APPENDIX B

Environmental Noise Study

VALCOUSTICS
Canada Ltd.
Sound solutions to acoustical challenges

30 Wertheim Court, Unit 25
Richmond Hill, Ontario, Canada L4B 1B9

email • solutions@valcoustics.com
web • www.valcoustics.com
telephone • 905 764 5223
fax • 905 764 6813

August 3, 2017

MTE Consultants Inc.
520 Bingemans Centre Drive
Kitchener, Ontario
N2B 3X9

Attention: Mr. Dave Hallman, P.Eng.

Re: Environmental Noise Study
Streetscaping Improvements
Main Street and Queen Street, Brampton
Our File No.: 116-0374

Dear Mr. Hallman:

1.0 INTRODUCTION

Streetscaping improvements are being made along Main Street from Wellington Street to Nelson Street and along Queen Street from Mill Street South to Chapel Street in the City of Brampton.

This report summarizes the expected noise impact from the proposed improvements. In addition, the need for noise mitigation based on the requirements of the Ministry of Transportation (MTO)/Ministry of the Environment (MOE) protocol and the Regional Municipality of Peel is evaluated.

2.0 ENVIRONMENTAL NOISE GUIDELINES

This section discusses the guidelines and criteria to be used in the noise impact assessment of any proposed roadway improvements.

2.1 MOE/MTO PROTOCOL

The Ministry of Environment and Climate Change (MOE) does not have noise guidelines specifically relating to the construction or widening of roadways. However, the MOE does have a protocol with the Ministry of Transportation (MTO) relating to Provincial Highway Expansions. The protocol states that the primary objective is to achieve sound exposures not exceeding 55 dBA or the preconstruction ambient sound exposure, whichever is higher, at outdoor receptor locations of noise sensitive receptors.

In addition to the absolute sound exposure, changes are also considered. Changes of 0 to 3 dBA are considered insignificant; 4 to 5 dBA are just noticeable and considered minor; 10 dBA and above are considered significant (perceived to be about twice as loud). The MTO/MOE protocol indicates that no mitigation is required for sound exposure increases of 0 to 5 dBA. Increases of greater than 5 dBA require investigation into the administrative, economic, and technical feasibility of effective

noise mitigation. To be implemented, a sound barrier must be shown to provide at least 5 dBA of attenuation.

2.2 REGIONAL MUNICIPALITY OF PEEL

The Region of Peel guidelines indicate that for local improvement or retrofit noise walls, a daytime sound exposure of 60 dBA is the objective for outdoor amenity areas of residential dwellings. As per the MOE/MTO protocol, the sound barrier must be shown to provide at least 5 dBA of attenuation.

2.3 CITY OF BRAMPTON

The City of Brampton has a noise attenuation policy for capital road projects as well as for retrofits. Similar to the Region of Peel requirements, the policy states that "*noise walls are proposed as mitigation for road widening to six lanes adjacent to existing older residential properties (reverse frontage and side flanking lots), provided that the noise levels in the Outdoor Living Areas are above 60 dBA and only if a reduction of 5 dBA or more can be achieved*".

3.0 NOISE SENSITIVE AREAS

Land uses designated as noise sensitive by the MOE/MTO consist of residential developments, hospitals, nursing/retirement homes, etc. Most of the lands within the study area are commercial. There were some residential dwellings at the periphery of the study area. However, these have been converted to either commercial or office uses.

A noise impact assessment on the commercial and office uses has been completed. These uses are not considered noise sensitive uses by the MOE/MTO.

4.0 NOISE IMPACT ASSESSMENT

4.1 TRAFFIC DATA

Future traffic information for Main Street and Queen Street in the area of this project was provided by Paradigm Transportation Solutions Limited. The traffic data is included as Table 1. The percentages of medium and heavy trucks were assumed to be 3% and 2%, respectively, of the total traffic volume. In addition, 90% of the traffic volume was assumed to occur during the daytime (i.e., 0700 to 2300 hours) period.

4.2 PROCEDURE

Sound exposures were calculated using STAMSON V5.04-ORNAMENT, the computerized road traffic noise prediction model of the MOE. This is an accepted approach by the MTO, as outlined in their Environmental Office Manual Technical Areas – Noise.

Based on the traffic data, daytime sound exposures were calculated at the closest facades to each roadway. Shielding from existing buildings was included in the analysis.

Since the ambient sound environment is dominated by Main Street and Queen Street road traffic, noise sources other than Main Street and Queen Street were ignored. This is a conservative approach since, in the noise impact assessment, these secondary noise sources would tend to reduce the significance of sound exposure changes (i.e., impact) due to the proposed improvements.

4.3 RESULTS

Main Street at Wellington Street

Buildings are set back about 9 to 10 m from the centreline of Main Street along this section. At this setback distance, the existing daytime sound levels are at about 66 dBA.

The proposed improvements are not expected to change the location of the centreline of Main Street by more than 1 m. Thus, any minor shift of less than 1 m will have no significant impact on the sound levels at the closest building facades. Thus, the only potential noise impact will be caused by any changes to the traffic volumes in the future. Along this section of Main Street, future (i.e., 2021 and 2031) traffic volumes are expected to decrease. Future 2021 daytime sound levels are predicted to be 65 dBA, about 0.6 dBA lower than the existing daytime sound levels. Future 2031 daytime sound levels are predicted to be 65 dBA, 0.9 dBA lower than the existing daytime sound levels.

Based on the above, there are no adverse noise impacts predicted due to the proposed streetscape improvements.

Main Street at Queen Street

Buildings are set back about 9 to 10 m from the centreline of Main Street along this section. At this setback distance, the existing daytime sound levels are at about 70 dBA due to the combined influence of Main Street and Queen Street.

The proposed improvements are not expected to change the location of the centreline of Main Street or Queen Street by more than 1 m. Thus, any minor shift of less than 1 m will have no significant impact on the sound levels at the closest building facades. Thus, the only potential noise impact will be caused by any changes to the traffic volumes in the future. Along this section of Main Street, traffic volumes are expected to increase to the Year 2021 when they will start to decrease. Future 2021 daytime sound levels are predicted to be 71 dBA, about 0.9 dBA higher than the existing daytime sound levels. Future 2031 daytime sound levels are predicted to be 71 dBA, 0.3 dBA higher than the existing daytime sound levels.

Based on the above, insignificant noise impacts of less than 1 dB are predicted in the future with the proposed streetscape improvements.

Main Street at Nelson/Theatre Lane

Buildings are set back about 9 to 10 m from the centreline of Main Street along this section. At this setback distance, the existing daytime sound levels are at about 66 dBA.

The proposed improvements are not expected to change the location of the centreline of Main Street by more than 1 m. Thus, any minor shift of less than 1 m will have no significant impact on the sound levels at the closest building facades. Thus, the only potential noise impact will be caused by any changes to the traffic volumes in the future. Along this section of Main Street, future (i.e., 2021 and 2031) traffic volumes are expected to decrease. Future 2021 daytime sound levels are predicted to be 65 dBA, about 0.3 dBA lower than the existing daytime sound levels. Future 2031 daytime sound levels are predicted to be 64 dBA, 1.5 dBA lower than the existing daytime sound levels.

Based on the above, there are no adverse noise impacts predicted due to the proposed streetscape improvements.

Queen Street at Mill Street

Buildings are set back about 10 to 14 m from the centreline of Queen Street along this section. At this setback distance, the existing daytime sound levels are at about 67 dBA.

The proposed improvements are not expected to change the location of the centreline of Queen Street by more than 1 m. Thus, any minor shift of less than 1 m will have no significant impact on the sound levels at the closest building facades. Thus, the only potential noise impact will be caused by any changes to the traffic volumes in the future. Along this section of Queen Street, traffic volumes are expected to increase to the Year 2021 when they will start to decrease. Future 2021 daytime sound levels are predicted to be 68 dBA, about 0.8 dBA higher than the existing daytime sound levels. Future 2031 daytime sound levels are predicted to be 68 dBA, 0.3 dBA higher than the existing daytime sound levels.

Based on the above, insignificant noise impacts of less than 1 dB are predicted in the future with the proposed streetscape improvements.

Queen Street at Chapel Street/Theatre Lane

Buildings are set back about 10 to 14 m from the centreline of Queen Street along this section. At this setback distance, the existing daytime sound levels are at about 67 dBA.

The proposed improvements are not expected to change the location of the centreline of Queen Street by more than 1 m. Thus, any minor shift of less than 1 m will have no significant impact on the sound levels at the closest building facades. Thus, the only potential noise impact will be caused by any changes to the traffic volumes in the future. Along this section of Queen Street, traffic volumes are expected to increase to the Year 2021 when they will start to decrease. Future 2021 daytime

sound levels are predicted to be 68 dBA, about 1.1 dBA higher than the existing daytime sound levels. Future 2031 daytime sound levels are predicted to be 67 dBA, 0.3 dBA higher than the existing daytime sound levels.

Based on the above, insignificant noise impacts of 1 dB or less are predicted in the future with the proposed streetscape improvements.

As outlined herein, noise mitigation measures need to be considered for noise sensitive receptors where the sound exposure change is greater than 5 dBA and the resultant sound exposures are higher than 55 dBA or for receptors where the resultant sound exposures are higher than 60 dBA. In this case, there are no noise sensitive receptors immediately adjacent to the roadways within the study area. The noise impacts predicted along the length of the study area are either predicted to be insignificant (i.e., 1 dBA or less) or the daytime sound levels will actually decrease. Thus, noise mitigation measures are not required.

5.0 CONCLUSION

The streetscaping improvements along Main Street between Wellington Street and Nelson/Theatre Lane and along Queen Street between Mill Street South and Chapel Street will have insignificant noise impacts on the buildings immediately adjacent to the roadways. Thus, noise mitigation is not required. Even if noise mitigation were required, sound barriers could not be installed for these sections of roadway as they would impede access to the adjacent businesses that have their store fronts facing towards the roadways.

Yours truly,

VALCOUSTICS CANADA LTD.

Per: **John Emeljanow, B.Eng., P.Eng.**

JE\hd
J:\2016\1160374\000\Letters\Report.wpd

Enclosures

TABLE 1

TRAFFIC DATA[1]

Roadway	2011 AADT[2]	2021 AADT	2031 AADT
Main at Wellington	10200	9600	7300
Main at Nelson	10700	9400	8800
Main at Queen	14500	18400	15600
Queen at Mill	15000	18200	16200
Queen at Chapel	14000	18000	15100

Notes:

(1) Traffic volumes provided by Paradigm Transportation Solutions Limited.
(2) Annual Average Daily Traffic.

APPENDIX A

SOUND LEVEL CALCULATIONS

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:10:44
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: msoqex.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Wellington Street - Existing**

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

Car traffic volume : 9149/1017 veh/TimePeriod *
Medium truck volume : 289/32 veh/TimePeriod *
Heavy truck volume : 193/21 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): 10700
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 65.88 + 0.00) = 65.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.12	0.00	1.76	0.00	0.00	0.00	0.00	65.88

Segment Leq : 65.88 dBA

Total Leq All Segments: 65.88 dBA

Results segment # 1: Main (night)

Source height = 1.18 m

ROAD (0.00 + 57.54 + 0.00) = 57.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.54	0.00	0.00	0.00	0.00	0.00	0.00	57.54

Segment Leq : 57.54 dBA

Total Leq All Segments: 57.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.88
(NIGHT): 57.54

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:11:15
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: msoq21.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Wellington Street - Year 2021**

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

Car traffic volume : 8037/893 veh/TimePeriod *
Medium truck volume : 254/28 veh/TimePeriod *
Heavy truck volume : 169/19 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): 9400
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 65.31 + 0.00) = 65.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.55	0.00	1.76	0.00	0.00	0.00	0.00	65.31

Segment Leq : 65.31 dBA

Total Leq All Segments: 65.31 dBA

Results segment # 1: Main (night)

Source height = 1.19 m

ROAD (0.00 + 57.04 + 0.00) = 57.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.04	0.00	0.00	0.00	0.00	0.00	0.00	57.04

Segment Leq : 57.04 dBA

Total Leq All Segments: 57.04 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.31
(NIGHT): 57.04

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:11:43
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: msoq31.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Wellington Street - Year 2031**

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

Car traffic volume : 7524/836 veh/TimePeriod *
Medium truck volume : 238/26 veh/TimePeriod *
Heavy truck volume : 158/18 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): 8800
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 65.02 + 0.00) = 65.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.26	0.00	1.76	0.00	0.00	0.00	0.00	65.02

Segment Leq : 65.02 dBA

Total Leq All Segments: 65.02 dBA

Results segment # 1: Main (night)

Source height = 1.20 m

ROAD (0.00 + 56.77 + 0.00) = 56.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.77	0.00	0.00	0.00	0.00	0.00	0.00	56.77

Segment Leq : 56.77 dBA

Total Leq All Segments: 56.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.02
(NIGHT): 56.77

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:37:02
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: maqex.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Queen Street - Existing**

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

Car traffic volume : 12398/1378 veh/TimePeriod *
Medium truck volume : 392/44 veh/TimePeriod *
Heavy truck volume : 261/29 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): 14500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12825/1425 veh/TimePeriod *
Medium truck volume : 405/45 veh/TimePeriod *
Heavy truck volume : 270/30 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 : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 67.20 + 0.00) = 67.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.44	0.00	1.76	0.00	0.00	0.00	0.00	67.20

Segment Leq : 67.20 dBA

Results segment # 2: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 67.34 + 0.00) = 67.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.58	0.00	1.76	0.00	0.00	0.00	0.00	67.34

Segment Leq : 67.34 dBA

Total Leq All Segments: 70.28 dBA

Results segment # 1: Main (night)

Source height = 1.19 m

ROAD (0.00 + 58.91 + 0.00) = 58.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.91	0.00	0.00	0.00	0.00	0.00	0.00	58.91

Segment Leq : 58.91 dBA

Results segment # 2: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.05 + 0.00) = 59.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.05	0.00	0.00	0.00	0.00	0.00	0.00	59.05

Segment Leq : 59.05 dBA

Total Leq All Segments: 61.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.28
(NIGHT): 61.99

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:38:40
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: maq21.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Queen Street - Year 2021**

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

Car traffic volume : 15732/1748 veh/TimePeriod *
Medium truck volume : 497/55 veh/TimePeriod *
Heavy truck volume : 331/37 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): 18400
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 15561/1729 veh/TimePeriod *
Medium truck volume : 491/55 veh/TimePeriod *
Heavy truck volume : 328/36 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): 18200
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 68.23 + 0.00) = 68.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.47	0.00	1.76	0.00	0.00	0.00	0.00	68.23

Segment Leq : 68.23 dBA

Results segment # 2: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 68.19 + 0.00) = 68.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.42	0.00	1.76	0.00	0.00	0.00	0.00	68.19

Segment Leq : 68.19 dBA

Total Leq All Segments: 71.22 dBA

Results segment # 1: Main (night)

Source height = 1.19 m

ROAD (0.00 + 59.95 + 0.00) = 59.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.95	0.00	0.00	0.00	0.00	0.00	0.00	59.95

Segment Leq : 59.95 dBA

Results segment # 2: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.87 + 0.00) = 59.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.87	0.00	0.00	0.00	0.00	0.00	0.00	59.87

Segment Leq : 59.87 dBA

Total Leq All Segments: 62.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.22
(NIGHT): 62.92

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:40:10
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: maq31.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Queen Street - Year 2031**

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

Car traffic volume : 13338/1482 veh/TimePeriod *
Medium truck volume : 421/47 veh/TimePeriod *
Heavy truck volume : 281/31 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): 15600
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 13851/1539 veh/TimePeriod *
Medium truck volume : 437/49 veh/TimePeriod *
Heavy truck volume : 292/32 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): 16200
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 67.52 + 0.00) = 67.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.75	0.00	1.76	0.00	0.00	0.00	0.00	67.52

Segment Leq : 67.52 dBA

Results segment # 2: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 67.68 + 0.00) = 67.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.92	0.00	1.76	0.00	0.00	0.00	0.00	67.68

Segment Leq : 67.68 dBA

Total Leq All Segments: 70.61 dBA

Results segment # 1: Main (night)

Source height = 1.19 m

ROAD (0.00 + 59.21 + 0.00) = 59.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.21	0.00	0.00	0.00	0.00	0.00	0.00	59.21

Segment Leq : 59.21 dBA

Results segment # 2: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.37 + 0.00) = 59.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.37	0.00	0.00	0.00	0.00	0.00	0.00	59.37

Segment Leq : 59.37 dBA

Total Leq All Segments: 62.30 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.61
(NIGHT): 62.30

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:22:08
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: mnoqex.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Nelson Street - Existing**

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

Car traffic volume : 8721/969 veh/TimePeriod *
Medium truck volume : 275/31 veh/TimePeriod *
Heavy truck volume : 184/20 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): 10200
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 65.67 + 0.00) = 65.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.91	0.00	1.76	0.00	0.00	0.00	0.00	65.67

Segment Leq : 65.67 dBA

Total Leq All Segments: 65.67 dBA

Results segment # 1: Main (night)

Source height = 1.18 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
-90	90	0.00	57.34	0.00	0.00	0.00	0.00	0.00	0.00	57.34

Segment Leq : 57.34 dBA

Total Leq All Segments: 57.34 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.67
(NIGHT): 57.34

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:22:33
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: mnoq21.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Nelson Street - Year 2021**

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

Car traffic volume : 8208/912 veh/TimePeriod *
Medium truck volume : 259/29 veh/TimePeriod *
Heavy truck volume : 173/19 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): 9600
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 65.41 + 0.00) = 65.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.65	0.00	1.76	0.00	0.00	0.00	0.00	65.41

Segment Leq : 65.41 dBA

Total Leq All Segments: 65.41 dBA

Results segment # 1: Main (night)

Source height = 1.19 m

ROAD (0.00 + 57.10 + 0.00) = 57.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.10	0.00	0.00	0.00	0.00	0.00	0.00	57.10

Segment Leq : 57.10 dBA

Total Leq All Segments: 57.10 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.41
(NIGHT): 57.10

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:23:03
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: mnoq31.te Time Period: Day/Night 16/8 hours
Description: **Main Street at Nelson Street - Year 2031**

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

Car traffic volume : 6242/694 veh/TimePeriod *
Medium truck volume : 197/22 veh/TimePeriod *
Heavy truck volume : 131/15 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): 7300
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main (day)

Source height = 1.19 m

ROAD (0.00 + 64.21 + 0.00) = 64.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.45	0.00	1.76	0.00	0.00	0.00	0.00	64.21

Segment Leq : 64.21 dBA

Total Leq All Segments: 64.21 dBA

Results segment # 1: Main (night)

Source height = 1.20 m

ROAD (0.00 + 55.98 + 0.00) = 55.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.98	0.00	0.00	0.00	0.00	0.00	0.00	55.98

Segment Leq : 55.98 dBA

Total Leq All Segments: 55.98 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.21
(NIGHT): 55.98

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:25:14
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: qamex.te Time Period: Day/Night 16/8 hours
Description: **Queen Street at Mill Street - Existing**

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

Car traffic volume : 12825/1425 veh/TimePeriod *
Medium truck volume : 405/45 veh/TimePeriod *
Heavy truck volume : 270/30 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 : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 67.34 + 0.00) = 67.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.58	0.00	1.76	0.00	0.00	0.00	0.00	67.34

Segment Leq : 67.34 dBA

Total Leq All Segments: 67.34 dBA

Results segment # 1: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.05 + 0.00) = 59.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.05	0.00	0.00	0.00	0.00	0.00	0.00	59.05

Segment Leq : 59.05 dBA

Total Leq All Segments: 59.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.34
(NIGHT): 59.05

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:25:36
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: qam21.te Time Period: Day/Night 16/8 hours
Description: **Queen Street at Mill Street - Year 2021**

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

Car traffic volume : 15561/1729 veh/TimePeriod *
Medium truck volume : 491/55 veh/TimePeriod *
Heavy truck volume : 328/36 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): 18200
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 68.19 + 0.00) = 68.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.42	0.00	1.76	0.00	0.00	0.00	0.00	68.19

Segment Leq : 68.19 dBA

Total Leq All Segments: 68.19 dBA

Results segment # 1: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.87 + 0.00) = 59.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.87	0.00	0.00	0.00	0.00	0.00	0.00	59.87

Segment Leq : 59.87 dBA

Total Leq All Segments: 59.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.19
(NIGHT): 59.87

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:25:57
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: qam31.te Time Period: Day/Night 16/8 hours
Description: **Queen Street at Mill Street - Year 2031**

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

Car traffic volume : 13851/1539 veh/TimePeriod *
Medium truck volume : 437/49 veh/TimePeriod *
Heavy truck volume : 292/32 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): 16200
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 67.68 + 0.00) = 67.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.92	0.00	1.76	0.00	0.00	0.00	0.00	67.68

Segment Leq : 67.68 dBA

Total Leq All Segments: 67.68 dBA

Results segment # 1: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.37 + 0.00) = 59.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.37	0.00	0.00	0.00	0.00	0.00	0.00	59.37

Segment Leq : 59.37 dBA

Total Leq All Segments: 59.37 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.68
(NIGHT): 59.37

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:27:22
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: qacex.te Time Period: Day/Night 16/8 hours
Description: **Queen Street at Chapel Street - Existing**

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

Car traffic volume : 11970/1330 veh/TimePeriod *
Medium truck volume : 378/42 veh/TimePeriod *
Heavy truck volume : 252/28 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): 14000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 67.04 + 0.00) = 67.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.28	0.00	1.76	0.00	0.00	0.00	0.00	67.04

Segment Leq : 67.04 dBA

Total Leq All Segments: 67.04 dBA

Results segment # 1: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 58.75 + 0.00) = 58.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.75	0.00	0.00	0.00	0.00	0.00	0.00	58.75

Segment Leq : 58.75 dBA

Total Leq All Segments: 58.75 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.04
(NIGHT): 58.75

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:27:42
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: qac21.te Time Period: Day/Night 16/8 hours
Description: **Queen Street at Chapel Street - Year 2021**

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

Car traffic volume : 15390/1710 veh/TimePeriod *
Medium truck volume : 486/54 veh/TimePeriod *
Heavy truck volume : 324/36 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): 18000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 68.14 + 0.00) = 68.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.37	0.00	1.76	0.00	0.00	0.00	0.00	68.14

Segment Leq : 68.14 dBA

Total Leq All Segments: 68.14 dBA

Results segment # 1: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.84 + 0.00) = 59.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.84	0.00	0.00	0.00	0.00	0.00	0.00	59.84

Segment Leq : 59.84 dBA

Total Leq All Segments: 59.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.14
(NIGHT): 59.84

STAMSON 5.4 NORMAL REPORT Date: 03-08-2017 16:28:16
MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE / NOISE ASSESSMENT

Filename: qac31.te Time Period: Day/Night 16/8 hours
Description: **Queen Street at Chapel Street - Year 2031**

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

Car traffic volume : 12911/1435 veh/TimePeriod *
Medium truck volume : 408/45 veh/TimePeriod *
Heavy truck volume : 272/30 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): 15100
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Queen (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 : 10.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Queen (day)

Source height = 1.19 m

ROAD (0.00 + 67.37 + 0.00) = 67.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.61	0.00	1.76	0.00	0.00	0.00	0.00	67.37

Segment Leq : 67.37 dBA

Total Leq All Segments: 67.37 dBA

Results segment # 1: Queen (night)

Source height = 1.19 m

ROAD (0.00 + 59.06 + 0.00) = 59.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.06	0.00	0.00	0.00	0.00	0.00	0.00	59.06

Segment Leq : 59.06 dBA

Total Leq All Segments: 59.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.37
(NIGHT): 59.06