

Environmental Noise Assessment

Penryn Mason Homes

Phase 5

Proposed Residential Development Municipality of Port Hope

October 10, 2019
Project: 112-208-500

Prepared for

Penryn-Mason Homes Inc.

Prepared by



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VALCOUSTICS

Canada Ltd.

Version History

Version #	Date	Comments
1.0	July 4, 2017	Final – Issued to client
2.0	October 10, 2019	Updated based on Phase 5 draft plan

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Environmental Noise Assessment

Penryn Mason Homes

Phase 5

Proposed Residential Development

Municipality of Port Hope

EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) previously prepared an Environmental Noise Assessment report, dated July 4, 2017, for Phases 4 and 5 of the proposed development. This update report has been prepared to address revisions to Phase 5. Phase 5 will consist of 326 single detached dwellings and nine blocks of rear lane townhouses (Blocks 334 to 342).

The significant noise sources in the vicinity are road traffic on Victoria Street South, and rail traffic on the Canadian Pacific Railways (CPR) Belleville Subdivision and the Canadian National Railways (CN) Kingston Subdivision.

The sound levels on site have been determined and compared with the applicable Ministry of the Environment, Conservation and Parks (MECP) and railway noise guideline limits to determine the need for noise mitigation.

To meet the applicable transportation noise source guideline limits:

- The first row of dwellings and part of the second row of dwellings from the rail lines and the dwellings adjacent to Victoria Street South require the provision for adding air conditioning;
- Part of the first row of dwellings from the rail line (Lots 98 to 104 and 123 to 162) requires upgraded exterior wall construction meeting STC 54 (e.g. brick veneer) and exterior windows with ratings up to STC 29. At all other dwellings, the minimum non-acoustical requirements of the Ontario Building Code (OBC) will be sufficient to meet the indoor noise criteria; and
- Final wall and window requirements should be checked when detailed building plans are available.

1.0 INTRODUCTION

VCL previously prepared an Environmental Noise Assessment, dated July 4, 2017, for Phases 4 and 5 of the proposed residential development. This update report has been prepared to address changes to the Draft Plan of Subdivision for Phase 5 only. The potential sound levels and noise mitigation measures needed for the proposed development to comply with the MECP and railway noise guideline requirements are outlined herein.

Note that the setback distance between the development and the rail line is greater than 75 m. Thus, a railway vibration impact study is not required for this development.

1.1 THE SITE AND SURROUNDING AREA

The site is located at the southwest corner of the intersection of Lakeshore Road/Ridout Street and Victoria Street South in the Municipality of Port Hope. The Phase 5 site is bounded by:

- Existing residential dwellings and Phase 4 of the development to the north;
- Existing residential dwelling, golf club lands, with Victoria Street South beyond, to the east;
- golf club lands, with the CPR Belleville and CN Kingston Subdivisions beyond, to the south; and
- Existing residential development to the west.

A Key Plan is included as Figure 1. The study is based on the Draft Plan of Subdivision, prepared by WND Associates, dated July 15, 2019. The Draft Plan of Subdivision is included as Figure 2.

1.2 THE PROPOSED DEVELOPMENT

Phase 5 will consist of 326 single detached dwellings and nine blocks of rear lane townhouses (Blocks 329 to 332). All dwellings will be two storeys. The detached dwellings will be provided with grade-level rear yard outdoor amenity space. The rear lane townhouses will be provided with elevated terraces above the rear garages.

2.0 NOISE SOURCES

The noise sources with potential to impact the proposed development are road traffic on Victoria Street South and rail traffic on the CPR Belleville and CN Kingston Subdivisions. Traffic volumes on the other surrounding roadways are anticipated to be minor and no significant noise impact is expected.

The traffic data is summarized in Tables 1A and 1B. Traffic correspondence is included as Appendix A.

2.1 ROAD TRAFFIC

The road traffic volume applicable to the year 2004 for Victoria Street South was obtained from the Municipality of Port Hope. The future road traffic volume was projected to the year 2029 using

a growth rate of 2%, compounded annually. Medium and heavy truck percentages were assumed to be 3% and 2%, respectively, of the total traffic volume. The day/night split was assumed to be 90%/10%, as is typical for roadways such as Victoria Street South.

2.2 RAIL TRAFFIC

2.2.1 CPR

Rail traffic data applicable to the year 2017 for the CPR Belleville Subdivision was obtained directly from CPR. This data was confirmed to be applicable to the year 2019 by CPR. The CPR rail traffic data was escalated to the year 2029 design condition using a growth rate of 2.5%, compounded annually. This growth rate is recommended by the railways for preparing environmental noise studies.

2.2.2 CN

Rail traffic data applicable to the year 2019 for the CN Kingston Subdivision was obtained directly from CN. Rail traffic at this location consists of freight, way freight and passenger trains. The CN rail traffic data was escalated to the year 2029 design condition using a growth rate of 2.5%, compounded annually.

3.0 ENVIRONMENTAL NOISE GUIDELINES

3.1 MECP PUBLICATION NPC-300

The applicable noise guidelines for new residential development are those in MECP Publication NPC-300, “Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning”.

The environmental noise guidelines of the MECP, as provided in Publication NPC-300, are discussed briefly below and summarized in Appendix B.

3.1.1 Transportation Noise Sources

3.1.1.1 Architectural Elements

In the daytime, 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 the road; that is 40 dBA for living/dining rooms, dens and bedrooms during the daytime and nighttime periods except for bedrooms where the nighttime indoor criterion is 35 dBA.

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

(1) 16-hour energy equivalent sound level (0700-2300 hours).

(2) 8-hour energy equivalent sound level (2300-0700 hours).

In addition, the MECP requires brick veneer or masonry equivalent exterior wall construction from the foundation to the rafters for the first row of dwellings within 100 m of the rail line, when the $L_{eq\ 24}$ is greater than 60 dBA.

3.1.1.2 Ventilation

In accordance with the MECP noise guideline for road traffic sources, if the daytime sound energy 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 sound levels are between 51 dBA and 60 dBA inclusive.

3.1.1.3 Outdoors

For outdoor amenity areas (“Outdoor Living Areas” - OLA’s), the guideline is 55 dBA $L_{eq\ Day}$ (0700 to 2300 hours), 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.

3.2 **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, if 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 the 2.5 m high safety berm).

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 MECP.

4.0 **NOISE IMPACT ASSESSMENT**

Using the road traffic data in Tables 1A and 1B, the sound levels, in terms of equivalent continuous sound pressure level over the daytime and nighttime periods ($L_{eq\ Day}$ and $L_{eq\ Night}$), were determined using STAMSON V5.04 – ORNAMENT and STEAM, the computerized road and rail traffic noise prediction models of the MECP.

The daytime and nighttime sound levels at the building facades were calculated at a height of 4.5 m above grade, representing top floor bedroom windows. The daytime OLA sound levels at the rear yards were calculated at a standing height of 1.5 m above grade, 3 m from the midpoint of the rear facade. The daytime OLA sound levels at the elevated terraces were calculated at a height of 1.5 m above the floor of the terrace, in the centre of the terrace.

Inherent acoustical screening of each building due to its orientation to the noise sources was taken into account. Screening from existing development in the vicinity was included in the assessment.

At the building facades, the highest unmitigated daytime/nighttime sound levels of 62 dBA/60 dBA are predicted to occur on the south facade of Lot 127, closest to the rail lines. The highest unmitigated daytime OLA sound level of 60 dBA is predicted to occur at the same dwelling.

Table 2 summarizes the unmitigated daytime and nighttime sound level predictions. A sample calculation is shown as Appendix C.

5.0 NOISE ABATEMENT REQUIREMENTS

The noise control measures can generally be classified into two categories which are interrelated, but which the designer can treat separately for the most part:

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

Noise abatement requirements are summarized on Figure 2 and in Table 3 along with the notes to Table 3.

5.1 INDOORS

5.1.1 Architectural Elements

The indoor noise guidelines can be achieved by using appropriate construction for exterior walls, windows and doors. In determining the worst-case architectural requirements for the residential suites, wall and window areas were assumed to be 80% and 30%, respectively, of the associated floor area of a corner bedroom room with facades exposed directly or at an angle to the road and rail traffic noise sources.

Based on the predicted sound levels, dwellings in the first row of dwellings from the rail line (Lots 98 to 104 and 123 to 162) require upgraded exterior wall construction meeting STC 54 (e.g. brick veneer) and exterior windows with ratings up to STC 29 to meet the indoor noise criteria.

At all other dwellings, exterior wall and window construction meeting the minimum non-acoustical requirements of the Ontario Building Code (OBC) will be sufficient to achieve the indoor noise criteria of the MECP.

For windows, double-glazing configurations meeting the minimum non-acoustical requirements of the OBC would be expected to achieve an STC rating of 29. Note, the window frames themselves must also be designed to ensure that the overall sound isolation performance for the entire window unit meets the sound isolation requirement. This should be confirmed by the window manufacturer through the submission of acoustical test data.

The final sound isolation requirements should be reviewed when architectural plans are developed. Wall and window constructions should also be reviewed at this point to ensure that

they will meet the required sound isolation performance. This is typically required by the Municipality at the time of building permit application.

5.1.2 Ventilation Requirements

Based on the predicted sound levels, the following dwellings require the provision for adding air conditioning:

- The first row of dwellings from the rail line (Lots 98 to 104 and 123 to 168);
- Part of the second row of dwellings from the rail lines (Lots 82 to 84, 97, 105, 121, 122, 221, 254, 255, 281, 282, 313 and 314); and
- The dwellings adjacent to Victoria Street South (Lot 1 and Blocks 334 to 336).

The provision for adding air conditioning typically takes the form of a ducted ventilation system suitably sized to permit the addition of central air conditioning by the occupant.

5.2 OUTDOORS

The unmitigated daytime OLA sound levels at the first row of dwellings backing toward the rail line is predicted to be up to 60 dBA. This exceeds the 55 dBA design objective but is within the 60 dBA maximum permitted by the MECF guidelines. It is understood that barriers are not desirable at these locations as they would obstruct the scenic views of the adjacent golf course. Since the unmitigated sound levels are within the maximum permitted by the MECF guidelines, sound barriers are not required at these locations, provided that warning clauses are registered on title.

The unmitigated daytime OLA sound levels at all other dwellings are predicted to be within the 55 dBA design objective. Thus, sound barriers are not required for noise control purposes.

5.3 WARNING CLAUSES

Warning clauses are a tool to inform prospective owners/occupants of potential annoyance due to existing noise sources. Where the guideline sound level limits are exceeded, appropriate warning clauses should be registered on title or included in the development agreement that is registered on title. The warning clauses should also be included in agreements of Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation. Locations requiring warning clauses and the appropriate wording are given in Table 3 and in the notes to Table 3, respectively.

6.0 IMPLEMENTATION

The detailed building plan drawings can be reviewed in advance of construction and on-site construction reviews can be done after construction to verify proper implementation, as is typically required by the Municipality.

7.0 CONCLUSIONS

With appropriate acoustical design of the development, a suitable acoustical environment can be provided and the applicable MECP noise guideline requirements met.

8.0 REFERENCES

1. PC STAMSON 5.04, “Computer Program for Road Traffic Noise Assessment”, Ontario Ministry of the Environment and Climate Change.
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. “Road and Rail Noise: Effects on Housing”, Canada Mortgage and Housing Corporation, Publication NHA 5156, 81/10.
4. “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, October 2013.
5. “Guideline for New Development in Proximity to Railway Operations”, Federation of Canadian Municipalities and the Railway Association of Canada, May 2013.
6. “Environmental Noise Assessment, Penryn Mason Homes, Phases 4 and 5, Proposed Residential Development, Municipality of Port Hope”, Valcoustics Canada Ltd., Project: 112-208-400, July 4, 2017.

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TABLE 1A: ROAD TRAFFIC DATA

Roadway	Year	AADT ⁽¹⁾	% Trucks		Day/Night Split (%)	Speed Limit (kph)
			Medium	Heavy		
Victoria Street South ⁽²⁾	2004 (2029)	3 055 (5 012)	3	2	90/10	50

Note:

- (1) Road traffic volumes were obtained from the Municipality of Port Hope. The traffic volumes were extrapolated to the year 2029 using a growth rate of 2%, compounded annually. Truck percentages and day/night split were assumed.

TABLE 1B: RAIL TRAFFIC DATA

Subdivision	Period	Train Type	Maximum # of Trains	Maximum # of Cars	Maximum # of Locomotives / Train	Maximum Speed (kph)
CPR Belleville ⁽¹⁾	Daytime (0700 to 2300)	Freight	6 (7.7)	200	4	97
	Nighttime (2300 to 0700)	Freight	4 (5.1)	200	4	97
CN Kingston ⁽²⁾	Daytime (0700 to 2300)	Freight	14 (17.9)	140	4	89
		Way Freight	0 (0)	25	4	89
		Passenger	35 (44.8)	10	2	105
	Nighttime (2300 to 0700)	Freight	4 (5.1)	140	4	89
		Way Freight	1 (1.3)	25	4	89
		Passenger	0 (0)	10	2	105

Notes:

- (1) Rail traffic obtained directly from CPR in the year 2017 and confirmed to be applicable to the year 2019.
 (2) Rail traffic applicable to the year 2029 obtained directly from CN.
 (3) The train volumes shown in brackets are projected to the year 2029 using a growth rate of 2.5%, compounded annually.

TABLE 2: PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS

Location ⁽¹⁾	Source	Distance (m) ⁽²⁾	Leq Day (dBA)	Leq Night (dBA)
Lot 1 (East Facade)	Victoria Street South	20	58	51
Lot 1 (OLA)	Victoria Street South	23	55	-
Lot 2 (North Facade)	Victoria Street South	35	51	44
Lot 98 (South Facade)	CPR Belleville Subdivision	235	56	58
	CN Kingston Subdivision	267	58	55
	TOTAL	-	61	59
Lot 127 (South Facade)	CPR Belleville Subdivision	208	58	59
	CN Kingston Subdivision	240	59	55
	TOTAL	-	62	60
Lot 127 (OLA)	CPR Belleville Subdivision	205	56	-
	CN Kingston Subdivision	237	57	-
	TOTAL	-	60	-
Lot 132 (South Facade)	CPR Belleville Subdivision	234	56	58
	CN Kingston Subdivision	265	58	55
	TOTAL	-	61	59
Lot 147 (South Facade)	CPR Belleville Subdivision	332	53	54
	CN Kingston Subdivision	371	55	51
	TOTAL	-	57	56
Lot 168 (South Facade)	Victoria Street South	73	46	39
	CPR Belleville Subdivision	586	50	51
	CN Kingston Subdivision	627	52	48
	TOTAL	-	55	53
Lot 220 (South Facade)	CPR Belleville Subdivision	352	47	48
	CN Kingston Subdivision	389	49	45
	TOTAL	-	51	50
Lot 221 (South Facade)	CPR Belleville Subdivision	333	48	49
	CN Kingston Subdivision	369	50	46
	TOTAL	-	52	51
Lot 314 (South Facade)	CPR Belleville Subdivision	252	49	50
	CN Kingston Subdivision	283	51	47
	TOTAL	-	53	52
Lot 315 (West Facade)	CPR Belleville Subdivision	264	47	48
	CN Kingston Subdivision	296	49	45
	TOTAL	-	51	50
Block 334 (East Facade)	Victoria Street South	14	60	53
Block 336 (OLA)	Victoria Street South	30	47	-
Block 339 (OLA)	Victoria Street South	55	43	-

Notes:

- (1) See Figure 2.
- (2) Distance indicated is taken from the centreline of the noise source to the point of reception.

TABLE 3: NOISE ABATEMENT MEASURES

Location	Air Conditioning ⁽¹⁾	Exterior Wall ⁽²⁾	Exterior Window ⁽³⁾	Sound Barrier ⁽⁴⁾	Warning Clauses ⁽⁵⁾
Lots 98 to 104 and 123 to 147	Provision for adding	STC 54	Up to STC 29	None	A + B + C
Lots 148 to 162	Provision for adding	STC 54	Up to STC 29	None	A + B
Lots 1 and 163 to 168 Blocks 334 to 336	Provision for adding	No special acoustical requirements	No special acoustical requirements	None	A + B
Lots 82 to 84, 97, 105, 121, 122, 221, 254, 255, 281, 282, 313 and 314	Provision for adding	No special acoustical requirements	No special acoustical requirements	None	A + B + C
Lots 78 to 81, 85, 86, 95, 96, 106, 120, 253, 256, 278 to 280, 283 to 287, 308 to 312 and 315 to 318	No special acoustical requirements				C
All other dwellings	No special acoustical requirements				

Notes to Table 3 on Following Page

Notes to Table 3:

- (1) Provision for adding air conditioning typically takes the form of a ducted ventilation system suitably sized to permit the addition of central air conditioning by the occupant.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413).

The requirements are based on assumed percentages of wall and window area to associated floor area and should be checked once building plans are finalized.
- (3) STC - Sound Transmission Class Rating (Reference ASTM-E413). 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 percentages of wall and window area to associated floor area and should be checked once building plans are finalized.
- (4) Sound barriers must be of solid construction having a minimum face density of 20 kg/m² with no gaps or cracks. The acoustic fence height shown is taken relative to grade.
- (5) Warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated lots:
 - A. "Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound level may exceed the noise criteria of the Ministry of the Environment and/or the municipality."
 - B. "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments 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, Canadian Pacific Railways or their 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, Canadian Pacific Railways or their 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, Canadian Pacific 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 ventilated attic roof construction meeting OBC requirements is satisfactory.
- (6) All exterior doors shall be fully weatherstripped



No.	Revision/Issue	Date


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Title
Key Plan

Project No.
112-208-500

Date
Aug. 26, 2019

Project Name
Penryn Mason Homes - Phase 5,
Port Hope

Scale
N.T.S.

Figure
1

APPENDIX A

ROAD AND RAIL TRAFFIC DATA

Seema Nagaraj

From: Josie Tomei <Josie_Tomei@cpr.ca>
Sent: Tuesday, August 06, 2019 8:11 AM
To: Seema Nagaraj
Subject: RE: Rail data confirmation (VCL File: 112-208-500)

Hi Seema,
This data would still be valid.



Josie Tomei SR/WA
Specialist Real Estate Sales & Acquisitions
905-803-3429
800-1290 Central Parkway West
Mississauga, ON L5C 4R3

From: Seema Nagaraj <seema@valcoustics.com>
Sent: Sunday, July 28, 2019 3:09 PM
To: Josie Tomei <Josie_Tomei@cpr.ca>
Subject: Rail data confirmation (VCL File: 112-208-500)

This email did not originate from Canadian Pacific. Please exercise caution with any links or attachments.

Hi Josie,

We are working on an update to an environmental noise study for a project in Port Hope. We had previously received the attached rail data in 2017.

Could you please let me know if this data is still valid or if we would need to purchase updated counts?

Thank you,

Seema Nagaraj
Valcoustics Canada Ltd.
905-764-5223

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January 18, 2017

Via email: seema@valcoustics.com

Seema Nagaraj
Valcoustics Canada Ltd.
30 Wertheim Court
Unit 25
Richmond Hill, ON L4B 1B9

Dear Sir/Madam:

**Re: Rail Traffic Volumes, CP Mileage 143.26, Belleville Subdivision,
Lakeshore Road, Port Hope**

This is in reference to your request for rail traffic data in the vicinity of Lakeshore Road in the Municipality of Port Hope. The study area is located at mile 143.26 of our Belleville Subdivision, which is classified as a Principal Main line.

The information requested is as follows:

1. Number of freight trains between 0700 & 2300: 6
Number of freight trains between 2300 & 0700: 4
2. Average number of cars per train: 92
Maximum cars per train freight: 200
3. Number of locomotives per train: 2 (4 Maximum)
4. Maximum permissible train speed is 60 miles per hour
5. The whistle signal is sounded approaching public grade crossings in the study area, although the nearby crossings are grade separated. However, the whistle may be sounded if deemed necessary by the train crew for safety reasons.
6. There are two tracks through the study area, a mainline track with continuously welded rail and a passing siding with jointed track. The engine bell is sounded by all trains leaving the passing track. There may be additional idling of trains and more noise travelling through the connections.

The information provided is based on recent rail traffic. Variations of the above may exist on a day-to-day basis. Specific measurements may also vary significantly depending on customer needs.

Yours truly,

Josie Tomei
Specialist Real Estate Sales & Acquisitions – Ontario
905-803-3429
josie_tomei@cpr.ca

Date: 2019/08/19

Project Number: KNG – 272.17 – Lakeshore Rd, Port Hope ON

Dear Seema:

Re: Train Traffic Data – CN Kingston Subdivision near Lakeshore Rd in Port Hope, ON

The following is provided in response to Seema’s 2019/08/14 request for information regarding rail traffic in the vicinity of Lakeshore Rd in Port Hope at approximately Mile 272.17 on CN’s Kingston 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

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	14	140	55	4
Way Freight	0	25	55	4
Passenger	35	10	65	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	4	140	55	4
Way Freight	1	25	55	4
Passenger	0	10	65	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN’s Kingston Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is one (1) at-grade crossing in the immediate vicinity of the study area at Mile 272.16 Lakeshore Road. 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 Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and 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, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,



Michael Vallins P.Eng
Manager of Public Works
public_works_gld@cn.ca

Seema Nagaraj

From: Brunilda Tena <BTena@porthope.ca>
Sent: January-23-17 11:22 AM
To: Seema Nagaraj; Jeanette Davidson
Subject: RE: Road traffic data request (VCL File: 112-208-400)

Hi Seema,

I searched on our records to find the most current information to better help you on your request. Unfortunately, we don't have any information related to traffic volume forecasts, truck percentages and day/night split but I can provide you counts on those roadways. I included this information in the following table:

DATE	LOCATION	TIME	COUNT
JULY 29/2009	LAKESHORE RD- WEST OF TORONTO RD	24 HRs	591
JULY 30/2009	LAKESHORE RD- WEST OF SHORTT ST	24 HRs	583
JULY 30/2009	LAKESHORE RD-EAST OF STRACHAO ST	24 HRs	769
JULY 30/2009	LAKESHORE RD- EAST OF SHORTT ST	24 HRs	876
JUNE 1/2004	VICTORIA ST S- SOUTH OF RIDOUT (EASTBOUND)	24 HRs	3055

Should you have any further questions, we would be happy to help you.

Brunilda Tena
Development Services Technician
Development Team Office
Municipality of Port Hope
56 Queen Street
Port Hope, ON L1A3Z9

T – 905.885.2431, ext. 2511
F – 905.885.0507

Office Location: 5 Mill Street South

“Development Team Values Statement: Our Development Team is committed to working with you our clients, with the highest degree of professionalism, accuracy and knowledge in a timely, coordinated and informed way. We value honesty, respect, collaboration and our ability to be responsive in a timely manner to our clients, colleagues and partners”.

From: Seema Nagaraj [<mailto:seema@valcoustics.com>]
Sent: Friday, January 20, 2017 12:42 PM
To: Public Works
Subject: Road traffic data request (VCL File: 112-208-400)

Hello,

We are currently preparing an environmental noise study for a proposed development in the area of Ridout St and Victoria St S in Port Hope (see attached image for location). As part of our study, we would like to consider the impact of traffic noise on Ridout St/Lakeshore Rd and Victoria St S. Ideally, we are looking for future traffic volume forecasts, truck percentages and day/night split. If this information is not available, current counts on those roadways would also be okay.

Could you please help direct me to the appropriate contact person?

Thank you,

Seema Nagaraj, Ph.D., P.Eng.

Acoustical Engineer



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

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APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

APPENDIX B
ENVIRONMENTAL NOISE GUIDELINES
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE (MECP)

Reference: MECP 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#
	Stationary Source		
	Class 1 Area	07:00 to 19:00 ⁽¹⁾ 19:00 to 23:00 ⁽¹⁾	50 ⁺ dBA 50 ⁺ dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾ 19:00 to 23:00 ⁽²⁾	50 ⁺ dBA 45 ⁺ dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾ 19:00 to 23:00 ⁽³⁾	45 ⁺ dBA 40 ⁺ dBA
	Class 4 Area	07:00 to 19:00 ⁽⁴⁾ 19:00 to 23:00 ⁽⁴⁾	55 ⁺ dBA 55 ⁺ 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 ⁽¹⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽¹⁾	50 ⁺ dBA
		23:00 to 07:00 ⁽¹⁾	45 ⁺ dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽²⁾	50 ⁺ dBA
		23:00 to 07:00 ⁽²⁾	45 ⁺ dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾	45 ⁺ dBA
		19:00 to 23:00 ⁽³⁾	45 ⁺ dBA
		23:00 to 07:00 ⁽³⁾	40 ⁺ dBA
	Class 4 Area	07:00 to 19:00 ⁽⁴⁾	60 ⁺ dBA
		19:00 to 23:00 ⁽⁴⁾	60 ⁺ dBA
		23:00 to 07:00 ⁽⁴⁾	55 ⁺ 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: MECP 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 STAMSON CALCULATION

STAMSON 5.0 NORMAL REPORT Date: 28-08-2019 11:17:26
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: 11_ef.te Time Period: Day/Night 16/8 hours
Description: Lot 1 - East facade

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

Car traffic volume : 4285/476 veh/TimePeriod *
Medium truck volume : 135/15 veh/TimePeriod *
Heavy truck volume : 90/10 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): 3055
Percentage of Annual Growth : 2.00
Number of Years of Growth : 25.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Victoria (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 / 20.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Victoria (day)

Source height = 1.19 m

ROAD (0.00 + 57.52 + 0.00) = 57.52 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.58 60.82 0.00 -1.97 -1.32 0.00 0.00 0.00 57.52

Segment Leq : 57.52 dBA

Total Leq All Segments: 57.52 dBA

Results segment # 1: Victoria (night)

Source height = 1.19 m

ROAD (0.00 + 50.99 + 0.00) = 50.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	54.28	0.00	-1.97	-1.32	0.00	0.00	0.00	50.99

Segment Leq : 50.99 dBA

Total Leq All Segments: 50.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.52
(NIGHT): 50.99

STAMSON 5.04 NORMAL REPORT Date: 28-08-2019 11:15:11
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: 1127_sf.te Time Period: Day/Night 16/8 hours
Description: Lot 127 - South facade

Rail data, segment # 1: CP Bellevill (day/night)

Train Type	! Trains	! Speed ! (km/h)	!# loc !/Train!	!# Cars !/Train!	! Eng type !	!Cont !weld
* 1. Freight	! 7.7/5.1	! 97.0	! 4.0	!200.0	!Diesel!	! Yes

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

Train type:	! Unadj. !	! Annual % !	! Years of !
No Name	! Trains !	! Increase !	! Growth !
1. Freight	! 6.0/4.0	! 2.50	! 10.00 !

Data for Segment # 1: CP Bellevill (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 208.00 / 208.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

Rail data, segment # 2: CN Kingston (day/night)

Train Type	! Trains	! Speed ! (km/h)	!# loc !/Train!	!# Cars !/Train!	! Eng type !	!Cont !weld
* 1. Freight	! 17.9/5.1	! 89.0	! 4.0	!140.0	!Diesel!	! Yes
* 2. Way Freight	! 0.0/1.3	! 89.0	! 4.0	! 25.0	!Diesel!	! Yes
* 3. Passenger	! 44.8/0.0	! 105.0	! 2.0	! 10.0	!Diesel!	! Yes

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

Train type:	! Unadj. !	! Annual % !	! Years of !
No Name	! Trains !	! Increase !	! Growth !
1. Freight	! 14.0/4.0	! 2.50	! 10.00 !
2. Way Freight	! 0.0/1.0	! 2.50	! 10.00 !
3. Passenger	! 35.0/0.0	! 2.50	! 10.00 !

Data for Segment # 2: CN Kingston (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 240.00 / 240.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

Results segment # 1: CP Bellevill (day)

LOCOMOTIVE (0.00 + 56.93 + 0.00) = 56.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.50	75.17	-17.07	-1.17	0.00	0.00	0.00	56.93

WHEEL (0.00 + 48.39 + 0.00) = 48.39 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	68.01	-18.27	-1.35	0.00	0.00	0.00	48.39

Segment Leq : 57.50 dBA

Results segment # 2: CN Kingston (day)

LOCOMOTIVE (0.00 + 58.83 + 0.00) = 58.83 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.50	77.99	-18.00	-1.17	0.00	0.00	0.00	58.83

WHEEL (0.00 + 50.00 + 0.00) = 50.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	70.62	-19.27	-1.35	0.00	0.00	0.00	50.00

Segment Leq : 59.36 dBA

Total Leq All Segments: 61.54 dBA

Results segment # 1: CP Bellevall (night)

LOCOMOTIVE (0.00 + 58.15 + 0.00) = 58.15 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.50 76.39 -17.07 -1.17 0.00 0.00 0.00 58.15

WHEEL (0.00 + 49.61 + 0.00) = 49.61 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.60 69.24 -18.27 -1.35 0.00 0.00 0.00 49.61

Segment Leq : 58.72 dBA

Results segment # 2: CN Kingston (night)

LOCOMOTIVE (0.00 + 54.86 + 0.00) = 54.86 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.50 74.03 -18.00 -1.17 0.00 0.00 0.00 54.86

WHEEL (0.00 + 46.73 + 0.00) = 46.73 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.60 67.35 -19.27 -1.35 0.00 0.00 0.00 46.73

Segment Leq : 55.48 dBA

Total Leq All Segments: 60.41 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.54
(NIGHT): 60.41