



681 Yonge Street

Barrie, Ontario

Noise Feasibility Study

SACL #SW19102.A0

May 1, 2019

Submitted to:

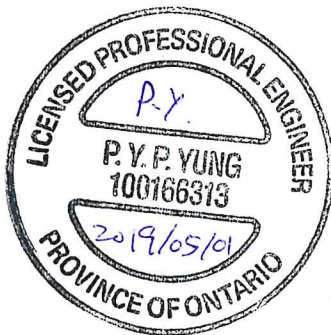
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Reviewed by:

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1. Introduction

Swallow Acoustic Consultants Ltd. (SACL) was retained by Queensgate Homes (Barrie) Inc. to complete a Noise Feasibility Study for the proposed development (Project) at 681 Yonge Street in Barrie, Ontario. It is our understanding that the proposed development consists of a 7-storey mixed-use building. We understand that this study is required by the City of Barrie for Site Plan Approval.

This report assesses the noise impact on the proposed development from surrounding noise sources and provides noise control recommendations to meet the requirements of the City of Barrie. This report is based on noise criteria developed by the Ontario Ministry of the Environment, Conservation and Parks (MECP), as outlined in MECP publication NPC-300 “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning,” dated August 2013.

2. Project Site

The Project is located on the north side of Yonge Street, between Montgomery Drive and Ashford Drive. For the purposes of this report, Yonge Street is defined as the east-west direction, and Ashford Drive is defined as the north-south direction. The proposed building consists of 7 above-ground levels and one underground parking level. Level 1 consists of residential and commercial units, and Levels 2 to 7 consist of residential units only.

The area directly to the north and west of the Project consists of single detached residential dwellings. Beyond Montgomery Drive to the west is a commercial area. The area to the south, opposite Yonge Street, is zoned as commercial land use, and is currently under development. To the southeast of the Project, opposite Yonge Street and Ashford Drive, is a four-storey condo building. Directly to the east of the Project, opposite Ashford Drive, is St. Peter’s Catholic Secondary School. A rail line is located approximately 400m to the north of the Project, which is part of the Metrolinx Barrie GO Train route.

An aerial photo of the area is provided in Appendix A, Figure 1. A site plan for the proposed Project is in Figure 2, and a zoning map of the surrounding area is in Figure 3. Note that the aerial photo does not include the 4-storey condo building to the southeast of the Project.

3. Noise Sources

A site visit was conducted on March 28, 2019, to identify significant noise sources that may impact the Project and to review the surrounding area. The major transportation noise sources that impact the Project are road traffic along Yonge Street and Ashford Drive and rail traffic from the rail line to the north of the Project. Road traffic along Montgomery Drive, Kenneth Avenue, and Bertha Avenue is insignificant relative to the other road sources. Road traffic along Big Bay Point Road was not audible over the other noise sources from the Project location. Rail traffic from the



GO Train line to the north was faintly audible from the Project location. Noise impacts from transportation noise sources are discussed in Section 4.

There are no significant existing stationary noise sources in the area. Future stationary noise sources are discussed in Section 5.

4. Transportation Noise Sources

4.1. Critical Noise Receptors

The critical noise receptors are the noise-sensitive areas of the proposed development most likely to be affected by the road and rail traffic noise. Points of Reception (PORs) at the plane-of-window on the 6th level of the building are set as the critical noise receptors, as these locations are most exposed to the transportation noise sources. A POR is also set at the plane-of-window of the Level 1 commercial unit.

The Level 7 outdoor amenity area at the northeast of the building is defined as an Outdoor Living Area (OLA). All other unit balconies and terraces are less than 4m in depth and are therefore not defined as OLAs, according to MECP NPC-300.

The locations of all critical noise receptors are summarized in Table 1 and shown in Figure 4 to Figure 6.

Table 1: Critical Noise Receptors

Receptor ID	Level	Receptor Location
POR1	6	WNW corner residential, exposed to Yonge St, Ashford Dr, and rail line
POR2	6	NNW corner residential, exposed to Yonge St, Ashford Dr, and rail line
POR3	6	NE corner residential, exposed to Yonge St, Ashford Dr, and rail line
POR4	6	SW corner residential, exposed to Yonge St, Ashford Dr, and rail line
POR5	6	SSE corner residential, exposed to Yonge St, Ashford Dr, and rail line
POR6	6	ESE corner residential, exposed to Yonge St, Ashford Dr, and rail line
POR7	1	SE corner commercial, exposed to Yonge St and Ashford Dr
OLA1	7	NE corner outdoor amenity, exposed to Yonge St, Ashford Dr, and rail line



4.2. Sound Levels

4.2.1. Road Traffic

Traffic data for Yonge Street and Ashford Drive was obtained from the City of Barrie and is attached in Appendix B. Annual traffic volume growth rates of 3% were applied to both streets for 12 years to estimate the annual average daily traffic (AADT) in 2031.

A typical city daytime/night-time traffic split of 90%/10% was used for both streets to convert the 24-Hour total to a daytime (07:00 – 23:00) and night-time (23:00 – 07:00) total.

The “Commercial and Heavy” traffic percentage provided by the City of Barrie is 3% for Yonge Street and 2% for Ashford Drive. These percentages are assumed to be comprised of 55% “medium trucks” and 45% “heavy trucks,” which is a typical distribution for cities. The road traffic data is summarized in Table 2.

Table 2: Road Traffic Data

Road	Speed Limit (km/h)	Present AADT	Growth Period (years)	Ultimate AADT (in 2031)	Medium Trucks (%)	Heavy Trucks (%)	Day/Night (%)
Yonge Street	50	15,000	12	21,386	1.65	1.35	90 / 10
Ashford Drive	50	4,500	12	6,416	1.10	0.90	90 / 10

4.2.2. Rail Traffic

Rail traffic data for the rail line to the north of the Project was obtained from Metrolinx, and is attached in Appendix B. The train volume forecast at this location is summarized below:

- 42 trains / day (36 day, 6 night)
- Each train consists of 1 locomotive and up to 12 passenger cars
- Maximum design speed of 80 km/hr

It is expected that the GO trains at this location will be comprised of electric trains within a 10-year time horizon. However, for the purposes of this report, the trains were conservatively modelled as diesel trains.

4.2.3. Sound Level Calculations

Calculations of traffic sound levels were performed using STAMSON 5.04, the software implementation of the MECP ORNAMENT model for road traffic, which was developed and published by the MECP for transportation noise prediction. The STAMSON reports for road traffic noise predictions are attached in Appendix C, and the predicted sound levels are shown in Table 3.



Due to the minimum allowable source-to-receiver distance limit in the STAMSON software, the sound level calculations for some of the PORs were corrected to arrive at the final sound levels presented in Table 3. This STAMSON calculation adjustments is explained in further detail in Appendix C.

Table 3: Calculated Sound Levels

Receptor ID	Calculated Sound Pressure Level (dBA)					
	Road		Rail		Combined	
	Day	Night	Day	Night	Day	Night
POR1	59	52	48	43	59	53
POR2	55	48	50	45	56	50
POR3	62	56	50	45	63	56
POR4	64	58	44	40	64	58
POR5	65	59	44	39	65	59
POR6	64	58	47	42	64	58
POR7	65	-	-	-	65	-
OLA1	51	-	51	-	54	-

4.3. Sound Level Limits

Guidelines for acceptable sound levels of road and rail traffic on residential developments are given in Part C of the MECP publication NPC-300 “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning,” dated August 2013.

4.3.1. Outdoor Sound Level Limits

The MECP outdoor sound level limit for traffic noise is as follows:

Table 4: MECP Outdoor Living Area Sound Level Limit for Road and Rail

<i>Time Period</i>	<i>Sound Level ($L_{EQ[16-hour]}$)</i>
Day-time (07:00 - 23:00)	55

In addition to the above outdoor levels, the MECP has a sliding scale to determine the need for outdoor noise reduction measures depending on outdoor sound levels:



Table 5: MECP Noise Control Requirements for Outdoor Receptors

Outdoor Sound Level (Day-time L_{eq})	Need for Noise Reduction Measures
56 to 60 dBA	Noise control measures may be implemented. If no noise control measures are planned, a Type A warning clause must be included in the unit title or lease agreement.
Above 60 dBA	Control measures (barriers) required to reduce the L_{eq} to below 60 dBA and as close to 55 dBA as technically, economically, and administratively feasible. A Type B warning clause is required if resultant L_{eq} exceeds 55 dBA.

4.3.2. Indoor Sound Level Limits

The indoor sound levels limits developed by MECP for road sources are as follows:

Table 6: MECP Indoor Sound Level Limits

Room	Time Period	Sound Level Limit (L_{eq}) [dBA]	
		Road Sources	Rail Sources
Living/dining, den areas of residences, hospitals, nursing homes, etc.	Day-time (07:00 - 23:00)	45	40
	Night-time (23:00 - 07:00)	45	40
Bedrooms	Day-time (07:00 - 23:00)	45	40
	Night-time (23:00 - 07:00)	40	35
General offices, reception areas, retail stores etc.	Day-time (07:00 - 23:00)	50	45

In addition to the above indoor levels, the MECP has a sliding scale to determine the need for noise reduction measures depending on the sound level at the plane of window:



Table 7: Ventilation and Warning Clause Requirements – Combined Road and Rail Sources

ASSESSMENT LOCATION	SOUND LEVEL, L_{eq} (dBA)	VENTILATION REQUIREMENTS	WARNING CLAUSE
PLANE OF LIVING ROOM WINDOW (07:00-23:00)	$55 < L_{eq} \leq 65$	Forced air heating with provision for central air conditioning.	Type C Required
	$L_{eq} > 65$	Central air conditioning	Type D Required
PLANE OF BEDROOM WINDOW (23:00-07:00)	$50 < L_{eq} \leq 60$	Forced air heating with provision for central air conditioning.	Type C Required
	$L_{eq} > 60$	Central air conditioning	Type D Required

Table 8: Building Component Requirements - Road and Rail Sources

ASSESSMENT LOCATION	ROAD NOISE LEVEL, L_{eq} (dBA)	RAIL NOISE LEVEL, L_{eq} (dBA)	BUILDING COMPONENT REQUIREMENTS
PLANE OF LIVING ROOM WINDOW (07:00-23:00)	$L_{eq} \leq 65$	$L_{eq} \leq 60$	Building components must be compliant with the Ontario Building Code (OBC).
	$L_{eq} > 65$	$L_{eq} > 60$	Building components must be designed to achieve indoor sound level criteria in Table 6.
PLANE OF BEDROOM WINDOW (23:00-07:00)	$L_{eq} \leq 60$	$L_{eq} \leq 55$	Building components must be compliant with the Ontario Building Code (OBC).
	$L_{eq} > 60$	$L_{eq} > 55$	Building components must be designed to achieve indoor sound level criteria in Table 6.



4.4. Noise Control Measures for Traffic Noise

Noise control recommendations for the critical receptors and the corresponding residential units that they represent in the proposed development are summarized in Table 9 and discussed in the subsequent sections.

Table 9: Noise Control Requirements

<i>Receptor</i>	<i>Noise Barrier</i>	<i>Ventilation</i>	<i>Building Components</i>	<i>Warning Clause</i>
POR1	N/A	Forced-air heating	Building components must be compliant with the Ontario Building Code.	Type C
POR2	N/A	Forced-air heating	Building components must be compliant with the Ontario Building Code.	Type C
POR3	N/A	Forced-air heating	Building components must be compliant with the Ontario Building Code.	Type C
POR4	N/A	Forced-air heating	Building components must be compliant with the Ontario Building Code.	Type C
POR5	N/A	Forced-air heating	Building components must be compliant with the Ontario Building Code.	Type C
POR6	N/A	Forced-air heating	Building components must be compliant with the Ontario Building Code.	Type C
POR7	N/A	Forced-air heating	Building components must be compliant with the Ontario Building Code.	Type C
OLA1	No	N/A	N/A	None

4.4.1. Outdoor Living Area

At OLA1, the calculated noise level is below 55 dBA, which is below the sound level limit for OLAs specified in MECP NPC-300 (Table 4). No noise mitigation or warning clause is required for OLA1.

4.4.2. Ventilation

For residential and commercial units, a minimum of forced-air heating with the provision for central air conditioning is required.



4.4.3. Building Components

The calculated sound levels at all PORs are less than the lower limits in Table 8. Therefore, building façade components which meet OBC criteria are sufficient to meet indoor sound level limits for all residential and commercial units.

A detailed glazing schedule has not yet been provided. For all glazing, components meeting minimum OBC requirements will be suitable.

4.4.4. Warning Clauses for Traffic Noise

For all residential and commercial units which are provided with the provision for adding central air conditioning, the following ‘Type C’ warning clause should be inserted in all development agreements:

“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.”

5. Stationary Noise Sources

The following sections describe the noise impact assessment for stationary noise sources.

5.1 Noise Criteria for Stationary Noise Sources

The guidelines for assessing the noise impact of noise-generating facilities on proposed noise-sensitive areas in Ontario are given in Part C of the MECP publication NPC-300 “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning,” dated 2013. Table 10 outlines the minimum noise criteria for stationary noise sources. The site-specific noise criteria for each time of day are either the value in Table 10 or the minimum hourly background noise level ($L_{EQ[1hr]}$), whichever is higher.

Table 10: MECP Exclusionary Noise Level Criteria – Stationary Noise Sources

Time Period	Class 1 Area (Urban) $L_{EQ[1hr]}$ (dBA)
Day-time (07:00 – 19:00)	50
Evening (19:00 – 23:00)	50
Night-time (23:00 – 07:00)	45



5.2 Existing Potential Stationary Noise Sources

SACL conducted a site visit on March 28, 2019. No significant stationary noise sources from the surrounding residential and commercial areas were identified during our site visit. There is rooftop mechanical equipment on the St. Peter's Catholic Secondary School. However, this equipment is approximately 150m away from the Project location and was not audible over the road traffic noise.

5.3 Future Potential Stationary Noise Sources

The commercial development opposite Yonge Street to the south of the Project is a future potential stationary noise source. However, this development is approximately the same distance from the Project as the St. Peter's Catholic Secondary School, and is therefore not expected to have an impact on the Project. Potential stationary noise sources associated with this project such as cooling towers, make-up air units, etc. should be selected to ensure that indoor noise level limits are met at the Project and at neighbouring buildings.

6. Concluding Comments

With the incorporation of the noise control measures as presented in Section 0 of this report, the noise impact of the transportation noise sources on the Project will meet MECP criteria. There are currently no existing significant stationary noise sources that impact the Project. Future stationary sources associated with the Project may affect the Project itself; however, noise mitigation can be implemented such that the MECP criteria are met. The proposed 7-storey mixed-use building located at 681 Yonge Street, Barrie, should therefore be approved from a noise perspective.

----- End -----



Appendices



Appendix A: FIGURES

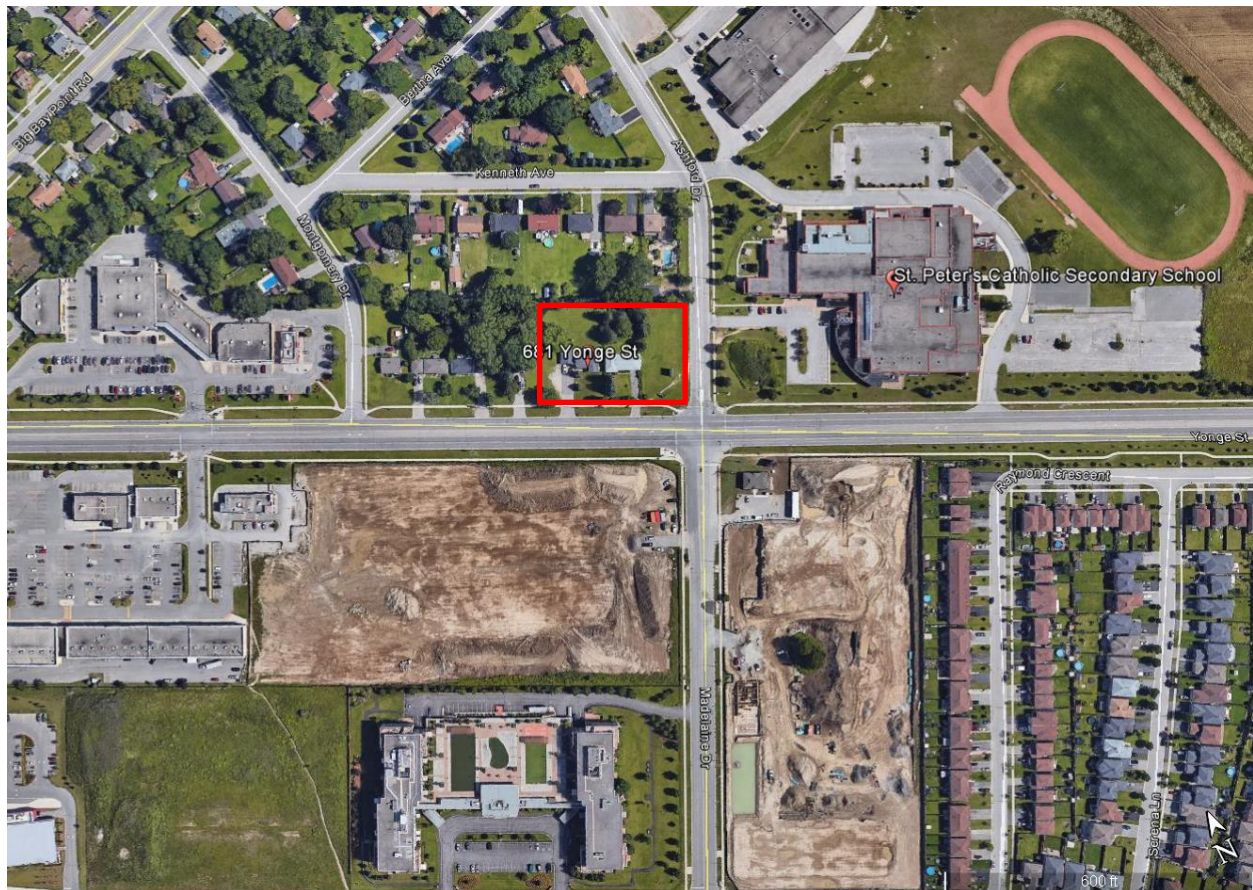


Figure 1. Site Aerial with the Approximate Project Property Line Given by the Red Line

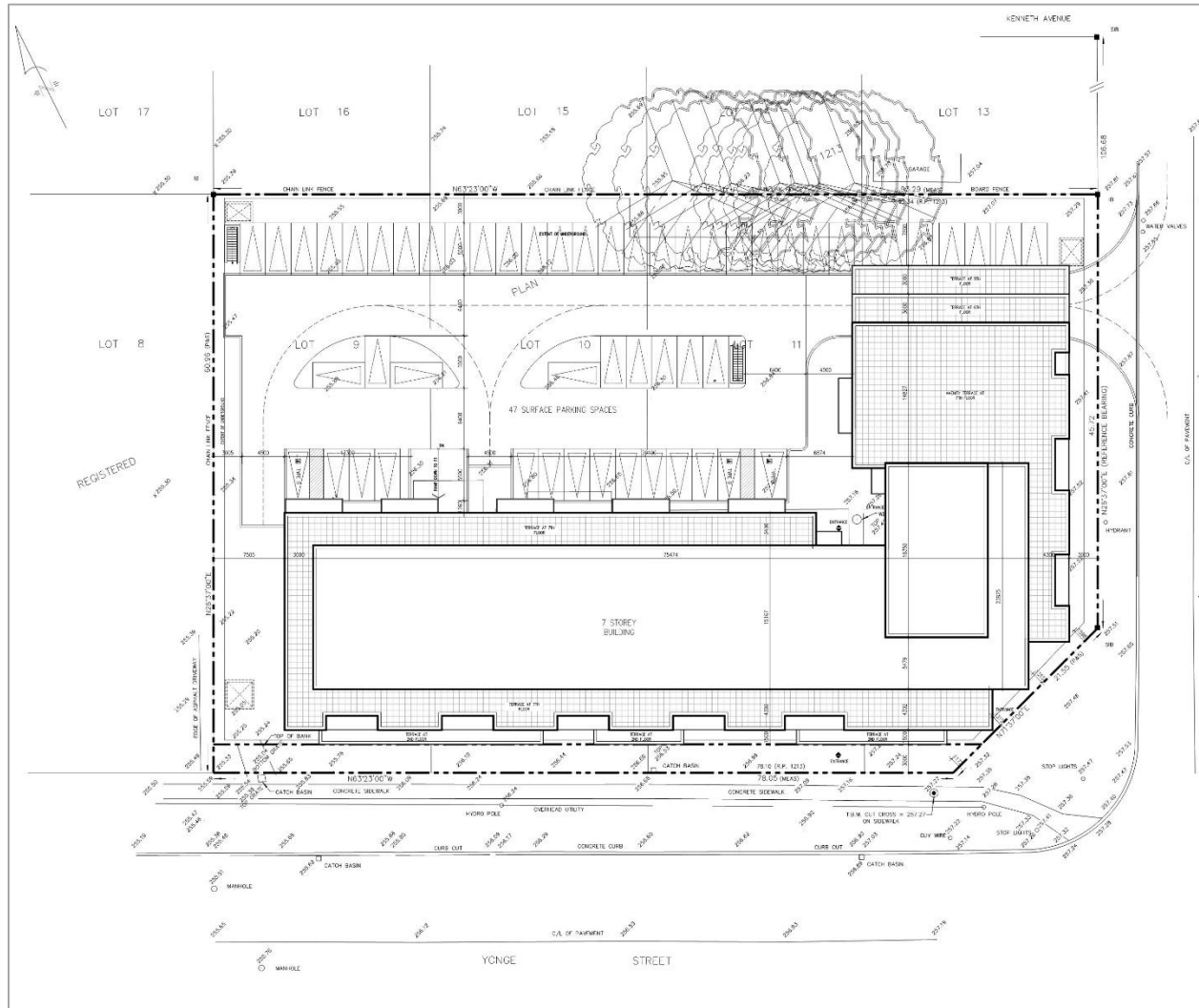


Figure 2. Site Plan

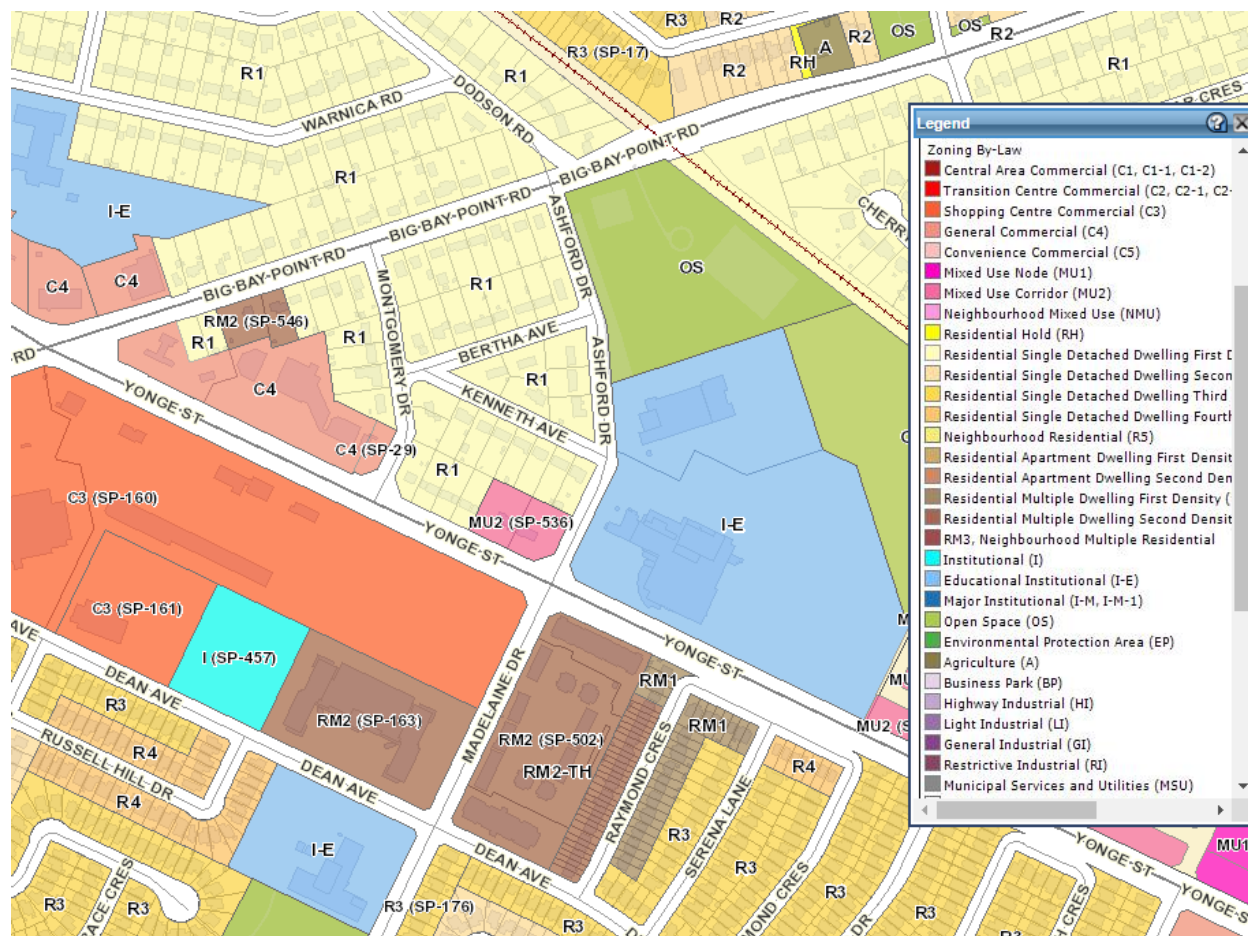


Figure 3: Zoning Map for the Project Area

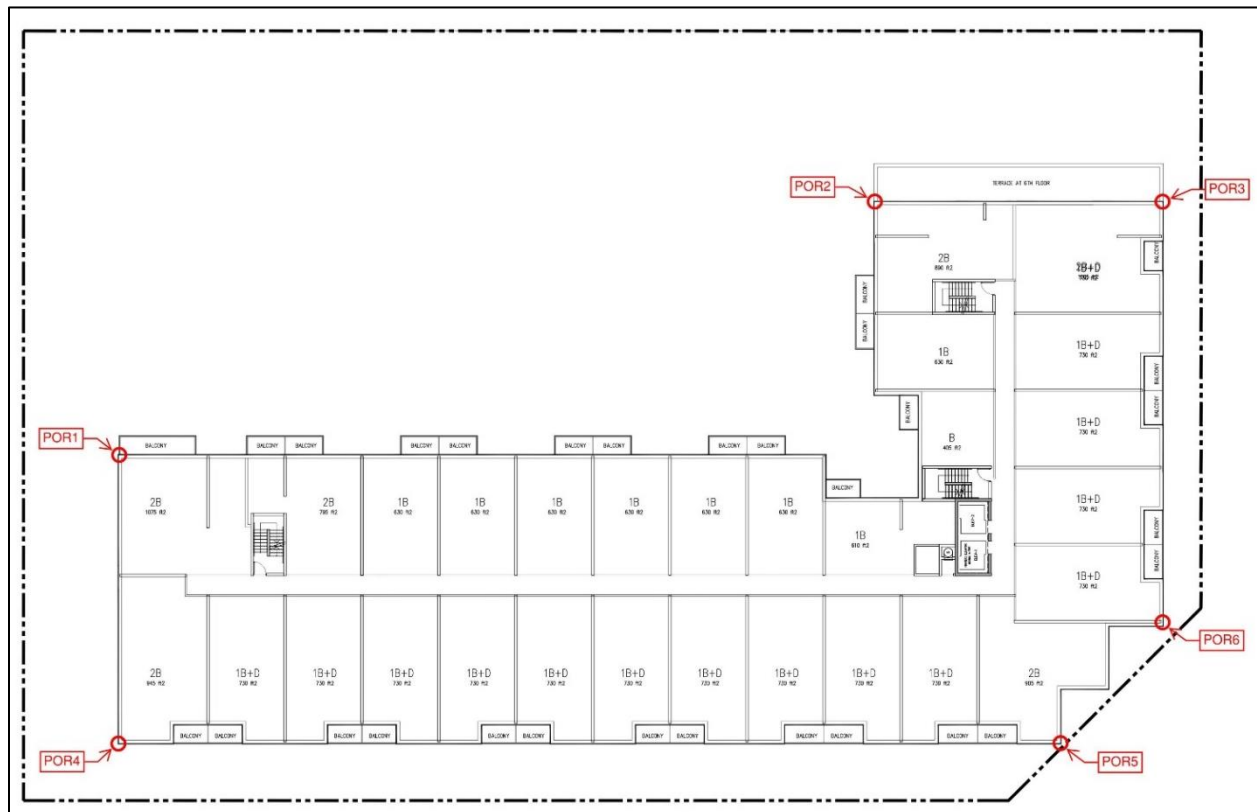


Figure 4: POR1 to POR6 Locations, 6th Floor

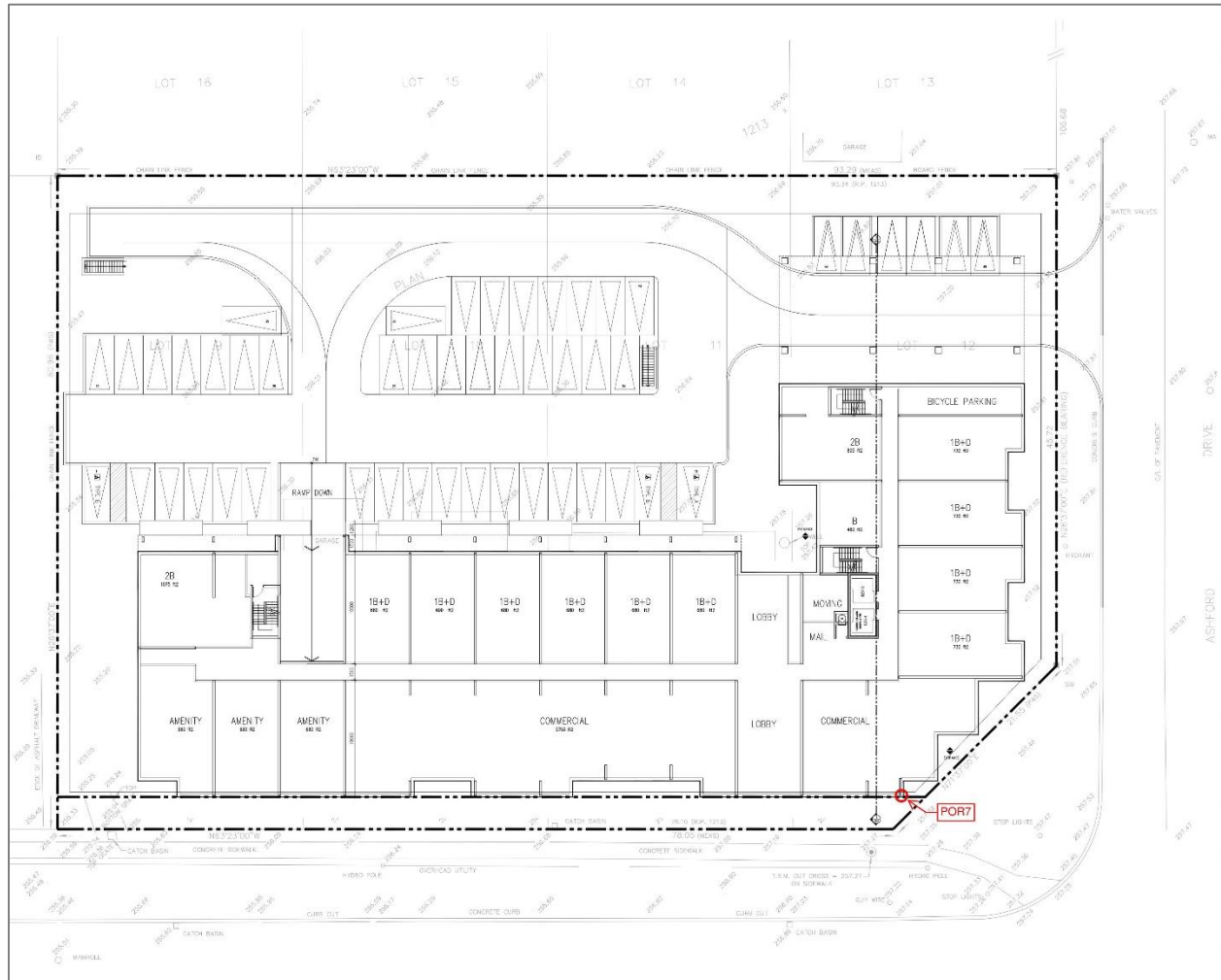


Figure 5: POR7 Location, 1st Floor

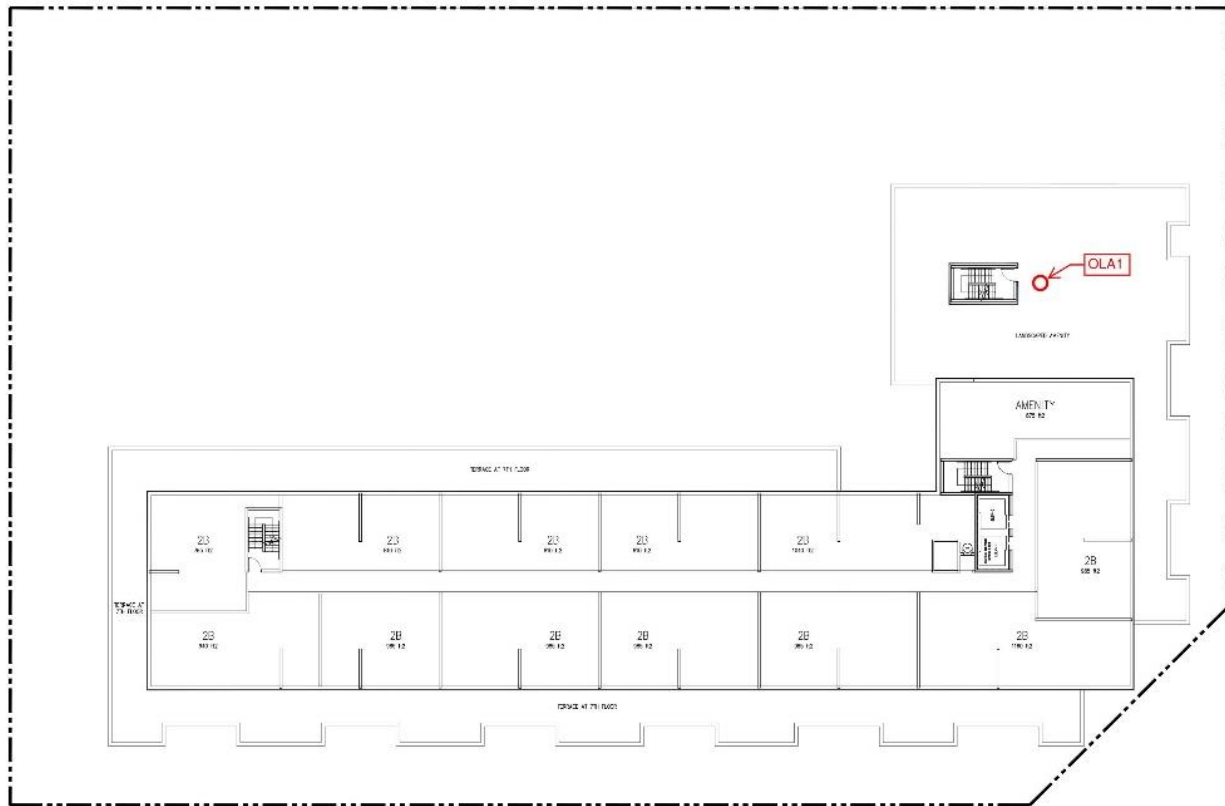


Figure 6: OLA1 Location, 7th Floor



Appendix B: TRAFFIC DATA

Vanoostveen, Paul

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Thursday, March 28, 2019 11:53 AM
To: Vanoostveen, Paul
Subject: RE: Road Traffic Data Request - Yonge Street and Ashford Drive

Follow Up Flag: Follow up
Flag Status: Completed

Good morning Paul,

As per your request.

- Yonge St. between Montgomery Dr. and Ashford Dr. – 15,000 vehicles per day with 3% commercial and heavy – growth rate of 3% per year to a horizon year of 2031
- Ashford Dr. / Madelaine Dr. at Yonge St. – 4,500 vehicles per day with 2% commercial and heavy – growth rate of 3% per year to a horizon year of 2031
- Montgomery Dr. (if available) – 200 vehicles per day with 1% commercial and heavy vehicles – growth rate of 1% per year to a horizon year of 2031.
- Kenneth Ave. (if available) – 100 vehicles per day with 1% commercial and heavy vehicles – growth rate of 1% per year to a horizon year of 2031.

Thanks,

Justin MacDonald, C.E.T.,
Senior Transportation Operations Technologist
Roads, Parks & Fleet



City of Barrie: Barrie Operations Centre, 165 Ferndale Drive North, Barrie ON, L4N 9V9
Office: 705-739-4220 5178

From: Vanoostveen, Paul [mailto:PVanoostveen@ThorntonTomasetti.com]
Sent: Tuesday, March 26, 2019 12:05 PM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Subject: Road Traffic Data Request - Yonge Street and Ashford Drive

Hello Justin,

We are conducting a noise feasibility study for a proposed development at 681 Yonge Street, Barrie, at the corner of Yonge Street and Ashford Drive.

Could you please provide traffic data (including vehicles/day (AADT), annual growth rate, heavy/medium truck %, and day/night %) for:

- Yonge St. between Montgomery Dr. and Ashford Dr.
- Ashford Dr. / Madelaine Dr. at Yonge St.
- Montgomery Dr. (if available)

- Kenneth Ave. (if available)

Thanks,



Paul Vanoostveen, M.A.Sc.

Acoustic Scientist

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Vanoostveen, Paul

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: Wednesday, April 3, 2019 8:52 AM
To: Vanoostveen, Paul
Subject: RE: GO Train Data Request- Barrie

Follow Up Flag: Follow up
Flag Status: Completed

Good Morning Paul,

Further to your request dated March 29, 2019, the subject site (Northwest corner of Yonge Street and Ashford Drive) is located greater than 300 metres from Metrolinx's Newmarket Subdivision, which carries Barrie GO Train service.

It's anticipated that GO service within this corridor will be comprised of electric trains within (at least) a 10-year time horizon. The combined preliminary midterm weekday train volume forecast at this location, including both revenue and equipment trips is in the order of 42 trains – (36 day, 6 night). Trains will be comprised of a single locomotive and up to 12 passenger cars.

The maximum design speed on this corridor is 50 mph (80 km/h).

With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO and UP Express rail network and we are currently working towards the next phase. Metrolinx has not made a final decision regarding the electric train technology or technologies to be deployed. We can, however, provide the following interim information which may be helpful;

1. At lower speeds, train noise is dominated by the powertrain. At higher speeds, train noise is dominated by the wheel-track interaction. Hence, at higher speeds, the noise level and spectrum of electric trains is expected to be very similar, if not identical, to those of equivalent diesel trains.
2. Along with electrification, Metrolinx will intensify service levels along all of its corridors to deliver the promised GO Expansion service. Everything else being equal, this will likely result in an overall increase in train noise emissions.

Given the above considerations, it would be prudent, for the purposes of acoustical analyses, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability, and passenger demand.

I trust this information is useful. Should you have any questions or concerns, please feel free to contact me.

Best Regards,

IVAN CHEUNG, M.Sc, B.URPI

Intern | Third Party Projects Review
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Metrolinx
20 Bay Street, Suite 600 | Toronto | Ontario | M5J 2W3
T: 416-202-5920



From: Vanoostveen, Paul [mailto:PVanoostveen@ThorntonTomasetti.com]
Sent: March-29-19 11:28 AM
To: Rail Data Requests
Subject: GO Train Data Request- Barrie

Hello,

I am writing to request GO train volume data for preparation of a noise feasibility study for a new residential development in Barrie. The site is located at 891 Yonge Street, at the northwest corner of Yonge Street and Ashford Drive, between the Barrie South GO and Allandale Waterfront GO stations. The following train data is required for this railway segment:

- Number of trains per day during daytime (07:00-23:00)
- Number of trains per day during night-time (23:00-07:00)
- Annual growth rate for train volume or estimated train volume in 10 years
- Number of cars per train
- Number of locomotives per train
- Speed of trains
- Any whistle signal
- Any welded rail

Thanks,
Paul



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Appendix C: STAMSON CALCULATIONS

The following correction was made to the STAMSON calculations shown below to account for the limitations of the program. These corrections are reflected in the final sound levels shown in Table 3 of this report.

- Because the minimum allowable source-to-receiver distance in STAMSON is 15m, the sound levels from Ashford Drive at POR3 and POR6 were calculated using a source-to-receiver distance of 15m, then corrected for the actual distance of 13.1m using the formula below. L_1 is the sound pressure level at a distance d_1 , of 15m, and L_2 is the sound pressure level at the actual distance, d_2 .

$$L_2 = L_1 + 20 \log \left(\frac{d_1}{d_2} \right)$$

POR1

STAMSON 5.0 NORMAL REPORT Date: 09-04-2019 17:57:35
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por1.te Time Period: Day/Night 16/8 hours
 Description: POR1 - WNW Corner, 6th Storey

Rail data, segment # 1: Metrolinx (day/night)

Train Type	! Trains	! Speed !(km/h)	!# loc !/Train	!# Cars !/Train	Eng type	!Cont !weld
1.	36.0/6.0	80.0	1.0	12.0	Diesel	No

Data for Segment # 1: Metrolinx (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 2
 House density : 70 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 425.00 / 425.00 m
 Receiver height : 16.50 / 16.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 No Whistle
 Reference angle : 0.00

↑

Results segment # 1: Metrolinx (day)

LOCOMOTIVE (0.00 + 46.79 + 0.00) = 46.79 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.14	69.02	-16.48	-0.37	0.00	-5.37	0.00	46.79

WHEEL (0.00 + 40.43 + 0.00) = 40.43 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.24	64.44	-18.01	-0.63	0.00	-5.37	0.00	40.43

Segment Leq : 47.69 dBA

Total Leq All Segments: 47.69 dBA

↑

Results segment # 1: Metrolinx (night)

LOCOMOTIVE (0.00 + 42.02 + 0.00) = 42.02 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.14	64.24	-16.48	-0.37	0.00	-5.37	0.00	42.02

WHEEL (0.00 + 35.66 + 0.00) = 35.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.24	59.67	-18.01	-0.63	0.00	-5.37	0.00	35.66

Segment Leq : 42.92 dBA

Total Leq All Segments: 42.92 dBA



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

Car traffic volume : 18670/2074 veh/TimePeriod *

Medium truck volume : 318/35 veh/TimePeriod *

Heavy truck volume : 260/29 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): 15000

Percentage of Annual Growth : 3.00

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 1.65

Heavy Truck % of Total Volume : 1.35

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Yonge St (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg

Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 2 (Reflective ground surface)

Receiver source distance : 45.25 / 45.25 m

Receiver height : 16.50 / 16.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

POR1



Road data, segment # 2: Ashford Dr (day/night)

```
-----
Car traffic volume : 5659/629   veh/TimePeriod *
Medium truck volume : 64/7     veh/TimePeriod *
Heavy truck volume  : 52/6     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): 4500
Percentage of Annual Growth         : 3.00
Number of Years of Growth           : 12.00
Medium Truck % of Total Volume      : 1.10
Heavy Truck % of Total Volume       : 0.90
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 2: Ashford Dr (day/night)

```
-----
Angle1 Angle2      : -90.00 deg -24.00 deg
Wood depth          : 0        (No woods.)
No of house rows    : 0 / 0
Surface             : 2        (Reflective ground surface)
Receiver source distance : 95.85 / 95.85 m
Receiver height      : 16.50 / 16.50 m
Topography           : 1        (Flat/gentle slope; no barrier)
Reference angle      : 0.00
```



Results segment # 1: Yonge St (day)

Source height = 1.08 m

ROAD (0.00 + 58.23 + 0.00) = 58.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	66.04	0.00	-4.80	-3.01	0.00	0.00	0.00	58.23

Segment Leq : 58.23 dBA



Results segment # 2: Ashford Dr (day)

POR1

Source height = 0.97 m

ROAD (0.00 + 47.58 + 0.00) = 47.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.00	60.00	0.00	-8.06	-4.36	0.00	0.00	0.00	47.58

Segment Leq : 47.58 dBA

Total Leq All Segments: 58.59 dBA



Results segment # 1: Yonge St (night)

Source height = 1.08 m

ROAD (0.00 + 51.70 + 0.00) = 51.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	59.51	0.00	-4.80	-3.01	0.00	0.00	0.00	51.70

Segment Leq : 51.70 dBA



Results segment # 2: Ashford Dr (night)

Source height = 0.98 m

ROAD (0.00 + 41.10 + 0.00) = 41.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.00	53.51	0.00	-8.06	-4.36	0.00	0.00	0.00	41.10

Segment Leq : 41.10 dBA

Total Leq All Segments: 52.06 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 58.93

POR1

(NIGHT): 52.56



POR2

STAMSON 5.0 NORMAL REPORT Date: 09-04-2019 17:59:11
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por2.te Time Period: Day/Night 16/8 hours
 Description: POR2 - NNW Corner, 6th Storey

Rail data, segment # 1: Metrolinx (day/night)

Train Type	! Trains	! Speed !(km/h)	!# loc !/Train	!# Cars !/Train	! Eng type	!Cont !weld
1.	36.0/6.0	80.0	1.0	12.0	Diesel	No

Data for Segment # 1: Metrolinx (day/night)

Angle1	Angle2	: -90.00 deg	90.00 deg
Wood depth		: 0	(No woods.)
No of house rows		: 1 / 1	
House density		: 70 %	
Surface		: 1	(Absorptive ground surface)
Receiver source distance		: 394.00 / 394.00 m	
Receiver height		: 16.50 / 16.50 m	
Topography		: 1	(Flat/gentle slope; no barrier)
No Whistle			
Reference angle		: 0.00	

↑

Results segment # 1: Metrolinx (day)

LOCOMOTIVE (0.00 + 48.62 + 0.00) = 48.62 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.14	69.02	-16.11	-0.37	0.00	-3.91	0.00	48.62

WHEEL (0.00 + 42.30 + 0.00) = 42.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.24	64.44	-17.60	-0.63	0.00	-3.91	0.00	42.30

Segment Leq : 49.53 dBA

Total Leq All Segments: 49.53 dBA

↑

Results segment # 1: Metrolinx (night)

LOCOMOTIVE (0.00 + 43.85 + 0.00) = 43.85 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.14	64.24	-16.11	-0.37	0.00	-3.91	0.00	43.85

WHEEL (0.00 + 37.53 + 0.00) = 37.53 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.24	59.67	-17.60	-0.63	0.00	-3.91	0.00	37.53

Segment Leq : 44.76 dBA

Total Leq All Segments: 44.76 dBA



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

Car traffic volume : 18670/2074 veh/TimePeriod *

Medium truck volume : 318/35 veh/TimePeriod *

Heavy truck volume : 260/29 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): 15000

Percentage of Annual Growth : 3.00

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 1.65

Heavy Truck % of Total Volume : 1.35

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Yonge St (day/night)

Angle1 Angle2 : 71.00 deg 90.00 deg

Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 2 (Reflective ground surface)

Receiver source distance : 65.29 / 65.29 m

Receiver height : 16.50 / 16.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

POR2



Road data, segment # 2: Ashford Dr (day/night)

```
-----
Car traffic volume   : 5659/629   veh/TimePeriod  *
Medium truck volume  : 64/7       veh/TimePeriod  *
Heavy truck volume   : 52/6       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): 4500
Percentage of Annual Growth         : 3.00
Number of Years of Growth           : 12.00
Medium Truck % of Total Volume       : 1.10
Heavy Truck % of Total Volume        : 0.90
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 2: Ashford Dr (day/night)

```
-----
Angle1  Angle2      : -90.00 deg  0.00 deg
Wood depth          : 0          (No woods.)
No of house rows    : 0 / 0
Surface             : 2          (Reflective ground surface)
Receiver source distance : 35.99 / 35.99 m
Receiver height      : 16.50 / 16.50 m
Topography           : 1          (Flat/gentle slope; no barrier)
Reference angle      : 0.00
```



Results segment # 1: Yonge St (day)

Source height = 1.08 m

ROAD (0.00 + 49.89 + 0.00) = 49.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
71	90	0.00	66.04	0.00	-6.39	-9.77	0.00	0.00	0.00	49.89

Segment Leq : 49.89 dBA



Results segment # 2: Ashford Dr (day)

POR2

Source height = 0.97 m

ROAD (0.00 + 53.18 + 0.00) = 53.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	60.00	0.00	-3.80	-3.01	0.00	0.00	0.00	53.18

Segment Leq : 53.18 dBA

Total Leq All Segments: 54.85 dBA



Results segment # 1: Yonge St (night)

Source height = 1.08 m

ROAD (0.00 + 43.35 + 0.00) = 43.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
71	90	0.00	59.51	0.00	-6.39	-9.77	0.00	0.00	0.00	43.35

Segment Leq : 43.35 dBA



Results segment # 2: Ashford Dr (night)

Source height = 0.98 m

ROAD (0.00 + 46.70 + 0.00) = 46.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	53.51	0.00	-3.80	-3.01	0.00	0.00	0.00	46.70

Segment Leq : 46.70 dBA

Total Leq All Segments: 48.35 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 55.97

POR2

(NIGHT): 49.93



POR3

STAMSON 5.0 NORMAL REPORT Date: 09-04-2019 17:54:16
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por3.te Time Period: Day/Night 16/8 hours
 Description: POR3 - NE Corner, 6th Storey

Rail data, segment # 1: Metrolinx (day/night)

Train Type	! Trains	! Speed !(km/h)	!# loc !/Train	!# Cars !/Train	! Eng type	!Cont !weld
1.	! 36.0/6.0	! 80.0	! 1.0	! 12.0	!Diesel	! No

Data for Segment # 1: Metrolinx (day/night)

Angle1	Angle2	: -90.00 deg	90.00 deg
Wood depth		: 0	(No woods.)
No of house rows		: 1 / 1	
House density		: 70 %	
Surface		: 1	(Absorptive ground surface)
Receiver source distance		: 389.00 / 389.00 m	
Receiver height		: 16.50 / 16.50 m	
Topography		: 1	(Flat/gentle slope; no barrier)
No Whistle			
Reference angle		: 0.00	

↑

Results segment # 1: Metrolinx (day)

LOCOMOTIVE (0.00 + 48.68 + 0.00) = 48.68 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.14	69.02	-16.05	-0.37	0.00	-3.91	0.00	48.68

WHEEL (0.00 + 42.36 + 0.00) = 42.36 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.24	64.44	-17.53	-0.63	0.00	-3.91	0.00	42.36

Segment Leq : 49.59 dBA

Total Leq All Segments: 49.59 dBA

↑

Results segment # 1: Metrolinx (night)

LOCOMOTIVE (0.00 + 43.91 + 0.00) = 43.91 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.14	64.24	-16.05	-0.37	0.00	-3.91	0.00	43.91

WHEEL (0.00 + 37.59 + 0.00) = 37.59 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.24	59.67	-17.53	-0.63	0.00	-3.91	0.00	37.59

Segment Leq : 44.82 dBA

Total Leq All Segments: 44.82 dBA



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

Car traffic volume : 18670/2074 veh/TimePeriod *

Medium truck volume : 318/35 veh/TimePeriod *

Heavy truck volume : 260/29 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): 15000

Percentage of Annual Growth : 3.00

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 1.65

Heavy Truck % of Total Volume : 1.35

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Yonge St (day/night)

Angle1	Angle2	: -90.00 deg	0.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	65.29 / 65.29	m
Receiver height	:	16.50 / 16.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

POR3



Road data, segment # 2: Ashford Dr (day/night)

```

-----
Car traffic volume : 5659/629   veh/TimePeriod *
Medium truck volume : 64/7     veh/TimePeriod *
Heavy truck volume  : 52/6     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): 4500
Percentage of Annual Growth         : 3.00
Number of Years of Growth           : 12.00
Medium Truck % of Total Volume      : 1.10
Heavy Truck % of Total Volume       : 0.90
Day (16 hrs) % of Total Volume      : 90.00
  
```

Data for Segment # 2: Ashford Dr (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 : 15.00 / 15.00 m
Receiver height      : 16.50 / 16.50 m
Topography           : 1          (Flat/gentle slope; no barrier)
Reference angle      : 0.00
  
```



Results segment # 1: Yonge St (day)

Source height = 1.08 m

ROAD (0.00 + 56.64 + 0.00) = 56.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	66.04	0.00	-6.39	-3.01	0.00	0.00	0.00	56.64

Segment Leq : 56.64 dBA



Results segment # 2: Ashford Dr (day)

POR3

Source height = 0.97 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 61.65 dBA



Results segment # 1: Yonge St (night)

Source height = 1.08 m

ROAD (0.00 + 50.11 + 0.00) = 50.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	59.51	0.00	-6.39	-3.01	0.00	0.00	0.00	50.11

Segment Leq : 50.11 dBA



Results segment # 2: Ashford Dr (night)

Source height = 0.98 m

ROAD (0.00 + 53.51 + 0.00) = 53.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	53.51	0.00	0.00	0.00	0.00	0.00	0.00	53.51

Segment Leq : 53.51 dBA

Total Leq All Segments: 55.14 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 61.91

POR3

(NIGHT): 55.53



POR4
 STAMSON 5.0 NORMAL REPORT Date: 09-04-2019 18:07:51
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por4.te Time Period: Day/Night 16/8 hours
 Description: POR4 - SW Corner, 6th Storey

Rail data, segment # 1: Metrolinx (day/night)

Train Type	! Trains	! Speed !(km/h)	!# loc !/Train	!# Cars !/Train	! Eng type	!Cont !weld
1.	! 36.0/6.0	! 80.0	! 1.0	! 12.0	!Diesel	! No

Data for Segment # 1: Metrolinx (day/night)

Angle1 Angle2 : -90.00 deg -12.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 1
 House density : 70 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 448.00 / 448.00 m
 Receiver height : 16.50 / 16.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 No Whistle
 Reference angle : 0.00

↑

Results segment # 1: Metrolinx (day)

LOCOMOTIVE (0.00 + 42.86 + 0.00) = 42.86 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-12	0.14	69.02	-16.74	-4.07	0.00	-5.34	0.00	42.86

WHEEL (0.00 + 36.44 + 0.00) = 36.44 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-12	0.24	64.44	-18.29	-4.37	0.00	-5.34	0.00	36.44

Segment Leq : 43.75 dBA

Total Leq All Segments: 43.75 dBA

↑

Results segment # 1: Metrolinx (night)

LOCOMOTIVE (0.00 + 39.59 + 0.00) = 39.59 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-12	0.14	64.24	-16.74	-4.07	0.00	-3.84	0.00	39.59

WHEEL (0.00 + 33.17 + 0.00) = 33.17 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-12	0.24	59.67	-18.29	-4.37	0.00	-3.84	0.00	33.17

Segment Leq : 40.48 dBA

Total Leq All Segments: 40.48 dBA



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

Car traffic volume : 18670/2074 veh/TimePeriod *

Medium truck volume : 318/35 veh/TimePeriod *

Heavy truck volume : 260/29 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): 15000

Percentage of Annual Growth : 3.00

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 1.65

Heavy Truck % of Total Volume : 1.35

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Yonge St (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 : 22.34 / 22.34 m

Receiver height : 16.50 / 16.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00



Road data, segment # 2: Ashford Dr (day/night)

```
-----
Car traffic volume : 5659/629   veh/TimePeriod  *
Medium truck volume : 64/7     veh/TimePeriod  *
Heavy truck volume  : 52/6     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): 4500
Percentage of Annual Growth         : 3.00
Number of Years of Growth           : 12.00
Medium Truck % of Total Volume      : 1.10
Heavy Truck % of Total Volume       : 0.90
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 2: Ashford Dr (day/night)

```
-----
Angle1  Angle2      : 0.00 deg  90.00 deg
Wood depth          : 0        (No woods.)
No of house rows    : 0 / 0
Surface            : 2        (Reflective ground surface)
Receiver source distance : 95.85 / 95.85 m
Receiver height     : 16.50 / 16.50 m
Topography          : 1        (Flat/gentle slope; no barrier)
Reference angle     : 0.00
```



Results segment # 1: Yonge St (day)

Source height = 1.08 m

ROAD (0.00 + 64.31 + 0.00) = 64.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.04	0.00	-1.73	0.00	0.00	0.00	0.00	64.31

Segment Leq : 64.31 dBA



Results segment # 2: Ashford Dr (day)

POR4

Source height = 0.97 m

ROAD (0.00 + 48.93 + 0.00) = 48.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	60.00	0.00	-8.06	-3.01	0.00	0.00	0.00	48.93

Segment Leq : 48.93 dBA

Total Leq All Segments: 64.43 dBA



Results segment # 1: Yonge St (night)

Source height = 1.08 m

ROAD (0.00 + 57.78 + 0.00) = 57.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.51	0.00	-1.73	0.00	0.00	0.00	0.00	57.78

Segment Leq : 57.78 dBA



Results segment # 2: Ashford Dr (night)

Source height = 0.98 m

ROAD (0.00 + 42.45 + 0.00) = 42.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	53.51	0.00	-8.06	-3.01	0.00	0.00	0.00	42.45

Segment Leq : 42.45 dBA

Total Leq All Segments: 57.91 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 64.47

POR4

(NIGHT): 57.98



POR5

STAMSON 5.0 NORMAL REPORT Date: 09-04-2019 18:12:24
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por5.te Time Period: Day/Night 16/8 hours
 Description: POR5 - SSE Corner, 6th Storey

Rail data, segment # 1: Metrolinx (day/night)

```

-----
Train          ! Trains      ! Speed !# loc !# Cars! Eng !Cont
Type           !           !(km/h) !/Train!/Train! type !weld
-----+-----+-----+-----+-----+-----
  1.           ! 36.0/6.0   ! 80.0 ! 1.0 ! 12.0 !Diesel! No
  
```

Data for Segment # 1: Metrolinx (day/night)

```

-----
Angle1  Angle2      : 37.00 deg  90.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      1 / 1
House density    :      70 %
Surface          :      1      (Absorptive ground surface)
Receiver source distance : 432.00 / 432.00 m
Receiver height  : 16.50 / 16.50 m
Topography       :      1      (Flat/gentle slope; no barrier)
No Whistle
Reference angle   :      0.00
  
```

↑

Results segment # 1: Metrolinx (day)

LOCOMOTIVE (0.00 + 42.66 + 0.00) = 42.66 dBA

```

-----
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
  37    90    0.14  69.02 -16.56 -5.94   0.00  -3.86   0.00  42.66
  
```

WHEEL (0.00 + 36.10 + 0.00) = 36.10 dBA

```

-----
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
  37    90    0.24  64.44 -18.10 -6.38   0.00  -3.86   0.00  36.10
  
```

Segment Leq : 43.53 dBA

Total Leq All Segments: 43.53 dBA

↑

Results segment # 1: Metrolinx (night)

LOCOMOTIVE (0.00 + 37.89 + 0.00) = 37.89 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
37	90	0.14	64.24	-16.56	-5.94	0.00	-3.86	0.00	37.89

WHEEL (0.00 + 31.33 + 0.00) = 31.33 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
37	90	0.24	59.67	-18.10	-6.38	0.00	-3.86	0.00	31.33

Segment Leq : 38.76 dBA

Total Leq All Segments: 38.76 dBA



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

Car traffic volume : 18670/2074 veh/TimePeriod *

Medium truck volume : 318/35 veh/TimePeriod *

Heavy truck volume : 260/29 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): 15000

Percentage of Annual Growth : 3.00

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 1.65

Heavy Truck % of Total Volume : 1.35

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Yonge St (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 : 22.34 / 22.34 m

Receiver height : 16.50 / 16.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

POR5



Road data, segment # 2: Ashford Dr (day/night)

```

-----
Car traffic volume : 5659/629   veh/TimePeriod  *
Medium truck volume : 64/7     veh/TimePeriod  *
Heavy truck volume  : 52/6     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): 4500
Percentage of Annual Growth         : 3.00
Number of Years of Growth           : 12.00
Medium Truck % of Total Volume      : 1.10
Heavy Truck % of Total Volume       : 0.90
Day (16 hrs) % of Total Volume      : 90.00
  
```

Data for Segment # 2: Ashford Dr (day/night)

```

-----
Angle1  Angle2      : -48.00 deg  90.00 deg
Wood depth          : 0          (No woods.)
No of house rows    : 0 / 0
Surface             : 2          (Reflective ground surface)
Receiver source distance : 21.18 / 21.18 m
Receiver height      : 16.50 / 16.50 m
Topography           : 1          (Flat/gentle slope; no barrier)
Reference angle      : 0.00
  
```



Results segment # 1: Yonge St (day)

Source height = 1.08 m

ROAD (0.00 + 64.31 + 0.00) = 64.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.04	0.00	-1.73	0.00	0.00	0.00	0.00	64.31

Segment Leq : 64.31 dBA



Results segment # 2: Ashford Dr (day)

POR5

Source height = 0.97 m

ROAD (0.00 + 57.34 + 0.00) = 57.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-48	90	0.00	60.00	0.00	-1.50	-1.15	0.00	0.00	0.00	57.34

Segment Leq : 57.34 dBA

Total Leq All Segments: 65.11 dBA



Results segment # 1: Yonge St (night)

Source height = 1.08 m

ROAD (0.00 + 57.78 + 0.00) = 57.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.51	0.00	-1.73	0.00	0.00	0.00	0.00	57.78

Segment Leq : 57.78 dBA



Results segment # 2: Ashford Dr (night)

Source height = 0.98 m

ROAD (0.00 + 50.86 + 0.00) = 50.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-48	90	0.00	53.51	0.00	-1.50	-1.15	0.00	0.00	0.00	50.86

Segment Leq : 50.86 dBA

Total Leq All Segments: 58.58 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 65.14

POR5

(NIGHT): 58.63



POR6
 STAMSON 5.0 NORMAL REPORT Date: 09-04-2019 18:14:56
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por6.te Time Period: Day/Night 16/8 hours
 Description: POR6 - ESE Corner, 6th Storey

Rail data, segment # 1: Metrolinx (day/night)

Train Type	! Trains	! Speed !(km/h)	!# loc !/Train	!# Cars !/Train	! Eng type	!Cont !weld
1.	! 36.0/6.0	! 80.0	! 1.0	! 12.0	!Diesel	! No

Data for Segment # 1: Metrolinx (day/night)

Angle1	Angle2	: -12.00 deg	90.00 deg
Wood depth		: 0	(No woods.)
No of house rows		: 1 / 1	
House density		: 70 %	
Surface		: 1	(Absorptive ground surface)
Receiver source distance		: 422.00 / 422.00 m	
Receiver height		: 16.50 / 16.50 m	
Topography		: 1	(Flat/gentle slope; no barrier)
No Whistle			
Reference angle		: 0.00	

↑

Results segment # 1: Metrolinx (day)

LOCOMOTIVE (0.00 + 45.90 + 0.00) = 45.90 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	90	0.14	69.02	-16.45	-2.80	0.00	-3.87	0.00	45.90

WHEEL (0.00 + 39.58 + 0.00) = 39.58 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	90	0.24	64.44	-17.97	-3.02	0.00	-3.87	0.00	39.58

Segment Leq : 46.81 dBA

Total Leq All Segments: 46.81 dBA

↑

Results segment # 1: Metrolinx (night)

LOCOMOTIVE (0.00 + 41.13 + 0.00) = 41.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	90	0.14	64.24	-16.45	-2.80	0.00	-3.87	0.00	41.13

WHEEL (0.00 + 34.81 + 0.00) = 34.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	90	0.24	59.67	-17.97	-3.02	0.00	-3.87	0.00	34.81

Segment Leq : 42.04 dBA

Total Leq All Segments: 42.04 dBA



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

Car traffic volume : 18670/2074 veh/TimePeriod *

Medium truck volume : 318/35 veh/TimePeriod *

Heavy truck volume : 260/29 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): 15000

Percentage of Annual Growth : 3.00

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 1.65

Heavy Truck % of Total Volume : 1.35

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Yonge St (day/night)

Angle1 Angle2 : -90.00 deg 40.00 deg

Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 2 (Reflective ground surface)

Receiver source distance : 31.67 / 31.67 m

Receiver height : 16.50 / 16.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00



Road data, segment # 2: Ashford Dr (day/night)

```
-----
Car traffic volume : 5659/629   veh/TimePeriod  *
Medium truck volume : 64/7     veh/TimePeriod  *
Heavy truck volume  : 52/6     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): 4500
Percentage of Annual Growth         : 3.00
Number of Years of Growth           : 12.00
Medium Truck % of Total Volume      : 1.10
Heavy Truck % of Total Volume       : 0.90
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 2: Ashford Dr (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 : 15.00 / 15.00 m
Receiver height      : 16.50 / 16.50 m
Topography           : 1          (Flat/gentle slope; no barrier)
Reference angle      : 0.00
```



Results segment # 1: Yonge St (day)

Source height = 1.08 m

ROAD (0.00 + 61.38 + 0.00) = 61.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	40	0.00	66.04	0.00	-3.25	-1.41	0.00	0.00	0.00	61.38

Segment Leq : 61.38 dBA



Results segment # 2: Ashford Dr (day)

POR6

Source height = 0.97 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 63.75 dBA



Results segment # 1: Yonge St (night)

Source height = 1.08 m

ROAD (0.00 + 54.85 + 0.00) = 54.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	40	0.00	59.51	0.00	-3.25	-1.41	0.00	0.00	0.00	54.85

Segment Leq : 54.85 dBA



Results segment # 2: Ashford Dr (night)

Source height = 0.98 m

ROAD (0.00 + 53.51 + 0.00) = 53.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	53.51	0.00	0.00	0.00	0.00	0.00	0.00	53.51

Segment Leq : 53.51 dBA

Total Leq All Segments: 57.24 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 63.84

POR6

(NIGHT): 57.37



Filename: por7.te Time Period: Day/Night 16/8 hours
 Description: POR7 - SE Corner, 1st Storey Commercial

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

 Car traffic volume : 18670/2074 veh/TimePeriod *
 Medium truck volume : 318/35 veh/TimePeriod *
 Heavy truck volume : 260/29 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): 15000
 Percentage of Annual Growth : 3.00
 Number of Years of Growth : 12.00
 Medium Truck % of Total Volume : 1.65
 Heavy Truck % of Total Volume : 1.35
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Yonge St (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 : 21.14 / 21.14 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑

Road data, segment # 2: Ashford Dr (day/night)

 Car traffic volume : 5659/629 veh/TimePeriod *
 Medium truck volume : 64/7 veh/TimePeriod *
 Heavy truck volume : 52/6 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:

POR7

24 hr Traffic Volume (AADT or SADT): 4500
 Percentage of Annual Growth : 3.00
 Number of Years of Growth : 12.00
 Medium Truck % of Total Volume : 1.10
 Heavy Truck % of Total Volume : 0.90
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Ashford Dr (day/night)

 Angle1 Angle2 : -13.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 26.01 / 26.01 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00



Results segment # 1: Yonge St (day)

Source height = 1.08 m

ROAD (0.00 + 64.55 + 0.00) = 64.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.04	0.00	-1.49	0.00	0.00	0.00	0.00	64.55

Segment Leq : 64.55 dBA



Results segment # 2: Ashford Dr (day)

Source height = 0.97 m

ROAD (0.00 + 55.18 + 0.00) = 55.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	90	0.00	60.00	0.00	-2.39	-2.42	0.00	0.00	0.00	55.18

Segment Leq : 55.18 dBA

Total Leq All Segments: 65.03 dBA



Results segment # 1: Yonge St (night)

Source height = 1.08 m

ROAD (0.00 + 58.02 + 0.00) = 58.02 dBA

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

-90	90	0.00	59.51	0.00	-1.49	0.00	0.00	0.00	0.00	58.02
-----	----	------	-------	------	-------	------	------	------	------	-------

Segment Leq : 58.02 dBA



Results segment # 2: Ashford Dr (night)

Source height = 0.98 m

ROAD (0.00 + 48.70 + 0.00) = 48.70 dBA

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

-13	90	0.00	53.51	0.00	-2.39	-2.42	0.00	0.00	0.00	48.70
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 48.70 dBA

Total Leq All Segments: 58.50 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 65.03
(NIGHT): 58.50



OLA1_V2

STAMSON 5.0 NORMAL REPORT Date: 10-04-2019 15:01:07
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1_v2.te Time Period: Day/Night 16/8 hours
 Description: OLA1_v2 - NE Outdoor Amenity

Rail data, segment # 1: Metrolinx (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
1.	36.0/6.0	80.0	1.0	12.0	Diesel	No

Data for Segment # 1: Metrolinx (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 70 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 399.00 / 399.00 m
 Receiver height : 19.50 / 19.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 No Whistle
 Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
 Barrier height : 18.00 m
 Barrier receiver distance : 7.43 / 7.43 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

↑
 Results segment # 1: Metrolinx (day)

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
4.00	19.50	19.21	19.21
0.50	19.50	19.15	19.15

LOCOMOTIVE (0.00 + 50.09 + 0.00) = 50.09 dBA
 Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

OLA1_V2									
-90	90	0.05	69.02	-14.89	-0.13	0.00	-3.90	0.00	50.09
-90	90	0.00	69.02	-14.25	0.00	0.00	0.00	-0.96	53.80*
-90	90	0.05	69.02	-14.89	-0.13	0.00	0.00	0.00	54.00

* Bright Zone !

WHEEL (0.00 + 43.74 + 0.00) = 43.74 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.15	64.44	-16.39	-0.41	0.00	-3.90	0.00	43.74
-90	90	0.00	64.44	-14.25	0.00	0.00	0.00	-1.11	49.08*
-90	90	0.15	64.44	-16.39	-0.41	0.00	0.00	0.00	47.64

* Bright Zone !

Segment Leq : 51.00 dBA

Total Leq All Segments: 51.00 dBA



Results segment # 1: Metrolinx (night)

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
4.00 !	19.50 !	19.21 !	19.21
0.50 !	19.50 !	19.15 !	19.15

LOCOMOTIVE (0.00 + 45.32 + 0.00) = 45.32 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.05	64.24	-14.89	-0.13	0.00	-3.90	0.00	45.32
-90	90	0.00	64.24	-14.25	0.00	0.00	0.00	-0.96	49.03*
-90	90	0.05	64.24	-14.89	-0.13	0.00	0.00	0.00	49.22

* Bright Zone !

WHEEL (0.00 + 38.97 + 0.00) = 38.97 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.15	59.67	-16.39	-0.41	0.00	-3.90	0.00	38.97
-90	90	0.00	59.67	-14.25	0.00	0.00	0.00	-1.11	44.31*

OLA1_V2

-90	90	0.15	59.67	-16.39	-0.41	0.00	0.00	0.00	42.87
-----	----	------	-------	--------	-------	------	------	------	-------

* Bright Zone !

Segment Leq : 46.23 dBA

Total Leq All Segments: 46.23 dBA

↑

Road data, segment # 1: Yonge St E (day/night)

Car traffic volume	: 18670/2074	veh/TimePeriod	*
Medium truck volume	: 318/35	veh/TimePeriod	*
Heavy truck volume	: 260/29	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):	15000
Percentage of Annual Growth	: 3.00
Number of Years of Growth	: 12.00
Medium Truck % of Total Volume	: 1.65
Heavy Truck % of Total Volume	: 1.35
Day (16 hrs) % of Total Volume	: 90.00

Data for Segment # 1: Yonge St E (day/night)

Angle1	Angle2	: -90.00 deg	-44.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	57.89 / 57.89	m
Receiver height	:	19.50 / 19.50	m
Topography	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	-90.00 deg	Angle2 : -44.00 deg
Barrier height	:	18.00 m	
Barrier receiver distance	:	7.43 / 7.43	m
Source elevation	:	0.00 m	
Receiver elevation	:	0.00 m	
Barrier elevation	:	0.00 m	
Reference angle	:	0.00	

↑

Road data, segment # 2: Yonge St C (day/night)

OLA1_V2

Car traffic volume : 18670/2074 veh/TimePeriod *
 Medium truck volume : 318/35 veh/TimePeriod *
 Heavy truck volume : 260/29 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): 15000
 Percentage of Annual Growth : 3.00
 Number of Years of Growth : 12.00
 Medium Truck % of Total Volume : 1.65
 Heavy Truck % of Total Volume : 1.35
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Yonge St C (day/night)

 Angle1 Angle2 : -44.00 deg 77.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 57.89 / 57.89 m
 Receiver height : 19.50 / 19.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -44.00 deg Angle2 : 77.00 deg
 Barrier height : 21.00 m
 Barrier receiver distance : 7.43 / 7.43 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

↑

Road data, segment # 3: Yonge St W (day/night)

 Car traffic volume : 18670/2074 veh/TimePeriod *
 Medium truck volume : 318/35 veh/TimePeriod *
 Heavy truck volume : 260/29 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): 15000
 Percentage of Annual Growth : 3.00
 Number of Years of Growth : 12.00

OLA1_V2

Medium Truck % of Total Volume	:	1.65
Heavy Truck % of Total Volume	:	1.35
Day (16 hrs) % of Total Volume	:	90.00

Data for Segment # 3: Yonge St W (day/night)

```

-----
Angle1   Angle2       : 77.00 deg   90.00 deg
Wood depth      :          0       (No woods.)
No of house rows :          0 / 0
Surface         :          2       (Reflective ground surface)
Receiver source distance : 57.89 / 57.89 m
Receiver height  : 19.50 / 19.50 m
Topography      :          2       (Flat/gentle slope; with barrier)
Barrier angle1   : 77.00 deg   Angle2 : 90.00 deg
Barrier height   : 18.00 m
Barrier receiver distance : 7.43 / 7.43 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle  : 0.00

```

↑

Road data, segment # 4: Ashford Dr N (day/night)

```

-----
Car traffic volume : 5659/629   veh/TimePeriod *
Medium truck volume : 64/7      veh/TimePeriod *
Heavy truck volume  : 52/6      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):	4500
Percentage of Annual Growth	: 3.00
Number of Years of Growth	: 12.00
Medium Truck % of Total Volume	: 1.10
Heavy Truck % of Total Volume	: 0.90
Day (16 hrs) % of Total Volume	: 90.00

Data for Segment # 4: Ashford Dr N (day/night)

```

-----
Angle1   Angle2       : -90.00 deg   46.00 deg
Wood depth      :          0       (No woods.)
No of house rows :          0 / 0
Surface         :          2       (Reflective ground surface)
Receiver source distance : 24.54 / 24.54 m
Receiver height  : 19.50 / 19.50 m

```

OLA1_V2

Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -90.00 deg Angle2 : 46.00 deg
 Barrier height : 18.00 m
 Barrier receiver distance : 11.45 / 11.45 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

↑

Road data, segment # 5: Ashford Dr S (day/night)

Car traffic volume : 5659/629 veh/TimePeriod *
 Medium truck volume : 64/7 veh/TimePeriod *
 Heavy truck volume : 52/6 veh/TimePeriod *
 Posted speed limit : 100 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): 4500
 Percentage of Annual Growth : 3.00
 Number of Years of Growth : 12.00
 Medium Truck % of Total Volume : 1.10
 Heavy Truck % of Total Volume : 0.90
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 5: Ashford Dr S (day/night)

Angle1 Angle2 : 46.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 24.54 / 24.54 m
 Receiver height : 19.50 / 19.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : 46.00 deg Angle2 : 90.00 deg
 Barrier height : 21.00 m
 Barrier receiver distance : 7.17 / 7.17 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

↑

Results segment # 1: Yonge St E (day)

OLA1_V2

Source height = 1.08 m

Barrier height for grazing incidence

```

-----
Source      ! Receiver      ! Barrier      ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
          1.08 !          19.50 !          17.14 !          17.14

```

ROAD (0.00 + 48.34 + 0.00) = 48.34 dBA

```

Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
  -90    -44    0.00  66.04   0.00  -5.87  -5.93   0.00   0.00  -5.91  48.34
-----

```

Segment Leq : 48.34 dBA

↑

Results segment # 2: Yonge St C (day)

Source height = 1.08 m

Barrier height for grazing incidence

```

-----
Source      ! Receiver      ! Barrier      ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
          1.08 !          19.50 !          17.14 !          17.14

```

ROAD (0.00 + 42.02 + 0.00) = 42.02 dBA

```

Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
  -44    77    0.00  66.04   0.00  -5.87  -1.72   0.00   0.00 -16.43  42.02
-----

```

Segment Leq : 42.02 dBA

↑

Results segment # 3: Yonge St W (day)

Source height = 1.08 m

Barrier height for grazing incidence

```

-----
Source      ! Receiver      ! Barrier      ! Elevation of

```

OLA1_V2

Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
1.08	!	19.50	!	17.14	!	17.14

ROAD (0.00 + 43.47 + 0.00) = 43.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
77	90	0.00	66.04	0.00	-5.87	-11.41	0.00	0.00	-5.29	43.47

Segment Leq : 43.47 dBA

↑

Results segment # 4: Ashford Dr N (day)

Source height = 0.97 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
0.97	!	19.50	!	10.86	!	10.86

ROAD (0.00 + 39.51 + 0.00) = 39.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	46	0.00	60.00	0.00	-2.14	-1.22	0.00	0.00	-17.13	39.51

Segment Leq : 39.51 dBA

↑

Results segment # 5: Ashford Dr S (day)

Source height = 0.97 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
0.97	!	19.50	!	14.09	!	14.09

ROAD (0.00 + 44.02 + 0.00) = 44.02 dBA

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

OLA1_V2

46	90	0.00	67.35	0.00	-2.14	-6.12	0.00	0.00	-15.07	44.02
----	----	------	-------	------	-------	-------	------	------	--------	-------

Segment Leq : 44.02 dBA

Total Leq All Segments: 51.48 dBA



Results segment # 1: Yonge St E (night)

Source height = 1.08 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.08 !	19.50 !	17.14 !	17.14

ROAD (0.00 + 41.81 + 0.00) = 41.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-44	0.00	59.51	0.00	-5.87	-5.93	0.00	0.00	-5.91	41.81

Segment Leq : 41.81 dBA



Results segment # 2: Yonge St C (night)

Source height = 1.08 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.08 !	19.50 !	17.14 !	17.14

ROAD (0.00 + 35.49 + 0.00) = 35.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-44	77	0.00	59.51	0.00	-5.87	-1.72	0.00	0.00	-16.43	35.49

Segment Leq : 35.49 dBA



Results segment # 3: Yonge St W (night)

Source height = 1.08 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
-----	+	-----	+	-----	+	-----
1.08	!	19.50	!	17.14	!	17.14

ROAD (0.00 + 36.94 + 0.00) = 36.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
77	90	0.00	59.51	0.00	-5.87	-11.41	0.00	0.00	-5.29	36.94

Segment Leq : 36.94 dBA



Results segment # 4: Ashford Dr N (night)

Source height = 0.98 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height (m)	!	Height (m)	!	Height (m)	!	Barrier Top (m)
-----	+	-----	+	-----	+	-----
0.98	!	19.50	!	10.86	!	10.86

ROAD (0.00 + 33.03 + 0.00) = 33.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-90	46	0.00	53.51	0.00	-2.14	-1.22	0.00	0.00	-17.13	33.03

Segment Leq : 33.03 dBA



Results segment # 5: Ashford Dr S (night)

OLA1_V2

Source height = 0.98 m

Barrier height for grazing incidence

```
-----
Source      ! Receiver      ! Barrier      ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
          0.98 !          19.50 !          14.09 !          14.09
-----
```

ROAD (0.00 + 37.51 + 0.00) = 37.51 dBA

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
    46     90   0.00  60.84   0.00  -2.14  -6.12   0.00   0.00 -15.07  37.51
-----
```

Segment Leq : 37.51 dBA

Total Leq All Segments: 44.96 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.26
(NIGHT): 48.65

↑

↑