

**NOISE IMPACT STUDY
PRIVATE SCHOOL
350 RUTHERFORD ROAD SOUTH, UNIT 10
BRAMPTON, ONTARIO**

FOR

CanSTEM EDUCATION PRIVATE SCHOOL INC.

BY

Howard Patlik
HOWARD R. PATLIK, C.E.T.



CHECKED BY

J.E. Coulter
JOHN E. COULTER, B.A.Sc., P.Eng.



**J.E. COULTER ASSOCIATES LIMITED
1210 SHEPPARD AVENUE EAST, SUITE 211
TORONTO, ONTARIO
M2K 1E3**

APRIL 10, 2023

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1.0 INTRODUCTION

At the request of CanSTEM Education Private School Inc. and as per the requirements of the City of Brampton, J.E. COULTER ASSOCIATES LIMITED has prepared a Noise Impact Study for the proposed private school at 350 Rutherford Road South, Unit 10 in Brampton, Ontario (see Appendix A, Figure 1). The purpose of this report is to establish the noise mitigation measures that may be required to meet the Ministry of the Environment, Conservation and Parks (MECP) current noise guidelines, "Publication NPC-300, Environmental Noise Guideline – Stationary and Transportation Sources" (see Appendix D). This report is required as part of a minor variance application.

2.0 SITE AND AREA DESCRIPTION

The school is part of a one-storey office building at 350 Rutherford Road South (see Appendix A, Figure 2). The school is only partially exposed to Steeles Avenue East and is set back approximately 92m and 125m from the centreline of Steeles Avenue East and Rutherford Road South, respectively.

To the east is an existing 6-storey office building. To the north are existing industrial buildings. Along the south side of Steeles Avenue East, east of Rutherford Road South are existing commercial uses (Playdium and restaurants).

3.0 TRANSPORTATION SOURCES

The potential transportation sources that may impact this development are traffic on Steeles Avenue East and Rutherford Road South. The traffic data was provided by the Region of Peel and the City of Brampton (see Appendix B). This school site is outside of the lowest Noise Exposure Forecast (NEF 25) for Pearson International Airport (see Appendix A, Figure 3) and no further review of this source is required.

The following projected traffic volumes are expected:

Table 1: Traffic Volume Projection					
Roadway	AADT (Veh/Day)	Truck Percentage		Day/Night Split (%)	Posted Speed Limit
		Medium	Heavy		
Steeles Avenue East ¹	63,000 AADT (Ultimate)	1.89% (day) 1.75% (night)	6.16% (day) 7.57% (night)	85/15	70 kph
Rutherford Road South ²	28,000 AADT (Ultimate)	2.5%	2.5%	90/10	60 kph

¹ Planned traffic data (ultimate for 6 lane configuration) obtained from the Region of Peel.

² The traffic volume for Rutherford Road South is based on the ultimate design volume for a 4-lane configuration (see Appendix B).

4.0 NOISE CRITERIA

4.1 Transportation Sources

The MECP noise criteria are listed in Table 2, below, for institutional uses.

Table 2: Indoor Sound Level Limits		
Type of Space	Time Period	L_{eq} (dBA)
		Road
General offices, reception areas, retail stores, etc.	07:00–23:00	50
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semiprivate offices, conference rooms, reading rooms, etc.	07:00–23:00	45
Sleeping quarters of hotels/motels	23:00–0:700	45
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	23:00–0:700	40

4.1 Stationary Noise Criteria

The current MECP noise criteria (*NPC-300*) deal with stationary sound sources that may impact the school. These criteria are based on the ambient roadway traffic sound levels at the receiving point (exterior façade of the school). The criteria applicable to this site state that the combined stationary noise sources cannot exceed the quietest ambient roadway sound levels based on a one-hour time period when the stationary sources are operational. MECP considers a school to be noise sensitive institutional use. However, the use of fixed and non-operable windows removes the windows as a point of reception.

5.0 PROJECTED SOUND LEVELS (Transportation Sources)

The following table summarizes the projected sound levels at the exterior building façade (top floor, worst-case scenario). The roadway noise generated by Highway 410, Steeles Avenue East and Rutherford Road South were considered.

Table 3: Projected Unmitigated Sound Levels			
	Daytime Sound Level at Exterior Façade (dB L_{eq})		
Location	Steeles Avenue East	Rutherford Road South	Total
East (Front) Façade	61	53	61

The overall transportation sound level at the exterior façades of the school from all roadways is projected to be 61 dBA during the daytime, a fairly modest sound level. Given the moderate sound levels, no additional façade measures are required. As there are no noise sensitive internal areas at the front entrance (all offices and classrooms are internal to the building), no further measures are needed.

It is noted there are no outdoor play areas at this school to be considered for noise control measures.

6.0 FAÇADE COMPONENTS

To meet MECP's interior noise criteria of 45 dB L_{eq} daytime, the existing double glazing (non-operable) comprised of 6mm lites with a 13mm air space between them will be sufficient. As there are no noise sensitive internal areas at the front entrance (all offices and classrooms are internal to the building), there are no further noise control measures to be considered.

Regarding the existing stationary noise sources from the commercial and industrial users (rooftop mechanical systems) in the area, the use of fixed or sealed windows removes the need to meet MECP's guideline. As stated by MECP from *NPC-300*:

When the noise sensitive land use is affected by noise from stationary sources, compliance with the sound level limits is typically established at points of reception in the plane of windows. In some cases, the MECP may consider inoperable windows as an acceptable option to control noise in applications for MECP approvals from stationary sources. In these cases, the inoperable windows would not be considered as points of reception and would not be subject to sound level limits. The cases where inoperable windows may be acceptable for use as receptor based "on building" noise control measures to control noise from stationary sources are:

1. Windows that are not associated with noise sensitive spaces and where the architectural design is not amenable to converting the associated space to being noise sensitive, for example, inoperable windows in a single loaded corridor serving a high-rise multi-unit building; and
2. Windows that are associated with noise sensitive spaces in a noise sensitive commercial purpose building or in a noise sensitive institutional purpose building.

The use of a non-operable fixed window for the school removes the need to consider the window as a point of reception, as noted by MECP above.

7.0 CONCLUSIONS

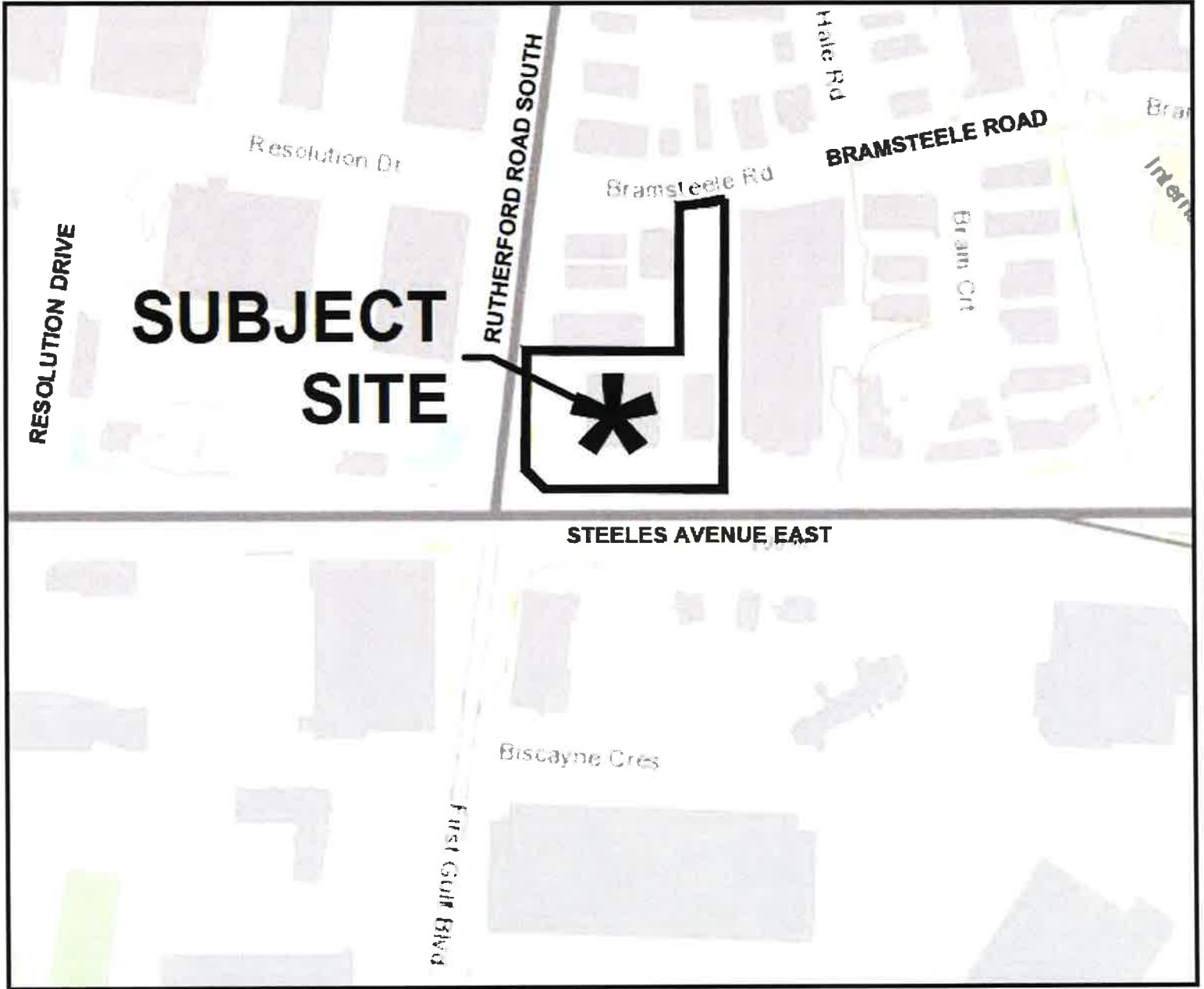
The roadway sound levels generated by Steeles Avenue East and Rutherford Road South are the major transportation sources potentially impacting this development. As a result, the existing exterior building façade is more than sufficient to provide adequate interior sound levels in all offices and classrooms at the school.

There are no noise impacts from exterior stationary sources because of the use of fixed glazing and no further measures are needed.

8.0 RECOMMENDATIONS

As the school meets all MECP's *NPC-300* noise criteria, there are no recommendations.

APPENDIX A: FIGURES



**SUBJECT
SITE**

RUTHERFORD ROAD SOUTH

BRAMSTEELE ROAD

STEELES AVENUE EAST

Biscayne Cres

First Golf Blvd

RESOLUTION DRIVE

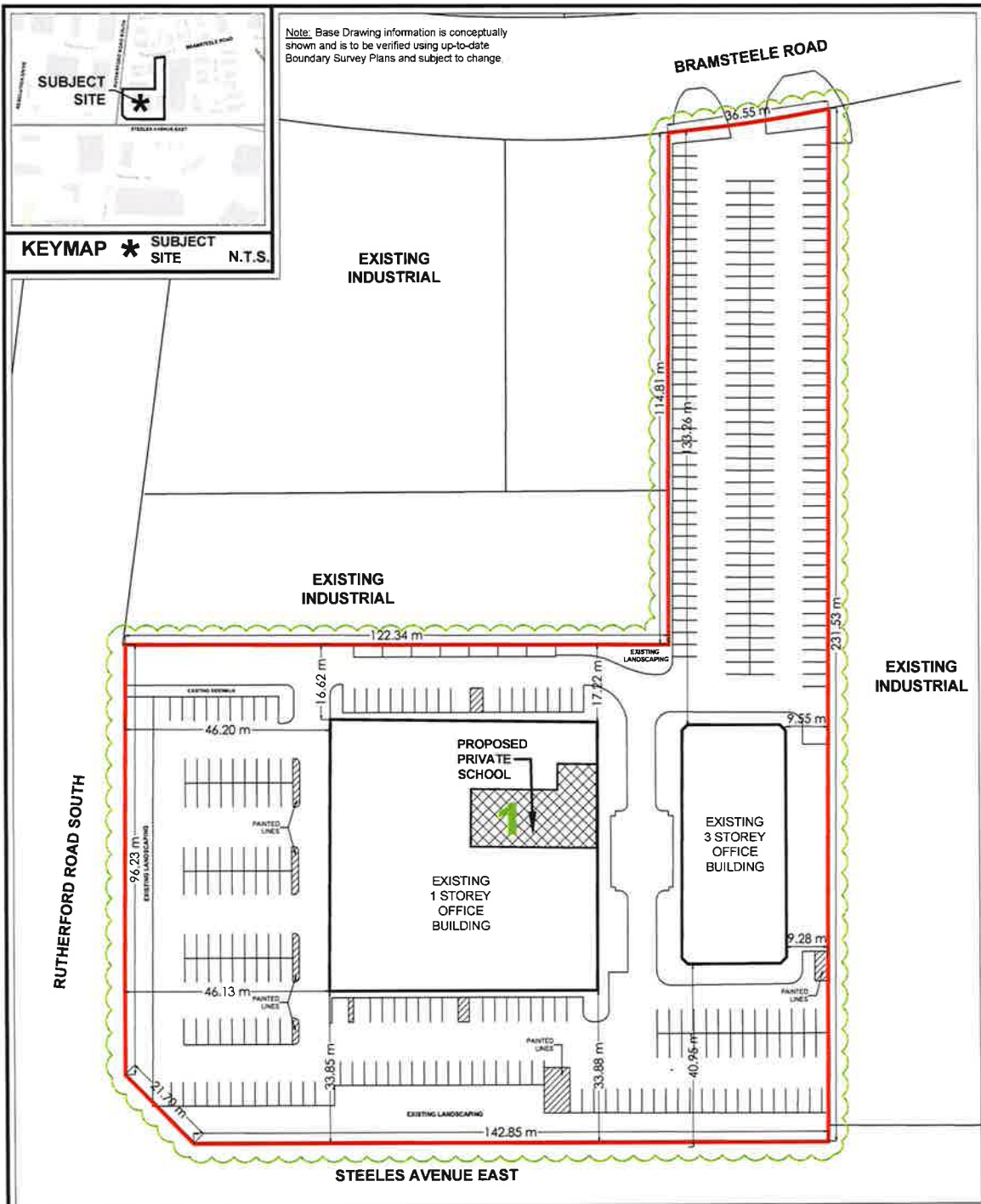
Resolution Dr

Bramstele Rd

Bram Ct

Hale Rd

Inter



MINOR VARIANCE

- To permit a Private School in Unit 10 - Plaza 1 whereas the By-law does not permit a Private School.

LEGEND

- PROPERTY BOUNDARY
- MINOR VARIANCE
- PROPOSED PRIVATE SCHOOL

SITE STATISTICS

SITE AREA: 0.749 ha (1.851 ac)
 BUILDING A - G.C.F.A.: 2,624m² (28,242ft²)
 BUILDING B - G.C.F.A.: 2,984m² (32,126ft²)
 TOTAL G.C.F.A.: 5,608m² (60,368ft²)

PROPOSED PRIVATE SCHOOL
 UNIT 10 - G.C.F.A.: 346m² (3,724ft²)

PARKING

UNIT 10 - PRIVATE SCHOOL (CANSTEM EDUCATION)
 PARKING REQUIRED: 24 SPACES

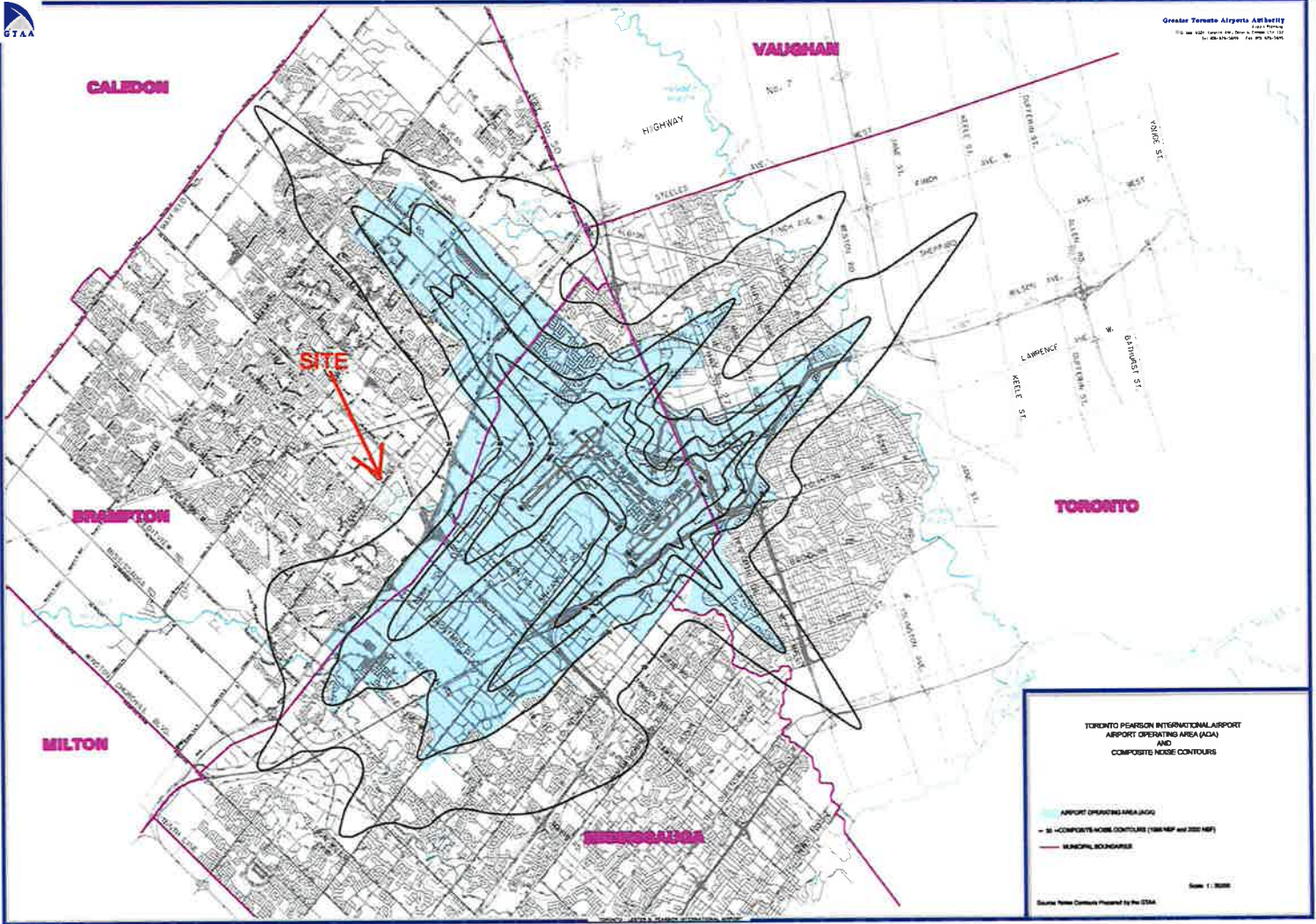
ALL USES ON SITE
 PARKING REQUIRED : 293 SPACES
 PARKING PROVIDED: 385 SPACES
 PARKING SURPLUS: 92 SPACES

MINOR VARIANCE PLAN

CANSTEM EDUCATION PRIVATE SCHOOL INC.
 350 RUTHERFORD ROAD SOUTH
 CITY of BRAMPTON

P.N. : 20.2716.00	Date: October 20, 2022
Scale: N.T.S.	Revised:
Drawn By: D.S.	File No.: PN 2716_SP_(10_20_2022)

21 Queen Street East Suite 500 Brampton, ON L6W 3P1 P: (905) 768-5760	3601 Highway 7 East Suite 210 Markham, ON L3R 0A5 P: (905) 477-8856	



Noise Exposure Forecast

Transport Canada has developed a Noise Exposure Forecast (NEF) model to calculate long-term aircraft noise exposure based on forecasted flights, and the assessed level of noise annoyance in those areas. Contour lines are drawn on a map connecting points of equal noise impact representing 25, 30, 35 and 40 NEF. It is important to remember that the NEF contour does not measure decibel levels for individual flights, but is a cumulative noise value of overall forecasted flights, and noise annoyance.

Airport Operating Area

The GTAA has established the Toronto Pearson Airport Operating Area (AOA), which uses well-defined natural and manmade boundaries to approximate the 30 NEF contour on the ground. Surrounding municipalities have included this operating area in their Official Plans and have approved associated policies that limit incompatible land uses within these areas.

APPENDIX B: SOUND LEVEL CALCULATIONS

Date: February 28, 2023

From: Howard Patlik, J. E. Coulter Associates

Re: Traffic Data Request – Steeles Ave - 260m West of Highway 410 NB Off Ramp

Howard,

As per your request, we are providing the following 2019 traffic data:

	Existing	Ultimate
24 Hour Traffic Volume	63,004	63,004
# of Lanes	6	6
Day/Night Split	85/15	85/15
Day Trucks (% of Total Volume)	1.89% Medium 6.16% Heavy	1.89% Medium 6.16% Heavy
Night Trucks (% of Total Volume)	1.75% Medium 7.57% Heavy	1.75% Medium 7.57% Heavy
Right-of-Way Width	45 metres	
Posted Speed Limit	70 km/h	

Please note:

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

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

Thank you,

Aaron Hu
Co-op Transportation Analyst
Transportation System Planning
Region of Peel
yiyang.hu@peelregion.ca

RE: [EXTERNAL]Re: Traffic Data Request - Rutherford Road/Steeles

Subject: RE: [EXTERNAL]Re: Traffic Data Request - Rutherford Road/Steeles
From: "Adiga, Smeeta" <Smeeta.Adiga@brampton.ca>
Date: 2023-02-01, 11:35 a.m.
To: Howard Patlik <hpatlik@jecoulterassoc.com>

Hi Howard,

Further to your request for information, the table below summarizes the traffic data for ultimate conditions at Rutherford Road, north of Steeles Ave. Please contact Region of Peel for ultimate data at Steeles Avenue.

	ROW Width (m)	posted Speed (Km/hr)	Projected Number of Lanes	Projected Volume (AADT)	Assumed % Trucks (med/heavy)
Rutherford Rd., north of Steeles Ave. E (Arterial Rd.)	36	60	4	28,000	3-5%

Thanks,

Smeeta Adiga
Transportation Planning Analyst
Public Works and Engineering | City of Brampton
1975 Williams Parkway, Brampton, ON L6S 6E5
T: 905.874.3452 Cell: 437.230.9025

Thankyou for your message. I am currently working remotely due to building occupancy limits during COVID-19. For information on safety, closures and reopening, please visit www.brampton.ca/reopening.

Nevertheless, I will continue to tend to business duties and be available remotely via 437-230-9025 and smeeta.adiga@brampton.ca. Please reach out to me between the business hours of 8:30 AM until 4:30 PM on weekdays. I will be reachable via email or my cell phone and I will be delighted to assist you.

From: Howard Patlik <hpatlik@jecoulterassoc.com>
Sent: 2023/01/31 4:12 PM
To: Adiga, Smeeta <Smeeta.Adiga@brampton.ca>
Subject: [EXTERNAL]Re: Traffic Data Request - Rutherford Road/Steeles

Filename: E_Fac.te Time Period: Day/Night 16/8 hours
Description: East Facade (Front) - School

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

Car traffic volume : 23940/2660 veh/TimePeriod *
Medium truck volume : 630/70 veh/TimePeriod *
Heavy truck volume : 630/70 veh/TimePeriod *
Posted speed limit : 60 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): 28000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.50
Heavy Truck % of Total Volume : 2.50
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Rutherford R (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 125.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Steeles Ave (day/night)

Car traffic volume : 49246/8691 veh/TimePeriod *
Medium truck volume : 1012/179 veh/TimePeriod *
Heavy truck volume : 3299/582 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 63009
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 1.89
Heavy Truck % of Total Volume : 6.16
Day (16 hrs) % of Total Volume : 85.00

Data for Segment # 2: Steeles Ave (day/night)

Angle1 Angle2 : -25.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 92.00 / 92.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Rutherford R (day)

Source height = 1.26 m

ROAD (0.00 + 52.53 + 0.00) = 52.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.30	0.00	-9.21	0.00	0.00	-8.57	0.00	52.53

Segment Leq : 52.53 dBA

Results segment # 2: Steeles Ave (day)

Source height = 1.58 m

ROAD (0.00 + 60.58 + 0.00) = 60.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	0	0.00	77.03	0.00	-7.88	-8.57	0.00	0.00	0.00	60.58

Segment Leq : 60.58 dBA

Total Leq All Segments: 61.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.21

APPENDIX C: CRITERIA

CRITERIA

The noise study will be based on the following criteria for hotel units, as required by the Ministry of the Environment, Conservation and Parks:

Table C-9: Indoor Sound Level Limits		
Type of Space	Time Period	L_{eq} (dBA)
		Road
General offices, reception areas, retail stores, etc.	07:00–23:00	50
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semiprivate offices, conference rooms, reading rooms, etc.	07:00–23:00	45
Sleeping quarters of hotels/motels	23:00–0:700	45
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	23:00–0:700	40

All calculations are based on the Minor Variance Plan dated October 20, 2022.

L_{eq}

The L_{eq} is defined as the mean energy of the sound level averaged over the measurement period. It can be considered as the continuous steady sound level which would have the same acoustic energy as the real fluctuating noise measured over the same period of time.

APPENDIX D: REFERENCES

1. Qirt, Dr. David. National Research Council's Building Note *BPN 56*. BASIC computer program, Update 1.1.
2. Ministry of the Environment, *ORNAMENT*, Ontario Road Noise Analysis Method for Environment and Transportation, November 1988.
3. Ministry of the Environment's *STAMSON* Computer Programme (*Version 5.03*).
4. Ministry of the Environment, "Publication NPC-300, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning," August 2013.

**Phase I Environmental Site Assessment at
350 Rutherford Road South
Brampton, Ontario**

**Report #6656 – CanSTEM Brampton
April 17, 2023**

Prepared for:

CanSTEM Education Private School Inc.
350 Rutherford Road South, Plaza 1, Unit 10
Brampton, ON L6W 4N6
647-709-0258
CanSTEM.Education@gmail.com

Prepared by:

A & A Environmental Consultants Inc.
16 Young Street
Woodstock, ON N4S 3L4
Tel: 519-266-4680
Fax: 519-266-3666
www.aaenvironmental.ca

