APPENDIX J

Noise Assessment

DILLON CONSULTING

REGIONAL MUNICIPALITY OF NIAGARA

Casablanca Boulevard and GO Station Access Environmental Assessment

Traffic Noise Assessment Report

March 12, 2019 – 18-7650

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Appendices

1.0 Introduction

The Region of Niagara (the Region) retained Dillon Consulting Limited (Dillon) in 2018, to conduct an Environmental Assessment (EA) Study (hereafter referred to as the Study) to assess the traffic noise impacts of proposed improvements to Casablanca Boulevard, extending from North Service Road to Main Street West in Grimbsy, Ontario. The results of the Study are detailed in the Environmental Study Report (ESR) which documents the planning process followed and the recommended design for the improvements, and which will be submitted for review by the public, agencies and Indigenous Communities. This Study is subject to the Schedule "C" Environmental Assessment (EA) under the Municipal Class Environmental Assessment process (Class EA), and the requirements for a Ministry of Transportation (MTO) Class Environmental Assessment for Group B projects. This Report outlines the approach and results of a Traffic Noise Impact Assessment conducted in support of the Study.

1.1 Objectives and Methodology

The objective of the Traffic Noise Impact Assessment is to assess local noise impacts of the recommended Casablanca Boulevard and GO Station Access improvements (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. It also determines if the impacts are positive or negative relative to the "no-build" (i.e., "Baseline" scenario).

The study also assesses the need and practicality of noise mitigation measures with the "build" scenario.

The assessment follows the methodologies included in MTO's document *Environmental Guide for Noise* (V3, June 2009) [the Guide] for Group 'B' projects.

1.2 Approach

The Traffic Noise Impact Assessment follows the requirements of the Guide for noise assessment and mitigation relating to the proposed improvements to Casablanca Boulevard. Some of the key components of this assessment include:

- Identify 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 for the assessments includes Casablanca Boulevard within the Town of Grimsby, from the North Service Road southerly, to Main Street West, as shown on **Figure 1**.

The purpose of the Casablanca Improvements project is to update and improve the existing conditions in the Study Area as recommended in the Niagara Region Transportation Master Plan, approved in 2017, as well as the Town of Grimsby Secondary Plan for the Grimsby GO transit Station.

CASABLANCA BOULEVARD & GO ACCESS ENVIRONMENTAL ASSESSMENT
Niagara Region

FIGURE 1
NOISE STUDY AREA FOR CASABLANCA IMPROVEMENT PROJECT

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

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

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PROJECT: 187650
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DATE: 2019-02-21

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Based on the technical analysis as well as public and agency consultation, the preferred alternative for the Study includes the following components:

- QEW Interchange: Improved Parclo A4 Interchange, with a multi-use path along the west side.
- GO Station and Access points: Casablanca Boulevard and South Service Road intersection- expanding the current intersection to provide space for cycling lanes, add two eastbound left turning lanes on South Service Road and accommodate added travel lanes on Casablanca Boulevard.
- Casablanca Boulevard between South Service Road and Livingston Avenue: Widening Casablanca Boulevard to two travel lanes in each direction combined with a centre turning lane, and providing sidewalks and cycling lanes on both sides of the road.
- Casablanca Boulevard at the CN Rail crossing: Widening of Casablanca Boulevard to two travel lanes in each direction; possible implementation of a future (long-term) grade separated underpass for motorists, pedestrians, and cyclists.
- Casablanca Boulevard between Livingston Avenue and Main Street West: Widening Casablanca Boulevard to accommodate a centre turning lane, as well as providing sidewalks and cycling lanes on both sides of the road.
- Livingston Avenue from Casablanca Boulevard westerly just beyond Emily Street, to the Region-owned lands: Widening the existing portion of Livingston Avenue to accommodate a centre turning lane, as well as providing sidewalks and cycling lanes on both sides of the road.

The “build” scenario includes Casablanca Boulevard from south of the CN Rail crossing southerly to Main Street West, as shown in **Figure 2**.

CASABLANCA BOULEVARD & GO ACCESS ENVIRONMENTAL ASSESSMENT
Niagara Region

FIGURE 2
CASABLANCA IMPROVEMENT FROM N SERVICE ROAD TO MAIN STREET

- Study Area
- Project Footprint
- Watercourse
- CNR Rail Line
- Hydro Line
- Parcel

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0 50 100 200 m

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MAP CREATED BY: GM
MAP CHECKED BY: DB
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3.0 Assessment of Current and Future Noise Levels

Traffic noise impacts were assessed for the "no-build" and "build" scenarios. Since the construction year for all the recommended improvements noted in Section 2.0 is estimated for 2021, this was taken as the inauguration year. For the "no-build" scenario, potential traffic noise impacts were assessed for the existing condition as baseline:

(1) Current conditions (base case 2018), 'Baseline'
(2) Year of inauguration (2021), 'Horizon'
(3) Ten years from inauguration (2031), 'Future'

The current conditions were assessed for 2018 since all the field traffic data was collected in 2018.

For the "build" preferred scenario, the traffic noise impact assessment was conducted for two timeframes:

(1) Year of inauguration (2021)
(2) Ten years from inauguration (2031).

The following service roads within 500 m of Casablanca were included in this assessment:

- Casablanca Boulevard northbound and southbound directions within the Study Area.
- Livingston Avenue at the intersection of Casablanca Boulevard.
- Main Street West at the intersection of Casablanca Boulevard.

Roads within the Study Area with low existing and future traffic volumes, including Livingston Avenue west of Casablanca Boulevard, 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

As per the Guide, there are two noise prediction methodologies approved by the Ministry of Environment, Conservation and Parks (MECP, formerly MOE) and MTO. The first methodology is referred to as ORNAMENT (Ontario Road Noise Analysis Method) and the second methodology is referred to as STAMINA 2.0. The ORNAMENT methodology is recommended when the topography is not complex and noise level increases are expected to be less than 5 dBA. This methodology is implemented through STAMSON, a DOS-based computer program.

STAMINA 2.0 is a computer program based on the United States Federal Highway Administration (FHWA) Highway Noise Prediction Model. It uses more complex calculations and requires more detailed input data compared to STAMSON. The STAMINA 2.0 methodology is recommended when noise level increases are expected to be greater than 5 dBA and mitigation is probable.

The ORNAMENT methodology was selected for this assessment as it was anticipated that the noise level increases as a result of the Casablanca Boulevard project would be less than 5 dBA.

3.2 Noise Sensitive Areas (NSAs)

Noise Sensitive Areas (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 define an NSA, all noise sensitive land uses, regardless of size or location (urban or rural), were assessed for application of noise control measures. 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 Casablanca Boulevard 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.

There are several high-density residential developments on the north of QEW and immediately west of Casablanca Boulevard (along the North Service Road) that are either recently completed and/or occupied, or are under construction. At the southwest corner of the intersection of Casablanca Boulevard and the North Service Road, a mixed density residential development is under construction which includes one 10-storey building, one 6-storey building, a 4-storey building and four townhouses (Aquazul Developments, Homes by Peter Desantis). The developments are within approximately 70m to 110m from the edge of QEW pavement. The sound environment for the entire development is heavily dominated by the highway traffic on the QEW, which has a posted speed limit of 100 km/h. This is the case for both daytime and nighttime hours. As such, the proposed project related to Casablanca Boulevard, consisting of predicted change in traffic volumes and widening of the road in proximity of the development site will have little or no impact on the noise environment at the subject residential developments. As such, an assessment of noise impact for the residential development sites along North Service Road is not merited.

A total of 12 PORs were modelled. The locations of these PORs are identified on **Figure 3**. Additional information for the 12 selected PORs can be found in **Appendix B**.

CASABLANCA BOULEVARD & GO ACCESS ENVIRONMENTAL ASSESSMENT
Niagara Region

FIGURE 3
NOISE SENSITIVE RECEPTORS

- Noise Receptor
- Study Area
- Project Footprint
- Watercourse
- CNR Rail Line
- Hydro Line
- Parcel

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0 50 100 200 m

MAP CREATED BY: GM
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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 Outdoor Living Area (OLA) associated with the most exposed side. The rationale is to determine the noise level at the side of the dwelling most exposed to the highway 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 (MTO, 2006).

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., 2021 "no-build" and 2031 "no-build"), and future noise levels with the undertaking (i.e., 2021 "Horizon" and 2031 "Future") were predicted using the MECP (formerly MOE) and MTO approved ORNAMENT methodology. Receptor locations were considered at approximately 3 m away from the façade of the dwellings most exposed to the highway. 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 Average Daily Traffic (ADT) counts collected by Niagara Region over one full 24-hour count in each of the four seasons during the count year and calculated 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., 2021 and 2031, for 'build' and 'no-build').The details of the traffic volume calculations and forecasting are provided in **Appendix A**.). A commercial vehicle percentage of 4%, consisting of heavy trucks, was assumed for all Casablanca Boulevard segments, based on traffic counts. For the other roadways being considered, the commercial vehicle breakdown was obtained based on a 24-hour traffic count conducted by Region of Niagara. The posted speed limits, commercial vehicle breakdown, and vehicle traffic counts for each roadway segment are presented in **Tables 1**, **2**, and **3**.

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 1: Summary of Posted Speed Limits

	Casablanca Blvd (North of Livingston)	Casablanca Blvd (Livingston Ave to Main St. W)	Livingston Ave Seg.1 (Casablanca Boulevard to Gage Street)	Main St. W
2018 Baseline	60 Km/ hour	60 Km/ hour	50 Km/ hour	60 Km/ hour
2021 No-Build	60 Km/ hour	60 Km/ hour	50 Km/ hour	60 Km/ hour
2021 Preferred Build	60 Km/ hour	60 Km/ hour	50 Km/ hour	60 Km/ hour
2031 No-Build	60 Km/ hour	60 Km/ hour	50 Km/ hour	60 Km/ hour
2031 Preferred Build	60 Km/ hour	60 Km/ hour	50 Km/ hour	60 Km/ hour

Table 2: Commercial Vehicle Breakdown

Type of Vehicle	All Casablanca Blvd segments	Livingston Avenue	Main St W
Automobile (i.e., cars)	96.00%	98.00%	96.00%
Medium trucks	0.00%	0.00%	0.00%
Heavy trucks	4.00%	2.00%	4.00%

Table 3: Summary of Vehicle Traffic Counts

	Casablanca Blvd (North of Livingston) Northbound	Casablanca Blvd (North of Livingston) Southbound	Casablanca Blvd (Livingston Ave to Main St. W) Northbound	Casablanca Blvd (Livingston Ave to Main St. W) southbound	Livingston Ave Seg.1 (Casablanca Boulevard to Gage Street)	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	9,900		4,230		7,605	6,822
2021 No-Build	10,980		3,420		8,460	6,642
Preferred Build 2021	6,890	6,069	1,841	1,911	8,460	6,642
2031 No-Build	13,860		4,210		10,260	7,146
Preferred Build 2031	8,752	7,217	2,322	2,282	10,260	7,146

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", "2021 Horizon" and "2031 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. 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 the other roads being considered in this study (e.g., Livingston Avenue, and Main Street West), were assumed to be TAC for all the scenarios in the STAMSON model.

3.5 Determination of Potential Impact

The predicted receptors noise levels for the five scenarios are presented in **Tables 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 most of the receptors assessed, there are no significant changes (i.e., < 2 dBA) in the predicted noise levels between the 2021 and 2031 "build" and the 2018 "no-build" scenarios. The predicted future volumes are generally higher along Casablanca Boulevard and the setback distances decreased due to the proposed road widening, resulting in higher predicted noise levels for majority of receptors. The highest increase in predicted noise levels is 2.3 dB at POR6, which is a Two-storey residential dwelling on Casablanca Boulevard. The increase of 2.28 dB and 2.3 dB were predicted for 2021 and 2031. This can be explained by the proposed widening and the road easterly shift, resulting in decreasing the setback distance for POR6.

For receptors POR2, POR11, and POR12, the predicted noise levels between 2021 and 2031 'build' and 2018 'no-build' scenarios has decreased which is due to the STMASON limitation in the input to the source-receptor distance. For these receptors the distance in one or either scenarios is lower than 15 metre (the maximum input to the STMASON) leads to inaccurate results for noise levels.

3.6 Determination of Significance

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

Table 4: 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

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

POR ID	2018 BASELINE – Noise Levels at POR (dBA)				
	Contribution from Casablanca Blvd (Livingston Ave to Main St. W)	Contribution from Casablanca Blvd (North of Livingston)	Contribution from Livingston Ave	Contribution from Main St W	Total Contribution from all Roadways
POR1	56.41	NA	NA	60.14	61.67
POR2	61.74	NA	NA	NA	61.74
POR3	57.24	NA	NA	NA	57.24
POR4	56.99	NA	NA	NA	56.99
POR5	58.06	NA	NA	NA	58.06
POR6	57.5	NA	NA	NA	57.5
POR7	51.14	54.21	59.59	NA	61.15
POR8	54.45	57.52	56.93	NA	61.26
POR9	60.64	50.18	57.82	NA	62.71
POR10	59.14	48.68	57.51	NA	61.64
POR11	NA	62.01	NA	NA	62.01
POR12	NA	59.75	NA	NA	59.75

Table 6: Summary of Predicted Noise Levels for 2021 "No-Build" Scenario

POR ID	2021 No-Build – Noise Levels at POR (dBA)				
	Contribution from Casablanca Blvd (North of Livingston)	Contribution from Casablanca Blvd (Livingston Ave to Main St. W)	Contribution from Livingston Ave	Contribution from Main St W	Total Contribution from all Roadways
POR1	NA	55.49	NA	60.02	61.33
POR2	NA	59.66	NA	NA	59.66
POR3	NA	55.49	NA	NA	55.49
POR4	NA	55.24	NA	NA	55.24
POR5	NA	56.31	NA	NA	56.31
POR6	NA	55.75	NA	NA	55.75
POR7	51.59	53.29	60.05	NA	61.36
POR8	54.9	56.6	57.4	NA	61.19
POR9	59.59	47.77	57.97	NA	62.03
POR10	61.09	49.27	58.28	NA	63.1
POR11	62.46	NA	NA	NA	62.46
POR12	60.2	NA	NA	NA	60.2

Table 7: Summary of Predicted Noise Levels for 2021 "Build" Scenario

POR ID	2021 Build – Noise Levels at POR (dBA)						
	Contribution from Casablanca Blvd (North of Livingston) Northbound	Contribution from Casablanca Blvd (North of Livingston) Southbound	Contribution from Casablanca Blvd (Livingston Ave to Main St. W) Northbound	Contribution from Casablanca Blvd (Livingston Ave to Main St. W) southbound	Contribution from Livingston Ave	Contribution from Main St W	Total Contribution from all Roadways
POR1	NA	NA	54.55	53.21	NA	60.02	61.76
POR2	NA	NA	55.24	57.44	NA	NA	59.49
POR3	NA	NA	55.24	53.76	NA	NA	57.57
POR4	NA	NA	54.55	56.59	NA	NA	56.94
POR5	NA	NA	52.56	54.06	NA	NA	56.38
POR6	NA	NA	56	53.76	NA	NA	58.03
POR7	49.72	51.33	48.68	49.61	60.05	NA	61.48
POR8	55.24	52.94	54.2	51.22	57.4	NA	61.69
POR9	58.53	60.78	46.05	48.98	58.28	NA	64.32
POR10	59.35	56.58	46.87	47.35	56.86	NA	62.8
POR11	60.83	57.54	NA	NA	NA	NA	62.5
POR12	56.15	57.48	NA	NA	NA	NA	59.88

Table 8: Summary of Predicted Noise Levels for 2031 "No-Build" Scenario

POR ID	2031 No-Build – Noise Levels at POR (dBA)				
	Contribution from Casablanca Blvd (North of Livingston)	Contribution from Casablanca Blvd (Livingston Ave to Main St. W)	Contribution from Livingston Ave	Contribution from Main St W	Total Contribution from all Roadways
POR1	NA	56.38	NA	60.34	61.81
POR2	NA	60.88	NA	NA	60.88
POR3	NA	56.38	NA	NA	56.38
POR4	NA	56.13	NA	NA	56.13
POR5	NA	57.2	NA	NA	57.2
POR6	NA	56.65	NA	NA	56.65
POR7	52.6	54.18	60.88	NA	62.22
POR8	55.91	57.49	58.23	NA	62.09
POR9	62.1	50.16	59.12	NA	64.05
POR10	60.6	48.66	58.81	NA	62.97
POR11	63.47	NA	NA	NA	63.47
POR12	61.21	NA	NA	NA	61.21

Table 9: Summary of Predicted Noise Levels for 2031 "Build" Scenario

POR ID	2031 Build – Noise Levels at POR (dBA)						
	Contribution from Casablanca Blvd (North of Livingston) Northbound	Contribution from Casablanca Blvd (North of Livingston) Southbound	Contribution from Casablanca Blvd (Livingston Ave to Main St. W) Northbound	Contribution from Casablanca Blvd (Livingston Ave to Main St. W) southbound	Contribution from Livingston Ave	Contribution from Main St W	Total Contribution from all Roadways
POR1	NA	NA	55.55	53.98	NA	60.34	62.28
POR2	NA	NA	56.24	58.22	NA	NA	60.35
POR3	NA	NA	56.24	54.54	NA	NA	58.48
POR4	NA	NA	55.55	53.98	NA	NA	57.85
POR5	NA	NA	53.56	54.83	NA	NA	57.25
POR6	NA	NA	57	54.54	NA	NA	58.95
POR7	50.72	52.11	49.7	50.36	60.88	NA	62.32
POR8	56.24	53.72	55.23	51.97	58.23	NA	62.58
POR9	59.57	61.53	47.05	49.76	58.29	NA	65.17
POR10	60.38	57.33	47.87	45.56	50.11	NA	63.65
POR11	61.86	58.3	NA	NA	NA	NA	63.45
POR12	57.18	58.24	NA	NA	NA	NA	60.75

Table 10: Comparison of Predicted Noise Levels

POR ID	POR Description	Predicted Overall Noise Levels (dBA)				
		2018 BASELINE	2021 "No-Build	2021 "Build"	2031 "No-Build"	2031 "Build"
POR1	Single storey backsplit type residential dwelling on Main St W and Casablanca Blvd intersection	61.67	61.33	61.76	61.81	62.28
POR2	Two-storey residential dwelling on west of Casablanca Blvd	61.74	59.66	59.49	60.88	60.35
POR3	Single storey residential dwelling on east of Casablanca Blvd	57.24	55.49	57.57	56.38	58.48
POR4	Single-storey residential dwelling on east of Casablanca Blvd	56.99	55.24	56.94	56.13	57.85
POR5	Two-storey residential dwelling on west of Casablanca Blvd	58.06	56.31	56.38	57.2	57.25
POR6	Two-storey residential dwelling on east of Casablanca Blvd	57.5	55.75	58.03	56.65	58.95
POR7	Single storey backsplit type residential dwelling on Southwest corner of Casablanca and Livingston intersection	61.15	61.36	61.48	62.22	62.32
POR8	Single storey residential dwelling on Southeast corner of Casablanca and Livingston intersection	61.26	61.19	61.69	62.09	62.58
POR9	Single storey residential dwelling on northwest corner of Casablanca and Livingston intersection	62.71	63.1	64.32	64.05	65.17
POR10	Two-storey residential dwelling on northeast corner of Casablanca and Livingston intersection	61.64	62.03	62.8	62.97	63.65
POR11	Single-storey residential dwelling on east of Casablanca Blvd	62.01	62.46	62.5	63.47	63.45
POR12	Church on west of Casablanca Blvd	59.75	60.2	59.88	61.21	60.75

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

POR ID	Year 2021 Ambient Noise Levels "No-Build" Leq (16 hr) dBA	Year 2021 Future Noise Levels "Build" Leq (16 hr) dBA	Change due to Undertaking dBA	Year 2031 Ambient Noise Levels "No-Build" Leq (16 hr) dBA	Year 2031 Future Noise Levels "Build" Leq (16 hr) dBA	Change due to Undertaking dBA
POR1	61.33	61.76	**0.43**	61.81	62.28	**0.47**
POR2	59.66	59.49	**-0.17**	60.88	60.35	**-0.53**
POR3	55.49	57.57	**2.08**	56.38	58.48	**2.1**
POR4	55.24	56.94	**1.7**	56.13	57.85	**1.72**
POR5	56.31	56.38	**0.07**	57.2	57.25	**0.05**
POR6	55.75	58.03	**2.28**	56.65	58.95	**2.3**
POR7	61.36	61.48	**0.12**	62.22	62.32	**0.1**
POR8	61.19	61.69	**0.5**	62.09	62.58	**0.49**
POR9	63.1	64.32	**1.22**	64.05	65.17	**1.12**
POR10	62.03	62.8	**0.77**	62.97	63.65	**0.68**
POR11	62.46	62.5	**0.04**	63.47	63.45	**-0.02**
POR12	60.2	59.88	**-0.32**	61.21	60.75	**-0.46**

4.0 Mitigation

As shown in the modelling results (**Tables 10 and 11**), the change in noise levels above the ambient, as a result of the undertaking is less than 5 dBA at all the representative receptors. As a result, the traffic noise impact resulting from this project is predicted to be insignificant. However in one receptor, the overall traffic noise impact exceeds the 65 dBA criterion. For the receptor POR9, a single-storey residential dwelling at the northwest corner of Livingston Avenue and Casablanca Boulevard, the predicted overall noise levels for the future "build" scenario (for 2031) is marginally higher than the 65 dBA criterion (i.e. 65.17 dBA for 2031). If predicted noise levels with the undertaking exceed the 65 dBA criterion, the Guide requires investigation of noise control measures. The Guide also requires that mitigation measures, where introduced, should achieve a minimum of 5 dBA attenuation, over the first row of PORs. It should be noted that the exceedance of 0.17 dB is considered negligible and not noticeable by human hearing.

In keeping with the Guide, several modelling iterations were completed to determine effective noise mitigation measures for receptors represented by POR9. Preliminary analysis indicate that in order to achieve a 5 dBA noise reduction at POR9, two noise barrier walls are required to install; one with 2.0 m height and approximately 3 m to 7 m from the north side pavement edge of the Livingston Avenue; and the other with 2 m height and approximately 7 metres from the edge of Casablanca Boulevard. However, implementation of noise mitigation measure in the form of a noise barrier wall that can achieve a minimum of 5 dB reduction in receptor noise level may not be possible due to the location of the property (i.e., corner lot) and the orientation of the dwelling (i.e., driveway access off of Livingston Avenue is required). As such, noise mitigation measure for POR9 is not recommended.

5.0 Construction Noise Impact

The proposed Casablanca Boulevard improvements fall within an area dominated by residential development and farmland (rural setting). The existing sound environment within the Study Area and surrounding areas is characterized by sounds of nature, traffic noise along nearby routes (e.g., existing Casablanca Boulevard, Livingston Avenue, and Main Street West), 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.

In accordance with MTO's *Class EA for Provincial Transportation Facilities* (2000), a noise impact assessment for the construction phase is required if there are public concerns about noise levels during construction.

Noise generated during construction of the Casablanca Boulevard Improvements, 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, which in Grimsby refers to By-law No. 11-22 (amended by By-law No. 17-46, 17-67, and 18-62) An exemption from these by-laws is likely required given that construction activities will likely 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 along the Casablanca Boulevard. The setback distances from these receptors to the construction site (i.e., along Casablanca Boulevard) range from approximately 15 m to greater than 30 m. For these receptors, nuisance construction noise impact is expected to be high.

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., pile driving, 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 to 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 Casablanca Boulevard Improvements 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, i.e., the existing condition (2018), year of inauguration (2021) and ten years after the inauguration (2031).

There are no significant increases (i.e., > 5 dBA) in predicted noise levels at any of the representative PORs assessed for the proposed undertaking.

For the house at the northwest corner of Livingston Avenue and Casablanca Boulevard, predicted noise is at or higher than 65 dBA; however, noise walls at this property may not feasible given the building orientation. In addition, the exceedance of 0.17dBA over the 65 dBA limit would not be perceptible by human hearing.

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

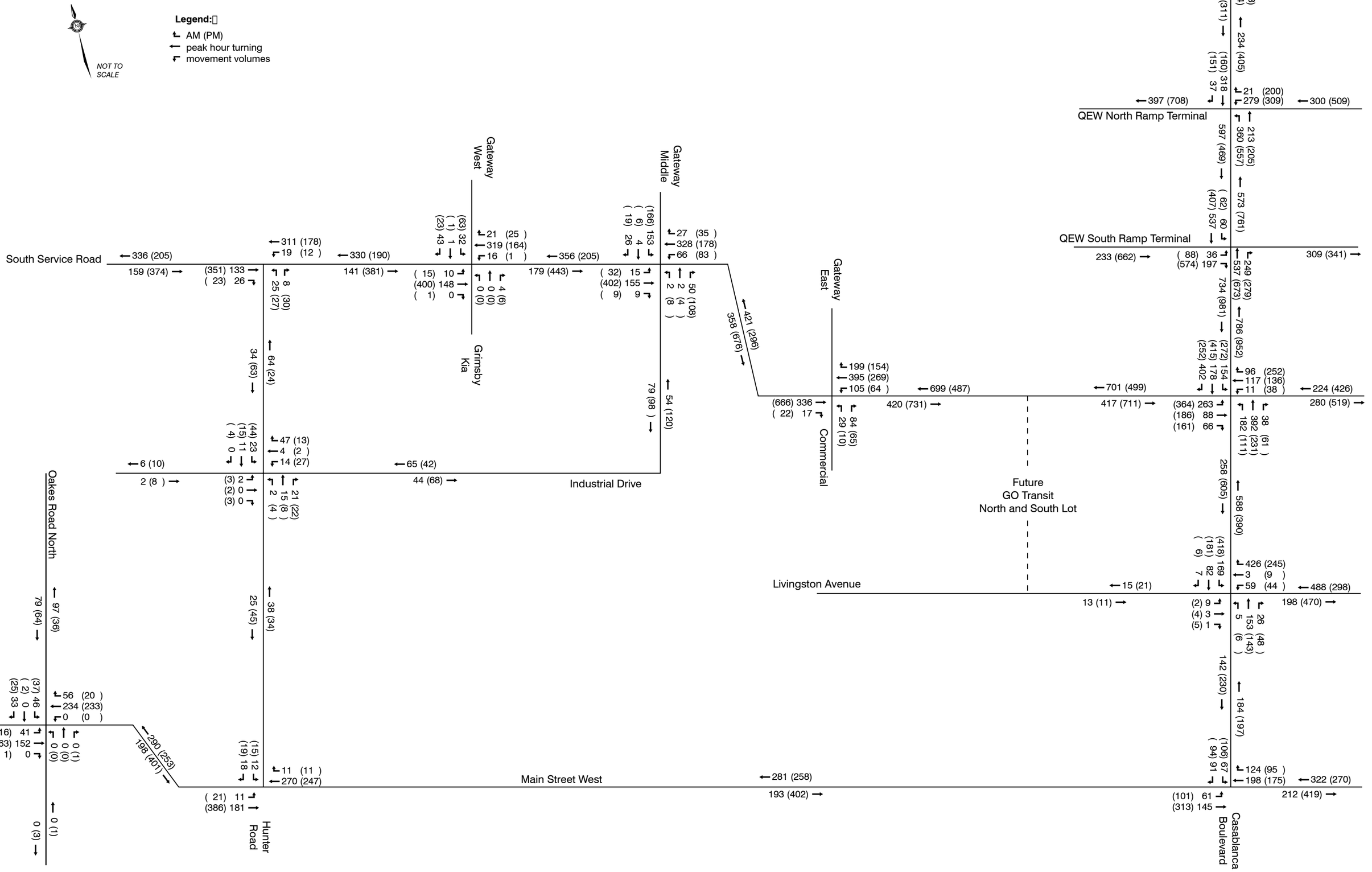
Traffic Data

2018_ Existing

NOT TO SCALE

Legend:

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



2021_ Do Nothing

Legend:

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

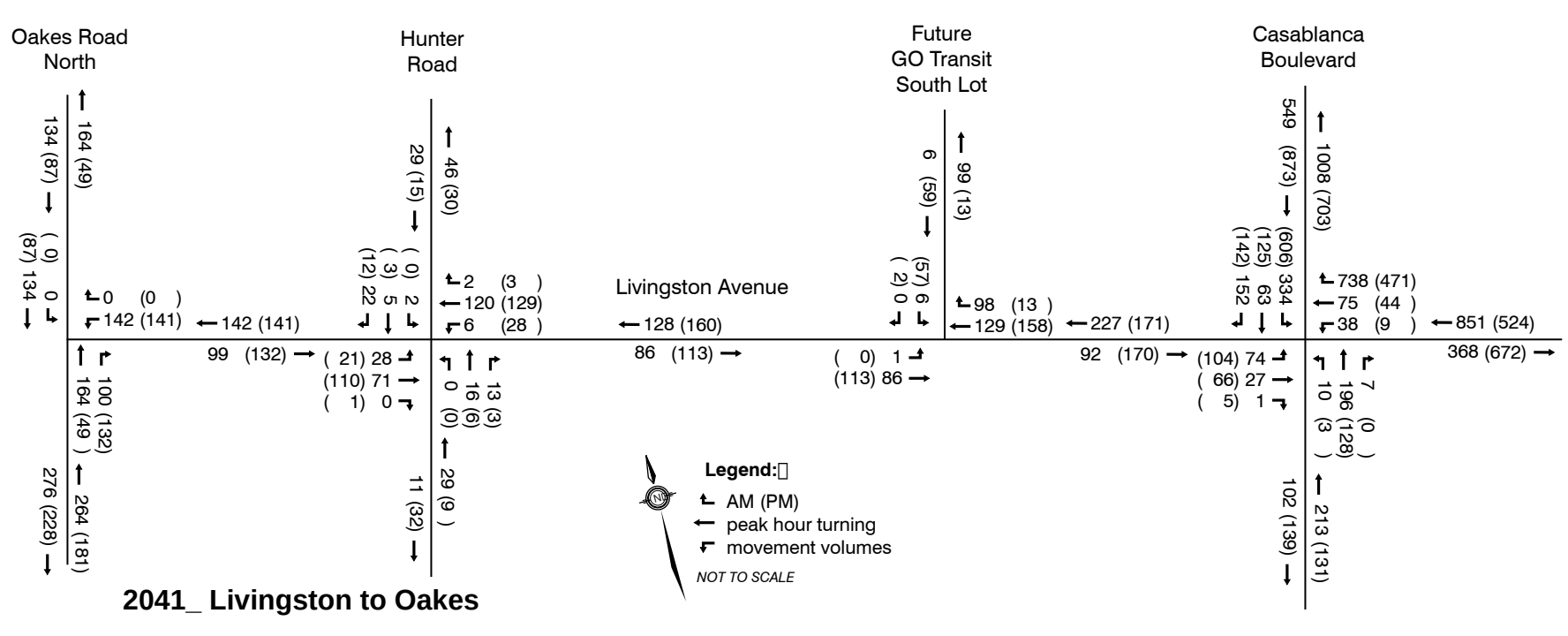
North Service Road
South Service Road
QEW North Ramp Terminal
QEW South Ramp Terminal
Gateway West
Gateway Middle
Gateway East
Grimsby Kia
Commercial
Future GO Transit North Lot
Livingston Avenue
Industrial Drive
Oakes Road North
Main Street West
Hunter Road
Casablanca Boulevard

2041_ Do Nothing

Legend:

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

North Service Road
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
Industrial Drive
Oakes Road North
Hunter Road
Main Street West
Casablanca Boulevard



2041_ Livingston to Oakes

Traffic Input - STAMSON V.5.0 **2018 BASELINE**

	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11 *	POR12
Casablanca Blvd (North of Livingston)	TOTAL	9900						9900	9900	9900	9900	9900	9900
	AUTOMOBILE							9504	9504	9504	9504	9504	9504
	MED TRUCKS												
	HEAVY TRUCKS							396	396	396	396	396	396
	SPEED LIMIT							60	60	60	60	60	60
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	1.2	1.2
	DISTANCE							**38**	**24**	**26**	**32**	**19**	**33**
	Angle							**_90 to -45**	**45 to 90**	**_90 to 45**	**_45 to 90**	**_90 to 90**	**_90 to 90**
Casablanca Blvd (Livingston Ave to Main St. W)	TOTAL	4230	4230	4230	4230	4230	4230	4230	4230	4230	4230		
	AUTOMOBILE	4061	4061	4061	4061	4061	4061	4061	4061	4061	4061		
	MED TRUCKS												
	HEAVY TRUCKS	169	169	169	169	169	169	169	169	169	169		
	SPEED LIMIT	60	60	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	1.2	1.2		
	DISTANCE	**28**	**15**	**28**	**29**	**25**	**27**	**38**	**24**	**26**	**32**		
	Angle	**_90 TO 45**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_45 to 90**	**_90 to 45**	**45 to 90**	**_90 to -45**		
Livingston Ave Seg.1 (Casablanca Boulevard to Gage Street)	TOTAL	7605						7605	7605	7605	7605		
	AUTOMOBILE							7453	7453	7453	7453		
	MED TRUCKS												
	HEAVY TRUCKS							152	152	152	152		
	SPEED LIMIT							50	50	50	50		
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2		
	DISTANCE							**18**	**26**	**23**	**24**		
	Angle							**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**		
Main St. W	TOTAL	6822											
	AUTOMOBILE	6549											
	MED TRUCKS												
	HEAVY TRUCKS	273											
	SPEED LIMIT	60											
	RECEIVER HEIGHT	1.2											
	DISTANCE	**25**											
	Angle	**_90 TO 90**											

Notes:

*** The bldg has a wall barrier**

Traffic Input - STAMSON V.5.0 **2021 DO NOTHING**

	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11 *	POR12
Casablanca Blvd (North of Livingston)	TOTAL	10980						10980	10980	10980	10980	10980	10980
	AUTOMOBILE							10541	10541	10541	10541	10541	10541
	MED TRUCKS												
	HEAVY TRUCKS							439	439	439	439	439	439
	SPEED LIMIT							60	60	60	60	60	60
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	1.2	1.2
	DISTANCE							**38**	**24**	**26**	**32**	**19**	**33**
	Angle							**_90 to -45**	**45 to 90**	**_90 to 45**	**_45 to 90**	**_90 to 90**	**_90 to 90**
Casablanca Blvd (Livingston Ave to Main St. W)	TOTAL	3420	3420	3420	3420	3420	3420	3420	3420	3420	3420		
	AUTOMOBILE	3283	3283	3283	3283	3283	3283	3283	3283	3283	3283		
	MED TRUCKS												
	HEAVY TRUCKS	137	137	137	137	137	137	137	137	137	137		
	SPEED LIMIT	60	60	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	1.2	1.2		
	DISTANCE	**28**	**15**	**28**	**29**	**25**	**27**	**38**	**24**	**26**	**32**		
	Angle	**_90 TO 45**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_45 to 90**	**_90 to 45**	**45 to 90**	**_90 to -45**		
Livingston Ave Seg.1 (Casablanca Boulevard to Gage Street)	TOTAL	8460						8460	8460	8460	8460		
	AUTOMOBILE							8291	8291	8291	8291		
	MED TRUCKS												
	HEAVY TRUCKS							169	169	169	169		
	SPEED LIMIT							50	50	50	50		
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2		
	DISTANCE							**18**	**26**	**23**	**24**		
	Angle							**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**		

Notes:

*** The bldg has a wall barrier**

Traffic Input - STAMSON V.5.0 **2021 BUILT SCENARIO**

	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11 *	POR12
Casablanca Blvd NB (North of Livingston)	TOTAL	6890						6890	6890	6890	6890	6890	6890
	AUTOMOBILE							6614	6614	6614	6614	6614	6614
	MED TRUCKS												
	HEAVY TRUCKS							276	276	276	276	276	276
	SPEED LIMIT							60	60	60	60	60	60
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	1.2	1.2
	DISTANCE							**43**	**20**	**28**	**25**	**15(13)**	**39**
	Angle							**_90 to -45**	**45 to 90**	**_90 to 45**	**_45 to 90**	**_90 to 90**	**_90 to 90**
Casablanca Blvd SB (North of Livingston)	TOTAL	6069						6069	6069	6069	6069	6069	6069
	AUTOMOBILE							5826	5826	5826	5826	5826	5826
	MED TRUCKS												
	HEAVY TRUCKS							243	243	243	243	243	243
	SPEED LIMIT							60	60	60	60	60	60
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	1.2	1.2
	DISTANCE							**35**	**28**	**19**	**34**	**22**	**30**
	Angle							**_90 to -45**	**45 to 90**	**_90 to 45**	**_45 to 90**	**_90 to 90**	**_90 to 90**
Casablanca Blvd NB (Livingston Ave to Main St. W)	TOTAL	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841		
	AUTOMOBILE	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767		
	MED TRUCKS												
	HEAVY TRUCKS	74	74	74	74	74	74	74	74	74	74		
	SPEED LIMIT	60	60	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	1.2	1.2		
	DISTANCE	**22**	**20**	**20**	**22**	**29**	**18**	**43**	**20**	**28**	**25**		
	Angle	**_90 TO 45**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_45 to 90**	**_90 to 45**	**45 to 90**	**_90 to -45**		
Casablanca Blvd SB (Livingston Ave to Main St. W)	TOTAL	1911	1911	1911	1911	1911	1911	1911	1911	1911	1911		
	AUTOMOBILE	1835	1835	1835	1835	1835	1835	1835	1835	1835	1835		
	MED TRUCKS												
	HEAVY TRUCKS	76	76	76	76	76	76	76	76	76	76		
	SPEED LIMIT	60	60	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	1.2	1.2		
	DISTANCE	**27**	**15**	**25**	**27**	**24**	**25**	**35**	**28**	**19**	**34**		
	Angle	**_90 TO 45**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_45 to 90**	**_90 to 45**	**45 to 90**	**_90 to -45**		
Livingston Ave Seg.1 (Casablanca Boulevard to Gage Street)	TOTAL	8460						8460	8460	8460	8460		
	AUTOMOBILE							8291	8291	8291	8291		
	MED TRUCKS												
	HEAVY TRUCKS							169	169	169	169		
	SPEED LIMIT							50	50	50	50		
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2		
	DISTANCE							**18**	**26**	**23**	**28**		
	Angle							**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**		

Notes:

*** The bldg has a wall barrier**

Traffic Input - STAMSON V.5.0 **2031 DO NOTHING**

	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11 *
Casablanca Blvd (North of Livingston)	TOTAL	13860						13860	13860	13860	13860	13860
	AUTOMOBILE							13306	13306	13306	13306	13306
	MED TRUCKS											
	HEAVY TRUCKS							554	554	554	554	554
	SPEED LIMIT							60	60	60	60	60
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	1.2
	DISTANCE							**38**	**24**	**26**	**32**	**19**
	Angle							**_90 to -45**	**45 to 90**	**_90 to 45**	**_45 to 90**	**_90 to 90**
Casablanca Blvd (Livingston Ave to Main St. W)	TOTAL	4210	4210	4210	4210	4210	4210	4210	4210	4210	4210	
	AUTOMOBILE	4042	4042	4042	4042	4042	4042	4042	4042	4042	4042	
	MED TRUCKS											
	HEAVY TRUCKS	168	168	168	168	168	168	168	168	168	168	
	SPEED LIMIT	60	60	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	1.2	1.2	
	DISTANCE	**28**	**15**	**28**	**29**	**25**	**27**	**38**	**24**	**26**	**32**	
	Angle	**_90 TO 45**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_45 to 90**	**_90 to 45**	**45 to 90**	**_90 to -45**	
Livingston Ave Seg.1 (Casablanca Boulevard to Gage Street)	TOTAL	10260						10260	10260	10260	10260	
	AUTOMOBILE							10055	10055	10055	10055	
	MED TRUCKS											
	HEAVY TRUCKS							205	205	205	205	
	SPEED LIMIT							50	50	50	50	
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	
	DISTANCE							**18**	**26**	**23**	**24**	
	Angle							**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	

Notes:

*** The bldg has a wall barrier**

Traffic Input - STAMSON V.5.0 **2031 BUILT SCENARIO**

	16 HOUR TRAFFIC	POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11 *	POR12
Casablanca Blvd NB (North of Livingston)	TOTAL	8752						8752	8752	8752	8752	8752	8752
	AUTOMOBILE							8402	8402	8402	8402	8402	8402
	MED TRUCKS												
	HEAVY TRUCKS							350	350	350	350	350	350
	SPEED LIMIT							60	60	60	60	60	60
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	1.2	1.2
	DISTANCE							**43**	**20**	**28**	**25**	**15(13)**	**39**
	Angle							**_90 to -45**	**45 to 90**	**_90 to 45**	**_45 to 90**	**_90 to 90**	**_90 to 90**
Casablanca Blvd SB (North of Livingston)	TOTAL	7217						7217	7217	7217	7217	7217	7217
	AUTOMOBILE							6928	6928	6928	6928	6928	6928
	MED TRUCKS												
	HEAVY TRUCKS							289	289	289	289	289	289
	SPEED LIMIT							60	60	60	60	60	60
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2	1.2	1.2
	DISTANCE							**35**	**28**	**19**	**34**	**22**	**30**
	Angle							**_90 to -45**	**45 to 90**	**_90 to 45**	**_45 to 90**	**_90 to 90**	**_90 to 90**
Casablanca Blvd NB (Livingston Ave to Main St. W)	TOTAL	2322	2322	2322	2322	2322	2322	2322	2322	2322	2322		
	AUTOMOBILE	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229		
	MED TRUCKS												
	HEAVY TRUCKS	93	93	93	93	93	93	93	93	93	93		
	SPEED LIMIT	60	60	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	1.2	1.2		
	DISTANCE	**22**	**20**	**20**	**22**	**29**	**18**	**43**	**20**	**28**	**25**		
	Angle	**_90 TO 45**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_45 to 90**	**_90 to 45**	**45 to 90**	**_90 to -45**		
Casablanca Blvd SB (Livingston Ave to Main St. W)	TOTAL	2282	2282	2282	2282	2282	2282	2282	2282	2282	2282		
	AUTOMOBILE	2191	2191	2191	2191	2191	2191	2191	2191	2191	2191		
	MED TRUCKS												
	HEAVY TRUCKS	91	91	91	91	91	91	91	91	91	91		
	SPEED LIMIT	60	60	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	1.2	1.2		
	DISTANCE	**27**	**15**	**25**	**27**	**24**	**25**	**35**	**28**	**19**	**34**		
	Angle	**_90 TO 45**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**	**_45 to 90**	**_90 to 45**	**45 to 90**	**_90 to -45**		
Livingston Ave Seg.1 (Casablanca Boulevard to Gage Street)	TOTAL	10260						10260	10260	10260	10260		
	AUTOMOBILE							10055	10055	10055	10055		
	MED TRUCKS												
	HEAVY TRUCKS							205	205	205	205		
	SPEED LIMIT							50	50	50	50		
	RECEIVER HEIGHT							1.2	1.2	1.2	1.2		
	DISTANCE							**18**	**26**	**23**	**28**		
	Angle							**_90 to 90**	**_90 to 90**	**_90 to 90**	**_90 to 90**		

Notes:

*** The bldg has a wall barrier**

Appendix B

Receivers Description

POINT OF RECEPTION (PORs)					
POR ID	**DESCRIPTION**	**SIDE OF BUILDING**	**RECEPTOR HEIGHT (m)**	**UTM-X**	**UTM-Y**
POR 1	Single storey backsplit type residential dwelling on Main St W and Casablanca Blvd intersection	Front/Side Yard	1.2	613946.00 m E	4783436.00 m N
POR 2	Two-storey residential dwelling on west of Casablanca Blvd	Front/Side Yard	1.2	613942.00 m E	4783620.00 m N
POR 3	Single storey residential dwelling on east of Casablanca Blvd	Back yard	1.2	613992.00 m E	4783609.00 m N
POR 4	Single-storey residential dwelling on east of Casablanca Blvd	Front/Side Yard	1.2	614061.00 m E	4783843.00 m N
POR 5	Two-storey residential dwelling on west of Casablanca Blvd	Back yard	1.2	614039.00 m E	4783989.00 m N
POR 6	Two-storey residential dwelling on east of Casablanca Blvd	Back yard	1.2	614117.00 m E	4783999.00 m N
POR 7	Single storey backsplit type residential dwelling on Southwest corner of Casablanca and Livingston intersection	Front/Side Yard	1.2	614044.00 m E	4784046.00 m N
POR 8	Single storey residential dwelling on Southeast corner of Casablanca and Livingston intersection	Front/Side Yard	1.2	614120.00 m E	4784022.00 m N
POR 9	Single storey residential dwelling on northwest corner of Casablanca and Livingston intersection	Front/Side Yard	1.2	614075.00 m E	4784097.00 m N
POR 10	Two-storey residential dwelling on northeast corner of Casablanca and Livingston intersection	Front/Side Yard	1.2	614138.00 m E	4784086.00 m N
POR 11	Single-storey residential dwelling on east of Casablanca Blvd	Front/Side Yard	1.2	614161.00 m E	4784183.00 m N
POR 12	Church on west of Casablanca Blvd	Front Yard	1.2	614096.00 m E	4784234.00 m N

Appendix C

STAMSON Results

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 12:48:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r1.te Time Period: 16 hours
Description: Baseline 2018

Road data, segment # 1: CASABLANCA

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: MAIN ST W

Car traffic volume : 6549 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 273 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MAIN ST W

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.CASABLANCA	1.41	56.41	56.41
2.MAIN ST W	1.41	60.14	60.14
Total			61.67 dBA

TOTAL Leq FROM ALL SOURCES: 61.67

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 12:49:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r2.te Time Period: 16 hours
Description: Baseline 2018 R2

Road data, segment # 1: CASABLANCA

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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.CASABLANCA	1.41	61.74	61.74
Total			61.74 dBA

TOTAL Leq FROM ALL SOURCES: 61.74

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 15:48:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r3.te Time Period: 16 hours
Description: Baseline 2018 R3

Road data, segment # 1: CASABLANCA

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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.CASABLANCA	1.41	57.24	57.24
Total			57.24 dBA

TOTAL Leq FROM ALL SOURCES: 57.24

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 12:50:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r4.te Time Period: 16 hours
Description: Baseline 2018 R4

Road data, segment # 1: CASABLANCA

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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 : 29.00 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.CASABLANCA	1.41	56.99	56.99
Total			56.99 dBA

TOTAL Leq FROM ALL SOURCES: 56.99

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 12:51:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r5.te Time Period: 16 hours
Description: Baseline 2018 R5

Road data, segment # 1: CASABLANCA

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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.CASABLANCA	1.41	58.06	58.06
Total			58.06 dBA

TOTAL Leq FROM ALL SOURCES: 58.06

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 15:55:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r6.te Time Period: 16 hours
Description: Baseline 2018 R6

Road data, segment # 1: CASABLANCA

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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.CASABLANCA	1.41	57.50	57.50
Total			57.50 dBA

TOTAL Leq FROM ALL SOURCES: 57.50

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:53:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r7.te Time Period: 16 hours
Description: BASELINE 2018 R7

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 7453 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 152 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 18.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 9504 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 396 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 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.CASABLANCA1	1.41	54.21	54.21
2.LIVINGSTON	1.19	59.59	59.59
3.CSABLANCA2	1.41	51.14	51.14
Total			61.15 dBA

TOTAL Leq FROM ALL SOURCES: 61.15

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:54:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r8.te Time Period: 16 hours
Description: BASELINE 2018 R8

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 7453 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 152 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 # 3: CSABLANCA2

Car traffic volume : 9504 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 396 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : 45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 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.CASABLANCA1	1.41	57.52	57.52
2.LIVINGSTON	1.19	56.93	56.93
3.CSABLANCA2	1.41	54.45	54.45
Total			61.26 dBA

TOTAL Leq FROM ALL SOURCES: 61.26

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:54:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r9.te Time Period: 16 hours
Description: BASELINE 2018 R9

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : 45.00 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: LIVINGSTON

Car traffic volume : 7453 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 152 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 23.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 9504 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 396 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA1	1.41	50.18	50.18
2.LIVINGSTON	1.19	57.82	57.82
3.CSABLANCA2	1.41	60.64	60.64
Total			62.71 dBA

TOTAL Leq FROM ALL SOURCES: 62.71

STAMSON 5.0 NORMAL REPORT Date: 15-01-2019 10:20:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r10.te Time Period: 16 hours
Description: BASELINE 2018 R10

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4061 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 7453 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 152 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 24.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 9504 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 396 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: CASABLANCA1

Source height = 1.41 m

ROAD (0.00 + 48.68 + 0.00) = 48.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-45	0.66	63.19	0.00	-5.46	-9.05	0.00	0.00	0.00	48.68

Segment Leq : 48.68 dBA

Results segment # 2: LIVINGSTON

Source height = 1.19 m

ROAD (0.00 + 57.51 + 0.00) = 57.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	62.36	0.00	-3.39	-1.46	0.00	0.00	0.00	57.51

Segment Leq : 57.51 dBA

Results segment # 3: CSABLANCA2

Source height = 1.41 m

ROAD (0.00 + 59.14 + 0.00) = 59.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	66.89	0.00	-5.46	-2.29	0.00	0.00	0.00	59.14

Segment Leq : 59.14 dBA

Total Leq All Segments: 61.64 dBA

TOTAL Leq FROM ALL SOURCES: 61.64

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:52:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r11.te Time Period: 16 hours
Description: BASELINE 2018 R11

Road data, segment # 1: CASABLANCA

Car traffic volume : 9504 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 396 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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 : 19.00 m
Receiver height : 1.20 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 30.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.CASABLANCA	1.41	62.01	62.01
Total			62.01 dBA

TOTAL Leq FROM ALL SOURCES: 62.01

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 12:59:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2018r12.te Time Period: 16 hours
Description: Baseline 2018 R12

Road data, segment # 1: CASABLANCA

Car traffic volume : 9504 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 396 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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 : 33.00 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.CASABLANCA	1.41	59.75	59.75
Total			59.75 dBA

TOTAL Leq FROM ALL SOURCES: 59.75

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:26:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r1.te Time Period: 16 hours
Description: NO BUILD 2021 R1

Road data, segment # 1: CASABLANCA

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: MAIN ST W

Car traffic volume : 6376 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 266 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MAIN ST W

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.CASABLANCA	1.41	55.49	55.49
2.MAIN ST W	1.41	60.02	60.02
Total			61.33 dBA

TOTAL Leq FROM ALL SOURCES: 61.33

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:27:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r2.te Time Period: 16 hours
Description: NO BUILD 2021 R2

Road data, segment # 1: CASABLANCA

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	59.99	59.99
Total			59.99 dBA

TOTAL Leq FROM ALL SOURCES: 59.99

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:28:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r3.te Time Period: 16 hours
Description: NO BUILD 2021 R3

Road data, segment # 1: CASABLANCA

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	55.49	55.49
Total			55.49 dBA

TOTAL Leq FROM ALL SOURCES: 55.49

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:28:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r3.te Time Period: 16 hours
Description: NO BUILD 2021 R4

Road data, segment # 1: CASABLANCA

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.00 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.CASABLANCA	1.41	55.24	55.24
Total			55.24 dBA

TOTAL Leq FROM ALL SOURCES: 55.24

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:29:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r4.te Time Period: 16 hours
Description: NO BUILD 2021 R5

Road data, segment # 1: CASABLANCA

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	56.31	56.31
Total			56.31 dBA

TOTAL Leq FROM ALL SOURCES: 56.31

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:30:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r5.te Time Period: 16 hours
Description: NO BUILD 2021 R6

Road data, segment # 1: CASABLANCA

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	55.75	55.75
Total			55.75 dBA

TOTAL Leq FROM ALL SOURCES: 55.75

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:33:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r7.te Time Period: 16 hours
Description: NO BUILD 2021 R7

Road data, segment # 1: CASABLANCA1

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 18.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 10541 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 439 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 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.CASABLANCA1	1.41	53.29	53.29
2.LIVINGSTON	1.19	60.05	60.05
3.CSABLANCA2	1.41	51.59	51.59
Total			61.36 dBA

TOTAL Leq FROM ALL SOURCES: 61.36

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:35:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2021r8.te Time Period: 16 hours
Description: NO BUILD 2021 R8

Road data, segment # 1: CASABLANCA1

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 # 3: CSABLANCA2

Car traffic volume : 10541 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 439 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : 45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 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.CASABLANCA1	1.41	56.60	56.60
2.LIVINGSTON	1.19	57.40	57.40
3.CSABLANCA2	1.41	54.90	54.90
Total			61.19 dBA

TOTAL Leq FROM ALL SOURCES: 61.19

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:36:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2021R9.te Time Period: 16 hours
Description: NO BUILD 2021 R9

Road data, segment # 1: CASABLANCA1

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : 45.00 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: LIVINGSTON

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 23.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 10541 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 439 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA1	1.41	49.27	49.27
2.LIVINGSTON	1.19	58.28	58.28
3.CSABLANCA2	1.41	61.09	61.09
Total			63.10 dBA

TOTAL Leq FROM ALL SOURCES: 63.10

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 10:47:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2021r10.te Time Period: 16 hours
Description: NO BUILD 2021 R10

Road data, segment # 1: CASABLANCA1

Car traffic volume : 3283 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 137 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 24.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 10541 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 439 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 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.CASABLANCA1	1.41	47.77	47.77
2.LIVINGSTON	1.19	57.97	57.97
3.CSABLANCA2	1.41	59.59	59.59
Total			62.03 dBA

TOTAL Leq FROM ALL SOURCES: 62.03

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:01:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2021r11.te Time Period: 16 hours
Description: NO BUILD 2021 R11

Road data, segment # 1: CASABLANCA

Car traffic volume : 10541 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 439 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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 : 19.00 m
Receiver height : 1.20 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 30.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.CASABLANCA	1.41	62.46	62.46
Total			62.46 dBA

TOTAL Leq FROM ALL SOURCES: 62.46

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:02:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2021r12.te Time Period: 16 hours
Description: NO BUILD 2021 R12

Road data, segment # 1: CASABLANCA

Car traffic volume : 10541 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 439 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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 : 33.00 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.CASABLANCA	1.41	60.20	60.20
Total			60.20 dBA

TOTAL Leq FROM ALL SOURCES: 60.20

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 16:04:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r1.te Time Period: 16 hours
Description: Horizon 2021 R1

Road data, segment # 1: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: MAIN ST W

Car traffic volume : 6376 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 266 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MAIN ST W

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 # 3: CASA_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.42	54.55	54.55
2.MAIN ST W	1.41	60.02	60.02
3.CASA_SB	1.41	53.21	53.21
Total			61.76 dBA

TOTAL Leq FROM ALL SOURCES: 61.76

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:11:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r2.te Time Period: 16 hours
Description: Horizon 2021 R2

Road data, segment # 1: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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 # 2: CASA_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.42	55.24	55.24
2.CASA_SB	1.41	57.44	57.44
Total			59.49 dBA

TOTAL Leq FROM ALL SOURCES: 59.49

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:12:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r3.te Time Period: 16 hours
Description: Horizon 2021 R3

Road data, segment # 1: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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 # 2: CASA_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.42	55.24	55.24
2.CASA_SB	1.41	53.76	53.76
Total			57.57 dBA

TOTAL Leq FROM ALL SOURCES: 57.57

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:13:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r4.te Time Period: 16 hours
Description: Horizon 2021 R4

Road data, segment # 1: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: CASA_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.42	54.55	54.55
2.CASA_SB	1.41	53.21	53.21
Total			56.94 dBA

TOTAL Leq FROM ALL SOURCES: 56.94

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:13:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r5.te Time Period: 16 hours
Description: Horizon 2021 R5

Road data, segment # 1: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 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.CASA_NB	1.42	52.56	52.56
2.CASA_SB	1.41	54.06	54.06
Total			56.38 dBA

TOTAL Leq FROM ALL SOURCES: 56.38

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:14:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r6.te Time Period: 16 hours
Description: Horizon 2021 R6

Road data, segment # 1: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.42	56.00	56.00
2.CASA_SB	1.41	53.76	53.76
Total			58.03 dBA

TOTAL Leq FROM ALL SOURCES: 58.03

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 17:28:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r7.te Time Period: 16 hours
Description: Horizon 2021 R7

Road data, segment # 1: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 43.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -45.00 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 # 3: Livingston

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

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 : 18.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: CASA_NB

Car traffic volume : 6614 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 276 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA_NB

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 43.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: CASA_SB

```
Car traffic volume  :  5826 veh/TimePeriod
Medium truck volume :     0 veh/TimePeriod
Heavy truck volume  :   243 veh/TimePeriod
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

Data for Segment # 5: CASA_SB

```
Angle1   Angle2           : -90.00 deg   -45.00 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.CASA_NB	1.42	49.72	49.72
2.CASA_SB	1.41	51.33	51.33
3.Livingston	1.19	60.05	60.05
4.CASA_NB	1.41	48.68	48.68
5.CASA_SB	1.41	49.61	49.61
Total			61.48 dBA

TOTAL Leq FROM ALL SOURCES: 61.48

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 17:28:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r8.te Time Period: 16 hours
Description: Horizon 2021 R8

Road data, segment # 1: CASA1_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA1_NB

Angle1 Angle2 : -90.00 deg 45.00 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 # 2: CASA1_SB

Car traffic volume : 1835 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 76 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA1_SB

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 3: Livingston

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

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 # 4: CASA2_NB

Car traffic volume : 6614 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 276 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA2_NB

Angle1 Angle2 : 45.00 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 # 5: CASA2_SB

Car traffic volume	: 5826	veh/TimePeriod
Medium truck volume	: 0	veh/TimePeriod
Heavy truck volume	: 243	veh/TimePeriod
Posted speed limit	: 60	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 5: CASA2_SB

Angle1 Angle2	:	45.00 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.CASA1_NB	1.42	55.24	55.24
2.CASA1_SB	1.41	52.94	52.94
3.Livingston	1.19	57.40	57.40
4.CASA2_NB	1.41	54.20	54.20
5.CASA2_SB	1.41	51.22	51.22
Total			61.69 dBA

TOTAL Leq FROM ALL SOURCES: 61.69

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 14:14:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r9.te Time Period: 16 hours
Description: BUILD 2021 R9

Road data, segment # 1: CASA_NB

Car traffic volume : 6614 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 276 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: CASA_SB

Car traffic volume : 5826 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 243 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Livingston

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

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 : 23.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA_NB

Angle1 Angle2 : 45.00 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

Road data, segment # 5: CASA_SB

```
Car traffic volume  :  1835 veh/TimePeriod
Medium truck volume :     0 veh/TimePeriod
Heavy truck volume  :    76 veh/TimePeriod
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

Data for Segment # 5: CASA_SB

```
Angle1   Angle2           :  45.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground
surface)
Receiver source distance  :  19.00 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.CASA_NB	1.41	58.53	58.53
2.CASA_SB	1.41	60.78	60.78
3.Livingston	1.19	58.28	58.28
4.CASA_NB	1.42	46.05	46.05
5.CASA_SB	1.41	48.98	48.98
Total			64.32 dBA

TOTAL Leq FROM ALL SOURCES: 64.32

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 17:29:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r10.te Time Period: 16 hours
Description: Horizon 2021 R10

Road data, segment # 1: CASA_NB

Car traffic volume : 6614 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 276 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -45.00 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: CASA_SB

Car traffic volume : 5826 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 243 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Livingston

Car traffic volume : 8291 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 169 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

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

Road data, segment # 4: CASA_NB

Car traffic volume : 1767 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA_NB

Angle1 Angle2 : -90.00 deg -45.00 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 # 5: CASA_SB

Car traffic volume	1835	veh/TimePeriod
Medium truck volume	0	veh/TimePeriod
Heavy truck volume	169	veh/TimePeriod
Posted speed limit	60	km/h
Road gradient	0	%
Road pavement	1	(Typical asphalt or concrete)

Data for Segment # 5: CASA_SB

Angle1 Angle2	-90.00 deg	-45.00 deg
Wood depth	0	(No woods.)
No of house rows	0	
Surface	1	(Absorptive ground surface)
Receiver source distance	34.00 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.CASA_NB	1.41	59.35	59.35
2.CASA_SB	1.41	56.58	56.58
3.Livingston	1.19	56.86	56.86
4.CASA_NB	1.42	46.87	46.87
5.CASA_SB	1.70	47.38	47.38
Total			62.80 dBA

TOTAL Leq FROM ALL SOURCES: 62.80

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:21:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r11.te Time Period: 16 hours
Description: Horizon 2021 R11

Road data, segment # 1: CASA_NB

Car traffic volume : 6614 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 276 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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 : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 30.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 5826 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 243 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	-30.00 deg	Angle2 : 30.00 deg
Barrier height	:	1.50 m	
Barrier receiver distance	:	3.00 m	
Source elevation	:	0.00 m	
Receiver elevation	:	0.00 m	
Barrier elevation	:	0.00 m	
Reference angle	:	0.00	

Result summary

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.CASA_NB	1.41	60.83	60.83
2.CASA_SB	1.41	57.54	57.54
Total			62.50 dBA

TOTAL Leq FROM ALL SOURCES: 62.50

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:21:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2021r12.te Time Period: 16 hours
Description: Horizon 2021 R12

Road data, segment # 1: CASA_NB

Car traffic volume : 6614 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 276 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 5826 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 243 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 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.CASA_NB	1.41	56.15	56.15
2.CASA_SB	1.41	57.48	57.48
Total			59.88 dBA

TOTAL Leq FROM ALL SOURCES: 59.88

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:06:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2031r1.te Time Period: 16 hours
Description: NO BUILD 2031 R1

Road data, segment # 1: CASABLANCA

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: MAIN ST W

Car traffic volume : 6860 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 286 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MAIN ST W

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.CASABLANCA	1.41	56.38	56.38
2.MAIN ST W	1.41	60.34	60.34
Total			61.81 dBA

TOTAL Leq FROM ALL SOURCES: 61.81

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:08:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2031r2.te Time Period: 16 hours
Description: NO BUILD 2031 R2

Road data, segment # 1: CASABLANCA

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	60.88	60.88
Total			60.88 dBA

TOTAL Leq FROM ALL SOURCES: 60.88

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:08:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2031r3.te Time Period: 16 hours
Description: NO BUILD 2031 R3

Road data, segment # 1: CASABLANCA

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	56.38	56.38
Total			56.38 dBA

TOTAL Leq FROM ALL SOURCES: 56.38

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:09:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2031r4.te Time Period: 16 hours
Description: NO BUILD 2031 R4

Road data, segment # 1: CASABLANCA

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.00 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.CASABLANCA	1.41	56.13	56.13
Total			56.13 dBA

TOTAL Leq FROM ALL SOURCES: 56.13

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:11:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2031r5.te Time Period: 16 hours
Description: NO BUILD 2031 R5

Road data, segment # 1: CASABLANCA

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	57.20	57.20
Total			57.20 dBA

TOTAL Leq FROM ALL SOURCES: 57.20

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:11:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: N2031r6.te Time Period: 16 hours
Description: NO BUILD 2031 R6

Road data, segment # 1: CASABLANCA

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA	1.41	56.65	56.65
Total			56.65 dBA

TOTAL Leq FROM ALL SOURCES: 56.65

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:14:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n2031r7.te Time Period: 16 hours
Description: NO BUILD 2031 R7

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 18.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 13306 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 554 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 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.CASABLANCA1	1.41	54.18	54.18
2.LIVINGSTON	1.19	60.88	60.88
3.CSABLANCA2	1.41	52.60	52.60
Total			62.22 dBA

TOTAL Leq FROM ALL SOURCES: 62.22

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:15:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n2031r8.te Time Period: 16 hours
Description: NO BUILD 2031 R8

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 # 3: CSABLANCA2

Car traffic volume : 13306 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 554 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : 45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 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.CASABLANCA1	1.41	57.49	57.49
2.LIVINGSTON	1.19	58.23	58.23
3.CSABLANCA2	1.41	55.91	55.91
Total			62.09 dBA

TOTAL Leq FROM ALL SOURCES: 62.09

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:21:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n2031r9.te Time Period: 16 hours
Description: NO BUILD 2031 R9

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : 45.00 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: LIVINGSTON

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 23.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 13306 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 554 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -90.00 deg 45.00 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.CASABLANCA1	1.41	50.16	50.16
2.LIVINGSTON	1.19	59.12	59.12
3.CSABLANCA2	1.41	62.10	62.10
Total			64.05 dBA

TOTAL Leq FROM ALL SOURCES: 64.05

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:22:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n2031r10.te Time Period: 16 hours
Description: NO BUILD 2031 R10

Road data, segment # 1: CASABLANCA1

Car traffic volume : 4042 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 168 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA1

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: LIVINGSTON

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: LIVINGSTON

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 : 24.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: CSABLANCA2

Car traffic volume : 13306 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 554 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CSABLANCA2

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 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.CASABLANCA1	1.41	48.66	48.66
2.LIVINGSTON	1.19	58.81	58.81
3.CSABLANCA2	1.41	60.60	60.60
Total			62.97 dBA

TOTAL Leq FROM ALL SOURCES: 62.97

STAMSON 5.0 SUMMARY REPORT Date: 15-01-2019 11:25:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: n2031r12.te Time Period: 16 hours
Description: NO BUILD 2031 R12

Road data, segment # 1: CASABLANCA

Car traffic volume : 13306 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 554 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASABLANCA

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 : 33.00 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.CASABLANCA	1.41	61.21	61.21
Total			61.21 dBA

TOTAL Leq FROM ALL SOURCES: 61.21

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 16:05:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r1.te Time Period: 16 hours
Description: Future 2031 R1

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: MAIN ST W

Car traffic volume : 6860 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 286 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MAIN ST W

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 # 3: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.41	55.55	55.55
2.MAIN ST W	1.41	60.34	60.34
3.CASA_SB	1.41	53.98	53.98
Total			62.28 dBA

TOTAL Leq FROM ALL SOURCES: 62.28

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:22:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r2.te Time Period: 16 hours
Description: Future 2031 R2

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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 # 2: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.41	56.24	56.24
2.CASA_SB	1.41	58.22	58.22
Total			60.35 dBA

TOTAL Leq FROM ALL SOURCES: 60.35

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:23:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r3.te Time Period: 16 hours
Description: Future 2031 R3

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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 # 2: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.41	56.24	56.24
2.CASA_SB	1.41	54.54	54.54
Total			58.48 dBA

TOTAL Leq FROM ALL SOURCES: 58.48

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:23:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r4.te Time Period: 16 hours
Description: Future 2031 R4

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.41	55.55	55.55
2.CASA_SB	1.41	53.98	53.98
Total			57.85 dBA

TOTAL Leq FROM ALL SOURCES: 57.85

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:24:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r5.te Time Period: 16 hours
Description: Future 2031 R5

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 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.CASA_NB	1.41	53.56	53.56
2.CASA_SB	1.41	54.83	54.83
Total			57.25 dBA

TOTAL Leq FROM ALL SOURCES: 57.25

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:24:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r6.te Time Period: 16 hours
Description: Future 2031 R6

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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.CASA_NB	1.41	57.00	57.00
2.CASA_SB	1.41	54.54	54.54
Total			58.95 dBA

TOTAL Leq FROM ALL SOURCES: 58.95

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 16:55:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r7.te Time Period: 16 hours
Description: Future 2031 R7

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 43.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -45.00 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 # 3: Livingston

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

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 : 18.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: CASA_NB

Car traffic volume : 8402 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 350 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA_NB

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 43.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: CASA_SB

```
Car traffic volume  :  6928 veh/TimePeriod
Medium truck volume :     0 veh/TimePeriod
Heavy truck volume  :   289 veh/TimePeriod
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

Data for Segment # 5: CASA_SB

```
Angle1   Angle2           : -90.00 deg   -45.00 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.CASA_NB	1.41	50.72	50.72
2.CASA_SB	1.41	52.11	52.11
3.Livingston	1.19	60.88	60.88
4.CASA_NB	1.41	49.71	49.71
5.CASA_SB	1.41	50.36	50.36
Total			62.32 dBA

TOTAL Leq FROM ALL SOURCES: 62.32

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 16:56:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r8.te Time Period: 16 hours
Description: Future 2031 R8

Road data, segment # 1: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -45.00 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 # 2: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -45.00 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

Road data, segment # 3: Livingston

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

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 # 4: CASA_NB

Car traffic volume : 8402 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 350 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA_NB

Angle1 Angle2 : -90.00 deg -45.00 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 # 5: CASA_SB

Car traffic volume : 6928 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 289 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: CASA_SB

Angle1 Angle2 : -90.00 deg -45.00 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.CASA_NB	1.41	56.24	56.24
2.CASA_SB	1.41	53.72	53.72
3.Livingston	1.19	58.23	58.23
4.CASA_NB	1.41	55.23	55.23
5.CASA_SB	1.41	51.97	51.97
Total			62.58 dBA

TOTAL Leq FROM ALL SOURCES: 62.58

STAMSON 5.0 NORMAL REPORT Date: 08-01-2019 15:22:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r9.te Time Period: 16 hours
Description: Future 2031 R9

Road data, segment # 1: CASA_NB

Car traffic volume : 8402 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 350 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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

Road data, segment # 2: CASA_SB

Car traffic volume : 6928 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 289 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Livingston

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA_NB

Angle1 Angle2 : 45.00 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

Road data, segment # 5: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: CASA_SB

Angle1 Angle2 : 45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: CASA_NB

Source height = 1.41 m

ROAD (0.00 + 59.57 + 0.00) = 59.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	66.36	0.00	-4.50	-2.29	0.00	0.00	0.00	59.57

Segment Leq : 59.57 dBA

Results segment # 2: CASA_SB

Source height = 1.41 m

ROAD (0.00 + 61.53 + 0.00) = 61.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	65.52	0.00	-1.70	-2.29	0.00	0.00	0.00	61.53

Segment Leq : 61.53 dBA

Results segment # 3: Livingston

Source height = 1.19 m

ROAD (0.00 + 58.29 + 0.00) = 58.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	63.66	0.00	-3.08	-2.29	0.00	0.00	0.00	58.29

Segment Leq : 58.29 dBA

Results segment # 4: CASA_NB

Source height = 1.41 m

ROAD (0.00 + 47.05 + 0.00) = 47.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
45	90	0.66	60.60	0.00	-4.50	-9.05	0.00	0.00	0.00	47.05

Segment Leq : 47.05 dBA

Results segment # 5: CASA_SB

Source height = 1.41 m

ROAD (0.00 + 49.76 + 0.00) = 49.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
45	90	0.66	60.51	0.00	-1.70	-9.05	0.00	0.00	0.00	49.76

Segment Leq : 49.76 dBA

Total Leq All Segments: 64.98 dBA

TOTAL Leq FROM ALL SOURCES: 64.98

STAMSON 5.0 NORMAL REPORT Date: 08-01-2019 15:26:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r10.te Time Period: 16 hours
Description: Future 2031 R10

Road data, segment # 1: CASA_NB

Car traffic volume : 8402 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 350 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -45.00 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: CASA_SB

Car traffic volume : 6928 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 289 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Livingston

Car traffic volume : 10055 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Livingston

Angle1 Angle2 : 45.00 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

Road data, segment # 4: CASA_NB

Car traffic volume : 2229 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 93 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: CASA_NB

Angle1 Angle2 : -90.00 deg -45.00 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 # 5: CASA_SB

Car traffic volume : 2191 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 91 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: CASA_SB

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: CASA_NB

Source height = 1.41 m

ROAD (0.00 + 60.38 + 0.00) = 60.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	66.36	0.00	-3.68	-2.29	0.00	0.00	0.00	60.38

Segment Leq : 60.38 dBA

Results segment # 2: CASA_SB

Source height = 1.41 m

ROAD (0.00 + 57.33 + 0.00) = 57.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	65.52	0.00	-5.90	-2.29	0.00	0.00	0.00	57.33

Segment Leq : 57.33 dBA

Results segment # 3: Livingston

Source height = 1.19 m

ROAD (0.00 + 50.11 + 0.00) = 50.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
45	90	0.66	63.66	0.00	-4.50	-9.05	0.00	0.00	0.00	50.11

Segment Leq : 50.11 dBA

Results segment # 4: CASA_NB

Source height = 1.41 m

ROAD (0.00 + 47.87 + 0.00) = 47.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-45	0.66	60.60	0.00	-3.68	-9.05	0.00	0.00	0.00	47.87

Segment Leq : 47.87 dBA

Results segment # 5: CASA_SB

Source height = 1.41 m

ROAD (0.00 + 45.56 + 0.00) = 45.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-45	0.66	60.51	0.00	-5.90	-9.05	0.00	0.00	0.00	45.56

Segment Leq : 45.56 dBA

Total Leq All Segments: 62.63 dBA

TOTAL Leq FROM ALL SOURCES: 62.63

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:28:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r11.te Time Period: 16 hours
Description: Future 2031 R11

Road data, segment # 1: CASA_NB

Car traffic volume : 8402 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 350 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 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 : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 30.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 6928 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 289 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 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	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	-30.00 deg	Angle2 : 30.00 deg
Barrier height	:	1.50 m	
Barrier receiver distance	:	3.00 m	
Source elevation	:	0.00 m	
Receiver elevation	:	0.00 m	
Barrier elevation	:	0.00 m	
Reference angle	:	0.00	

Result summary

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.CASA_NB	1.41	61.86	61.86
2.CASA_SB	1.41	58.30	58.30
Total			63.45 dBA

TOTAL Leq FROM ALL SOURCES: 63.45

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 13:28:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2031r12.te Time Period: 16 hours
Description: Future 2031 R12

Road data, segment # 1: CASA_NB

Car traffic volume : 8402 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 350 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: CASA_NB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CASA_SB

Car traffic volume : 6928 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 289 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: CASA_SB

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 m
Receiver height : 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary
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	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.CASA_NB	1.41	57.18	57.18
2.CASA_SB	1.41	58.24	58.24
Total			60.75 dBA

TOTAL Leq FROM ALL SOURCES: 60.75