APPENDIX I

Noise Assessment

DILLON CONSULTING

REGIONAL MUNICIPALITY OF NIAGARA

Livingston Avenue Extension

Traffic Noise Assessment Report

March, 2020 – 18-7650

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Appendices

1.0 Introduction

The Regional Municipality of Niagara (the Region) retained Dillon Consulting Limited (Dillon) in 2018 to complete an Environmental Assessment (EA) Study to establish the need and solutions for improving east-west travel capacity in the Town of Grimsby, Ontario, given the projected population and employment growth targeted for 2041 and the planned Grimsby GO Transit Station, scheduled for opening in 2021. This Study is titled the Livingston Avenue Extension EA. A separate EA Study was initiated alongside the Livingston Avenue Extension EA with a focus on Casablanca Boulevard, the Queen Elizabeth Way (QEW) interchange, and access to the GO Transit Station, titled the Casablanca Boulevard and GO Access EA (completed in 2019). Both Studies are subject to the Schedule "C" Environmental Assessment (EA) under the Municipal Class Environmental Assessment process (Class EA).

1.1 Objectives and Methodology

The objective of the Traffic Noise Impact Assessment is to assess local noise impacts of the preferred Livingston Avenue Extension EA alternative (i.e., "build" scenario) relative to a "no build" scenario over a 10-year period. The assessment identifies the potential for the project to exceed provincial noise criteria in the context of the likelihood, extent and duration of potential impacts. The assessment also determines if the impacts are positive or negative relative to the "no build" scenario.

The assessment follows the methodologies included in the Ministry of Transportation's (MTO) document *Environmental Guide for Noise, Part of the Environmental Standard and Practices*, Version: October 2006, Updated July 2008 (the Guide) for Group 'C' projects.

1.2 Approach

The Traffic Noise Impact Assessment follows the requirements of the Guide for noise assessment and mitigation relating to the proposed extension of Livingston Avenue through the Irish Grove Woodlot westerly to Main Street West at Oakes Road. Some of the key components of this assessment include:

- Identify the Study Area / area of investigation
- Identify Noise Sensitive Areas (NSAs)
- Determine future ambient and future noise levels with undertaking
- Identify impacts and significance
- Consider mitigation
- Document the noise impact assessment in a Noise Report.

2.0 Overview of the Study Area

The Study Area was established early on in the Class EA process and includes a 'Focused Study Area' boundary where any improvements to road corridors would be located. The study area as shown on **Figure 1** is bounded by:

- South Service Road from Casablanca Boulevard to Oakes Road North
- Main Street West from Casablanca Boulevard to Oakes Road North
- Lands west of Emily Street
- Oakes Road North from South Service Road to Main Street West.

The purpose of the Livingston Avenue Extension is to confirm and address the long-term east-west transportation needs of the Study Area to 2041, with a view to providing adequate transportation facilities to support planned population growth and access to the future Grimsby GO Transit Station. As a Schedule "C" project, the Region is required to prepare an Environmental Study Report (ESR) to document the Planning process followed and the recommended design for the improvements and submit it for review by the public, agencies and Indigenous Communities.

REGIONAL MUNICIPALITY OF NIAGARA
LIVINGSTON AVENUE EXTENSION EA

FIGURE 1
NOISE STUDY AREA FOR LIVINGSTON AVENUE EXTENSION EA

- Watercourse
- CNR Rail Line
- Hydro Line
- Parcel
- Livingstone Study Area
- Study Area

1:10,000

0 50 100 200 m

MAP CREATED BY: GM
MAP CHECKED BY: DB
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187650
STATUS: DRAFT
DATE: 2020-03-13

FILE LOCATION: I:\GIS\187650 - Casablanca & Livingstone EA\mxd\Noise Assessment\Livingstone\Figure 1 Noise Study Area for Livingstone Improvement Project.mxd

Based on public and agency consultation, the preferred alternative for Livingston Avenue Extension includes extending Livingston Avenue through the Irish Grove Woodlot westerly to Main Street West / Oakes Road North. The recommended roadway elements include a basic 3.5 m lane with 1.8 m bike lane in each direction and a 1.8 m, north-side sidewalk. This is consistent with the recommended treatment for Livingston Avenue to the east as determined through the Casablanca Boulevard and GO Station Access Environmental Assessment Environmental Study Report.

The proposed Livingston Avenue Extension falls within an area dominated by farmland (rural setting), green space (Irish Grove Woodlot), and residential development. The existing sound environment within the Study Area and surrounding areas is characterized by sounds of nature, vehicular traffic noise along nearby routes (e.g., existing Casablanca Boulevard, Livingston Avenue, and Main Street West), rail traffic noise, noise from farm related activities, as well as an urban hum from the Town of Grimsby. For this area, low background (ambient) noise levels are typically realized as early as 7 p.m. The evening background sound levels are mainly influenced by sounds of nature and to a lesser extent, by human activities. The 'baseline' scenario is included for the purposes of assessing the existing noise environment within the Study Area.

The "build" scenario includes completing the construction of the Livingston Avenue through the Irish Grove Woodlot westerly to Main Street West at Oakes Road North, as shown in Figure 1.

3.0 Assessment of Current and Future Noise Levels

A separate Noise Impact Study was completed in 2019 alongside this Study with a focus on Casablanca Boulevard, the Queen Elizabeth Way (QEW) interchange, and access to the GO Transit Station, scheduled for opening in 2021. This study assesses the traffic noise impacts due to the proposed Livingston Avenue Extension for the "no-build" and "build" scenarios for the year of inaugural (i.e., completion of the construction phase and commencement of road usage) and 10 years beyond the year of inaugural. Since the construction year for Livingston Avenue Extension has not yet been established, the study assumes an inauguration year of 2031.

The noise impact for the preferred alternative was assessed and compared for the following scenarios:

(1) "Build" and "no-build" for Year of inauguration (2031)
(2) "Build" and "no-build" for ten years after inauguration (2041)

It should be noted that for the "no-build" scenarios, Livingston Avenue traffic associated with the GO Transit Station was accounted for in the analysis.

The traffic noise impact was also completed for 2018 (using field traffic gathered in 2018) to establish existing noise environment in the Study Area.

The following roads within 500 m of Livingston Avenue were included in this assessment:

- Oakes Road at the intersection of Main Street West (considering traffic along Oakes Road North)
- Hunter Road at the intersection of Main Street West
- Main Street West at the intersection of Oakes Road (considering traffic along Main Street West)
- Future extension of the Livingston Avenue from west of Emily Street to Oakes Road North

Roads within the Study Area with low traffic volumes were not included in the assessment since the associated noise impacts are considered negligible and will not impact the overall traffic noise predictions. **Appendix A** includes more information on the road network used to complete the noise modeling.

3.1 Noise Prediction Methodologies

For the purposes of this assessment, the following noise guideline was used:

- Ontario Ministry of Transportation, Environmental Guide for Noise, Part of the Environmental Standard and Practices, Version: October 2006, Updated July 2008.

MTO's Guide provides guidance for assessment methodology and noise mitigation requirements for new highways or expansion of existing ones. According to the Guide, the significance of a noise impact is determined by using a comparison for future sound levels with and without the proposed improvements. As per the Guide, mitigation measures are to be implemented within the right-of-way (ROW) when they are

technically, economically, and administratively feasible. **Table 1** summarizes the mitigation requirements as specified in MTO's Guide. The review of technical, economical and administrative feasibilities are defined in the Guide as follows:

- Technical Feasibility - Review the constructability of the noise mitigation (i.e., design of wall, roadside safety, shadow effect, topography, achieve a 5 dBA reduction, ability to provide a continuous barrier, etc.).
- Economic Feasibility - Carry out a cost / benefit assessment of the noise mitigation (i.e., determine cost per benefited receiver).
- Administrative Feasibility - Determine the ability to locate the noise mitigation on lands within public ownership (i.e., provincial or municipal right-of-way).

Table 1: Projected Noise Level with Proposed Improvements

Change in Noise Level Above Ambient/Projected Noise Levels with Proposed Improvements	Mitigation Effort Required
< 5 dBA change and < 65 dBA	• None
≥ 5 dBA change OR ≥ 65 dBA	• Investigate noise control measures on right-of-way (ROW) • Introduce noise control measures within ROW and mitigate to ambient if technically, economically and administratively feasible • Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row PORs

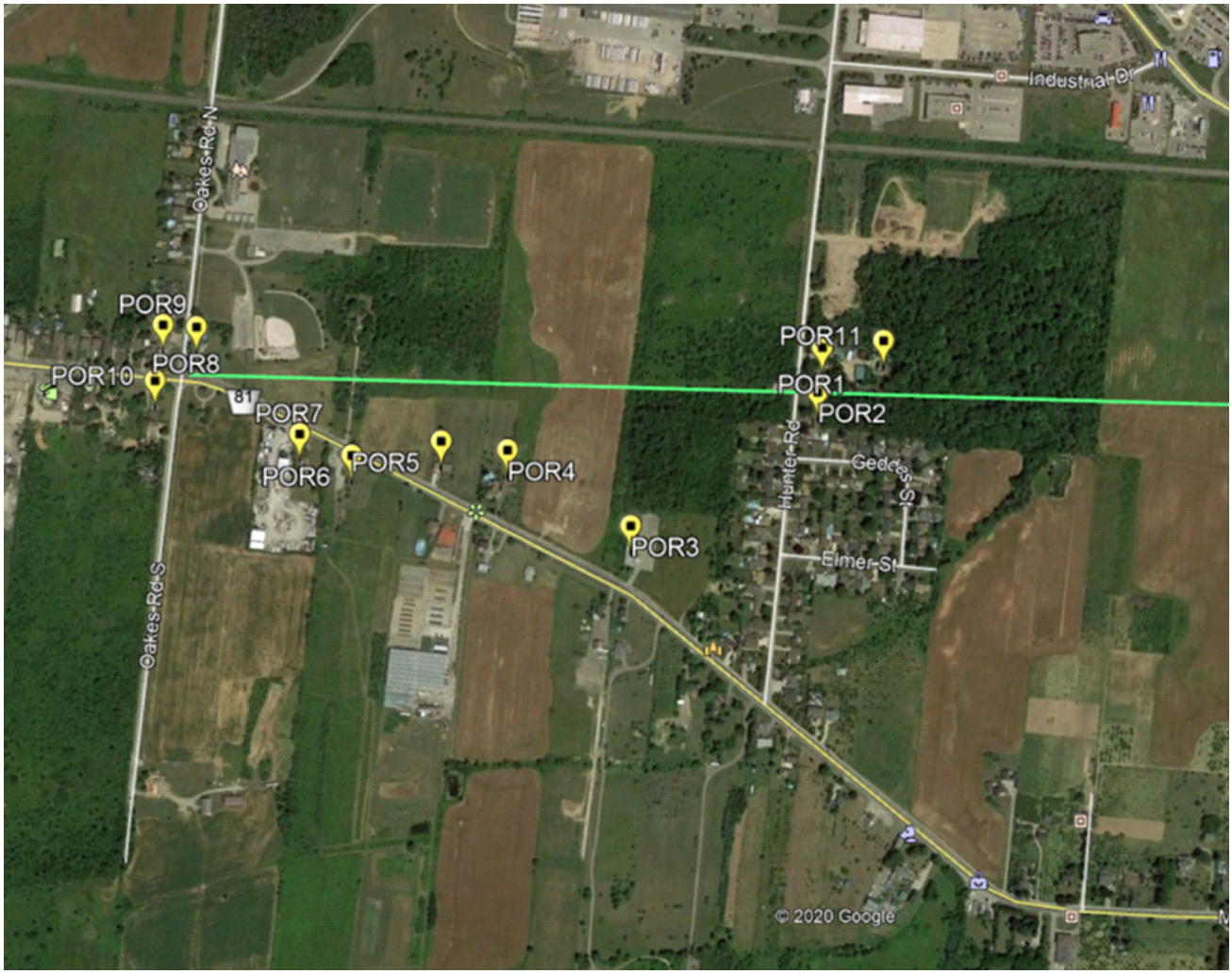
3.2 Noise Sensitive Areas (NSAs)

NSAs (also referred to as Point-of-Receptions (PORs) in this report) are specified based on their location in relation to the highway and roads considered in this assessment. The topography of the Study Area is considered to be generally flat. Since there is no minimum number of sensitive land uses that defines a NSAs, all noise sensitive land uses, regardless of size or location (urban or rural), were assessed for noise impacts. As per the Guide, where there was a continuous development of NSAs of a similar nature (e.g., residential subdivision of similar setback distances to nearby roads / highway), representative POR locations were identified and selected for the noise assessment.

Although NSAs up to 600 m from the edge of the pavement of the proposed Livingston Avenue alignment were considered in this assessment, the predictive traffic noise impact was completed up to 500 m of the subject route due to the limitations of the ORNAMENT methodology. It should be noted that for the subject route, the traffic noise impact beyond 500 m is considered to be negligible.

A total of 11 PORs were modelled. The locations of these PORs are illustrated in **Figure 2**. Additional information for the 11 selected PORs can be found in **Appendix B**.

Figure 2: Noise sensitive Point of Receptions



3.3 Outdoor Living Area (OLA) vs. Most Exposed Side

Noise levels were predicted for the “most exposed side” of each POR. The most exposed side refers to the closest side of a dwelling to a road or highway even if there is no OLA associated with the most exposed side. The rationale for this is to determine the noise level at the side of the dwelling most exposed to the roadway without the benefit of shielding due to the dwelling itself. However, if it is determined that mitigation measures are required, the measures will be based on the analysis of the predicted noise level for the OLA, which is typically the rear yard, and may include shielding by the dwelling itself (as per the Guide).

3.4 Current Ambient Noise level and Future Noise Levels with the Undertaking

Current ambient noise levels (i.e., Baseline 2018), future ambient noise levels (i.e., 2031 “no-build” and 2041 “no-build”), and future noise levels with the undertaking (i.e., 2031 “build” and 2041 “build”) were predicted using the Ministry of the Environment, Conservation and Parks (MECP) and MTO approved ORNAMENT methodology. Receptor locations were considered at approximately 3 m away from the façade of the dwellings most exposed to the roadway. A receptor height of 1.2 m above ground was considered as per the Guide. Contributions from transient noise sources (e.g., rail, air, etc.) were excluded from the comparative assessment.

The posted speed limits were used as vehicular speed in the STAMSON program for various segments of the subject routes. The annual average daily traffic (AADT) counts collected by Niagara Region over one full 24-hour count in each of the four seasons during the count year (2018) were used to calculate the average volumes using the accepted mathematical methods. Next, these traffic volumes were used to calculate the 16-hour period (07:00-23:00) traffic counts for the baseline (i.e., 2018). The same count values were used to forecast horizon and future scenarios (i.e., 2031 and 2041, for ‘Build’ and ‘No-Build’). The details of the traffic volume calculations and forecasting are provided in **Appendix A**). A commercial vehicle percentage consisting of heavy trucks, was assumed for all road segments, based on traffic count data provided by Niagara Region in the form of turning movement counts (TMC). The posted speed limits, commercial vehicle breakdown, and vehicle traffic counts for each roadway segment are presented in **Table 2**, **3**, and **4**, respectively.

Since the topography in the Study Area is generally flat, the STAMSON model was run assuming no elevation change between noise sources and PORs.

Table 2: Summary of Posted Speed Limits

	Livingston Avenue	Hunter Road	Oakes Road	Main St. W
2018 Baseline	50 Km/ hour	50 Km/ hour	50 Km/ hour	70 Km/ hour
2031 No Build	50 Km/ hour	50 Km/ hour	50 Km/ hour	70 Km/ hour
2031 Build	60 Km/ hour	50 Km/ hour	50 Km/ hour	70 Km/ hour
2041 No Build	50 Km/ hour	50 Km/ hour	50 Km/ hour	70 Km/ hour
2041 Build	60 Km/ hour	50 Km/ hour	50 Km/ hour	70 Km/ hour

Table 3: Commercial Vehicle Breakdown

Type of Vehicle	Automobile (i.e., cars)	Medium Trucks	Heavy Trucks
Livingston Ave	92%	4%	4%
Hunter Rd	95%	2.5%	2.5%
Oakes Road	91%	4.5%	4.5%
GO access	92%	4%	4%
Main St. W	90%	5%	5%

Table 4: Summary of Vehicle Traffic Counts

	Livingston Avenue (between Casablanca Blvd. and GO Access)	Livingston Avenue (between GO Access and Hunter Rd.)	Livingston Avenue (between Hunter Rd. and Oakes Rd.)	Hunter Road	Oakes Road	Main St. W
	16-hour traffic count	16-hour traffic count	16-hour traffic count	16-hour traffic count	16-hour traffic count	16-hour traffic count
2018 Baseline	328	-	-	737	2059	5710
2031 No Build	1796	-	-	913	2773	8055
Preferred Build 2031	3554	2384	2685	836	6016	8791
2041 No Build	3288	-	-	1030	3487	9231
Preferred Build 2041	3732	2504	2820	878	6318	9231

For the purposes of this assessment, the Typical Asphalt or Concrete (TAC) option was selected for the road surface type in the STAMSON model for "2018 Baseline", "2031 Horizon" and "2041 Future" scenarios. This is an average pavement type for roads, which includes a mix of asphalt and concrete road surfaces. For roads that are all concrete, the noise levels can be approximately 1.5 dB (range of 1 to 2 dB) higher than the levels predicted by STAMSON with the TAC option selected. Similarly, for roads that are all asphalt, the noise levels can be approximately 0.5 dB lower than the STAMSON predictions with the TAC option. All roads being considered in this study (e.g., Livingston Avenue, Hunter Road, Oakes Road, GO Access, and Main Street West), were assumed to be the TAC option for all the scenarios in the STAMSON model. STAMSON output for all scenarios are presented in **Appendix C**.

3.5 Determination of Potential Impact

The predicted receptors noise levels for the five scenarios are presented in **Table 5** to **9**. A comparison of the predicted noise levels for all five scenarios is presented in **Table 10**. The summary of future noise levels with and without the proposed undertaking is presented in **Table 11**.

For receptors POR3 to POR10 there are no significant changes in the predicted noise levels (i.e., <2 dBA) between the 2031 and 2041 "build" and "no-build" scenarios. For POR1, POR2, and POR11, the changes in predicted noise levels between the 2031 "no-build" and 2031 "build" scenarios are significant with increases in noise levels of 11.33 dBA, 6.96 dBA, and 19 dBA, respectively. For these same receptors, the changes in predicted noise level between the 2041 "no-build" and 2041 "build" scenarios are 11.08 dBA, 6.71 dBA, and 18.74 dBA, respectively. These receptors are located on the east side of the Hunter Road and Livingston Avenue intersection with POR1 and POR11 to the north of Livingston Avenue and POR2 to the south of Livingston Avenue. The higher noise level change in these receptors can be explained by the traffic volume introduced to the area by the Livingston Avenue Extension connecting Casablanca Boulevard to the Main Street West.

The changes in predicted sound levels at POR1, POR2, and POR11 are above the 5 dBA threshold for changes in predicted noise levels recommended by the MTO for the consideration of mitigation efforts, as shown in **Table 1**.

Based on the results shown in **Table 9** and **Table 10**, POR8, POR9, and POR10 have predicted sound levels greater than 65 dBA for all 2031 and 2041 scenarios assessed in this study. The higher noise levels at these receptors are not due to the undertaking and are a result of the higher traffic volume in Oakes Road North and Main Street.

Table 5: Summary of Predicted Noise Levels for Baseline (2018) Scenario

POR ID	2018 BASELINE – Noise Levels at POR (dBA)			
	Contribution from Hunter Rd NB	Contribution from Oakes Rd NB	Contribution from Main St EB	Total Contribution from all Roadways
POR1	48.48	N/A	N/A	48.48
POR2	48.92	N/A	N/A	48.92
POR3	N/A	N/A	62.53	62.53
POR4	N/A	N/A	57.96	57.96
POR5	N/A	N/A	62.26	62.26
POR6	N/A	N/A	62.53	62.53
POR7	N/A	N/A	60.39	60.39
POR8	N/A	58.89	64.42	65.49
POR9	N/A	58.89	64.42	65.49
POR10	N/A	58.89	62.26	63.90
POR11	38.48	N/A	N/A	38.48

Table 6: Summary of Predicted Noise Levels for 2031 "NO BUILD" Scenario

POR ID	2031 NO BUILD – Noise Levels at POR (dBA)			
	Contribution from Hunter Rd NB	Contribution from Oakes Rd NB	Contribution from Main St EB	Total Contribution from all Roadways
POR1	49.37	N/A	N/A	49.37
POR2	49.82	N/A	N/A	49.82
POR3	N/A	N/A	64.03	64.03
POR4	N/A	N/A	59.46	59.46
POR5	N/A	N/A	63.76	63.76
POR6	N/A	N/A	64.03	64.03
POR7	N/A	N/A	61.89	61.89
POR8	N/A	60.18	65.92	66.95
POR9	N/A	60.18	65.92	66.95
POR10	N/A	60.18	63.76	65.34
POR11	N/A	N/A	39.38	39.38

Table 7: Summary of Predicted Noise Levels for 2031 "BUILD" Scenario

POR ID	2031 BUILD – Noise Levels at POR (dBA)					
	Contribution from Livingston (between GO Access and Hunter Rd.)	Contribution from Livingston (between Hunter Rd. and Oakes Rd.)	Contribution from Hunter RH NB	Contribution from Oakes RH NB	Contribution from Main St EB	Total Contribution from all Roadways
POR1	60.40	N/A	48.98	N/A	N/A	60.70
POR2	55.90	N/A	49.42	N/A	N/A	56.78
POR3	N/A	39.07	N/A	N/A	64.41	64.42
POR4	N/A	42.63	N/A	N/A	59.84	59.92
POR5	N/A	43.42	N/A	N/A	64.14	64.18
POR6	N/A	42.08	N/A	N/A	64.41	64.44
POR7	N/A	43.23	N/A	N/A	62.27	62.32
POR8	N/A	57.92	N/A	63.53	66.30	68.54
POR9	N/A	57.92	N/A	63.53	66.30	68.54
POR10	N/A	55.16	N/A	63.53	64.14	67.14
POR11	58.33	N/A	38.98	N/A	N/A	58.38

Table 8: Summary of Predicted Noise Levels for 2041 "NO BUILD" Scenario

POR ID	2041 NO BUILD – Noise Levels at POR (dBA)			
	Contribution from Hunter Rd NB	**Contribution from Oakes Rd NB**	**Contribution from Main St EB**	**Total Contribution from all Roadways**
POR1	49.85	N/A	N/A	49.85
POR2	50.30	N/A	N/A	50.30
POR3	N/A	N/A	64.62	64.62
POR4	N/A	N/A	60.05	60.05
POR5	N/A	N/A	64.35	64.35
POR6	N/A	N/A	64.62	64.62
POR7	N/A	N/A	62.48	62.48
POR8	N/A	61.17	66.51	67.62
POR9	N/A	61.17	66.51	67.62
POR10	N/A	61.17	64.35	66.06
POR11	39.86	N/A	N/A	39.86

Table 9: Summary of Predicted Noise Levels for 2041 "BUILD" Scenario

POR ID	2041 BUILD – Noise Levels at POR (dBA)					
	Contribution from Livingston 2	Contribution from Livingston 3	Contribution from Hunter RH NB	Contribution from Oakes RH NB	Contribution from Main St EB	Total Contribution from all Roadways
POR1	60.63	N/A	49.20	N/A	N/A	60.93
POR2	56.13	N/A	49.64	N/A	N/A	57.01
POR3	N/A	39.28	N/A	N/A	64.62	64.63
POR4	N/A	42.85	N/A	N/A	60.05	60.13
POR5	N/A	43.64	N/A	N/A	64.35	64.39
POR6	N/A	42.29	N/A	N/A	64.62	64.65
POR7	N/A	43.45	N/A	N/A	62.48	62.53
POR8	N/A	58.13	N/A	63.74	66.51	68.75
POR9	N/A	58.13	N/A	63.74	66.51	68.75
POR10	N/A	55.37	N/A	63.74	64.35	67.53
POR11	58.60	N/A	39.20	N/A	N/A	58.60

Table 10: Comparison of Predicted Noise Levels

POR ID	POR Description	Predicted Overall Noise Levels (dBA)				
		2018 BASELINE	2031 "NO "BUILD	2031 "BUILD"	2041 "NO BUILD"	2041 "BUILD"
POR1	Single storey residential dwelling on East side of Hunter Road, North of Main Street West	48.48	49.37	60.7	49.85	60.93
POR2	Two storey residential dwelling on East side of Hunter Road, North of Main Street West	48.92	49.82	56.78	50.3	57.01
POR3	Church on North Side of Main Street West, West of Casablanca Boulevard	62.53	64.03	64.42	64.62	64.63
POR4	Two storey residential dwelling on Main Street West, West of Casablanca Boulevard	57.96	59.46	59.92	60.05	60.13
POR5	Single storey residential dwelling on North side of Main Street West, West of Casablanca Boulevard	62.26	63.76	64.18	64.35	64.39
POR6	Single storey residential dwelling on South side of Main Street West, West of Casablanca Boulevard	62.53	64.03	64.44	64.62	64.65
POR7	Two storey residential dwelling on South side of Main Street West, West of Casablanca Boulevard	60.39	61.89	62.32	62.48	62.53
POR8	Two storey residential dwelling on Northeast corner of Main Street West and Oakes Road intersection	65.49	66.95	68.58	67.62	68.75
POR9	Single storey residential dwelling on Northwest corner of Main Street West and Oakes Road intersection	65.49	66.95	68.54	67.62	68.75
POR10	Single storey residential dwelling on Southwest corner of Main Street West and Oakes Road intersection	63.9	65.34	67.14	66.06	67.35
POR11	Single storey residential dwelling on Hunter Road, North of Main Street West	38.48	39.38	58.38	39.86	58.6

Table 11: Summary Table of Future Noise Levels with and without Proposed Undertaking

POR ID	Year 2031	Year 2031	Change due to Undertaking	Year 2041	Year 2041	Change due to Undertaking
	Ambient Noise Levels "NO BUILD"	Future Noise Levels "BUILD"		Ambient Noise Levels "NO BUILD"	Future Noise Levels "BUILD"	
	Leq (16 hr) dBA	Leq (16 hr) dBA	dBA	Leq (16 hr) dBA	Leq (16 hr) dBA	dBA
POR1	49.37	60.7	11.33	49.85	60.93	11.08
POR2	49.82	56.78	6.96	50.3	57.01	6.71
POR3	64.03	64.42	0.39	64.62	64.63	0.01
POR4	59.46	59.92	0.46	60.05	60.13	0.08
POR5	63.76	64.18	0.42	64.35	64.39	0.04
POR6	64.03	64.44	0.41	64.62	64.65	0.03
POR7	61.89	62.32	0.43	62.48	62.53	0.05
POR8	66.95	68.58	1.63	67.62	68.75	1.13
POR9	66.95	68.54	1.59	67.62	68.75	1.13
POR10	65.34	67.14	1.8	66.06	67.35	1.29
POR11	39.38	58.38	19	39.86	58.6	18.74

3.6 Determination of Significance

The term significance is the level at which MTO begins determining if the provision of noise mitigation requires investigation. **Table 1** (MTO, 2006) shows the mitigation efforts to be applied when increases in noise levels are predicted above the ambient.

4.0 Mitigation

As shown in the modelling results (**Tables 10** and **11**), the change in noise levels as a result of this undertaking is greater than 5 dBA for three PORs (i.e., POR1, POR2, and POR11). There are also three PORs (i.e., POR8, POR9, and POR10) with predicted sound levels greater than 65 dBA, as shown in **Table 10** and **Table 11**. As such, detailed assessment and design of noise mitigation measures would be required. Mitigation measures can include noise barrier walls, earth berms or combination thereof. The design and implementation of mitigation measures for the above-mentioned PORs will be addressed upon the conclusion of the detailed design stage for the Livingston Avenue Extension. This will help ensure that the mitigation measures will be designed to reflect the most up-to-date and accurate information regarding this project. According to the Guide, where mitigation measures are introduced, a minimum traffic noise reduction of 5 dB should be realized at the first row of dwellings off the alignment.

The Smith Public School is located approximately 220m north from the proposed new Livingston Avenue alignment. Assessment of traffic noise impact associated with the proposed Livingston extension indicate that the change in noise level at the school for 2031 and 2041 are less than 5 dB and that the traffic noise level is less than 65 dBA. As such, assessment of traffic noise mitigation measures is not warranted for the school.

5.0 Construction Noise Impact

Noise generated during construction of the Livingston Avenue Extension, although temporary, is expected to impact both humans and wildlife. Nuisance noise during construction is associated with typical construction activities, including, but not limited to, operation of equipment and machinery, internal combustion engines, construction-related vehicular traffic onsite and along nearby road networks, and back-up beepers on mobile equipment. Construction related noise is expected to be variable (depending on the types of activities) and intermittent in nature. Although construction noise is not regulated by MECP, the proponent is required to comply with the terms and conditions of municipal noise control By-laws. An exemption from these By-laws may be required if construction activities will extend beyond the allowable construction hours set by these by-laws (i.e., 7 a.m. to 8 p.m.).

For the proposed undertaking, the majority of the closest receptors (i.e., residential dwellings) are located at the intersections of Hunter Road and Livingston Avenue, and Oakes Road and Livingston Avenue. For these receptors, nuisance construction noise impact is expected to be significant.

Although construction noise impacts will be temporary and likely intermittent, the proponent will implement one or more of the following noise mitigation measures to limit the associated noise impacts:

- For areas where the noise impact is considered to be significant, construction activities timing / scheduling will be implemented, such as limiting simultaneous occurrence of major noise generating activities. Furthermore, major noise generating activities (e.g., jack hammering) can be scheduled to take place during daytime hours when the background noise levels are typically higher.

- The proponent will ensure that the equipment used beyond typical construction hours (i.e., daytime hours) conforms with MECP's noise publication guidelines NPC-115 (Sound emission standards for construction equipment) and NPC-118 (Sound emission standards for motorized conveyances).
- Practices to reduce noise generated at the site, such as ensuring equipment and machinery are turned off when not in use.
- Where required, temporary noise mitigation measures, such as installing of shipping containers to block the direct line-of-sight between the site and nearby receptors, maybe implemented.

6.0 Conclusions

The Traffic Noise Impact Assessment for the proposed Livingston Avenue Extension project has been performed in accordance with MTO's *Environmental Guide for Noise* (the Guide). The MECP and MTO approved ORNAMENT noise prediction methodology (implemented through STAMSON computer program) was used to predict noise levels at the selected representative PORs for both the "build" and "no-build" scenarios. The assessment includes traffic noise impacts for both "build" and "no-build" scenarios at three timeframes: the existing condition (2018), year of inauguration (2031), and ten years after the inauguration (2041).

There are significant increases (i.e., > 5dBA) in predicted noise levels at three of the nearby PORs of the 11 representative PORs identified in this assessment (i.e., POR1, POR2, and POR11) for both the 2031 and 2041 "build" scenarios. Predicted noise levels for both the "no-build" and "build" scenarios at POR 8, POR9, and POR10 for 2031 and 2041 are predicted to be greater than 65 dBA.

The results of this Traffic Noise Assessment indicate that noise mitigation measures are required. Such measures will be assessed and incorporated as part of the detail design of the undertaking. This will ensure that all mitigation measures are designed with the most accurate information available.

7.0 References

Ontario Ministry of Transportation, Class Environmental Assessment for Provincial Transportation Facilities, Approved by Order in Council 1653/99 on October 6, 1999, as Amended July 14, 2000.

Ontario Ministry of Transportation, Environmental Guide for Noise, Part of the Environmental Standard and Practices, Version: October 2006, Updated July 2008.

ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Technical Document, October 1989

Appendix A

Traffic Data- STAMSON Input

2018_ Existing

Legend:

- AM (PM)
- peak hour turning
- movement volumes

North Service Road

South Service Road

QEW North Ramp Terminal

QEW South Ramp Terminal

Gateway West

Gateway Middle

Gateway East

Grimsby Kia

Commercial

Future GO Transit North and South Lot

Livingston Avenue

Casablanca Boulevard

Industrial Drive

Oakes Road North

Hunter Road

Main Street West

2021_ Do Nothing

Legend:

- AM (PM)
- peak hour turning
- movement volumes

North Service Road
QEW North Ramp Terminal
QEW South Ramp Terminal
South Service Road
Gateway West
Gateway Middle
Gateway East
Grimsby Kia
Commercial
Future GO Transit North Lot
Livingston Avenue
Industrial Drive
Oakes Road North
Main Street West
Hunter Road
Casablanca Boulevard

2041_ Do Nothing

Legend:

- AM (PM)
- peak hour turning
- movement volumes

North Service Road
503 (784) ←
709 (678) →
156 (189) ←
251 (139) ←
407 (328) ←
(233) 208 →
(445) 501 ↱
178 (264) ↰
347 (595) ↑
524 (859) ↑
386 (497) →
752 (585) →
(342) 639 →
(243) 113 ↱
666 (1040) ←
57 (323) ↳
591 (555) ↓
648 (878) ←
QEW North Ramp Terminal
230 (897) →
(90) 130 ↳
(807) 1100 ↓
467 (536) ↰
553 (797) ↑
1020 (1332) ↑
QEW South Ramp Terminal
468 (846) →
(106) 79 ↱
(740) 389 ↱
351 (485) ↳
941 (1226) ←
481 (575) →
1489 (1547) →
(475) 347 ↳
(574) 412 ↓
(499) 730 ↱
1292 (1711) ↑
197 (430) ↳
197 (220) ↳
49 (68) ↳
1109 (780) ←
240 (122) ↳
1349 (902) ←
443 (718) ←
1151 (837) ←
(1001) 609 →
(21) 17 ↱
744 (1081) →
(1035) 679 →
(47) 66 ↱
767 (1323) →
(843) 488 ↱
(270) 133 ↑
(210) 146 ↱
551 (820) →
422 (183) ↰
607 (439) ↑
71 (75) ↑
1072 (707) ↑
619 (845) →
Commercial
135 (80) ↰
27 (8) ↰
89 (288) ↰
42 (57) ↰
Future
GO Transit
North and South Lot
739 (473) ↳
18 (11) ←
93 (41) ↳
850 (525) ←
Livingston Avenue
0 (0) ←
0 (0) →
99 (13) ↰
0 (0) ←
187 (36) ←
94 (70) →
(606) 336 ↳
(220) 127 ↓
(19) 156 ↱
(59) 9 ↳
(0) 0 ↳
(0) 0 ↳
(0) 0 →
(48) 88 ↳
(15) 4 →
(7) 2 ↱
365 (640) →
25 (19) ↑
245 (186) ↑
13 (6) ↰
283 (211) ↑
222 (268) →
(121) 101 ↳
(129) 128 ↱
201 (115) ↳
240 (188) ←
441 (303) ←
256 (467) →
(112) 72 ↱
(346) 155 →
Casablanca
Boulevard
South Service Road
594 (284) ←
288 (586) →
566 (276) ←
20 (15) ↰
(582) 260 →
(4) 28 ↱
586 (291) ←
299 (636) →
(120) 81 ↱
(0) 0 ↓
(11) 19 ↰
46 (45) ↳
583 (294) ←
19 (14) ↰
(11) 2 ↱
(639) 303 →
(0) 2 →
10 (14) ↑
0 (0) ↑
1 (0) ↰
Gateway
West
Grimsby
Kia
648 (354) ←
393 (774) →
(240) 161 ↱
(2) 5 ↓
(22) 33 ↰
91 (85) ↳
613 (329) ←
114 (109) ↰
(21) 3 ↱
(752) 388 →
(1) 2 →
87 (97) ↑
1 (6) ↑
2 (3) ↰
Gateway
Middle
818 (523) ←
636 (1089) →
Gateway
East
227 (201) ↳
790 (515) ←
134 (121) ↰
90 (106) ↑
121 (112) →
39 (54) ↰
28 (8) ↰
43 (65) →
81 (43) ←
(51) 22 ↳
(14) 20 ↓
(0) 1 ↰
59 (37) ↳
2 (1) ←
12 (29) ↰
3 (1) ←
1 (3) →
73 (67) ←
57 (76) →
Industrial Drive
(0) 0 ↱
(2) 1 →
(1) 0 ↰
34 (23) ↑
22 (6) ↑
0 (0) ↰
Oakes Road North
133 (87) →
165 (49) ↑
32 (44) →
56 (29) ↑
96 (27) ↳
374 (316) ←
0 (0) ↰
430 (350) ←
311 (497) →
(50) 77 ↳
(3) 0 ↓
(34) 56 ↰
(22) 69 ↳
(474) 242 →
(1) 0 ↱
0 (2) ↱
0 (0) ↑
0 (0) ↰
470 (343)
319 (526)
(5) 14 ↳
(16) 25 ↰
12 (1) ↳
356 (316) ←
Main Street West
368 (317) ←
228 (458) →
(22) 28 ↳
(453) 214 →
Hunter
Road
0 (2) ↑
0 (4) →

2041_ Livingston to Oakes

18-7650 Casablanca- Livingston Improvement
Traffic Input - STAMSON V.5.0
16-hour traffic count

2018 BASELINE	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11
Livingston WB	AUTOMOBILE											
	MED TRUCKS											
	HEAVY TRUCKS											
	SPEED LIMIT											
	RECEIVER HEIGHT											
	DISTANCE											
	Angle											
Hunter Rd NB	AUTOMOBILE	704	704									704
	MED TRUCKS	34	34									34
	HEAVY TRUCKS	17	17									17
	SPEED LIMIT	50	50									50
	RECEIVER HEIGHT	1.2	1.2									1.2
	DISTANCE	25	23.5									100
	Angle	-90 to 90	-90 to 90									-90 to 90
Oakes Rd NB	AUTOMOBILE								1868	1868	1868	
	MED TRUCKS								191	191	191	
	HEAVY TRUCKS								96	96	96	
	SPEED LIMIT								50	50	50	
	RECEIVER HEIGHT								1.2	1.2	1.2	
	DISTANCE								12	14	15	
	Angle								-90 to 90	-90 to 90	-90 to 90	
Main St EB	AUTOMOBILE			5133	5133	5133	5133	5133	5133	5133	5133	
	MED TRUCKS			577	577	577	577	577	577	577	577	
	HEAVY TRUCKS			288	288	288	288	288	288	288	288	
	SPEED LIMIT			70	70	70	70	70	70	70	70	
	RECEIVER HEIGHT			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
	DISTANCE			26	49	27	26	35	20	20	27	
	Angle			-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	

Notes:
610 Auro is the min 16-hour car counts required in STAMSON

18-7650 Casablanca- Livingston Improvement
Traffic Input - STAMSON V.5.0
16-hour traffic count

B2031	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11
Livingston1	AUTOMOBILE											
	MED TRUCKS											
	HEAVY TRUCKS											
	SPEED LIMIT											
	RECEIVER HEIGHT											
	Distance											
	Angle											
Livingston2	AUTOMOBILE	2204	2204									2204
	MED TRUCKS	181	181									181
	HEAVY TRUCKS	90	90									90
	SPEED LIMIT	60	60									60
	RECEIVER HEIGHT	1.2	1.2									1.2
	Distance	14	28									20
	Angle	-90 to 90	-90 to 90									-90 to 90
Livingston3	AUTOMOBILE			2482	2482	2482	2482	2482	2482	2482	2482	
	MED TRUCKS			203	203	203	203	203	203	203	203	
	HEAVY TRUCKS			102	102	102	102	102	102	102	102	
	SPEED LIMIT			60	60	60	60	60	60	60	60	
	RECEIVER HEIGHT			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
	Distance			205	125	112	135	115	8	15	22	
	Angle			-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 0	-90 to 0	-90 to 0	
Hunter RH NB	AUTOMOBILE	798	798									798
	MED TRUCKS	38	38									38
	HEAVY TRUCKS	19	19									19
	SPEED LIMIT	50	50									50
	RECEIVER HEIGHT	1.2	1.2									1.2
	Distance	25	23.5									100
	Angle	-90 to 90	-90 to 90									-90 to 90
Oakes RH NB	AUTOMOBILE								5458	5458	5458	
	MED TRUCKS								558	558	558	
	HEAVY TRUCKS								279	279	279	
	SPEED LIMIT								50	50	50	
	RECEIVER HEIGHT								1.2	1.2	1.2	
	Distance								12	14	15	
	Angle								-90 to 90	-90 to 90	-90 to 90	
Main St EB	AUTOMOBILE			7903	7903	7903	7903	7903	7903	7903	7903	
	MED TRUCKS			888	888	888	888	888	888	888	888	
	HEAVY TRUCKS			444	444	444	444	444	444	444	444	
	SPEED LIMIT			70	70	70	70	70	70	70	70	
	RECEIVER HEIGHT			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
	Distance			26	49	27	26	35	20	20	27	
	Angle			-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	

18-7650 Casablanca- Livingston Improvement
Traffic Input - STAMSON V.5.0
16-hour traffic count

B2041	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11
Livingston1	AUTOMOBILE											
	MED TRUCKS											
	HEAVY TRUCKS											
	SPEED LIMIT											
	RECEIVER HEIGHT											
	Distance											
	Angle											
Livingston2	AUTOMOBILE	2314	2314									2314
	MED TRUCKS	190	190									190
	HEAVY TRUCKS	95	95									95
	SPEED LIMIT	60	60									60
	RECEIVER HEIGHT	1.2	1.2									1.2
	Distance	14	28									20
	Angle	-90 to 90	-90 to 90									-90 to 90
Livingston3	AUTOMOBILE			2606	2606	2606	2606	2606	2606	2606	2606	
	MED TRUCKS			214	214	214	214	214	214	214	214	
	HEAVY TRUCKS			107	107	107	107	107	107	107	107	
	SPEED LIMIT			60	60	60	60	60	60	60	60	
	RECEIVER HEIGHT			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
	Distance			205	125	112	135	115	8	15	22	
	Angle			-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 0	-90 to 0	-90 to 0	
Hunter RH NB	AUTOMOBILE	838	838									838
	MED TRUCKS	40	40									40
	HEAVY TRUCKS	20	20									20
	SPEED LIMIT	50	50									50
	RECEIVER HEIGHT	1.2	1.2									1.2
	Distance	25	23.5									100
	Angle	-90 to 90	-90 to 90									-90 to 90
Oakes RH NB	AUTOMOBILE								5732	5732	5732	
	MED TRUCKS								586	586	586	
	HEAVY TRUCKS								293	293	293	
	SPEED LIMIT								50	50	50	
	RECEIVER HEIGHT								1.2	1.2	1.2	
	Distance								12	14	15	
	Angle								-90 to 90	-90 to 90	-90 to 90	
Main St EB	AUTOMOBILE			8299	8299	8299	8299	8299	8299	8299	8299	
	MED TRUCKS			932	932	932	932	932	932	932	932	
	HEAVY TRUCKS			466	466	466	466	466	466	466	466	
	SPEED LIMIT			70	70	70	70	70	70	70	70	
	RECEIVER HEIGHT			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
	Distance			26	49	27	26	35	20	20	27	
	Angle			-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	

18-7650 Casablanca- Livingston Improvement
Traffic Input - STAMSON V.5.0
16-hour traffic count

N2031	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11
Livingston WB	AUTOMOBILE											
	MED TRUCKS											
	HEAVY TRUCKS											
	SPEED LIMIT											
	RECEIVER HEIGHT											
	DISTANCE											
	Angle											
Hunter Rd NB	AUTOMOBILE	871	871									871
	MED TRUCKS	41	41									41
	HEAVY TRUCKS	21	21									21
	SPEED LIMIT	50	50									50
	RECEIVER HEIGHT	1.2	1.2									1.2
	DISTANCE	25	23.5									100
	Angle	-90 to 90	-90 to 90									-90 to 90
Oakes Rd NB	AUTOMOBILE								2516	2516	2516	
	MED TRUCKS								257	257	257	
	HEAVY TRUCKS								129	129	129	
	SPEED LIMIT								50	50	50	
	RECEIVER HEIGHT								1.2	1.2	1.2	
	DISTANCE								12	14	15	
	Angle								-90 to 90	-90 to 90	-90 to 90	
Main St EB	AUTOMOBILE			7242	7242	7242	7242	7242	7242	7242	7242	
	MED TRUCKS			814	814	814	814	814	814	814	814	
	HEAVY TRUCKS			407	407	407	407	407	407	407	407	
	SPEED LIMIT			70	70	70	70	70	70	70	70	
	RECEIVER HEIGHT			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
	DISTANCE			26	49	27	26	35	20	20	27	
	Angle			-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	

18-7650 Casablanca- Livingston Improvement
Traffic Input - STAMSON V.5.0
16-hour traffic count

N2041	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10
Livingston WB	POR11 AUTOMOBILE										
	MED TRUCKS										
	HEAVY TRUCKS										
	SPEED LIMIT										
	RECEIVER HEIGHT										
	DISTANCE										
	Angle										
Hunter Rd NB	AUTOMOBILE	983	983								983
	MED TRUCKS	47	47								47
	HEAVY TRUCKS	23	23								23
	SPEED LIMIT	50	50								50
	RECEIVER HEIGHT	1.2	1.2								1.2
	DISTANCE	25	23.5								100
	Angle	-90 to 90	-90 to 90								-90 to 90
Oakes Rd NB	AUTOMOBILE							3163	3163	3163	
	MED TRUCKS							323	323	323	
	HEAVY TRUCKS							162	162	162	
	SPEED LIMIT							50	50	50	
	RECEIVER HEIGHT							1.2	1.2	1.2	
	DISTANCE							12	14	15	
	Angle							-90 to 90	-90 to 90	-90 to 90	
Main St EB	AUTOMOBILE			8299	8299	8299	8299	8299	8299	8299	8299
	MED TRUCKS			932	932	932	932	932	932	932	932
	HEAVY TRUCKS			466	466	466	466	466	466	466	466
	SPEED LIMIT			70	70	70	70	70	70	70	70
	RECEIVER HEIGHT			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	DISTANCE			26	49	27	26	35	20	20	27
	Angle			-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90	-90 to 90

Appendix B

Noise Sensitive Receptors

POINT OF RECEPTION (PORs)					
POR ID	DESCRIPTION	SIDE OF BUILDING	RECEPTOR HEIGHT (m)	UTM-X	UTM-Y
POR1	Single storey residential dwelling on East side of Hunter Road, North of Main Street West	Front/Side Yard	1.2	613311.00 m E	4784255.00 m N
POR2	Two storey residential dwelling on East side of Hunter Road, North of Main Street West	Front/Side Yard	1.2	613297.53 m E	4784200.73 m N
POR3	Church on North Side of Main Street West, West of Casablanca Boulevard	Front/Side Yard	1.2	613016.71 m E	4784073.24 m N
POR4	Two storey residential dwelling on Main Street West, West of Casablanca Boulevard	Front/Side Yard	1.2	612871.82 m E	4784192.97 m N
POR5	Single storey residential dwelling on North side of Main Street West, West of Casablanca Boulevard	Front/Side Yard	1.2	612783.66 m E	4784227.80 m N
POR6	Single storey residential dwelling on South side of Main Street West, West of Casablanca Boulevard	Front/Side Yard	1.2	612660.70 m E	4784232.37 m N
POR7	Two storey residential dwelling on South side of Main Street West, West of Casablanca Boulevard	Front/Side Yard	1.2	612600.48 m E	4784271.42 m N
POR8	Two storey residential dwelling on Northeast corner of Main Street West and Oakes Road intersection	Front/Side Yard	1.2	612487.00 m E	4784436.62 m N
POR9	Single storey residential dwelling on Northwest corner of Main Street West and Oakes Road intersection	Front/Side Yard	1.2	612443.12 m E	4784449.72 m N
POR10	Single storey residential dwelling on Southwest corner of Main Street West and Oakes Road intersection	Front/Side Yard	1.2	612418.30 m E	4784377.57 m N
POR11	Single storey residential dwelling on Hunter Road, North of Main Street West	Front/Side Yard	1.2	613396.87 m E	4784254.01 m N

Appendix C

STAMSON Output

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 23:42:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r15.te Time Period: 16 hours
Description: Baseline 2018 R1

Road data, segment # 1: Hunter

Car traffic volume : 704 veh/TimePeriod
Medium truck volume : 34 veh/TimePeriod
Heavy truck volume : 17 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	48.48	48.48
Total			48.48 dBA

TOTAL Leq FROM ALL SOURCES: 48.48

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 23:41:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r16.te Time Period: 16 hours
Description: Baseline 2018 R2

Road data, segment # 1: Hunter

Car traffic volume : 704 veh/TimePeriod
Medium truck volume : 34 veh/TimePeriod
Heavy truck volume : 17 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.50 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	48.92	48.92
Total			48.92 dBA

TOTAL Leq FROM ALL SOURCES: 48.92

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:02:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r17.te Time Period: 16 hours
Description: Baseline 2018 R3

Road data, segment # 1: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	62.53	62.53
Total			62.53 dBA

TOTAL Leq FROM ALL SOURCES: 62.53

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:02:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r18.te Time Period: 16 hours
Description: Baseline 2018 R4

Road data, segment # 1: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	57.96	57.96
Total			57.96 dBA

TOTAL Leq FROM ALL SOURCES: 57.96

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:05:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18R19.te Time Period: 16 hours
Description: Baseline 2018 R5

Road data, segment # 1: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	62.26	62.26
Total			62.26 dBA

TOTAL Leq FROM ALL SOURCES: 62.26

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:05:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r20.te Time Period: 16 hours
Description: Baseline 2018 R6

Road data, segment # 1: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	62.53	62.53
Total			62.53 dBA

TOTAL Leq FROM ALL SOURCES: 62.53

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:49:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r21.te Time Period: 16 hours
Description: 2018 Baseline R7

Road data, segment # 1: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	60.39	60.39
Total			60.39 dBA

TOTAL Leq FROM ALL SOURCES: 60.39

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 23:56:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r22.te Time Period: 16 hours
Description: Baseline 2018 R8

Road data, segment # 1: Oakes Rd

Car traffic volume : 1868 veh/TimePeriod
Medium truck volume : 191 veh/TimePeriod
Heavy truck volume : 96 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	58.89	58.89
2.Main St	1.48	64.42	64.42
Total			65.49 dBA

TOTAL Leq FROM ALL SOURCES: 65.49

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 23:57:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r23.te Time Period: 16 hours
Description: Baseline 2018 R9

Road data, segment # 1: Oakes Rd

Car traffic volume : 1868 veh/TimePeriod
Medium truck volume : 191 veh/TimePeriod
Heavy truck volume : 96 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	58.89	58.89
2.Main St	1.48	64.42	64.42
Total			65.49 dBA

TOTAL Leq FROM ALL SOURCES: 65.49

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 23:59:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r24.te Time Period: 16 hours
Description: Baseline 2018 R10

Road data, segment # 1: Oakes Rd

Car traffic volume : 1868 veh/TimePeriod
Medium truck volume : 191 veh/TimePeriod
Heavy truck volume : 96 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 5133 veh/TimePeriod
Medium truck volume : 577 veh/TimePeriod
Heavy truck volume : 288 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	58.89	58.89
2.Main St	1.48	62.26	62.26
Total			63.90 dBA

TOTAL Leq FROM ALL SOURCES: 63.90

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 23:43:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 18r25.te Time Period: 16 hours
Description: Baseline 2018 R11

Road data, segment # 1: Hunter

Car traffic volume : 704 veh/TimePeriod
Medium truck volume : 34 veh/TimePeriod
Heavy truck volume : 17 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 100.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	38.48	38.48
Total			38.48 dBA

TOTAL Leq FROM ALL SOURCES: 38.48

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:30:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r19.te Time Period: 16 hours
Description: 2031 Build R5

Road data, segment # 1: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2485 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 112.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.14	64.14
2.LIvingston3	1.38	43.42	43.42
Total			64.18 dBA

TOTAL Leq FROM ALL SOURCES: 64.18

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:29:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r20.te Time Period: 16 hours
Description: 2031 Build R6

Road data, segment # 1: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2485 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.41	64.41
2.LIvingston3	1.38	42.08	42.08
Total			64.44 dBA

TOTAL Leq FROM ALL SOURCES: 64.44

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:28:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r21.te Time Period: 16 hours
Description: 2031 Build R7

Road data, segment # 1: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2485 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	62.27	62.27
2.LIvingston3	1.38	43.23	43.23
Total			62.32 dBA

TOTAL Leq FROM ALL SOURCES: 62.32

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:33:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r22.te Time Period: 16 hours
Description: 2031 Build R8

Road data, segment # 1: Oakes Rd

Car traffic volume : 5458 veh/TimePeriod
Medium truck volume : 558 veh/TimePeriod
Heavy truck volume : 279 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: LIvingston3

Car traffic volume : 2482 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	63.53	63.53
2.Main St	1.48	66.30	66.30
3.LIvingston3	1.38	57.92	57.92
Total			68.54 dBA

TOTAL Leq FROM ALL SOURCES: 68.54

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:34:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r23.te Time Period: 16 hours
Description: 2031 Build R9

Road data, segment # 1: Oakes Rd

Car traffic volume : 5458 veh/TimePeriod
Medium truck volume : 558 veh/TimePeriod
Heavy truck volume : 279 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: LIvingston3

Car traffic volume : 2482 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	63.53	63.53
2.Main St	1.48	66.30	66.30
3.LIvingston3	1.38	57.92	57.92
Total			68.54 dBA

TOTAL Leq FROM ALL SOURCES: 68.54

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:35:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r24.te Time Period: 16 hours
Description: 2031 Build R10

Road data, segment # 1: Oakes Rd

Car traffic volume : 5458 veh/TimePeriod
Medium truck volume : 558 veh/TimePeriod
Heavy truck volume : 279 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: LIvingston3

Car traffic volume : 2482 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	63.53	63.53
2.Main St	1.48	64.14	64.14
3.LIvingston3	1.38	55.16	55.16
Total			67.14 dBA

TOTAL Leq FROM ALL SOURCES: 67.14

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:38:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r25.te Time Period: 16 hours
Description: 2031 Build R11

Road data, segment # 1: Hunter

Car traffic volume : 798 veh/TimePeriod
Medium truck volume : 38 veh/TimePeriod
Heavy truck volume : 19 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 100.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Livingston2

Car traffic volume : 2204 veh/TimePeriod
Medium truck volume : 181 veh/TimePeriod
Heavy truck volume : 90 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Livingston2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	38.98	38.98
2.Livingston2	1.38	58.33	58.33
Total			58.38 dBA

TOTAL Leq FROM ALL SOURCES: 58.38

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:37:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r15.te Time Period: 16 hours
Description: 2031 Build R1

Road data, segment # 1: Hunter

Car traffic volume : 798 veh/TimePeriod
Medium truck volume : 38 veh/TimePeriod
Heavy truck volume : 19 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Livingston2

Car traffic volume : 2204 veh/TimePeriod
Medium truck volume : 181 veh/TimePeriod
Heavy truck volume : 90 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Livingston2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	48.98	48.98
2.Livingston2	1.38	60.40	60.40
Total			60.70 dBA

TOTAL Leq FROM ALL SOURCES: 60.70

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:38:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r16.te Time Period: 16 hours
Description: 2031 Build R2

Road data, segment # 1: Hunter

Car traffic volume : 798 veh/TimePeriod
Medium truck volume : 38 veh/TimePeriod
Heavy truck volume : 19 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.50 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Livingston2

Car traffic volume : 2204 veh/TimePeriod
Medium truck volume : 181 veh/TimePeriod
Heavy truck volume : 90 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Livingston2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	49.42	49.42
2.Livingston2	1.38	55.90	55.90
Total			56.78 dBA

TOTAL Leq FROM ALL SOURCES: 56.78

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:31:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r17.te Time Period: 16 hours
Description: 2031 Build R3

Road data, segment # 1: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2485 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 205.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.41	64.41
2.LIvingston3	1.38	39.07	39.07
Total			64.42 dBA

TOTAL Leq FROM ALL SOURCES: 64.42

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:31:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r18.te Time Period: 16 hours
Description: 2031 Build R4

Road data, segment # 1: Main St

Car traffic volume : 7903 veh/TimePeriod
Medium truck volume : 888 veh/TimePeriod
Heavy truck volume : 444 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2485 veh/TimePeriod
Medium truck volume : 203 veh/TimePeriod
Heavy truck volume : 102 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 125.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	59.84	59.84
2.LIvingston3	1.38	42.63	42.63
Total			59.92 dBA

TOTAL Leq FROM ALL SOURCES: 59.92

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:51:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r15.te Time Period: 16 hours
Description: 2041 Build R1

Road data, segment # 1: Hunter

Car traffic volume : 838 veh/TimePeriod
Medium truck volume : 40 veh/TimePeriod
Heavy truck volume : 20 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Livingston2

Car traffic volume : 2314 veh/TimePeriod
Medium truck volume : 190 veh/TimePeriod
Heavy truck volume : 95 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Livingston2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	49.20	49.20
2.Livingston2	1.38	60.63	60.63
Total			60.93 dBA

TOTAL Leq FROM ALL SOURCES: 60.93

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:52:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r16.te Time Period: 16 hours
Description: 2041 Build R2

Road data, segment # 1: Hunter

Car traffic volume : 838 veh/TimePeriod
Medium truck volume : 40 veh/TimePeriod
Heavy truck volume : 20 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.50 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Livingston2

Car traffic volume : 2314 veh/TimePeriod
Medium truck volume : 190 veh/TimePeriod
Heavy truck volume : 95 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Livingston2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	49.64	49.64
2.Livingston2	1.38	56.13	56.13
Total			57.01 dBA

TOTAL Leq FROM ALL SOURCES: 57.01

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:56:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r17.te Time Period: 16 hours
Description: 2041 Build R3

Road data, segment # 1: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 205.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.62	64.62
2.LIvingston3	1.38	39.28	39.28
Total			64.63 dBA

TOTAL Leq FROM ALL SOURCES: 64.63

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:57:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r18.te Time Period: 16 hours
Description: 2041 Build R4

Road data, segment # 1: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 125.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	60.05	60.05
2.LIvingston3	1.38	42.85	42.85
Total			60.13 dBA

TOTAL Leq FROM ALL SOURCES: 60.13

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:57:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r19.te Time Period: 16 hours
Description: 2041 Build R5

Road data, segment # 1: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 112.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.35	64.35
2.LIvingston3	1.38	43.64	43.64
Total			64.39 dBA

TOTAL Leq FROM ALL SOURCES: 64.39

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:58:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r20.te Time Period: 16 hours
Description: 2041 Build R6

Road data, segment # 1: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.62	64.62
2.LIvingston3	1.38	42.29	42.29
Total			64.65 dBA

TOTAL Leq FROM ALL SOURCES: 64.65

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:58:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r21.te Time Period: 16 hours
Description: 2041 Build R7

Road data, segment # 1: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	62.48	62.48
2.LIvingston3	1.38	43.45	43.45
Total			62.53 dBA

TOTAL Leq FROM ALL SOURCES: 62.53

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:54:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r22.te Time Period: 16 hours
Description: 2041 Build R8

Road data, segment # 1: Oakes Rd

Car traffic volume : 5732 veh/TimePeriod
Medium truck volume : 586 veh/TimePeriod
Heavy truck volume : 293 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	63.74	63.74
2.Main St	1.48	66.51	66.51
3.LIvingston3	1.38	58.13	58.13
Total			68.75 dBA

TOTAL Leq FROM ALL SOURCES: 68.75

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:54:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r23.te Time Period: 16 hours
Description: 2041 Build R9

Road data, segment # 1: Oakes Rd

Car traffic volume : 5732 veh/TimePeriod
Medium truck volume : 586 veh/TimePeriod
Heavy truck volume : 293 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	63.74	63.74
2.Main St	1.48	66.51	66.51
3.LIvingston3	1.38	58.13	58.13
Total			68.75 dBA

TOTAL Leq FROM ALL SOURCES: 68.75

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:55:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r24.te Time Period: 16 hours
Description: 2041 Build R10

Road data, segment # 1: Oakes Rd

Car traffic volume : 5732 veh/TimePeriod
Medium truck volume : 586 veh/TimePeriod
Heavy truck volume : 293 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: LIvingston3

Car traffic volume : 2606 veh/TimePeriod
Medium truck volume : 214 veh/TimePeriod
Heavy truck volume : 107 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: LIvingston3

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	63.74	63.74
2.Main St	1.48	64.35	64.35
3.LIvingston3	1.38	55.37	55.37
Total			67.35 dBA

TOTAL Leq FROM ALL SOURCES: 67.35

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:52:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b31r25.te Time Period: 16 hours
Description: 2041 Build R11

Road data, segment # 1: Hunter

Car traffic volume : 838 veh/TimePeriod
Medium truck volume : 40 veh/TimePeriod
Heavy truck volume : 20 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 100.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Livingston2

Car traffic volume : 2314 veh/TimePeriod
Medium truck volume : 190 veh/TimePeriod
Heavy truck volume : 95 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Livingston2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	39.20	39.20
2.Livingston2	1.38	58.55	58.55
Total			58.60 dBA

TOTAL Leq FROM ALL SOURCES: 58.60

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:45:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r25.te Time Period: 16 hours
Description: No build 2031 R11

Road data, segment # 1: Hunter

Car traffic volume : 871 veh/TimePeriod
Medium truck volume : 41 veh/TimePeriod
Heavy truck volume : 21 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 100.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	39.38	39.38
Total			39.38 dBA

TOTAL Leq FROM ALL SOURCES: 39.38

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:42:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r15.te Time Period: 16 hours
Description: No build 2031 R1

Road data, segment # 1: Hunter

Car traffic volume : 871 veh/TimePeriod
Medium truck volume : 41 veh/TimePeriod
Heavy truck volume : 21 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	49.37	49.37
Total			49.37 dBA

TOTAL Leq FROM ALL SOURCES: 49.37

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:44:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r16.te Time Period: 16 hours
Description: No build 2031 R2

Road data, segment # 1: Hunter

Car traffic volume : 871 veh/TimePeriod
Medium truck volume : 41 veh/TimePeriod
Heavy truck volume : 21 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.50 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	49.82	49.82
Total			49.82 dBA

TOTAL Leq FROM ALL SOURCES: 49.82

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:54:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r17.te Time Period: 16 hours
Description: No build 2031 R3

Road data, segment # 1: Main St

Car traffic volume : 7242 veh/TimePeriod
Medium truck volume : 814 veh/TimePeriod
Heavy truck volume : 407 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.03	64.03
Total			64.03 dBA

TOTAL Leq FROM ALL SOURCES: 64.03

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:56:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r18.te Time Period: 16 hours
Description: No build 2031 R4

Road data, segment # 1: Main St

Car traffic volume : 7242 veh/TimePeriod
Medium truck volume : 814 veh/TimePeriod
Heavy truck volume : 407 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	59.46	59.46
Total			59.46 dBA

TOTAL Leq FROM ALL SOURCES: 59.46

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:53:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r19.te Time Period: 16 hours
Description: No build 2031 R5

Road data, segment # 1: Main St

Car traffic volume : 7242 veh/TimePeriod
Medium truck volume : 814 veh/TimePeriod
Heavy truck volume : 407 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	63.76	63.76
Total			63.76 dBA

TOTAL Leq FROM ALL SOURCES: 63.76

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:55:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r20.te Time Period: 16 hours
Description: No build 2031 R6

Road data, segment # 1: Main St

Car traffic volume : 7242 veh/TimePeriod
Medium truck volume : 814 veh/TimePeriod
Heavy truck volume : 407 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.03	64.03
Total			64.03 dBA

TOTAL Leq FROM ALL SOURCES: 64.03

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 11:47:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r21.te Time Period: 16 hours
Description: 2031 No Build R7

Road data, segment # 1: Main St

Car traffic volume	: 7242	veh/TimePeriod
Medium truck volume	: 814	veh/TimePeriod
Heavy truck volume	: 407	veh/TimePeriod
Posted speed limit	: 70	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2	: -90.00	deg	90.00 deg
Wood depth	: 0		(No woods.)
No of house rows	: 0		
Surface	: 1		(Absorptive ground surface)
Receiver source distance	: 35.00	m	
Receiver height	: 1.20	m	
Topography	: 1		(Flat/gentle slope; no barrier)
Reference angle	: 0.00		

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	61.89	61.89
Total			61.89 dBA

TOTAL Leq FROM ALL SOURCES: 61.89

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:49:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r22.te Time Period: 16 hours
Description: No build 2031 R8

Road data, segment # 1: Oakes Rd

Car traffic volume : 2516 veh/TimePeriod
Medium truck volume : 257 veh/TimePeriod
Heavy truck volume : 129 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 7242 veh/TimePeriod
Medium truck volume : 814 veh/TimePeriod
Heavy truck volume : 407 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	60.18	60.18
2.Main St	1.48	65.92	65.92
Total			66.95 dBA

TOTAL Leq FROM ALL SOURCES: 66.95

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:49:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r23.te Time Period: 16 hours
Description: No build 2031 R9

Road data, segment # 1: Oakes Rd

Car traffic volume : 2516 veh/TimePeriod
Medium truck volume : 257 veh/TimePeriod
Heavy truck volume : 129 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 7242 veh/TimePeriod
Medium truck volume : 814 veh/TimePeriod
Heavy truck volume : 407 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	60.18	60.18
2.Main St	1.48	65.92	65.92
Total			66.95 dBA

TOTAL Leq FROM ALL SOURCES: 66.95

STAMSON 5.0 SUMMARY REPORT Date: 09-03-2020 24:50:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r24.te Time Period: 16 hours
Description: No build 2031 R10

Road data, segment # 1: Oakes Rd

Car traffic volume : 2516 veh/TimePeriod
Medium truck volume : 257 veh/TimePeriod
Heavy truck volume : 129 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 7242 veh/TimePeriod
Medium truck volume : 814 veh/TimePeriod
Heavy truck volume : 407 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	60.18	60.18
2.Main St	1.48	63.76	63.76
Total			65.34 dBA

TOTAL Leq FROM ALL SOURCES: 65.34

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:41:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r15.te Time Period: 16 hours
Description: 2041 No Build R1

Road data, segment # 1: Hunter

Car traffic volume : 983 veh/TimePeriod
Medium truck volume : 47 veh/TimePeriod
Heavy truck volume : 23 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	49.85	49.85
Total			49.85 dBA

TOTAL Leq FROM ALL SOURCES: 49.85

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:41:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r16.te Time Period: 16 hours
Description: 2041 No Build R2

Road data, segment # 1: Hunter

Car traffic volume : 983 veh/TimePeriod
Medium truck volume : 47 veh/TimePeriod
Heavy truck volume : 23 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.50 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	50.30	50.30
Total			50.30 dBA

TOTAL Leq FROM ALL SOURCES: 50.30

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:42:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r17.te Time Period: 16 hours
Description: 2041 No Build R3

Road data, segment # 1: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.62	64.62
Total			64.62 dBA

TOTAL Leq FROM ALL SOURCES: 64.62

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:42:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r18.te Time Period: 16 hours
Description: 2041 No Build R

Road data, segment # 1: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	60.05	60.05
Total			60.05 dBA

TOTAL Leq FROM ALL SOURCES: 60.05

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:43:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r19.te Time Period: 16 hours
Description: 2041 No Build R5

Road data, segment # 1: Main St

Car traffic volume	: 8299	veh/TimePeriod
Medium truck volume	: 932	veh/TimePeriod
Heavy truck volume	: 466	veh/TimePeriod
Posted speed limit	: 70	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2	: -90.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 27.00 m	
Receiver height	: 1.20 m	
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.35	64.35
Total			64.35 dBA

TOTAL Leq FROM ALL SOURCES: 64.35

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:43:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r20.te Time Period: 16 hours
Description: 2041 No Build R6

Road data, segment # 1: Main St

Car traffic volume	: 8299	veh/TimePeriod
Medium truck volume	: 932	veh/TimePeriod
Heavy truck volume	: 466	veh/TimePeriod
Posted speed limit	: 70	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2	: -90.00 deg	90.00 deg	
Wood depth	: 0	(No woods.)	
No of house rows	: 0		
Surface	: 1	(Absorptive ground surface)	
Receiver source distance	: 26.00 m		
Receiver height	: 1.20 m		
Topography	: 1	(Flat/gentle slope; no barrier)	
Reference angle	: 0.00		

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	64.62	64.62
Total			64.62 dBA

TOTAL Leq FROM ALL SOURCES: 64.62

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:44:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r21.te Time Period: 16 hours
Description: 2041 No Build R7

Road data, segment # 1: Main St

Car traffic volume	: 8299	veh/TimePeriod
Medium truck volume	: 932	veh/TimePeriod
Heavy truck volume	: 466	veh/TimePeriod
Posted speed limit	: 70	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Main St

Angle1 Angle2	: -90.00 deg	90.00 deg	
Wood depth	: 0	(No woods.)	
No of house rows	: 0		
Surface	: 1	(Absorptive ground surface)	
Receiver source distance	: 35.00 m		
Receiver height	: 1.20 m		
Topography	: 1	(Flat/gentle slope; no barrier)	
Reference angle	: 0.00		

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Main St	1.48	62.48	62.48
Total			62.48 dBA

TOTAL Leq FROM ALL SOURCES: 62.48

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:45:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r22.te Time Period: 16 hours
Description: 2041 No Build R8

Road data, segment # 1: Oakes Rd

Car traffic volume : 3163 veh/TimePeriod
Medium truck volume : 323 veh/TimePeriod
Heavy truck volume : 162 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	61.17	61.17
2.Main St	1.48	66.51	66.51
Total			67.62 dBA

TOTAL Leq FROM ALL SOURCES: 67.62

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:46:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r23.te Time Period: 16 hours
Description: 2041 No Build R9

Road data, segment # 1: Oakes Rd

Car traffic volume : 3163 veh/TimePeriod
Medium truck volume : 323 veh/TimePeriod
Heavy truck volume : 162 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	61.17	61.17
2.Main St	1.48	66.51	66.51
Total			67.62 dBA

TOTAL Leq FROM ALL SOURCES: 67.62

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:46:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r24.te Time Period: 16 hours
Description: 2041 No Build R10

Road data, segment # 1: Oakes Rd

Car traffic volume : 3163 veh/TimePeriod
Medium truck volume : 323 veh/TimePeriod
Heavy truck volume : 162 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakes Rd

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Main St

Car traffic volume : 8299 veh/TimePeriod
Medium truck volume : 932 veh/TimePeriod
Heavy truck volume : 466 veh/TimePeriod
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Main St

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Oakes Rd	1.45	61.17	61.17
2.Main St	1.48	64.35	64.35
Total			66.06 dBA

TOTAL Leq FROM ALL SOURCES: 66.06

STAMSON 5.0 SUMMARY REPORT Date: 10-03-2020 13:47:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n31r25.te Time Period: 16 hours
Description: 2041 No Build R11

Road data, segment # 1: Hunter

Car traffic volume : 983 veh/TimePeriod
Medium truck volume : 47 veh/TimePeriod
Heavy truck volume : 23 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hunter

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 100.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Hunter	1.22	39.86	39.86
Total			39.86 dBA

TOTAL Leq FROM ALL SOURCES: 39.86