

Environmental Noise Feasibility

25 Dundas Street West

Proposed Mixed-Use Development

Belleville, Ontario

July 14, 2025
Project: 113-0367.010

Prepared for

MDM Developments

Prepared by


Kathryn Katsiroumpas, B.Sc. Eng.



VALCOUSTICS

Canada Ltd.

Version History

Version #	Date	Comments
1.0	July 14, 2025	Prepared for Submission

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Environmental Noise Feasibility

25 Dundas Street West

Proposed Mixed-Use Development

City of Belleville

EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) was retained to prepare an Environmental Noise Feasibility report for the proposed mixed-use development to support the Zoning By law Amendment (ZBA) application submission to the City of Belleville.

The main noise sources with potential to impact the proposed development are road traffic on Dundas Street West, as well as rail traffic on Canadian Pacific Kansas City (CPKC) Railway Belleville Subdivision. It was confirmed during a site visit that there are no stationary sources in the vicinity with the potential to impact the subject site.

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

To meet the applicable transportation noise source guideline limits:

- Brick veneer or masonry equivalent exterior wall construction is required for dwellings closest to the railway;
- Exterior windows with ratings up to Sound Transmission Class (STC) 41 are required;
- Mandatory air conditioning is required for dwellings closest to the railway to allow windows to remain closed for noise control purposes;
- Provision for the addition of air conditioning is required for all other dwellings in the development; and
- A minimum 2.0 m high sound barrier is required at the rear yard of the most westerly block of units along the south property line, however, a 3.0 m high acoustic fence is not required atop the railway safety berm.

1.0 INTRODUCTION

VCL was retained to prepare an Environmental Noise Feasibility report for the proposed mixed-use development to support the ZBA application submission to the City of Belleville.

The predicted sound levels and noise mitigation measures needed for the proposed development to comply with noise guidelines of the MECP are outlined herein.

1.1 THE SITE AND THE SURROUNDING AREA

The subject site is located at 25 Dundas Street West in the City of Belleville, and is surrounded by:

- The CPKC Belleville Subdivision with Dundas Street West and existing commercial beyond, to the north and west;
- An existing marina, with Belleville Harbour beyond, to the east; and
- An existing hotel to the south.

A Key Plan is included as Figure 1.

1.2 THE PROPOSED DEVELOPMENT

The proposed development consists of 206 stacked townhouse units, a mixed-use commercial building that includes 7 residential condo units and a common outdoor amenity area. The majority of the stacked townhouse units do not have private outdoor amenity areas, however, blocks along the south and east property lines do have rear yards.

The assessment is based on the Site Plan prepared by Rosalie Dawson Architect Inc., dated April 27, 2025. See Appendix A.

2.0 NOISE SOURCES

2.1 TRANSPORTATION NOISE SOURCES

The transportation noise sources with the potential to impact the proposed development are road traffic on Dundas Street West as well as rail traffic on Canadian Pacific Kansas City (CPKC) Railway Belleville Subdivision. Traffic volumes on the other surrounding roadways are anticipated to be minor and no significant noise impact is expected.

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

2.1.1 Road Traffic

Future (2035) Annual Average Daily Traffic (AADT) volumes were obtained from the traffic consultant for the project. Day/night splits, truck percentages and speed limits were obtained from data provided by City of Belleville.

TABLE 1A ROAD TRAFFIC DATA⁽¹⁾

Roadway	Year	AADT ⁽¹⁾	% Trucks		Day/Night Split (%)	Speed Limit (km/hr)
			Medium	Heavy		
Dundas Street West	2035	32674	5.2 ⁽²⁾	2.6	90/10	50

Notes:

- (1) AADT – Annual Average Daily Traffic.
- (2) Medium truck percentage assumed to be double the heavy truck volume.

2.1.2 Rail Traffic

CPKC no longer provides rail data for use in noise studies. Thus, rail traffic data for the CPKC Belleville Subdivision, obtained directly from CPKC for another site in the vicinity, was used for this study. Rail traffic on the Belleville Subdivision consists of freight trains only. The rail traffic data, applicable to the year 2019, was escalated to the year 2035 design condition using a growth rate of 2.5% compounded annually. This escalation rate is suggested by the CPKC and other railway authorities for preparing environmental noise studies.

TABLE 1B RAIL TRAFFIC DATA

Track	Period	Train Type	Maximum # of Trains	Maximum # of Cars/Train	Maximum # of Locomotives/Train	Maximum Speed (kph)
CPKC Belleville Subdivision ⁽¹⁾	Daytime	Freight	7 (10.4)	211	4	96
	Nighttime	Freight	10.4 (4.5)	211	4	96

Notes:

- (1) Data obtained from CPKC for the year 2019. Values shown in brackets have been extrapolated to the year 2035 design condition using a 2.5 % growth rate, compounded annually.

2.2 STATIONARY NOISE SOURCES

Based on observations made on site in May 2025, there are no stationary sources in the vicinity with the potential to impact the subject site, including at the nearby hotel and marina. Therefore, stationary noise is not considered further.

3.0 ENVIRONMENTAL NOISE GUIDELINES

3.1 MECP PUBLICATION NPC-300

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

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

3.1.1 Transportation Noise Sources

3.1.1.1 Architectural Elements

In the daytime, the indoor criterion for road/rail noise is $L_{eq\ Day}^{(1)}$ of 45/40 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road/rail noise is $L_{eq\ Night}^{(2)}$ of 45/40 dBA for sensitive spaces such as living rooms, dining rooms and dens and 40/35 dBA for bedrooms.

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

In addition, the MECP requires brick veneer exterior wall construction or masonry equivalent from the foundation to the rafters for the first row of dwellings within 100 m of the rail line, when the L_{eq24} is greater than 60 dBA.

3.1.1.2 Ventilation

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

3.1.1.3 Outdoors

For outdoor amenity areas (“Outdoor Living Areas” - OLA’s), the guideline is 55 dBA $L_{eq\ Day}$ (0700 to 2300 hours), with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, providing warning clauses are registered on title. Note that for transportation 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.

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

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

3.2 FEDERATION OF CANADIAN MUNICIPALITIES AND RAILWAY ASSOCIATION OF CANADA

The standard noise mitigation measures for CNR principal main lines are outlined in the “Guidelines for New Development in Proximity to Railway Operations” from the Federation of Canadian Municipalities and the Railway Association of Canada (FCM/RAC). This includes:

- minimum 30 m setback from the edge of the rail right-of-way to the closest dwelling facade;
- safety berm at least 2.5 m above grade at the property line;
- an approximately 3.0 m high acoustic fence atop the safety berm (to achieve a total height of 5.5 m above the top of the rail);
- brick veneer exterior wall construction; and
- warning clauses specific to the railway for all dwellings within 300 m of the right-of-way.

Aside from the “standard” requirements regarding the setback of dwellings and safety berm/sound barrier configuration, the sound level design objectives of FCM/RAC are similar to those of the MECP. See Appendix C. Note that the FCM/RAC also permit modifications to the acoustic fence requirements where substantiated by a detailed noise impact assessment. However, safety measures such as the dwelling setback and berms cannot be modified based on solely on the results of the noise assessment.

4.0 NOISE IMPACT ASSESSMENT

4.1 METHOD

Using the road and rail traffic data in Tables 1A and 1B, respectively, the sound levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT and STEAM, the computerized road and rail traffic noise prediction model approved by the MECP.

The daytime and nighttime sound levels at the building facades were assessed at the worst-case height of 7.5 m, representing the top floor of typical 3-storey stacked townhouse dwellings. The daytime OLA sound levels at the rear yards of the townhouse units were assessed at a height of 1.5 m above grade, 3 m from the midpoint of the applicable dwelling facade.

Inherent screening effects due to building orientation to the noise source and shielding provided by the subject development itself were taken into account. Screening from existing buildings in the vicinity was included in the OLA sound level assessment.

4.2 RESULTS

The highest unmitigated daytime/nighttime sound levels of 72 dBA/71 dBA are predicted to occur at the north facade of the units facing the railway. For the private OLAs, the highest unmitigated daytime sound level of 65 dBA is predicted at the most westerly unit along the south property line. Table 2 summarizes the unmitigated daytime and nighttime sound level predictions. A sample STAMSON calculation is included as Appendix D.

TABLE 2 PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS

Location ⁽¹⁾	Source	Distance (m) ⁽²⁾	Leq Day (dBA)	Leq Night (dBA)
A	Dundas Street West	53	62	52
	CPKC Belleville Subdivision	35	72	71
	TOTAL	-	72	71
B	Dundas Street West	62	61	52
	CPKC Belleville Subdivision	37	72	71
	TOTAL	-	72	71
C	Dundas Street West	88	59	49
	CPKC Belleville Subdivision	60	69	68
	TOTAL	-	69	68
D	Dundas Street West	77	54	44
	CPKC Belleville Subdivision	58	63	62
	TOTAL	-	63	62
E	Dundas Street West	67	58	48
	CPKC Belleville Subdivision	48	67	66
	TOTAL	-	67	66
E - OLA	Dundas Street West	75	56	-
	CPKC Belleville Subdivision	56	65	-
	TOTAL	-	65	-
F	Dundas Street West	121	52	42
	CPKC Belleville Subdivision	92	60	60
	TOTAL	-	61	60
F - OLA	Dundas Street West	132	47	-
	CPKC Belleville Subdivision	103	56	-
	TOTAL	-	57	-
COMMON OLA	Dundas Street West	150	46	-
	CPKC Belleville Subdivision	130	55	-
	TOTAL	-	55	-

Notes:

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

4.3 NOISE CONTROL REQUIREMENTS

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

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

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

4.3.1 Indoors

4.3.1.1 Architectural Elements

The indoor noise guidelines for the transportation sources can be achieved by using appropriate construction for exterior walls, windows and doors. Since the development is in close proximity to the CPKC railway, significant upgrades are required to meet the indoor MECP noise guidelines.

In determining the worst-case architectural requirements, wall and window areas were assumed to be 80% and 40% of the associated floor area, respectively, on the façades directly exposed or at an angle to the traffic noise sources for sleeping quarters.

Brick veneer or an acoustical equivalent masonry construction (STC 54) is required for the exterior walls of townhouse units closest to the railway. These townhouse units will also require upgraded windows with STC ratings up 41. See Figure 2.

For all remaining townhouse units in the development, exterior wall and window construction meeting minimum non acoustical requirements of the OBC are sufficient to ensure indoor sound level criteria prescribed under MECP guidelines are met.

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 plans are developed. Wall and window constructions should also be reviewed at this point to ensure that they will meet the required sound isolation performance.

4.3.1.2 Ventilation Requirements

Based on the predicted sound levels, air conditioning is required for townhouse units near the railway. See Figure 2.

All remaining townhouse units require the provision for the addition of air conditioning which typically takes the form of a ducted heating system suitably sized to accommodate air conditioning.

4.3.2 Outdoors

The predicted daytime sound levels at the rear yard of the most westerly units at the south property line exceed the 60 dBA upper limit of the MECP noise guidelines. Therefore, a sound barrier is required.

At this location, 2.0 m high acoustic fence at Unit 1 will reduce the daytime sound levels at the rear yards of all units to 60 dBA or lower, the maximum level permitted by the MECP noise guidelines, provided that a warning clause is registered on title.

Providing the FCM/RAC standard requirement of a 5.5 m high sound barrier (2.5 m high safety berm plus 3.0 m high acoustic fence) along the northerly property line is not required to meet the MECP noise guidelines. However, the safety berm remains a requirement of the FCM/RAC regardless of the acoustic fence location.

Figure 2 indicates the height and location of the recommended sound barrier.

The above sound barrier requirement is based on flat topography should be updated once the site plan is finalized and future grading information is available.

The sound barriers must be of solid construction with no gaps, cracks, or holes (except for small openings if required for water drainage) and must have a minimum surface density of 20 kg/m². A variety of materials may be used, including earthen berms, concrete, masonry, glass, wood, specialty composite materials, or a combination of these.

4.4 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 Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation. Locations requiring warning clauses and the recommended wording are given in Table 3.

TABLE 3 NOISE ABATEMENT MEASURES

Location	Air Conditioning ⁽¹⁾	Exterior Wall ⁽²⁾	Exterior Window ⁽²⁾	Sound Barrier ⁽³⁾	Warning Clauses ⁽⁴⁾
Units close to railway (See Figure 2)	Mandatory	Brick veneer or masonry equivalent (STC 54)	Up to STC 41	2.0 m high	A + B + D
Remaining townhouse units	Provision for adding	OBC	OBC	None	A + C + D

Notes:

- (1) Central air conditioning allows windows to remain closed for noise control purposes. 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. Provision for adding air conditioning typically takes the form of a ducted ventilation system suitably sized to permit the addition of central air conditioning by the occupant.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413). A sliding glass walkout door should be considered as a window and be included in the percentage of glazing.

The requirements were determined using assumed areas and should be refined once floor plans and elevations are prepared.
- (3) Sound barriers must be of solid construction having a minimum face density of 20 kg/m² with no gaps or cracks. The acoustic fence height should be confirmed once grading plans are prepared.
- (4) Warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated lots:
 - A. "Purchases/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 and rail 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, 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 and the Ministry of the Environment, Conservation and Parks."
 - C. This dwelling has been designed with the provision for adding central air conditioning at the occupant's discretion. 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 sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."
 - D. "Canadian Pacific Kansas City railways, Metrolinx or its affiliated railway companies has or have a railway right-of-way within 300 m from this dwelling unit. There may be alterations to or expansions of the railway facilities of such right-of-way in the future, including the possibility that Canadian Pacific Kansas City Railways, Metrolinx or its affiliated railway companies as aforesaid, or their assigns or successors may expand their business operations. Such expansion may affect the living and business environment of the residents, tenants and their visitors, employees, customers and patients in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating features in the design of the development. Canadian Pacific Kansas City Railways, Metrolinx, its affiliated railway companies and their successors and assigns will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."
- (5) All exterior doors shall be fully weather-stripped.

5.0 RAILWAY SAFETY BARRIER

As noted in Section 3.2 above, a 30 m setback to the railway right of way (ROW) in combination with a safety berm at least 2.5 m above grade along the rail ROW is a requirement for the railway authorities.

Rail safety is not within the purview of VCL and safety considerations fall outside the scope of this environmental noise assessment. Any modifications to setback and the safety berm need to be approved by the railway authority.

6.0 CONCLUSIONS

With the incorporation of the recommended noise mitigation measures, the applicable MECP noise guidelines can be met, and a suitable acoustical environment provided for the occupants. Requirements should be updated once the site plan for the development is finalized.

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

7.0 REFERENCES

1. "Environmental Noise Guideline – Stationary, and Transportation Sources, Approval and Planning", Ontario Ministry of the Environment, Publication NPC-300, October 2013.
2. PC STAMSON 5.04, "Computer Program for Road Traffic Noise Assessment", Ontario Ministry of the Environment.
3. Road and Rail Noise: Effects on Housing", Canada Mortgage and Housing Corporation, Publication NHA 5156, 81/10.
4. Building Practice Note No. 56: "Controlling Sound Transmission into Buildings", by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.
5. "Environmental Noise Assessment in Land-Use Planning 1987", Ontario Ministry of the Environment, February 1987, ISBN 0-7729-2804-5.
6. "Guidelines for New Development in Proximity to Railway Operations", Federation of Canadian Municipalities and the Railway Association of Canada, May 2013.

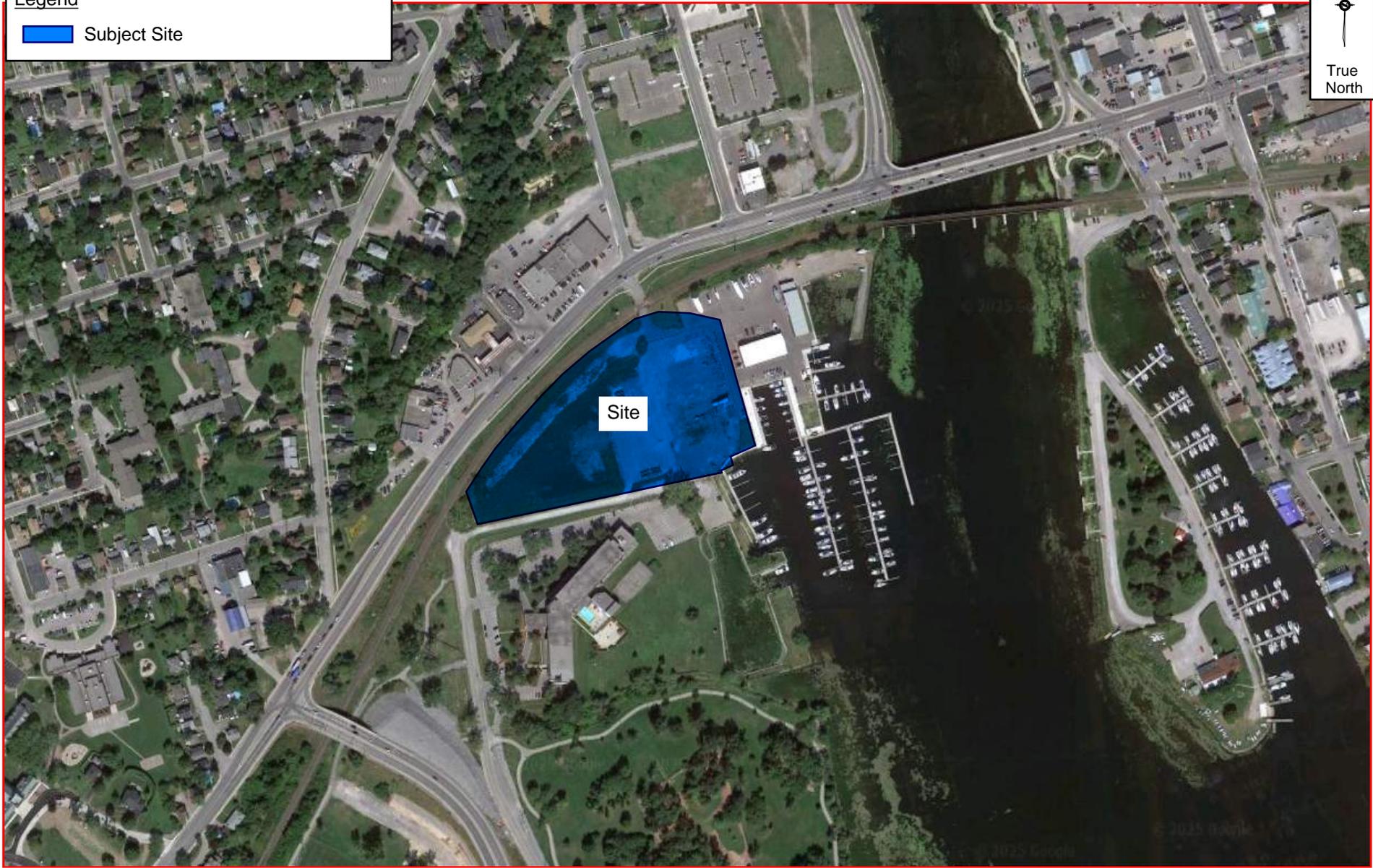
KK Isk
Dundas and Mary - Belleville_Noise v1_0.docx

Legend

 Subject Site



True North



Site



Title

Key Plan

Project Name

25 Dundas Street West, Belleville

Date

July 11, 2025

Project No.

113-0367-010

Figure

1



Mandatory AC, Brick Veneer Wall Construction and Upgraded Windows (see text)
 2.0 m High Sound Barrier
 Provision for Addition of Air Conditioning for all other units

Original plan sketch by Rosalie Dawson Architect Inc.

	Title	Site Plan with Noise Mitigation Requirements	Date	July 11, 2025
	Project Name	25 Dundas Street West, Belleville	Project No.	113-0367-010

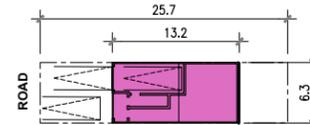
APPENDIX A

SITE PLAN

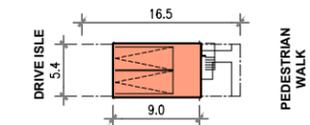


Total 213 Residential Units

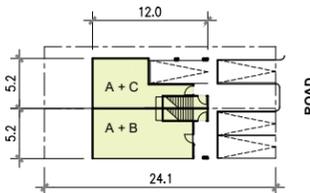
TYPE A
 2 Units Stacked
 Unit A: 2200sf
 Unit B: 1430
 Total Units = 22



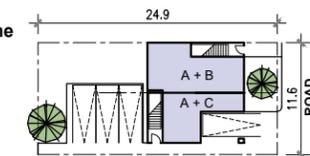
TYPE B
 2 Units Stacked
 Unit A: 1385sf
 Unit B: 550sf
 Total Units = 88



TYPE C
 2 @ 2 Units Stkd
 Unit A: 900sf
 Unit B: 750sf
 Unit C: 650sf
 Total Units = 48



TYPE D - Rail Line
 2 @ 2 Units Stkd
 Unit A: 800sf
 Unit B: 700sf
 Unit C: 600sf
 Total Units = 48



TYPE E
 Condo
 850sf
 Total Units = 7



Statistics to come:

- Per Unit type (A,B,C,D E):
1. Bedrooms / w/c's (estimate)
 2. max height
 3. lot area
 4. frontage
 5. lot coverage percentage
 6. min. landscaped area
 7. min front, side, rear yard setbacks
 8. parking spaces per unit

General:

1. site dimensions
2. parking count visitor
3. commercial area
4. amenity area (building)
5. other...

APPENDIX B

ROAD AND RAIL TRAFFIC DATA

RE: Dundas Street and Mary Street/Noise Upd - Our File: 113-0367.010

From Andrew Rosenthal <arosenthal@jewelleng.ca>

Date Wed 2025-06-11 1:23 PM

To Kathy Katsiroumpas <kathy@valcoustics.com>; Thomas Binczyk | MDM Developments <tbinczyk@mdmdevelopments.com>

Cc Makarand Kaushik <Makarand.Kaushik@valcoustics.com>; Amanda Redden <reddena@jewelleng.ca>

 1 attachment (10 KB)

38_Dundas east of Baybridge_60min.pdf;

No problem. From the old data from the City it looks like the weekday day/night split is 5.5% - I'd expect the distribution now to be similar.

	Tues		Wed		Thurs			Avg Day EB+WB
0:00	111	134	56	121	60	101		194
1:00	167	70	48	54	47	43		143
2:00	29	34	26	25	22	35		57
3:00	28	45	19	24	17	16		50
4:00	39	24	24	14	33	19		51
5:00	81	45	93	55	97	51		141
6:00	229	191	283	207	252	181		448
7:00	607	458	730	554	655	535		1180
8:00	1172	870	1236	905	1242	909		2111
9:00	979	840	990	825	1039	803		1825
10:00	905	779	865	741	861	819		1657
11:00	820	865	778	837	779	788		1622
12:00	910	958	879	906	902	930		1828
13:00	863	976	844	959	900	910		1817
14:00	868	903	853	979	819	897		1773
15:00	779	1027	881	1038	901	1012		1879
16:00	923	1319	966	1277	907	1234		2209
17:00	940	1242	918	1295	848	1278		2174
18:00	589	722	704	794	719	778		1435
19:00	472	589	520	567	522	680		1117
20:00	298	464	330	473	339	542		815
21:00	246	408	276	435	341	401		702
22:00	222	289	182	364	243	386		562
23:00	151	201	151	159	162	215		346
							total	26137
							23h to 07h	1430
							Pct.	5%

Thanks,

Andrew Rosenthal, P.Eng.
Traffic/Stormwater Engineer



Jewell Engineering Inc.
1-71 Millennium Pkwy,
Belleville, ON K8N 4Z5
Phone 613-969-1111 x 246

From: Kathy Katsiroumpas <kathy@valcoustics.com>
Sent: Wednesday, June 11, 2025 12:56 PM
To: Andrew Rosenthal <arosenthal@jewelleng.ca>; Thomas Binczyk | MDM Developments <tbinczyk@mdmdevelopments.com>
Cc: Makarand Kaushik <Makarand.Kaushik@valcoustics.com>; Amanda Redden <reddena@jewelleng.ca>
Subject: RE: Dundas Street and Mary Street/Noise Upd - Our File: 113-0367.010

Thanks Andrew! We will proceed with our analysis using the data you've provided. What would be an appropriate day (0700-2300)/night (2300-0700) split? We used 95/5 previously for Dundas Street.

Regards,

Kathy

From: Andrew Rosenthal <arosenthal@jewelleng.ca>
Sent: June 11, 2025 8:38 AM
To: Kathy Katsiroumpas <kathy@valcoustics.com>; Thomas Binczyk | MDM Developments <tbinczyk@mdmdevelopments.com>
Cc: Makarand Kaushik <Makarand.Kaushik@valcoustics.com>; Amanda Redden <reddena@jewelleng.ca>
Subject: RE: Dundas Street and Mary Street/Noise Upd - Our File: 113-0367.010

Hi Kathy, we finally received our traffic counts last night.

The counts at the nearby Dundas/Bay Bridge Rd intersection show a peak-hr traffic volume on Dundas St W at our site of 2,466 vehicles/hour, and we project a peak hr volume of 3,006 veh/h based on Belleville's 2% growth rate. As the site is within an urban area (K factor of 0.092), we estimate the AADT to be 26,804 vehicles per day in 2025, projected to 32,674 in 10Yr.

	2025	10-Yr Proj. (2035)
Peak hr Vol (Fri)	2466	3006
AADT (est.)	26804	32674

In our Friday/Saturday counts from 7AM to 7PM (07h to 19h) each day, the heavy vehicle percentages (vehicles larger than a regular passenger car/truck) are 2.6% on the Friday and 1.9% on the Saturday.

	Friday	Saturday
EB Heavy Veh.	202	96
EB Vol.	12913	9111
EB Heavy %	1.6%	1.1%

WB Heavy Veh.	439	241
WB Vol.	11591	8971
WB Heavy %	3.8%	2.7%
Heavy %	2.6%	1.9%

Hopefully this helps with your study, and please let me know if you have any questions.

Thanks,

Andrew Rosenthal, P.Eng.
Traffic/Stormwater Engineer



Jewell Engineering Inc.
1-71 Millennium Pkwy,
Belleville, ON K8N 4Z5
Phone 613-969-1111 x 246

From: Andrew Rosenthal
Sent: Thursday, June 5, 2025 8:23 AM
To: Kathy Katsiroumpas <kathy@valcoustics.com>; Thomas Binczyk | MDM Developments <tbinczyk@mdmdevelopments.com>
Cc: Makarand Kaushik <Makarand.Kaushik@valcoustics.com>
Subject: RE: Dundas Street and Mary Street/Noise Upd - Our File: 113-0367.010

Hi Kathy,

Our sub was delayed in completing the counts so I'm still waiting on the results, but they've told us the counts will be processed by the end of the week. Once I receive them I'll do a 10Yr projection for you and provide heavy vehicle percentages as well, and we'll have those to you ASAP (it's a quick turnaround from me once I receive them). Assuming we receive the counts this week I'll have the numbers to you on Monday.

Thanks,

Andrew Rosenthal, P.Eng.
Traffic/Stormwater Engineer



Jewell Engineering Inc.
1-71 Millennium Pkwy,
Belleville, ON K8N 4Z5
Phone 613-969-1111 x 246

From: Kathy Katsiroumpas <kathy@valcoustics.com>
Sent: Wednesday, June 4, 2025 7:11 PM
To: Andrew Rosenthal <arosenhal@jewelleng.ca>; Thomas Binczyk | MDM Developments <tbinczyk@mdmdevelopments.com>

APPENDIX C

ENVIRONMENTAL NOISE GUIDELINES

APPENDIX C
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	

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 D

SAMPLE STAMSON CALCULATION

Results segment # 1: CPKC Bellvl (night)

LOCOMOTIVE (0.00 + 70.04 + 0.00) = 70.04 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.41 76.20 -5.17 -0.99 0.00 0.00 0.00 70.04

WHEEL (0.00 + 65.10 + 0.00) = 65.10 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.51 71.85 -5.56 -1.19 0.00 0.00 0.00 65.10

Segment Leq : 71.25 dBA

Total Leq All Segments: 71.25 dBA

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

Car traffic volume : 28619/1506 veh/TimePeriod *
Medium truck volume : 807/42 veh/TimePeriod *
Heavy truck volume : 1614/85 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 32674
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.60
Heavy Truck % of Total Volume : 5.20
Day (16 hrs) % of Total Volume : 95.00

Data for Segment # 1: Dundas (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 : 53.00 / 53.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Dundas (day)

Source height = 1.51 m

ROAD (0.00 + 62.32 + 0.00) = 62.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj
SubLeq									

--
-90 90 0.48 71.57 0.00 -8.11 -1.14 0.00 0.00 0.00
62.32

--

Segment Leq : 62.32 dBA

Total Leq All Segments: 62.32 dBA

Results segment # 1: Dundas (night)

Source height = 1.51 m

ROAD (0.00 + 52.54 + 0.00) = 52.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj
SubLeq									

--
-90 90 0.48 61.79 0.00 -8.11 -1.14 0.00 0.00 0.00
52.54

--

Segment Leq : 52.54 dBA

Total Leq All Segments: 52.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.33
(NIGHT): 71.31