area, and is not expected to create adverse noise impact.

## **5.0 THE EFFECT OF THE PROJECT ON ITSELF**

Same as above, the main source of noise associated with potential noise impact of each of the three buildings on the other buildings in this development is the mechanical equipment. The same requirements described above in Section 4.0 apply.

Consideration should be given to the control of airborne and/or structure-borne noise generated within each building as part of the detailed design. The major items requiring attention are the common boundaries and building services.

The common boundaries, in general, are those between adjacent noise sensitive areas (such as two adjacent residential units) and between noise sensitive areas and noisy service areas (such as a residential unit and a mechanical space). Building services include mechanical equipment, plumbing, etc.

## **6.0 CONCLUSIONS**

With the incorporation of the recommended noise mitigation measures, the applicable MOE noise guidelines can be met and a suitable acoustical environment provided for the occupants.

To meet the applicable transportation noise guideline limits, the three buildings require central air conditioning, windows with STC ratings up to 39 and exterior walls meeting STC 54. The STC requirements are based on conservative assumptions and may change (be lowered) when detailed designs become available.

## **7.0 REFERENCES**

1. PC STAMSON 5.04, “Computer Program for Road Traffic Noise Assessment”, Ontario Ministry of the Environment.
2. Building Practice Note No. 56: "Controlling Sound Transmission into Buildings", by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.
3. Environmental Noise Guideline – Stationary and Transportation Sources, Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, October 2013.
4. “Guideline for New Development in Proximity to Railway Operations”, Federation of Canadian Municipalities and the Railway Association of Canada, May 2013.

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**TABLE 1A**  
**ROAD TRAFFIC DATA**

Roadway	Year	AADT <sup>(1)</sup>	% Trucks		Day/Night (%)	Speed Limit (kph)
			Medium	Heavy		
Guelph Street <sup>(2)</sup>	2012	24 275	3.8	2.8	90/10	50

Notes:

- (1) AADT – Annual Average Daily Traffic.  
 (2) Obtained from the Town of Halton Hills for the year of 2012. Future (year 2026) traffic volumes were obtained by projecting the current (year 2012) traffic data at a growth rate of 2%, compounded annually. Truck percentages were calculated from the turning movement count data. Day/night split was assumed.

**TABLE 1B**  
**RAIL TRAFFIC DATA – CN HALTON SUBDIVISION**

Period	Train Type	Maximum # of Trains	Maximum # of Cars/Train	Max # of Locos/Train	Maximum Speed (kph)
Daytime (0700 to 2300)	Freight <sup>(1)</sup>	10 (12.8) <sup>(3)</sup>	140	4	80
	Passenger <sup>(1)</sup>	4 (5.1) <sup>(3)</sup>	10	2	80
	GO Commuter <sup>(2)</sup>	7 (7.2) <sup>(3)</sup>	12	1	80
Nighttime (2300 to 0700)	Freight <sup>(1)</sup>	8 (10.2) <sup>(3)</sup>	140	4	80
	Passenger <sup>(1)</sup>	0 (0) <sup>(3)</sup>	10	2	80
	GO Commuter <sup>(2)</sup>	5 (5.1) <sup>(3)</sup>	12	1	80

Notes:

- (1) Obtained directly from CN for the year 2016.  
 (2) Obtained directly from GO Transit for the year 2025.  
 (3) The data shown in brackets is projected to the year 2026 with a 2.5% growth rate, compounded annually.

**TABLE 2A**  
**BUILDING 1**  
**PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS<sup>(1)</sup>**

Location <sup>(2)</sup>	Source	Distance (m) <sup>(3)</sup>	L <sub>eq</sub> Day (dBA) <sup>(1)</sup>	L <sub>eq</sub> Night (dBA) <sup>(1)</sup>
OLA	Guelph Street	106	47	–
	CN Halton Subdivision	261	51	–
	<b>TOTAL</b>	–	<b>52</b>	–
Southwest Corner (South Face)	Guelph Street	95	59	52
	CN Halton Subdivision	206	56	58
	<b>TOTAL</b>	–	<b>61</b>	<b>59</b>
Southwest Corner (West Face)	Guelph Street	95	54	47
	CN Halton Subdivision	206	61	63
	<b>TOTAL</b>	–	<b>62</b>	<b>63</b>
Northwest Corner (West Face)	Guelph Street	117	53	46
	CN Halton Subdivision	190	61	63
	<b>TOTAL</b>	–	<b>62</b>	<b>63</b>
Northwest Corner (North Face)	CN Halton Subdivision	190	61	63
Southeast Corner (South Face)	Guelph Street	59	61	55
	CN Halton Subdivision	261	55	57
	<b>TOTAL</b>	–	<b>62</b>	<b>59</b>
Southeast Corner (East Face)	Guelph Street	59	61	54

Notes:

- (1) At Buildings 1 and 2, daytime/nighttime receptors at the building facades were taken at a height of 16.5 m above grade, representing the sixth (top) floor windows. At Building 3, daytime/nighttime receptors at the building facades were taken at a height of 13.5 m above grade, representing the fifth (top) floor windows. OLA receptors were taken at 1.5 m above grade.
- (2) See Figure 2 for receptor locations.
- (3) Distance indicated is from the centreline of the noise sources to facade or OLA.

**TABLE 2B**

**BUILDING 2**

**PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS<sup>(1)</sup>**

<b>Location<sup>(2)</sup></b>	<b>Source</b>	<b>Distance (m)<sup>(3)</sup></b>	<b>L<sub>eq</sub> Day (dBA)<sup>(1)</sup></b>	<b>L<sub>eq</sub> Night (dBA)<sup>(1)</sup></b>
Southwest Corner (South Face)	Guelph Street	138	52	45
	CN Halton Subdivision	174	57	59
	<b>TOTAL</b>	–	<b>58</b>	<b>59</b>
Southwest Corner (West Face)	Guelph Street	138	52	45
	CN Halton Subdivision	174	62	64
	<b>TOTAL</b>	–	<b>62</b>	<b>64</b>
Northwest Corner (West Face)	Guelph Street	186	50	44
	CN Halton Subdivision	141	63	65
	<b>TOTAL</b>	–	<b>63</b>	<b>65</b>
Northwest Corner (North Face)	CN Halton Subdivision	141	62	64
Southeast Corner (East Face)	Guelph Street	126	53	46

Notes:

- (1) At Buildings 1 and 2, daytime/nighttime receptors at the building facades were taken at a height of 16.5 m above grade, representing the sixth (top) floor windows. At Building 3, daytime/nighttime receptors at the building facades were taken at a height of 13.5 m above grade, representing the fifth (top) floor windows. OLA receptors were taken at 1.5 m above grade.
- (2) See Figure 2 for receptor locations.
- (3) Distance indicated is from the centreline of the noise sources to facade or OLA.

**TABLE 2C**  
**BUILDING 3**

**PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS<sup>(1)</sup>**

<b>Location<sup>(2)</sup></b>	<b>Source</b>	<b>Distance (m)<sup>(3)</sup></b>	<b>L<sub>eq</sub> Day (dBA)<sup>(1)</sup></b>	<b>L<sub>eq</sub> Night (dBA)<sup>(1)</sup></b>
OLA	CN Halton Subdivision	180	46	–
Southwest Corner (South Face)	Guelph Street	123	51	44
	CN Halton Subdivision	200	51	52
	<b>TOTAL</b>	–	<b>54</b>	<b>53</b>
Northwest Corner (West Face)	Guelph Street	171	60	62
Northwest Corner (North Face)	CN Halton Subdivision	171	60	62
Southeast Corner (East Face)	Guelph Street	100	57	50

Notes:

- (1) At Buildings 1 and 2, daytime/nighttime receptors at the building facades were taken at a height of 16.5 m above grade, representing the sixth (top) floor windows. At Building 3, daytime/nighttime receptors at the building facades were taken at a height of 13.5 m above grade, representing the fifth (top) floor windows. OLA receptors were taken at 1.5 m above grade.
- (2) See Figure 2 for receptor locations.
- (3) Distance indicated is from the centreline of the noise sources to facade or OLA.

**TABLE 3**  
**MINIMUM NOISE ABATEMENT MEASURES**

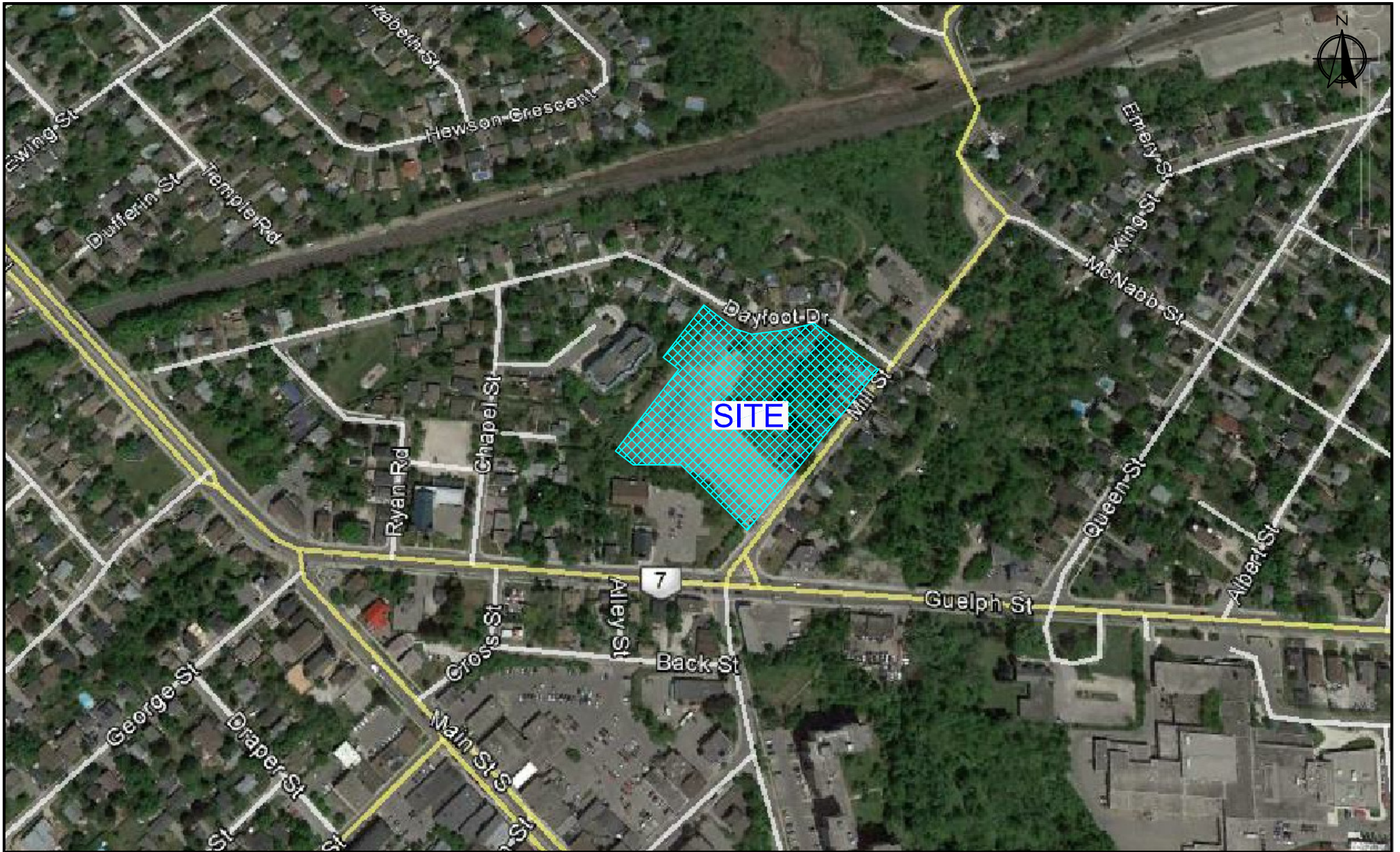
Location	Air Conditioning <sup>(1)</sup>	Exterior Wall STC Rating <sup>(2)</sup>	Window STC Rating <sup>(3)</sup>	Warning Clauses <sup>(4)</sup>
Phase 1 Condominium Building (North and West Facade)	Mandatory	STC 54	STC 37	A + B + C
Phase 1 Condominium Building (South and East Facade)	Mandatory	STC 54	STC 33	A + B + C
Phase 2 Condominium Building (West Facade)	Mandatory	STC 54	STC 39	A + B + C
Phase 2 Condominium Building (North Facade)	Mandatory	STC 54	STC 38	A + B + C
Phase 2 Condominium Building (South and West facade)	Mandatory	STC 54	STC 33	A + B + C
Phase 3 Retirement Residence (North and West facade)	Mandatory	STC 54	STC 37	A + B + C
Phase 3 Retirement Residence (South and East Facade)	Mandatory	STC 54	STC 30	A + B + C
OLA - Building 1	No abatement measures are required			
OLA - Building 3	No abatement measures are required			


For notes to this table, see following page.



### NOTES TO TABLE 3

- (1) Air conditioning means central air conditioning either for the building as a whole or for individual units.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413).
- The requirements are based on assumed wall to associated indoor floor areas (20% wall to floor area and 80% window to floor area for living rooms/bedrooms). The requirements should be confirmed when building plans are available.
- (3) A sliding glass walkout door should be considered as a window and be included in the percentage of glazing.
- The requirements are based on assumed window to associated indoor floor area (20% wall to floor area and 80% window to floor area). The requirements should be confirmed when building plans are available.
- (4) Warning clauses to be registered on title and be included in Offers of Purchase and Sale and Leases on designated units:
- A. "Purchasers and tenants/lessees are advised that despite the inclusion of noise control features in this development and within the building units, sound levels due to increasing road traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and Ministry of the Environment."
- B. "This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
- C. "Canadian National Railways or its affiliated railway companies has or have a railway right-of-way within 300 m from this dwelling unit. There may be alterations to or expansions of the railway facilities of such right-of-way in the future, including the possibility that Canadian National Railways or its affiliated railway companies as aforesaid, or their assigns or successors may expand their business operations. Such expansion may affect the living and business environment of the residents, tenants and their visitors, employees, customers and patients in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating features in the design of the development. Canadian National Railways, its affiliated railway companies and their successors and assigns will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."
- (5) Conventional roof construction meeting Ontario Building Code requirements is satisfactory in all cases.
- (6) All exterior doors shall be fully weatherstripped.



		 30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 <a href="mailto:solutions@valcoustics.com">solutions@valcoustics.com</a> Phone: (905) 764-5223 Fax: (905) 764-6813	Title <b>Key Plan</b>	Project No. 116-0217	Date Aug. 23, 2016
			Project Name <b>Mill Street and Dayfoot Drive</b>	Scale N.T.S.	Figure <b>1</b>
No.	Revision/Issue	Date			



BASE DRAWING BY HOLABIRD AND ROOT

			<p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 solutions@valcoustics.com Phone: (905) 764-5223 Fax: (905) 764-6813</p>	Title	Project No.	Date
				Masterplan	116-0217	Aug. 24, 2016
No.	Revision/Issue	Date	Project Name	Scale	Figure	
			Mill Street and Dayfoot Drive	N.T.S.	2	

# **APPENDIX A**

## **ROAD AND RAIL TRAFFIC DATA**

## Seema Nagaraj

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**From:** Brandon Gaffoor <Brandon.Gaffoor@gotransit.com>  
**Sent:** July-21-16 2:21 PM  
**To:** Seema Nagaraj  
**Cc:** Vic Schroter; Adam Snow  
**Subject:** RE: Rail traffic data request (VCL File: 116-0217)

Hello Seema,

Sorry for the delay in our response,

Further to your request of May 31, 2016, It's anticipated that GO Service on the adjacent Kitchener Line will be comprised of diesel trains within (at least) a 10 year time horizon. The preliminary midterm (2025) weekday train volume forecast at this location, including both revenue and equipment trips, is in the order of 12 trains (Diesel: 7 Day, 5 Night). Trains will be comprised of a single locomotive and up to 12 passenger cars.

The maximum design speed on the Kitchener line, adjacent to the subject site, is 80 kph (50 mph). Bells and whistles will be used as per standard protocol at Georgetown Station.

This information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that VIA and CN operate trains in this area – as such it would be prudent to contact those organizations directly for rail traffic information.

I trust that this information is useful. Please feel free to contact me should you have any additional questions.

Kind Regards,

### Brandon Gaffoor

Co-op Student | Rail Corridor Management Office | Rail Corridors  
Metrolinx | 335 Judson Street | Toronto | Ontario | M8Z 1B2  
✉ | [Brandon.Gaffoor@GoTransit.com](mailto:Brandon.Gaffoor@GoTransit.com)  
☎ | 416.202.0118



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**From:** Seema Nagaraj  
**Sent:** May-31-16 5:02 PM  
**To:** [Adam.Snow@gotransit.com](mailto:Adam.Snow@gotransit.com)  
**Subject:** Rail traffic data request (VCL File: 116-0217)

Hi Adam,

We are currently preparing an environmental noise study in the area of Mill Street and Dayfoot Drive in Georgetown (see attached image for location). We are looking for GO rail data for the CN Halton Subdivision east of Main Street North.

Please provide:

Future day/night train volumes  
Number of locomotives per train  
Number of cars per train  
Speed  
Whistle blowing locations (at grade crossing)

Thank you,

Seema Nagaraj, Ph.D., EIT



30 Wertheim Court, Unit 25  
Richmond Hill, Ontario  
Canada L4B 1B9  
Tel: 905-764-5223 ext. 243  
Fax: 905-764-6813  
[solutions@valcoustics.com](mailto:solutions@valcoustics.com)

This e-mail is intended only for the person or entity to which it is addressed. If you received this in error, please contact the sender and delete all copies of the e-mail together with any attachments.

Date: 2016/06/13

Project Number: HAL – 23.64 – McNabb Street, Georgetown, ON

Dear Seema:

**Re: Train Traffic Data – CN Halton Subdivision near McNabb Street in Georgetown, ON**

The following is provided in response to Seema's 2016/05/31 request for information regarding rail traffic in the vicinity of McNabb Street in Orangeville at approximately Mile 23.64 on CN's Halton Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

**\*Maximum train speed is given in Miles per Hour**

Type of Train	0700-2300 Volumes	Max.Consist	Max. Speed	Max. Power
Freight	10	140	50	4
Way Freight	0	25	50	4
Passenger	4	10	50	2

Type of Train	2300-0700 Volumes	Max.Consist	Max. Speed	Max. Power
Freight	8	140	50	4
Way Freight	0	25	50	4
Passenger	0	10	50	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Halton Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are zero at-grade crossing in the immediate vicinity of the study area. Anti-whistling bylaws are not in effect at this crossing. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The double mainline track is considered to be continuously welded rail throughout the study area. The presence of one switch located at Mile 23.78 may exacerbate the noise and vibration caused by train movements.

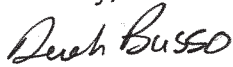
The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and

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environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Mr. Raymond Beshro, Canadian National Railway Properties at 514-399-7627 should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,



Derek Basso  
Engineering Technician  
[Derek.Basso@cn.ca](mailto:Derek.Basso@cn.ca)

cc. Raymond Beshro – CN – via e-mail



# Guelph St @ Maple Ave

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 8:00:00

**To:** 9:00:00

**Municipality:** Halton Hills  
**Site #:** 000000004  
**Intersection:** Guelph St & Maple Ave  
**TFR File #:** 9  
**Count date:** 17-Dec-2012

**Weather conditions:**  
 Rain am, Cloudy/Dry mid+pm  
**Person(s) who counted:**  
 Bolek  
 Sophie

**\*\* Signalized Intersection \*\***

**Major Road:** Guelph St runs W/E

North Leg Total: 741  
 North Entering: 323  
 North Peds: 24  
 Peds Cross:  $\times$

Heavys	14	9	1	24
Trucks	7	8	1	16
Cars	45	192	46	283
<b>Totals</b>	<b>66</b>	<b>209</b>	<b>48</b>	



Heavys	25
Trucks	25
Cars	368
<b>Totals</b>	<b>418</b>

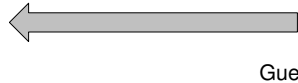
East Leg Total: 2108  
 East Entering: 852  
 East Peds: 18  
 Peds Cross:  $\times$

Heavys	Trucks	Cars	Totals
28	42	547	617

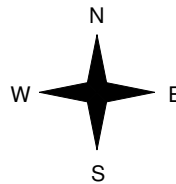


Maple Ave

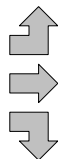
Cars	Trucks	Heavys	Totals
79	2	7	88
424	32	14	470
277	7	10	294
<b>780</b>	<b>41</b>	<b>31</b>	



Guelph St



Heavys	Trucks	Cars	Totals
12	10	84	106
12	33	764	809
3	5	39	47
<b>27</b>	<b>48</b>	<b>887</b>	



Guelph St



Peds Cross:  $\times$   
 West Peds: 30  
 West Entering: 962  
 West Leg Total: 1579

Cars	508
Trucks	20
Heavys	22
<b>Totals</b>	<b>550</b>



Maple Ave



Cars	78	205	375	658
Trucks	3	13	16	32
Heavys	0	6	8	14
<b>Totals</b>	<b>81</b>	<b>224</b>	<b>399</b>	

Peds Cross:  $\times$   
 South Peds: 35  
 South Entering: 704  
 South Leg Total: 1254

## Comments

# Guelph St @ Maple Ave

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00

**To:** 14:00:00

### One Hour Peak

**From:** 11:45:00

**To:** 12:45:00

**Municipality:** Halton Hills  
**Site #:** 000000004  
**Intersection:** Guelph St & Maple Ave  
**TFR File #:** 9  
**Count date:** 17-Dec-2012

**Weather conditions:**  
 Rain am, Cloudy/Dry mid+pm  
**Person(s) who counted:**  
 Bolek  
 Sophie

**\*\* Signalized Intersection \*\***

**Major Road:** Guelph St runs W/E

North Leg Total: 456  
 North Entering: 238  
 North Peds: 66  
 Peds Cross:  $\times$

Heavys	10	6	0	16
Trucks	4	6	2	12
Cars	58	122	30	210
<b>Totals</b>	<b>72</b>	<b>134</b>	<b>32</b>	



Heavys	27
Trucks	9
Cars	182
<b>Totals</b>	<b>218</b>

East Leg Total: 1872  
 East Entering: 894  
 East Peds: 22  
 Peds Cross:  $\times$

Heavys	Trucks	Cars	Totals
24	29	656	709



Maple Ave

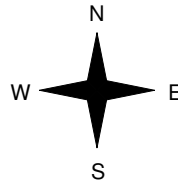
Cars	Trucks	Heavys	Totals
30	1	3	34
576	24	10	610
239	10	1	250
<b>845</b>	<b>35</b>	<b>14</b>	



Heavys	Trucks	Cars	Totals
19	4	49	72
14	23	607	644
1	2	32	35
<b>34</b>	<b>29</b>	<b>688</b>	



Guelph St



Guelph St



Peds Cross:  $\times$   
 West Peds: 69  
 West Entering: 751  
 West Leg Total: 1460

Cars	393	Cars	22	103	287	412
Trucks	18	Trucks	1	4	11	16
Heavys	8	Heavys	4	5	4	13
<b>Totals</b>	<b>419</b>	<b>Totals</b>	<b>27</b>	<b>112</b>	<b>302</b>	



Maple Ave



Peds Cross:  $\times$   
 South Peds: 136  
 South Entering: 441  
 South Leg Total: 860

## Comments

# Guelph St @ Maple Ave

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 15:15:00

**To:** 16:15:00

**Municipality:** Halton Hills  
**Site #:** 000000004  
**Intersection:** Guelph St & Maple Ave  
**TFR File #:** 9  
**Count date:** 17-Dec-2012

**Weather conditions:**  
 Rain am, Cloudy/Dry mid+pm  
**Person(s) who counted:**  
 Bolek  
 Sophie

**\*\* Signalized Intersection \*\***

**Major Road:** Guelph St runs W/E

North Leg Total: 702  
 North Entering: 384  
 North Peds: 4  
 Peds Cross:  $\times$

Heavys	1	6	3	10
Trucks	5	7	2	14
Cars	78	224	58	360
<b>Totals</b>	<b>84</b>	<b>237</b>	<b>63</b>	



Heavys	15
Trucks	10
Cars	293
<b>Totals</b>	<b>318</b>

East Leg Total: 3060  
 East Entering: 1753  
 East Peds: 22  
 Peds Cross:  $\times$

Heavys	Trucks	Cars	Totals
22	36	1175	1233

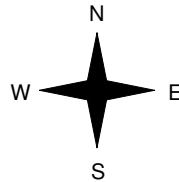


Maple Ave

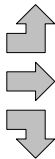
Cars	Trucks	Heavys	Totals
24	0	0	24
1012	27	15	1054
653	14	8	675
<b>1689</b>	<b>41</b>	<b>23</b>	



Guelph St



Heavys	Trucks	Cars	Totals
9	5	59	73
31	30	736	797
5	6	59	70
<b>45</b>	<b>41</b>	<b>854</b>	



Guelph St



Peds Cross:  $\times$   
 West Peds: 32  
 West Entering: 940  
 West Leg Total: 2173

Cars	936	Cars	85	210	440	735
Trucks	27	Trucks	4	5	3	12
Heavys	19	Heavys	6	6	4	16
<b>Totals</b>	<b>982</b>	<b>Totals</b>	<b>95</b>	<b>221</b>	<b>447</b>	



Maple Ave



Peds Cross:  $\times$   
 South Peds: 99  
 South Entering: 763  
 South Leg Total: 1745

## Comments

# Guelph St @ Maple Ave

## Total Count Diagram

**Municipality:** Halton Hills  
**Site #:** 000000004  
**Intersection:** Guelph St & Maple Ave  
**TFR File #:** 9  
**Count date:** 17-Dec-2012

**Weather conditions:**  
 Rain am, Cloudy/Dry mid+pm  
**Person(s) who counted:**  
 Bolek  
 Sophie

**\*\* Signalized Intersection \*\***

**Major Road:** Guelph St runs W/E

North Leg Total: 4816  
 North Entering: 2330  
 North Peds: 223  
 Peds Cross:  $\times$

Heavys	58	50	12	120
Trucks	43	53	19	115
Cars	425	1368	302	2095
<b>Totals</b>	<b>526</b>	<b>1471</b>	<b>333</b>	



Heavys	132
Trucks	95
Cars	2259
<b>Totals</b>	<b>2486</b>

East Leg Total: 17041  
 East Entering: 8486  
 East Peds: 96  
 Peds Cross:  $\times$

Heavys	Trucks	Cars	Totals
171	241	6052	6464



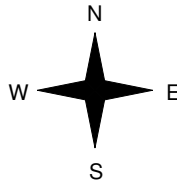
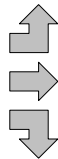
Maple Ave

Cars	Trucks	Heavys	Totals
355	8	18	381
5184	183	82	5449
2552	64	40	2656
<b>8091</b>	<b>255</b>	<b>140</b>	



Guelph St

Heavys	Trucks	Cars	Totals
72	41	554	667
113	194	5403	5710
14	25	301	340
<b>199</b>	<b>260</b>	<b>6258</b>	



Maple Ave



Cars	Trucks	Heavys	Totals
8118	272	165	8555

Peds Cross:  $\times$   
 West Peds: 405  
 West Entering: 6717  
 West Leg Total: 13181

Cars	4221
Trucks	142
Heavys	104
<b>Totals</b>	<b>4467</b>



Cars	443	1350	2413	4206
Trucks	15	46	59	120
Heavys	31	42	40	113
<b>Totals</b>	<b>489</b>	<b>1438</b>	<b>2512</b>	

Peds Cross:  $\times$   
 South Peds: 545  
 South Entering: 4439  
 South Leg Total: 8906

### Comments

# **APPENDIX B**

## **SUMMARY OF MOE NOISE GUIDELINES NPC-300**

## APPENDIX B

### ENVIRONMENTAL NOISE GUIDELINES

#### MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE (MOE)

Reference: MOE Publication NPC-300, October 2013: “Environmental Noise Guideline, Stationary and Transportation Source – Approval and Planning”.

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road	23:00 to 07:00	45 dBA
	Rail	23:00 to 07:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Sleeping quarters	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 0
Sleeping quarters	Road	23:00 to 07:00	40 dBA
	Rail	23:00 to 07:00	35 dBA
	Aircraft	24-hour period	NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA
Outdoor Point of Reception	Aircraft	24-hour period	NEF/NEP 30 <sup>#</sup>
	Stationary Source		
	Class 1 Area	07:00 to 19:00 <sup>(1)</sup> 19:00 to 23:00 <sup>(1)</sup>	50 <sup>+</sup> dBA 50 <sup>+</sup> dBA
	Class 2 Area	07:00 to 19:00 <sup>(2)</sup> 19:00 to 23:00 <sup>(2)</sup>	50 <sup>+</sup> dBA 45 <sup>+</sup> dBA
	Class 3 Area	07:00 to 19:00 <sup>(3)</sup> 19:00 to 23:00 <sup>(3)</sup>	45 <sup>+</sup> dBA 40 <sup>+</sup> dBA
	Class 4 Area	07:00 to 19:00 <sup>(4)</sup> 19:00 to 23:00 <sup>(4)</sup>	55 <sup>+</sup> dBA 55 <sup>+</sup> dBA

.../cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source Class 1 Area	07:00 to 19:00 <sup>(1)</sup>	50 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(1)</sup>	50 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(1)</sup>	45 <sup>+</sup> dBA
	Class 2 Area	07:00 to 19:00 <sup>(2)</sup>	50 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(2)</sup>	50 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(2)</sup>	45 <sup>+</sup> dBA
	Class 3 Area	07:00 to 19:00 <sup>(3)</sup>	45 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(3)</sup>	45 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(3)</sup>	40 <sup>+</sup> dBA
	Class 4 Area	07:00 to 19:00 <sup>(4)</sup>	60 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(4)</sup>	60 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(4)</sup>	55 <sup>+</sup> dBA

- # may not apply to in-fill or re-development.  
 \* or the minimum hourly background sound exposure  $L_{eq}(1)$ , due to road traffic, if higher.  
 (1) Class 1 Area : Urban  
 (2) Class 2 Area : Urban during day; rural-like evening and night  
 (3) Class 3 Area : Rural  
 (4) Class 4 Area: Subject to land use planning authority's approval

Reference: MOE Publication ISBN 0-7729-2804-5, 1987: "Environmental Noise Assessment in Land-Use Planning".

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

# **APPENDIX C**

## **SAMPLE SOUND LEVEL CALCULATION**



STAMSON 5.04                      NORMAL REPORT                      Date: 23-08-2016 09:52:49  
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: p2\_nw\_wf.te                      Time Period: Day/Night 16/8 hours  
**Description: Building 2 - West Facade**

Rail data, segment # 1: CN Halton (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	12.8/10.2	80.0	4.0	140.0	Diesel	Yes
2. Passenger	5.1/0.0	80.0	2.0	10.0	Diesel	Yes
* 3. GO Commuter	7.2/5.1	80.0	1.0	12.0	Diesel	Yes

\* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	Train Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	Freight	10.0/8.0	2.50	10.00
3.	GO Commuter	7.0/5.0	2.50	1.00

Data for Segment # 1: CN Halton (day/night)

Angle1 Angle2 : -90.00 deg 55.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 141.00 / 141.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
No Whistle  
Reference angle : 0.00

Results segment # 1: CN Halton (day)

LOCOMOTIVE (0.00 + 62.29 + 0.00) = 62.29 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	55	0.14	74.54	-11.05	-1.21	0.00	0.00	0.00	62.29

WHEEL (0.00 + 54.29 + 0.00) = 54.29 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	55	0.24	67.75	-12.07	-1.39	0.00	0.00	0.00	54.29

Segment Leq : 62.93 dBA

Total Leq All Segments: 62.93 dBA

Results segment # 1: CN Halton (night)

LOCOMOTIVE (0.00 + 64.01 + 0.00) = 64.01 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	55	0.14	76.26	-11.05	-1.21	0.00	0.00	0.00	64.01

WHEEL (0.00 + 56.15 + 0.00) = 56.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	55	0.24	69.61	-12.07	-1.39	0.00	0.00	0.00	56.15

Segment Leq : 64.67 dBA

Total Leq All Segments: 64.67 dBA

Road data, segment # 1: Guelph St (day/night)

```

-----
Car traffic volume : 26925/2992 veh/TimePeriod *
Medium truck volume : 1095/122 veh/TimePeriod *
Heavy truck volume : 807/90 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

\* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 24275
Percentage of Annual Growth : 2.00
Number of Years of Growth : 14.00
Medium Truck % of Total Volume : 3.80
Heavy Truck % of Total Volume : 2.80
Day (16 hrs) % of Total Volume : 90.00

```

Data for Segment # 1: Guelph St (day/night)

```

-----
Angle1 Angle2 : 35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 186.00 / 186.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Guelph St (day)

Source height = 1.29 m

ROAD (0.00 + 50.38 + 0.00) = 50.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
35	90	0.22	69.77	0.00	-13.30	-6.09	0.00	0.00	0.00	50.38

Segment Leq : 50.38 dBA

Total Leq All Segments: 50.38 dBA

Results segment # 1: Guelph St (night)

Source height = 1.29 m

ROAD (0.00 + 43.86 + 0.00) = 43.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
35	90	0.22	63.25	0.00	-13.30	-6.09	0.00	0.00	0.00	43.86

Segment Leq : 43.86 dBA

Total Leq All Segments: 43.86 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.16  
(NIGHT): 64.71