

Noise Feasibility Study

Proposed Residential Development

50 Saunders Street, Collingwood, Ontario

Prepared for:

Lotco II Limited
24 Executive Place
Kitchener, Ontario
N2P 2N4

Prepared by



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Project Number: 01900838



ACOUSTICS



NOISE



VIBRATION

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1 Introduction and Summary

HGC Engineering was retained by Lotco II Limited to conduct a Noise Feasibility Study for a proposed residential development located in the Town of Collingwood, Ontario. The development is located at 50 Saunders Street at the northwest corner of Saunders Street and Poplar Sideroad. This study is required by the Municipality as part of the planning and approvals process.

The primary source of noise is road traffic on Poplar Sideroad located to the south of the development site. Traffic data was obtained from the Collingwood Transportation Study prepared by R.J. Burnside & Associated Ltd. This data was used to predict future traffic sound levels at the locations of the proposed dwelling façades and in the rear yard outdoor living areas. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP).

The sound level predictions indicate that the future road traffic sound levels will exceed MECP guidelines for some dwelling units in the development closest to Poplar Sideroad. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant are required for the lots adjacent to Poplar Sideroad along with an acoustic barrier for the rear yards. Any building construction meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for all the dwelling units in the development. Warning clauses are also recommended to inform future residents of the traffic noise impacts and to address sound level excesses and to notify future occupants of the proximity to the existing school.



2 Site Description and Noise Sources

Figure 1 is a key plan indicating the location of the proposed development. The proposed development is located at the northwest corner of Saunders Street and Poplar Sideroad in the Town of Collingwood, Ontario. Figure 2 illustrates the draft plan prepared by Rudy Mak Surveying Ltd dated November 25, 2019. The proposed development will consist of 64 single detached lots, a park block and associated roadways. Centerline elevations of Poplar Sideroad provided in Appendix C were also used in the analysis.

The acoustical environment surrounding the site is urban in nature. The development land is fairly flat. The primary source of sound is road traffic on Poplar Sideroad, located to the north of the development site. Poplar Sideroad includes one lane in each direction. There are existing residences to the west, northwest and east of the subject site. A school (St. Mary's CS) is located to the north. There are no significant stationary sources of noise within 500 m of the subject site.

3 Sound Level Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013 and are listed in Table I below. The values in Table I are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table I: MECP Road Traffic Noise Criteria (dBA)

Area	Daytime L_{EQ} (16 hour) Road	Night-time L_{EQ} (8 hour) Road
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom/living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom/living/dining room windows exceed 65 dBA. Forced air ventilation with ducts sized to accommodate the future installation of air conditioning by the occupant is required when nighttime sound levels at bedroom/living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom/living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of bedroom/living/dining room window sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom/living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window due to road traffic.



4 Traffic Noise Assessment

4.1 Road Traffic Data

Road traffic data for Poplar Sideroad was obtained from the Collingwood Transportation Study prepared by R.J. Burnside & Associated Ltd. Relevant pages are provided in Appendix A. The data was grown to the year 2030 using a 2.5% compound growth rate as indicated in the traffic study. Commercial vehicle percentages of 5.4% medium trucks and 8.6% heavy trucks were used in the analysis. A posted speed limit of 60 km/h was used in the analysis. A day/night split of 90/10% was also used. The resulting future traffic volumes are listed in Table II.

Table II: Projected Road Traffic Data to Year 2030

Street	Time	Cars	Medium Trucks	Heavy Trucks	Total
Poplar Sideroad	Daytime	4 028	253	403	4 684
	Nighttime	448	28	45	520
	Total	4 476	281	448	5 205

4.2 Road Traffic Prediction

To assess the levels of road traffic noise which will impact the study area in the future, sound level predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. STAMSON outputs are included in Appendix B.

Predictions of the traffic sound levels were made at the various dwelling units. The results of these predictions are summarized in Table III. The acoustic requirements may be subject to modifications if the site plan is changed significantly.

Sound levels were predicted in the plane of the top floor windows during daytime and nighttime hours to investigate ventilation requirements and in the outdoor living areas to investigate acoustic barrier requirements. As noted by the developer, there will be a 10 m rear yard setback for the lots backing onto Poplar Sideroad. The remaining dwelling setbacks of 6 m front yard, 3.5 m exterior side yard and 1.2 m interior side yard were used in the analysis.

Table III: Predicted Traffic Sound Levels [dBA]

Lot No.	Description	Daytime – in OLA L _{EQ} -16 hr	Daytime – at the Façade L _{EQ} -16 hr	Night-time – at the Facade L _{EQ} -8 hr
26 – 36	Lots backing onto Poplar Sideroad	61	60	54
37	Lot in second row from Poplar Sideroad	<55	<55	<50

5 Discussion and Recommendations

The sound level predictions indicate that the future traffic sound levels will exceed MECP guidelines at some dwelling units in the development. Recommendations to address these excesses are discussed below.

5.1 Outdoor Living Areas

The predicted sound level in the rear yards of the dwelling units backing onto Poplar Sideroad (Lots 26 – 36) will be up to 61 dBA, 6 dBA in excess of the MECP's limit of 55 dBA. Physical mitigation in the form of an acoustic barrier is required. An acoustic barrier 2.3 m in height along the rear yards will reduce sound levels in these areas to 55 dBA. This height is taken above the centerline of Poplar Sideroad. Figure 3 shows the approximate location of the required acoustic barrier. When grading information is available, the acoustic barrier height should be refined.

The maximum fence height permitted in the Town of Collingwood is 2.1 m. The remainder of the required acoustic fence height may be made up with a berm or by grading the lot.

Acoustic barriers can be any combination of an earth berm with an acoustic wall on top. All noise barriers must return back to the dwelling units so that the rear yards are entirely shielded from the roadway. The wall component of the barrier should be of a solid construction with a surface density of no less than 20 kg/m². The walls may be constructed from a variety of materials such as wood, brick, pre-cast concrete or other concrete/wood composite systems provided that it is free of gaps or cracks within or below its extent.

The predicted daytime sound levels in the OLA's of the remainder of the lots will be 55 dBA or less, thus physical mitigation will not be required if suitable warning clauses are provided.

5.2 Indoor Living Areas and Ventilation Requirements

Provision for the Future Installation of Air Conditioning

The predicted sound levels outside the top storey living/dining room windows of the dwelling units with backing exposure to Poplar Sideroad will be between 51 to 60 dBA during the nighttime and/or 56 to 65 dBA during the daytime. To address these excesses, the MECP guidelines recommend that these units will be equipped with forced air ventilation systems with ducts sized to accommodate the future installation of air conditioning by the occupant.

Figure 3 indicates the draft plan showing ventilation requirements. Window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300.

The remaining units will have sound levels equal to or less than 55 and 60 dBA during the daytime and nighttime, respectively, and therefore do not require any specific ventilation requirements.

5.3 Building Façade Constructions

Any exterior wall construction meeting the Ontario Building Code (OBC) will be acceptable for all dwelling units within the development. Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation.

5.4 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements for all units with anticipated road traffic sound level excesses. Examples are provided below.

Suggested wording for future dwellings with minor sound level excesses.

Type A:

Purchasers/tenants are advised that sound levels due to increasing road 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, Conservation and Parks.

Suggested wording for future dwellings with daytime OLA sound levels exceeding the MECF criteria by 6 dB or more, for which physical mitigation has been provided is given below.

Type B:

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 may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment, Conservation and Parks' noise criteria.

A suggested wording for future dwellings requiring forced air ventilation systems is given below.

Type C:

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, Conservation and Parks.

A suggested wording for future dwellings adjacent to an existing school is given below.

Type D:

Purchasers/tenants are advised that due to the proximity of the nearby school, noise from the school may at times be audible.

These sample clauses are provided by the MECF as examples and can be modified by the Municipality as required.

6 Summary of Recommendations

The following list and Table IV summarizes the recommendations made in this report.

1. An acoustic barrier is required for the rear yards of the lots backing onto Poplar Sideroad. Figure 3 indicates the approximate location and extent of the required acoustic barrier. When grading information is available, the acoustic barrier height should be refined.

2. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by occupant are required for the dwelling units with some exposure to Poplar Sideroad.
3. Building constructions meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the indoor spaces.
4. Warning clauses should be included in the property and tenancy agreements and offers of purchase and sale for all the dwelling units to inform future residents of the traffic noise issues.

Table IV: Summary of Noise Control Requirements and Noise Warning Clauses

Lot No.	Acoustic Barrier	Ventilation Requirements *	Type of Warning Clause	Building Façade Constructions (AIF requirements) +
1 – 9	--	--	D	OBC
10 – 25	--	--	--	OBC
26 – 36	✓	Forced Air	A, B, C	OBC
37 – 64	--	--	--	OBC

Notes:

-- no specific requirement

* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.

✓ Outdoor living area requires an acoustic barrier. When grading information is available, the acoustic barrier height should be refined.

OBC – Ontario Building Code

6.1 Implementation

To ensure that the noise control recommendations outlined above are properly included in the building design and properly implemented in the final construction, it is recommended that:

- 1) When grading plans are available, an acoustical consultant should review the plans to refine acoustic barrier requirements.
- 2) Prior to the issuance of occupancy permits for this development, the Municipality's building inspector or a Professional Engineer qualified to provide acoustical engineering services in the province of Ontario to certify that the noise control measures have been properly incorporated.

- 3) Prior to assumption of the subdivision, the Municipality's building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should certify that the noise control measures have been properly installed and constructed.



ACOUSTICS



NOISE



VIBRATION

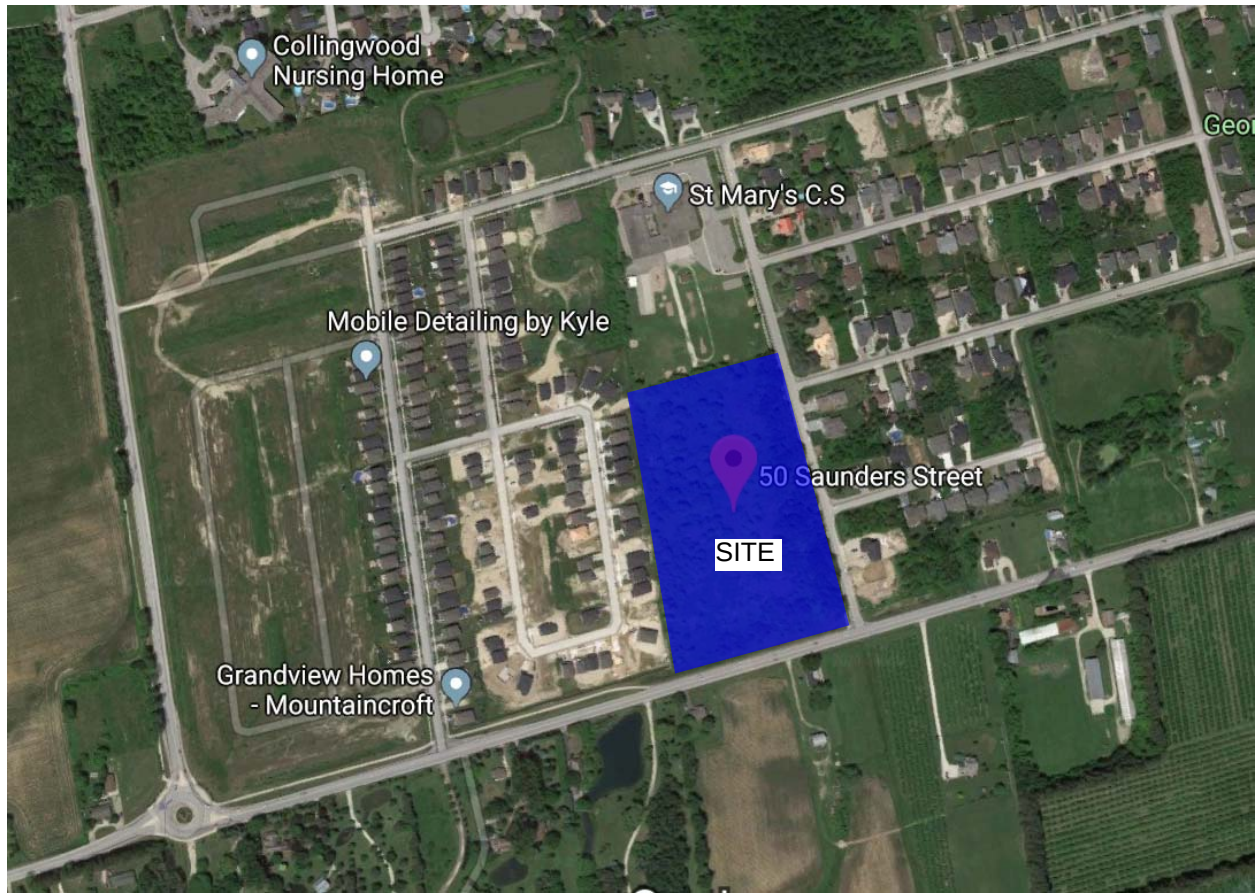
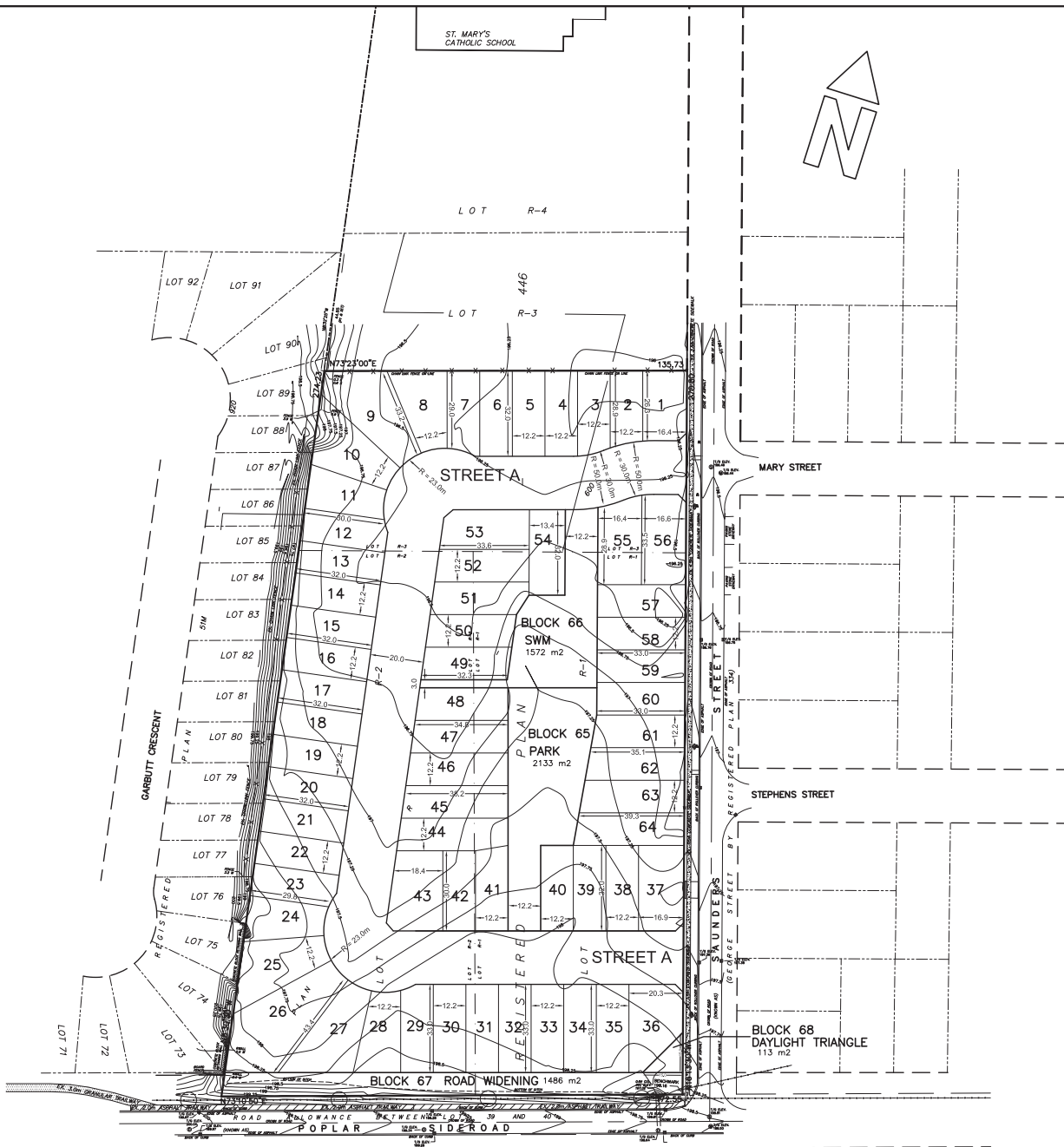


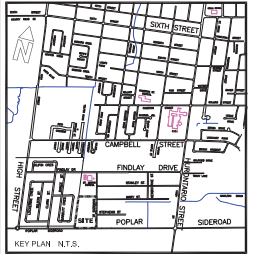
Figure 1 – Key Plan



DRAFT PLAN OF SUBDIVISION

50 SAUNDERS STREET

ALL OF LOTS R1 AND R2
AND PART OF LOT R3
REGISTERED PLAN 446
(Geographic Township of Nottawasaga)
TOWN OF COLLINGWOOD
COUNTY OF SIMCOE



INFORMATION REQUIRED
UNDER SECTION 51(17) OF THE PLANNING ACT, R.S.O. 1990, C.P. 13 AS AMENDED.
a) AS SHOWN
b) AS SHOWN
c) AS SHOWN
d) AS LISTED BELOW
e) AS SHOWN
f) AS SHOWN
g) AS SHOWN
h) MUNICIPAL WATER
i) TSL Topo Sandy Loam Type A
j) TSL Topo Sandy Loam Type B
k) MUNICIPAL SANITARY AND STORM SEWERS
l) AS SHOWN
m) AS SHOWN

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE SUBJECT LANDS AND THEIR RELATIONSHIP TO THE ADJOINING LANDS HAVE BEEN ACCURATELY AND CORRECTLY SHOWN.
RUDY MAK, O.L.S.
RUDY MAK SURVEYING LTD.
SIGNED: _____
DATE: _____

OWNER'S CERTIFICATE
I AUTHORIZE TRAVIS & ASSOCIATES TO PREPARE & SUBMIT THIS PLAN OF SUBDIVISION TO THE TOWN OF COLLINGWOOD FOR APPROVAL.
SIGNED: _____
LOTCO II LIMITED
I have the power to bind the corporation
DATE: _____

LAND USE SCHEDULE	LAND USE / FRONTAGE	AREA (m ²)	# LOTS
LOTS 1-64	SINGLE FAMILY RESIDENTIAL	2,838	64
BLK 65	PARK	0.213	-
BLK 66	STORMWATER MANAGEMENT	0.157	-
BLK 67	ROAD WIDENING	0.148	-
BLK 68	15m DAYLIGHT TRIANGLE	0.011	-
TOTAL	STREET A (14-400m)	0.620	-
		4,187	64

PROPOSED ZONING
- PROPERTY TO BE REZONED FROM R6 R2 RESIDENTIAL TO R6 RESIDENTIAL TO PERMIT 12.0 METRE LOTS SHOWN
- REMOVE R6 WITH ACCEPTANCE OF A DRAFT APPROVED PLAN OF SUBDIVISION AND CONFIRMED MUNICIPAL SERVICES

REVISION	DATE	DESCRIPTION	BY
1	Sept 4/19	Increase south frontage for Park for Pre-Gen Circulation	AWA
2	Nov 25/19	Final for Formal Draft Plan of Subdivision Submission	AWA

APPROVALS BLOCK

LOTCO II LIMITED
24 Executive Place
Richmond Hill, Ontario
M4C 1P7
P: (905) 748-2900
F: (905) 748-2217
al@lotcogroup.ca

DATE SEPTEMBER 4, 2019
DRAWN BY A.W.A.
FILE NAME
PROJECT NO.

SCALE 1:2750
DRAWING NO.

DP1

PRECONSULTATION APPLICATION
FILE: D00-15-10



APPENDIX A

Road Traffic Data

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 8:00:00

To: 9:00:00

Municipality: Collingwood

Site #: 1842000019

Intersection: Poplar Sideroad & Tenth Line

TFR File #: 1

Count date: 12-Dec-18

Weather conditions:

Person(s) who counted:

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

Major Road: Poplar Sideroad runs W/E

North Leg Total: 299

North Entering: 100

North Peds: 0

Peds Cross: $\nlessgtr$

Heavys	0	1	2	3
Trucks	0	1	2	3
Cars	14	28	52	94
Totals	14	30	56	

Heavys 3

Trucks 8

Cars 188

Totals 199

East Leg Total: 387

East Entering: 222

East Peds: 0

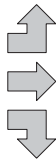
Peds Cross: $\nlessgtr$

Heavys	Trucks	Cars	Totals
1	18	105	124

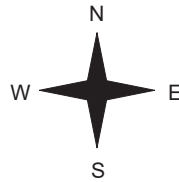


Poplar Sideroad

Heavys	Trucks	Cars	Totals
1	1	12	14
1	10	67	78
0	0	9	9
2	11	88	



Tenth Line



Cars	Trucks	Heavys	Totals
106	3	1	110
80	16	1	97
15	0	0	15
201	19	2	

Poplar Sideroad



Cars	Trucks	Heavys	Totals
147	12	6	165

Peds Cross: $\nlessgtr$

West Peds: 0

West Entering: 101

West Leg Total: 225

Cars	52	Cars	11	70	28	109
Trucks	1	Trucks	2	4	0	6
Heavys	1	Heavys	0	1	3	4
Totals	54	Totals	13	75	31	



Peds Cross: $\nlessgtr$

South Peds: 0

South Entering: 119

South Leg Total: 173

Comments

Ontario Traffic Inc.

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: Collingwood

Site #: 1842000019

Intersection: Poplar Sideroad & Tenth Line

TFR File #: 1

Count date: 12-Dec-18

Weather conditions:

Person(s) who counted:

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

Major Road: Poplar Sideroad runs W/E

North Leg Total: 282

North Entering: 167

North Peds: 0

Peds Cross: $\nlessgtr$

Heavys	1	2	1	4
Trucks	0	0	5	5
Cars	19	73	66	158
Totals	20	75	72	

Heavys	4
Trucks	5
Cars	106
Totals	115

East Leg Total: 299

East Entering: 133

East Peds: 0

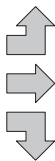
Peds Cross: $\nlessgtr$

Heavys	Trucks	Cars	Totals
4	10	73	87

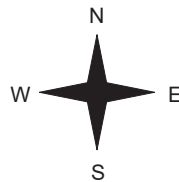


Poplar Sideroad

Heavys	Trucks	Cars	Totals
3	1	9	13
1	15	68	84
0	0	14	14
4	16	91	



Tenth Line



Cars	Trucks	Heavys	Totals
44	4	0	48
46	10	3	59
23	0	3	26
113	14	6	

Poplar Sideroad



Cars	Trucks	Heavys	Totals
144	20	2	166

Peds Cross: $\nlessgtr$

West Peds: 0

West Entering: 111

West Leg Total: 198

Cars	110	Cars	8	53	10	71
Trucks	0	Trucks	0	0	0	0
Heavys	5	Heavys	0	1	0	1
Totals	115	Totals	8	54	10	



Peds Cross: $\nlessgtr$

South Peds: 0

South Entering: 72

South Leg Total: 187

Comments

extended to the High Street and Third Street intersection. The new connection alleviates some of the traffic congestion at the First Street and High Street/Balsam Street intersection, especially for certain movements (for instance, traffic from the south on High Street will be able to make a northbound left-turn at the High Street and Cambridge Street intersection rather than at the High Street and First Street intersection). However, the traffic diversion expected to occur as a result of the new connection has already been accounted for in the 2041 total traffic volumes.

In the *2012 Transportation Study*, a traffic diversion scenario was assessed to determine what effect the diversion of some Highway 26 traffic to Poplar Sideroad could have on the operations of the High Street and First Street intersection. As noted in Section 2.4.1, Poplar Sideroad and Concession 10 have since been upgraded and transferred to the County of Simcoe as County Road 32, and existing traffic data indicates that some amount of diversion has already taken place. The total traffic volume forecasts in this study have assumed that Poplar Sideroad continues to be an attractive route for development traffic, thereby incorporating a certain level of future diversion directly into the traffic forecasts. Furthermore, by 2041, the peak hour traffic on Poplar Sideroad will be reaching the typical capacity for a two-lane road (i.e., volumes over 1,000 vehicles per hour per lane). Based on these factors, additional diversion of Highway 26 traffic away from the High Street and First Street intersection is no longer considered an option, under the current interim bypass network.

Another option that has been contemplated in recent years is the potential connection of High Street to Tenth Line via the RCD and Red Maple developments (to the south of Mountain Road). The property required to construct this connection would be secured through draft plans for the aforementioned developments. While this connection has some potential to reduce traffic volumes at the First Street and High Street intersection, it also could introduce less desirable changes to local traffic patterns, such as increasing traffic on Third Street, therefore this option has not been considered further in this study. We suggest it would be prudent for the Town to continue to secure land for this potential future connection and initiate an Environmental Assessment within the medium term to fully investigate the associated opportunities and impacts it might have on the local area.

With limited local options for traffic diversion in the long-term, we recommend that the Town encourage MTO to advance a new route around Collingwood (i.e. Collingwood Bypass) to provide additional east-west capacity through the area.

Tenth Line & Mountain Road

Several movements, during the 2041 total traffic AM and PM peak hours, are forecast to operate with a LOS F and v/c ratios exceeding 1.0.

To reiterate, the following improvements were modelled at the intersection under 2031 traffic conditions:

APPENDIX B

Sample STAMSON 5.04 Output

STAMSON 5.0 NORMAL REPORT Date: 23-01-2020 20:33:22
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 30f.te Time Period: Day/Night 16/8 hours
 Description: **Daytime and nighttime sound levels at the future dwelling
 façade of Lot 30, backing onto Poplar Sideroad**

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

```
-----
Car traffic volume   : 4028/448   veh/TimePeriod   *
Medium truck volume : 253/28    veh/TimePeriod   *
Heavy truck volume  : 403/45    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): 3870
Percentage of Annual Growth         : 2.50
Number of Years of Growth           : 12.00
Medium Truck % of Total Volume      : 5.40
Heavy Truck % of Total Volume       : 8.60
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 1: Poplar (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 : 29.10 / 29.10 m
Receiver height     : 1.50 / 4.50 m
Topography          : 1          (Flat/gentle slope; no barrier)
Reference angle     : 0.00
```

Results segment # 1: Poplar (day)

Source height = 1.71 m

ROAD (0.00 + 60.42 + 0.00) = 60.42 dBA

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

```
-----
---
-90    90    0.65  66.63   0.00  -4.76  -1.45   0.00   0.00   0.00
60.42
-----
---
```

Segment Leq : 60.42 dBA

Total Leq All Segments: 60.42 dBA

Results segment # 1: Poplar (night)

Source height = 1.71 m

ROAD (0.00 + 54.32 + 0.00) = 54.32 dBA

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

-90	90	0.56	60.11	0.00	-4.50	-1.29	0.00	0.00	0.00
54.32									

Segment Leq : 54.32 dBA

Total Leq All Segments: 54.32 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.42
(NIGHT): 54.32



STAMSON 5.0 NORMAL REPORT Date: 23-01-2020 20:37:40
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 30.te Time Period: 16 hours
 Description: **Daytime sound levels in the rear yard OLA of Lot 30, backing onto Poplar Sideroad, without mitigation**

Road data, segment # 1: Poplar

 Car traffic volume : 4028 veh/TimePeriod *
 Medium truck volume : 253 veh/TimePeriod *
 Heavy truck volume : 403 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Poplar

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 26.10 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: Poplar

 Source height = 1.71 m

ROAD (0.00 + 61.20 + 0.00) = 61.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj
-90	90	0.65	66.63	0.00	-3.98	-1.45	0.00	0.00	0.00

SubLeq

 -90 90 0.65 66.63 0.00 -3.98 -1.45 0.00 0.00 0.00
 61.20

Segment Leq : 61.20 dBA

Total Leq All Segments: 61.20 dBA

TOTAL Leq FROM ALL SOURCES: 61.20



STAMSON 5.0 NORMAL REPORT Date: 23-01-2020 20:34:22
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 30m.te Time Period: 16 hours
 Description: **Daytime sound levels in the rear yard OLA of Lot 30, backing onto Poplar Sideroad, with mitigation**

Road data, segment # 1: Poplar

 Car traffic volume : 4028 veh/TimePeriod *
 Medium truck volume : 253 veh/TimePeriod *
 Heavy truck volume : 403 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Poplar

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 26.10 m
 Receiver height : 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
 Barrier height : 2.30 m
 Barrier receiver distance : 7.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: Poplar

 Source height = 1.71 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.71 !	1.50 !	1.56 !	1.56

ROAD (0.00 + 55.29 + 0.00) = 55.29 dBA

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

-90	90	0.52	66.63	0.00	-3.65	-1.20	0.00	0.00	-6.49
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 55.29



Segment Leq : 55.29 dBA

Total Leq All Segments: 55.29 dBA

TOTAL Leq FROM ALL SOURCES: 55.29



ACOUSTICS



NOISE



VIBRATION

APPENDIX C

Supplementary Information

