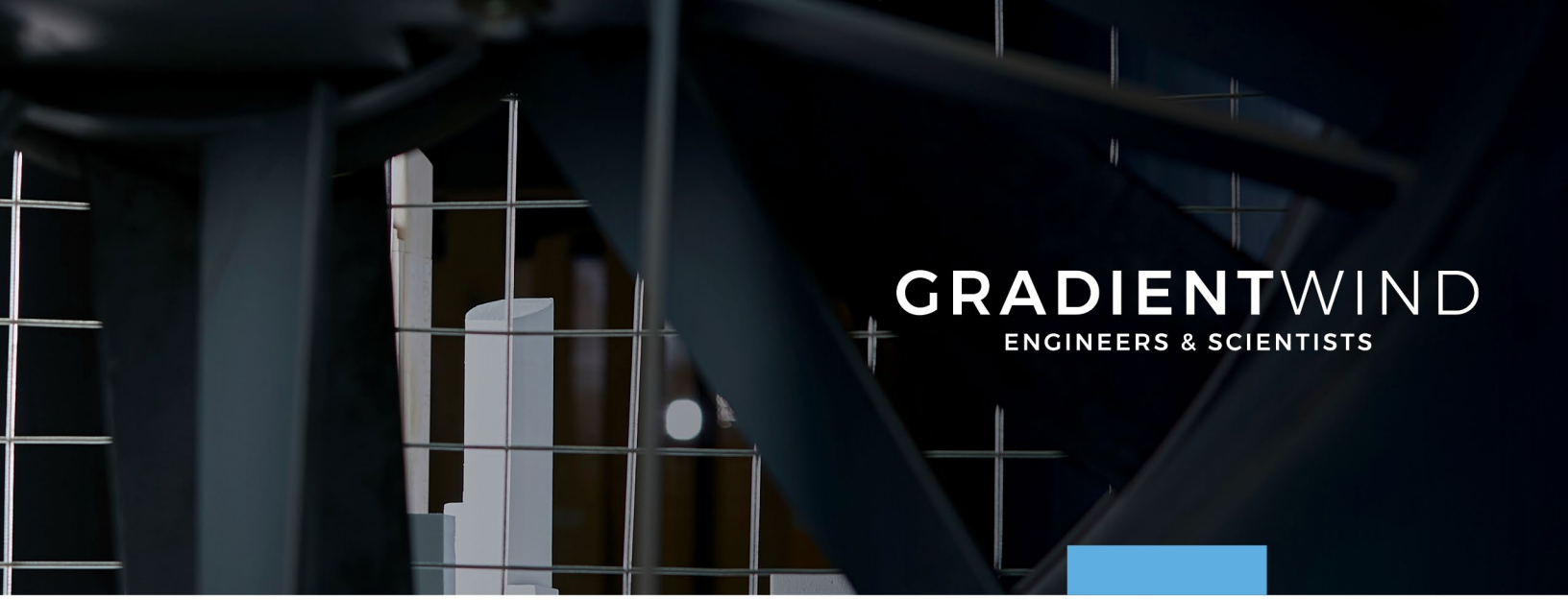
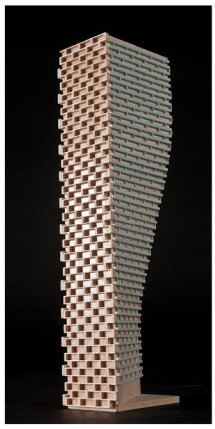


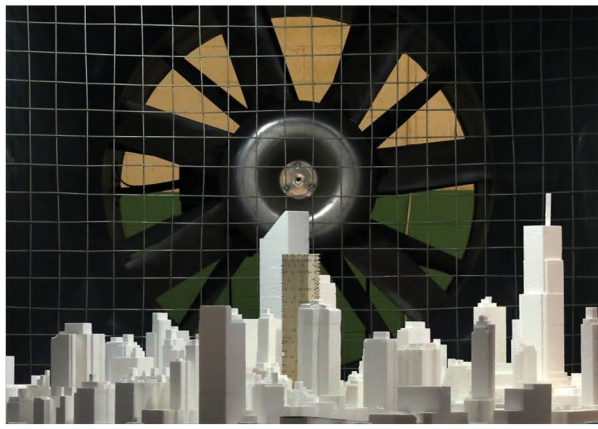
GRADIENTWIND
ENGINEERS & SCIENTISTS

ROADWAY TRAFFIC NOISE ASSESSMENT

110 York Street
Ottawa, Ontario

Report: 13-039 - T. Noise Detailed





November 8, 2024

PREPARED FOR
Claridge Homes
2001-210 Gladstone Avenue
Ottawa, ON K2P 0Y6

PREPARED BY
Efser Kara, MSc, LEED GA, Acoustic Scientist
Joshua Foster, P.Eng., Lead Engineer

EXECUTIVE SUMMARY

This report describes a roadway traffic noise assessment undertaken to satisfy the requirements for a Site Plan Control (SPC) application submission for the proposed hotel extension to the existing Andaz Hotel located at 110 York Street in Ottawa, Ontario. The subject site is situated to the southeast of the intersection of York Street and Dalhousie Street. The proposed development comprises a 17-storey hotel extension to the immediate east of the existing Andaz Hotel, inclusive of a three-storey podium. The building is topped with a mechanical penthouse (MPH) level. Figure 1 illustrates a complete site plan with the surrounding context.

The assessment is based on (i) theoretical noise prediction methods that conform to the Ministry of the Environment, Conservation and Parks (MECP) and the City of Ottawa requirements; (ii) noise level criteria as specified by the City of Ottawa's Environmental Noise Control Guidelines (ENCG); (iii) future vehicular traffic volumes based on the City of Ottawa's Official Plan roadway classifications; and (iv) architectural drawings prepared by NEUF architect(e)s in October 2024.

The results of the current analysis indicate that noise levels will range between 52 and 57 dBA during the daytime period (07:00-23:00) and between 44 and 50 dBA during the nighttime period (23:00-07:00). The highest noise level (57 dBA) occurs at the north and south façades of the development.

Results of the calculations indicate that OBC-compliant building components will be sufficient for the development. The building will also require forced air heating and provision for central air conditioning or a similar mechanical system. However, it is anticipated that the hotel rooms will be provided with air conditioning that will allow guests to keep windows closed and maintain a comfortable living environment. The following Type D Warning Clauses will be required on, Purchase and Sale Agreements for the benefit of the hotel owner and operator, as summarized in Section 6.

The noise levels at the outdoor living areas (OLA) are below the 60 dBA criterion. Therefore, noise mitigation measures will not be required for these areas. The following Type A Warning Clauses will be required on, Purchase and Sale Agreements for the benefit of the hotel owner and operator, as summarized in Section 6.

With regard to stationary noise impacts, no large equipment was observed at the surroundings of the site that may impact the proposed development except the cooling that is located at the rooftop of the existing Andaz Hotel. However, as the cooling tower is screened in, no impacts on the proposed addition is anticipated.

The stationary noise impacts from the development onto the surroundings can be minimized by judicious placement of mechanical equipment or the incorporation of silencers and noise screens as necessary. It is also recommended that any large pieces of HVAC equipment, which are required to be situated outdoors, be placed closer to the penthouse to avoid the line of sight with the surrounding noise-sensitive buildings.

TABLE OF CONTENTS

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by Claridge Homes to undertake a roadway traffic noise feasibility assessment to satisfy the requirements for a Site Plan Control (SPC) application submission for the proposed hotel extension to the existing Andaz Hotel located at 110 York Street in Ottawa, Ontario. This report summarizes the methodology, results, and recommendations related to the assessment of exterior noise levels generated by local roadway traffic.

Our work is based on theoretical noise calculation methods conforming to the City of Ottawa[1] and Ministry of the Environment, Conservation and Parks (MECP)[2] guidelines. Noise calculations were based on architectural drawings prepared by NEUF architect(e)s in October 2024, with future traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications.

2. TERMS OF REFERENCE

The focus of this roadway traffic noise assessment is the proposed hotel extension to the existing Andaz Hotel located at 110 York Street in Ottawa, Ontario. The subject site is situated to the southeast of the intersection of York Street and Dalhousie Street. The proposed development comprises a 17-storey hotel extension to the immediate east of the existing Andaz Hotel, inclusive of a three-storey podium. The building is topped with a mechanical penthouse (MPH) level.

Above the underground parking, the proposed development comprises a nominally rectangular planform, with main building access points at the northwest corner. Access to below grade parking is provided by a ramp to the southeast via rear drive aisle from Dalhousie Street. A landscaped area is located to the southeast of the subject site, which serves the adjacent development to the immediate south at 141 George Street. The proposed development is served by indoor amenities from Levels 1-3. The building steps back from all elevations at Level 4.

[1] City of Ottawa Environmental Noise Control Guidelines, January 2016
[2] Ontario Ministry of the Environment and Climate Change – Environmental Noise Guidelines, Publication NPC-300, Queens Printer for Ontario, Toronto, 2013

The balconies and terraces extending less than 4 metres from the façade are not considered as outdoor living areas (OLA) as per ENCG. The Level 4 was assessed as a potential outdoor living area (OLA) in this study.

The surroundings of the proposed building are characterized by mostly a mix of mid- and high-rise buildings from the east-northeast clockwise to the west-southwest, and by a mix of mostly low- and mid-rise buildings in the remaining compass directions. Notably, a 22-storey hotel is currently under construction at 126 York Street and 151 George Street to the immediate east of the proposed development, and a 22-storey residential building has been approved at 141 George Street to the immediate south of the proposed development.

The major sources of transportation noise impacting the study site are Dalhousie Street, Rideau Street and Murray Street. Figure 1 illustrates a complete site plan with the surrounding context.

3. OBJECTIVES

The principal objectives of this study are to (i) calculate the future noise and vibration levels on the study buildings produced by local transportation, and (ii) determine whether exterior noise levels exceed the allowable limits specified by the City of Ottawa's Environmental Noise Control Guidelines (ENCG).

4. METHODOLOGY

4.1 Background

Noise can be defined as any obtrusive sound. It is created at a source, transmitted through a medium, such as air, and intercepted by a receiver. Noise may be characterized in terms of the power of the source or the sound pressure at a specific distance. While the power of a source is characteristic of that particular source, the sound pressure depends on the location of the receiver and the path that the noise takes to reach the receiver. Measurement of noise is based on the decibel unit, dBA, which is a logarithmic ratio referenced to a standard noise level (2×10^{-5} Pascals). The 'A' suffix refers to a weighting scale, which better represents how the noise is perceived by the human ear. With this scale, a doubling of power results in a 3 dBA increase in measured noise levels and is just perceptible to most people. An increase of 10 dBA is often perceived to be twice as loud.

4.2 Roadway Traffic Noise

4.2.1 Criteria for Roadway Traffic Noise

For surface roadway traffic noise, the equivalent sound energy level, L_{eq}, provides a measure of the time-varying noise levels, which is well correlated with the annoyance of sound. It is defined as the continuous sound level, which has the same energy as a time-varying noise level over a period of time. For roadways, the L_{eq} is commonly calculated on the basis of a 16-hour (L_{eq16}) daytime (07:00-23:00) / 8-hour (L_{eq8}) nighttime (23:00-07:00) split to assess its impact on residential buildings. The City of Ottawa's Environmental Noise Control Guidelines (ENCG) specifies that the recommended indoor noise limit range (that is relevant to this study) is 50, 45 and 40 dBA for retail space, living rooms and sleeping quarters, respectively, for roadway traffic, as listed in Table 1.

TABLE 1: INDOOR SOUND LEVEL CRITERIA (ROAD) [3]

Type of Space	Time Period	Leq (dBA)
General offices, **reception areas**, retail stores, etc.	07:00 – 23:00	50
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, day-care centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, etc.	07:00 – 23:00	45
Sleeping quarters of hotels/motels	23:00 – 07:00	45
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	23:00 – 07:00	40

Predicted noise levels at the plane of window (POW) dictate the action required to achieve the recommended sound levels. An open window is considered to provide a 10 dBA reduction in noise, while a standard closed window is capable of providing a minimum 20 dBA noise reduction[4]. A closed window due to a ventilation requirement will bring noise levels down to achieve an acceptable indoor environment[5]. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the need for having windows and doors closed, which triggers

[3] Adapted from ENCG 2016 – Tables 2.2b and 2.2c
[4] Burberry, P.B. (2014). Mitchell's Environment and Services. Routledge, Page 125
[5] MOECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.8

the need for forced air heating with provision for central air conditioning. Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, air conditioning will be required and building components will require higher levels of sound attenuation[6].

The sound level criterion for outdoor living areas (OLA) is 55 dBA, which applies during the daytime period (07:00 to 23:00). When noise levels exceed 55 dBA and are less than or equal to 60 dBA, mitigation should be considered to reduce noise levels to as close to 55 dBA if technically, economically, and administratively feasible. If noise levels exceed 60 dBA, mitigation must be provided to reduce noise levels at or below 60 dBA. If these measures are not provided, prospective purchasers or tenants should be informed of potential noise problems by a warning clause.

4.2.2 Theoretical Roadway Noise Predictions

Noise predictions were performed with the aid of the MECP computerized noise assessment program, STAMSON 5.04, for road analysis. Appendix A includes the STAMSON 5.04 input and output data.

Roadway traffic noise calculations were performed by treating each roadway segment as separate line sources of noise. In addition to the traffic volumes summarized in Table 2, theoretical noise predictions were based on the following parameters:

- Truck traffic on all roadways was taken to comprise 5% heavy trucks and 7% medium trucks, as per ENCG requirements for noise level predictions.
- The day/night split for all streets was taken to be 92%/8%, respectively.
- Ground surfaces were taken to be reflective due to the presence of hard (paved) ground.
- Topography was assumed to be a flat/gentle slope surrounding the study building.
- For select sources where appropriate, the proposed building as well as existing surrounding buildings were considered as barriers, partially or fully obstructing exposure to the source as illustrated by exposure angles in Figures 3-5.
- Noise receptors were strategically placed at eight (8) locations around the study area, see Figure 2.

[6] MOECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.1.3

4.2.3 Roadway Traffic Volumes

The ENCG dictates that noise calculations should consider future sound levels based on a roadway's classification at the mature state of development. Therefore, traffic volumes are based on the roadway classifications outlined in the City of Ottawa's Official Plan (OP) and Transportation Master Plan[7] which provide additional details on future roadway expansions. Average Annual Daily Traffic (AADT) volumes are then based on data in Table B1 of the ENCG for each roadway classification. Table 2 (below) summarizes the AADT values used for each roadway included in this assessment.

TABLE 2: ROADWAY TRAFFIC DATA

Segment	Roadway Traffic Data	Speed Limit (km/h)	Traffic Volumes
Dalhousie Street	2-Lane Urban Collector	40*	**8,000**
Rideau Street	2-Lane Urban Arterial	50	**15,000**
Murray Street	2-Lane Urban Arterial	50	**15,000**

*The posted speed of the Dalhousie Street is 30 km/hr, however, the speed of a road segment can be a minimum of 40 km/hr in STAMSON.

[7] City of Ottawa Transportation Master Plan, November 2013

5. RESULTS AND DISCUSSION

5.1 Roadway Traffic Noise Levels

The results of the roadway traffic noise calculations are summarized in Table 3 below. A complete set of input and output data from all STAMSON 5.04 calculations are available in Appendix A.

TABLE 3: EXTERIOR NOISE LEVELS DUE TO ROAD TRAFFIC

Receptor Number	Receptor Height Above Grade (m)	Receptor Type – Location	STAMSON 5.04 Noise Level (dBA)	
			Day	Night
1	10.5	POW – Podium North Façade	57	50
2	10.5	POW – Podium East Façade	52	44
3	10.5	POW – Podium South Façade	57	49
4	53.5	POW – Level 17 North Façade	56	48
5	53.5	POW – Level 17 East Façade	52	44
6	53.5	POW – Level 17 South Façade	56	49
7	13.5	OLA – Level 4 Amenity Terrace North	57	N/A*
8	13.5	OLA – Level 4 Amenity Terrace South	56	N/A*

*Noise levels at OLAs during the nighttime are not considered, as per the ENCG.

The results of the current analysis indicate that noise levels will range between 52 and 57 dBA during the daytime period (07:00-23:00) and between 44 and 50 dBA during the nighttime period (23:00-07:00). The highest noise level (57 dBA) occurs at the north and south façades of the development.

Results of the calculations indicate that OBC-compliant building components will be sufficient for the development. The building will also require forced air heating and provision for central air conditioning or a similar mechanical system. However, it is anticipated that the hotel rooms will be provided with air conditioning that will allow occupants to keep windows closed and maintain a comfortable living environment. In addition to ventilation requirements, Warning Clauses will also be required to be placed on all Lease, Purchase and Sale Agreements. The noise levels at the outdoor living areas (OLA) are below 60 dBA criterion. Therefore, noise mitigation measures will not be required for these areas.

6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that noise levels will range between 52 and 57 dBA during the daytime period (07:00-23:00) and between 44 and 50 dBA during the nighttime period (23:00-07:00). The highest noise level (57 dBA) occurs at the north and south façades of the development.

Results of the calculations indicate that OBC-compliant building components will be sufficient for the development. The building will also require forced air heating and provision for central air conditioning or a similar mechanical system. However, it is anticipated that the hotel rooms will be provided with air conditioning (or similar mechanical systems) that will allow guests to keep windows closed and maintain a comfortable living environment. The following Type D Warning Clauses will be required on, Purchase and Sale Agreements for the benefit of the hotel owner and operator, as summarized below:

Type D:

> *"This hotel has been supplied with an air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City or Ottawa and the Ministry of the Environment."*

The noise levels at the outdoor living areas (OLA) are below the 60 dBA criterion. Therefore, noise mitigation measures will not be required for these areas. The following Type A Warning Clauses will be required on, Purchase and Sale Agreements for the benefit of the hotel owner and operator, as summarized below:

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.”*

With regard to stationary noise impacts, no large equipment was observed at the surroundings of the site that may impact the proposed development except the cooling that is located at the rooftop of the existing Andaz Hotel. However, as the cooling tower is screened in, no impacts on the proposed addition is anticipated.

The stationary noise impacts from the development onto the surroundings can be minimized by judicious placement of mechanical equipment or the incorporation of silencers and noise screens as necessary. It is also recommended that any large pieces of HVAC equipment, which are required to be situated outdoors, be placed closer to the penthouse to avoid the line of sight with the surrounding noise-sensitive buildings.

This concludes our roadway traffic noise feasibility assessment and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

Sincerely,

Gradient Wind Engineering Inc.

Efser Kara, MSc, LEED GA
Acoustic Scientist

Joshua Foster, P.Eng.
Lead Engineer

Gradient Wind File 13-039 – T. Noise Detailed

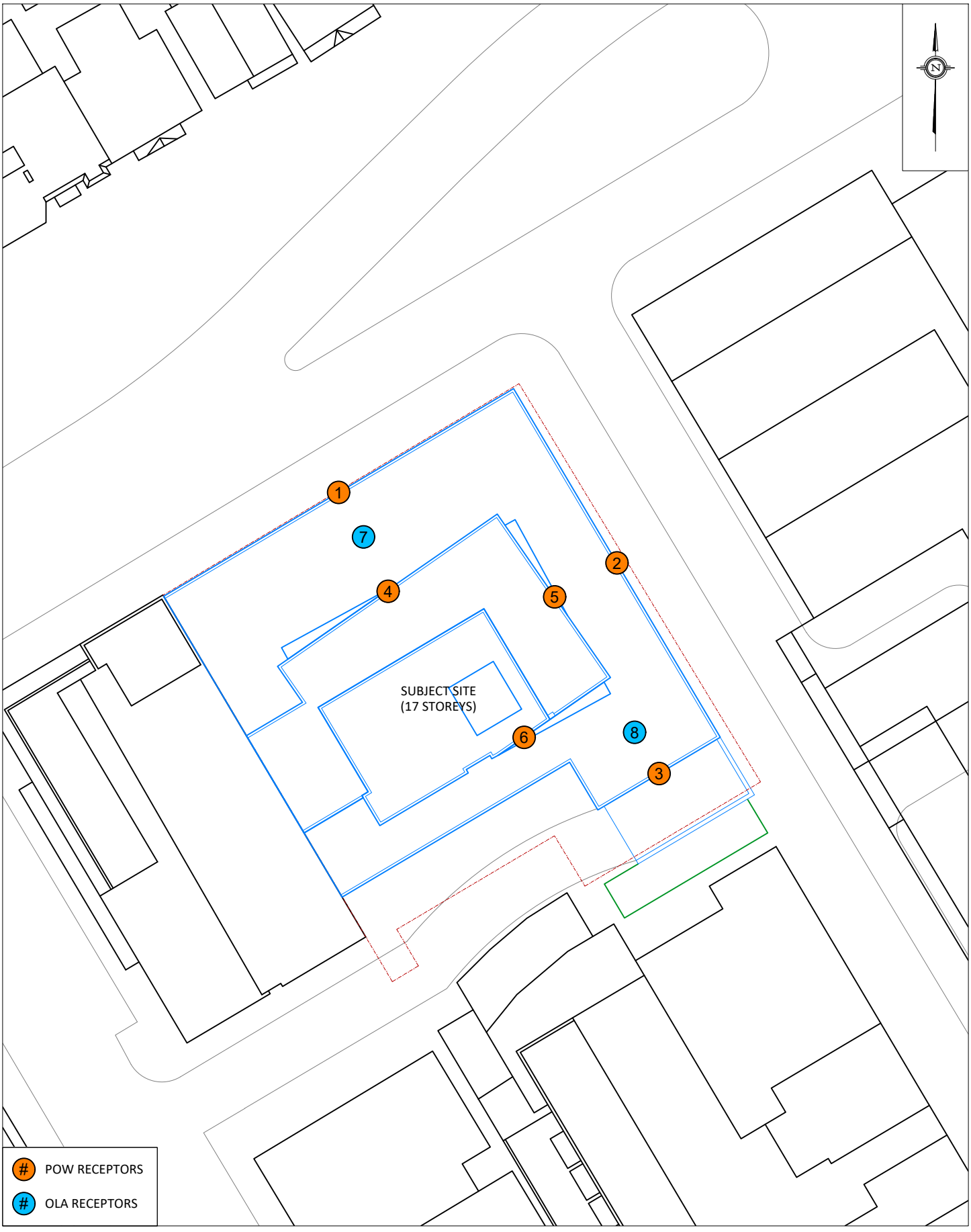
GRADIENTWIND
ENGINEERS & SCIENTISTS

127 WALGREEN ROAD, OTTAWA, ON
613 836 0934 • GRADIENTWIND.COM

PROJECT	110 YORK STREET, OTTAWA DETAILED TRAFFIC NOISE ASSESSMENT
SCALE	1:1500
DRAWING NO.	GW13-039-1
DATE	NOVEMBER 1, 2024
DRAWN BY	S.K.

DESCRIPTION

FIGURE 1:
SITE PLAN AND SURROUNDING CONTEXT



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PROJECT	110 YORK STREET, OTTAWA DETAILED TRAFFIC NOISE ASSESSMENT
SCALE	1:500
DRAWING NO.	GW13-039-2
DATE	NOVEMBER 1, 2024
DRAWN BY	S.K.

DESCRIPTION

FIGURE 2:
RECEPTOR LOCATIONS

GRADIENTWIND ENGINEERS & SCIENTISTS 127 WALGREEN ROAD, OTTAWA, ON 613 836 0934 • GRADIENTWIND.COM	PROJECT: 110 YORK STREET, OTTAWA DETAILED TRAFFIC NOISE ASSESSMENT		DESCRIPTION: FIGURE 3: STAMSON INPUT DATA FOR RECEPTORS 1, 2, & 8
	SCALE: 1:1500	DRAWING NO.: GW13-039-3	
	DATE: NOVEMBER 1, 2024	DRAWN BY: E.K.	

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PROJECT	110 YORK STREET, OTTAWA DETAILED TRAFFIC NOISE ASSESSMENT		
SCALE	1:1500	DRAWING NO.	GW13-039-4
DATE	NOVEMBER 1, 2024	DRAWN BY	E.K.

DESCRIPTION

FIGURE 4:
STAMSON INPUT DATA FOR RECEPTORS
4 & 5

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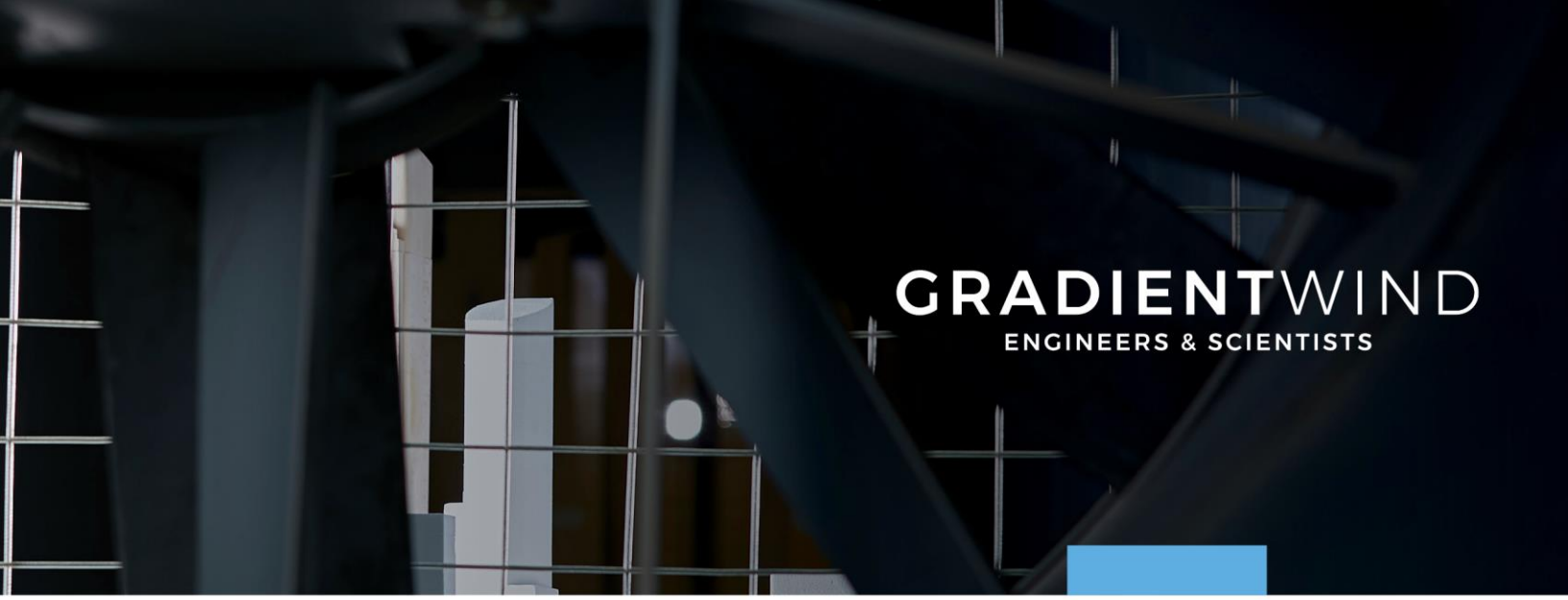
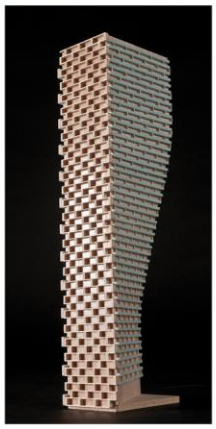
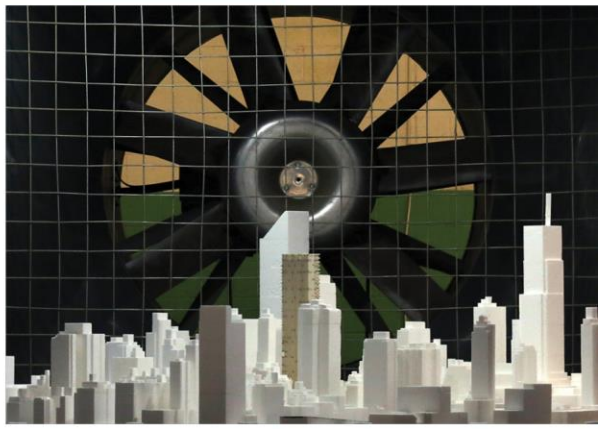
PROJECT	110 YORK STREET, OTTAWA DETAILED TRAFFIC NOISE ASSESSMENT		
SCALE	1:1500	DRAWING NO.	GW13-039-5
DATE	NOVEMBER 1, 2024	DRAWN BY	E.K.

DESCRIPTION

FIGURE 5:
STAMSON INPUT DATA FOR RECEPTORS
3, 6, & 7







APPENDIX A

STAMSON 5.04 – INPUT AND OUTPUT DATA

127 WALGREEN ROAD, OTTAWA, ON, CANADA K0A 1L0 | 613 836 0934
GRADIENTWIND.COM

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 14:50:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r01.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Dalhousie 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 : 51.00 / 51.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 192.00 / 192.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Dalhousie St (day)

Source height = 1.50 m

ROAD (0.00 + 55.63 + 0.00) = 55.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	63.96	0.00	-5.31	-3.01	0.00	0.00	0.00	55.63

Segment Leq : 55.63 dBA

Results segment # 2: Murray St (day)

Source height = 1.50 m

ROAD (0.00 + 52.07 + 0.00) = 52.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.48	0.00	-11.07	0.00	0.00	-5.34	0.00	52.07

Segment Leq : 52.07 dBA

Total Leq All Segments: 57.22 dBA

Results segment # 1: Dalhousie St (night)

Source height = 1.50 m

ROAD (0.00 + 48.04 + 0.00) = 48.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	56.36	0.00	-5.31	-3.01	0.00	0.00	0.00	48.04

Segment Leq : 48.04 dBA

Results segment # 2: Murray St (night)

Source height = 1.50 m

ROAD (0.00 + 44.47 + 0.00) = 44.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.88	0.00	-11.07	0.00	0.00	-5.34	0.00	44.47

Segment Leq : 44.47 dBA

Total Leq All Segments: 49.62 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.22
(NIGHT): 49.62

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 14:50:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r02.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 193.00 / 193.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 212.00 / 212.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Rideau St (day)

Source height = 1.50 m

ROAD (0.00 + 49.04 + 0.00) = 49.04 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 0 0.00 68.48 0.00 -11.09 -3.01 0.00 -5.34 0.00 49.04

Segment Leq : 49.04 dBA

Results segment # 2: Murray St (day)

Source height = 1.50 m

ROAD (0.00 + 48.64 + 0.00) = 48.64 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
0 90 0.00 68.48 0.00 -11.50 -3.01 0.00 -5.32 0.00 48.64

Segment Leq : 48.64 dBA

Total Leq All Segments: 51.85 dBA

Results segment # 1: Rideau St (night)

Source height = 1.50 m

ROAD (0.00 + 41.44 + 0.00) = 41.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	60.88	0.00	-11.09	-3.01	0.00	-5.34	0.00	41.44

Segment Leq : 41.44 dBA

Results segment # 2: Murray St (night)

Source height = 1.50 m

ROAD (0.00 + 41.05 + 0.00) = 41.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	60.88	0.00	-11.50	-3.01	0.00	-5.32	0.00	41.05

Segment Leq : 41.05 dBA

Total Leq All Segments: 44.26 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.85
(NIGHT): 44.26

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 17:25:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r03.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 174.00 / 174.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Dalhousie 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 : 64.00 / 64.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Rideau St (day)

Source height = 1.50 m

ROAD (0.00 + 52.48 + 0.00) = 52.48 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.00 68.48 0.00 -10.64 0.00 0.00 -5.36 0.00 52.48

Segment Leq : 52.48 dBA

Results segment # 2: Dalhousie St (day)

Source height = 1.50 m

ROAD (0.00 + 54.64 + 0.00) = 54.64 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 0 0.00 63.96 0.00 -6.30 -3.01 0.00 0.00 0.00 54.64

Segment Leq : 54.64 dBA

Total Leq All Segments: 56.70 dBA

Results segment # 1: Rideau St (night)

Source height = 1.50 m

ROAD (0.00 + 44.88 + 0.00) = 44.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.88	0.00	-10.64	0.00	0.00	-5.36	0.00	44.88

Segment Leq : 44.88 dBA

Results segment # 2: Dalhousie St (night)

Source height = 1.50 m

ROAD (0.00 + 47.05 + 0.00) = 47.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	56.36	0.00	-6.30	-3.01	0.00	0.00	0.00	47.05

Segment Leq : 47.05 dBA

Total Leq All Segments: 49.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.70
(NIGHT): 49.11

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 15:22:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r04.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: DalhousieSt1 (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: DalhousieSt1 (day/night)

Angle1 Angle2 : -4.00 deg 30.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 53.50 / 53.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -4.00 deg Angle2 : 30.00 deg
Barrier height : 54.00 m
Barrier receiver distance : 40.00 / 40.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 203.00 / 203.00 m
Receiver height : 53.50 / 53.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: DalhousieSt2 (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: DalhousieSt2 (day/night)

Angle1 Angle2 : 30.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 53.50 / 53.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: DalhousieSt1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 53.50 ! 11.90 ! 11.90

ROAD (0.00 + 31.49 + 0.00) = 31.49 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-4 30 0.00 63.96 0.00 -5.23 -7.24 0.00 0.00 -20.00 31.49

Segment Leq : 31.49 dBA

Results segment # 2: Murray St (day)

Source height = 1.50 m

ROAD (0.00 + 51.84 + 0.00) = 51.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.48	0.00	-11.31	0.00	0.00	-5.33	0.00	51.84

Segment Leq : 51.84 dBA

Results segment # 3: DalhousieSt2 (day)

Source height = 1.50 m

ROAD (0.00 + 53.96 + 0.00) = 53.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
30	90	0.00	63.96	0.00	-5.23	-4.77	0.00	0.00	0.00	53.96

Segment Leq : 53.96 dBA

Total Leq All Segments: 56.05 dBA

Results segment # 1: DalhousieSt1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 53.50 ! 11.90 ! 11.90

ROAD (0.00 + 23.90 + 0.00) = 23.90 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-4 30 0.00 56.36 0.00 -5.23 -7.24 0.00 0.00 -20.00 23.90

Segment Leq : 23.90 dBA

Results segment # 2: Murray St (night)

Source height = 1.50 m

ROAD (0.00 + 44.24 + 0.00) = 44.24 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.00 60.88 0.00 -11.31 0.00 0.00 -5.33 0.00 44.24

Segment Leq : 44.24 dBA

Results segment # 3: DalhousieSt2 (night)

Source height = 1.50 m

ROAD (0.00 + 46.36 + 0.00) = 46.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
30	90	0.00	56.36	0.00	-5.23	-4.77	0.00	0.00	0.00	46.36

Segment Leq : 46.36 dBA

Total Leq All Segments: 48.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.05
(NIGHT): 48.45

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 15:26:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r05.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg -4.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 194.00 / 194.00 m
Receiver height : 53.50 / 53.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -4.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 211.00 / 211.00 m
Receiver height : 53.50 / 53.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Rideau St (day)

Source height = 1.50 m

ROAD (0.00 + 48.82 + 0.00) = 48.82 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 -4 0.00 68.48 0.00 -11.12 -3.21 0.00 -5.34 0.00 48.82

Segment Leq : 48.82 dBA

Results segment # 2: Murray St (day)

Source height = 1.50 m

ROAD (0.00 + 48.85 + 0.00) = 48.85 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-4 90 0.00 68.48 0.00 -11.48 -2.82 0.00 -5.32 0.00 48.85

Segment Leq : 48.85 dBA

Total Leq All Segments: 51.85 dBA

Results segment # 1: Rideau St (night)

Source height = 1.50 m

ROAD (0.00 + 41.22 + 0.00) = 41.22 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 -4 0.00 60.88 0.00 -11.12 -3.21 0.00 -5.34 0.00 41.22

Segment Leq : 41.22 dBA

Results segment # 2: Murray St (night)

Source height = 1.50 m

ROAD (0.00 + 41.26 + 0.00) = 41.26 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-4 90 0.00 60.88 0.00 -11.48 -2.82 0.00 -5.32 0.00 41.26

Segment Leq : 41.26 dBA

Total Leq All Segments: 44.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.85
(NIGHT): 44.25

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 17:32:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r06.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 183.00 / 183.00 m
Receiver height : 53.50 / 53.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Dalhousie 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 : 54.00 / 54.00 m
Receiver height : 53.50 / 53.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -21.00 deg Angle2 : 0.00 deg
Barrier height : 104.00 m
Barrier receiver distance : 44.00 / 44.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: Rideau St (day)

Source height = 1.50 m

ROAD (0.00 + 52.27 + 0.00) = 52.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.48	0.00	-10.86	0.00	0.00	-5.35	0.00	52.27

Segment Leq : 52.27 dBA

Results segment # 2: Dalhousie St (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	53.50	11.13	11.13

ROAD (54.23 + 29.06 + 0.00) = 54.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-21	0.00	63.96	0.00	-5.56	-4.16	0.00	0.00	0.00	54.23
-21	0	0.00	63.96	0.00	-5.56	-9.33	0.00	0.00	-20.00	29.06

Segment Leq : 54.24 dBA

Total Leq All Segments: 56.38 dBA

Results segment # 1: Rideau St (night)

Source height = 1.50 m

ROAD (0.00 + 44.67 + 0.00) = 44.67 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.00 60.88 0.00 -10.86 0.00 0.00 -5.35 0.00 44.67

Segment Leq : 44.67 dBA

Results segment # 2: Dalhousie St (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)

1.50 ! 53.50 ! 11.13 ! 11.13

ROAD (46.64 + 21.47 + 0.00) = 46.65 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 -21 0.00 56.36 0.00 -5.56 -4.16 0.00 0.00 0.00 46.64

-21 0 0.00 56.36 0.00 -5.56 -9.33 0.00 0.00 -20.00 21.47

Segment Leq : 46.65 dBA

Total Leq All Segments: 48.78 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.38
(NIGHT): 48.78

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 16:48:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r07.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: DalhousieSt1 (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: DalhousieSt1 (day/night)

Angle1 Angle2 : -26.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 51.00 / 51.00 m
Receiver height : 13.50 / 13.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -26.00 deg Angle2 : 15.00 deg
Barrier height : 104.00 m
Barrier receiver distance : 40.00 / 40.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -75.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 197.00 / 197.00 m
Receiver height : 13.50 / 13.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -75.00 deg Angle2 : 90.00 deg
Barrier height : 12.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: DalhousieSt1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 4.08 ! 4.08

ROAD (0.00 + 32.22 + 54.84) = 54.86 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-26 15 0.00 63.96 0.00 -5.31 -6.42 0.00 0.00 -20.00 32.22
---
15 90 0.00 63.96 0.00 -5.31 -3.80 0.00 0.00 0.00 54.84

Segment Leq : 54.86 dBA

Results segment # 2: Murray St (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 13.20 ! 13.20

ROAD (0.00 + 51.58 + 0.00) = 51.58 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-75 90 0.00 68.48 0.00 -11.18 -0.38 0.00 -5.34 0.00 51.58
-75 90 0.00 68.48 0.00 -11.18 -0.38 0.00 0.00 -0.43 56.49*
-75 90 0.00 68.48 0.00 -11.18 -0.38 0.00 0.00 0.00 56.92
---

* Bright Zone !

Segment Leq : 51.58 dBA

Total Leq All Segments: 56.53 dBA

Results segment # 1: DalhousieSt1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 4.08 ! 4.08

ROAD (0.00 + 24.62 + 47.25) = 47.27 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-26 15 0.00 56.36 0.00 -5.31 -6.42 0.00 0.00 -20.00 24.62
---
15 90 0.00 56.36 0.00 -5.31 -3.80 0.00 0.00 0.00 47.25

Segment Leq : 47.27 dBA

Results segment # 2: Murray St (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 13.20 ! 13.20

ROAD (0.00 + 43.99 + 0.00) = 43.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	90	0.00	60.88	0.00	-11.18	-0.38	0.00	-5.34	0.00	43.99
-75	90	0.00	60.88	0.00	-11.18	-0.38	0.00	0.00	-0.43	48.89*
-75	90	0.00	60.88	0.00	-11.18	-0.38	0.00	0.00	0.00	49.32

* Bright Zone !

Segment Leq : 43.99 dBA

Total Leq All Segments: 48.94 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.53
(NIGHT): 48.94

STAMSON 5.0 NORMAL REPORT Date: 07-11-2024 17:38:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r08.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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 : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 20 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 178.00 / 178.00 m
Receiver height : 13.50 / 13.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 84.00 deg
Barrier height : 12.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 11.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 64.00 / 64.00 m
Receiver height : 13.50 / 13.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -6.00 deg Angle2 : 11.00 deg
Barrier height : 104.00 m
Barrier receiver distance : 54.00 / 54.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: Rideau St (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 13.16 ! 13.16

ROAD (0.00 + 52.24 + 0.00) = 52.24 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 84 0.00 68.48 0.00 -10.74 -0.15 0.00 -5.35 0.00 52.24
-90 84 0.00 68.48 0.00 -10.74 -0.15 0.00 0.00 -0.58 57.01*
-90 84 0.00 68.48 0.00 -10.74 -0.15 0.00 0.00 0.00 57.59
---

* Bright Zone !

Segment Leq : 52.24 dBA

Results segment # 2: Dalhousie St (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 3.37 ! 3.37

ROAD (54.34 + 27.41 + 0.00) = 54.35 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 -6 0.00 63.96 0.00 -6.30 -3.31 0.00 0.00 0.00 54.34

-6 11 0.00 63.96 0.00 -6.30 -10.25 0.00 0.00 -20.00 27.41

Segment Leq : 54.35 dBA

Total Leq All Segments: 56.43 dBA

Results segment # 1: Rideau St (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 13.16 ! 13.16

ROAD (0.00 + 44.64 + 0.00) = 44.64 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 84 0.00 60.88 0.00 -10.74 -0.15 0.00 -5.35 0.00 44.64
-90 84 0.00 60.88 0.00 -10.74 -0.15 0.00 0.00 -0.58 49.41*
-90 84 0.00 60.88 0.00 -10.74 -0.15 0.00 0.00 0.00 49.99
---

* Bright Zone !

Segment Leq : 44.64 dBA

Results segment # 2: Dalhousie St (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.50 ! 13.50 ! 3.37 ! 3.37

ROAD (46.75 + 19.81 + 0.00) = 46.76 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 -6 0.00 56.36 0.00 -6.30 -3.31 0.00 0.00 0.00 46.75

-6 11 0.00 56.36 0.00 -6.30 -10.25 0.00 0.00 -20.00 19.81

Segment Leq : 46.76 dBA

Total Leq All Segments: 48.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.43
(NIGHT): 48.84