Environmental Noise Feasibility Study

376 & 390 Derry Road West

Proposed Mixed-use Development

City of Mississauga

September 13, 2023
Project: 121-0551

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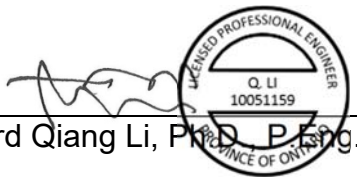

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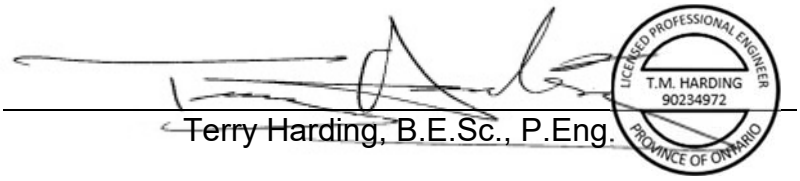

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VALCOUSTICS
Canada Ltd.

Version History

Version #	Date	Comments
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Environmental Noise Feasibility Study

376 & 390 Derry Road West

Proposed Mixed-use Development

City of Mississauga

EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) has been retained to prepare an Environmental Noise Feasibility Study to support the land use planning application submission to the City of Mississauga.

The proposed development consists of:

- Residential condominium block area:
  - Dual frontage townhouses: 13 units;
  - Street townhouses: 35 units;
  - Back-to-back townhouses: 72 units; and
- Residential freehold lot area:
  - Detached: 2 units;
  - Semi-detached: 2 units; and
- Commercial building: 1 storey, 374 m^2.

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

The transportation noise source with potential to impact the proposed development is road traffic on Derry Road West and McLaughlin Road, as well as air traffic from Toronto Pearson International Airport (TPIA).

To meet the applicable transportation noise source guideline limits:

- All residential dwelling buildings require mandatory air conditioning for noise control purposes;

- All the residential buildings require exterior wall construction meeting a sound transmission class (STC) rating of 54 and exterior window construction meeting minimum STC rating of up to 37 (possibly slightly higher at corner units).
- Final requirements should be checked when detailed building plans are available. This is usually done as a condition for obtaining a building permit.

The stationary noise source with the potential to impact the proposed development is the existing gas bar/car wash facility adjacent to the west. To meet the applicable stationary noise source guideline limits, several options are available:

- the existing wing walls at the car wash facility can be extended in length at the entrance and be extended in length and height at the exist.
- Alternatively, instead of increasing the existing wing walls at the car wash, the end (west) walls of Blocks 1 and 3 can be blank walls without windows, or if windows are provided, they open into non-noise sensitive space (washrooms, closets, corridors, etc.). The daytime condition also shows an excess at one location at the south face of Block 1, extreme west limit. This also would need to be windowless or otherwise be a non-noise sensitive space.
- A second alternative would involve providing enclosed balcony space at the locations where the noise excess due to the car wash is predicted:
  - The enclosed balcony would need to buffer the noise sensitive spaces beyond (bedrooms, living/dining area, kitchen area, dens)
  - The enclosed balcony must be separate from the indoor areas (with doorway access), remain as unconditioned space, and not count towards the total GFA. The enclosed balcony can have openable windows if desired.

1.0 INTRODUCTION

VCL was retained to prepare an Environmental Noise Feasibility Study to support the land use planning application submission to the City of Mississauga. The potential sound levels and the mitigation measures required for the proposed development to comply with the MECP noise guideline requirements are outlined herein.

1.1 THE SITE AND SURROUNDING AREA

The development is located at 376 and 390 Derry Road West in the City of Mississauga. The site is bounded by:

- Derry Road West, with an existing commercial plaza beyond, to the north;
- a gas bar/car wash facility and existing residential dwellings, with McLaughlin Road beyond, to the west;
- existing residential development to the south; and
- existing residential housing, employment area and future residential development to the east.

A Key Plan is included as Figure 1.

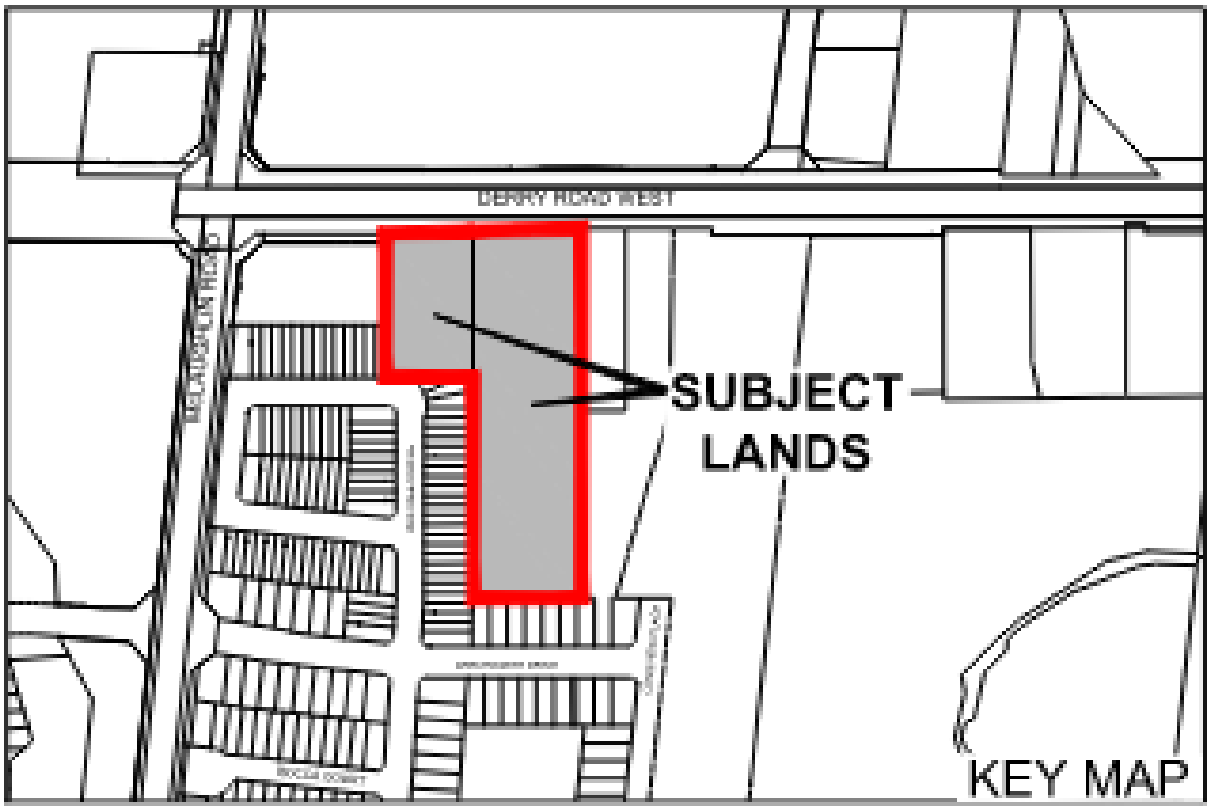

FIGURE 1: KEY PLAN

1.2 THE PROPOSED DEVELOPMENT

The proposed development consists of:

- Residential condominium block area (120 units):
  - Dual frontage townhouses (Blocks 1 and 2): 13 units;
  - Street townhouses (Blocks 5 to 9): 35 units;
  - Back-to-back townhouses (Blocks 3, 4, 10, 11 and 12): 72 units.
- Residential freehold lot area (4 units):
  - Detached: 2 units;
  - Semi-detached: 2 units; and
- Commercial building: 1 storey, 374 m^2.

FIGURE 2: DEVELOPMENT CONCEPT PLAN

The study is based on the Development Concept Plan prepared by Glen Schnarr & Associates Inc., dated August 22, 2023. The Concept Plan is shown as Figure 2.

The concept plan indicates that the Outdoor Living Areas (OLA's) includes an outdoor common amenity area of 470 m^2. OLA's could be provided at the rear yards of the detached, semi-detached, and Blocks 5 to 9. All of above OLA's will be screened from the road traffic by the subject building itself as well as the other surrounding buildings. The site plan shows Blocks 1 and 2 fronting onto Derry Road. Therefore, road traffic noise at OLA's is not considered in this assessment.

For aircraft noise, it is recognized there is no practical way to mitigate this source at outdoor amenity spaces and therefore is not assessed at these outdoor areas.

Private balconies/terraces are not shown on the concept plan and will also are not considered in the study. Regardless, as noted in Section 2.3.1.3, these are not considered as OLA's if less than 4 m deep and would not be subject to the OLA sound level guidelines in this case.

2.0 TRANSPORTATION NOISE IMPACT ASSESSMENT

2.1 NOISE SOURCES

The transportation noise source with potential to impact the proposed development is road traffic on Derry Road West and McLaughlin Road, as well as air traffic from Toronto Pearson International Airport (TPIA).

Traffic volumes on the other surrounding roadways are anticipated to be minor and no significant noise impact is expected. Thus, these roadways have not been considered further in this assessment.

2.1.1 Road Traffic Data

Ultimate traffic data (for the Year 2041) for McLaughlin Road was obtained from the City of Mississauga.

Ultimate and existing traffic volumes for Derry Road West were obtained from the Region of Peel.

Year 2022 road traffic data for McLaughlin Road was obtained from the Region of Peel, in the form of a turning movement count (TMC) for the intersection of Derry Road West and Mclaughlin Road. The Daily (24-hour) volumes were obtained by multiplying the 8-hour TMC data by a factor of 2.2 (that is, the peak 8-hour period consists of 45% of the total daily traffic volume).

The road traffic data is summarized in Table 1 and Appendix A.

2.1.2 Aircraft Sound Exposures

In accordance with the latest Noise Exposure Forecast/Noise Exposure Projection (NEF/NEP) published by the Greater Toronto Airport Authority (GTAA), as shown on Figure 2, the site is located at NEF 35 for the Pearson International Airport.

TABLE 1 ROAD TRAFFIC DATA

Roadway	Year	AADT(1)	Day/Night Split (%)	% Trucks		Speed Limit (kph)
				Medium (Day/Night)	Heavy (Day/Night)	
Derry Road West (2)	2018	42 637	85/15	1.05/0.69	5.57/6.16	70
	Ultimate	48 600	85/15	1.05/0.69	5.57/6.16	70
McLaughin Road	2022	30 177	90/10	0.9	1.1	70
	Ultimate	33 100	90/10	0.9	1.1	70

Notes:

(1) AADT – Annual Average Daily Traffic.

(2) For analysis purposes, road traffic on Derry Road West was split equally into Westbound and Eastbound lanes.

2.2 ENVIRONMENTAL NOISE GUIDELINES

2.3 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". These noise guidelines are discussed briefly below and summarized in Appendix B.

2.3.1 Transportation Noise Sources

2.3.1.1 Architectural Elements

For road noise, in the daytime (0700 to 2300 hours), the indoor criterion 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.

For air traffic noise, the sound level criteria are applicable over the entire 24-hour period. The criteria are NEF/NEP 5 for living rooms, dining rooms and dens, and NEF/NEP 0 for bedrooms.

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.

(1) $L_{eq\ Day}$ – 16-hour equivalent continuous sound level, from 0700 to 2300 hours.
(2) $L_{eq\ Night}$ – 8-hour equivalent continuous sound level, from 2300 to 0700 hours.

2.3.1.2 Ventilation

For road noise, if the daytime sound level ($L_{eq\ Day}$) at the exterior facade of a window into a noise sensitive space is greater than 65 dBA or the nighttime sound level ($L_{eq\ Night}$) is greater than 60 dBA, means (i.e., central air conditioning) must be provided so that windows can be kept closed for noise control purposes. For daytime sound levels between 56 dBA and 65 dBA (inclusive) or nighttime sound levels between 50 dBA and 60 dBA (inclusive), there need only be the provision for adding air conditioning. A warning clause advising the occupant of the potential interference with some activities is also required.

For air traffic noise sources, if the site lies above the NEF/NEP 30 contour, central air conditioning is required. If the site lies within the NEF/NEP 25 to 30 contours, the provision for adding air conditioning is required.

When both road and air traffic are present, the more stringent of the two requirements would apply.

A warning clause advising the occupant of the potential interference with some activities is also required.

2.3.1.3 Outdoors

For 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. Note that for road traffic sources, a balcony is not considered an OLA, unless it is:

- the only OLA for the occupant;
- at least 4 m in depth; and
- unenclosed.

The outdoor air traffic noise limit, applicable over a 24-hour period, is NEF/NEP 30. Noted that any OLA's provided for the proposed development will be exposed to the air traffic noise above NEF/NEP 30, a warning clause should be provided to inform prospective owners/occupants of potential annoyance due to the existing air traffic noise.

2.4 REGION OF PEEL

The Region of Peel noise guidelines are essentially the same as the MECP noise guidelines except that the nighttime sound level for triggering the air conditioning requirement is one dBA more stringent (i.e., less than) the sound levels specified by the MECP, i.e., mandatory air conditioning for nighttime sound levels of 60 dBA or greater, and the provision for adding air conditioning for levels between 51 to 59 dBA inclusive.

2.5 TRANSPORTATION NOISE IMPACT ASSESSMENT

2.5.1 METHOD

Using the future ("ultimate") road traffic data in Table 1, the sound energy levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT, the computerized road traffic noise prediction model of the MECP.

The daytime and nighttime sound levels at the building facades were assessed at heights of 7.5 m and 4.5 m above grade for the townhouse buildings and detached dwellings, respectively, representing the middle of the top residential floor windows, the worst-case locations.

2.5.2 PREDICTED SOUND LEVELS

The highest unmitigated daytime/nighttime sound levels of 70 dBA/66 dBA are predicted to occur on the exterior plane of windows along the north facades of Blocks 1 and 2, adjacent to Derry Road West.

Table 2 summarizes the predicted unmitigated sound levels. The sound level calculations are included in Appendix C.

TABLE 2 PREDICTED OUTDOOR SOUND LEVELS – NO MITIGATION

Location[1]	Source	Distance (m)[2]	$L_{eq\ Day}$ (dBA)	$L_{eq\ Night}$ (dBA)
Block 1 North Face	Derry Road West, Eastbound	26	68	64
	Derry Road West, Westbound	36	66	61
	McLaughlin Road	121	53	46
	TOTAL	**—**	**70**	**66**
Block 1 West Face	Derry Road West, Eastbound	26	65	61
	Derry Road West, Westbound	36	63	58
	McLaughlin Road	121	56	50
	TOTAL	**—**	**67**	**63**
Block 3 North Face	Derry Road West, Eastbound	56	63	59
	Derry Road West, Westbound	66	62	58
	McLaughlin Road	132	52	46
	TOTAL	**—**	**66**	**61**
Block 3 West Face	Derry Road West, Eastbound	56	60	56
	Derry Road West, Westbound	66	59	55
	McLaughlin Road	132	55	49
	TOTAL	**—**	**63**	**59**

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TABLE 2 PREDICTED OUTDOOR SOUND LEVELS – NO MITIGATION (CONTINUED)

Location(1)	Source	Distance (m)(2)	$L_{eq\ Day}$ (dBA)	$L_{eq\ Night}$ (dBA)
Block 5 North Face	Derry Road West, Eastbound	97	59	55
	Derry Road West, Westbound	107	59	54
	McLaughlin Road	193	50	43
	TOTAL	**—**	**62**	**58**
Block 5 West Face	Derry Road West, Eastbound	97	56	52
	Derry Road West, Westbound	107	56	51
	McLaughlin Road	193	53	46
	TOTAL	**—**	**60**	**55**
Block 8 West Face	Derry Road West, Eastbound	227	51	47
	Derry Road West, Westbound	237	51	46
	McLaughlin Road	207	53	46
	TOTAL	**—**	**56**	**51**
Block 9 East Face	Derry Road West, Eastbound	243	50	46
	Derry Road West, Westbound	253	50	46
	TOTAL	**—**	**53**	**49**
Block 10 East Face	Derry Road West, Eastbound	179	52	48
	Derry Road West, Westbound	189	52	48
	TOTAL	**—**	**55**	**51**
Block 12 North Face	Derry Road West, Eastbound	93	60	55
	Derry Road West, Westbound	103	59	55
	McLaughlin Road	222	49	43
	TOTAL	**—**	**63**	**58**
Block 12 West Face	Derry Road West, Eastbound	93	57	52
	Derry Road West, Westbound	103	56	52
	McLaughlin Road	222	52	46
	TOTAL	**—**	**60**	**55**

Notes:

(1) See Figure 2 (or Figure 3 for Block ID).

(2) Distance indicated is from the centreline of the noise source to the indicated facade.

For aircraft noise, the architectural and ventilation requirements account for the NEF zone. However, it is recognized there is no practical way to mitigate this source at outdoor amenity spaces and therefore is not assessed at these outdoor areas.

2.6 NOISE ABATEMENT REQUIREMENTS

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

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 Figure 2.

2.6.1 INDOORS

2.6.1.1 Architectural Elements

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

Based on the predicted sound levels and the location at the NEF/NEP 35, exterior wall and roof construction with minimum STC 54 and exterior windows with STC ratings up to 37 would be required to meet the indoor noise guideline criteria of the MECP. If corner bedrooms have windows on two perpendicular faces, the STC requirement could be slightly higher. This can be verified once detailed floor plans/elevations are available.

STC 54 wall construction can be met with brick veneer. STC 37 (or higher) windows are above standard window configurations / requirements.

Note that the STC requirements above are based on worst-case assumptions for the room dimensions and orientation relative to the noise sources, as detailed plans are currently not available. Design measures can be used to reduce the STC requirements and should be considered during the detailed design stages of the project. Consideration should be given to:

- Reducing the size of the windows or ensuring that the exterior window area is small relative to floor area of the associated space.
- Designing the spaces so that the rooms at the corners of the buildings have windows on only one facade.
- Having non-noise sensitive space, such as walk in closets or washrooms at the corners of the building.
- Improving the exterior wall construction to provide greater than STC 54 (to reduce window STC requirements).

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 must be confirmed by the window manufacturer through the submission of acoustical test data.

The final sound isolation requirements should be reviewed when architectural floor plans and elevations 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 city at the time of building permit application.

2.6.1.2 Ventilation Requirements

Based on the predicted daytime and nighttime sound levels from the road traffic sources and the location at or near the NEF/NEP 35 contour, all the residential units of the proposed development require mandatory air conditioning to allow windows to remain closed for noise control purposes.

2.6.2 OUTDOOR AMENITY AREAS

Outdoor amenity space will be provided at the rear yard areas for the detached/semi-detached lots as well as Blocks 5 to 9. All these rear yard areas are well screened from the perimeter road traffic sources and do not require noise mitigation. For the aircraft sources, it is recognized there is no practical way to mitigate this source at outdoor amenity spaces and therefore aircraft noise is not assessed at these outdoor areas.

2.6.3 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.

Table 3 and the notes to Table 3 summarize the warning clauses for the site.

TABLE 3 MINIMUM NOISE ABATEMENT MEASURES

Location	Air Conditioning(1)	Exterior Wall(2)	Window STC Rating(3)	Sound Barrier	Warning Clause(4)
All Residential Units	Mandatory	STC 54	Up to STC 37	None	A + B + C

Notes:

(1) Where means must be provided to allow windows to remain closed for road noise control purposes, a commonly used technique is that of air central conditioning.

(2) STC - Sound Transmission Class Rating (Reference ASTM-E413).

Requirements were based upon the assumption that all wall and window areas are as indicated in Section 2.6.1.1 of text. Requirements should be checked once floor plans are available.

(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.

Requirements were based upon the assumption that all wall and window areas are as indicated in Section 2.6.1.1 of text. Requirements should be checked once floor plans are available. If corner bedrooms have windows on two perpendicular faces, the STC requirement could be slightly higher.

(4) The warning clauses should be included in agreements that are registered on title and be included in Offers of Purchase and Sale, lease/rental agreements and condominium declarations for designated lots/units:

A. "Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within building units, sound levels due to increasing road traffic and air 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 the Ministry of the Environment, Conservation and Parks."

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.

C. "Purchasers/tenants are advised that due to the proximity of the existing residential, commercial developments and a car wash facility, noise from these buildings may at times be audible."

(5) All exterior doors shall be fully weather stripped.

3.0 STATIONARY NOISE SOURCE ASSESSMENT

3.1 NOISE SOURCE

3.1.1 PETRO-CANADA GAS BAR/GLIDEWASH CAR WASH

Stationary noise sources with potential for impact on the proposed development will be the operations at the Petro-Canada gas bar/car wash facility, at the west side of the subject site.

The facility is located at the southeast corner of Derry Road West and McLaughlin Road. A site visit at this facility was done by VCL staff on May 16, 2023. The main noise sources associated with the facility are:

- Car Wash Operations, 24-hours a day:
  a. Car Dryer Fan: sound emanating from car wash entrance (door open).
  b. Car Dryer Fan: sound emanating from car wash exit (door open).
  c. Car wash lineup. The worst case is ten cars in the queue.
- Two vacuums and one air pump.
- Four rooftop air handling/air conditioning units.

3.1.2 Other Stationary Noise Sources

The commercial plaza to the north across Derry Road West is not expected to create adverse noise impact on the subject site. The main noise sources associated with the commercial plaza are the rooftop mechanical HVAC units as well as the vehicle activities in the parking lot, and possibly delivery truck activities in the loading area(s). It is noted that the loading docks are located on the north side of the Food Basics building which is shielded. The majority of the buildings are along the northerly property line of the commercial plaza. There are existing residential development immediately north of the commercial plaza. Thus, it is anticipated that noise associated with the commercial plaza meets the applicable MECP noise guidelines at the subject site and is not considered further in the report.

A commercial plaza, consisting of a restaurant, a hotel and a driver training/exam centre, is located at 290 – 298 Derry Road West, approximately 200 m east of the subject site. During the VCL site visit on May 16, 2023, no obvious sounds were observed. Thus, this plaza is not considered further in the report.

An industrial area is located at the northwest corner of the intersection of Maritz Drive and Longside Drive, approximately 300 m east of the subject site. During the VCL site visit, 2023, no

audible sounds were observed and is quite far away from the site. Therefore, this industrial area is not considered further in the report.

A Walmart warehouse/distribution center is located at the southwest corner of the intersection of Maritz Drive and Longside Drive, approximately 400 m to the southeast of the proposed development. During the VCL site visit, many trailers at the warehouse were observed, but little noise was heard, with only one truck movement occurred during the full observation period. There are existing residential dwellings and future residential developments located between the warehouse and the subject site that are much closer to the warehouse relative to the subject site. Thus, it is anticipated that noise associated with the Walmart warehouse meets the applicable MECP noise guidelines at the residential uses and therefore meets the applicable noise guidelines at the subject site by default, due to the greater distance setback. The warehouse is therefore not considered further in the report.

3.2 ENVIRONMENTAL NOISE GUIDELINES

The applicable stationary noise source guidelines, as outlined in the MECP Publication NPC-300, are summarized below and in Appendix B.

The site and area are Class 1; i.e., an area where the ambient sound environment is dominated by “urban hum”, primarily traffic noise during the daytime, evening and nighttime.

The MECP requires a “worst case” one-hour operating scenario be analyzed. This would typically occur when the background ambient sound level is at a minimum and the noise generated from the stationary noise sources is at a maximum.

The guideline limits apply to the outdoor plane of window of habitable spaces such as living/dining/family rooms and sleep areas as well as at locations amenable for use outdoors. No indoor sound level guidelines are provided for stationary sources.

MECP Publication NPC-300 states that the guideline limits shall be the higher of the ambient sound level, due to road traffic noise, or the minimum exclusion limits.

For a Class 1 area, the minimum exclusion limits (in terms of the one-hour continuous equivalent sound level, $L_{eq\ 1hr}$) are:

- 50 dBA during the daytime (0700 and 1900 hours) and evening (1900 and 2300 hours) at the exterior plane of window (POW) to a noise sensitive space and at an outdoor point of reception (OPOR); and
- 45 dBA during the nighttime (2300 and 0700 hours) at the exterior POW to a noise sensitive space. There are no sound level limits at an OPOR at night.

3.3 ANALYSIS METHOD

To assess the stationary noise impact on the subject site, a 3-D acoustical model was developed using CadnaA Version 2023 MR1 environmental noise modelling software, which implements the methods of calculation described in ISO standard 9613.2 – “Acoustics- Attenuation During Propagation Outdoors”.

The sound level predictions were done using the building evaluation method in the CadnaA acoustical model. This method calculates sound levels on a grid of receptors over each facade at each storey of the building.

The following parameters were used in the model:

1. Hard ground (G = 0) was used for the roadways and the paved areas. Soft ground (G = 1) was used elsewhere.
2. Two orders of sound reflection were included in the assessment.

The ambient sound levels due to road traffic (i.e., the applicable guideline limits, if higher than the minimum exclusion limits) were calculated using the RLS-90 road traffic noise model included in the CadnaA software package.

The minimum hourly traffic volumes for each assessment period were calculated from the existing 24-hour volumes provided in Table 1, using a typical traffic distribution. The minimum hourly volumes were then used to calculate the ambient sound levels for the daytime/evening and nighttime scenarios.

On Figures 3 to 6, the octagons surrounding each building show the maximum predicted excess of sound levels over the applicable guideline limit at each exterior POW location at any storey. The red octagons with an integer number in the centre indicate the predicted excess level (in dB) over the limit.

The sound level predictions at the OPOR's at rear yards of the dwelling units were done using the grid calculation method in the CadnaA acoustical model. This method calculates sound levels on a grid of receptors over an entire space of the amenity area. The assessment receptors ("beach balls") shown on the above figures represent the worst-case location at each amenity and were assessed at standing height, 1.5 m above the grade. The value shown in the bracket indicates the applicable guideline limit for that OPOR.

3.4 OPERATING SCENARIOS

Three source scenarios with different levels of activity were considered for the Petro-Canada gas bar/car wash facility. It should also be noted that the stationary source guidelines relate to the ambient sound environment which also varies with traffic volumes on the adjacent streets as a function of time. The three operating scenarios analysed are:

- Daytime (0700-1900 Hours):
  a. Four rooftop air conditioning units on 100% of the time at the convenience store.
  b. The car wash facility was assumed to operate at full capacity with 13.33 car washes per hour with 10 cars in the queue idling 100% of the time during the worst-case hour.
  c. Two vacuums on 90% of the time during the worst-case hour.
  d. One air pump on 90% of the time during the worst-case hour.
- Evening (1900-2300 Hours):
  a. Four rooftop air conditioning units on 100% of the time at the convenience store.
  b. The car wash facility was assumed to operate at 50% of capacity with 6.67 car washes per hour with no cars in the queue.
  c. Two vacuums on 50% of the time during the worst-case hour.
  d. One air pump on 50% of the time during the worst-case hour.

- Nighttime (2300-0700 Hours):
  a. Four rooftop air conditioning units on 50% of the time at the convenience store.
  b. The car wash facility was assumed to operate at 10% of capacity with 1.33 car washes per hour with no cars in the queue.
  c. Two vacuums on 10% of the time during the worst-case hour.
  d. One air pump on 10% of the time during the worst-case hour.

The reference source sound power data used in the assessment is included in Appendix D. The locations of the noise sources are shown in Figures 3 to 6.

3.5 PREDICTED SOUND LEVELS – UNMITIGATED

As shown on Figures 3 to 5 for the assessment results during the daytime, evening and nighttime scenarios, respectively, sound level excesses are predicted to be up to 5 dB on Block 1 and up to 2 dB on Block 3, primarily due to the noise from the entrance and exit of the car wash facility. Thus, noise mitigation is required.

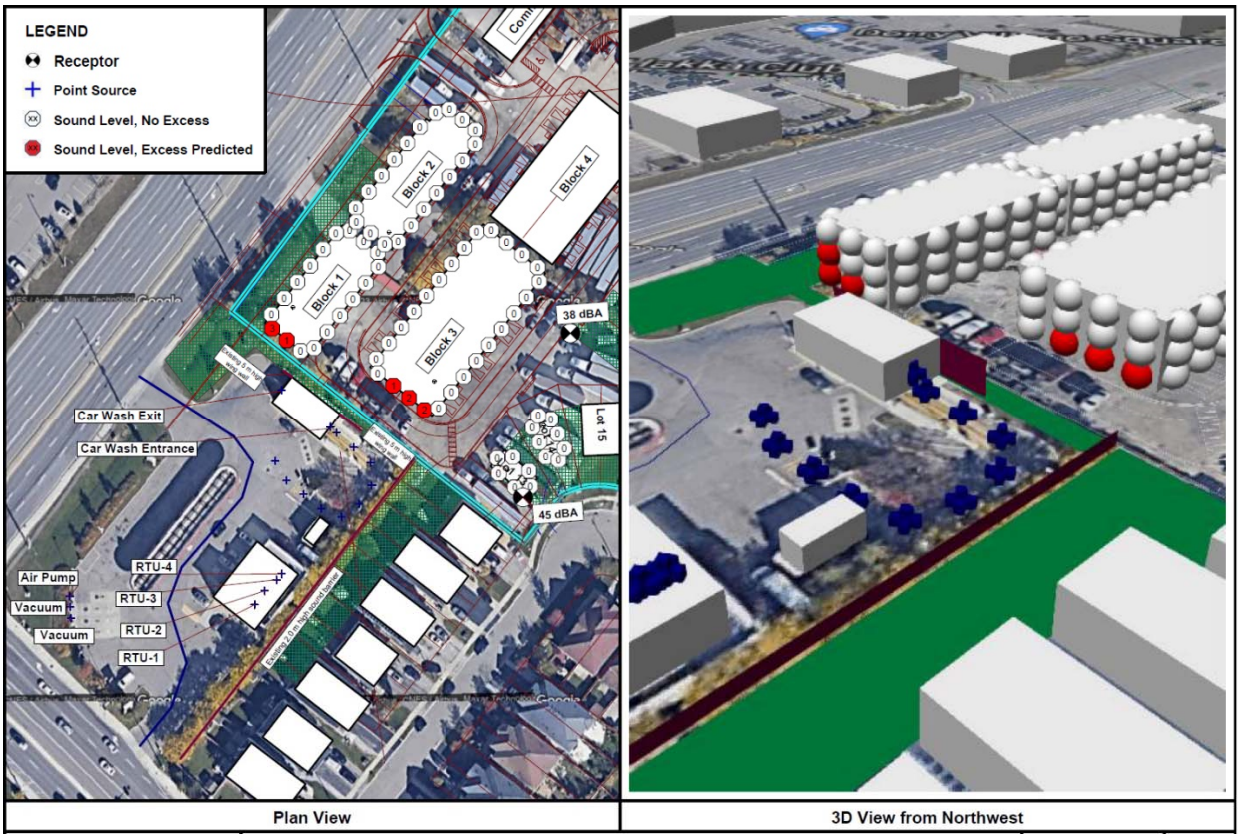

FIGURE 3: UNMITIGATED HOURLY SOUND LEVELS – DAYTIME

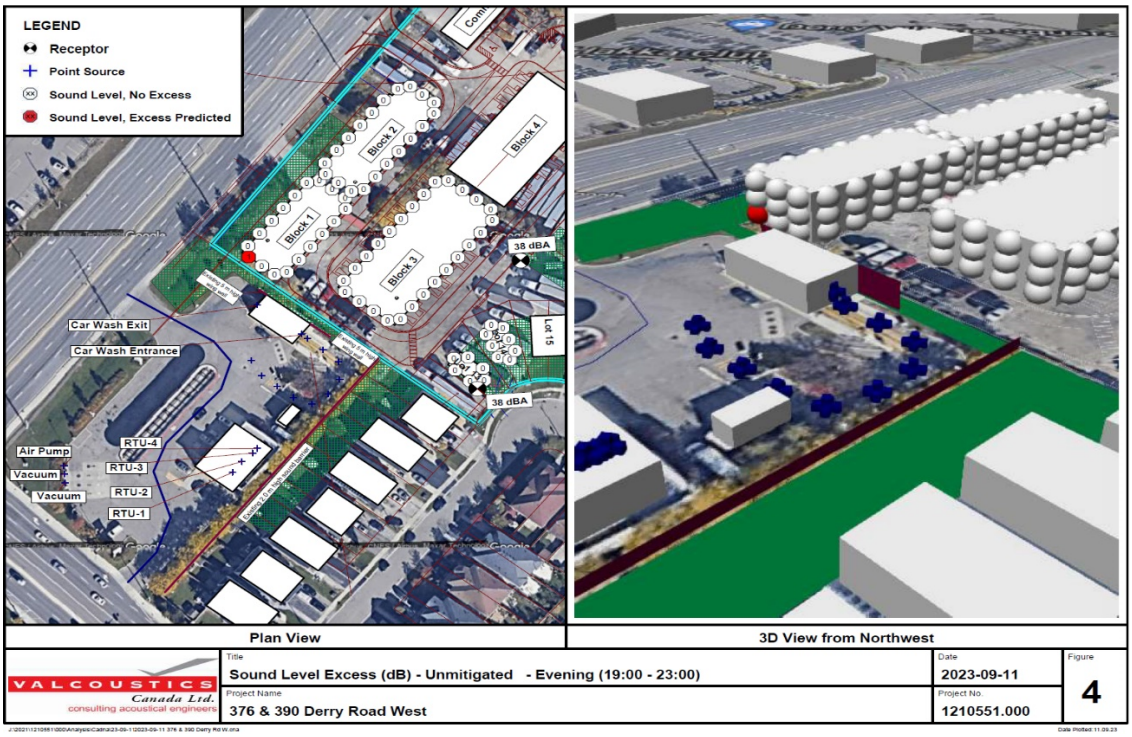

FIGURE 4: UNMITIGATED HOURLY SOUND LEVELS – EVENING

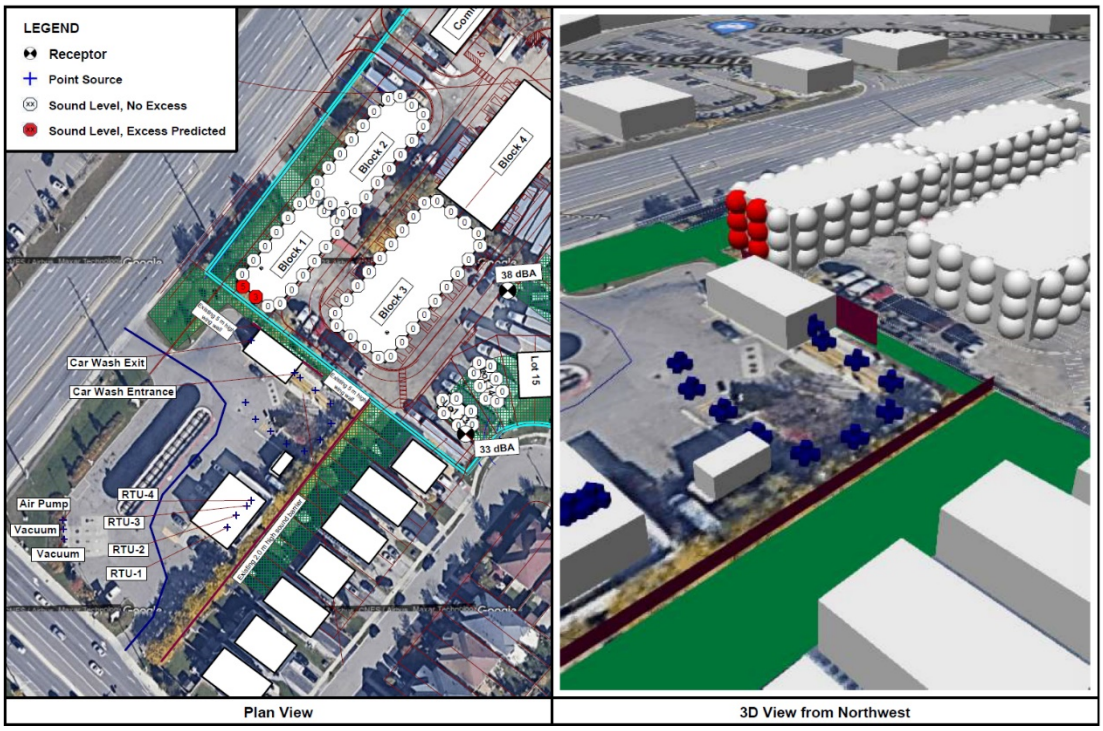

FIGURE 5: UNMITIGATED HOURLY SOUND LEVELS – NIGHTTIME

3.6 NOISE MITIGATION REQUIREMENTS

As shown on Figures 3 to 5, sound level excesses over the sound level limits for a Class 1 receptor area are predicted to occur at Blocks 1 and 2 dwellings adjacent to the car wash facility.

To meet the Class 1 sound level limit for the stationary noise sources, three options of the noise mitigation measures can be considered:

- Option 1 – Physical noise mitigation measures implemented at the car wash:
  a. At the car wash entrance, the existing 5 m high 7.5 m long wing wall sound barrier be extended to 12 m in length along the west property line; and
  b. At the car wash exit, the existing 5 m high 3 m long wing wall sound barrier be extended to minimum 6 m in length. See Figure 6.

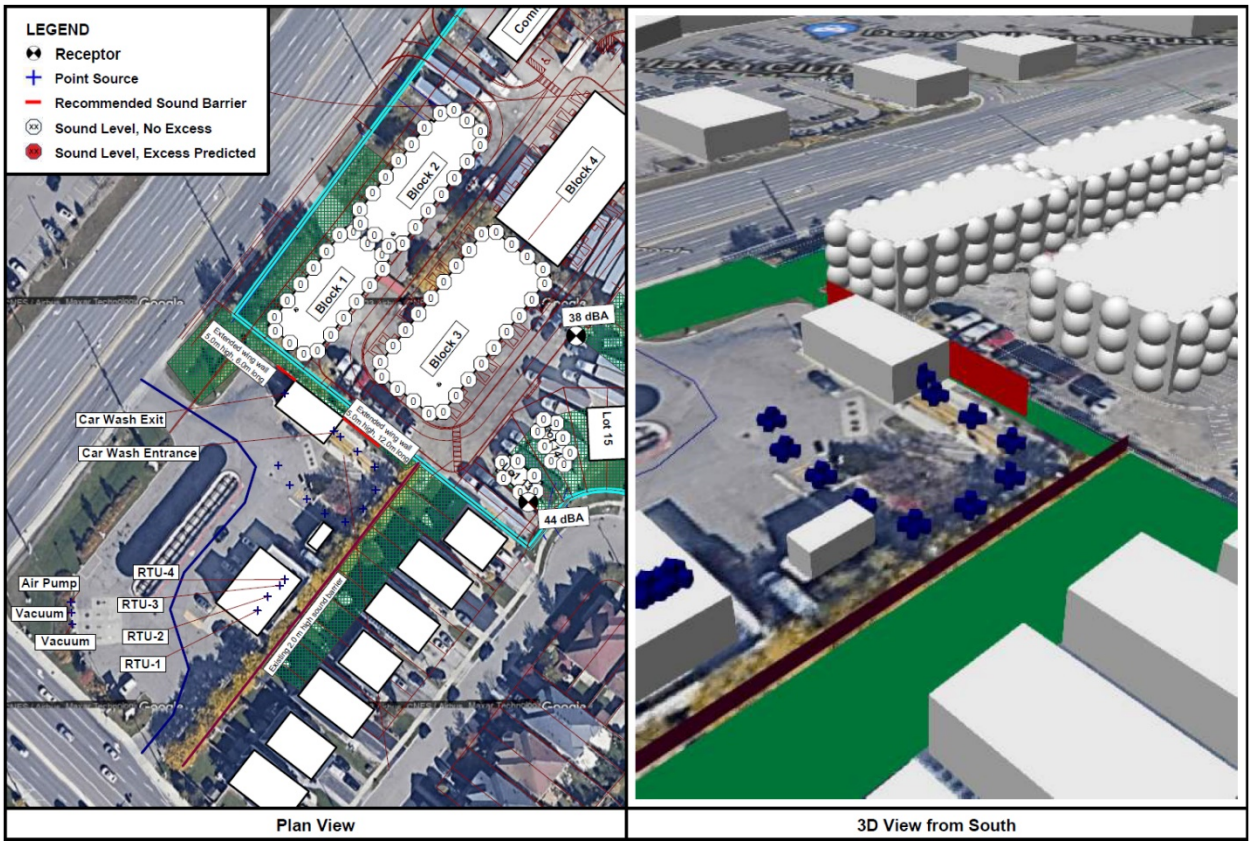

FIGURE 6: HOURLY SOUND LEVELS – MITIGATION OPTION 1, WITH PHYSICAL MITIGATION MEASURES AT CAR WASH

- Option 2 – Design of blank walls, non-noise sensitive spaces/windows: Alternatively, instead of increasing the existing wing walls at the car wash, the end (west) walls of Blocks 1 and 3 can be blank walls without windows, or if windows are provided, they open into non-noise sensitive space (washrooms, closets, corridors, etc.).

- Option 3 – Design of enclosed balcony space: A second alternative would involve providing enclosed balcony space at the locations where the noise excess due to the car wash is predicted:
  a. The enclosed balcony would need to buffer the noise sensitive spaces beyond (bedrooms, living/dining area, kitchen area, dens).
  b. The enclosed balcony must be separate from the indoor areas (with doorway access), remain as unconditioned space, and not count towards the total GFA.

The enclosed balcony can have openable windows if desired. As shown on Figure 6 for noise mitigation Option 1, with the physical noise mitigation measures implemented at the car wash, the Class 1 sound level limits of the MECP noise guideline NPC-300 are predicted to be met.

As shown on Figure 7 for noise mitigation Options 2 and/or 3, after eliminating the noise sensitive windows from the specific locations on the west and south facades of Block 1, and the west facade of Block 3, the Class 1 sound level limits of the MECP noise guideline NPC-300 are predicted to be met at the remaining noise sensitive receptors on the proposed development.

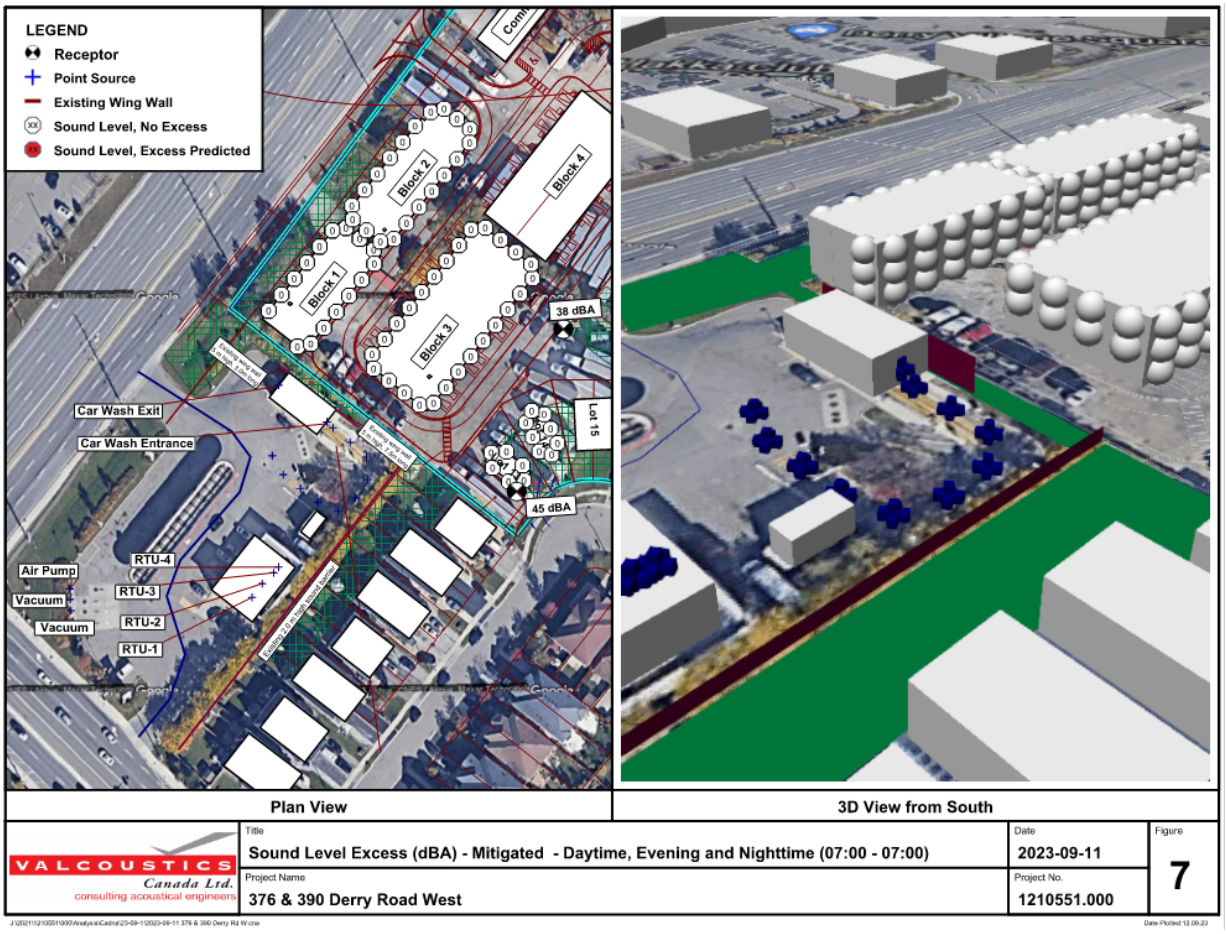

FIGURE 7: HOURLY SOUND LEVELS – MITIGATION OPTION 2/3, WITH RE-DESIGN OF WEST AND/OR SOUTH FACADES OF BLOCKS 1 AND 3

4.0 CONCLUSIONS

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

The approvals and administrative procedures are available to ensure that the noise requirements are implemented.

5.0 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.

RL\TH\hd
J:\2021\1210551\000\Reports\376 & 390 Derry Rd W, Mississauga-Noise v1_0 Fnl.docx

APPENDIX A
ROAD TRAFFIC DATA

Date: June 5, 2023
From: Richard Li, Valcoustics
Re: Traffic Data Request – Derry Road - 330m West of Maritz Drive

Richard,
As per your request, we are providing the following 2018 traffic data:

	Existing	Ultimate
24 Hour Traffic Volume	42,637	48,600
# of Lanes	6	6
Day/Night Split	85/15	85/15
Day Trucks (% of Total Volume)	1.05% Medium 5.57% Heavy	1.05% Medium 5.57% Heavy
Night Trucks (% of Total Volume)	0.69% Medium 6.16% Heavy	0.69% Medium 6.16% Heavy
Right-of-Way Width	45 meters	
Posted Speed Limit	70 km/h	

Please note:

1. The current volume is not the Annual Average Daily Traffic, but the averaged raw volumes over three data collection days. If you need the Annual Average Traffic Volume, please visit the Peel Open Data website below: http://opendata.peelregion.ca/data-categories/transportation/traffic-count-stations.aspx
2. The ultimate volume is the planned volume during a level of service 'D' where a 2 second vehicle headway and a volume to capacity ratio of 0.9 is assumed. Traffic signals and hourly variations in traffic are also incorporated into the ultimate volume.

If you require further assistance, please contact me at yiyang.hu@peelregion.ca.

Regards,

Aaron Hu
Co-op Transportation Analyst, Transportation System Planning
Transportation Division, Public Works, Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor, Brampton, ON, L6T 4B9
E: yiyang.hu@peelregion.ca

Spectrum

Turning Movement Count
Location Name: DERRY RD & MCLAUGHLIN RD
Date: Tue, May 10, 2022 Deployment Lead: Peter Ilias

Peel Region
SUITE B 10 PEEL CENTRE DR
BRAMPTON ONTARIO, L6T 4B9
CANADA

Turning Movement Count (72 . DERRY RD & MCLAUGHLIN RD) CustID: 00512198 MioID:

Start Time	Southbound MCLAUGHLIN RD						Westbound DERRY RD						Northbound MCLAUGHLIN RD						Eastbound DERRY RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
07:00:00	62	179	30	0	9	271	16	111	29	0	2	156	19	86	20	0	1	125	13	258	54	0	3	325	877
07:15:00	46	215	17	0	16	278	18	113	14	0	9	145	16	78	19	0	5	113	23	295	44	1	34	363	899
07:30:00	45	264	19	0	17	328	22	129	28	1	19	180	19	90	21	0	9	130	25	315	73	1	15	414	1052
07:45:00	49	346	27	0	13	422	39	131	23	0	14	193	27	116	22	0	7	165	16	241	67	1	26	325	1105
Hourly	202	1004	93	0	55	1299	95	484	94	1	44	674	81	370	82	0	22	533	77	1109	238	3	78	1427	3933
08:00:00	56	272	23	0	13	351	30	136	22	1	8	189	36	138	25	1	6	200	29	249	88	0	11	366	1106
08:15:00	33	317	30	0	10	380	41	164	31	1	6	237	28	146	35	0	8	209	22	274	65	1	18	362	1188
08:30:00	46	303	36	0	11	385	36	153	18	0	9	207	42	155	36	0	7	233	30	246	75	0	8	351	1176
08:45:00	35	289	32	0	2	356	46	178	20	0	3	244	40	91	25	1	8	157	29	242	79	0	5	350	1107
Hourly	170	1181	121	0	36	1472	153	631	91	2	26	877	146	530	121	2	29	799	110	1011	307	1	42	1429	4577
BREAK																									
11:00:00	40	100	20	0	4	160	31	124	27	1	11	183	20	75	14	2	3	111	38	130	16	0	6	184	638
11:15:00	46	112	14	1	9	173	27	119	24	1	10	171	30	90	23	0	6	143	17	120	15	1	14	153	640
11:30:00	33	110	20	0	12	163	23	135	38	3	8	199	25	70	16	0	8	111	26	156	22	0	11	204	677
11:45:00	36	134	23	1	13	194	22	129	41	1	11	193	19	89	21	0	1	129	27	144	19	0	10	190	706
Hourly	155	456	77	2	38	690	103	507	130	6	40	746	94	324	74	2	18	494	108	550	72	1	41	731	2661
12:00:00	46	105	22	0	9	173	14	120	28	2	8	164	20	114	23	1	3	158	35	120	22	0	9	177	672
12:15:00	43	122	20	0	10	185	40	148	33	0	11	221	22	93	27	0	4	142	36	157	13	0	8	206	754
12:30:00	37	128	29	1	7	195	20	137	44	0	9	201	31	110	22	0	2	163	29	114	18	1	12	162	721
12:45:00	59	93	27	3	14	182	40	153	21	3	10	217	26	91	18	0	7	135	29	140	27	0	9	196	730
Hourly	185	448	98	4	40	735	114	558	126	5	38	803	99	408	90	1	16	598	129	531	80	1	38	741	2877
13:00:00	30	116	33	0	6	179	26	153	34	2	10	215	13	115	27	0	6	155	37	98	24	1	12	160	709
13:15:00	27	120	29	0	17	176	33	141	32	2	14	208	26	111	20	0	2	157	29	117	22	1	21	169	710
13:30:00	39	101	20	0	10	160	34	164	40	3	14	241	29	112	28	0	12	169	31	139	26	0	9	196	766
13:45:00	38	149	37	0	16	224	37	165	36	2	15	240	22	125	22	0	12	169	23	126	24	1	10	174	807
Hourly	134	486	119	0	49	739	130	623	142	9	53	904	90	463	97	0	32	650	120	480	96	3	52	699	2992
BREAK																									
15:00:00	40	164	32	0	20	236	32	243	56	1	21	332	48	207	22	1	18	278	37	158	31	2	24	228	1074
15:15:00	52	155	48	0	12	255	38	242	66	1	13	347	48	237	21	1	5	307	34	168	26	0	21	228	1137
15:30:00	44	151	36	0	12	231	34	314	50	4	11	402	60	225	19	0	16	304	35	171	27	0	5	233	1170
15:45:00	40	165	26	0	5	231	30	236	68	1	17	335	70	261	27	0	6	358	38	142	28	1	3	209	1133
Hourly	176	635	142	0	49	953	134	1035	240	7	62	1416	226	930	89	2	45	1247	144	639	112	3	53	898	4514
16:00:00	37	115	35	0	14	187	38	381	75	1	23	495	75	241	20	0	11	336	34	172	27	0	17	233	1251
16:15:00	39	151	25	0	10	215	23	309	64	0	10	396	70	288	21	0	10	379	34	145	30	0	23	209	1199
16:30:00	35	166	39	1	13	241	32	295	53	0	14	380	69	288	25	0	19	382	32	177	40	0	11	249	1252
16:45:00	24	132	24	1	9	181	33	320	59	2	18	414	55	261	32	1	21	349	50	181	32	0	19	263	1207
Hourly	135	564	123	2	46	824	126	1305	251	3	65	1685	269	1078	98	1	61	1446	150	675	129	0	70	954	4909
17:00:00	35	158	26	1	12	220	48	306	62	3	38	419	57	303	29	0	14	389	32	156	32	2	11	222	1250
17:15:00	28	142	27	0	15	197	37	403	106	2	10	548	71	290	18	0	11	379	37	178	30	0	5	245	1369
17:30:00	32	157	27	1	12	217	45	421	104	2	12	572	48	295	18	0	15	361	39	187	42	0	13	268	1418
17:45:00	36	161	38	0	15	235	48	288	95	0	19	431	67	300	25	0	23	392	44	147	41	0	10	232	1290
Hourly	131	618	118	2	54	869	178	1418	367	7	79	1970	243	1188	90	0	63	1521	152	668	145	2	39	967	5327
Grand Total	1288	5392	891	10	367	7581	1033	6561	1441	40	407	9075	1248	5291	741	8	286	7288	990	5663	1179	14	413	7846	**31790**
Approach%	17%	71.1%	11.8%	0.1%		-	11.4%	72.3%	15.9%	0.4%		-	17.1%	72.6%	10.2%	0.1%		-	12.6%	72.2%	15%	0.2%		-	**-**
Totals %	4.1%	17%	2.8%	0%		23.8%	3.2%	20.6%	4.5%	0.1%		28.5%	3.9%	16.6%	2.3%	0%		22.9%	3.1%	17.8%	3.7%	0%		24.7%	**-**

Heavy	64	109	28	0	-	27	619	59	0	-	19	85	19	0	-	23	559	29	0	-	-
Heavy %	5%	2%	3.1%	0%	-	2.6%	9.4%	4.1%	0%	-	1.5%	1.6%	2.6%	0%	-	2.3%	9.9%	2.5%	0%	-	-
Bicycles	0	1	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycle %	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (8.33 °C)

Start Time	Southbound MCLAUGHLIN RD						Westbound DERRY RD						Northbound MCLAUGHLIN RD						Eastbound DERRY RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
08:00:00	56	272	23	0	13	351	30	136	22	1	8	189	36	138	25	1	6	200	29	249	88	0	11	366	1106
08:15:00	33	317	30	0	10	380	41	164	31	1	6	237	28	146	35	0	8	209	22	274	65	1	18	362	1188
08:30:00	46	303	36	0	11	385	36	153	18	0	9	207	42	155	36	0	7	233	30	246	75	0	8	351	1176
08:45:00	35	289	32	0	2	356	46	178	20	0	3	244	40	91	25	1	8	157	29	242	79	0	5	350	1107
Grand Total	170	1181	121	0	36	1472	153	631	91	2	26	877	146	530	121	2	29	799	110	1011	307	1	42	1429	**4577**
Approach%	11.5%	80.2%	8.2%	0%		-	17.4%	71.9%	10.4%	0.2%		-	18.3%	66.3%	15.1%	0.3%		-	7.7%	70.7%	21.5%	0.1%		-	-
Totals %	3.7%	25.8%	2.6%	0%		32.2%	3.3%	13.8%	2%	0%		19.2%	3.2%	11.6%	2.6%	0%		17.5%	2.4%	22.1%	6.7%	0%		31.2%	-
PHF	0.76	0.93	0.84	0		0.96	0.83	0.89	0.73	0.5		0.9	0.87	0.85	0.84	0.5		0.86	0.92	0.92	0.87	0.25		0.98	-
Heavy	6	17	2	0		25	6	111	7	0		124	2	16	1	0		19	6	51	7	0		64	-
Heavy %	3.5%	1.4%	1.7%	0%		1.7%	3.9%	17.6%	7.7%	0%		14.1%	1.4%	3%	0.8%	0%		2.4%	5.5%	5%	2.3%	0%		4.5%	-
Lights	164	1164	119	0		1447	147	520	84	2		753	144	514	120	2		780	104	960	300	1		1365	-
Lights %	96.5%	98.6%	98.3%	0%		98.3%	96.1%	82.4%	92.3%	100%		85.9%	98.6%	97%	99.2%	100%		97.6%	94.5%	95%	97.7%	100%		95.5%	-
Single-Unit Trucks	1	2	1	0		4	4	36	3	0		43	2	4	1	0		7	1	16	5	0		22	-
Single-Unit Trucks %	0.6%	0.2%	0.8%	0%		0.3%	2.6%	5.7%	3.3%	0%		4.9%	1.4%	0.8%	0.8%	0%		0.9%	0.9%	1.6%	1.6%	0%		1.5%	-
Buses	5	14	0	0		19	2	17	4	0		23	0	11	0	0		11	5	19	2	0		26	-
Buses %	2.9%	1.2%	0%	0%		1.3%	1.3%	2.7%	4.4%	0%		2.6%	0%	2.1%	0%	0%		1.4%	4.5%	1.9%	0.7%	0%		1.8%	-
Articulated Trucks	0	1	1	0		2	0	58	0	0		58	0	1	0	0		1	0	16	0	0		16	-
Articulated Trucks %	0%	0.1%	0.8%	0%		0.1%	0%	9.2%	0%	0%		6.6%	0%	0.2%	0%	0%		0.1%	0%	1.6%	0%	0%		1.1%	-
Pedestrians	-	-	-	-	34	-	-	-	-	-	26	-	-	-	-	-	28	-	-	-	-	-	40	-	-
Pedestrians%	-	-	-	-	25.6%		-	-	-	-	19.5%		-	-	-	-	21.1%		-	-	-	-	30.1%		-
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-
Bicycles on Crosswalk%	-	-	-	-	1.5%		-	-	-	-	0%		-	-	-	-	0.8%		-	-	-	-	1.5%		-
Bicycles on Road	0	1	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 01:00 PM - 02:00 PM Weather: Overcast Clouds (17.32 °C)

Start Time	Southbound MCLAUGHLIN RD						Westbound DERRY RD						Northbound MCLAUGHLIN RD						Eastbound DERRY RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
13:00:00	30	116	33	0	6	179	26	153	34	2	10	215	13	115	27	0	6	155	37	98	24	1	12	160	709
13:15:00	27	120	29	0	17	176	33	141	32	2	14	208	26	111	20	0	2	157	29	117	22	1	21	169	710
13:30:00	39	101	20	0	10	160	34	164	40	3	14	241	29	112	28	0	12	169	31	139	26	0	9	196	766
13:45:00	38	149	37	0	16	224	37	165	36	2	15	240	22	125	22	0	12	169	23	126	24	1	10	174	807
Grand Total	134	486	119	0	49	739	130	623	142	9	53	904	90	463	97	0	32	650	120	480	96	3	52	699	**2992**
Approach%	18.1%	65.8%	16.1%	0%		-	14.4%	68.9%	15.7%	1%		-	13.8%	71.2%	14.9%	0%		-	17.2%	68.7%	13.7%	0.4%		-	**-**
Totals %	4.5%	16.2%	4%	0%		24.7%	4.3%	20.8%	4.7%	0.3%		30.2%	3%	15.5%	3.2%	0%		21.7%	4%	16%	3.2%	0.1%		23.4%	**-**
PHF	0.86	0.82	0.8	0		0.82	0.88	0.94	0.89	0.75		0.94	0.78	0.93	0.87	0		0.96	0.81	0.86	0.92	0.75		0.89	**-**
Heavy	7	11	5	0		23	2	80	9	0		91	3	7	3	0		13	3	68	5	0		76	**-**
Heavy %	5.2%	2.3%	4.2%	0%		3.1%	1.5%	12.8%	6.3%	0%		10.1%	3.3%	1.5%	3.1%	0%		2%	2.5%	14.2%	5.2%	0%		10.9%	**-**
Lights	127	475	114	0		716	128	543	133	9		813	87	456	94	0		637	117	412	91	3		623	**-**
Lights %	94.8%	97.7%	95.8%	0%		96.9%	98.5%	87.2%	93.7%	100%		89.9%	96.7%	98.5%	96.9%	0%		98%	97.5%	85.8%	94.8%	100%		89.1%	**-**
Single-Unit Trucks	2	2	1	0		5	1	34	3	0		38	1	2	3	0		6	2	40	3	0		45	**-**
Single-Unit Trucks %	1.5%	0.4%	0.8%	0%		0.7%	0.8%	5.5%	2.1%	0%		4.2%	1.1%	0.4%	3.1%	0%		0.9%	1.7%	8.3%	3.1%	0%		6.4%	**-**
Buses	4	8	1	0		13	1	26	6	0		33	1	5	0	0		6	1	12	2	0		15	**-**
Buses %	3%	1.6%	0.8%	0%		1.8%	0.8%	4.2%	4.2%	0%		3.7%	1.1%	1.1%	0%	0%		0.9%	0.8%	2.5%	2.1%	0%		2.1%	**-**
Articulated Trucks	1	1	3	0		5	0	20	0	0		20	1	0	0	0		1	0	16	0	0		16	**-**
Articulated Trucks %	0.7%	0.2%	2.5%	0%		0.7%	0%	3.2%	0%	0%		2.2%	1.1%	0%	0%	0%		0.2%	0%	3.3%	0%	0%		2.3%	**-**
Pedestrians	-	-	-	-	49	-	-	-	-	-	51	-	-	-	-	-	32	-	-	-	-	-	52	-	**-**
Pedestrians%	-	-	-	-	26.3%		-	-	-	-	27.4%		-	-	-	-	17.2%		-	-	-	-	28%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	1.1%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 05:00 PM - 06:00 PM Weather: Broken Clouds (19.72 °C)

Start Time	Southbound MCLAUGHLIN RD						Westbound DERRY RD						Northbound MCLAUGHLIN RD						Eastbound DERRY RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
17:00:00	35	158	26	1	12	220	48	306	62	3	38	419	57	303	29	0	14	389	32	156	32	2	11	222	1250
17:15:00	28	142	27	0	15	197	37	403	106	2	10	548	71	290	18	0	11	379	37	178	30	0	5	245	1369
17:30:00	32	157	27	1	12	217	45	421	104	2	12	572	48	295	18	0	15	361	39	187	42	0	13	268	1418
17:45:00	36	161	38	0	15	235	48	288	95	0	19	431	67	300	25	0	23	392	44	147	41	0	10	232	1290
Grand Total	131	618	118	2	54	869	178	1418	367	7	79	1970	243	1188	90	0	63	1521	152	668	145	2	39	967	**5327**
Approach%	15.1%	71.1%	13.6%	0.2%		-	9%	72%	18.6%	0.4%		-	16%	78.1%	5.9%	0%		-	15.7%	69.1%	15%	0.2%		-	**-**
Totals %	2.5%	11.6%	2.2%	0%		16.3%	3.3%	26.6%	6.9%	0.1%		37%	4.6%	22.3%	1.7%	0%		28.6%	2.9%	12.5%	2.7%	0%		18.2%	**-**
PHF	0.91	0.96	0.78	0.5		0.92	0.93	0.84	0.87	0.58		0.86	0.86	0.98	0.78	0		0.97	0.86	0.89	0.86	0.25		0.9	**-**
Heavy	8	8	0	0		16	0	70	9	0		79	1	7	1	0		9	0	102	0	0		102	**-**
Heavy %	6.1%	1.3%	0%	0%		1.8%	0%	4.9%	2.5%	0%		4%	0.4%	0.6%	1.1%	0%		0.6%	0%	15.3%	0%	0%		10.5%	**-**
Lights	123	610	118	2		853	178	1348	358	7		1891	242	1181	89	0		1512	152	566	145	2		865	**-**
Lights %	93.9%	98.7%	100%	100%		98.2%	100%	95.1%	97.5%	100%		96%	99.6%	99.4%	98.9%	0%		99.4%	100%	84.7%	100%	100%		89.5%	**-**
Single-Unit Trucks	2	1	0	0		3	0	23	1	0		24	0	1	1	0		2	0	54	0	0		54	**-**
Single-Unit Trucks %	1.5%	0.2%	0%	0%		0.3%	0%	1.6%	0.3%	0%		1.2%	0%	0.1%	1.1%	0%		0.1%	0%	8.1%	0%	0%		5.6%	**-**
Buses	6	7	0	0		13	0	14	6	0		20	0	6	0	0		6	0	10	0	0		10	**-**
Buses %	4.6%	1.1%	0%	0%		1.5%	0%	1%	1.6%	0%		1%	0%	0.5%	0%	0%		0.4%	0%	1.5%	0%	0%		1%	**-**
Articulated Trucks	0	0	0	0		0	0	33	2	0		35	1	0	0	0		1	0	38	0	0		38	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	2.3%	0.5%	0%		1.8%	0.4%	0%	0%	0%		0.1%	0%	5.7%	0%	0%		3.9%	**-**
Pedestrians	-	-	-	-	54	-	-	-	-	-	76	-	-	-	-	-	60	-	-	-	-	-	37	-	**-**
Pedestrians%	-	-	-	-	23%		-	-	-	-	32.3%		-	-	-	-	25.5%		-	-	-	-	15.7%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	2	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	1.3%		-	-	-	-	1.3%		-	-	-	-	0.9%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 08:00 AM - 09:00 AM **Weather: Broken Clouds (8.33 °C)**

Peak Hour: 01:00 PM - 02:00 PM **Weather: Overcast Clouds (17.32 °C)**

	Bicycles on Crosswalk	Pedestrians
N	0	49
S	0	32
E	2	51
W	0	52

Peak Hour: 05:00 PM - 06:00 PM **Weather: Broken Clouds (19.72 °C)**

	Bicycles on Crosswalk	Pedestrians
N	0	54
S	3	60
E	3	76
W	2	37

NOISE REPORT FOR PROPOSED DEVELOPMENT

Date:	

REQUESTED BY:

Name:	Richard Qiang Li, Ph.D., P.Eng.
Company:	Valcoustics

PREPARED BY:

Name	Naveda Dukhan
Tel#:	905-615-3200 ext. 8948

Location:	McLaughlin Rd (South of Derry)
ID#	591

ON SITE TRAFFIC DATA

Specific	Street Names				
	McLaughlin Rd				
AADT:	33100				
# of Lanes:	4 Lanes				
% Trucks:	2%				
Medium/Heavy Trucks Ratio:	45/55				
Day/Night Split:	90/10				
Posted Speed Limit:	70Km/Hr.				
Gradient Of Road:	2%				
Ultimate R.O.W:	30m				

Comments:	Ultimate Traffic Only (2041)

APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (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)	50* dBA
		19:00 to 23:00(1)	50* dBA
	Class 2 Area	07:00 to 19:00(2)	50* dBA
		19:00 to 23:00(2)	45* dBA
	Class 3 Area	07:00 to 19:00(3)	45* dBA
		19:00 to 23:00(3)	40* dBA
	Class 4 Area	07:00 to 19:00(4)	55* dBA
		19:00 to 23:00(4)	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

TRANSPORTATION NOISE SOURCE CALCULATIONS

```
STAMSON 5.04        NORMAL REPORT        Date: 23-06-2023 08:52:32
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b1_nf.te             Time Period: Day/Night 16/8 hours
Description: Predicted Sound Levels - Block 1, North Facade

Road data, segment # 1: Derry EB (day/night)
-------------------------------------------
Car traffic volume  : 19288/3404  veh/TimePeriod
Medium truck volume :   217/25    veh/TimePeriod
Heavy truck volume  :  1150/224   veh/TimePeriod
Posted speed limit  :    70 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Derry EB (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  :  26.00 / 26.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Derry WB (day/night)
-------------------------------------------
Car traffic volume  : 19288/3404  veh/TimePeriod
Medium truck volume :   217/25    veh/TimePeriod
Heavy truck volume  :  1150/224   veh/TimePeriod
Posted speed limit  :    70 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Derry WB (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  :  36.00 / 36.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: McLaughin (day/night)
----------------------------------------------
Car traffic volume  : 29194/3244  veh/TimePeriod  *
Medium truck volume :   268/30    veh/TimePeriod  *
Heavy truck volume  :   328/36    veh/TimePeriod  *
Posted speed limit  :    70 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):  33100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   0.90
    Heavy Truck  % of Total Volume     :   1.10
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: McLaughin (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 121.00 / 121.00 m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Derry EB (day)
-----------------------------------

Source height = 1.54 m

ROAD (0.00 + 67.81 + 0.00) = 67.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  72.48   0.00  -3.53  -1.14   0.00   0.00   0.00  67.81
-------------------------------------------------------------------------------

Segment Leq : 67.81 dBA

Results segment # 2: Derry WB (day)
-----------------------------------

Source height = 1.54 m

ROAD (0.00 + 65.72 + 0.00) = 65.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  72.48   0.00  -5.62  -1.14   0.00   0.00   0.00  65.72
-------------------------------------------------------------------------------

Segment Leq : 65.72 dBA
```

Results segment # 3: McLaughin (day)

Source height = 1.02 m

ROAD (0.00 + 53.04 + 0.00) = 53.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.49	70.76	0.00	-13.55	-4.18	0.00	0.00	0.00	53.04

Segment Leq : 53.04 dBA

Total Leq All Segments: 69.99 dBA

Results segment # 1: Derry EB (night)

Source height = 1.57 m

ROAD (0.00 + 63.53 + 0.00) = 63.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	68.19	0.00	-3.53	-1.13	0.00	0.00	0.00	63.53

Segment Leq : 63.53 dBA

Results segment # 2: Derry WB (night)

Source height = 1.57 m

ROAD (0.00 + 61.44 + 0.00) = 61.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	68.19	0.00	-5.62	-1.13	0.00	0.00	0.00	61.44

Segment Leq : 61.44 dBA

Results segment # 3: McLaughin (night)

Source height = 1.02 m

ROAD (0.00 + 46.49 + 0.00) = 46.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.49	64.22	0.00	-13.55	-4.18	0.00	0.00	0.00	46.49

Segment Leq : 46.49 dBA

Total Leq All Segments: 65.67 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.99
(NIGHT): 65.67

APPENDIX D

STATIONARY NOISE CALCULATION DETAILS

Receiver Table

Name	Sel.	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
				Day	Evening	Night	Day	Evening	Night	Type	Auto	Noise Type			X	Y	Z
				(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
				47.0	45.5	34.5	0.0	0.0	0.0		x	Total	1.50	r	17603679.46	4832378.99	1.50
				52.6	51.1	40.1	0.0	0.0	0.0		x	Total	1.50	r	17603666.76	4832334.79	1.50
				53.7	52.3	41.3	0.0	0.0	0.0		x	Total	7.50	r	17603609.89	4832373.86	7.50
		-		-88.0	-88.0	-88.0	0.0	0.0	0.0		x	Total	1.50	r	17603639.40	4832360.13	1.50

Point Sources

Name	Sel.	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction			Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
				Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area			Day	Special	Night						X	Y	Z
				(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)			(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
Air Pump		~	Pump	77.8	77.8	77.8	Lw	AirPumpApr2013		0.0	0.0	0.0					54.00	30.00	6.00	0.0		(none)	1.00	r	17603545.16	4832308.25	1.00
Vacuum		~	Vac01	89.6	89.6	89.6	Lw	VacuumApr2013		0.0	0.0	0.0					54.00	30.00	6.00	0.0		(none)	1.00	r	17603545.23	4832305.42	1.00
Vacuum		~	Vac01	89.6	89.6	89.6	Lw	VacuumApr2013		0.0	0.0	0.0					54.00	30.00	6.00	0.0		(none)	1.00	r	17603545.46	4832302.39	1.00
Car Wash Entrance		~	CW_En	94.3	94.3	94.3	Lw	EnDoor		0.0	0.0	0.0					6.67	3.33	0.67	0.0		(none)	2.00	r	17603615.10	4832353.72	2.00
Car Wash Exit		~	CW_En	103.7	103.7	103.7	Lw	ExitDoor		0.0	0.0	0.0					20.00	10.00	2.00	0.0		(none)	2.00	r	17603601.96	4832363.71	2.00
RTU-1		~	RTU1	80.5	80.5	80.5	Lw	RTU1		0.0	0.0	0.0					60.00	60.00	30.00	0.0		(none)	1.20	g	17603594.75	4832305.99	6.20
RTU-2		~	RTU2	80.5	80.5	80.5	Lw	RTU1		0.0	0.0	0.0					60.00	60.00	30.00	0.0		(none)	1.20	g	17603597.48	4832309.72	6.20
RTU-3		~	RTU3	80.5	80.5	80.5	Lw	RTU1		0.0	0.0	0.0					60.00	60.00	30.00	0.0		(none)	1.00	g	17603600.61	4832312.67	6.00
RTU-4		~	RTU4	80.5	80.5	80.5	Lw	RTU1		0.0	0.0	0.0					60.00	60.00	30.00	0.0		(none)	1.00	g	17603601.95	4832314.25	6.00
Car01		~	Car01	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603616.80	4832352.10	0.60
Car02		~	Car02	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603621.41	4832348.17	0.60
Car03		~	Car03	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603625.88	4832344.12	0.60
Car04		~	Car04	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603626.19	4832338.07	0.60
Car05		~	Car05	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603622.88	4832333.02	0.60
Car06		~	Car06	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603618.15	4832329.55	0.60
Car07		~	Car07	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603612.61	4832331.80	0.60
Car08		~	Car08	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603607.91	4832335.61	0.60
Car09		~	Car09	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603603.23	4832339.37	0.60
Car10		~	Car10	82.0	82.0	82.0	Lw	VCLcar		0.0	0.0	0.0					60.00	0.00	0.00	0.0		(none)	0.60	r	17603600.25	4832344.53	0.60

Line Sources

Name	Sel.	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction			Attenuation	Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
				Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area			Day	Special	Night				Number			Speed
				(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)			(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(km/h)
Car Movements		~	CarMove1	76.1	76.1	76.1	55.0	55.0	55.0	PWL-Pt	VCLcar		0.0	0.0	0.0								0.0		(none)	40.0	40.0	40.0	20.0

Sound Level Library

Name	ID	Type	1/3 Octave Spectrum (dB)																														Source
			Weight.	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	A	lin	
RTU1	RTU1	Lw			0.0			76.8			75.8			72.4			72.9			74.8			75.4			71.3			69.1		80.5	83.2	48TF005
RTU2	RTU2	Lw			0.0			83.2			87.4			83.5			82.8			83.0			77.7			71.8			67.0		86.4	91.6	48TF009
Keeprite KEZA040H8-HT3B-15546	Condenser1	Lw (c)			81.0			83.8			81.2			79.7			77.3			76.7			74.1			71.5			70.1		81.7	88.7	Sound Measurements - April 17, 2013 @ 12338 Yonge
Keeprite KEZA10H8-H32B015796	Condenser2	Lw (c)			78.4			74.6			73.4			67.1			68.7			71.0			65.1			63.9			60.1		74.0	81.8	Sound Measurements - April 17, 2013 @ 12338 Yonge
LAW0200RL3-#T139	Compressor	Lw (c)			78.9			80.5			77.7			71.3			72.8			72.2			72.3			63.7			60.4		77.4	85.0	Sound Measurements - April 17, 2013 @ 12338 Yonge
Air Pump	AirPumpApr2013	Lw (c)			63.0			81.3			72.6			68.7			77.3			74.4			63.6			61.7			62.7		77.8	83.9	Sound Measurements - April 17, 2013 @ 12338 Yonge
Vacuum	VacuumApr2013	Lw (c)			64.4			70.7			70.6			78.2			70.5			74.8			81.1			86.5			82.9		89.6	89.5	Sound Measurements - April 17, 2013 @ 12338 Yonge
ESSO_CW_En	EnDoor	Lw (c)			91.3			92.1			87.1			82.3			85.0			85.3			87.6			87.3			89.8		94.3	98.0	Sound Measurements Feb 24/09 at Markham + Steeles
ESSO_CW_Exit	ExitDoor	Lw (c)			98.2			99.5			100.4			100.9			100.5			99.4			96.6			90.9			83.6		103.7	108.1	Sound Measurements Feb 24/09 at Markham + Steeles
VCLcar	VCLcar	Lw			77.9			80.9			80.9			77.9			78.9			78.9			72.9			66.9			61.9		82.0	87.4	From VCL Measurement

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	60.00
Reference Time Night (min)	60.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	0.00
Night-time Penalty (dB)	0.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation

Configuration	
Parameter	Value
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	