

Phoenix Homes

Environmental Noise Impact Assessment

1773 & 1767 Baseline

December 2025

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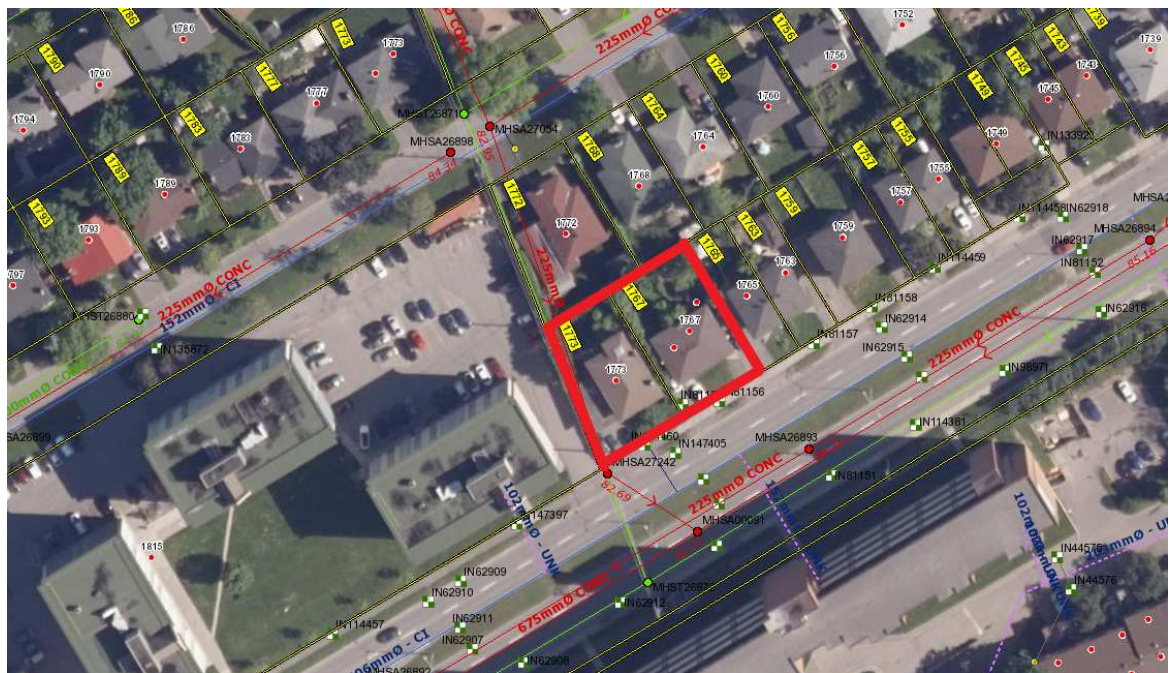
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1 INTRODUCTION

1773 & 1767 Baseline Road is located on the north side of Baseline Road, between the intersection with Navaho Drive to the west and Ferguson Street to the east, in Ottawa, Ontario. This proposed site is abutted by an apartment complex to the west, residential to the east and north, and Baseline Road to the south. Arcadis Professional Services (Canada) Inc. (formerly IBI Group) has been retained by Phoenix Homes to provide professional engineering services for 1773 & 1767 Baseline Road. The subject site is approximately 0.11 ha and consists of one 5-storey apartment building to be completed in one phase. Refer to key plan on **Figure 1.1** for Site location.

Figure 1.1 Site Location



2 BACKGROUND

2.1 Noise Sources

The proposed development will be primarily subjected to roadway noise from Baseline Road.

The dwelling units within the proposed development are located within the Airport Vicinity Development Zone (AVDZ) limits, as shown on Schedule C14 of the 2021 Official Plan. As such, aircraft noise from the Ottawa International Airport has been considered in this study.

There are no rail lines within 500 meters of the site. As such, no consideration has been given to the noise impacts from rail traffic in accordance with the City of Ottawa Environmental Noise Control (ENC) Guidelines, dated January 2016.

2.2 Sound Level Limits for Road Traffic

Sound level criteria for road traffic are taken from the ENC Guidelines and the *Ministry of the Environment Publication NPC-300 (August 2013)*. Noise levels are expressed in the form Leq (T), which refers to a weighted level of a steady sound carrying the same total energy in the time period T (in hours) as the observed fluctuation sound.

2.2.1 Indoor Sound Level Criterion

The recommended indoor sound level criteria from Table 2.2b of the ENC Guidelines are as follows:

- Bedrooms – 23:00 to 07:00 – 40 dBA Leq (8 hours)
- Other areas – 07:00 to 23:00 – 45 dBA Leq (16 hours)

The sound levels are based on the windows and doors to an indoor space being closed.

The proposed development consists of a five story apartment building. For the purpose of assessing the critical indoor noise in this study, the outdoor noise levels are observed at 3.1 meters for the first floor and 15.8 meters for the fifth floor for the plane of the living room windows during the daytime and nighttime. These heights relative to ground level were determined by reviewing the living room and bedroom window locations on the Site Plan (see Appendix B) and shall be used to determine noise impacts from Baseline Road on the critical, upper-level units.

As per NPC-300 C7.1.3, if the daytime outdoor sound levels exceed 65 dBA at the living room window or if the nighttime sound levels exceed 60 dBA at the bedroom window, then the building must be compliant with the Ontario Building Code. Should the outdoor sound levels exceed this criteria, then the building component (walls, windows, etc.) must be designed to achieve indoor sound level criteria.

As per NPC-300 C7.1.2.1 and C7.1.2.2, when the outdoor noise levels are greater than 55 dBA and less than or equal to 65 dBA at the living room window and/or greater than 50 dBA and less than or equal to 60 dBA at the bedroom window, then a warning clause is compulsory. This warning clause specifies that forced air heating with a provision for central air conditioning is required. Should the outdoor sound levels exceed the criteria, central air conditioning is mandatory and a warning clause is required.

2.2.2 Outdoor Sound Level Criterion

As per Table 2.2a of the ENC Guidelines, the sound level criteria for the outdoor living area (OLA) for the daytime period between 07:00 and 23:00 hours is 55 dBA Leq (16). Sound levels for the

OLA are typically calculated 3 meters from the building face at the center of the unit or within the center of the OLA at a height of 1.5 meters above the ground.

If the Leq sound level is less than or equal to the above criteria then no further action is required by the developer. If the sound level exceeds the criteria by less than 5 dBA then the developer may, with City approval, either provide a warning clause to prospective purchasers or install physical attenuation. For sound levels greater than 5 dBA above the criteria, control measures are required to reduce the noise levels as close to 55 dBA as technically, economically and administratively possible. Should the sound levels with the barrier in place exceed 55 dBA a warning clause is also required.

2.2.3 Indoor Sound Level Criterion – Building Components

As per NPC-300 C7.1.3, when the outdoor sound levels are less than or equal to 65 dBA at the living room window and/or less than or equal to 60 dBA at the bedroom level, then the building must be compliant with the Ontario Building Code. Should the outdoor sound levels exceed this criteria then the building component (walls, windows etc.) must be designed to achieve indoor sound level criteria.

3 ROADWAY NOISE

3.1 Traffic Volume Data

The major sources of road noise impacting the site are expected to originate from the traffic flows along Baseline Road:

Baseline Road is currently a four-lane, divided urban roadway with a posted speed limit of 60 km/h within the vicinity of the subject site. Ultimately, in this section of Baseline the existing median will be reconstructed to contain a Bus Rapid Transit (BRT) corridor.

Table 3.1 below summarizes the traffic and road parameters used in this report. These parameters were extracted from Appendix B: Table B1 of the ENC Guidelines for a 4-Lane Urban Arterial-Divided (4-UAD) roadway. With an AADT of 35,000 and using the percentage value for medium and heavy trucks this results in 2,450 daily medium trucks (buses) and 1,700 daily heavy trucks. The large number of buses and trucks would exceed the noise levels for the BRT corridor.

TABLE 3.1: TRAFFIC AND ROAD DATA SUMMARY

	BASELINE ROAD
Annual Average Daily Traffic (AADT)	35,000
Posted Speed Limit (km/h)	60
% Medium Trucks	7%
% Heavy Trucks	5%
% Daytime Traffic	92%

3.2 Calculation Methods

Roadway noise is calculated using the STAMSON 5.04 computer program from the Ontario Ministry of the Environment (MOE).

Unattenuated daytime and nighttime noise levels at the building face calculated to determine indoor sound levels are shown in Table 3.2 below. Parameters used for calculating the noise levels, including the perpendicular distance from source to receiver and the roadway segment angles are also indicated.

There are no outdoor living areas (OLAs) attached to the units however there is an Amenity space at the northeast corner of the building which is exposed to Baseline Road traffic noise. A calculation has been carried out as shown on Table 3.3 at a location that lines up with the middle of the Amenity space.

TABLE 3.2: UNATTENUATED NOISE LEVELS AT BUILDING FACE

LOCATION	ROADWAY	SOURCE - RECEIVER DISTANCE (m)	SEGMENT ANGLES		INDOOR NOISE LEVELS (dBA)	
			LEFT	RIGHT	DAYTIME	NIGHTTIME
L1 – 1st Floor	Baseline Road	18.0	-90	90	71.02	63.43
L1 – 5th Floor	Baseline Road	18.0	-90	90	72.09	64.49
L2 – 1st Floor	Baseline Road	25.5	-85	0	65.53	57.93
L2 – 5th Floor	Baseline Road	25.5	-85	0	67.08	59.49
L3 – 1st Floor	Baseline Road	33.5	-60	-10	61.85	55.97
L3 – 5th Floor	Baseline Road	33.5	-60	-10	63.57	54.26
L4 – 1st Floor	Baseline Road	29.5	0	40	62.19	54.59
L4 – 5th Floor	Baseline Road	29.5	0	90	66.44	58.84

As indicated in **Table 3.2** above, there are numerous locations which exceed the noise criteria at the building face.

TABLE 3.3: UNATTENUATED NOISE LEVELS AT OLA

LOCATION	ROADWAY	SOURCE - RECEIVER DISTANCE (m)	SEGMENT ANGLES		OUTDOOR NOISE LEVELS (dBA)
			LEFT	RIGHT	
L5 Amenity Space	Baseline Road	43.0	-45	0	59.76

As indicated in **Table 3.3** above, the daytime noise level at the Amenity Space exceeds the noise criteria.

4 ABATEMENT MEASURES

4.1 Indoor Sound Levels

At Locations L1, L2 and L4-5th floor the daytime noise levels at the building face are shown to exceed 65 dBA, requiring mandatory central air conditioning, a review of the building components and a Type 'D' warning clause. These locations represent Units 101, 102, 106 (floors 2 to 5), 107 and 108 as shown on the Site Plan in Appendix B

Location L3 and L4-1st floor experience noise levels in excess of 55 dBA but below 65 dBA,

requiring an alternative means of ventilation is required, as well as a Type ‘C’ warning clause in the Agreement of Purchase and Sale. Alternative means of ventilation usually consist of a forced air heating system with ducts sized for future installation of central air conditioning. These locations represent Units 103, 104 and 106 1st floor as shown on the Site Plan in Appendix B

4.2 Outdoor Sound Levels

As per Table 3.3 in Section 3.2, the Location L5 at the Amenity Space exceeds the noise criteria being above 55 dBA but below 60 dBA. As per section 2.2.2, a noise barrier is not required, however a Type A warning clause can be applied to all units using the amenity space.

4.3 Aircraft Sound Levels

As stated in Section 2.1, this site is located within the Airport Vicinity Development Zone (AVDZ). The site is, however, outside of the 25 NEF/NEP contour line so the building components and ventilation requirements, presented in Part 6: Prescribed Measures for Aircraft Noise of the ENC Guidelines, do not apply. All dwelling units to which this clause applied are described in Section 5.1 below.

The warning clause for aircraft noise is as follows:

“Purchasers/tenants are advised that due to the proximity of the Ottawa Macdonald-Cartier International Airport, noise from the airport and individual aircraft may at times interfere with outdoor or indoor activities”.

5 SUMMARY OF ATTENUATION MEASURES

5.1 Warning Clauses

A clause regarding noise must appear on the Agreement of Purchase and Sale on the title of the lots and townhouse units indicated on **Drawing No. C-N**, as listed below:

Type ‘A’	All Units, all Floors
Type ‘C’	Units 103, 104 and 106 1st Floor
Type ‘D’	Units 101, 102, 106 (2nd to 5th Floor), 107 and 108

Aircraft noise warning clause to be applied for all units as per Section 4.3 above.

The following warning clauses are taken from Section C8.1 of NPC 300:

Type A	“Purchasers/tenants are advised that sound levels due to Baseline Road traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the City’s and the Ministry of the Environment’s noise criteria.”
Type C	“This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City’s and the

	Ministry of the Environment’s noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.”
Type D	“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 City’s and the Ministry of the Environment’s noise criteria.”

5.2 Ventilation Requirements and Building Components

All dwelling units requiring a Type ‘C’ warning clause listed in Section 5.1 shall have a forced air heating system sized to accommodate a central air conditioning system.

All dwelling units requiring a Type ‘D’ warning clause shall have mandatory central air conditioning and acoustical review of building components.

6 CONCLUSION

This report outlines the impact of roadway noise on the proposed residential development, located at 1773 & 1769 baseline Road. As indicated through the analysis conducted for this study, it is anticipated that noise levels will remain within the standards established by the City of Ottawa and Ministry of the Environment (MOE) with the exception of select units as indicated on **Drawing No. C-N**. For these dwelling units, appropriate warning clauses and associated noise abatement measures must be provided on the Agreement of Purchase and Sale.