



Environmental Study Report

Wycroft Road Improvements from Bronte Road to Kerr Street

Appendix F: Noise

Submitted to Town of Oakville
by IBI Group
January 2020

Wycroft Road Class Environmental Assessment Town of Oakville Noise Assessment



Prepared for Town of Oakville
by IBI Group

June 2019

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1 Introduction

The Town of Oakville retained IBI Group to undertake the Municipal Class Environmental Assessment Schedule 'C' for improvements to Wyecroft Road between Bronte Road and Kerr Street, including a section of South Service Road West.

The road improvements are required to meet the forecasted traffic needs of the Town to 2041, including satisfying travel demand to and across the study area and supporting the Town's vision. The study area extends approximately 6.4 kilometres from Bronte Road to Kerr Street. Wyecroft Road, and portions of South Service Road West within the study area, are designated as a Multi-purpose Arterial in the Livable Oakville Plan.

The purpose of this Acoustical Study is to determine the current noise levels, and to estimate the future noise levels based on the proposed improvements to Wyecroft Road under future predicted traffic volumes (i.e., 2041).

The subject section of Wyecroft Road from Bronte Road to Kerr Street exists generally as a two-lane arterial road. The recommended design includes widening throughout the corridor to add active transportation facilities. Widening is also proposed to add two through lanes in each direction and a two-way left-turn lane between Bronte Road and Third Line, a westbound left-turn lane at Progress Court, and a two-way left-turn lane from 1146 South Service Road West to Kerr Street.

Adjacent land use is primarily commercial and industrial, with no residential lands located along this section of road. However, several sensitive land uses have been identified within the potential impact zone of the road.

2 Noise Criteria

The Corporation of the Town of Oakville has a noise bylaw (2008-098) in place to prohibit and regulate noise from stationary noise sources (i.e., non-transportation noise sources).

Halton Region has established noise level criteria for road reconstructions entitled "Noise Abatement Guidelines, Regional Official Plan Guidelines", published in June 2014.

For the purposes of this study, the Halton Region guidelines have been used as they relate to existing and future condition traffic noise sources. The Town of Oakville has confirmed that the Region criteria is appropriate for this study.

The Halton Region criteria indicates that where an increase in noise levels is predicted, the following action is required:

- 0 to 5 dBA increase: No action required;
- Greater than 5 dBA increase: Investigate possible noise control measures within right-of-way where a minimum attenuation of 5 dBA can be achieved;
- When noise mitigation is not warranted on the basis of projected noise levels: If existing noise levels are greater than 60 dBA, an impacted noise receptor can make application through a petition process under the Retrofit guideline.

The Regional guidelines require that daytime noise be assessed for the outdoor living area (OLA) and exterior living room wall, and that nighttime noise be assessed for an exterior bedroom window.

3 Noise Sensitive Points of Reception

Based on the Halton Region Guidelines, the following qualify as noise sensitive points of reception:

- Private homes such as single family residences;
- Townhomes; and,
- Multiple unit buildings, such as apartments with outdoor living areas (OLAs) for use by all occupants.

The following uses by themselves do not qualify as points of reception:

- Apartment balconies above ground floor;
- Education facilities (except dormitories with OLAs);
- Churches;
- Cemeteries;
- Public/Private parks and picnic areas;
- Day care centres;
- All commercial areas; and,
- All industrial areas.

For this study, noise sensitive points of reception were identified along Wyecroft Road using aerial photographs and property information provided by the Town of Oakville. Two potential points of reception were identified, based on the Region’s criteria and are identified in Table 1.

Table 1 – Point of Reception Locations

POINT OF RECEPTION	MUNICIPAL ADDRESS	TYPE
A	2511 Wyecroft Road	Holiday Inn / Oakville Conference Centre
B	750 Redwood Square	The Salvation Army Lighthouse Emergency Shelter

Note, the hotel use is classified as a commercial use, and thus would likely be excluded as a noise sensitive point of reception. However, we have included it as a point of analysis to identify changes in noise levels at this location.

The distances from the centreline of the road to the closest OLA, living room window, and bedroom window were determined for each of the sensitive locations and this information is shown in Table 2. The points of reception in Table 2 are considered to be ‘worst-case’ locations (i.e., closest and most exposed to Wyecroft Road).

Table 2 – Distances from Wyecroft Road to Point of Reception

POINT OF RECEPTION	DISTANCE FROM CL	LOCATION
A	17.3m	Outside window
B	24.1m	Outside window

4 Traffic Data

Traffic data were provided by the traffic consultant IBI Group for the purposes of this noise assessment. The data contained detailed information on annual average daily traffic (AADT) for Wyecroft Road and other associated data.

The traffic data were provided for 2019 and for the future conditions in 2041. The traffic data are summarized in Table 3.

Table 3 – Traffic Data

ITEM	Point of Reception A: Holiday Inn / Oakville Conference Centre	Point of Reception B: The Salvation Army Lighthouse Emergency Shelter
	2511 Wyecroft Road	750 Redwood Square
2018 Average Annual Daily Traffic (AADT)	13,100 vpd	5,200 vpd
2041 Average Annual Daily Traffic (AADT)	26,100 vpd	7,800 vpd
Growth Rate	3.06%	1.82%
Years of Growth (2041-2018)	23 years	23 years
% Medium Trucks*	7%	19%
% Heavy Trucks*		
Road Grade	0.6%	0.9%
Speed Limit	50 km/h	60 km/h
Day / Night % Split	85/15	90/10

* assumed 50/50 split between medium and heavy trucks.

5 Noise Prediction Methods

Halton Region guidelines state that the methodology outlined by the MECP be used to calculate noise levels. As such, the MECP’s noise modeling software, STAMSON v5.04 which incorporates ‘Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT)’, was used to determine the noise levels generated for each scenario. Modelling results are provided in Appendix B.

6 Results

The noise levels at each modelled sensitive point of reception were simulated for both existing and forecasted (2041) conditions. Note that the forecasted traffic volumes in the future condition are based on the proposed four lane road widening.

The results are summarized in Table 4 showing the difference between the current and future noise levels for each point of reception location.

Table 4 – Sound Levels for Current and Forecasted Conditions on Wyecroft Road

POINT OF RECEPTION	SOUND LEVEL (dBA)				DIFFERENCE	
	EXISTING (2019)		FUTURE (2041)		DAYTIME	NIGHTTIME
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME		
A	65.5	61.0	68.5	63.9	3.0	2.9
B	65.2	58.6	66.9	60.4	1.7	1.8

For points of reception A and B, the sound level difference between the existing (2018) and future (2041) conditions is less than 5 dBA. According, based on the Halton Region noise criteria for road widenings, as used by the Town of Oakville, noise attenuation will not be required for points of reception A and B.

7 Recommendations

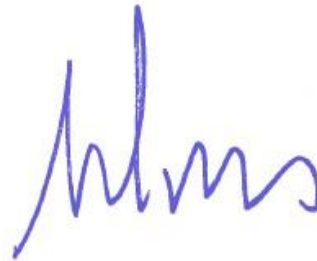
Based on the results of the noise modelling for existing conditions on Wyecroft Road, and for future traffic conditions for the recommended design, noise mitigation measures are not required.

Respectfully prepared

IBI GROUP

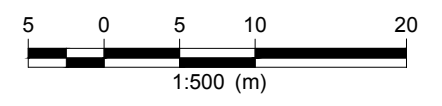
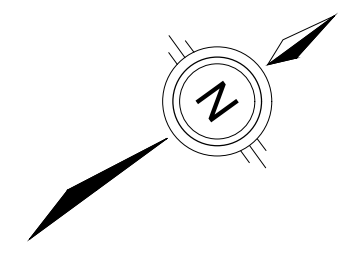
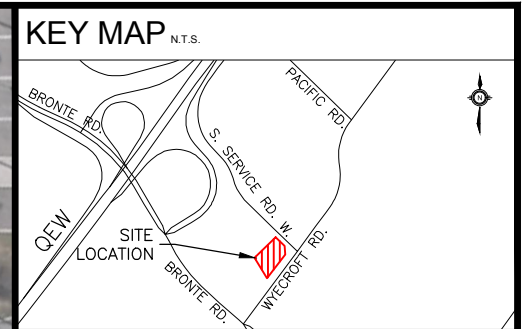
A handwritten signature in blue ink, appearing to be 'J. Perks', written in a cursive style.

John Perks, MBA, P.Eng.
Associate Director

A handwritten signature in blue ink, appearing to be 'A. Kroess', written in a cursive style.

Andy Kroess, M.Eng., P.Eng.
Engineer

Appendix A – Noise Information Plan



LEGEND

- POINT OF RECEPTION
- PROPERTY LINE
- ROAD CENTRELINE
- BUILDING FOOTPRINT

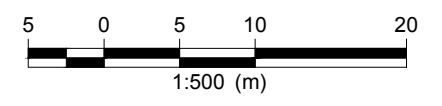
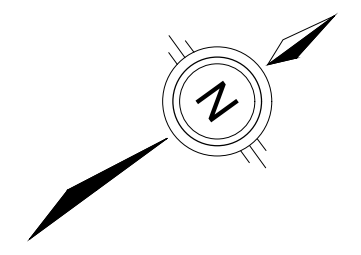
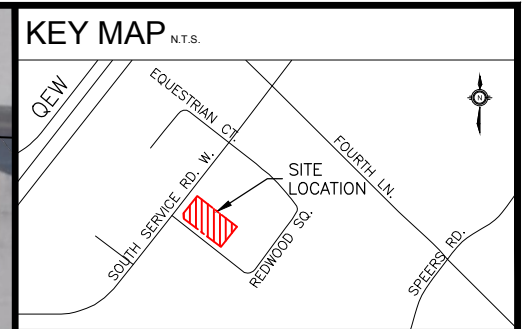
IBI	IBI GROUP
	101 - 410 Albert Street Waterloo ON N2L 3V3 Canada tel 519 585 2255 ibigroup.com

SCALE	1:500
DATE	MAY 2019
PROJECT No.	114331





2511 WYECROFT ROAD
WYECROFT ROAD IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT STUDY
TOWN OF OAKVILLE

**NOISE INFORMATION PLAN
ROAD TRAFFIC**

FIGURE 1



LEGEND

-  POINT OF RECEPTION
-  PROPERTY LINE
-  ROAD CENTRELINE
-  BUILDING FOOTPRINT

IBI GROUP
 101 - 410 Albert Street
 Waterloo ON N2L 3V3 Canada
 tel 519 585 2255
 ibigroup.com

SCALE 1:500
 DATE MAY 2019
 PROJECT No. 114331

750 REDWOOD SQUARE
 WYECROFT ROAD IMPROVEMENTS
 ENVIRONMENTAL ASSESSMENT STUDY
 TOWN OF OAKVILLE

**NOISE INFORMATION PLAN
 ROAD TRAFFIC**

FIGURE 2

Appendix B – STAMSON Output

Filename: reca.te Time Period: Day/Night 16/8 hours
 Description: Receiver A - Existing Conditions

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

 Car traffic volume : 10356/1827 veh/TimePeriod *
 Medium truck volume : 390/69 veh/TimePeriod *
 Heavy truck volume : 390/69 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 1 %
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic volume (AADT or SADT): 13100
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 3.50
 Heavy Truck % of Total Volume : 3.50
 Day (16 hrs) % of Total Volume : 85.00

Data for Segment # 1: wyecroft Rd (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 17.30 / 17.30 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: wyecroft Rd (day)

 Source height = 1.37 m

ROAD (0.00 + 65.51 + 0.00) = 65.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.13	0.00	-0.62	0.00	0.00	0.00	0.00	65.51

Segment Leq : 65.51 dBA

Total Leq All Segments: 65.51 dBA

Results segment # 1: wyecroft Rd (night)

 Source height = 1.37 m

ROAD (0.00 + 61.00 + 0.00) = 61.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.62	0.00	-0.62	0.00	0.00	0.00	0.00	61.00

Segment Leq : 61.00 dBA

Total Leq All Segments: 61.00 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.51
 (NIGHT): 61.00

Filename: recaf.te Time Period: Day/Night 16/8 hours
 Description: Receiver A - Future Conditions

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

 Car traffic volume : 20632/3641 veh/TimePeriod *
 Medium truck volume : 776/137 veh/TimePeriod *
 Heavy truck volume : 776/137 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 1 %
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic volume (AADT or SADT): 26100
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 3.50
 Heavy Truck % of Total Volume : 3.50
 Day (16 hrs) % of Total Volume : 85.00

Data for Segment # 1: wyecroft Rd (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 17.30 / 17.30 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: wyecroft Rd (day)

 Source height = 1.37 m

ROAD (0.00 + 68.50 + 0.00) = 68.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	w.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.12	0.00	-0.62	0.00	0.00	0.00	0.00	68.50

Segment Leq : 68.50 dBA

Total Leq All Segments: 68.50 dBA

Results segment # 1: wyecroft Rd (night)

 Source height = 1.37 m

ROAD (0.00 + 63.98 + 0.00) = 63.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	w.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.60	0.00	-0.62	0.00	0.00	0.00	0.00	63.98

Segment Leq : 63.98 dBA

Total Leq All Segments: 63.98 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.50
 (NIGHT): 63.98

114331-STAMSON.txt
 Filename: recb.te Time Period: Day/Night 16/8 hours
 Description: Receiver B - Existing Conditions

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

 Car traffic volume : 3791/421 veh/TimePeriod *
 Medium truck volume : 445/49 veh/TimePeriod *
 Heavy truck volume : 445/49 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 1 %
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 5200
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 9.50
 Heavy Truck % of Total Volume : 9.50
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: wyecroft Rd (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 24.10 / 24.10 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: wyecroft Rd (day)

 Source height = 1.76 m

ROAD (0.00 + 65.22 + 0.00) = 65.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	w.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.28	0.00	-2.06	0.00	0.00	0.00	0.00	65.22

Segment Leq : 65.22 dBA

Total Leq All Segments: 65.22 dBA

Results segment # 1: wyecroft Rd (night)

 Source height = 1.75 m

ROAD (0.00 + 58.66 + 0.00) = 58.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	w.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.72	0.00	-2.06	0.00	0.00	0.00	0.00	58.66

Segment Leq : 58.66 dBA

Total Leq All Segments: 58.66 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.22
 (NIGHT): 58.66

Description: Receiver B - Future Conditions

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

```

-----
Car traffic volume : 5686/632 veh/TimePeriod *
Medium truck volume : 667/74 veh/TimePeriod *
Heavy truck volume : 667/74 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)
    
```

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

```

24 hr Traffic volume (AADT or SADT): 7800
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 9.50
Heavy Truck % of Total Volume : 9.50
Day (16 hrs) % of Total Volume : 90.00
    
```

Data for Segment # 1: Wycroft Rd (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 24.10 / 24.10 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
    
```

Results segment # 1: Wycroft Rd (day)

Source height = 1.76 m

ROAD (0.00 + 66.98 + 0.00) = 66.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.04	0.00	-2.06	0.00	0.00	0.00	0.00	66.98

Segment Leq : 66.98 dBA

Total Leq All Segments: 66.98 dBA

Results segment # 1: Wycroft Rd (night)

Source height = 1.76 m

ROAD (0.00 + 60.44 + 0.00) = 60.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.50	0.00	-2.06	0.00	0.00	0.00	0.00	60.44

Segment Leq : 60.44 dBA

Total Leq All Segments: 60.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.98
 (NIGHT): 60.44