

4078 VICTORIA AVENUE

NIAGARA FALLS, ONTARIO

NOISE AND VIBRATION IMPACT STUDY

RWDI #2201348

November 30, 2022

SUBMITTED TO

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VERSION HISTORY

Index	Date	Description	Prepared by	Reviewed by
1	June 1, 2022	ZBA Report	AFS	GER
2	November 30, 2022	ZBA Report Update	GER	MEA

STATEMENT OF LIMITATIONS

This report entitled 4078 Victoria Avenue, dated November 30, 2022, was prepared by RWDI AIR Inc. (“RWDI”) for Build Up Development Co. (“Client”). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein (“Project”). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.



EXECUTIVE SUMMARY

Build Up Development Co. retained RWDI to prepare a Noise and Vibration Impact Study for the proposed residential development to be located in 4078 Victoria Avenue in the City of Niagara Falls, Ontario. The proposed development will consist of one residential building block. The block will include five townhouses, four-storeys each.

The following noise control measures are recommended for the proposed development:

1. The dwellings will include central air conditioning.
2. The inclusion of noise warning clauses related to:
 - o Transportation sound levels at the plane of window
 - o Proximity to railway line
 - o Proximity to commercial and industrial facilities

The rail line is far enough to avoid any potential vibration impacts on the development. Niagara helicopters do not fly over the proposed development and existing residential uses are located closer to the flight path.

The proposed development is not anticipated to interfere with the compliance status of any regulated noise stationary sources. The sound impacts from the surrounding stationary sources are predicted to meet NPC-300 exclusion limits at the proposed development.

The impact of the development on itself and its surroundings is expected to be feasible to meet the applicable criteria through best-practices acoustical design and following the guidelines of NPC-216 for the installed HVAC equipment.

Based on the results and recommendations included with this assessment; the proposed development is recommended to be approved from the noise and vibration impact aspect.



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1 INTRODUCTION

Build Up Development Co. retained RWDI to prepare a Noise and Vibration Impact Study (NVIS) for the proposed residential development to be located in 4078 Victoria Avenue in the City of Niagara Falls, Ontario. The proposed development will consist of one residential building block. The block will include five townhouses, four-storeys each. Each townhouse will consist of three dwellings. The context site plan is shown in **Figure 1**.

The site is exposed to noise from road traffic on: Victoria Avenue to the west and Leader Lane to the north. The site is also exposed to noise from rail traffic on the CN rail line to the west. However, no potential vibration impacts from the rail line are anticipated given the large setback exceeding 250 m.

Niagara Helicopters is located approximately 500 m north of the site. The flight path available online is mainly over Niagara River and does not cross the proposed development. The flight path came into effect in 2015 after consultation with Transport Canada to mitigate the noise from Niagara Helicopters. Existing residential homes are closer to that flight path as compared to the proposed development. Thus, aircraft noise is not anticipated to be significant at the proposed development. Moreover, Niagara Helicopters works continuously with Bell helicopters to reduce the noise signature of their current fleet and preference is for Airbus when replacing the fleet at the end of lifetime for noise considerations.

The only facility, within 300 m radius from the site, which possess an environmental noise permit is the SAG-Q Aggregates Inc. and Niagara Engineered Products Inc. at 4749 Buttrey Street with mainly rooftop exhaust stacks and vents. Existing residential uses are located south of the proposed development at closer setback from the industrial facility. Moreover, the site is in close proximity to commercial uses of Lococo's Fresh Fruits to the west with some delivery truck activities.

This assessment was completed to support the Zoning By-law Amendment (ZBA) submission as required by the City of Niagara Falls. The objective of this assessment was to determine the feasibility of the proposed residential development that is surrounded by existing sources of environmental noise and vibration. This assessment was based on design drawings dated October 14, 2022.

2 APPLICABLE CRITERIA

Applicable criteria for transportation noise sources (road and rail) and stationary noise sources are adopted from the Ontario Ministry of the Environment, Conservation and Parks (MECP) NPC-300 Environmental Noise Guideline (MOECC, 2013) with a summary of the applicable criteria included with **Appendix A**.

The site is located within the Niagara Region; thus, the Region's Regional Road Traffic Noise Control policy was also followed.

The proposed development site would be characterized as a "Class 1 Area", which is defined according to NPC-300 as an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as "urban hum".



3 IMPACT OF THE ENVIRONMENT ON THE PROPOSED DEVELOPMENT

3.1 Transportation Source Assessment

3.1.1 Road Traffic Volume Data

Victoria Avenue 24-hour traffic data count was obtained from the City of Niagara Falls in addition to the Turning Movement Counts (TMCs) at the intersection of Victoria Avenue and Leader Lane. The TMCs were used to determine the traffic volume and types of vehicles during the AM and PM peaks and 8-hour interval which were assumed to be 9%, 10% and 60% of the Annual Average Daily Traffic (AADT), respectively. These percentages were based on the Institute of Transportation Engineers hourly traffic distribution (ITE, 2010). The average AADTs obtained from the approximation of each of these three time periods was used for the AADT for the respective roadway. It should be noted that the AADT estimated for Victoria Avenue based on the TMCs was slightly higher than the 24-hour traffic data count and was therefore used in the current assessment as a more conservative approach. TMCs were also used to determine the types of vehicles on each link and the percentage of heavy vehicles. Other roads are not expected to have a significant impact on the development due to separation distance or low traffic volumes.

The 24-hour traffic data count for Victoria Avenue was used to determine the traffic volume split between day and nighttime. The traffic volumes for each of the respective roadways were increased at a conservative rate of 2% per year to represent the predicted 20-year horizon volumes required by Niagara Region.

A summary of the traffic data used is included in Table 1 below with more detailed information included in **Appendix D**.

Table 1: Road Traffic Volumes

Roadway	Segment	2042 Future Traffic (AADT)	% Day/Night	Speed Limit (km/hr)	% Trucks
Victoria Avenue	Between River Road and Leader Lane	9085	93% /7%	50	2.8
Leader Lane	East of Victoria Avenue	932	93% /7%	50	4.5

3.1.2 Rail Traffic Volume Data

CN freight rail traffic for the line located more than 250 m west of the development site. The line also serves VIA rail passenger rail traffic. Rail volumes for both CN freight and VIA passenger were provided by CN on January 18, 2022, following a written request. No rail volumes were reported for the nighttime period (2300-0700h). The volumes were grown by 2.5% per annum for 10-year period as per CN guidance. The data used for the analysis is summarized in Table 2.



Table 2: Rail Volumes and Configurations

Train Type	Daytime	Nighttime	Type of Locomotive	No of Locomotives	No of Cars	Throttle Setting	Speed (km/h)
CN Rail	5	-	Freight Diesel	4	140	4	100
VIA Rail	3	-	Commuter Diesel	2	10	2	130

3.1.3 Representative Receptors

The selection of receptors affected by transportation noise sources was based on the drawings reviewed for this assessment. Using the “building evaluation” feature of Cadna/A, each façade of the residential building was assessed.

Outdoor Living Areas (OLAs) would include outdoor areas intended and designed for the quiet enjoyment of the outdoor environment and which are readily accessible from the building. OLAs may include any common outdoor amenity spaces associated with a multi-unit residential development (e.g. courtyards, roof-top terraces), and/or private backyards and terraces with a minimum depth of 4m provided they are the only outdoor living area for the occupant. Based on the received information, no OLAs are associated with the proposed development.

3.1.4 Analysis and Results

Sound levels due to the adjacent transportation (road and rail) sources were predicted using the RLS-90 standard (RLS,1990), and FTA method (FTA, 2018) as implemented in the Cadna/A software package.

To assess the impact of transportation noise on the residential homes, the maximum sound level for the worst-case representative façade receivers was predicted with the results summarized in **Table 3**.

Table 3: Predicted Transportation Source Sound Levels – Plane of Window

Façade Receiver	Road		Rail		Notes
	Day L _{EQ} , 16hr	Night L _{EQ} , 8hr	Day L _{EQ} , 16hr	Night L _{EQ} , 8hr	
North façade	61	53	52	-	1
East façade	53	45	49	-	
South façade	60	51	55	-	
West façade	64	56	56	-	

Notes:

1. Applicable for low and medium density developments: Provision for future installation of air-conditioning, warning clause “Type C”. Refer to **Appendix C** for guidance regarding air-conditioning as a noise mitigation measure.

3.2 Stationary Source Assessment

Stationary sources could be grouped into two categories: Those that have a permit with the MECP through an Environmental Compliance Approval (ECA) or Environmental Activity and Sector Registry (EASR); and those that are exempt from ECA or EASR permit requirements.

In the case where a stationary source has an ECA or an EASR permit with the MECP, and would be put in a position where it is no longer in compliance with the applicable sound level criteria due to the encroachment of the proposed new development, source specific mitigation and/or formal classification of the proposed development lands as a “Class 4 Area” (refer to C.4.4.2 “Class 4 Area” in NPC-300) would be required. In this case, coordination and agreements between the stationary source owner, proposed new development owner, the land-use planning authority and potentially the MECP would be needed.

In the case where a stationary source is exempt from ECA or EASR permit requirements with the MECP, the noise provisions of the applicable Municipal Code and guidance from NPC-300 would be applicable. In this case, mitigation of sound levels due to stationary sources would be from a due diligence perspective to avoid nuisance complaints from future occupants of the proposed new development. Mitigation could be in the form of mitigation at the source (with agreement from the stationary source owner) and/or mitigation at the receptor through site and building element design (building orientation, acoustical barriers, façade sound insulation design). The applicable NPC-300 Class limits are adopted as best practice targets.

3.2.1 Stationary Source Modeling

Stationary sources of noise surrounding the proposed development were identified using a combination of publicly available aerial and street-level imagery, and the Ministry of the Environment’s Access Environment database.

Only one facility, within 300 m radius from the site, possesses an environmental noise permit which is the SAG-Q Aggregates Inc. and Niagara Engineered Products Inc. at 4749 Buttrey Street. Existing residential uses are located south of the proposed development at closer setback from the industrial facility. Thus, the proposed development is not anticipated to interfere with the compliance status of any regulated noise source. However, the facility has been considered in the stationary source modelling from a due diligence perspective.

Stationary source noise modelling was carried out using the Cadna/A software package, a commercially available implementation of the ISO 9613 (ISO, 1994 and ISO, 1996) algorithms. The model considered truck movement in the Lococo’s yard to the west of the facility. Truck volumes were assumed to be 2 and 1 trucks in a worst-case hour for day and nighttime, respectively. The sound power level of a truck pass-by was modelled at 104 dBA based on proxy data available on-file at RWDI for similar equipment. Moreover, an exhaust stack on the north facade of the facility at 4749 Buttrey Street was modelled at a sound power level of 89 dBA to achieve compliance at existing residential spaces north of Ferguson Street. All significant stationary sources included in the current assessment are further shown in **Figure 2**.

The predicted cumulative sound levels are mainly driven by the truck activities on Lococo's yard. The maximum sound levels are estimated at the southwest corner of the block, to be 52 and 46 dBA for day and nighttime, respectively. The predicted sound levels from the permitted SAG-Q Aggregates Inc. and Niagara Engineered Products Inc. is predicted to be less than 40 dBA, meeting the NPC-300 sound level limits for permitted facilities. Although the cumulative sound levels slightly exceed the NPC-300 sound level targets used for non-permitted facilities, with the inclusion of air conditioning, the indoor sound levels will be met with windows and doors closed. Therefore, the predicted sound levels from the stationary sources are considered acceptable.

A warning clause Type E is recommended for all units of the development to inform potential occupants of the stationary sources associated with the nearby commercial and industrial buildings. Recommendations for stationary sources are provided in Section 3.3.2.

3.3 Recommendations

Based on the noise and vibration impact assessment results, the following recommendations were determined for the project. Recommendations are provided for both transportation sources and stationary sources.

3.3.1 Transportation Sources

The following recommendations are provided to address transportation sources.

3.3.1.1 Ventilation Recommendations

Due to the transportation sound levels at the plane of the façade, the dwellings should be designed with the provision for adding central air conditioning at the occupant's discretion in the future. In the case of the proposed development, central air conditioning will be planned for all units. Further, prospective purchasers or tenants should be informed by a warning clause "Type D". The wording of the "Type D" warning clause is discussed in Section 3.3.3.

3.3.2 Stationary Sources

Sound from surrounding facilities can be audible at times. Thus, a warning clause Type E is recommended for all units of the development to inform potential occupants of the stationary sources associated with the nearby commercial buildings.

3.3.3 Warning Clauses

The following warning clauses are recommended for the proposed development:

1. NPC-300 Type D to address transportation sound levels at the plane of window
2. Proximity to Railway Line Warning Clause
3. NPC-300 Type E to address proximity to commercial/industrial facilities



Warning clauses are recommended to be included on all development agreements, offers of purchase and agreements of purchase and sale or lease. The wording of the recommended warning clauses is included with **Appendix B**.

4 IMPACT OF THE PROPOSED DEVELOPMENT ON ITS SURROUNDINGS AND ON ITSELF

On-site stationary sources for the dwellings are expected to mainly consist of HVAC related equipment. Consideration should be given to control airborne and structure-borne noise generated within the proposed development.

Provided that best practices for the acoustical design of the building and guidelines from NPC-216 (MOE, 1993) are followed, noise from the development are expected to be feasible to meet the applicable sound level criteria due to the residential nature of the proposed dwellings.

5 CONCLUSIONS

Build Up Development Co. retained RWDI to prepare a Noise and Vibration Impact Study for the proposed residential development to be located in 4078 Victoria Avenue in the City of Niagara Falls, Ontario.

The following noise control measures are recommended for the proposed development:

1. The dwellings should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion.
2. The inclusion of noise warning clauses related to:
 - o Transportation sound levels at the plane of window
 - o Proximity to railway line
 - o Proximity to commercial and industrial facilities

The rail line is far enough to avoid any potential vibration impacts on the development. Niagara helicopters do not fly over the proposed development and existing residential uses are located closer to the flight path.

The proposed development is not anticipated to interfere with the compliance status of any regulated noise stationary sources. The sound impacts from the surrounding stationary sources are predicted to meet NPC-300 exclusion limits at the proposed development.

The impact of the development on itself and its surroundings is expected to be feasible to meet the applicable criteria through best-practices acoustical design and following the guidelines of NPC-216 for the installed HVAC equipment.

Based on the results and recommendations included with this assessment; the proposed development is recommended to be approved from the noise and vibration impact aspect.

6 REFERENCES

1. Federal Transit Administration, U.S. Department of Transportation, Transit Noise and Vibration Impact Assessment, 2018 (FTA, 2018).
2. International Organization for Standardization (ISO), 1994b, International Standard ISO 9613-1:1994, Acoustics – Attenuation of Sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere. (ISO, 1994)
3. International Organization for Standardization (ISO), 1996, International Standard ISO 9613-2:1996, Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation (ISO, 1996)
4. Institute of Transportation Engineers (ITE), 2010, Traffic Engineering Handbook, 6th Edition (ITE, 2010)
5. MOEE/TTC Draft Protocol for Noise and Vibration Assessment for the Proposed Yonge-Spadina Subway Loop (MOEE/TTC, 1993)
6. Niagara Region, November 2006, PW5.NO1.0 - Regional Road Traffic Noise Control (Niagara, 2006)
7. Ontario Ministry of the Environment (MOE), 1993, Publication NPC-216, Residential Air Conditioning Devices (MOE, 1993)
8. Ontario Ministry of the Environment (MOE) Publication Guideline D-6, “Compatibility Between Industrial Facilities and Sensitive Land Uses”, July 1995 (MOE, 1995).
9. Ontario Ministry of the Environment and Climate Change (MOECC), August 2013, Publication NPC-300, Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning (MOECC, 2013).
10. Richtlinien für den Lärmschutz an Strassen (RLS). BM für Verkehr, Bonn, 1990 (RLS, 1990).
11. The Railway Association of Canada (RAC), Guidelines for New Development in Proximity to Railway Operations (RAC, 2013).



Figure 1: Context Site Plan

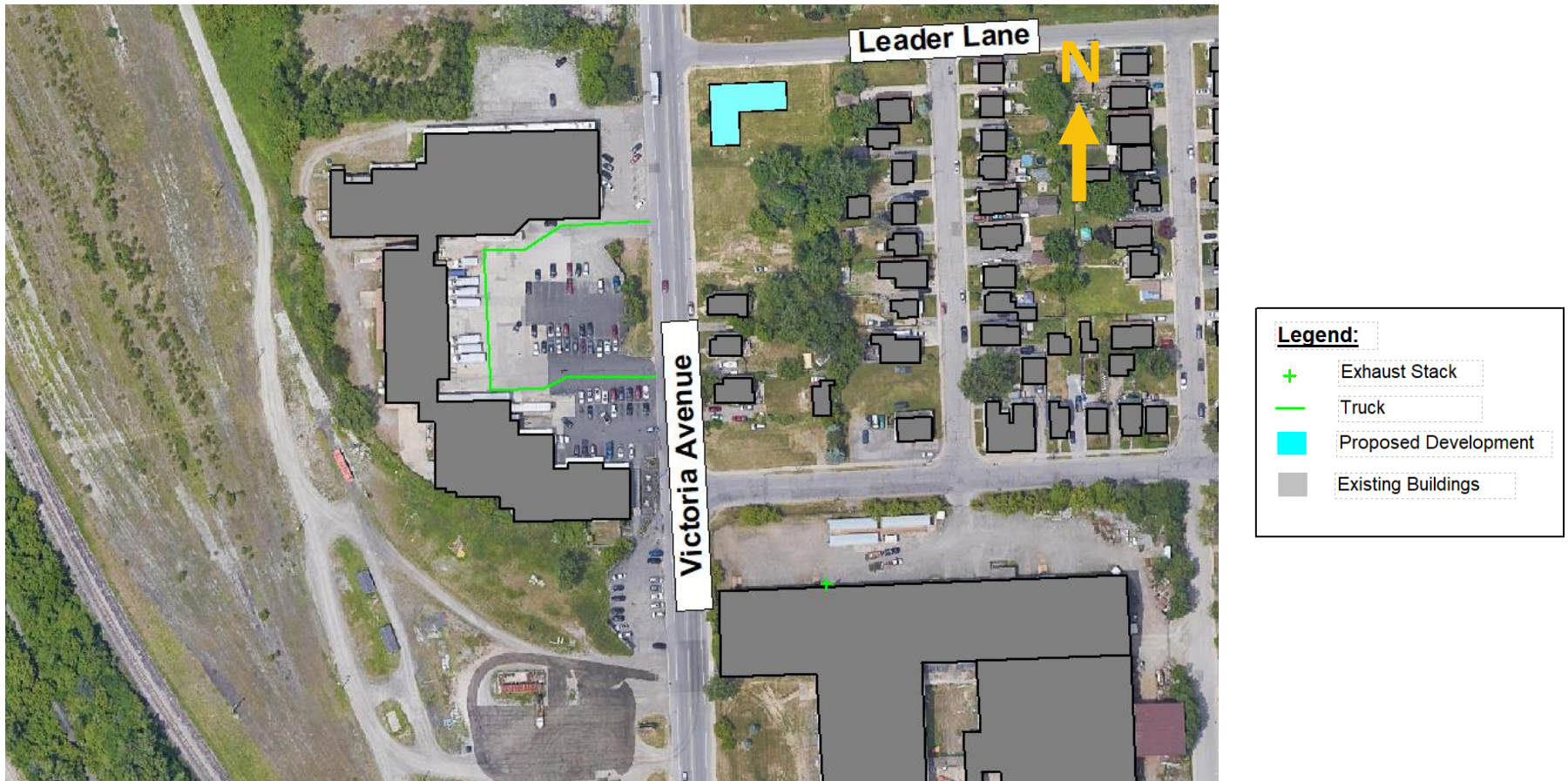


Figure 2: Locations of Surrounding Stationary Sources of Noise

APPENDIX A



APPENDIX A: CRITERIA

Transportation Sources

Guidance from the Ontario Ministry of the Environment, Conservation and Parks (MECP) NPC-300 Environmental Noise Guideline was used to assess environmental noise generated by transportation-related sources. There are three aspects to consider, which include the following:

- i. Transportation source sound levels in indoor living areas (living rooms and sleeping quarters), which determines building façade elements (windows, exterior walls, doors) sound insulation design recommendations.
- ii. Transportation source sound levels at the plane of the window, which determines air-conditioning and ventilation system recommendations and associated warning clauses which inform the future occupants that windows and doors must be closed in order to meet the indoor sound level criteria.
- iii. Transportation source sound levels in Outdoor Living Areas (OLAs), which determines OLA noise mitigation and related warning clause recommendations.

Road and Rail

Indoor Sound Level Criteria

For assessing sound originating from transportation sources, NPC-300 defines sound level criteria as summarized in Table 1 for indoor areas of sensitive uses. The specified values are maximum sound levels and apply to the indicated indoor spaces with the windows and doors closed.

Table 1: Indoor Sound Level Criteria for Road and Rail Sources

Type of Space	Source	Sound Level Criteria (Indoors)	
		Daytime $L_{eq,16-hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8-hr}$ 23:00h – 07:00h
Living Quarters Examples: Living, dining and den areas of residences, hospitals, nursing homes, schools and daycare centres	Road	45 dBA	
	Rail	40 dBA	
Sleeping Quarters	Road	45 dBA	40 dBA
	Rail	40 dBA	35 dBA

NPC-300 also provides guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The guideline sound level criteria presented in Table 2 are provided to inform good-practice design objectives.

Table 2: Supplementary Indoor Sound Level Criteria for Road and Rail Sources

Type of Space	Source	Sound Level Criteria (Indoors)	
		Daytime $L_{eq,16-hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8-hr}$ 23:00h – 07:00h
General offices, reception areas, retail stores, etc.	Road	50 dBA	-
	Rail	45 dBA	-
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Road	45 dBA	-
	Rail	40 dBA	-
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	Road	-	40 dBA
	Rail	-	35 dBA
Sleeping quarters of hotels/motels	Road	-	45 dBA
	Rail	-	40 dBA

Outdoor Living Areas (OLAs)

Outdoor Living Areas (OLAs) would include outdoor areas intended and designed for the quiet enjoyment of the outdoor environment and which are readily accessible from the building.

OLAs may include any common outdoor amenity spaces associated with a multi-unit residential development (e.g. courtyards, roof-top terraces), and/or private backyards and terraces with a minimum depth of 4m provided they are the only outdoor living area for the occupant. The sound level criteria for outdoor living areas is summarized in Table 3.

Table 3: Sound Level Criteria – Outdoor Living Area

Assessment Location	Sound Level Criteria (Outdoors)	
	Daytime $L_{eq,16-hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8-hr}$ 23:00h – 07:00h
Outdoor Living Area (OLA) (Combined Road and Rail)	55 dBA	-

Outdoor and Plane of Window Sound Levels

In addition to the sound level criteria, noise control measures and requirements for ventilation and warning clauses requirements are recommended for residential land-uses based on predicted transportation source sound levels incident in the plane of window at bedrooms and living/dining rooms, and/or at outdoor living areas. These recommendations are summarized in Table 4 below.

Table 4: Ventilation, Building Component, and Warning Clauses Recommendations for Road/Rail Sources

Assessment Location	Transportation Sound Level (Outdoors)		Recommendations
	Daytime $L_{eq,16-hr}$ 07:00h – 23:00h	Nighttime $L_{eq,8-hr}$ 23:00h – 07:00h	
Plane of Window (Road)	> 65 dBA	> 60 dBA	Installation of air conditioning to allow windows to remained closed. The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria. Warning clause “Type D” is recommended.
	≤ 65 dBA > 55 dBA	≤ 60 dBA > 50 dBA	Applicable for low and medium density development: Forced-air ventilation system to allow for the future installation of air-conditioning. Warning clause “Type C” is recommended. Applicable for high density development: Air conditioning to allow windows to remained closed. Warning clause “Type D” is recommended.
Plane of Window (Rail ^{1,2})	> 60 dBA	> 55 dBA	The acoustical performance of building façade components should be specified such that the indoor sound level limits are predicted to be achieved. Warning clause “Type D” is recommended.
	> 60 dBA ($L_{eq,24hr}$) and < 100m from tracks		Exterior walls consisting of a brick veneer or masonry equivalent for the first row of dwellings. Warning clause “Type D” is recommended.
Outdoor Living Area (Combined Road and Rail ³)	≤ 60 dBA > 55 dBA	-	If sound levels are predicted to exceed 55 dBA, but are less than 60 dBA, noise controls may be applied to reduce the sound level to 55 dBA. If noise control measures are not provided, a warning clause “Type A” is recommended.
	> 60 dBA	-	Noise controls (barriers) should be implemented to meet the 55 dBA criterion. If mitigation is not feasible to meet the 55 dBA criterion for technical, economic or administrative reasons, an exceedance of 5 dB may be acceptable (to a maximum sound level of 60 dBA). In this case a warning clause “Type B” would be recommended.

Notes:

1. Whistle noise is included (if applicable) in the determination of the sound level at the plane of window.
2. Some railway companies (e.g. CN, CP) may require that the exterior walls include a brick veneer or masonry equivalent for the façade facing the railway line, regardless of the sound level.
3. Whistle noise is not included in the determination of the sound level at the OLA.

Rail Layover Sites

NPC-300 provides a sound level limit for rail layover sites to be the higher of the background sound level or 55 dBA $L_{eq,1-hr}$, for any one-hour period.

Rail Vibration Criteria

An assessment of rail vibration is generally recommended for developments within 75m of a rail corridor or rail yard, and adjacent to or within a setback of 15m of a transit (subway or light-rail) rail line.

The generally accepted vibration criterion for sensitive land-uses is the threshold of perception for human exposure to vibration, being a vibration velocity level of 0.14 mm/s RMS in any one-third octave band centre frequency in the range of 4 Hz to 200 Hz.

This vibration criterion is based on a one-second exponential time-averaged maximum hold root-mean-square (RMS) vibration velocity level and is consistent with the Railway Associations of Canada (RAC, 2013) guideline, the U.S. Federal Transit Authority (FTA, 2018) criterion for residential land-uses, the Toronto Transit Commission (TTC) guidelines for the assessment of potential vibration impact of future expansion (MOEE/TTC, 1993).

Aircraft

Land-use compatibility in the vicinity of airports is addressed in Ministry of the Environment, Conservation, and Parks (MECP) Guideline NPC-300 (MOE, 2013). The guideline provides recommendations for ventilation, and noise control for different Noise Exposure Forecast (NEF) values, which would be based on NEF contour maps available from the airport authority. The NEF values can be expressed as $L_{A,eq,24hr}$ sound levels by using the expression $NEF = L_{A,eq,24hr} - 32$ dBA.

Table 5: Indoor Sound Level Criteria for Aircraft Sources

Assessment Location	Indoor Sound Level Criteria NEF ($L_{eq, 24hr}$) ¹
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, etc.	NEF- 5 (37 dBA)
Sleeping quarters	NEF-0 (32 dBA)

NPC-300 also provides guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The guideline sound level criteria presented in Table 6 are provided to inform good-practice design objectives.

Table 6: Supplementary Indoor Sound Level Criteria for Aircraft Sources

Assessment Location	Indoor Sound Level Criteria ¹
General offices, reception areas, retail stores, etc.	NEF-15 (47 dBA)
Individual or semi-private offices, conference rooms, etc.	NEF-10 (42 dBA)
Sleeping quarters of hotels/motels, theatres, libraries, places of worship, etc.	NEF-5 (37 dBA)

Table 7: NPC-300 Sound Level Criteria for Aircraft (Outdoors)

Assessment Location	Outdoor Sound Level Criteria ¹
Outdoor areas, including OLA	NEF-30 (62 dBA)

Table 8: Ventilation, Building Component, and Warning Clauses Recommendations for Aircraft Sources

Assessment Location	Aircraft Sound Level	NPC-300 Requirements
	NEF (L _{EQ,24-hr})	
Outdoors	≥NEF 30	<p>Air conditioning to allow windows to remained closed.</p> <p>The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria.</p> <p>Warning clauses “Type D” and “Type B” are recommended.</p>
	< NEF 30 ≥ NEF 25	<p>The sound insulation performance of building components must be specified and designed to meet the indoor sound level criteria.</p> <p>Applicable for low and medium density development: Forced-air ventilation system to allow for the future installation of air-conditioning. Warning clause “Type C” is recommended.</p> <p>Applicable for high density development: Air conditioning to allow windows to remained closed. Warning clause “Type D” is recommended.</p>
	< NEF 25	Further assessment not required

Stationary Sources

NPC-300 Sound Level Criteria – Stationary Sources

Guidance from the MECP NPC-300 Environmental Noise Guideline is used to assess environmental noise generated by stationary sources, for example industrial and commercial facilities.

Noise from stationary sources is treated differently from transportation sources and requires sound levels be assessed for the predictable worst-case one-hour average sound level (L_{eq}) for each period of the day. For assessing sound originating from stationary sources, NPC-300 defines sound level criteria for two types of Points of Reception (PORs): outdoor and plane of window.

The assessment criteria for all PORs is the higher of either the exclusion limit per NPC-300 or the minimum background sound level that occurs or is likely to occur at a POR. The applicable exclusion limit is determined based on the level of urbanization or “Class” of the area. The NPC-300 exclusion limits for continuously operating stationary sources are summarized in Table 9.

Table 9: NPC-300 Exclusion Limits – Continuous and Quasi-Steady Impulsive Stationary Sources (LAeq-1hr)

Time Period	Class 1 Area		Class 2 Area		Class 3 Area		Class 4 Area	
	Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window
Daytime 0700-1900h	50 dBA	50 dBA	50 dBA	50 dBA	45 dBA	45 dBA	55 dBA	60 dBA
Evening 1900-2300h	50 dBA	50 dBA	45 dBA	50 dBA	40 dBA	40 dBA	55 dBA	60 dBA
Nighttime 2300-0700h	--	45 dBA	--	45 dBA	--	40 dBA	--	55 dBA

Notes:

4. The applicable sound level criterion is the background sound level or the exclusion limit, whichever is higher.
5. Class 1, 2 and 3 sound level criteria apply to a window that is assumed to be open.
6. Class 4 area criteria apply to a window that is assumed closed. Class 4 area requires formal designation by the land-use planning authority.
7. Sound level criteria for emergency backup equipment (e.g. generators) operating in non-emergency situations such as testing or maintenance are 5 dB greater than the applicable sound level criteria for stationary sources.

For impulsive sound, other than quasi-steady impulsive sound, from a stationary source, the sound level criteria at a POR is expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}), and is summarized in Table 10.

Table 10: NPC-300 Exclusion Limits – Impulsive Stationary Sources (L_{LM})

Time Period	Number of Impulses in Period of One-Hour	Class 1 and 2 Areas		Class 3 Areas		Class 4 Areas	
		Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window
Daytime (0700-2300h)	9 or more	50 dBAI	50 dBAI	45 dBAI	45 dBAI	55 dBAI	60 dBAI
Nighttime (2300-0700h)		-	45 dBAI	-	40 dBAI	-	55 dBAI
Daytime (0700-2300h)	7 to 8	55 dBAI	55 dBAI	50 dBAI	50 dBAI	60dBAI	65 dBAI
Nighttime (2300-0700h)		-	50 dBAI	-	45 dBAI	-	60 dBAI
Daytime (0700-2300h)	5 to 6	60 dBAI	60 dBAI	55 dBAI	55 dBAI	65 dBAI	70 dBAI
Nighttime (2300-0700h)		-	55 dBAI	-	50 dBAI	-	65 dBAI
Daytime (0700-2300h)	4	65 dBAI	65 dBAI	60 dBAI	60 dBAI	70 dBAI	75 dBAI

Time Period	Number of Impulses in Period of One-Hour	Class 1 and 2 Areas		Class 3 Areas		Class 4 Areas	
		Outdoor	Plane of Window	Outdoor	Plane of Window	Outdoor	Plane of Window
Nighttime (2300–0700h)		-	60 dBAI	-	55 dBAI	-	70 dBAI
Daytime (0700–2300h)	3	70 dBAI	70 dBAI	65 dBAI	65 dBAI	75 dBAI	80 dBAI
Nighttime (2300–0700h)		-	65 dBAI	-	60 dBAI	-	75 dBAI
Daytime (0700–2300h)	2	75 dBAI	75 dBAI	70 dBAI	70 dBAI	80 dBAI	85 dBAI
Nighttime (2300–0700h)		-	70 dBAI	-	65 dBAI	-	80 dBAI
Daytime (0700–2300h)	1	80 dBAI	80 dBAI	75 dBAI	75 dBAI	85 dBAI	90 dBAI
Nighttime (2300–0700h)		-	75 dBAI	-	70 dBAI	-	85 dBAI

Notes:

1. The applicable sound level criterion is the background sound level or the exclusion limit, whichever is higher.

D-Series Guidelines

The MECP D-series guidelines (MOE, 1995) provide direction for land use planning to maximize compatibility of industrial uses with adjacent land uses. The goal of Guideline D-6 is to minimize encroachment of sensitive land uses on industrial facilities and vice versa, in order to address potential incompatibility due to adverse effects such as noise, odour and dust.

For each class of industry, the guideline provides an estimate of potential influence area and states that this influence area shall be used in the absence of the recommended technical studies. Guideline D-6 also recommends a minimum separation distance between each class of industry and sensitive land uses (see Table 11). Section 4.10 of D-6 identifies exceptional circumstances with respect to redevelopment, infill and mixed-use areas. In these cases, the guideline suggests that separation distances at, or less than, the recommended minimum separation distance may be acceptable if a justifying impact assessment is provided.

Table 11: Summary of Guideline D-6

Industry Class	Definition	Potential Influence Area	Recommended Minimum Separation Distance (property line to property line)
Class I	Small scale, self-contained, daytime only, infrequent heavy vehicle movements, no outside storage.	70 m	20 m
Class II	Medium scale, outdoor storage of wastes or materials, shift operations and frequent heavy equipment movement during the daytime.	300 m	70 m
Class III	Large scale, outdoor storage of raw and finished products, large production volume, continuous movement of products and employees during daily shift operations.	1000 m	300 m

Guideline D-6 provides criteria for classifying industrial land uses, based on their outputs, scale of operations, processes, schedule and intensity of operations. Error! Reference source not found. provides the classification criteria and examples.

Table 12: Guideline D-6 Industrial Categorization Criteria

Criteria	Class I	Class II	Class III
Outputs	<ul style="list-style-type: none"> • Sound not audible off property • Infrequent dust and/ or odour emissions and not intense • No ground-borne vibration 	<ul style="list-style-type: none"> • Sound occasionally audible off property • Frequent dust and/ or odour emissions and occasionally intense • Possible ground-borne vibration 	<ul style="list-style-type: none"> • Sound frequently audible off property • Persistent and intense dust and/ or odour emissions • Frequent ground-borne vibration
Scale	<ul style="list-style-type: none"> • No outside storage • Small scale plant or scale is irrelevant in relation to all other criteria 	<ul style="list-style-type: none"> • Outside storage permitted • Medium level of production 	<ul style="list-style-type: none"> • Outside storage of raw and finished products • Large production levels
Process	<ul style="list-style-type: none"> • Self-contained plant or building which produces / stores a packaged product • Low probability of fugitive emissions 	<ul style="list-style-type: none"> • Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions 	<ul style="list-style-type: none"> • Open process • Frequent outputs of major annoyances • High probability of fugitive emissions
Operation / Intensity	<ul style="list-style-type: none"> • Daytime operations only • Infrequent movement of products and/or heavy trucks 	<ul style="list-style-type: none"> • Shift operations permitted • Frequent movements of products and/or heavy trucks with majority of movements during daytime hours 	<ul style="list-style-type: none"> • Continuous movement of products and employees • Daily shift operations permitted
Examples	<ul style="list-style-type: none"> • Electronics Manufacturing • Furniture refinishing • Beverage bottling • Auto parts • Packaging services • Dairy distribution • Laundry and linen supply 	<ul style="list-style-type: none"> • Magazine printing • Paint spray booths • Metal command • Electrical production • Dairy product manufacturing • Feed packing plant 	<ul style="list-style-type: none"> • Paint and varnish manufacturing • Organic chemicals manufacturing • Breweries • Solvent recovery plant • Soap manufacturing • Metal manufacturing

APPENDIX B



APPENDIX B: WARNING CLAUSES

Warning clauses are recommended to be included on all development agreements, offers of purchase and agreements of purchase and sale or lease. Warning clauses may be used individually or in combination.

The following warning clauses are recommended based on the applicable guidelines; however, wording may be modified/customized during consultation with the planning authority to best suit the proposed development:

Transportation Sources

NPC-300 Type A: Recommended to address surface transportation sound levels in OLAs if sound level is in the range of >55 dBA but ≤ 60 dBA, and noise controls have not been provided.

“Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally 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.”

NPC-300 Type B: Recommended to address surface transportation sound levels in OLAs if the sound level is in the range of >55 dBA but ≤ 60 dBA, and noise controls have been provided. Recommended to address outdoor aircraft sound levels ≥NEF 30.

“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 (rail traffic) (air traffic) may on occasions 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.”

NPC-300 Type C: Applicable for low and medium density developments only, recommended to address transportation sound levels at the plane of window.

“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.”

NPC-300 Type D: Recommended to address transportation sound levels at the plane of window.

“This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment.”

Proximity to Railway Line: Metrolinx/CN/CP/VIA Warning Clause for developments that are within 300 metres of the right-of-way

"Warning: [Canadian National Railway Company] [Metrolinx / GO] [Canadian Pacific Railway Company] [VIA Rail Canada Inc.] or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR/Metrolinx/GO/CPR/VIA will not responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."

Stationary Sources

NPC-300 Type E: Recommended to address proximity to commercial/industrial land-use

"Purchasers/tenants are advised that due to the proximity of the adjacent industrial/commercial land-uses, noise from the industrial/commercial land-uses may at times be audible."

NPC-300 Type F: Recommended to for Class 4 Area Notification

"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."

APPENDIX C



APPENDIX C: NOISE MITIGATION GUIDANCE

Acoustic/Noise Barrier

Generally, noise controls to attenuate transportation sound levels at Outdoor Living Areas (OLAs) would consist of the implementation of acoustic/noise barriers, and is defined in NPC-300 as follows:

- A wall, berm, wall/berm combination or similar structure, used as a noise control measure, and high enough to break the line-of-sight between the source and the receptor.
- The minimum surface density (face weight) is 20 kg/m²
 - Many materials could satisfy the surface density requirement, e.g. wood, glass, concrete, Plexiglas, Acrylite.
 - The required thickness can be determined by dividing the 20 kg/m² face weight by the material density (kg/m³).
- The barrier should be structurally sound, appropriately designed to withstand wind and snow load, and constructed without cracks or surface gaps. Any gaps under the barrier that are necessary for drainage purposes should be minimized and localized, so that the acoustical performance of the barrier is maintained.
- Alternatively, to the above description and specification, noise barriers complying with the requirements and certification of CAN/CSA-Z107.9-00 (R2004) - Standard for Certification of Noise Barriers by the Canadian Standards Association, are acceptable.

Building Ventilation and Air Conditioning

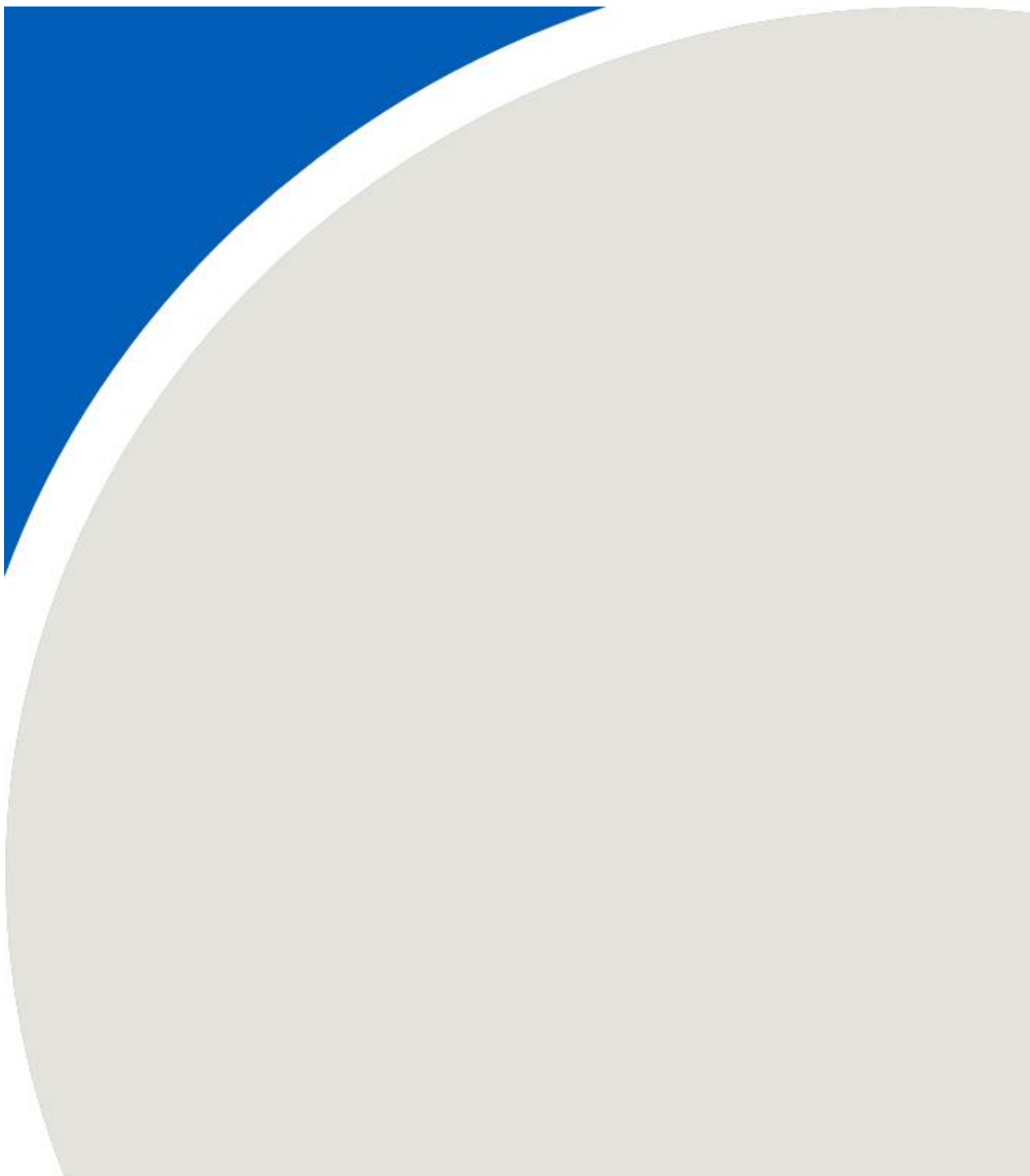
The use of air conditioning itself is not a noise control measure; however, it allows for windows and doors to remain closed, thereby reducing the indoor sound levels.

NPC-300 provides the following guidance with respect to implementation of building ventilation and air conditioning:

- a. The noise produced by the proposed ventilation system in the space served does not exceed 40 dBA. In practice, this condition usually implies that window air conditioning units are not acceptable;
- b. The ventilation system complies with all national, provincial and municipal standards and codes;
- c. The ventilation system is designed by a heating and ventilation professional; and
- d. The ventilation system enables the windows and exterior doors to remain closed.

Air conditioning systems also need to comply with Publication NPC-216, and/or any local municipal noise by-law that has provisions relating to air conditioning equipment.

APPENDIX D



Victoria Ave @ Leader Ln

Morning Peak Diagram

Specified Period

From: 8:00:00
To: 10:00:00

One Hour Peak

From: 8:00:00
To: 9:00:00

Municipality: Niagara Falls
Site #: 0000000012
Intersection: Victoria Ave & Leader Ln
TFR File #: 12
Count date: 24-Apr-2019

Weather conditions:
Clear/Dry
Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Victoria Ave runs N/S

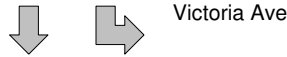
North Leg Total: 358
North Entering: 199
North Peds: 0
Peds Cross: \times

Cyclists	0	0	0
Trucks	1	1	2
Cars	190	7	197
Totals	191	8	

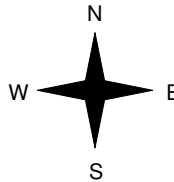


Cyclists	0
Trucks	6
Cars	153
Totals	159

East Leg Total: 42
East Entering: 26
East Peds: 5
Peds Cross: \times



Victoria Ave



	Cars	Trucks	Cyclists	Totals
Northbound	9	0	0	9
Southbound	15	2	0	17
Totals	24	2	0	

Leader Ln



	Cars	Trucks	Cyclists	Totals
Eastbound	13	3	0	16

Cars	205
Trucks	3
Cyclists	0
Totals	208



Victoria Ave

Cars	144	6	150
Trucks	6	2	8
Cyclists	0	0	0
Totals	150	8	

Peds Cross: \times
South Peds: 0
South Entering: 158
South Leg Total: 366

Comments

Victoria Ave @ Leader Ln

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 15:15:00

To: 16:15:00

Municipality: Niagara Falls
Site #: 0000000012
Intersection: Victoria Ave & Leader Ln
TFR File #: 12
Count date: 24-Apr-2019

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Non-Signalized Intersection **

Major Road: Victoria Ave runs N/S

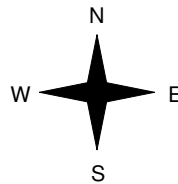
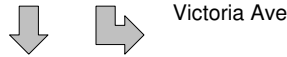
North Leg Total: 559
 North Entering: 292
 North Peds: 0
 Peds Cross: ∇

Cyclists	1	0		1
Trucks	5	1		6
Cars	278	7		285
Totals	284	8		



Cyclists	3
Trucks	7
Cars	257
Totals	267

East Leg Total: 62
 East Entering: 39
 East Peds: 2
 Peds Cross: ∇



	Cars	Trucks	Cyclists	Totals
	16	1	0	17
	22	0	0	22
	38	1	0	

Leader Ln



Cars	Trucks	Cyclists	Totals
21	2	0	23

Cars	300	Cars	241	14	255
Trucks	5	Trucks	6	1	7
Cyclists	1	Cyclists	3	0	3
Totals	306	Totals	250	15	



Peds Cross: ∇
 South Peds: 0
 South Entering: 265
 South Leg Total: 571

Comments

Victoria Ave @ Leader Ln

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000012
Intersection: Victoria Ave & Leader Ln
TFR File #: 12
Count date: 24-Apr-2019

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Victoria Ave runs N/S

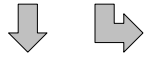
North Leg Total: 3463
 North Entering: 1870
 North Peds: 0
 Peds Cross: ∇

Cyclists	10	0	10
Trucks	44	3	47
Cars	1758	55	1813
Totals	1812	58	

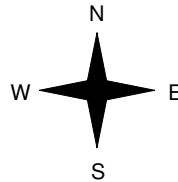


Cyclists	13
Trucks	48
Cars	1532
Totals	1593

East Leg Total: 339
 East Entering: 184
 East Peds: 40
 Peds Cross: ∇



Victoria Ave



	Cars	Trucks	Cyclists	Totals
	71	4	0	75
	103	5	1	109
	174	9	1	

Leader Ln



Cars	Trucks	Cyclists	Totals
148	6	1	155

Cars	1861
Trucks	49
Cyclists	11
Totals	1921



Victoria Ave

Cars	1461	93	1554
Trucks	44	3	47
Cyclists	13	1	14
Totals	1518	97	

Peds Cross: ∇
 South Peds: 0
 South Entering: 1615
 South Leg Total: 3536

Comments

Prepared For: City of Niagara Falls
 Prepared By: **PYRAMID** Traffic Inc.
 Location: Victoria Ave, btwn Leader Lane & River Rd
 Start Date: Wednesday May 15, 2019

Site ID: 2922
 Interval: 15 min.

Period Ending	Channel 1 NB	Channel 2 SB	Hourly Summary	Period Ending	Channel 1 NB	Channel 2 SB	Hourly Summary
0:15	4	3		12:15	51	55	377
0:30	2	2		12:30	48	48	385
0:45	1	0		12:45	60	34	393
1:00	1	3	16	13:00	39	45	380
1:15	3	4	16	13:15	50	56	380
1:30	3	2	17	13:30	35	42	361
1:45	1	2	19	13:45	53	63	383
2:00	1	5	21	14:00	60	61	420
2:15	2	0	16	14:15	45	59	418
2:30	3	0	14	14:30	54	53	448
2:45	4	2	17	14:45	55	47	434
3:00	2	0	13	15:00	47	50	410
3:15	0	1	12	15:15	58	46	410
3:30	1	2	12	15:30	48	57	408
3:45	1	1	8	15:45	52	70	428
4:00	0	2	8	16:00	50	46	427
4:15	1	1	9	16:15	47	69	439
4:30	1	2	9	16:30	43	69	446
4:45	3	3	13	16:45	58	58	440
5:00	6	2	19	17:00	51	68	463
5:15	6	1	24	17:15	50	64	461
5:30	6	6	33	17:30	49	59	457
5:45	11	3	41	17:45	37	48	426
6:00	14	9	56	18:00	27	48	382
6:15	12	7	68	18:15	35	33	336
6:30	15	12	83	18:30	25	33	286
6:45	27	15	111	18:45	21	22	244
7:00	22	24	134	19:00	32	26	227
7:15	15	15	145	19:15	18	29	206
7:30	12	26	156	19:30	26	22	196
7:45	33	26	173	19:45	19	22	194
8:00	28	39	194	20:00	29	25	190
8:15	29	40	233	20:15	21	13	177
8:30	21	53	269	20:30	26	28	183
8:45	30	51	291	20:45	13	19	174
9:00	39	63	326	21:00	19	17	156
9:15	23	37	317	21:15	15	11	148
9:30	29	20	292	21:30	23	21	138
9:45	32	36	279	21:45	15	14	135
10:00	19	35	231	22:00	17	12	128
10:15	29	29	229	22:15	13	14	129
10:30	42	37	259	22:30	17	12	114
10:45	47	32	270	22:45	7	8	100
11:00	37	37	290	23:00	11	10	92
11:15	34	51	317	23:15	8	5	78
11:30	40	48	326	23:30	13	11	73
11:45	48	38	333	23:45	5	6	69
12:00	44	53	356	0:00	2	2	52

AM Peak: **356**

PM Peak: **463**

24 HR VOLUME: **4991**



Train Count Data

TRANSMITTAL

To: RWDI *Project :* GRM-1.14 –Victoria Avenue Niagara Falls ON
Destinataire : 600 Southgate Drive,
Guelph ON
N1G 4P6

Attn.: Amy Patenaude *Routing:* Amy.Patenaude@rwdi.com

From: Umair Naveed *Date:* 2022/01/14
Expéditeur :

Cc: Adjacent Development
CN via e-mail

Urgent For Your Use For Review For Your Information Confidential

**Re: Train Traffic Data – CN Grimsby Subdivision near Victoria Avenue
in Niagara Falls, ON**

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **\$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca.

Sincerely,

Umair Naveed

Umair Naveed
Project Officer Public Works – Eastern Canada
permits.gld@cn.ca

Date: 2022/01/14

Project Number: GRM-1.14- Victoria Avenue, Niagara ON

Dear Amy:

Re: Train Traffic Data – CN Grimsby Subdivision near Victoria Avenue in Niagara, ON

The following is provided in response to Amy’s 2021/12/06 request for information regarding rail traffic in the vicinity of Victoria Avenue in Niagara Falls at approximately Mile 1.14 on CN’s Grimsby 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	4	140	60	4
Way Freight	0	25	60	2
Passenger	2	10	80	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	60	4
Way Freight	0	25	60	2
Passenger	0	10	80	2

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

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is no at-grade crossing in the immediate vicinity of the study area. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

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

The double mainline track is considered to be continuously welded rail throughout the study area. The presence of two (2) switches located at Mile 1.02 and Mile 0.47 may exacerbate the noise and vibration caused by train movements.

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

Umair Naveed

Umair Naveed
Project Officer Public Works – Eastern Canada
permits.gld@cn.ca