

**NORTH YONGE STREET CORRIDOR
PUBLIC TRANSIT AND ASSOCIATED
ROAD IMPROVEMENTS
TRANSIT CLASS ENVIRONMENTAL ASSESSMENT
NOISE AND VIBRATION IMPACT ASSESSMENT**

Prepared for:

York Consortium 2002

6th Floor
1 West Pearce
Richmond Hill, Ontario
L4B 3K3

Prepared by:

SENES Consultants Limited

121 Granton Drive, Unit 12
Richmond Hill, Ontario
L4B 3N4

August 2008

Printed on Recycled Paper Containing Post-Consumer Fibre



TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION	1-1
1.1 Background.....	1-1
1.2 General Approach to Noise Impact Study for Transit Improvements	1-1
1.3 Report Format	1-2
2.0 EXISTING CONDITIONS.....	2-1
2.1 Description of North Yonge Street Corridor	2-1
2.2 Predominant Land Uses	2-1
3.0 REGULATORY REQUIREMENTS.....	3-1
3.1 Provincial	3-1
3.2 York Region.....	3-3
3.3 Receptors.....	3-3
3.4 Municipal Requirements For Construction Activities	3-4
4.0 ESTABLISHING BACKGROUND SOUND LEVELS	4-1
4.1 Overall Approach.....	4-1
4.2 Traffic Noise Predictions	4-1
4.2.1 Data Source.....	4-1
4.2.2 Key Assumptions for Modelling Traffic Noise	4-2
4.2.3 Receptor Locations	4-3
4.2.4 Model Details.....	4-17
4.2.5 Traffic Noise Prediction Results for Existing Conditions	4-17
5.0 NOISE IMPACT ANALYSIS.....	5-1
5.1 Scenario 1 – Predicted Future Baseline Noise Levels	5-1
5.2 Scenario 2 – Bus Transit Option.....	5-4
5.2.1 Bus Transit Noise Impact.....	5-11
5.3 Stationary Noise Impact.....	5-13
5.4 Construction Noise Impact	5-14
5.5 Summary	5-14
6.0 VIBRATION IMPACT ASSESSMENT.....	6-1
6.1 Approach.....	6-1
6.2 Existing Vibration Levels along Yonge Street, York Region.....	6-1
7.0 CONCLUSIONS.....	7-1
8.0 REFERENCES	8-1

APPENDICES

- APPENDIX A: NOISE GUIDELINES, SOUND LEVEL TERMINOLOGY
APPENDIX B: STAMSON DATA SHEETS – PREDICTED EXISTING (2005) TRAFFIC
SOUND LEVELS
APPENDIX C: STAMSON DATA SHEETS – PREDICTED FUTURE (2021) BASELINE
TRAFFIC NOISE LEVELS
APPENDIX D: STAMSON DATA SHEETS – PREDICTED FUTURE (2021) SOUND
LEVELS DUE TO ADDED BUS TRANSIT TRAFFIC

LIST OF TABLES

	<u>Page No.</u>
3.1 Summary of Noise and Vibration Protocols	3-2
3.2 Time and Place Restrictions on Construction Activities	3-4
4.1 2005 AADT Traffic Volume on Yonge Street in the Study Area	4-1
4.2 Receptor Locations	4-3
4.3 Predicted 2005 Existing Daytime and Nighttime Traffic Noise Levels	4-18
5.1 2021 Baseline AADT Volumes for all Road Segments in the North Yonge Street Corridor	5-1
5.2 2021 Baseline Traffic Sound Levels Predicted based on AADT Volumes for All Road Segments	5-3
5.3a) Peak Hourly BRT Volumes for all Road Segments (2021).....	5-8
5.3b) Summary of Daily BRT Volumes for All Road Segments (2021)	5-8
5.4 Predicted AADT Volumes for all Road Segments for 2021 (With the Project).....	5-9
5.5 Sound Levels Predicted Based on the AADT Volumes for the North Yonge Street Corridor (2021 Traffic Plus BRT).....	5-10
5.6 Comparison of 2021 Baseline Sound Levels with the 2021 BRT Project Sound Levels.....	5-11

LIST OF FIGURES

	<u>Page No.</u>
5.1 North Yonge Street Corridor – Proposed Alignment 1	5-6
5.2 North Yonge Street Corridor – Proposed Alignment 2	5-7
6.1 Vibration at Location 1, 11 Medevew Avenue.....	6-3
6.2 Vibration at Location 2, 7 Clark Avenue.....	6-4
6.3 Vibration at Location 3, 15 Dorian Place	6-5
6.4 Vibration at Location 4, 27 Vanity Crescent	6-6
6.5 Vibration at Location 5, Mary Gapper Crescent.....	6-7
6.6 Vibration at Location 6, 10057 Yonge Street	6-8
6.7 Vibration at Location 7, 6 Leonard Street	6-9
6.8 Vibration at Location 8, 3 Abitibi Street	6-10

LIST OF RECEPTOR LOCATION MAPS

	<u>Page No.</u>
1 Gamble Road to Stouffville Road.....	4-6
2 Stouffville Road to King Road	4-7
3 North Lake Road to Bloomington Road.....	4-8
4 Bloomington Road to Henderson Drive	4-9
5 Henderson Drive to Orchard Heights Boulevard.....	4-10
6 Orchard Heights Boulevard to St. John’s Sideroad	4-11
7 Mulock Drive to Davis Drive	4-12
8 Davis Drive to Green Lane	4-13
9 Green Lane from Yonge Street to Bayview Parkway.....	4-14
10 Davis Drive from Yonge Street to Main Street	4-15
11 Davis Drive from Prospect Street to Leslie Street	4-16

1.0 INTRODUCTION

1.1 BACKGROUND

The York Region Rapid Transit Plan (YRTP) has its origins in the York Region Transportation Master Plan (TMP) approved by York Region Council in June 2002. The TMP identified a program of rapid transit projects to form a rapid transit network in York Region with intermodal connections to other Regions in the Greater Toronto Area (GTA). The key corridors of this proposed rapid transit network include Yonge Street, Highway 7, Vaughan Corporate Centre-York University/Spadina subway, and Markham Corporate Centre-Don Mills subway station/Sheppard subway. Three of the four corridors have inter-regional connections to the Toronto Transit Commission (TTC) subway system.

As part of its implementation strategy for rapid transit, York Region established a public-private partnership with York Consortium 2002. The initial agreement with the Consortium is to complete the environmental assessment (EA) studies required for the four key corridors.

The YRTP implementation strategy is based on three phases:

- Phase 1 – Quick Start program (to create high occupancy vehicle (HOV) lanes, bus lanes signal priority, transit centers, stations and stops).
- Phase 2 – Full Rapid Transit Network (will include execution of agreement with both TTC and GO Transit to integrate services).
- Phase 3 – Growth Related Expansion

As part of the EA process, SENES Consultants Limited (SENES) was retained by York Consortium 2002 to assess the noise and vibration impacts of the YRTP on the North Yonge Street Corridor which covers areas on Yonge Street (Gamble Road (19th Avenue) to Green Lane), Davis Drive (Yonge Street to Harry Walker Parkway) and Green Lane (Yonge Street to East Gwillimbury GO Station).

1.2 GENERAL APPROACH TO NOISE IMPACT STUDY FOR TRANSIT IMPROVEMENTS

For this project, the previous approved assessment approach is adopted. The approach was developed in consultation with Ontario Ministry of the Environment, including the Ministry's Environmental Assessment and Approvals Branch, Central Region Office, and Air and Noise Unit. In general terms, the noise impact will be assessed as follows:

Traffic Noise Impact

- Establishing existing (2005) sound levels on the North Yonge Street Corridor;
- Establishing future baseline (2021) sound levels on the North Yonge Street Corridor; and
- Estimating future sound levels with the Project (i.e., with dedicated transit lanes) in 2021.

Vibration Impact

- Establishing existing (2005) vibration levels on the North Yonge Street Corridor; and
- Establishing future vibration levels due to bus rapid transit.

1.3 REPORT FORMAT

This report presents the results of the noise and vibration impact assessments completed for the North Yonge Street Corridor. Chapter 2 describes the North Yonge Street Corridor and the predominant landuses throughout the corridor. Chapter 3 provides a description of the appropriate noise regulations/guidelines. Chapter 4 discusses the results of the predicted background /ambient noise levels. The noise impact assessment is presented in Chapter 5. The vibration impact assessment is presented in Chapter 6. Chapter 7 outlines the key conclusions.

2.0 EXISTING CONDITIONS

2.1 DESCRIPTION OF NORTH YONGE STREET CORRIDOR

The preferred routing for the North Yonge Street Corridor, as discussed in Section 1.1, includes sections of Yonge Street, Davis Drive and Green Lane. It passes through four municipalities, namely, the Town of Richmond Hill, the Town of Aurora, the Town of New Market, and the Town of East Gwillimbury (Green Lane). For the most part, the North Yonge Street Corridor study area is an area of primarily 20th century urban development consisting of commercial, industrial and some residential areas, and linear transportation corridors such as roads and railway lines. The corridor serves traffic and pedestrian movements associated with neighbourhood access, retail/commercial development demands, and through commuter traffic demands.

2.2 PREDOMINANT LAND USES

The land uses within the study area are a mix of residential, commercial, industrial, institutional and park/open spaces. For the most part, the areas adjacent/closest to Yonge Street along the entire route are characterized by commercial uses. Residential uses are generally set back from Yonge Street, but there are pockets of residential developments that front onto Yonge Street. The highest density of residences fronting onto Yonge Street is a concentration of mix residential/commercial land uses extending north from Dunning Avenue to about Wellington Street in the Town of Aurora. There are also several offices, institutional and industrial buildings fronting onto Yonge Street at various points along the North Yonge Street Corridor.

The existing land use on Davis Drive includes residential, commercial, industrial, institutional, open space, vacant lands and transportation corridors, including rail. The majority of residential uses back onto Davis Drive. While most of these residential uses are of low density, there are a few medium density dwellings located near the intersections of Huron Heights Drive and Hill Street. Most of the lands designated commercial are located near the Yonge Street, the Main Street, the Charles Street and the Leslie Street intersections with Davis Drive and adjacent to the Southlake Regional Health Centre. Most of the industrial properties are located near or adjacent to Highway 404. The largest institutional use found within the Study Area is Southlake Regional Health Centre. This hospital is located on the south side of Davis Drive between Prospect Street and Roxborough Road. Other institutional uses that fall within or near the Study Area include retirement facilities, places of worship, education facilities (e.g., secondary school, two elementary schools) and medical offices.

The existing land use along Green Lane within the Study Area is predominantly open space and vacant parcels. The areas immediately bordering the Holland River or its tributaries are often designated as Open Space. The commercial lands are located at the intersection of Yonge Street and Green Lane. A number of residents with farmland are located in the vicinity of 2nd Concession Road and the East Gwillimbury GO Station. The rest of the land is vacant. Green Lane is currently not developed but classified as an urban buffer zone. East Gwillimbury is undergoing a review on their Official Plan as well as the Secondary Plans such that the future land use is not available.

3.0 REGULATORY REQUIREMENTS

3.1 PROVINCIAL

Noise limits applicable to transit development projects are contained in provincial protocols and the Ontario Model Municipal Noise Control By-law. Local municipal noise control by-laws also contain time and place restrictions on construction activities that in turn may have implications for such undertakings.

Noise and vibration assessment protocols for noise and vibration were developed in 2003 for assessing all transportation corridors that fall under the York Region Rapid Transit Plan which included the proposed rapid transit network on Yonge Street, Highway 7, etc. The protocols were developed in consultation with various governmental agencies including the Ministry of the Environment, the Ministry's Environmental Assessment and Approvals Branch, and Central Region Office and Air and Noise Unit. As this project is part of the York Region Rapid Transit Plan, the impact assessment for this project will follow the same specific protocols. These are:

1. For existing/future noise, the impact will be established based on the higher of either a daytime limit of 50 dBA or existing levels, and that nighttime limits be based on the higher of either 45 dBA or existing levels, determined either by traffic noise predictions and/or measurements;
2. Mitigation will be considered if the existing established sound levels at the closest receptor is exceeded by > 5 dBA;
3. Stationary noise sources, if any, will be assessed in accordance with NPC-205; and
4. Vibration impact to be assessed in accordance with the MOEE/TTC Protocol.

Table 3.1 summarizes the key criteria specified in the above mentioned protocols. Additional details on the protocols, NPC-205 and NPC-115, are included in Appendix A. Information on sound level terminology is also contained in this appendix.

**TABLE 3.1
SUMMARY OF NOISE AND VIBRATION PROTOCOLS**

Component	Protocol	Procedure	Receptor Criteria	Mitigation
Existing/ Future Noise	MTO/MOE	Prediction and measurements	Objective for outdoor sound levels is the higher of the L_{eq} 55 dBA or existing ambient	Considered when the ambient is exceeded by > 5 dBA
	MOEE/TTC	Prediction is preferred to individual measurements	55 dBA or the ambient for daytime and 50 dBA for nighttime. 80 dBA for single train passby	Will be Incorporated when limits are exceeded by more than 5 dBA
	NPC-205	Existing measured background or traffic	Level established through measurement or prediction	
Stationary Noise Sources	MTO/MOE	Not addressed	Not addressed	Not addressed
	MOEE/TTC	Predicted in accordance with NPC-205	As per NPC-205	
	NPC-205	Measurements and/or predictions	For an urban area, For daytime, 50 dBA or resulting noise from road traffic and industry; for nighttime, 45 dBA or noise resulting from traffic and industry	Any exceedance above the limit must be mitigated
Construction Noise	MTO/MOE	Commitments to be included in E.A. documents; sound level criteria for construction equipment outlined in NPC-115	NPC-115 limits	
	MOEE/TTC	To be based on Noise Control Guideline for Class Environmental Assessment of Undertakings	To be based on Noise Control Guideline for Class Environmental Assessment of Undertakings	To be based on Noise Control Guideline for Class Environmental Assessment of Undertakings
	NPC-115	Noise emission measurements or manufacturers data	Sound Emission Standards for specific equipment	
Ground Vibration	MTO/MOE	Not Addressed	Not Addressed	Not Addressed
	MOEE/TTC	Predicted during design		If the vertical vibrations exceeds 0.1 mm/sec, mitigation measured shall be applied during the detailed design phase to meet this criterion to the extent technologically, economically and administratively feasible

3.2 YORK REGION

In March 2006, York Region releases a new traffic noise mitigation policy for regional roads (March 2006). The York Region traffic noise policy states that the noise impact resulting from road or development project shall be calculated as the difference in projected noise levels at the start of construction and the projected noise levels at the “Mature State of Development”. This “Mature State of Development” is typically understood as 10 years after the implementation of the project.

The *Draft York Region’s Standard Operating Procedures (SOPs) for Traffic Noise Mitigation on Regional Roads* was released in July 2006, with subsequent final versions in December 2006 and January 2008. The SOPs require that the daytime 16-hour L_{eq} sound levels be established using prediction models acceptable to the Region. Actual field measurements may be used to deal with situations that may not be feasible to predict, such as traffic or roadway parameters that are outside of the limitations of the prediction model. For this project, noise prediction is adequate for establishing background sound levels.

The SOPs also stipulate that, for capital road projects, where projected noise level increases from 0-5 dBA on adjacent residential properties, no mitigation needs to be considered unless projected noise levels are greater than 60 dBA (either at the start of construction or at the mature state of development). Examples of mitigation options include sound reducing pavement, alternate alignments, and landscaped berms. The policy states that noise barriers shall only be used as a last resort where all other mitigation measures are not feasible.

The Final SOPs also specify that the higher of the posted speed limit and actual driving speed (based on the 85th percentile travel speed), shall be used in the calculation of the sound levels.

3.3 RECEPTORS

The Model Municipal Noise Control By-Law defines a receptor or point of reception as *“any point on the premises of a person where sound or vibration originating from other than those premises is received.”* The point of reception may be located on any of the following existing, or zoned for future use, premises: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residence, hospitals, camp grounds, and noise sensitive buildings such as schools and places of worship.

3.4 MUNICIPAL REQUIREMENTS FOR CONSTRUCTION ACTIVITIES

The study area encompasses areas within the municipalities of Richmond Hill, Aurora, Newmarket, and East Gwillimbury. These four towns have by-laws that stipulate time and place restrictions within Quiet Zone and Residential Areas for construction activities. Table 3.2 below summarizes the time and place restrictions on construction activities as outlined in the by-laws. It shows that the restrictions are very similar for all four municipalities.

**TABLE 3.2
TIME AND PLACE RESTRICTIONS ON CONSTRUCTION ACTIVITIES**

Municipality	By-Law Section	Activity	Prohibited Period of Time	
			Quiet Zone	Residential Area
Town of Richmond Hill (Chapter 1055) ^a	Section 3	The operation of any equipment in connection with construction.	All day Sunday and statutory holidays. 19:00 one day to 07:00 next day.	All day Sunday and statutory holidays. 19:00 one day to 07:00 next day.
Town of Aurora (By-law Number 4787-06.P) ^b	Section 4.2		All day Sunday and statutory holidays. 19:00 one day to 07:00 next day.	All day Sunday and statutory holidays. 19:00 one day to 07:00 next day.
Town of Newmarket (By-law Number 2004-94) ^c	Section 6		All day. 20:00 one day to 07:00 next day. (until 09:00 Sunday and public holidays)	All day. 20:00 one day to 07:00 next day. (until 09:00 Sunday and public holidays)
Town of East Gwillimbury (By-law Number 2004-80) ^d	Section 129 (1)		All day Sunday and statutory holidays. 19:00 one day to 07:00 next day.	19:00 one day to 07:00 next day, but until 09:00 on Sundays.

Sources:

^a http://www.richmondhill.ca/subpage.asp?pageid=bylaw_noise_bylaw

^b <http://www.town.aurora.on.ca/aurora/index.aspx?ArticleID=1392&lang=en-CA>

^c http://www.newmarket.ca/userfiles/page_attachments/Library/1/2169419_2004_94_To_Repeal_1991_140_Noise_By_law_and_Enact.pdf

^d <http://www.eastgwillimbury.ca/Assets/Town+Hall/By-laws/Noise+!232004-80.pdf>

4.0 ESTABLISHING BACKGROUND SOUND LEVELS

4.1 OVERALL APPROACH

The background/existing noise environment of the corridor was determined based on traffic noise predictions using the Ministry of the Environment STAMSON noise model.

4.2 TRAFFIC NOISE PREDICTIONS

4.2.1 Data Source

Existing (2005) traffic volumes for Yonge Street were provided by the IBI Group (IBI), transportation specialists on the project. The existing traffic volumes were compiled by IBI from traffic counts taken between 2003 and 2006, and for all practical purposes represent reasonable "existing" conditions.

The estimated AADT volumes along Yonge Street between 19th Avenue/Gamble Road (Town of Richmond Hill) and Green Lane (Town of Aurora / Town of Newmarket) as well as Davis Drive and Green Lane are shown on the following table (Table 4.1).

**TABLE 4.1
2005 AADT TRAFFIC VOLUME ON YONGE STREET IN THE STUDY AREA**

Section		2005 Existing AADT Volumes				
From	To	North-bound	Actual Driving Speed (km/h)	South-bound	Actual Driving Speed (km/h)	Total
Yonge Street						
Gamble Road / 19th	Stouffville Road	11,529	79	12,241	61	23,771
Stouffville Road	King Road	11,016	79	12,000	62	23,016
King Road	North Lake Road	10,089	59	11,616	42	21,705
North Lake Road	Blackforest/Worthington	12,874	60	13,244	53	26,118
Blackforest/Worthington	Bloomington Road	12,356	59	13,113	55	25,469
Bloomington Road	Industrial Pkwy	9,758	76	9,579	64	19,337
Industrial Pkwy	Henderson/Allaura	13,963	59	14,112	46	28,075
Henderson/Allaura	Kennedy Street	13,067	50	14,019	47	27,086
Kennedy Street	Wellington Street	14,128	50	13,614	49	27,743
Wellington Street	Aurora Heights	11,355	49	14,567	40	25,922
Aurora Heights	Orchard Heights	9,380	59	9,498	53	18,877
Orchard Heights	St. John's Sideroad	9,696	80	12,811	77	22,507
St. John's Sideroad	Mulock Drive	10,591	60	12,710	51	23,301
Mulock Drive	Eagle Street	13,349	58	12,507	55	25,856
Eagle Street	Millard	16,223	59	16,212	58	32,435

**TABLE 4.1 (Cont'd)
2005 AADT TRAFFIC VOLUME ON YONGE STREET IN THE STUDY**

Section		2005 Existing AADT Volumes				
From	To	North-bound	Actual Driving Speed (km/h)	South-bound	Actual Driving Speed (km/h)	Total
Yonge Street						
Millard	Davis Drive	16,898	60	17,798	57	34,696
Davis Drive	London Road	13,133	60	12,286	58	25,419
London Road	Bristol Road	16,530	60	17,016	57	33,546
Bristol Road	Green Lane	19,013	60	20,100	58	39,113
Green Lane		Eastbound		Westbound		Total
Yonge Street	Main Street N	18,783	59	14,192	66	32,975
Main Street N	Leslie Street	17,114	76	16,942	60	34,056
Davis Drive		Eastbound		Westbound		Total
Yonge Street	Main Street	12,178	59	12,979	66	25,157
Main Street	Bayview Avenue	15,609	32	17,035	47	32,644
Bayview Avenue	Leslie Street	11,974	48	10,873	57	22,848

As was noted earlier, on the basis of site reconnaissance and land use maps, the locations of sensitive receptors were identified along the North Yonge Street Corridor, within each of the road segment. These included residences, seniors residences, schools, churches, hotels, motels, daycare centers, etc. It should be noted that in some of the road segments listed in Table 4.1, there may be no sensitive receptors identified. This is either due to their non-existence or because the traffic pattern in such segments is similar to that of a connecting segment. However, the traffic data for these road segments (e.g., King Road to North Lake Road) are still shown in Table 4.1 for completeness.

4.2.2 Key Assumptions for Modelling Traffic Noise

Both daytime and nighttime traffic noise levels were predicted. The traffic noise predictions were based on the following key assumptions:

1. varying annual increase in traffic volumes depending on the segment of Yonge Street;
2. a traffic volume breakdown between automobiles, medium trucks and heavy trucks for baseline conditions (year 2005 and 2021) consisting of the following ranges: 90-99% automobiles, 0.1-5 % medium trucks and 0.9-5 % heavy trucks;
3. all residential receptors are located in the Outdoor Living Area (OLA), e.g., backyards, during the daytime;

4. nighttime receptor height of 1.5 m, 4.5 m (second storey window), and height at the highest floor for a bungalow, two-storey dwellings; and condo apartment, respectively; and
5. a daytime/nighttime traffic volume split ranging from 90-94% daily traffic occurs during daytime (07:00 to 23:00).

In each instance, the traffic noise was predicted at receptor locations closest to the roadway. The traffic data used for predicting noise levels are shown in Table 4.1 above.

4.2.3 Receptor Locations

Based on reconnaissance throughout the study area, review of zoning and land use information for the municipalities in the study area, various residential and institutional (churches, schools, seniors residences) land uses were identified. The closest receptors to Yonge Street, Davis Drive and Green Lane along the entire proposed North Yonge Street Corridor were selected for noise impact assessment to evaluate potential impact from roadway widenings. The receptor locations are shown in Maps 1 to 10 and listed in Table 4.2.

**TABLE 4.2
RECEPTOR LOCATIONS**

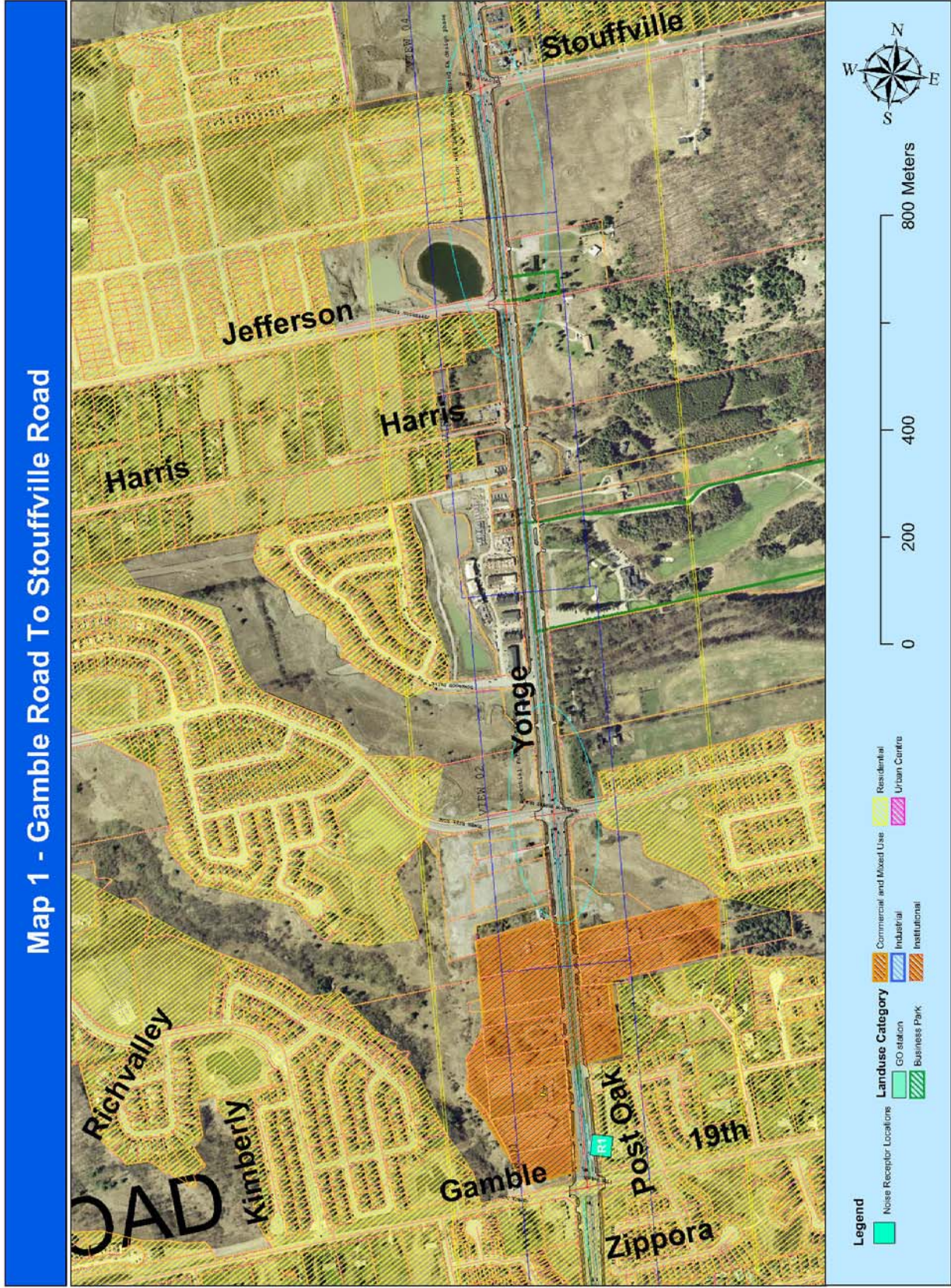
Receptor No.	From	To	Position of Receptor to Existing Roadway	Location of the Receptor	Nearest Distance (m) to Centre of Road Segment
Yonge Street					
R1	Gamble Road	Stouffville Road	Townhouses fronting onto Yonge Street.	East side of Yonge St.; North of 19th Ave.	21
R2	Stouffville Road	King Road	Townhouses. Entrance of the receptor does not front onto Yonge Street.	East side of Yonge St. -N of old colony Rd.	18
R3	North Lake Road	Blackforest /Worthington	Single family dwellings fronting onto Yonge Street with existing inefficient noise barrier	East side of Yonge St.; North of Ashfield Dr.	15
R4	Blackforest /Worthington	Bloomington Road	Single family dwellings fronting onto Yonge Street.	West side of Yonge St.; South of Coon's Rd	27

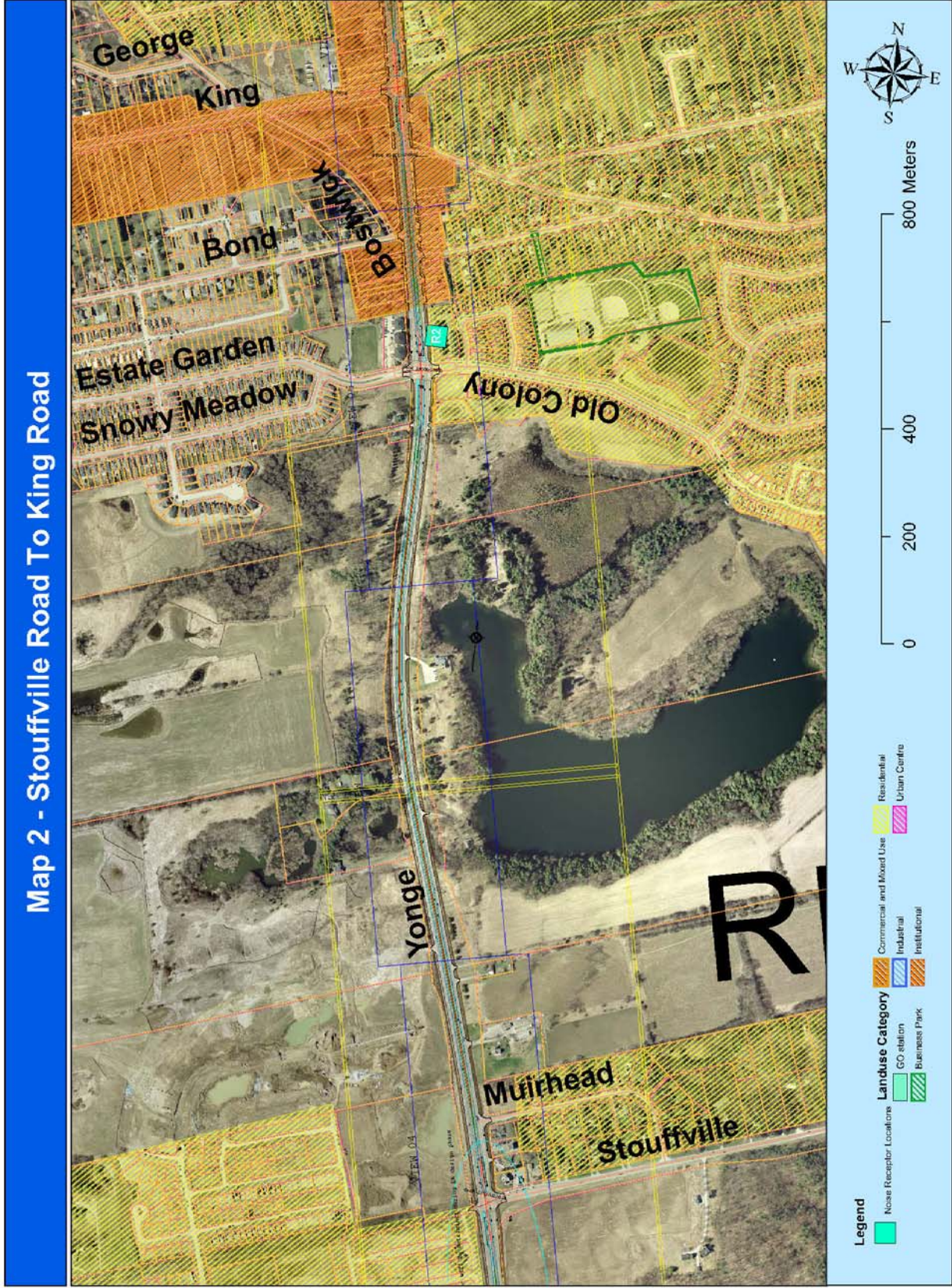
**TABLE 4.2 (Cont'd)
RECEPTOR LOCATIONS**

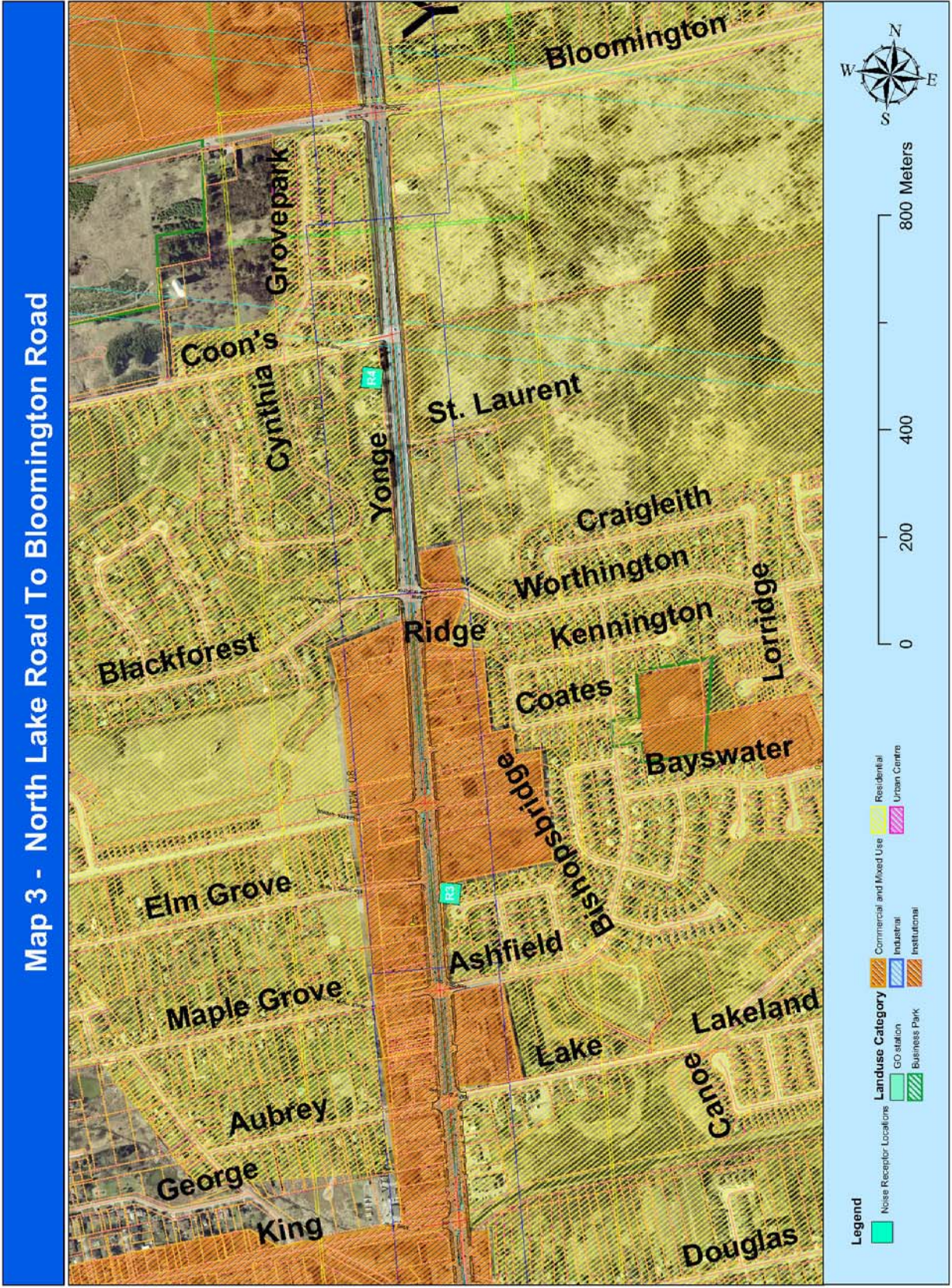
Receptor No.	From	To	Position of Receptor to Existing Roadway	Location of the Receptor	Nearest Distance (m) to Centre of Road Segment
Yonge Street					
R5	Bloomington Road	Industrial Pkwy	Seniors Residence fronting onto Yonge Street. No existing barrier.	East side of Yonge St.; North of Bloomington Rd.	44
R6	Bloomington Rd	Industrial Pkwy	Single family dwellings (Bungalow) fronting onto Yonge Street.	West of Yonge St.; South of Coon's Rd.	30
R7	Industrial Pkwy	Henderson/Alaura	Townhouses fronting onto Yonge Street with existing inefficient noise barrier.	West side of Yonge St.; North of Industrial Pkwy	35
R8	Henderson /Allaura	Kennedy Street	Apartment building fronting onto Yonge Street.	West side of Yonge St.; South of Kennedy St.	19
R9	Kennedy Street	Wellington Street	Retirement Residence fronting onto Yonge Street.	East side of Yonge St.; North of Kennedy St.	21
R10	Wellington Street	Aurora Heights	Single family dwellings fronting onto Yonge Street with existing inefficient noise barrier.	East side of Yonge St.; South of Aurora Heights Dr.	7 (15 m is used for modelling)
R11	Aurora Heights	Orchard Heights	Hotel fronting onto Yonge Street.	West side of Yonge St.; North of Aurora Heights Dr.	19
R12	Orchard Heights	St. John's Sideroad	Single family dwellings fronting onto Yonge Street.	East side of Yonge St.; North of Orchard Heights	66
R13	St. John's Sideroad	Mulock Drive	Seniors apartment fronting onto Yonge Street.	East side of Yonge St.; North of St. John's Sideroad	15
R14	Mulock Drive	Eagle Street	Townhouses fronting onto Yonge Street.	East side of Yonge St.; North of Mulock Drive	26

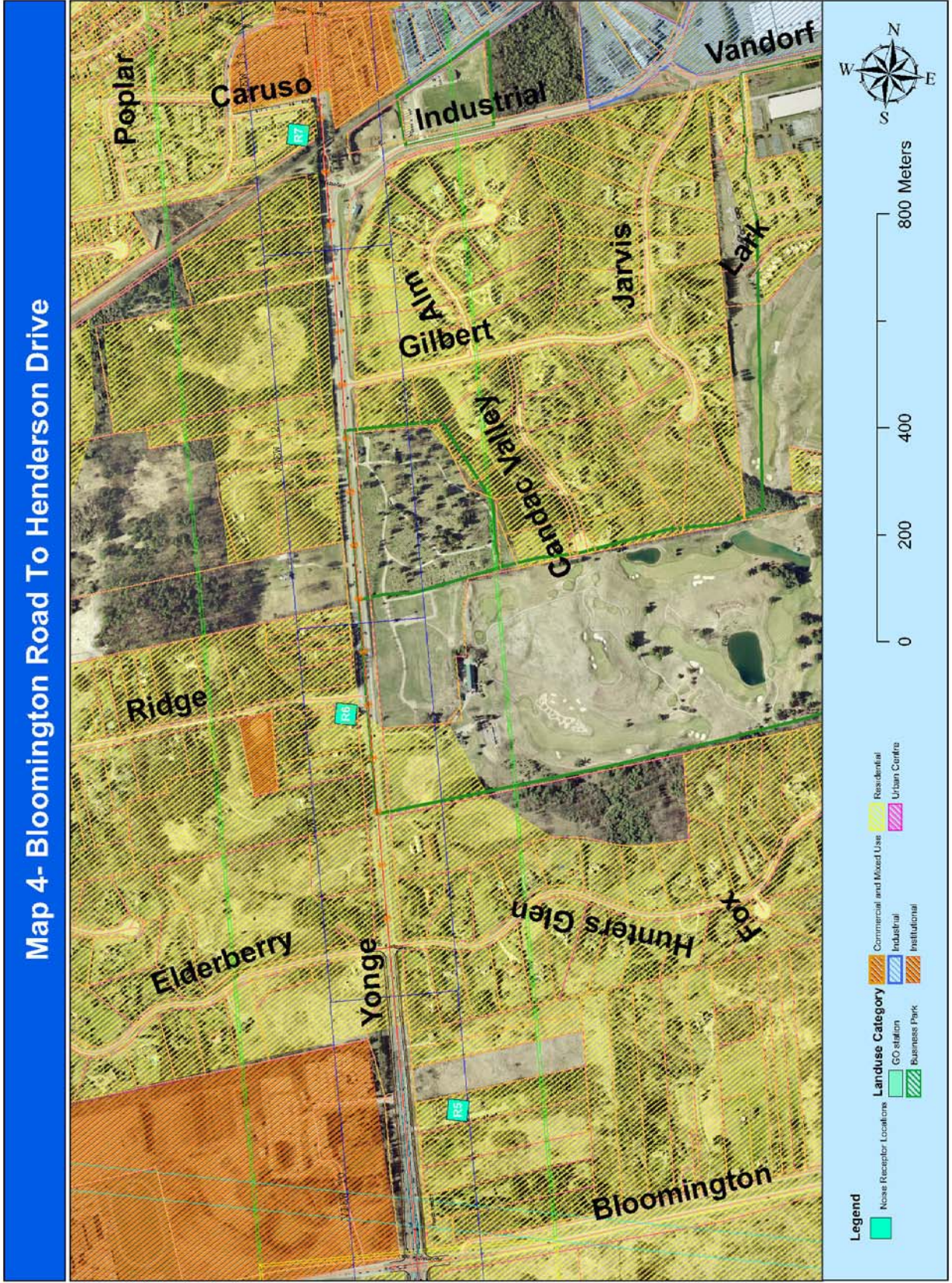
**TABLE 4.2 (Cont'd)
RECEPTOR LOCATIONS**

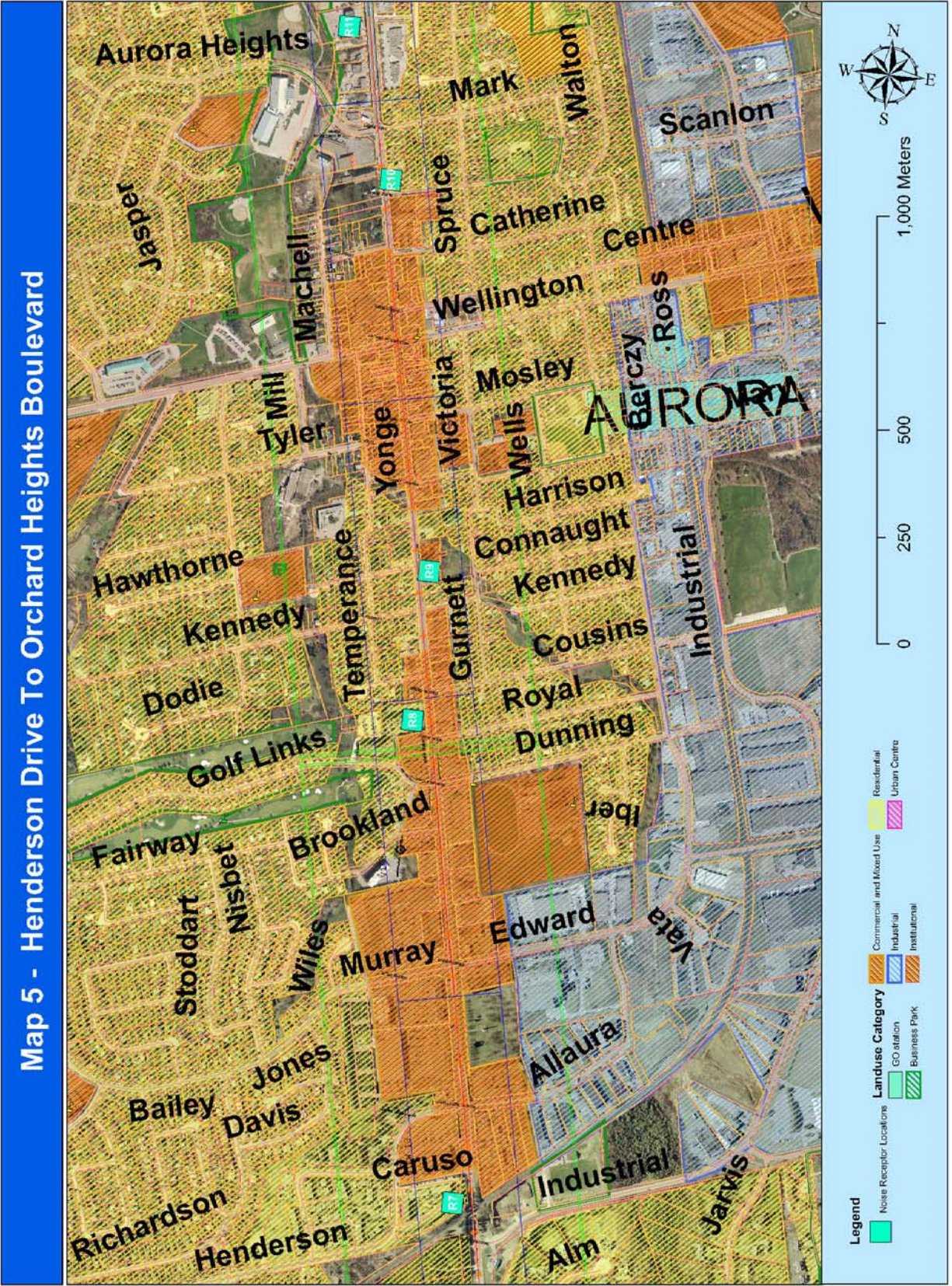
Receptor No.	From	To	Position of Receptor to Existing Roadway	Location of the Receptor	Nearest Distance (m) to Centre of Road Segment
Yonge Street					
R15	Eagle Street	Millard Avenue	Single family dwellings fronting onto Yonge Street with existing inefficient noise barrier.	East side of Yonge-St; South of Millard Ave.	84
R16	Davis Drive	London Road	Single family dwellings fronting onto Yonge Street with existing noise barrier	East side of Yonge St.; North of Davis Drive	26
R17	London Road	Bristol Road	Single family dwellings fronting onto Yonge Street with grilled barrier.	East side of Yonge St.; North of London Rd.	35
Green Lane					
R18	Yonge Street	Main Street N	Single family dwellings fronting onto Green Lane.	North side of Green Lane; East of Yonge St.	27
Davis Drive					
R19	Yonge Street	Main Street N	Semi-detached house fronting onto Davis Drive	North side of Davis Drive; East of Yonge St.	42
R20	Bayview Avenue	Leslie Street	Single family dwellings fronting onto Davis Drive.	North side of Davis Drive; East of Huron Heights Dr.	27

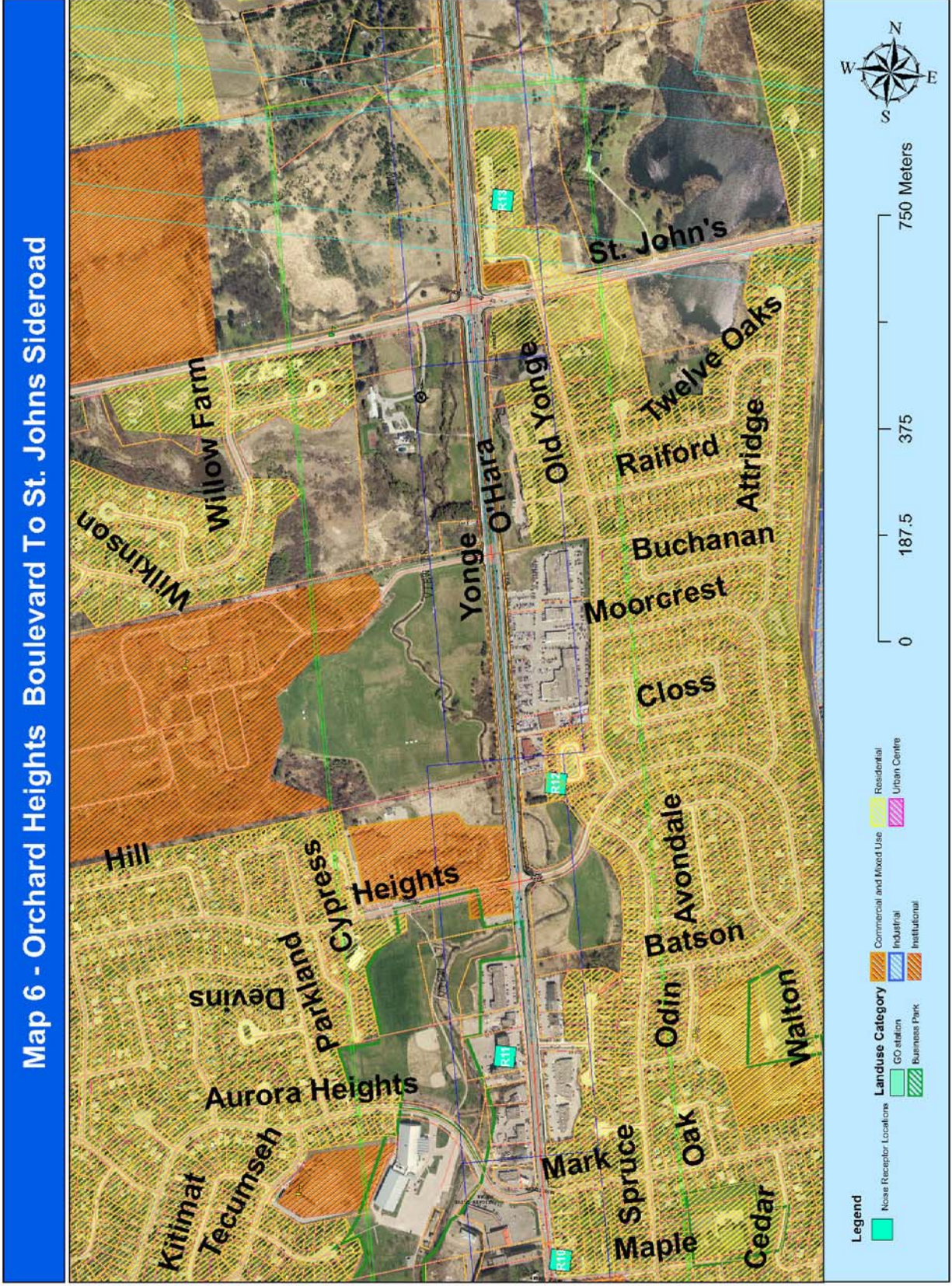


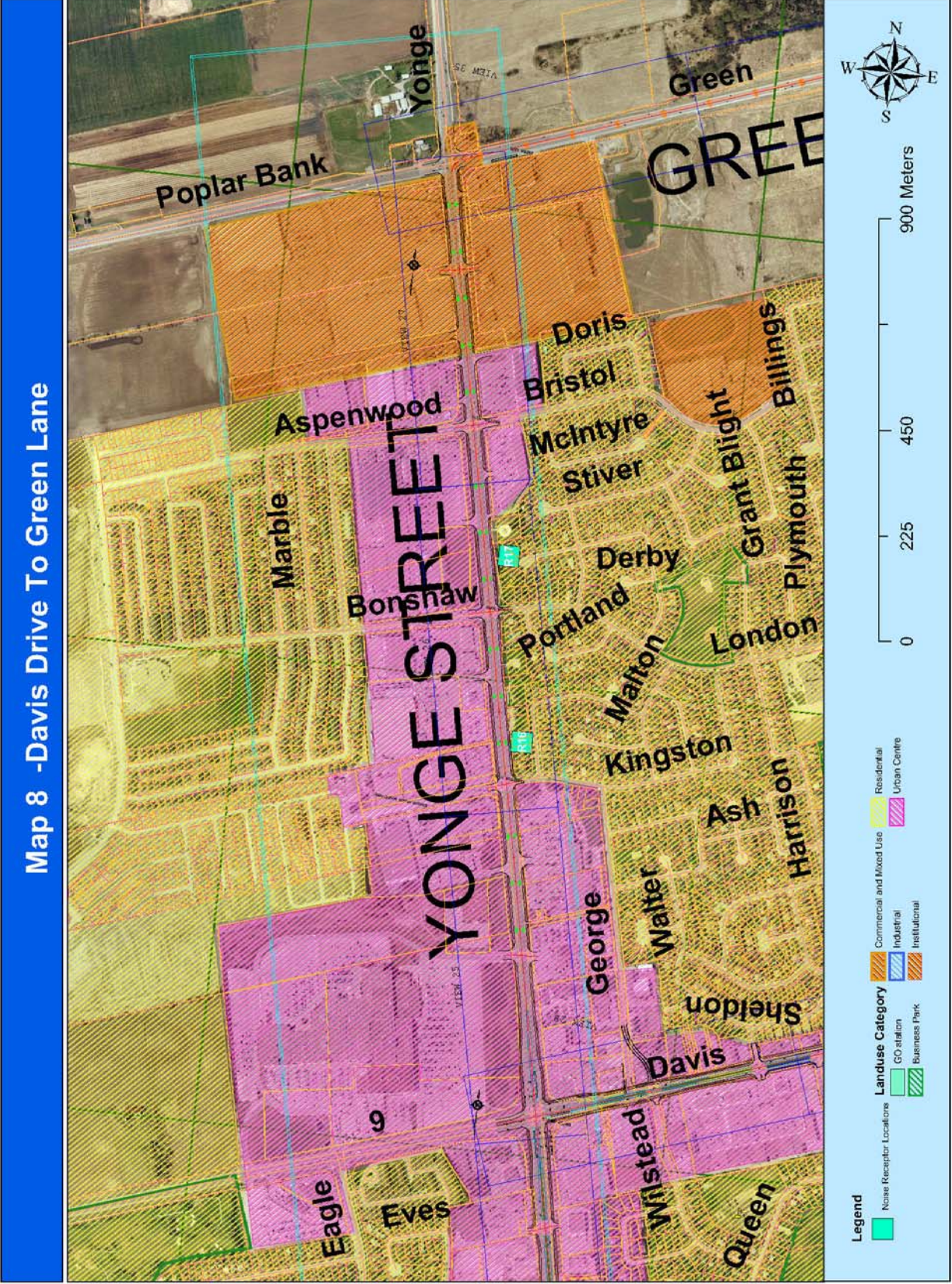


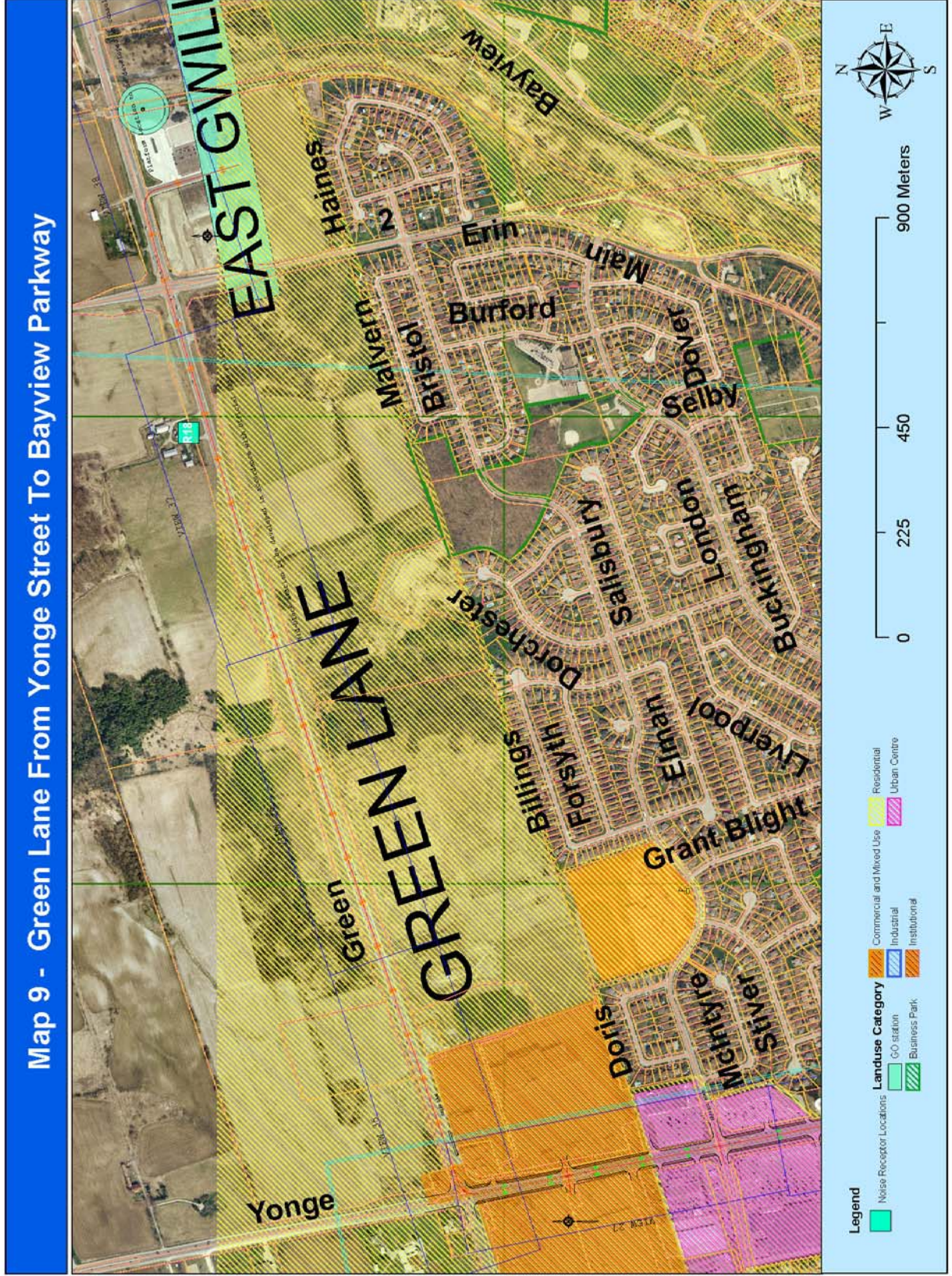


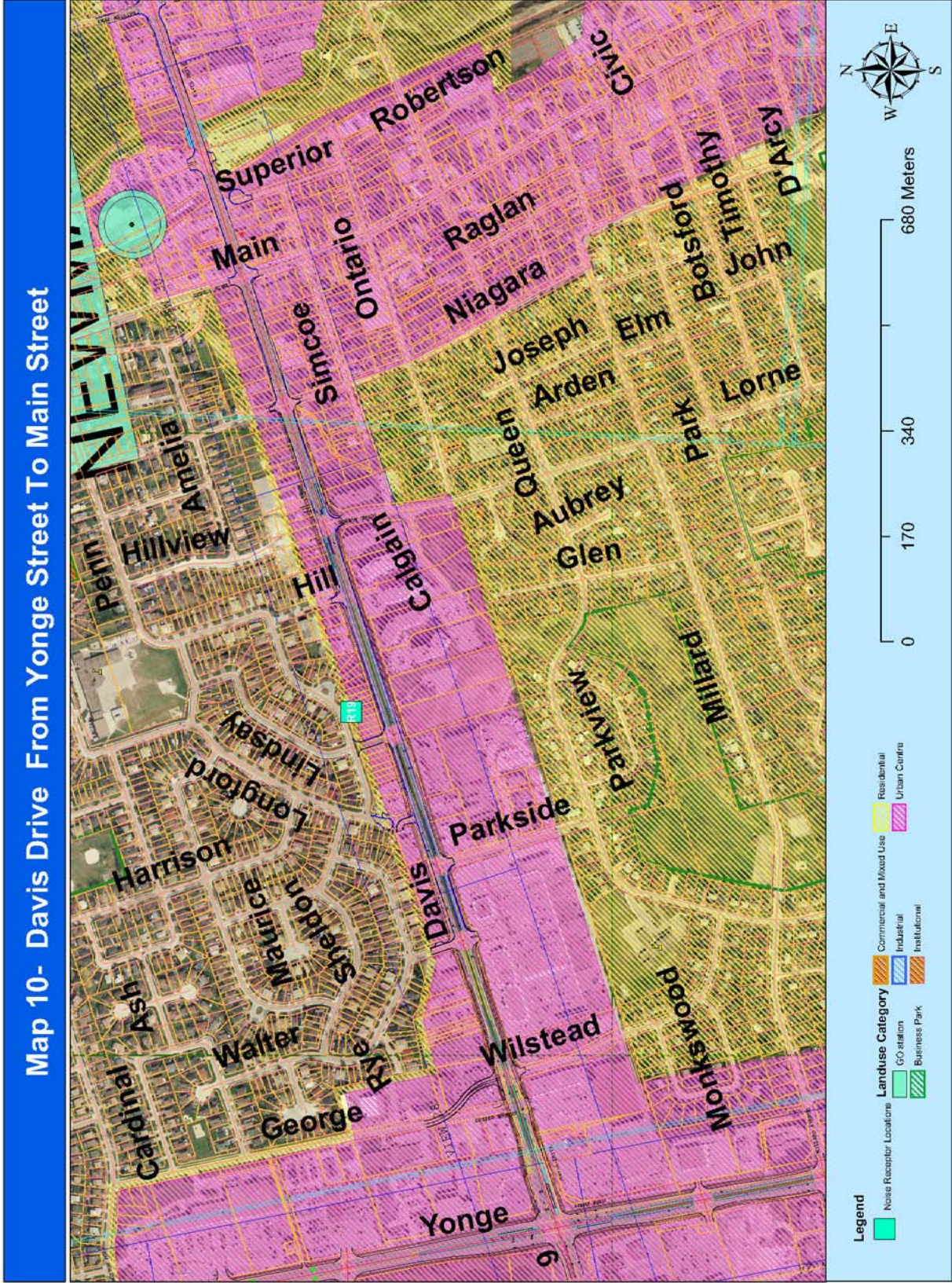


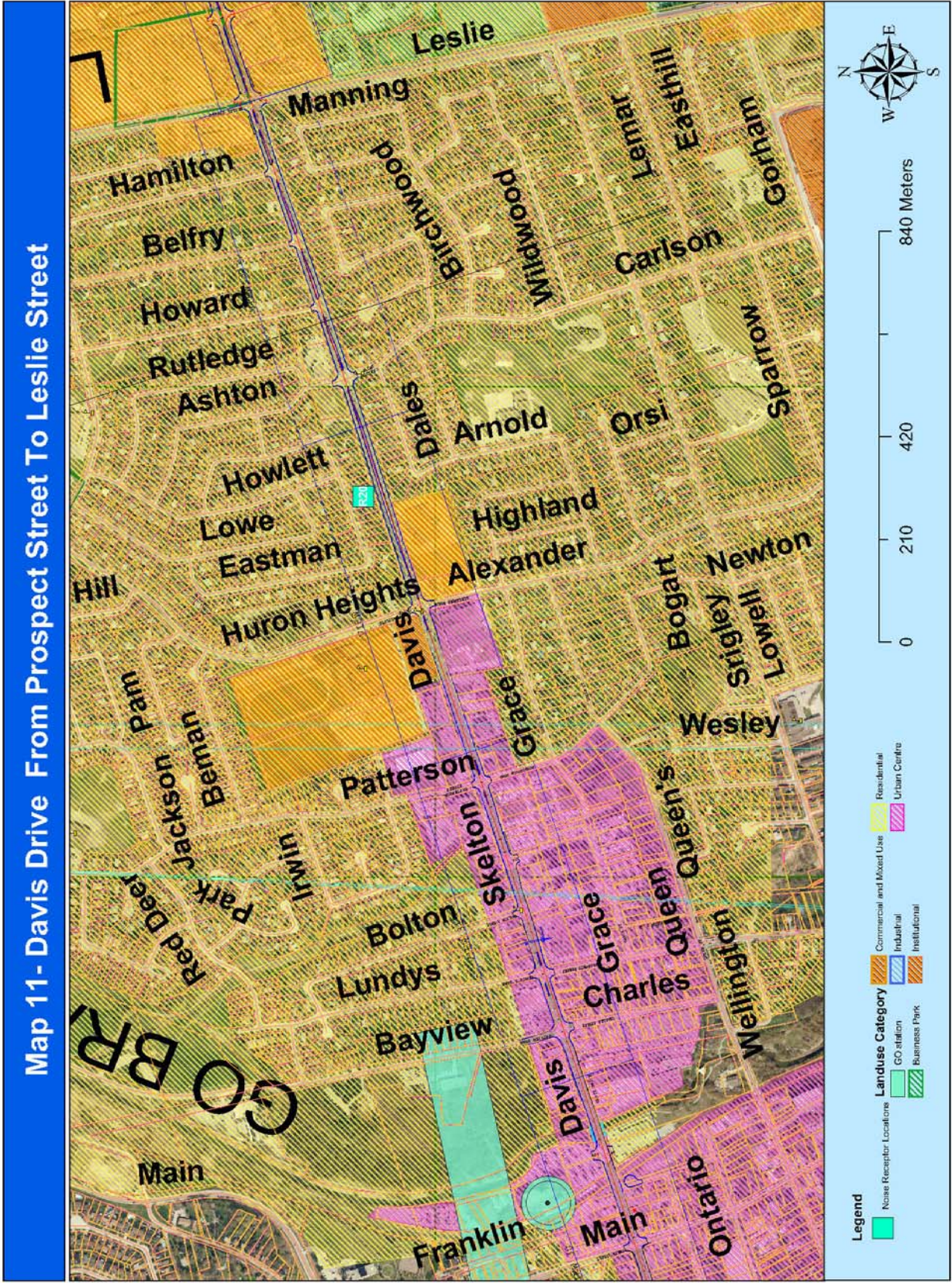












4.2.4 Model Details

The traffic sound levels were estimated using the Ontario Ministry of Environment (Ontario MOE) STAMSON 5.0 noise model that is based on Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT). STAMSON calculates sound levels using three vehicle categories:

- Automobiles
All vehicles having two axles and four wheels designed primarily for the transportation of nine or fewer passengers or the transportation of cargo (e.g. vans and light trucks). Generally, the gross vehicle weight is less than 4,500 kg.
- Medium Trucks
All vehicles having two axles and six wheels designed for the transportation of cargo. Generally, the gross vehicle weight is greater than 4,500 but less than 12,000 kg. City buses are also included in this category.
- Heavy Trucks
All vehicles having three or more axles designed for the transportation of cargo. Generally, the gross vehicle weight is greater than 12,000 kg. Inter-city buses are included in this category.

Other key parameters utilized by STAMSON include vehicle speed, road surface, topography gradient, ground surface conditions (absorptive or reflective) and the presence or absence of sound barriers. In order to predict sound levels for road traffic, the STAMSON model requires an hourly traffic flow of at least 40 vehicles/hour; travelling at least 40 km/h; and a receptor location with maximum distance of 500 m from the traffic source.

4.2.5 Traffic Noise Prediction Results for Existing Conditions

A summary of the traffic noise prediction results for existing conditions at the closest receptor locations along the North Yonge Street Corridor are presented in Table 4.3, for both daytime and nighttime. The STAMSON model data sheets are presented in Appendix B.

**TABLE 4.3
PREDICTED 2005 EXISTING DAYTIME AND NIGHTTIME TRAFFIC SOUND
LEVELS**

Receptor No.	From	To	Predicted Sound Level (dBA)	
			Daytime	Nighttime
Yonge Street				
R1	Gamble Road	Stouffville Road	64.3	60.6
R2	Stouffville Road	King Road	70.5	61.7
R3	North Lake Road	Blackforest/Worthington	63.4	59.6
R4	Blackforest/Worthington	Bloomington Road	63.3	55.2
R5	Bloomington Road	Industrial Pkwy	60.9	52.9
R6	Bloomington Road	Industrial Pkwy	62.9	54.3
R7	Industrial Pkwy	Henderson/Allaura	50.9	47.1
R8	Henderson/Allaura	Kennedy Street	66.4	58.1
R9	Kennedy Street	Wellington Street	66.5	58.1
R10	Wellington Street	Aurora Heights	66.5	58.1
R11	Aurora Heights	Orchard Heights	65.8	57.2
R12	Orchard Heights	St. John's Sideroad	65.1	56.7
R13	St. John's Sideroad	Mulock Drive	67.4	54.9
R14	Mulock Drive	Eagle Street	57.1	56.8
R15	Eagle Street	Millard Avenue	61.2	52.9
R16	Davis Drive	London Road	56.9	53.7
R17	London Road	Bristol Road	60.7	52.4
Green Lane				
R18	Yonge Street	Main Street N	64.6	56.7
Davis Drive				
R19	Yonge Street	Main Street N	60.8	53.3
R20	Bayview Avenue	Leslie Street	57.3	54.2

The table shows high existing daytime and nighttime sound levels at receptors fronting onto Yonge Street and other major roadways in all segments of the corridor. The high existing sound levels (daytime sound levels often over 60 dBA) reflect the high traffic volumes on these streets.

5.0 NOISE IMPACT ANALYSIS

For the purpose of the noise impact assessment of the North Yonge Street Corridor, only the bus rapid transit (BRT) option was considered. To assess the impact of BRT traffic noise along the North Yonge Street Corridor, noise levels were predicted for a total of 20 receptor locations on Yonge Street, Davis Drive and Green Lane, for two scenarios at the mature state of development (year 2021):

- Scenario 1 - noise levels without the transit project (baseline conditions)
- Scenario 2 - noise levels due to the BRT option

Future noise levels were predicted based on estimated AADT volumes since that traffic is the predominant noise source along most of the road segments in the North Yonge Street Corridor.

5.1 SCENARIO 1 – PREDICTED FUTURE BASELINE NOISE LEVELS

Scenario 1 predicts sound levels based on estimated AADT traffic volumes for the North Yonge Street Corridor in the Study Area for the year 2021. This scenario is considered the baseline situation as it does not include the transit traffic volumes. The AADT traffic volumes are provided in Table 5.1. The AADT traffic volumes and estimated actual driving speeds are provided by the Traffic Consultant on the project.

**TABLE 5.1
2021 BASELINE AADT VOLUMES FOR ALL ROAD SEGMENTS IN THE NORTH
YONGE STREET CORRIDOR**

Section		2021 Existing AADT Volumes				
From	To	North-bound	Actual Driving Speed (km/h)	South-bound	Actual Driving Speed (km/h)	Total
Yonge Street						
Gamble Road / 19th	Stouffville Road	20,471	72	18,129	26	38,600
Stouffville Road	King Road	15,748	77	14,811	48	30,559
King Road	North Lake Road	17,637	55	14,543	29	32,180
North Lake Road	Blackforest/ Worthington	20,611	58	16,713	49	37,324
Blackforest/Worthington	Bloomington Road	19,514	56	16,678	48	36,192
Bloomington Road	Industrial Pkwy	11,904	71	10,884	56	22,788
Industrial Pkwy	Henderson/Allaura	19,048	57	15,898	40	34,947
Henderson/Allaura	Kennedy Street	18,575	49	23,799	40	42,374

**TABLE 5.1 (Cont'd)
2021 BASELINE AADT VOLUMES FOR ALL ROAD SEGMENTS IN THE NORTH
YONGE STREET CORRIDOR**

Section		2021 Existing AADT Volumes				
From	To	North-bound	Actual Driving Speed (km/h)	South-bound	Actual Driving Speed (km/h)	Total
Yonge Street						
Kennedy Street	Wellington Street	15,585	50	19,495	42	35,080
Wellington Street	Aurora Heights	12,852	48	16,989	33	29,841
Aurora Heights	Orchard Heights	10,770	58	12,007	44	22,776
Orchard Heights	St. John's Sideroad	10,559	80	15,608	72	26,168
St. John's Sideroad	Mulock Drive	12,698	60	14,903	45	27,601
Mulock Drive	Eagle Street	18,921	58	22,512	51	41,434
Eagle Street	Millard Avenue	28,074	59	33,272	53	61,346
Millard Avenue	Davis Drive	26,337	60	35,068	53	61,404
Davis Drive	London Road	23,301	60	21,238	56	44,539
London Road	Bristol Road	24,517	60	29,422	54	53,939
Bristol Road	Green Lane	28,683	60	36,904	56	65,587
Davis Drive		Eastbound		Westbound		Total
Yonge Street	Main Street	14,893	29	13,363	46	28,256
Main Street	Bayview Avenue	18,066	25	20,635	45	38,701
Bayview Avenue	Leslie Street	12,825	45	13,572	53	26,397
Green Lane		Eastbound		Westbound		Total
Yonge Street	Main Street N	25,976	42	21,821	51	47,797
Main Street N	Leslie Street	18,755	50	25,926	65	44,681

Note: 1. For actual driving speed of less than 40 km/h, the default minimum value of 40 km/h was used for the STAMSON modelling.
2. At the time of the modelling exercise, traffic sound levels were predicted based on actual driving speed in accordance with the July 2006 Draft SOPs.

The key assumptions used for predicting future baseline road traffic noise on Yonge Street are as follows:

- the road alignment will remain as presently configured;
- a traffic volume breakdown between automobiles, medium trucks and heavy trucks in 2021 consisting of the following ranges: 90-99% automobiles, 0.1-5 % medium trucks and 0.9-5 % heavy trucks;
- a daytime/nighttime traffic volume split ranging from 90-94% daily traffic occurs during daytime (07:00 to 23:00).

Using the AADT volumes outlined in Table 5.1, traffic sound levels were predicted with the STAMSON model. These results are shown in Table 5.2.

**TABLE 5.2
2021 BASELINE TRAFFIC SOUND LEVELS PREDICTED BASED ON AADT
VOLUMES FOR ALL ROAD SEGMENTS**

Receptor No.	From	To	Predicted Sound Level (dBA)	
			Daytime	Nighttime
Yonge Street				
R1	Gamble Road	Stouffville Road	66.1	62.0
R2	Stouffville Road	King Road	71.9	63.2
R3	North Lake Road	Blackforest/Worthington	63.7	60.9
R4	Blackforest/Worthington	Bloomington Rd	64.0	55.9
R5	Bloomington Rd	Industrial Pkwy	61.2	53.1
R6	Bloomington Rd	Industrial Pkwy	62.7	54.1
R7	Industrial Pkwy	Henderson/Allaura	51.4	47.5
R8	Henderson/Allaura	Kennedy Street	67.5	59.1
R9	Kennedy Street	Wellington Street	66.8	58.4
R10	Wellington Street	Aurora Heights	67.0	58.5
R11	Aurora Heights	Orchard Heights	65.6	57.0
R12	Orchard Heights	St. John's Sideroad	65.6	57.1
R13	St. John's Sideroad	Mulock Drive	68.2	56.2
R14	Mulock Drive	Eagle Street	59.0	58.7
R15	Eagle Street	Millard Avenue	63.4	55.1
R16	Davis Drive	London Road	59.4	56.1
R17	London Road	Bristol Road	62.4	54.2
Green Lane				
R18	Yonge Street	Main Street N	63.6	55.7
Davis Drive				
R19	Yonge Street	Main Street N	58.3	50.6
R20	Bayview Avenue	Leslie Street	58.2	55.0

The range of sound levels predicted based on 2021 baseline traffic data is between 58 and 71.9 dBA for daytime and 51 and 63 dBA for nighttime. As a comparison, the daytime sound levels predicted for 2005 are in the range of 51 to 71 dBA. The range of the sound levels for 2005 and 2021 are very similar. This is because some of the road segments have lower predicted driving speeds in 2021, due to congestion, than those predicted for 2005 which resulted in lower

predicted sound levels in 2021. The traffic growth from 2005 to 2021, predicted by the traffic consultant, ranged from 9% on Yonge Street (from Orchard Heights Blvd. to St. John's Sideroad) to 105% (from Eagle Street to Millard Avenue). The traffic growth from 2005 to 2021 for Davis Drive for the road sections used in the noise modelling ranged from 3% (Yonge Street to Main Street) to 25% (Bayview Avenue to Leslie Street). Relevant STAMSON data sheets are included in Appendix C.

5.2 SCENARIO 2 – BUS TRANSIT OPTION

Scenario 2 predicts the sound levels on the same road segments for the same year (2021), but with the added influence of the BRT traffic.

For this proposed project, part of Yonge Street will be realigned to include two middle dedicated transit lanes; part of Yonge Street will retain its current configuration; and both Davis Drive and Green Lane in the Town of Newmarket will be realigned to include one high occupancy vehicles (HOV) lane in both directions of the roadway closest to the curb. The proposed changes to the alignment of the North Yonge Street Corridor in the Study Area are summarized below:

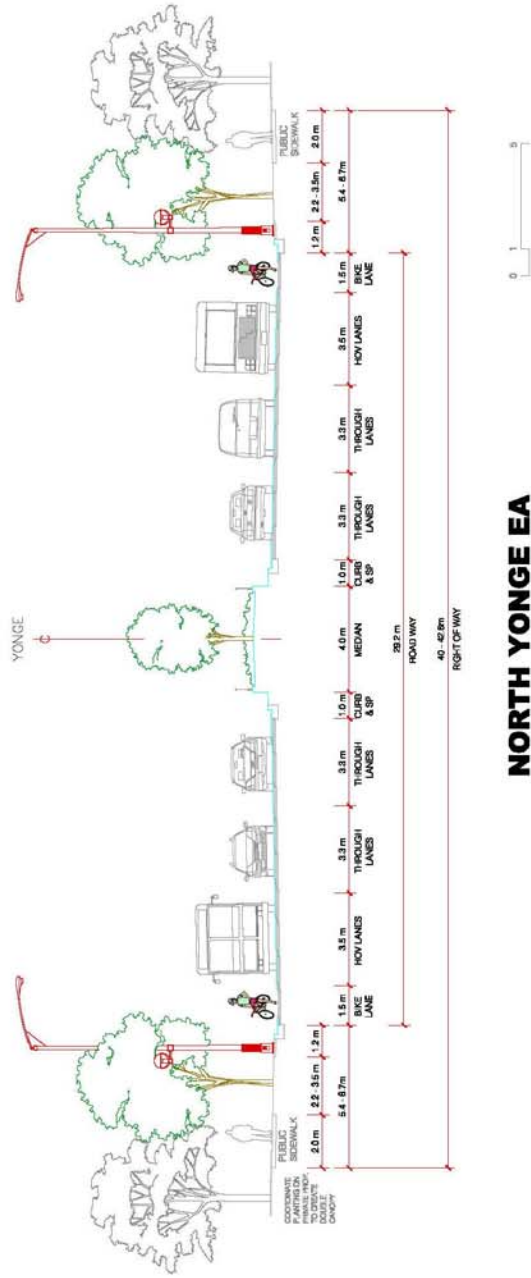
- 1) Town of Richmond Hill: Dedicated lanes from 19th Ave to Bloomington with stations at Tower Hill, Jefferson, King Road, Regatta, Bloomington and a future station adjacent to Bond Lake
- 2) Town of Aurora: Rapid transit will operate in mixed traffic from Henderson to Aurora Heights. Dedicated lanes are from Bloomington to Henderson and from Orchard Heights to St. John's Sideroad. Stations are located at Henderson, Golf Links, Wellington, Aurora Heights, and St. John's Sideroad.
- 3) Town of Newmarket:
 - a) Yonge Street: Dedicated lanes between Davis Drive and Green Lane with stations located at Savage Road South, Mulock, Eagle, and Davis. Rapid transit will operate in dedicated lanes from Davis Drive to Green Lane. Stations are located at London Road and Green Lane.
 - b) Davis Drive: Dedicated lanes from Yonge to Roxborough/Patterson and mixed traffic East of Roxborough/Patterson. Stations will be located at Longford Drive, South Lake Regional Health Centre, Leslie Street and Huron Heights.
- 4) Town of East Gwillimbury: Rapid transit will operate in dedicated lanes on Green Lane from Yonge to the East Gwillimbury GO Station, located just east of Main St. Stations

are located at Yonge, approximately halfway between the GO Station and East Gwillimbury GO Station.

The following key assumptions were used to predict the impact of the bus transit option:

- curb lanes will be realigned approximately 5-6 m outward (i.e., 5-6 m closer to receptors) (see Figures 5.1 and 5.2);
- hourly bus transit volumes as shown in Table 5.3;
- the noise emission level for the transit buses is 74.1 dBA at 15 m distance and at height of 1.8 m; and
- BRT transit traffic, due to the dedicated lanes and with fewer bus stops, will be predominately free flowing.

**FIGURE 5.2
 NORTH YONGE STREET CORRIDOR – PROPOSED ALIGNMENT 2**



**NORTH YONGE EA
 TYPICAL CROSS SECTION AT MID-BLOCK
 6 LANES WITH HOV LANES & BIKE LANES**

PRELIMINARY

Bus transit noise levels were estimated for each road segment based on the peak daytime and nighttime volumes (Table 5.3a). There is no BRT service between the hours of 01:00 and 06:00. A summary of the daytime (07:00 – 23:00) and nighttime (23:00-07:00) BRT volumes are shown in Table 5.3b.

**TABLE 5.3a)
PEAK HOURLY BRT VOLUMES FOR ALL ROAD SEGMENTS (2021)**

Road Segment	Northbound/Eastbound Vehicles	Southbound/Westbound Vehicles
PEAK HOUR (6-10 a.m. and 4-7 p.m.)		
Yonge Street (19 th Ave to Bloomington Rd)	60	60
Yonge Street (Bloomington Rd to Davis Dr)	30	30
Yonge Street (north of Davis Dr)	6	6
Green Lane	15	15
Davis Drive Corridor	24	24
OFF-PEAK HOUR (10 a.m. – 4 p.m. and 7 p.m. - 1 a.m.)		
Entire North Yonge Street Corridor	6	6
Davis Drive Corridor	6	6

**TABLE 5.3b)
SUMMARY OF DAILY BRT VOLUMES FOR ALL ROAD SEGMENTS (2021)**

Road Segment	Northbound/Eastbound Vehicles		Southbound/Westbound Vehicles	
	Day	Night	Day	Night
Yonge Street (19 th Ave to Bloomington Rd)	420	72	420	72
Yonge Street (Bloomington Rd to Davis Drive)	240	42	240	42
Yonge Street (north of Davis Drive)	96	18	96	18
Green Lane	150	27	150	27
Davis Drive Corridor	204	36	204	36

Note: Day = 7 a.m. to 11 p.m., Night = 11 p.m. to 7 a.m.

Table 5.4 shows the future year 2021 traffic volumes for the North Yonge Street Corridor, predicted by the traffic consultant based on with the proposed Project, but not including BRT volumes since they have been presented separately in Tables 5.3 (a) and (b).

**TABLE 5.4
PREDICTED AADT VOLUMES FOR ALL ROAD SEGMENTS
FOR 2021 (With the Project)**

Section		2021 AADT Volumes				
From	To	North bound	Actual Driving Speed (km/h)	South bound	Actual Driving Speed (km/h)	Total
Yonge Street						
Gamble Road / 19th	Stouffville Road	19,811	72	17,469	24	37,280
Stouffville Road	King Road	15,078	77	13,921	46	28,999
King Road	North Lake Road	17,454	55	13,908	30	31,362
North Lake Road	Blackforest/Worthington	21,348	58	15,618	48	36,966
Blackforest/Worthington	Bloomington Road	20,574	55	15,939	47	36,513
Bloomington Road	Industrial Pkwy	12,168	70	10,457	53	22,625
Industrial Pkwy	Henderson/Allaura	18,610	57	15,477	35	34,087
Henderson/Allaura	Kennedy Street	16,298	49	19887	40	36,815
Kennedy Street	Wellington Street	15,681	50	17,487	47	33,168
Wellington Street	Aurora Heights	12,896	48	16,758	34	29,654
Aurora Heights	Orchard Heights	10,555	58	10,682	48	21,237
Orchard Heights	St. John's Sideroad	10,323	79	14,258	76	24,581
St. John's Sideroad	Mulock Drive	12,669	60	13,896	47	26,565
Mulock Drive	Eagle Street	19,664	58	21,384	52	41,048
Eagle Street	Millard Avenue	24,220	59	31,966	53	56,186
Millard Avenue	Davis Drive	28,744	60	33,609	54	62,353
Davis Drive	London Road	22,039	60	20,627	57	42,666
London Road	Bristol Road	23,617	60	28,459	54	52,076
Bristol Road	Green Lane	24,818	60	35,741	56	60,559
Green Lane		Eastbound		Westbound		Total
Yonge Street	Main Street N	25,786	43	22,347	50	48,133
Main Street N	Leslie Street	18,371	52	26,292	65	44,663
Davis Drive		Eastbound		Westbound		Total
Yonge Street	Main Street	14,589	29	13,319	46	27,908
Main Street	Bayview Avenue	17,812	25	20,996	44	38,808
Bayview Avenue	Leslie Street	12,591	45	13,246	53	25,837

Note: the traffic data here does not include BRT volume on the proposed dedicated lanes.

Based on the traffic data in Table 5.4, traffic sound levels were predicted for the North Yonge Street Corridor segments using the STAMSON model. The modelling results are shown in Table 5.5. The STAMSON data sheets are included as Appendix D.

**TABLE 5.5
SOUND LEVELS PREDICTED BASED ON THE AADT VOLUMES
FOR THE NORTH YONGE STREET CORRIDOR (2021 TRAFFIC PLUS BRT)**

Receptor No.	From	To	Predicted Sound Level (dBA)	
			Daytime	Nighttime
Yonge Street				
R1	Gamble Road	Stouffville Road	65.5	62.2
R2	Stouffville Road	King Road	71.3	63.4
R3	North Lake Road	Blackforest/Worthington	63.2	61.1
R4	Blackforest/Worthington	Bloomington Rd	63.3	55.8
R5	Bloomington Road	Industrial Pkwy	60.6	53.1
R6	Bloomington Road	Industrial Pkwy	62.1	54.2
R7	Industrial Pkwy	Henderson/Allaura	50.5	47.1
R8	Henderson/Allaura	Kennedy Street	65.8	57.5
R9	Kennedy Street	Wellington Street	66.1	57.7
R10	Wellington Street	Aurora Heights	65.6	58.6
R11	Aurora Heights	Orchard Heights	64.8	56.9
R12	Orchard Heights	St. John's Sideroad	65.9	57.8
R13	St. John's Sideroad	Mulock Drive	67.8	56.7
R14	Mulock Drive	Eagle Street	58.6	58.6
R15	Eagle Street	Millard Avenue	63.5	55.4
R16	Davis Drive	London Road	58.8	55.9
R17	London Road	Bristol Road	62.0	55.0
Green Lane				
R18	Yonge Street	Main Street N	64.2	56.7
Davis Drive				
R19	Yonge Street	Main Street N	57.3	50.2
R20	Bayview Avenue	Leslie Street	56.7	53.7

5.2.1 Bus Transit Noise Impact

The impact of the bus transit option can be determined by comparing the sound levels predicted for Scenario 1 with Scenario 2.

Table 5.6 compares the traffic noise levels for Scenario 1 with those of Scenario 2. The data indicate that in all, but a few cases, the receptor sound levels are expected to decrease slightly with the BRT option. This reflects the overall reduction in traffic volumes at almost all road segments, due to the BRT option. A few receptors are expected to experience a very small increase in sound levels, at maximum 1 dB.

**TABLE 5.6
COMPARISON OF 2021 BASELINE SOUND LEVELS
WITH THE 2021 BRT PROJECT SOUND LEVELS**

Receptor No.	From	To	2021 Baseline Predicted Sound Level (dBA)		2021 with BRT Predicted Sound Level (dBA)		Predicted Project Sound Levels Above 2021 Baseline Levels	
			Day	Night	Day	Night	Day	Night
Yonge Street								
R1	Gamble Road	Stouffville Road	66.1	62.0	65.5	62.2	-0.6	0.2
R2	Stouffville Road	King Road	71.9	63.2	71.3	63.4	-0.6	0.3
R3	North Lake Road	Blackforest /Worthington	63.7	60.9	63.2	61.1	-0.5	0.2
R4	Blackforest /Worthington	Bloomington Road	64.0	55.9	63.3	55.8	-0.7	0.0
R5	Bloomington Road	Industrial Pkwy	61.2	53.1	60.6	53.1	-0.6	0.0
R6	Bloomington Road	Industrial Pkwy	62.7	54.1	62.1	54.2	-0.6	0.1
R7	Industrial Pkwy	Henderson/ Allaura	51.4	47.5	50.5	47.1	-0.8	-0.4
R8	Henderson/ Allaura	Kennedy Street	67.5	59.1	65.8	57.5	-1.7	-1.6
R9	Kennedy Street	Wellington Street	66.8	58.4	66.1	57.7	-0.7	-0.7

**TABLE 5.6 (Cont'd)
COMPARISON OF 2021 BASELINE SOUND LEVELS
WITH THE 2021 BRT PROJECT SOUND LEVELS**

Receptor No.	From	To	2021 Baseline Predicted Sound Level (dBA)		2021 with BRT Predicted Sound Level (dBA)		Predicted Project Sound Levels Above 2021 Baseline Levels	
			Day	Night	Day	Night	Day	Night
Yonge Street								
R10	Wellington Street	Aurora Heights	67.0	58.5	65.6	58.6	-1.4	0.1
R11	Aurora Heights	Orchard Heights	65.6	57.0	64.8	56.9	-0.8	-0.1
R12	Orchard Heights	St. John's Sideroad	65.6	57.1	65.9	57.8	0.3	0.7
R13	St. John's Sideroad	Mulock Drive	68.2	56.2	67.8	56.7	-0.3	0.5
R14	Mulock Drive	Eagle Street	59.0	58.7	58.6	58.6	-0.4	-0.1
R15	Eagle Street	Millard Avenue	63.4	55.1	63.5	55.4	0.0	0.3
R16	Davis Drive	London Road	59.4	56.1	58.8	55.9	-0.6	-0.2
R17	London Road	Bristol Road	62.4	54.2	62.0	55.0	-0.4	0.8
Green Lane								
R18	Yonge Street	Main Street N	63.6	55.7	64.2	56.7	0.6	1.0
Davis Drive								
R19	Yonge Street	Main Street N	58.3	50.6	57.3	50.2	-1.0	-0.5
R20	Bayview Avenue	Leslie Street	58.2	55.0	56.7	53.7	-1.5	-1.3

Notes: The closest receptor distances are shown in Table 4.2. Daytime hours are 07:00-23:00. Nighttime hours are 23:00-07:00.

The *York Region Traffic Noise Mitigation Policy and Guidelines* (2006) stipulates that, for capital road projects, where projected noise level increases from 0-5 dBA on adjacent residential properties, no mitigation needs to be considered unless projected noise levels are greater than 60 dBA (either at the start of construction or at the mature state of development).

For this project, more than 70% of the receptor locations experience current sound levels higher than 60 dBA (this occurs mostly between 07:00-23:00 hours). However, the guideline also sets exclusions and limitations on this policy for constructing retrofitting noise barriers along

Regional Roads. It states that the application of retrofit sound barriers along Regional Roads and bus transit corridors does not apply to the following:

- Residential buildings that front directly onto a York Region facility;
- Isolated flanking lots that are not part of a plan of subdivision;
- Small groups of homes of less than 5 dwellings;
- Existing residential buildings that are partially noise protected by existing inefficient sound barrier(s);
- Existing development where the application of retrofit noise barriers would require construction of other additional infrastructure in order to be effective that are beyond this policy (i.e., retaining walls);
- Where warning clauses have been included on title of purchase residents acknowledged potential for elevated noise levels due to traffic. In these scenarios residents have waived their rights for retrofit eligibility.

It should be noted that under this new noise mitigation policy, if it is deemed that noise mitigation is to be implemented, York Region will assume the full cost of implementing the noise control measures, and assume the ownership and maintenance of any noise control measures when constructed under the Capital Program. It should be noted that noise mitigation implemented as part of capital road projects will only be permitted along the property line at the extreme outer edge of York Region's ultimate right-of-way or along the flanking ends of the subdivision where required.

As was noted above, most receptors on the North Young Street Corridor are predicted to experience a reduction in sound levels with the BRT option; therefore, no noise mitigation is required. For the few remaining receptors on Yonge Street that are expected to experience less than 1 dB increase in noise levels with the BRT option in 2021, the layout of Yonge Street and its limited right-of-way make it impractical to install any mitigation measures at these receptor locations.

5.3 STATIONARY NOISE IMPACT

The only significant stationary noise source associated with the YRTP is the Maintenance Facility proposed for Langstaff Road, between Ruggles Avenue and the Canadian National Railway (C.N.R.) line. This facility is not part of the North Yonge Street Corridor. Therefore, there are no known significant stationary noise sources associated with the North Yonge BRT Project. An assessment of the Maintenance Facility was previously completed for the Yonge Street Corridor environmental assessment.

5.4 CONSTRUCTION NOISE IMPACT

Noise from construction activities is inevitable. However, they are temporary in nature, but still would be a source of annoyance if construction occurs outside of normal weekday construction periods when ambient sound levels are the lowest. In terms of construction noise mitigation measures, the construction contractors must comply with all applicable requirements of the contract and local noise by-laws (as presented in Table 3.2). All construction equipment are required to be properly maintained to limit noise emissions. The proper noise limits for construction equipment are stipulated in the MOE NPC-115 guidelines. Where necessary, the construction equipment need to be operated with effective muffling devices that are in good working order. A field monitoring program should be put in place in the event of persistent noise complaints.

5.5 SUMMARY

The foregoing discussion indicates that the North Yonge Corridor BRT option will not significantly increase traffic volumes on Yonge Street when compared to the predicted baseline traffic volumes for the 2021.

The future traffic sound levels were predicted using the MOE STAMSON Model. As with the current conditions, receptors closest to the roadway are likely to experience the highest sound levels. The Model results indicate that most receptors along the North Yonge Corridor will experience a marginal decrease in sound levels due to the BRT project. A few receptors are predicted to experience a maximum 0 to 1 dB increase in sound levels due to the proposed Project. This minimal increase is predicted for both daytime and nighttime hours. This minimal change in sound levels is considered imperceptible to humans and is well within the 5 dB increase limit for which noise mitigation measures are to be considered as specified in the noise protocol for this project (Appendix A).

Although the projected noise level increases are less than 5 dBA, mitigation for this Project were considered for the few receptors with minimal predicted noise level increase, in accordance with the new *York Region Traffic Noise Mitigation Policy and Guidelines* for capital projects. It should be noted that the existing (2005) daytime noise levels from vehicular traffic on Yonge Street, without the dedicated lanes for BRT, are mostly above 60 dBA, which is reflective of the high traffic volume on Yonge Street and the close proximity of some of the receptors on Yonge Street. Due to the exclusions and limitations of the retrofit barrier Policy in the Draft Noise Guideline (York Region, 2006) and the limitation of the Yonge Street right-of-way, noise mitigation measures are determined to be impractical for these receptors.

6.0 VIBRATION IMPACT ASSESSMENT

6.1 APPROACH

The vibration from transit vehicles is usually in the form of ground-borne transmission. For transit vehicles located at grade, the propagation is in the form of surface waves and the assessments are usually evaluated through some form of measurement program.

The vibration character is usually expressed in terms of vertical vibration velocity measured in terms of mm/sec. The decibel description is also applied in vibration evaluations and is usually given by,

$$\text{Vibration Level} = 20 \log (V_{\text{ver}} / V_{\text{ref}}), \text{ dB}$$

Where:

V_{ver} is the vertical vibration velocity in mm/sec and V_{ref} is the reference value is 1 $\mu\text{m}/\text{sec}$.

The vibration protocol agreement established between MOE and TTC was used for the current analysis. The vibration limit to be used is the vibration velocity of 0.1mm/sec.

6.2 EXISTING VIBRATION LEVELS ALONG YONGE STREET, YORK REGION

SENES has previously carried out a vibration analysis in 2005 to determine the vibration impact of the proposed YRTP for the Yonge Street corridor, between Steeles Avenue and 19th Avenue, a part of the YRTP project. Since vibration levels for Yonge Street is largely dependent on the passby vehicular traffic, the vibration levels for Yonge Street from Steeles Avenue (City of Vaughn) to Green Lane (Town of Newmarket) is expected to be similar. The vibration analysis for the North Yonge Street Corridor is based on previous analysis carried out on Yonge Street, south of 19th Avenue. The inferences are drawn based on previous studies and no actual measurements are needed for the current corridor since the road condition and layout are similar to the previously assessed corridor.

The background vibration measurements were conducted in 2003/2004 at eight locations along Yonge Street between Steels Avenue and 19th Avenue. The vibration levels were measured on the ground surface through a mounted accelerometer. The accelerometer was connected to a vibration meter, whose output drove a paper chart. The whole system was calibrated using a Bruel and Kjaer vibration calibrator. The calibrator produces a level of 10 mm/sec velocity at 160 Hz.

The vertical vibration at each of the eight locations was collected over a 20-minute period. The period included pass-bys (at various speeds) of cars, vans, buses and trucks of various sizes. The measurement results from the previous study are shown in Figures 6.1 through 6.8 for ease of reference.

The results show that there are no perceptible vibration levels from existing traffic at the closest sensitive receptor locations along the Yonge Street Corridor. Most of the measured vibration levels are well below 0.1 mm/sec. This is expected since the traffic consists of rubberized-tire vehicles and the levels from such traffic are negligible unless there are some anomalies, such as an expansion joint, in the roadbed. Similar results are expected for the North Yonge Street Corridor.

FIGURE 6.1
VIBRATION AT LOCATION 1, 11 MEDEVIEW AVENUE

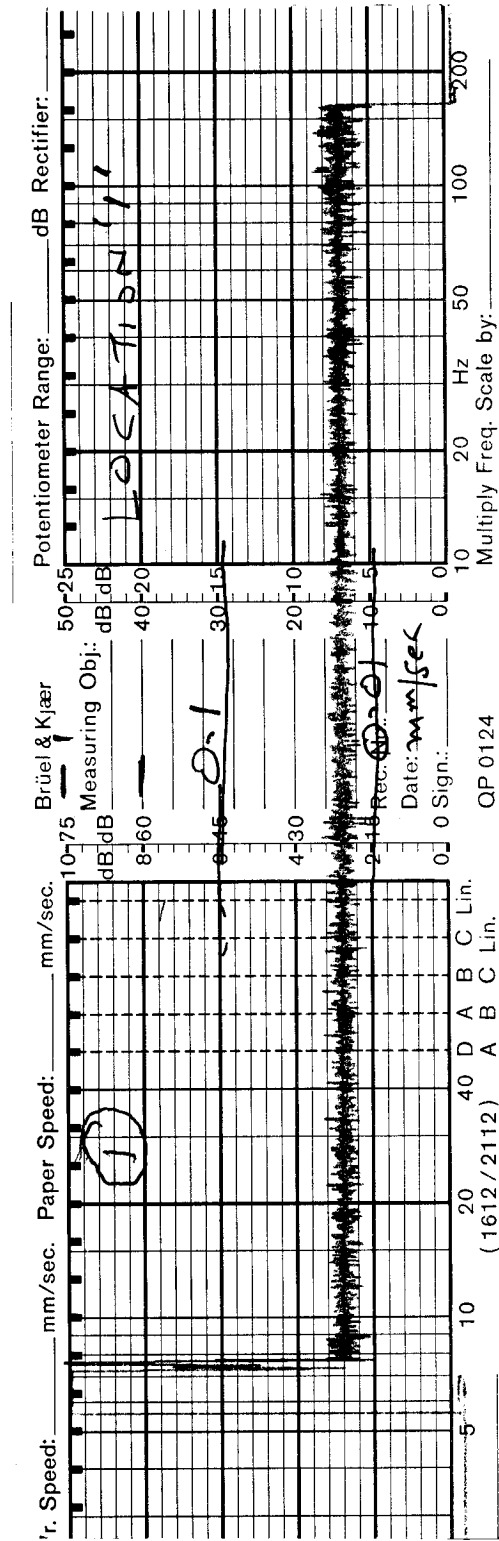


FIGURE 6.2
VIBRATION AT LOCATION 2, 7 CLARK AVENUE

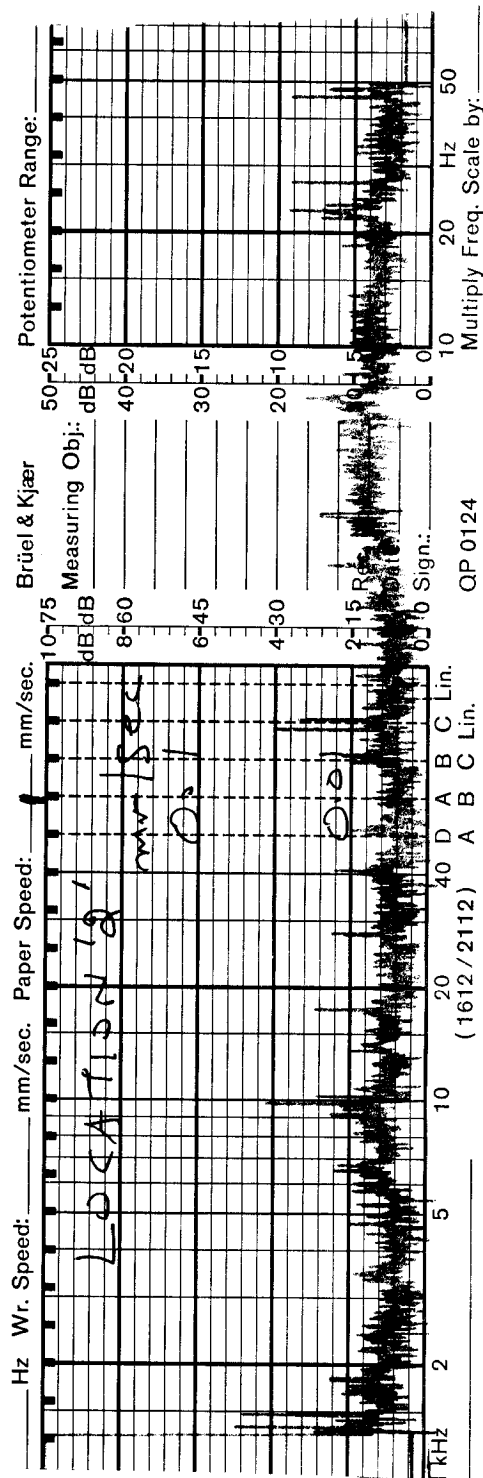


FIGURE 6.3
VIBRATION AT LOCATION 3, 15 DORIAN PLACE

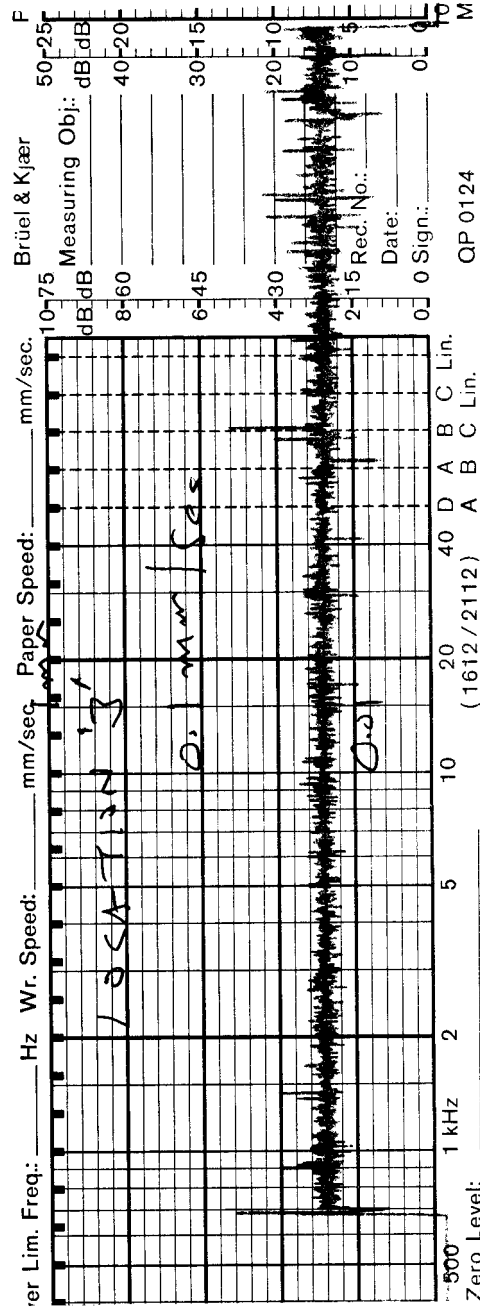


FIGURE 6.4
VIBRATION AT LOCATION 4, 27 VANITY CRESCENT

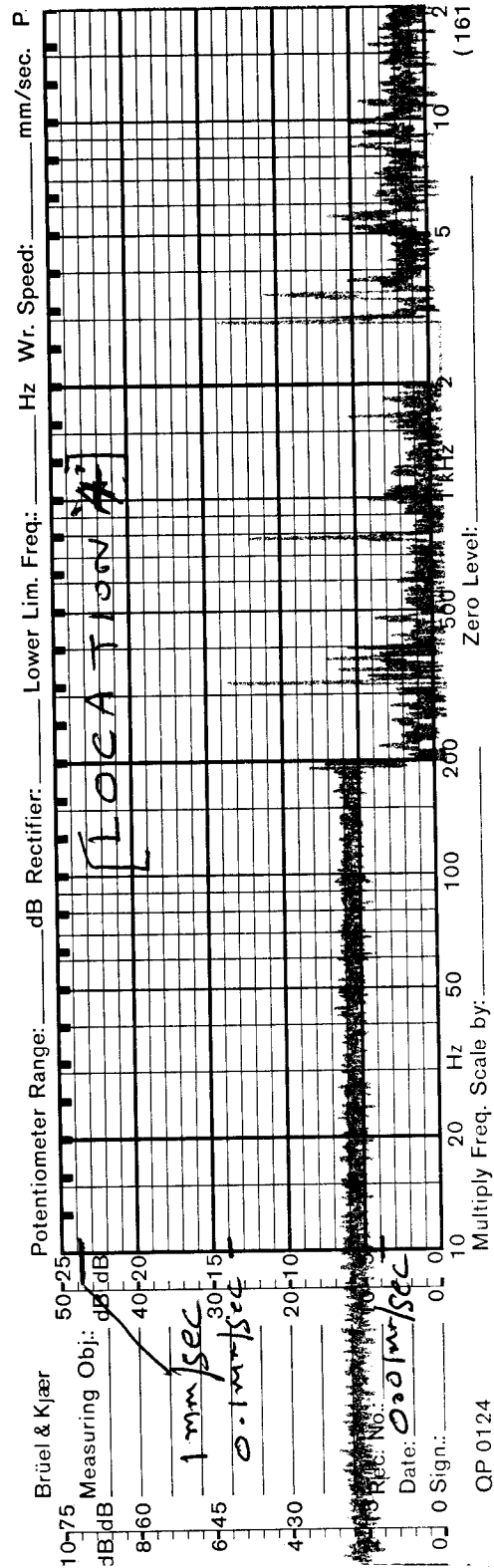


FIGURE 6.5
VIBRATION AT LOCATION 5, MARY GAPPER CRESCENT

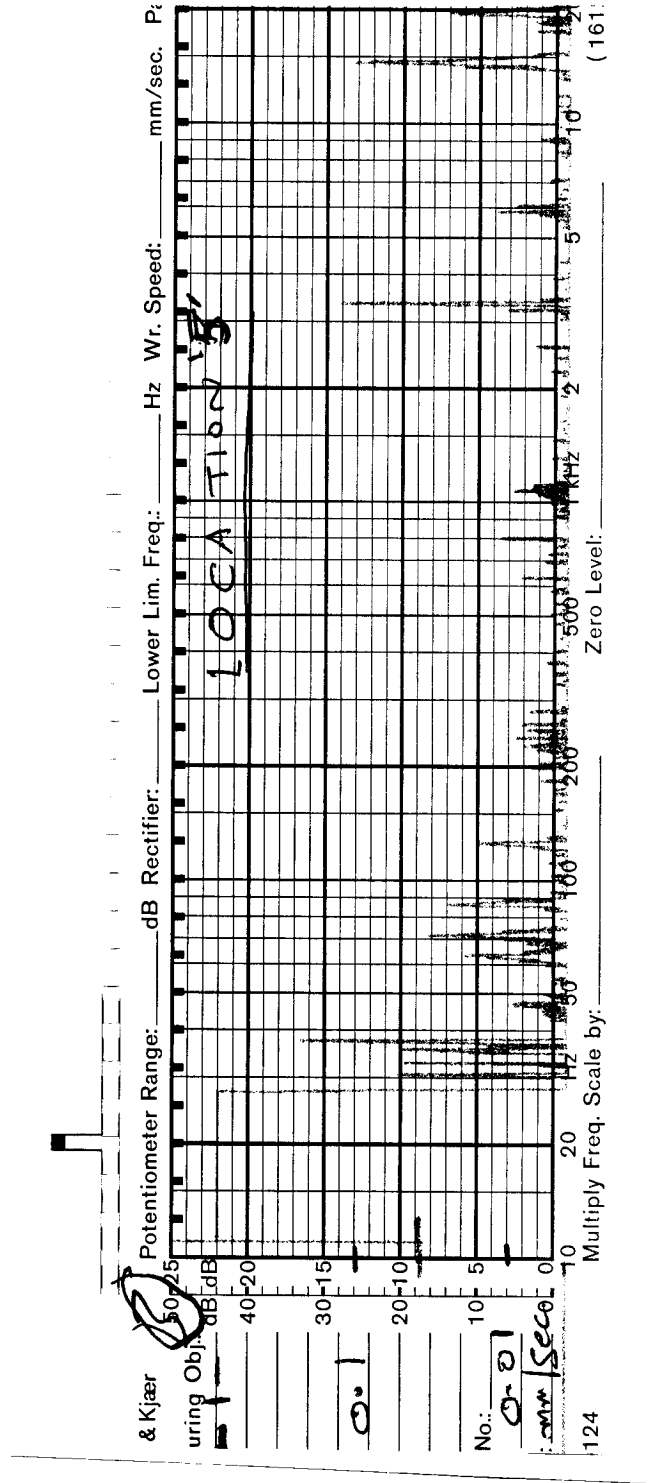


FIGURE 6.7
VIBRATION AT LOCATION 7, 6 LEONARD STREET

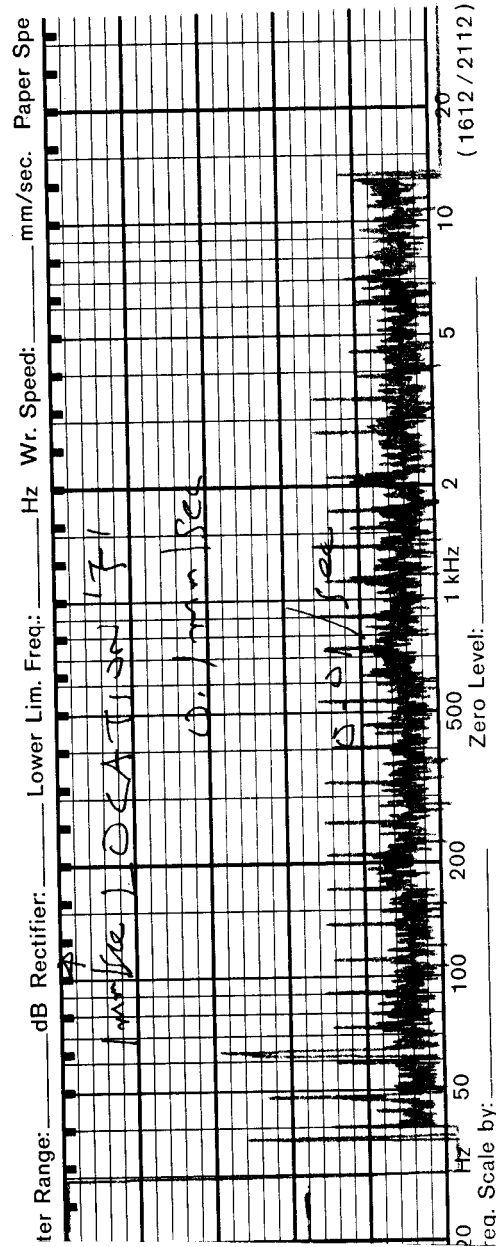
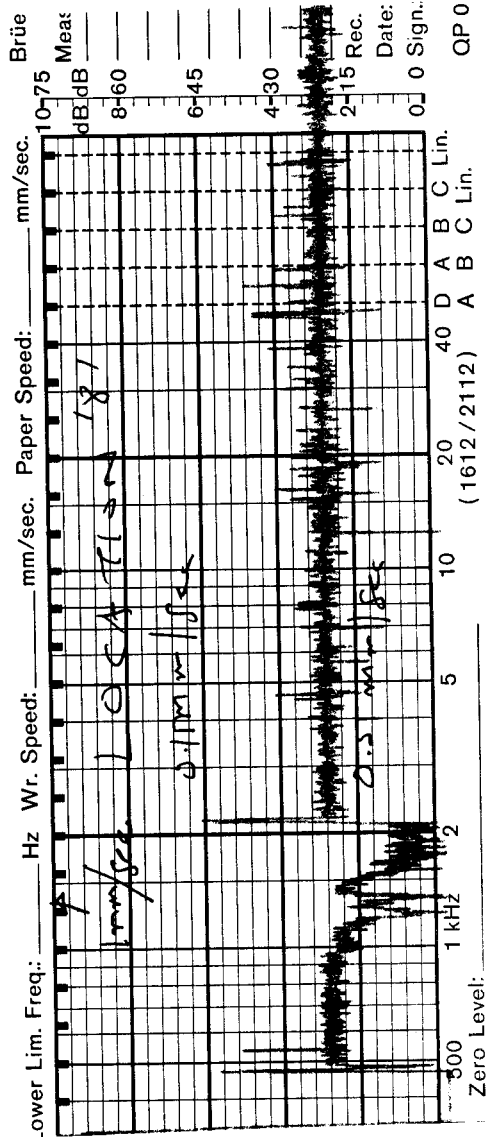


FIGURE 6.8
VIBRATION AT LOCATION 8, 3 ABITIBI STREET



7.0 CONCLUSIONS

The following key conclusions are drawn from the preceding information:

- the North Yonge Street Corridor is a heavily travelled route;
- based on field observations and traffic noise modelling, it is determined that traffic noise is the dominant source of sound throughout most of the North Yonge Street Corridor;
- future traffic volumes on the North Yonge Street Corridor are expected to decrease with the BRT option in place;
- existing baseline sound levels exceed 60 dBA at most of the receptors assessed. Most of the closest receptors front onto Yonge Street, Green Lane or Davis Drive where the influence of current traffic volumes is dominant;
- the BRT option is predicted to cause a marginal decrease in noise levels at most receptors along the North Yonge Corridor;
- a marginal increase in sound levels, due to the BRT option, is expected at only a few receptors. The increase is predicted to be between 0 and 1 dB;
- no noise mitigation measures are required as the increases in sound levels are less than the 5 dB increase required for the consideration of mitigation, as specified in the protocol approved by the MOE for this project;
- it is also not practical to install mitigation measures for receptors fronting onto Yonge Street considering the exclusion and limitation clause set in the York Region Noise Guideline (2006), and the limited right-of-way;
- no perceptible vibration levels are anticipated from existing traffic at the closest receptor locations along the North Yonge Street Corridor. The BRT project is not expected to cause vibration impacts; and
- it should be noted that at the time of the modelling exercise, traffic sound levels were predicted based solely on actual driving speed as per the July 2006 Draft SOPs, and not the higher of the posted speed limit and actual driving speed, as required in the January 2008 SOPs. Changing the speed parameter to satisfy the January 2008 SOPs may yield different results at some receptors.

8.0 REFERENCES

Acoustical Society of America 1983. *American National Standard: Guide to Evaluation of Human Exposure to Vibration in Buildings*. ANSI S3.29-1983.

Cowan, James P. 1994. *Handbook of Environmental Acoustics*.

Environment Ontario 1978. *Model Municipal Noise Control By-Law*. Final Report. August.

http://www.richmondhill.ca/subpage.asp?pageid=bylaw_noise_bylaw

<http://www.town.aurora.on.ca/aurora/index.aspx?ArticleID=1392&lang=en-CA>

http://www.newmarket.ca/userfiles/page_attachments/Library/1/2169419_2004_94_To_Repeal_1991_140_Noise_By_law_and_Enact.pdf

<http://www.eastwillimbury.ca/Assets/Town+Hall/By-laws/Noise+!232004-80.pdf>

International Standards Organization 1989. *Evaluation of Human Exposure to Whole-Body Vibration, Part 2: Continuous and Shock-Induced Vibration in Buildings (1-80 Hz)*. ISO-2361-2, 1989.

Ontario Ministry of the Environment (MOE) 1989. *ORNAMENT: Ontario Road Noise Analysis Method for Environment and Transportation*. Technical Document. October.

Ontario Ministry of the Environment (MOE) 1978. *Model Municipal Noise Control By-Law*. August.

Ontario Ministry of the Environment (MOE) 1977. *Noise Assessment Criteria in Land Use Planning*. Publication LU-131. August.

Ontario Ministry of the Environment and Energy 1994. *Noise Guidelines*. 1994 Revisions.

Ontario Ministry of Transportation (MTO) and Ministry of Environment (MOE) 1996. *A Protocol for Dealing with Dealing with Noise Concerns During the Preparation, Review and Evaluation of Provincial Highways Environmental Assessments*. ISBN 0-7778-6311-1. February.

Ramani, R. 1991. *Using Stamson 4.1: Manual for the Evaluation of Road and Rail Pass-By Noise*.

USDOT, Washington DC 1995. *Transit Noise and Vibration Impact Assessment*. Federal Transit Administration. April.

Wilson, Ihrig & Associates, Inc. 1990. *Assessment of Noise and Vibration Impact for the Spadina Subway Extension Project*. March.

Wilson, Ihrig & Associates, Inc. 1992. *TTC Yonge-Spadina Subway Loop Environmental Assessment - Assessment of Noise and Vibration Impact*. October.

York Region 2008. *Standard Operating Procedures for Traffic Noise Mitigation on Regional Roads*. Transportation Services, Roads Branch – Capital Delivery. January.

York Region 2006. *Standard Operating Procedures for Traffic Noise Mitigation on Regional Roads*. Transportation & Works Department, Roads Branch – Capital Delivery. December.

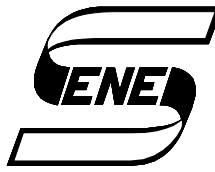
York Region 2006. *Draft Standard Operating Procedures for Traffic Noise Mitigation on Regional Roads*. Transportation & Works Department, Roads Branch – Capital Delivery. July.

York Region 2006. *York Region Traffic Noise Mitigation Policy for Regional Roads*. 23 March.

York Region 2006. *Noise Policy Update – Mitigation of Traffic Noise on Regional Road*. Report No. 3 of the Transportation and Works Committee Regional Council Meeting of March 23, 2006.

APPENDIX A

- **NOISE GUIDELINES**
- **SOUND LEVEL TERMINOLOGY**



SENE Consultants Limited

121 Granton Drive
Unit 12
Richmond Hill, Ontario
Canada L4B 3N4

Tel: (905) 764-9380
Fax: (905) 764-9386
E-mail: senes@senes.on.ca
Web Site: <http://www.senes.on.ca>

33434

29 April 2003

Mr. Roman Krawczyniuk, M.Sc.
Project Analyst Acoustics
Air and Noise Unit
Ministry of the Environment
2 St. Clair Avenue West, 12th Floor
Toronto, Ontario
M4V IL5

RE: Noise and Vibration Protocols for York Region Transit Study

Dear Mr. Krawczyniuk:

Further to our discussion today on my letter dated 17 April, 2003, we are pleased to provide the revised protocols for guiding the noise and vibration work related to the above mentioned project. As we have already attached copies of the relevant protocols to the 17 April letter, these are not included again. The following table summarizes the key aspects of the protocols/methodologies we discussed.

We are proposing that for assessing the impacts of this project, the following approach be adopted:

1. for existing/future noise, the impact be established based on the higher of either a daytime limit of 50 dBA or existing levels, and that nighttime limits be based on the higher of either 45 dBA or existing levels, determined either by traffic noise predictions and/or measurements;
2. that mitigation be considered if the existing established sound levels at the closest receptor be exceeded by > 5 dBA;
3. stationary noise sources be assessed in accordance with NPC-205;
4. construction noise be assessed in accordance with NPC-115; and
5. vibration impact be assessed in accordance with the MOEE/TTC Protocol.

We trust that these revisions are acceptable to you.

Yours very truly

SENE Consultants Limited

A handwritten signature in cursive script that reads "Frederick D. Bernard".

Frederick D. Bernard, M.A.
Senior Environmental Specialist

*North Yonge Street Corridor – Public Transit and Associated Road Improvements
Transit Class Environmental Assessment - Noise and Vibration Impact Assessment*

33434

29 April 2003

Letter to Mr. Roman Krawczyniuk (Continued)

Page 2

Component	Protocol	Procedure	Receptor Criteria	Mitigation
Existing/Future Noise	MTO/MOE	Prediction and measurements	Objective for outdoor sound levels is the higher of the L_{eq} 55 dBA or existing ambient	Considered when the ambient is exceeded by > 5 dBA
	MOEE/TTC	Prediction is preferred to individual measurements	55 dBA or the ambient for daytime and 50 dBA for nighttime. 80 dBA for single train passby	Will be Incorporated when limits are exceeded by more than 5 dBA
	Cumberland Rapidway	STAMSON predictions	Maximum desirable levels are: 55 dBA for daytime and 50 dBA for nighttime	0-5 dBA (no action); > 5 dBA increase (consider mitigation).
	NPC-205	Existing measured background or traffic	Level established through measurement or prediction	
Stationary Noise Sources	MTO/MOE	Not addressed	Not addressed	Not addressed
	MOEE/TTC	Predicted in accordance with NPC-205	As per NPC-205	
	Cumberland Rapidway	Not specified	Not specified	Not specified
	NPC-205	Measurements and/or predictions	For an urban area, For daytime, 50 dBA or resulting noise from road traffic and industry; for nighttime, 45 dBA or noise resulting from traffic and industry	Any exceedance above the limit must be mitigated
Construction Noise	MTO/MOE	Commitments to be included in E.A. documents; sound level criteria for construction equipment outlined in NPC-115	NPC-115 limits	
	MOEE/TTC	To be based on Noise Control Guideline for Class Environmental Assessment of Undertakings	To be based on Noise Control Guideline for Class Environmental Assessment of Undertakings	To be based on Noise Control Guideline for Class Environmental Assessment of Undertakings

*Yonge Street Corridor – Public Transit Improvements Environmental Assessment
Noise and Vibration Impact Assessment*

33434

29 April 2003

Letter to Mr. Roman Krawczyniuk (Continued)

Page 3

Component	Protocol	Procedure	Receptor Criteria	Mitigation
	Cumberland Rapidway	Not specifically stated	Not specifically stated	
	NPC-115	Noise emission measurements or manufacturers data	Sound Emission Standards for specific equipment	
Ground Vibration	MTO/MOE	Not Addressed	Not Addressed	Not Addressed
	MOEE/TTC	Predicted during design		If the vertical vibrations exceeds 0.1 mm/sec, mitigation measured shall be applied during the detailed design phase to meet this criterion to the extent technologically, economically and administratively feasible
	Cumberland Rapidway	Field measurements	For human perception and tolerance, an equivalent ppv level of up to 5 mm/s would be suitable for common vibrations from roadway traffic (note: MOEE/TTC will be applied to the current study)	

APPENDIX A: Noise Pollution Control Document 205 (NPC-205)

Definitions

Publication NPC-205 of the Model By-Law sets Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban).

NPC-205 defines a "Class 1 Area" as:

an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the urban hum.

The urban hum is defined as the aggregate sound of many unidentifiable, mostly road traffic related noise sources.

A "Class 2 Area" is defined as:

an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas, and in which a low background sound level, normally occurring only between 23:00 and 07:00 hours in Class 1 Areas, will typically be realized as early as 19:00 hours.

Other characteristics which may indicate the presence of a Class 2 Areas include:

- *absence of urban hum between 19:00 and 23:00 hours;*
- *evening background sound level defined by natural environment and infrequent human activity; and*
- *no clearly audible sound from stationary sources other than from those under assessment.*

A "Class 3 Area" is defined as:

a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as the following:

- *a small community with less than 1000 population;*
- *agricultural area;*
- *a rural recreational area such as a cottage or a resort area; or*
- *a wilderness.*

Sound Level Limits

NPC-205 states that the sound level limit must be established based on the principle of "predictable worst case" noise impact. Generally, the limit is based on the background sound level at the receptors and must represent the minimum background sound level that occurs or is likely to occur during the operation of the stationary source under assessment.

Sound levels from steady stationary noise sources (such as the proposed facility) are quantified using the energy equivalent sound level, L_{eq} , in dBA. During daytime hours, the limit at a critical receptor for steady noise from a stationary source is the higher of either the one-hour L_{eq} resulting from existing volumes of road traffic and any industry which is not under investigation for noise excess, or 50 dBA. During night-time hours, the limit is the higher of either the ambient (road traffic plus industry) L_{eq} noise level or 45 dBA. If the stationary source contains any noticeable features such as tonal components or buzzing, a 5 dB tonal penalty must be added to the noise level of the source.

No restrictions apply to a stationary source resulting in a one hour L_{eq} lower than the minimum values for the time periods specified in Table A.1.

TABLE A.1
MINIMUM VALUES OF ONE HOUR L_{eq} OR L_{LM} BY TIME OF DAY

Time of Day	One Hour L_{eq} (dBA)	
	Class 1 Area	Class 2 Area
08:00 - 19:00	50	50
19:00 - 23:00	47	45
23:00 - 07:00	45	45

NPC 115

Sound Level Terminology

This section provides a brief description of sound level terminology to assist the reader in understanding the sound level monitoring results reported later.

The behaviour of sound can be described by accepted acoustic principles. The balance of this section discusses “*sound*”; however, the same principles apply to “*noise*”.

Units of Sound Measurement

Because the human ear can detect a wide range of sound levels, a measurement unit was developed to quantify the sounds produced. The unit developed is the decibel (*dB*), based on a logarithmic scale which relates the pressure produced by a sound wave (*P* in Pascal=s, Pa) to a reference pressure level ($P_{ref} = 20 \times 10^{-6}$ Pa) according to the equation:

$$L = 20 * \log \left[\frac{P}{P_{ref}} \right]$$

where:

L = the sound level in decibels (dB)

In simple terms, equation (1) indicates that the greater the sound pressure, the higher the volume and the higher the decibel count. It shows that more than a doubling in the sound pressure is needed to double the decibel count. For example, an increase from 20 dB to 40 dB represents a ten-fold increase in sound pressure.

Sound Weighting Scales

Sound is usually described in terms of two characteristics, volume, as discussed above, and frequency (conventionally measured in Hertz) [the number of cycles/second]. The human ear does not respond to all frequencies in the same way. This frequency-dependent response is the reason that dogs can hear a high-frequency whistle while people cannot. Instruments used to measure sound do not have any of these limitations. To better reflect a human receptor's response to sounds measured by instruments, "*weighting scales*" are used. The "*A weighted scale*" is used to duplicate the human response to the audible frequency range. Sound levels so adjusted are referred to as "*A weighted decibels*" and assigned the unit abbreviation *dBA*. Table 2.1 below shows typical sound levels for various common sources.

**TABLE A.2
SOUND LEVELS OF COMMON SOURCES**

Sound Source	Sound Level (dBA)	Reference Distance (m)	Comments
Leaves rustling in wind	55-58		
Single duck/goose	63-68	9	
Summer nighttime insects	50-54		In open field
Food blender	76-81	1	
Microwave oven	56-58	1	
Portable hair dryer	77-86	0.3	
Hand-held vacuum cleaner	82-87	1	
Hand-pushed lawn mower	81-86	1.5	
Lawn edger	89-93	1.5	
Freight train	85-88	9	Exterior sound level
Subway train	98-103	9	Exterior sound level
Automobile, 88.5 km/h	69-78		Interior sound level
Airplane (long range)	70-80		Interior sound level
Airplane – Boeing 727	112.5	305	
Airplane – Boeing 747	102.5	305	
Playground at recess	68-77		Crowd size of 100-500, 15-30 min.
Hockey game	90		Crowd size of 17,400, 3 hr.
Rock concert	109 (Max.)		Crowd size of 19,000, 3 hr.
Typical mall fountain	72-74	3	

Source: Cowan 1994.

Sound Descriptors

Sound is an instantaneous phenomenon and cannot be readily described unless statistical measures are used. The statistical descriptors commonly used to describe measured sound levels are briefly explained below:

- L_{eq} - the energy equivalent continuous sound level;
- L_5 - the sound level exceeded 5% of the time;
- L_{10} - the sound level exceeded 10% of the time or the "average" level of intrusive noises;
- L_{90} - the sound level exceeded 90% of the time or the "ambient" sound level; and
- L_{99} - the sound level exceeded 99% of the time.

The statistical descriptor which has been selected for environmental noise impact assessments is the L_{eq} . However, the adoption of the L_{eq} does not necessarily preclude the use of other descriptors. The L_{eq} provides a method of describing time-varying sounds by a single number rather than by the entire cumulative distribution.

In order to assess time-varying noises, the unsteady sound level (measured in dBA) could be averaged in some way to provide a steady level, which would be "equivalent" to the original varying sound. Considerable research has been done to determine how this averaging should be performed.

Simple averaging of the time-varying pressure of the sound is not a good method of assessing the annoyance of unsteady, intrusive value. This method tends to underestimate the annoyance value. It has been found that if the energy (which is proportional to the square of the pressure) of a time-varying sound is averaged, then the resulting equivalent energy continuous level, L_{eq} , has good correlation with the annoyance of that sound (MOE, 1990).

The Definition of L_{eq}

The equivalent energy level is that constant sound level which has the same energy as a time-varying noise level for a specified time duration. In order to understand fully the concept of L_{eq} it is also necessary to consider the mathematical definition.

$$L_{eq} = 10 * \log (1/T) \int_0^T [P_A^2 (t)/ P_0^2] dt$$

where:

- P_0 = the standard reference pressure;
- $P_A^{(t)}$ = the A-weighted time-varying pressure; and
- T = duration of measurement.

Other Technical Definitions

“Ambient sound level”:

- means background sound level.

“Background sound level”:

is the sound level that is present in the environment, produced by noise sources other than the source under impact assessment. Highly intrusive short duration noise caused by a source such as an aircraft flyover or a train pass-by is excluded.

A PROTOCOL FOR DEALING WITH DEALING WITH NOISE
CONCERNS DURING THE PREPARATION, REVIEW AND
EVALUATION OF PROVINCIAL HIGHWAYS
ENVIRONMENTAL ASSESSMENTS

© The Queen's Printer for Ontario, 1996.
Reproduced with permission.
ISBN 0-7778-6311-1
February, 1996

MINISTRY
OF
TRANSPORTATION



ONTARIO

MINISTRY
OF
ENVIRONMENT

To all users of the: **NOISE PROTOCOL**

Enquiries regarding the purchase and distribution of this manual should be directed to :

RonenHouse

a division of Ronen Publishing House Inc.

505 Consumers Road, Suite 910

Toronto, ON. M2J 4V8

Phone: (416) 502 1441

(800) 856 2196

Fax: (416) 502 9410

(800) 870 7239

This Protocol contains areas of policy agreement between the Ministries of Transportation and Communications, and Environment for dealing with noise concerns during the preparation, review and evaluation of environmental assessments for Provincial Highway undertakings.

As common understandings are resolved for any outstanding issues, these will be added to the Protocol by formal agreement.



D.P. Caplice
Assistant Deputy Minister
Operations Division
Ministry of Environment



J.R. Barr
Assistant Deputy Minister
Engineering and Construction
Ministry of Transportation
and Communications

FEBRUARY
1986

1. Retrofit

The MTC policy for retrofit of existing freeways with sound barriers will remain in effect and unchanged.

2. Scope of Protocol

This protocol applies to the MTC Capital Construction Program for all classes of MTC Provincial roads, both urban and rural. The policy for each situation may require different noise control measures and further, that an assessment of the feasibility of providing noise control measures includes technical and economic considerations.

3. Definition of Noise Sensitive Areas

To be clearly defined, as guided by the One-Stage Procedural Guidelines and the specific definitions of “residential areas” and “quiet zones” found in municipal noise control by-laws, approved by MOE under the Environmental Protection Act.

4. Establishing Existing and Future Noise Levels

Presently used prediction methodologies and measurement procedures are satisfactory. Any further changes, in noise prediction methodologies or measurement procedures, shall be compatible with those of both MOE and MTC.

Staff of MTC and MOE together shall set a standard for ambient noise levels in rural areas where predictions can not be done.

5. Impact Assessment

Noise impacts for all MTC Provincial roads will be predicted based on traffic projections ten years after completion, or best available data when 10-year projections are not available.

The study area shall be defined using the smaller of one of two following methods; Using 5 decibel contour lines extending from the source to the

point where there is no increase above the ambient level, or a distance of 600 m from the source.

The noise impact on noise-sensitive land uses will be determined for outdoor spaces.

All reference to 65 dBA as a “target” and 70 dBA as a “maximum” will be removed from MTC directives A-1 and B-94. Further, reference to a 70 dBA maximum should be removed from Provincial Policy. The objective for outdoor sound levels is the higher of the Leq 55 dBA or the existing ambient. The significance of a noise impact will be quantified by using this objective in addition to the change in noise level above the ambient.

mitigation will attempt to achieve levels as close to, or lower than, the objective level as is technically, economically, and administratively feasible.

6. Noise Control Measures

The attached Table summarizes the degree of mitigation effort to be applied for various noise level increases.

On right-of-way mitigation measures will be identified, considered and implemented where warranted.

Mitigation measures within the right-of-way include: barriers, berms, vertical and horizontal alignments, pavement surfaces, etc.

Where noise increases above the ambient do not exceed 5 dBA no mitigation is required.

Where noise increases above the ambient exceed 5 dBA MTC will:

- investigate noise control measures within the right-of-way.
- if projects costs are not significantly affected and where averaged over first row receivers, a minimum attenuation of 5 dBA can be achieved, MTC will introduce the selected measures within the right-of-way.

Where a freeway is to be expanded through an existing residential area that has been included on the retrofit priority list, noise attenuation measures should be considered as part of the freeway expansion project when the MTC policy for Retrofit of Existing Freeways can be satisfied.

7. Documentation

MTC will increase its E.A. documentation with respect to the feasibility of all potential mitigation measures within the right-of way. The feasibility of each measure would be evaluated by such factors as effectiveness and technical and economic feasibility.

8. Construction Notes

The following is a brief outline of the procedures to be followed in handling construction noise during the Environmental Assessment process and during the construction phase. Commitment to the following shall be made in all E.A. documents:

- (a) Noise Sensitive areas will be identified;
- (b) Applicable municipal noise control by-laws will be identified and obeyed. Where timing constraints, or other municipal by-law cause hardship to MTC, an explanation of this will be outlined in the E.A. document, and an exemption from such by-law will be sought directly from the municipality in question;
- (c) General noise control measures (not sound level criteria) will be referred to, or placed into MTC documents;
- (d) Any initial complaint from the public will require verification by MTC that the general noise control measures agreed to are in effect; MTC will investigate any noise concerns, warn the contractor of any problems, and enforce its contract;
- (e) Notwithstanding compliance with the “general noise control measures”, a persistent complaint will require a contractor to comply

with MOE sound level criteria for construction equipment contained in the MOE Model Municipal Noise Control By-law. Subject to the results of field investigation, alternative noise control measures will be required, where these are reasonably available; and

(f) In selecting the appropriate construction noise control and mitigation measures, MTC will give consideration to the technical, administrative, and economic feasibility of the various alternatives.

9. Miscellaneous

(a) All future technical documents referred to in this agreement and prepared to become part of the Protocol shall be jointly approved by MOE and MTC. These include:

- ambient levels in rural areas where predictions cannot be done;
- general construction noise control measures; and
- any other alterations to this Protocol

(b) As the intent of this Protocol will be followed during their preparation, joint MOE/MTC approval is not required for MOE or MTC procedural/operational documents such as:

- internal directives;
- contract documents; and
- E.A. procedural/technical guidelines.

Table 1: SUMMARY OF MITIGATION EFFORT

CHANGE IN NOISE LEVEL ABOVE AMBIENT	MITIGATION EFFORT
0 - 5 dBA	-None
> 5 dBA	<ul style="list-style-type: none">- Investigate noise control measures on R.O.W.- If project cost is not significantly affected introduce noise control measures within R.O.W.- Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row receivers.- Mitigate to ambient, as administratively, economically, and technically feasible.

Yonge Street Corridor – Public Transit Improvements Environmental Assessment
Noise and Vibration Impact Assessment



TORONTO TRANSIT COMMISSION



MICHAEL COLLE
CHAIR
BEV SALMON
VICE-CHAIR

PAUL CHRISTIE
LOIS GRIFFIN
BRIAN HARRISON
HOWARD MOSCOE
ALAN TONKS
COMMISSIONERS

ALLAN LEACH
CHIEF GENERAL MANAGER
ARNOLD S. DUBÉ
GENERAL SECRETARY

June 15, 1993

Mr. L. Kende
Head - Noise Unit
Ministry of Environment and Energy
250 Davisville Avenue
3rd Floor
Toronto, Ontario
M4S 1H2

Rec'd EA Branch
June 18, 1993

83
1

Dear Mr. Kende:

Re: Sheppard Subway Environmental Assessment -
Noise and Vibration Protocol

With reference to the Environmental Assessment Report for the Sheppard Subway, submitted to MOEE on October 5, 1992, attached for your approval is a copy of the Noise and Vibration Protocol for this project.

This protocol is the end result of extensive consultation with staff of your Ministry and with staff of the Commission's Engineering, Plant, Legal and Equipment Departments. We wish to thank the representatives of your Ministry who have worked cooperatively and effectively to reach consensus on this protocol.

If you have any questions or issues related to this protocol, please contact me at your earliest convenience.

Yours very truly,

D.R. Callan, P. Eng.
Manager -
Rapid Transit Expansion Program

84-JJ-GWM
T2003/1438

Attachment

Copy to: Mr. S. Bastien - MOEE E.A. Branch
Mr. S. Skelton - MTO
Mr. M.D. Harmelink - MTO
Mr. D. Birnbaum - MOEE Approvals Branch

251

MOEE/TTC
PROTOCOL FOR NOISE AND
VIBRATION ASSESSMENT FOR THE
PROPOSED SHEPPARD SUBWAY

JUNE 15, 1993

TABLE OF CONTENTS

PART A. PURPOSE - 1 -

PART B. GENERAL - 1 -

PART C. DEFINITIONS - 2 -

PART D. AIR-BORNE NOISE - 3 -

 1.0 DEFINITIONS - 3 -

 2.0 RAIL TRANSIT - 3 -

 2.1 Criteria - 4 -

 2.2 Prediction - 4 -

 3.0 ANCILLARY FACILITIES - 5 -

 4.0 BUSES IN MIXED TRAFFIC - 5 -

 5.0 CONSTRUCTION - 5 -

PART E. GROUND-BORNE VIBRATION - 6 -

 1.0 DEFINITIONS - 6 -

 2.0 VIBRATION ASSESSMENT - 6 -

RTEP Profile #1405

PROTOCOL FOR NOISE AND VIBRATION ASSESSMENT

PART A. PURPOSE

The Toronto Transit Commission (TTC) and the Ministry of the Environment and Energy (MOEE) recognize that transit facilities produce noise and vibration which may affect neighbouring properties within urbanized areas. This document identifies the framework within which criteria will be applied for limiting wayside air-borne noise, ground-borne noise and vibration from the TTC's proposed Sheppard Subway Line (the "Line"). The framework presented in this document is to be applied for planning purposes in order to address the requirements of the Environmental Assessment Act and is to be utilized during implementation of the Line.

The passby sound levels and vibration velocities in this protocol have been developed specifically for the Line and this protocol is not to be applied retroactively to existing TTC transit lines, routes or facilities nor to transit authorities other than TTC. Further, the criteria specified for this project are not precedent setting for future projects.

Prediction and measurement methods are being developed by the TTC. This will be done in consultation with MOEE and the Ministry of Transportation (MTO). Studies pertaining to noise and vibration levels are also being conducted by TTC. Upon completion of these studies, the TTC may revisit the assessment criteria and methods in this protocol to modify them as required in consultation with MOEE and the Ministry of Transportation (MTO).

PART B. GENERAL

During design of the Line, predicted wayside sound levels and vibration velocities are to be compared to criteria given in this protocol. This will permit an impact assessment and help determine the type or extent of mitigation measures to reduce that impact. Sound levels and vibration velocities will be predicted from sound levels and velocities of TTC's existing rail technologies.

The criteria presented in this document are based on good operating conditions and the impact assessment assumes this condition. Good operating conditions exist when well maintained vehicles operate on well maintained continuous welded rail without significant rail corrugation. It is recognised that wheel flats or rail corrugations will inevitably occur and will temporarily increase sound and vibration levels until they are corrected. Levels in this protocol do not reflect these occasional events, nor do they apply to maintenance activities on the Line. TTC recognizes that wheel rail squeal is a potential source of noise which may pose a concern to the community. TTC is investigating and will continue to investigate measures to mitigate wheel rail squeal and will endeavour to mitigate this noise source. TTC endeavours to minimize the noise and vibration impacts associated with its transit operations and is committed to providing good operating conditions to the extent technologically, economically and administratively feasible.

It is recognised that levels of sound and vibration at special trackwork, such as at crossovers and turnouts, are inevitably higher than along tangent track. Also, there is a limit to the degree of mitigation that is feasible at special trackwork areas. This is to be taken into

- 2 -

account in predicting sound and vibration levels near these features and in applying the levels in this protocol. Special trackwork, such as at crossovers and turnouts, is encompassed within the framework of this document.

This protocol applies to existing and proposed residential development having municipal approval on the date of this protocol. The protocol also applies to existing and municipally approved proposed nursing homes, group homes, hospitals and other such institutional land uses where people reside. This protocol does not apply to commercial and industrial land uses.

This protocol does not apply closer than 15 m to the centreline of the nearest track. Any such cases shall be assessed on a case by case basis.

Part D of this document deals with air-borne noise from the Line and its construction. Part E deals with ground-borne noise and vibration from the Line.

PART C. DEFINITIONS

The following definitions apply to both parts D and E of this document.

Ancillary Facilities:

Subsidiary locations associated with either the housing of personnel or equipment engaged in TTC activities or associated with mainline revenue operations. Examples of ancillary facilities include, but are not limited to, subway stations, bus terminals, emergency services buildings, fans, fan and vent shafts, substations, mechanical equipment plants, maintenance and storage facilities, and vehicle storage and maintenance facilities.

Passby Time Interval:

The passby time interval of a vehicle or train is given by its total length and its speed. The start of the pass-by is defined as that point in time when the leading wheels pass a reference point. The end of the pass-by is defined as that point in time when the last wheels of the vehicle or train pass the same reference point. The reference point is to be chosen to give the highest level at the point of reception or point of assessment, i.e. usually at the point of closest approach. From a signal processing perspective, the passby time interval will be defined in the prediction and measurement methods being developed.

PART D. AIR-BORNE NOISE

1.0 DEFINITIONS

The following definitions are to be used only within the context of Part D of this document.

Ambient:

The ambient is the sound existing at the point of reception in the absence of all noise from the Line. In this protocol the ambient is taken to be the noise from road traffic and existing industry. The ambient specifically excludes transient noise from aircraft and railways, except for pre-existing TTC rail operations.

Daytime Equivalent Sound Level:

$L_{eq,16h}$ is the daytime equivalent sound level. The definition of equivalent sound level is provided in Reference 2. The applicable time period is from 07:00 to 23:00 hours.

Nighttime Equivalent Sound Level:

$L_{eq,8h}$ is the nighttime equivalent sound level. The applicable time period is from 23:00 to 07:00 hours.

Point of Reception:

Daytime: 07:00 - 23:00 hours

Any outdoor point on residential property, 15 m or more from the nearest track's centreline, where sound originating from the Line is received.

Nighttime: 23:00 - 07:00 hours

The plane of any bedroom window, 15 m or more from the nearest track's centreline, where sound originating from the Line is received. At the planning stage, this is usually assessed at the nearest facade of the premises.

Passby Sound Level, L_{passby} :

Within the context of this document, the passby sound level is defined as the A-weighted equivalent sound level, L_{eq} [Reference 2] over the passby time interval.

2.0 RAIL TRANSIT

In the assessment of noise impact, rail transit is considered to include the movement of trains between stations, the movement and idling of trains inside stations as well as the movement of trains between the mainline and ancillary facilities. Ancillary facilities are not considered part of the rail transit and are assessed as stationary

- 4 -

sources. Trains idling in maintenance yards and storage facilities are part of the stationary source.

The assessment of noise impact resulting from Line is to be performed in terms of the following sound level descriptors:

- 1) Daytime equivalent sound level, $L_{eq,16hr}$,
- 2) Nighttime equivalent sound level, $L_{eq,8hr}$,
- 3) Passby Sound Level, L_{passby} .

The predicted daytime and nighttime equivalent sound levels include the effects of both passby sound level and frequency of operation and are used to assess the noise impact of the Line. The Passby Sound Level criterion is used to assess the sound levels received during a single train passby. The criteria and methods to be used are discussed in Sections 2.1 and 2.2.

2.1 Criteria

Noise impact shall be predicted and assessed during design of the Line using the following sound level criteria:

DAYTIME EQUIVALENT SOUND LEVEL:

The limit at a point of reception for the predicted daytime equivalent sound levels for rail transit operating alone (excluding contributions from the ambient) is 55 dBA or the ambient $L_{eq,16hr}$, whichever is higher.

NIGHTTIME EQUIVALENT SOUND LEVEL:

The limit at a point of reception for the predicted nighttime equivalent sound levels for rail transit operating alone (excluding contributions from the ambient) is 50 dBA or the ambient $L_{eq,8hr}$, whichever is higher.

PASSBY SOUND LEVEL:

The limit at a point of reception for predicted L_{passby} for a single train operating alone and excluding contributions from other sources is 80 dBA. This limit is based on vehicles operating on tangent track. It does not apply within 100m of special trackwork and excludes wheel rail squeal.

Mitigating measures will be incorporated in the design of the Line when predictions show that any of the above limits are exceeded by more than 5 dB. All mitigating measures shall ensure that the predicted sound levels are as close to, or lower than, the respective limits as is technologically, economically, and administratively feasible.

- 5 -

2.2 Prediction

In most cases, a reasonable estimate of the ambient sound level can be made using a road traffic noise prediction method such as that described in Reference 9, and the minimum sound levels in Table 106-2 of Reference 6. Prediction of road traffic L_{eq} is preferred to individual measurements in establishing the ambient. Prediction techniques for the L_{eq} from road traffic and the L_{eq} or L_{passby} from transit shall be compatible with one another. Any impact assessment following this protocol shall include a description of the prediction method and the assumptions and sound level data inherent in it. Prediction and measurement methods compatible with MOEE guidelines and procedures are being developed by the TTC at the date of this protocol in consultation with MTO and MOEE.

3.0 ANCILLARY FACILITIES

Predicted noise impacts from ancillary facilities shall be assessed during the design of the Line in accordance with the stationary source guidelines detailed in Reference 5. The predictions used shall be compatible with and at least as accurate as CSA Standard Z107.55.

4.0 BUSES IN MIXED TRAFFIC

Where buses are part of the road traffic there are no additional criteria requirements beyond those presented in the Ministry of Transportation of Ontario Protocol for dealing with noise concerns during the preparation, review and evaluation of Provincial Highways Environmental Assessments [Reference 1]. Buses should be considered as medium trucks in the traffic noise prediction models.

5.0 CONSTRUCTION

Noise impacts from the construction of the Line are to be examined. For the purposes of impact assessment and identifying the need for mitigation, the Ministry of the Environment and Energy guidelines for construction presented in Reference 7 are to be referred to.

256

- 6 -

PART E. GROUND-BORNE VIBRATION

The assessment of ground-borne vibration impact is confined to the vibration that is produced by the operation of the Line and excludes vibration due to maintenance activities.

In recognition of the fact that the actual vibration response of a building is affected by its own structural characteristics, this document deals with the assessment of ground-borne vibration only on the outside premises. Structural characteristics of buildings are beyond the scope of this protocol and beyond the control of the TTC.

It is recognised that ground-borne vibration can produce air-borne noise inside a structure and there is a direct correlation between the two. The TTC can only control ground-borne noise by controlling ground-borne vibration. Accordingly, ground-borne noise will be predicted and assessed in terms of vibration measured at a point of assessment using the limit in Section 2.0, Vibration Assessment.

1.0 DEFINITIONS

The following definitions are to be used only within the context of Part E of this document.

Point of Assessment:

A point of assessment is any outdoor point on residential property, 15 m or more from the nearest track's centreline, where vibration originating from the Line is received.

Vibration Velocity:

Vibration Velocity is the root-mean-square (rms) vibration velocity assessed during a train pass-by. The unit of measure is metres per second (m/s) or millimetres per second (mm/s). For the purposes of this protocol only vertical vibration is assessed. The vertical component of transit vibration is usually higher than the horizontal. Human sensitivity to horizontal vibration at the frequencies of interest is significantly less than the sensitivity to vertical vibration.

2.0 VIBRATION ASSESSMENT

Vibration velocities at points of assessment shall be predicted during design of the Line. If the predicted rms vertical vibration velocity from the Line exceeds 0.1 mm/sec, mitigation methods shall be applied during the detailed design to meet this criterion to the extent technologically, economically, and administratively feasible. Where it is suitable, a double tie system or its equivalent will be the mitigation method of choice. This is a state of the art vibration isolation system developed by TTC and used where vibration isolation is required on new underground lines (see Reference 8).

Any impact assessment following this protocol shall include a description of the prediction method and the assumptions and data inherent in it. Prediction and measurement methods are being developed by the TTC at the date of this protocol in cooperation with MTO and MOEE.

257

- 7 -

References

- 1) **A Protocol for Dealing With Noise Concerns During the Preparation, Review and Evaluation of Provincial Highways Environmental Assessments**, Ministry of Transportation, February 1986.
- 2) **Model Municipal Noise Control By-Law, Final Report, Publication NPC-101 Technical Definitions**, Ministry of the Environment, August 1978.
- 3) **Model Municipal Noise Control By-Law, Final Report, Publication NPC-103 Procedures**, Ministry of the Environment, August 1978.
- 4) **Model Municipal Noise Control By-Law, Final Report, Publication NPC-104 Sound Level Adjustments**, Ministry of the Environment, August 1978.
- 5) **Model Municipal Noise Control By-Law, Final Report, Publication NPC-105 Stationary Sources**, Ministry of the Environment, August 1978.
- 6) **Model Municipal Noise Control By-Law, Final Report, Publication NPC-106 Sound Levels of Road Traffic**, Ministry of the Environment, August 1978.
- 7) **Noise Control Guideline For Class Environmental Assessment of Undertakings**, February 1980, Ministry of the Environment.
- 8) **Toronto Subway System Track Vibration Isolation System (Double Tie) - Technical Report**, TTC Engineering Department, June 1982.
- 9) **STAMSON 4.1**, Ontario Ministry of the Environment Road and Rail Noise Prediction Software

Publication NPC-115

Construction Equipment

1.	<u>Scope</u>	This Publication sets sound emission standards for various items of new construction equipment according to the date of manufacture of the equipment.
2.	<u>Technical Definitions</u>	The technical terms used in this Publication are defined in Publication NPC-101 - Technical Definitions.
3.	<u>Sound Emission Standards</u>	Tables 115-1 to 115-4 inclusive list Residential Area sound emission standards and Quiet Zone sound emission standards for specific items of new construction equipment measured in accordance with the procedures indicated.

TABLE 115-1

Quiet Zone and Residential Area Sound Emission Standards for
Excavation Equipment, Dozers, Loaders, Backhoes or
Other Equipment Capable of Being Used for
Similar Application

Maximum Sound Level as determined using Publication NPC-103 - Procedures, section 6		
	dBA	
	Power Rating	Power Rating
Date of Manufacture	Less than 75 kW	75 kW and larger
January 1, 1979 to December 31, 1980	85	88
January 1, 1981 and after	83	85

*Yonge Street Corridor – Public Transit Improvements Environmental Assessment
Noise and Vibration Impact Assessment*

NPC-115

TABLE 115-2

Sound Emission Standards for Pneumatic Pavement Breakers

Standard	Date of Manufacture	Maximum Sound Level as measured using Publication NPC-103 - Procedures, section 7 dBA
Quiet Zone Sound Emission and after Standard	Jan. 1, 1979	85
Residential Area Sound Emission Standard	Jan. 1, 1979 to Dec. 31 1980	90
	Jan. 1, 1981 and after	85

TABLE 115-3

Sound Emission Standards for Portable Air Compressors

Standard	Date of Manufacture	Maximum Sound Level as measured using Publication NPC-103 - Procedures, section 7 dBA
Quiet Zone Sound Emission Standard	Jan. 1, 1979 to Dec. 31, 1980	76
	Jan. 1, 1981 and after	70
Residential Area Sound Emission Standard	Jan. 1, 1979 and after	76

NPC-115

TABLE 115-4

Sound Emission Standard for Tracked Drills

Standard	Date of Manufacture	Maximum Sound Level as measured using Publication NPC-103 - Procedures, section 6. dBA
Quiet Zone and Residential Area Sound Emission Standard	Jan. 1, 1981 and after	100



Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)
Publication NPC-205

October 1995

This Publication establishes sound level limits for stationary sources such as industrial and commercial establishments or ancillary transportation facilities, affecting points of reception in Class 1 and 2 Areas (Urban). It replaces Publication NPC-105 "Stationary Sources" of the "Model Municipal Noise Control By-Law, Final Report, August 1978".

TABLE OF CONTENTS

1.	SCOPE	- 1 -
2.	REFERENCES	- 2 -
3.	TECHNICAL DEFINITIONS	- 2 -
4.	ESTABLISHMENT OF LIMITS - OBJECTIVE	- 3 -
5.	BACKGROUND SOUND LEVELS	- 3 -
6.	SOUND LEVELS DUE TO STATIONARY SOURCES	- 3 -
	(1) Complaint Investigation of Stationary Sources	- 3 -
	(2) Approval of Stationary Sources	- 3 -
7.	PROCEDURES	- 4 -
8.	SOUND LEVEL LIMITS - GENERAL	- 4 -
9.	SOUND LEVEL LIMITS - SPECIFIC IMPULSIVE SOUNDS	- 4 -
10.	SOUND LEVEL LIMITS - PEST CONTROL DEVICES	- 4 -
11.	PROHIBITION - PEST CONTROL DEVICES	- 5 -
12.	PRE-EMPTION	- 5 -
13.	EXCLUSION	- 5 -
A.1.	GENERAL	- A 1 -
A.2.	APPLICATION	- A 1 -
A.3.	STATIONARY SOURCES	- A 1 -
	(1) Included Sources	- A 1 -
	(2) Excluded Sources	- A 2 -
A.4.	PREDICTABLE WORST CASE IMPACT	- A 2 -
A.5.	DEFINITIONS	- A 3 -

1. SCOPE

This Publication establishes sound level limits for stationary sources such as industrial and commercial establishments or ancillary transportation facilities, affecting points of reception in Class 1 and 2 Areas (Urban). The limits apply to noise complaint investigations carried out in order to determine potential violation of Section 14 of the Environmental Protection Act. The limits also apply to the assessment of planned stationary sources of sound in compliance with Section 9 of the Environmental Protection Act, and under the provisions of the Aggregate Resources Act and the Environmental Assessment Act.



This Publication does not address sound and vibration produced by blasting; blasting in quarries and surface mines is considered in Reference [7].

The Publication includes an Annex, which provides additional details, definitions and rationale for the sound level limits.

2. REFERENCES

Reference is made to the following publications:

- [1] NPC-101 - Technical Definitions
- [2] NPC-102 - Instrumentation
- [3] NPC-103 - Procedures
- [4] NPC-104 - Sound Level Adjustments
- [6] NPC-206 - Sound Levels due to Road Traffic
- [7] NPC-119 - Blasting
- [8] NPC-216 - Residential Air Conditioning Devices
- [9] NPC-232 - Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)
- [10] NPC-233 - Information to be Submitted for Approval of Stationary Sources of Sound
- [12] ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Technical Document, Ontario Ministry of the Environment, ISBN 0-7729-6376, 1989

References [1] to [4] and [7] can be found in the Model Municipal Noise Control By-Law, Ontario Ministry of the Environment, Final Report, August 1978.

3. TECHNICAL DEFINITIONS

"Ambient sound level"
means Background sound level.

"Background sound level"
is the sound level that is present in the environment, produced by noise sources other than the source under impact assessment. Highly intrusive short duration noise caused by a source such as an aircraft fly-over or a train pass-by is excluded from the determination of the background sound level.

"Class 1 Area"
means an area with an acoustical environment typical of a major population centre, where the background noise is dominated by the urban hum.



"Class 2 Area"

means an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas, and in which a low ambient sound level, normally occurring only between 23:00 and 07:00 hours in Class 1 Areas, will typically be realized as early as 19:00 hours.

Other characteristics which may indicate the presence of a Class 2 Area include:

- absence of urban hum between 19:00 and 23:00 hours;
- evening background sound level defined by natural environment and infrequent human activity; and
- no clearly audible sound from stationary sources other than from those under impact assessment.

"Class 3 Area"

means a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as the following:

- a small community with less than 1000 population;
- agricultural area;
- a rural recreational area such as a cottage or a resort area; or
- a wilderness area.

Other technical terms are defined in Reference [1] and in the Annex to Publication NPC-205.

4. ESTABLISHMENT OF LIMITS - OBJECTIVE

The sound level limit at a point of reception must be established based on the principle of "predictable worst case" noise impact. In general, the limit is given by the background sound level at the point of reception. The sound level limit must represent the minimum background sound level that occurs or is likely to occur during the operation of the stationary source under impact assessment.

5. BACKGROUND SOUND LEVELS

The time interval between the background sound level measurement and the measurement of the sound level produced by the stationary source under impact assessment should be minimized as much as possible. Preferably, the two measurements should be carried out within one hour of each other.

6. SOUND LEVELS DUE TO STATIONARY SOURCES

(1) Complaint Investigation of Stationary Sources

The One Hour Equivalent Sound Level (L_{eq}) and/or the Logarithmic Mean Impulse Sound Level (L_{LM}) produced by the stationary sources shall be obtained by measurement performed in accordance with Section 7.

(2) Approval of Stationary Sources

The One Hour Equivalent Sound Level (L_{eq}) and/or the Logarithmic Mean Impulse Sound Level (L_{LM}) produced by the stationary sources shall be obtained by measurement or prediction. The estimation of the L_{eq} and/or L_{LM} of the stationary source under impact assessment shall reflect the principle of "predictable worst case" noise impact. The "predictable worst case" noise impact occurs during the hour when the difference between the predicted sound level produced by the stationary source and the background sound level of the natural environment is at a maximum.



7. PROCEDURES

All sound level measurements and calculations shall be made in accordance with References [3], [6] and [12].

Sound from existing adjacent stationary sources may be included in the determination of the background One Hour Equivalent Sound Level (L_{eq}) if such stationary sources of sound are not under consideration for noise abatement by the Municipality or the Ministry of Environment and Energy.

8. SOUND LEVEL LIMITS - GENERAL

- (1) For impulsive sound, other than Quasi-Steady Impulsive Sound, from a stationary source, the sound level limit expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}) is the background One Hour Equivalent Sound Level (L_{eq}) typically caused by road traffic as obtained pursuant to Section 6 for that point of reception.
- (2) For sound from a stationary source, including Quasi-Steady Impulsive Sound but not including other impulsive sound, the sound level limit expressed in terms of the One Hour Equivalent Sound Level (L_{eq}) is the background One Hour Equivalent Sound Level (L_{eq}) typically caused by road traffic as obtained pursuant to Section 6 for that point of reception.

9. SOUND LEVEL LIMITS - SPECIFIC IMPULSIVE SOUNDS

- (1) For impulsive sound, other than Quasi-Steady Impulsive Sound, from a stationary source which is an industrial metal working operation (including but not limited to forging, hammering, punching, stamping, cutting, forming and moulding), the sound level limit at a point of reception expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}) is 60 dBA, if the stationary source were operating before January 1, 1980, and otherwise is 50 dBA.
- (2) For impulsive sound, other than Quasi-Steady Impulsive Sound, from a stationary source which is the discharge of firearms on the premises of a licensed gun club, the sound level limit at a point of reception expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}) is:
 - 70 dBA if the gun club were operating before January 1, 1980; or
 - 50 dBA if the gun club began to operate after January 1, 1980, or
 - the L_{LM} prior to expansion, alteration or conversion.
- (3) For impulsive sound, other than Quasi-Steady Impulsive Sound, from a stationary source which is not a blasting operation in a surface mine or quarry, characterized by impulses which are so infrequent that they cannot normally be measured using the procedure for frequent impulses of Reference [3] the sound level limit at a point of reception expressed in terms of the impulse sound level is 100 dBA.

10. SOUND LEVEL LIMITS - PEST CONTROL DEVICES

- (1) For impulsive sound, other than Quasi-Steady Impulsive Sound, from a pest control device employed solely to protect growing crops, the sound level limit at a point of reception expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}) is 70 dBA.
- (2) For sound, including Quasi-Steady Impulsive Sound but not including other impulsive sound, from a pest control device employed solely to protect growing crops, the sound level limit at a point of reception expressed in terms of the One Hour Equivalent Sound Level (L_{eq}) is 60 dBA.



11. PROHIBITION - PEST CONTROL DEVICES

The operation of a pest control device employed solely to protect growing crops outdoors during the hours of darkness, sunset to sunrise, is prohibited.

12. PRE-EMPTION

The least restrictive sound level limit of Sections 8, 9 and 10 applies.

13. EXCLUSION

No restrictions apply to a stationary source resulting in a One Hour Equivalent Sound Level (L_{eq}) or a Logarithmic Mean Impulse Sound Level (L_{LM}) lower than the minimum values for that time period specified in Table 205-1.

TABLE 205-1

Minimum Values of One Hour L_{eq} or L_{LM} by Time of Day

Time of Day	One Hour L_{eq} (dBA) or L_{LM} (dBA)	
	Class 1 Area	Class 2 Area
0700 - 1900	50	50
1900 - 2300	47	45
2300 - 0700	45	45

APPENDIX B

**STAMSON DATA SHEETS
PREDICTED EXISTING (2005)
TRAFFIC SOUND LEVELS**

Filename: 2006r1.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Gam-Sto (day/night)

Car traffic volume : 10071/735 veh/TimePeriod *
Medium truck volume : 419/31 veh/TimePeriod *
Heavy truck volume : 255/19 veh/TimePeriod *
Posted speed limit : 79 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 11529
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.90
Heavy Truck % of Total Volume : 2.37
Day (16 hrs) % of Total Volume : 93.20

Data for Segment # 1: Y_NB_Gam-Sto (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 21.00 / 25.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.52 m
Barrier receiver distance : 3.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Gam-Sto (day/night)

```

-----
Car traffic volume : 10572/1021 veh/TimePeriod *
Medium truck volume : 326/31 veh/TimePeriod *
Heavy truck volume : 265/26 veh/TimePeriod *
Posted speed limit : 61 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 12241
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.92
Heavy Truck % of Total Volume : 2.37
Day (16 hrs) % of Total Volume : 91.19
  
```

Data for Segment # 2: Y_SB-Gam-Sto (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 33.00 / 37.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.52 m
Barrier receiver distance : 3.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: Y_NB_Gam-Sto (day)

Source height = 1.24 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.24 ! 1.50 ! 1.46 ! 1.46
  
```

ROAD (0.00 + 62.92 + 0.00) = 62.92 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.00 69.40 0.00 -1.46 0.00 0.00 0.00 0.00 -5.02 62.92
-----
  
```

Segment Leq : 62.92 dBA

Results segment # 2: Y_SB-Gam-Sto (day)

Source height = 1.24 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.24	1.50	1.48	1.48

ROAD (0.00 + 58.47 + 0.00) = 58.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.90	0.00	-3.42	0.00	0.00	0.00	-5.01	58.47

Segment Leq : 58.47 dBA

Total Leq All Segments: 64.25 dBA

Results segment # 1: Y_NB_Gam-Sto (night)

Source height = 1.25 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.25	4.50	3.59	3.59

ROAD (0.00 + 58.87 + 0.00) = 58.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.09	0.00	-2.22	0.00	0.00	0.00	-0.21	58.66*
-90	90	0.00	61.09	0.00	-2.22	0.00	0.00	0.00	0.00	58.87

* Bright Zone !

Segment Leq : 58.87 dBA

Results segment # 2: Y_SB-Gam-Sto (night)

Source height = 1.25 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.25 ! 4.50 ! 3.88 ! 3.88

ROAD (0.00 + 55.86 + 0.00) = 55.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.78	0.00	-3.92	0.00	0.00	0.00	-0.18	55.69*
-90	90	0.00	59.78	0.00	-3.92	0.00	0.00	0.00	0.00	55.86

* Bright Zone !

Segment Leq : 55.86 dBA

Total Leq All Segments: 60.63 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.25
(NIGHT): 60.63

Filename: 2006R2.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Sto-Kin (day/night)

Car traffic volume : 9419/687 veh/TimePeriod *
Medium truck volume : 528/39 veh/TimePeriod *
Heavy truck volume : 320/23 veh/TimePeriod *
Posted speed limit : 79 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 11016
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.14
Heavy Truck % of Total Volume : 3.12
Day (16 hrs) % of Total Volume : 93.20

Data for Segment # 1: Y_NB_Sto-Kin (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 18.00 / 22.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Sto-Kin (day/night)

```

-----
Car traffic volume : 10066/973   veh/TimePeriod *
Medium truck volume : 484/47    veh/TimePeriod *
Heavy truck volume : 393/38    veh/TimePeriod *
Posted speed limit : 62 km/h
Road gradient      : 0 %
Road pavement     : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 12000
Percentage of Annual Growth      : 0.00
Number of Years of Growth        : 0.00
Medium Truck % of Total Volume   : 4.42
Heavy Truck % of Total Volume    : 3.59
Day (16 hrs) % of Total Volume  : 91.19

```

Data for Segment # 2: Y_SB-Sto-Kin (day/night)

```

-----
Angle1  Angle2      : -90.00 deg  90.00 deg
Wood depth      : 0 (No woods.)
No of house rows : 0 / 0
Surface        : 2 (Reflective ground surface)
Receiver source distance : 32.00 / 36.00 m
Receiver height : 1.50 / 4.50 m
Topography     : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Sto-Kin (day)

Source height = 1.33 m

ROAD (0.00 + 69.10 + 0.00) = 69.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.89	0.00	-0.79	0.00	0.00	0.00	0.00	69.10

Segment Leq : 69.10 dBA

Results segment # 2: Y_SB-Sto-Kin (day)

Source height = 1.38 m

ROAD (0.00 + 64.83 + 0.00) = 64.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.12	0.00	-3.29	0.00	0.00	0.00	0.00	64.83

Segment Leq : 64.83 dBA

Total Leq All Segments: 70.48 dBA

Results segment # 1: Y_NB_Sto-Kin (night)

Source height = 1.32 m

ROAD (0.00 + 59.86 + 0.00) = 59.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.52	0.00	-1.66	0.00	0.00	0.00	0.00	59.86

Segment Leq : 59.86 dBA

Results segment # 2: Y_SB-Sto-Kin (night)

Source height = 1.38 m

ROAD (0.00 + 57.19 + 0.00) = 57.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.99	0.00	-3.80	0.00	0.00	0.00	0.00	57.19

Segment Leq : 57.19 dBA

Total Leq All Segments: 61.74 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.48
(NIGHT): 61.74

Filename: 2006R3.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_NLa-Bla (day/night)

Car traffic volume : 11046/874 veh/TimePeriod *
Medium truck volume : 550/44 veh/TimePeriod *
Heavy truck volume : 334/26 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12874
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.61
Heavy Truck % of Total Volume : 2.80
Day (16 hrs) % of Total Volume : 92.67

Data for Segment # 1: Y_NB_NLa-Bla (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 18.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 4.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-NLa-Bla (day/night)

```

-----
Car traffic volume : 11347/1022 veh/TimePeriod *
Medium truck volume : 443/40 veh/TimePeriod *
Heavy truck volume : 360/32 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
    
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13244
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.65
Heavy Truck % of Total Volume : 2.96
Day (16 hrs) % of Total Volume : 91.74
    
```

Data for Segment # 2: Y_SB-NLa-Bla (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 27.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 4.00 / 2.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
    
```

Results segment # 1: Y_NB_NLa-Bla (day)

Source height = 1.29 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.29 ! 1.50 ! 1.44 ! 1.44
    
```

ROAD (0.00 + 61.38 + 0.00) = 61.38 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.58 67.71 0.00 0.00 -1.31 0.00 0.00 -5.02 61.38
-----
    
```

Segment Leq : 61.38 dBA

Results segment # 2: Y_SB-NLa-Bla (day)

Source height = 1.31 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.31 !	1.50 !	1.47 !	1.47

ROAD (0.00 + 59.07 + 0.00) = 59.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.63	0.00	-2.55	0.00	0.00	0.00	-5.00	59.07

Segment Leq : 59.07 dBA

Total Leq All Segments: 63.39 dBA

Results segment # 1: Y_NB_NLa-Bla (night)

Source height = 1.29 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.29 !	4.50 !	3.25 !	3.25

ROAD (0.00 + 57.12 + 0.00) = 57.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	59.68	0.00	-1.18	-1.15	0.00	0.00	-0.25	57.10*
-90	90	0.58	59.68	0.00	-1.25	-1.31	0.00	0.00	0.00	57.12

* Bright Zone !

Segment Leq : 57.12 dBA

Results segment # 2: Y_SB-NLa-Bla (night)

Source height = 1.31 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
1.31 !	4.50 !	4.29 !	4.29

ROAD (0.00 + 56.00 + 0.00) = 56.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.15	0.00	-3.15	0.00	0.00	0.00	-0.06	55.95*
-90	90	0.00	59.15	0.00	-3.15	0.00	0.00	0.00	0.00	56.00

* Bright Zone !

Segment Leq : 56.00 dBA

Total Leq All Segments: 59.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.39
(NIGHT): 59.61

Filename: 2006r4.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Bla-Blo (day/night)

Car traffic volume : 10629/841 veh/TimePeriod *
Medium truck volume : 511/40 veh/TimePeriod *
Heavy truck volume : 310/25 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12356
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.46
Heavy Truck % of Total Volume : 2.71
Day (16 hrs) % of Total Volume : 92.67

Data for Segment # 1: Y_NB_Bla-Blo (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 42.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Bla-Blo (day/night)

```

-----
Car traffic volume : 11227/1011 veh/TimePeriod *
Medium truck volume : 443/40 veh/TimePeriod *
Heavy truck volume : 360/32 veh/TimePeriod *
Posted speed limit : 55 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13113
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.68
Heavy Truck % of Total Volume : 2.99
Day (16 hrs) % of Total Volume : 91.74

```

Data for Segment # 2: Y_SB-Bla-Blo (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Bla-Blo (day)

Source height = 1.28 m

ROAD (0.00 + 59.13 + 0.00) = 59.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.28	0.00	-6.70	-1.46	0.00	0.00	0.00	59.13

Segment Leq : 59.13 dBA

Results segment # 2: Y_SB-Bla-Blo (day)

Source height = 1.32 m

ROAD (0.00 + 61.24 + 0.00) = 61.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.94	0.00	-4.24	-1.46	0.00	0.00	0.00	61.24

Segment Leq : 61.24 dBA

Total Leq All Segments: 63.32 dBA

Results segment # 1: Y_NB_Bla-Blo (night)

Source height = 1.29 m

ROAD (0.00 + 50.94 + 0.00) = 50.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.31	0.00	-7.05	-1.31	0.00	0.00	0.00	50.94

Segment Leq : 50.94 dBA

Results segment # 2: Y_SB-Bla-Blo (night)

Source height = 1.31 m

ROAD (0.00 + 53.19 + 0.00) = 53.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.47	0.00	-4.97	-1.31	0.00	0.00	0.00	53.19

Segment Leq : 53.19 dBA

Total Leq All Segments: 55.22 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.32
(NIGHT): 55.22

Filename: 2006r5.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Blo-Ind (day/night)

Car traffic volume : 8443/646 veh/TimePeriod *
Medium truck volume : 386/30 veh/TimePeriod *
Heavy truck volume : 235/18 veh/TimePeriod *
Posted speed limit : 76 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 9758
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.26
Heavy Truck % of Total Volume : 2.59
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Blo-Ind (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 44.00 / 48.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Car traffic volume : 8331/752 veh/TimePeriod *
Medium truck volume : 251/23 veh/TimePeriod *
Heavy truck volume : 204/18 veh/TimePeriod *
Posted speed limit : 64 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 9579
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.86
Heavy Truck % of Total Volume : 2.32
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 / 57.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Blo-Ind (day)

Source height = 1.27 m

ROAD (0.00 + 59.29 + 0.00) = 59.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	68.50	0.00	-7.76	-1.46	0.00	0.00	0.00	59.29

Segment Leq : 59.29 dBA

Results segment # 2: Y_SB-Blo-Ind (day)

Source height = 1.23 m

ROAD (0.00 + 55.70 + 0.00) = 55.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.25	0.00	-9.10	-1.46	0.00	0.00	0.00	55.70

Segment Leq : 55.70 dBA

Total Leq All Segments: 60.87 dBA

Results segment # 1: Y_NB_Blo-Ind (night)

Source height = 1.27 m

ROAD (0.00 + 51.09 + 0.00) = 51.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	60.37	0.00	-7.97	-1.31	0.00	0.00	0.00	51.09

Segment Leq : 51.09 dBA

Results segment # 2: Y_SB-Blo-Ind (night)

Source height = 1.23 m

ROAD (0.00 + 48.32 + 0.00) = 48.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	58.79	0.00	-9.15	-1.32	0.00	0.00	0.00	48.32

Segment Leq : 48.32 dBA

Total Leq All Segments: 52.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.87
(NIGHT): 52.93

Filename: 2006r6.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Blo-Ind (day/night)

Car traffic volume : 8443/646 veh/TimePeriod *
Medium truck volume : 386/30 veh/TimePeriod *
Heavy truck volume : 235/18 veh/TimePeriod *
Posted speed limit : 76 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 9758
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.26
Heavy Truck % of Total Volume : 2.59
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Blo-Ind (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 44.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Car traffic volume : 8331/752 veh/TimePeriod *
Medium truck volume : 251/23 veh/TimePeriod *
Heavy truck volume : 204/18 veh/TimePeriod *
Posted speed limit : 64 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 9579
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.86
Heavy Truck % of Total Volume : 2.32
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 34.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Blo-Ind (day)

Source height = 1.27 m

ROAD (0.00 + 59.98 + 0.00) = 59.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	68.50	0.00	-7.07	-1.46	0.00	0.00	0.00	59.98

Segment Leq : 59.98 dBA

Results segment # 2: Y_SB-Blo-Ind (day)

Source height = 1.23 m

ROAD (0.00 + 59.80 + 0.00) = 59.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.25	0.00	-5.00	-1.46	0.00	0.00	0.00	59.80

Segment Leq : 59.80 dBA

Total Leq All Segments: 62.90 dBA

Results segment # 1: Y_NB_Blo-Ind (night)

Source height = 1.27 m

ROAD (0.00 + 51.15 + 0.00) = 51.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	60.37	0.00	-7.76	-1.46	0.00	0.00	0.00	51.15

Segment Leq : 51.15 dBA

Results segment # 2: Y_SB-Blo-Ind (night)

Source height = 1.23 m

ROAD (0.00 + 51.43 + 0.00) = 51.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.79	0.00	-5.90	-1.46	0.00	0.00	0.00	51.43

Segment Leq : 51.43 dBA

Total Leq All Segments: 54.30 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.90
(NIGHT): 54.30

Filename: 2006r7.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12366/947 veh/TimePeriod *
Medium truck volume : 376/29 veh/TimePeriod *
Heavy truck volume : 228/17 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 13963
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.90
Heavy Truck % of Total Volume : 1.76
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Indus_Hend N (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 48.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Elevation : 0.00 m
Barrier receiver distance : 15.00 / 18.00 m
Source elevation : 0.00 m
Receiver elevation : 3.65 m
Barrier elevation : 3.65 m
Reference angle : 0.00

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

```

-----
Car traffic volume : 12406/1120 veh/TimePeriod *
Medium truck volume : 296/27 veh/TimePeriod *
Heavy truck volume : 241/22 veh/TimePeriod *
Posted speed limit : 46 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 14112
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.29
Heavy Truck % of Total Volume : 1.86
Day (16 hrs) % of Total Volume : 91.72
  
```

Data for Segment # 2: Indus_Hend S (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Elevation : 0.00 m
Barrier receiver distance : 15.00 / 18.00 m
Source elevation : 0.00 m
Receiver elevation : 3.65 m
Barrier elevation : 3.65 m
Reference angle : 0.00
  
```

Results segment # 1: Indus_Hend N (day)

Source height = 1.15 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.15 ! 1.50 ! 0.17 ! 3.82
  
```

ROAD (0.00 + 48.78 + 0.00) = 48.78 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.53 66.69 0.00 -7.28 -1.22 0.00 0.00 -9.41 48.78
-----
  
```

Segment Leq : 48.78 dBA

Results segment # 2: Indus_Hend S (day)

Source height = 1.17 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.17	1.50	-0.21	3.44

ROAD (0.00 + 46.85 + 0.00) = 46.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.53	64.33	0.00	-5.62	-1.22	0.00	0.00	-10.64	46.85

Segment Leq : 46.85 dBA

Total Leq All Segments: 50.93 dBA

Results segment # 1: Indus_Hend N (night)

Source height = 1.14 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.14	4.50	1.87	5.52

ROAD (0.00 + 44.81 + 0.00) = 44.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.44	58.50	0.00	-7.26	-1.05	0.00	0.00	-5.39	44.81

Segment Leq : 44.81 dBA

Results segment # 2: Indus_Hend S (night)

Source height = 1.17 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.17 ! 4.50 ! 1.19 ! 4.84

ROAD (0.00 + 43.17 + 0.00) = 43.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.44	56.93	0.00	-5.80	-1.05	0.00	0.00	-6.91	43.17

Segment Leq : 43.17 dBA

Total Leq All Segments: 47.08 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.93
(NIGHT): 47.08

Filename: 2006r8.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Hen-Ken (day/night)

Car traffic volume : 11543/884 veh/TimePeriod *
Medium truck volume : 370/28 veh/TimePeriod *
Heavy truck volume : 225/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 13067
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.05
Heavy Truck % of Total Volume : 1.85
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Hen-Ken (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 26.00 / 29.00 m
Receiver height : 1.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Hen-Ken (day/night)

Car traffic volume : 12206/1102 veh/TimePeriod *
Medium truck volume : 360/33 veh/TimePeriod *
Heavy truck volume : 292/26 veh/TimePeriod *
Posted speed limit : 47 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 14019
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.80
Heavy Truck % of Total Volume : 2.27
Day (16 hrs) % of Total Volume : 91.72

Data for Segment # 2: Y_SB-Hen-Ken (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.00 / 22.00 m
Receiver height : 1.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Y_NB_Hen-Ken (day)

Source height = 1.17 m

ROAD (0.00 + 62.59 + 0.00) = 62.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.98	0.00	-2.39	0.00	0.00	0.00	0.00	62.59

Segment Leq : 62.59 dBA

Results segment # 2: Y_SB-Hen-Ken (day)

Source height = 1.23 m

ROAD (0.00 + 64.02 + 0.00) = 64.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.04	0.00	-1.03	0.00	0.00	0.00	0.00	64.02

Segment Leq : 64.02 dBA

Total Leq All Segments: 66.37 dBA

Results segment # 1: Y_NB_Hen-Ken (night)

Source height = 1.16 m

ROAD (0.00 + 53.93 + 0.00) = 53.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.80	0.00	-2.86	0.00	0.00	0.00	0.00	53.93

Segment Leq : 53.93 dBA

Results segment # 2: Y_SB-Hen-Ken (night)

Source height = 1.22 m

ROAD (0.00 + 55.93 + 0.00) = 55.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.59	0.00	-1.66	0.00	0.00	0.00	0.00	55.93

Segment Leq : 55.93 dBA

Total Leq All Segments: 58.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.37
(NIGHT): 58.05

Filename: 2006r9.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Ken-Wel (day/night)

Car traffic volume : 12368/947 veh/TimePeriod *
Medium truck volume : 470/36 veh/TimePeriod *
Heavy truck volume : 286/22 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 14128
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.58
Heavy Truck % of Total Volume : 2.18
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Ken-Wel (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 21.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Ken-Wel (day/night)

```

-----
Car traffic volume : 11887/1073 veh/TimePeriod *
Medium truck volume : 331/30 veh/TimePeriod *
Heavy truck volume : 268/24 veh/TimePeriod *
Posted speed limit : 49 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13614
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.65
Heavy Truck % of Total Volume : 2.15
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Ken-Wel (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 28.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Ken-Wel (day)

Source height = 1.21 m

ROAD (0.00 + 64.30 + 0.00) = 64.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.76	0.00	-1.46	0.00	0.00	0.00	0.00	64.30

Segment Leq : 64.30 dBA

Results segment # 2: Y_SB-Ken-Wel (day)

Source height = 1.21 m

ROAD (0.00 + 62.42 + 0.00) = 62.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.13	0.00	-2.71	0.00	0.00	0.00	0.00	62.42

Segment Leq : 62.42 dBA

Total Leq All Segments: 66.47 dBA

Results segment # 1: Y_NB_Ken-Wel (night)

Source height = 1.22 m

ROAD (0.00 + 55.58 + 0.00) = 55.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.62	0.00	-2.04	0.00	0.00	0.00	0.00	55.58

Segment Leq : 55.58 dBA

Results segment # 2: Y_SB-Ken-Wel (night)

Source height = 1.21 m

ROAD (0.00 + 54.53 + 0.00) = 54.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.68	0.00	-3.15	0.00	0.00	0.00	0.00	54.53

Segment Leq : 54.53 dBA

Total Leq All Segments: 58.10 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.47
(NIGHT): 58.10

Filename: 2006r10.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Wel-Aur (day/night)

Car traffic volume : 10178/705 veh/TimePeriod *
Medium truck volume : 274/19 veh/TimePeriod *
Heavy truck volume : 167/12 veh/TimePeriod *
Posted speed limit : 49 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 11355
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.58
Heavy Truck % of Total Volume : 1.57
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Wel-Aur (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Wel-Aur (day/night)

Car traffic volume : 12841/1118 veh/TimePeriod *
Medium truck volume : 308/27 veh/TimePeriod *
Heavy truck volume : 251/22 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 14567
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.30
Heavy Truck % of Total Volume : 1.87
Day (16 hrs) % of Total Volume : 91.99

Data for Segment # 2: Y_SB-Wel-Aur (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 18.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Y_NB_Wel-Aur (day)

Source height = 1.12 m

ROAD (0.00 + 63.79 + 0.00) = 63.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.79	0.00	0.00	0.00	0.00	0.00	0.00	63.79

Segment Leq : 63.79 dBA

Results segment # 2: Y_SB-Wel-Aur (day)

Source height = 1.17 m

ROAD (0.00 + 63.25 + 0.00) = 63.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.25	0.00	0.00	0.00	0.00	0.00	0.00	63.25

Segment Leq : 63.25 dBA

Total Leq All Segments: 66.54 dBA

Results segment # 1: Y_NB_Wel-Aur (night)

Source height = 1.13 m

ROAD (0.00 + 55.27 + 0.00) = 55.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.27	0.00	0.00	0.00	0.00	0.00	0.00	55.27

Segment Leq : 55.27 dBA

Results segment # 2: Y_SB-Wel-Aur (night)

Source height = 1.17 m

ROAD (0.00 + 54.89 + 0.00) = 54.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.68	0.00	-0.79	0.00	0.00	0.00	0.00	54.89

Segment Leq : 54.89 dBA

Total Leq All Segments: 58.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.54
(NIGHT): 58.09

Filename: 2006r11.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Aur-Orc (day/night)

Car traffic volume : 8313/576 veh/TimePeriod *
Medium truck volume : 286/20 veh/TimePeriod *
Heavy truck volume : 174/12 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 9380
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.26
Heavy Truck % of Total Volume : 1.98
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Aur-Orc (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 29.00 / 32.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Aur-Orc (day/night)

```

-----
Car traffic volume : 8355/728 veh/TimePeriod *
Medium truck volume : 211/18 veh/TimePeriod *
Heavy truck volume : 171/15 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 9498
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.41
Heavy Truck % of Total Volume : 1.96
Day (16 hrs) % of Total Volume : 91.99

```

Data for Segment # 2: Y_SB-Aur-Orc (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.00 / 22.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Aur-Orc (day)

Source height = 1.19 m

ROAD (0.00 + 62.43 + 0.00) = 62.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.29	0.00	-2.86	0.00	0.00	0.00	0.00	62.43

Segment Leq : 62.43 dBA

Results segment # 2: Y_SB-Aur-Orc (day)

Source height = 1.18 m

ROAD (0.00 + 63.02 + 0.00) = 63.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.05	0.00	-1.03	0.00	0.00	0.00	0.00	63.02

Segment Leq : 63.02 dBA

Total Leq All Segments: 65.75 dBA

Results segment # 1: Y_NB_Aur-Orc (night)

Source height = 1.19 m

ROAD (0.00 + 53.41 + 0.00) = 53.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.71	0.00	-3.29	0.00	0.00	0.00	0.00	53.41

Segment Leq : 53.41 dBA

Results segment # 2: Y_SB-Aur-Orc (night)

Source height = 1.18 m

ROAD (0.00 + 54.80 + 0.00) = 54.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.46	0.00	-1.66	0.00	0.00	0.00	0.00	54.80

Segment Leq : 54.80 dBA

Total Leq All Segments: 57.17 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.75
(NIGHT): 57.17

Filename: 2006r12.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Orc-St. (day/night)

Car traffic volume : 8313/576 veh/TimePeriod *
Medium truck volume : 470/33 veh/TimePeriod *
Heavy truck volume : 285/20 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 9696
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.18
Heavy Truck % of Total Volume : 3.14
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Orc-St. (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 66.00 / 70.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Orc-St. (day/night)

```

-----
Car traffic volume : 11470/999   veh/TimePeriod  *
Medium truck volume :   173/15   veh/TimePeriod  *
Heavy truck volume  :   141/12   veh/TimePeriod  *
Posted speed limit  :    77 km/h
Road gradient       :    0 %
Road pavement      :    1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 12811
Percentage of Annual Growth      : 0.00
Number of Years of Growth        : 0.00
Medium Truck % of Total Volume   : 1.47
Heavy Truck % of Total Volume    : 1.20
Day (16 hrs) % of Total Volume   : 91.99

```

Data for Segment # 2: Y_SB-Orc-St. (day/night)

```

-----
Angle1  Angle2      : -90.00 deg   90.00 deg
Wood depth      : 0 (No woods.)
No of house rows : 0 / 0
Surface         : 2 (Reflective ground surface)
Receiver source distance : 77.00 / 81.00 m
Receiver height : 1.50 / 4.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Orc-St. (day)

Source height = 1.33 m

ROAD (0.00 + 63.06 + 0.00) = 63.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.49	0.00	-6.43	0.00	0.00	0.00	0.00	63.06

Segment Leq : 63.06 dBA

Results segment # 2: Y_SB-Orc-St. (day)

Source height = 1.05 m

ROAD (0.00 + 60.90 + 0.00) = 60.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.00	0.00	-7.10	0.00	0.00	0.00	0.00	60.90

Segment Leq : 60.90 dBA

Total Leq All Segments: 65.12 dBA

Results segment # 1: Y_NB_Orc-St. (night)

Source height = 1.34 m

ROAD (0.00 + 54.26 + 0.00) = 54.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.95	0.00	-6.69	0.00	0.00	0.00	0.00	54.26

Segment Leq : 54.26 dBA

Results segment # 2: Y_SB-Orc-St. (night)

Source height = 1.04 m

ROAD (0.00 + 53.06 + 0.00) = 53.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.39	0.00	-7.32	0.00	0.00	0.00	0.00	53.06

Segment Leq : 53.06 dBA

Total Leq All Segments: 56.71 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.12
(NIGHT): 56.71

Filename: 2006r13.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_St.-Mul (day/night)

Car traffic volume : 9596/639 veh/TimePeriod *
Medium truck volume : 208/14 veh/TimePeriod *
Heavy truck volume : 126/8 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 10591
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.09
Heavy Truck % of Total Volume : 1.27
Day (16 hrs) % of Total Volume : 93.76

Data for Segment # 1: Y_NB_St.-Mul (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 52.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-St.-Mul (day/night)

Car traffic volume : 11421/964 veh/TimePeriod *
Medium truck volume : 165/14 veh/TimePeriod *
Heavy truck volume : 135/11 veh/TimePeriod *
Posted speed limit : 51 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12710
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.41
Heavy Truck % of Total Volume : 1.15
Day (16 hrs) % of Total Volume : 92.22

Data for Segment # 2: Y_SB-St.-Mul (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 26.00 / 64.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: ST-EB-Y-IND (day/night)

Car traffic volume : 7884/756 veh/TimePeriod *
Medium truck volume : 103/10 veh/TimePeriod *
Heavy truck volume : 70/7 veh/TimePeriod *
Posted speed limit : 57 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 8830
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.28
Heavy Truck % of Total Volume : 0.87
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 3: ST-EB-Y-IND (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 77.00 / 127.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: ST-WB-Y-IND (day/night)

```

-----
Car traffic volume : 6757/572   veh/TimePeriod  *
Medium truck volume : 189/16    veh/TimePeriod  *
Heavy truck volume  : 117/10    veh/TimePeriod  *
Posted speed limit  : 60 km/h
Road gradient       : 0 %
Road pavement      : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 7660
Percentage of Annual Growth      : 0.00
Number of Years of Growth        : 0.00
Medium Truck % of Total Volume   : 2.67
Heavy Truck % of Total Volume    : 1.65
Day (16 hrs) % of Total Volume   : 92.19
  
```

Data for Segment # 4: ST-WB-Y-IND (day/night)

```

-----
Angle1  Angle2      : -90.00 deg   90.00 deg
Wood depth      : 0           (No woods.)
No of house rows : 0 / 0
Surface         : 2           (Reflective ground surface)
Receiver source distance : 70.00 / 120.00 m
Receiver height  : 1.50 / 10.50 m
Topography      : 1           (Flat/gentle slope; no barrier)
Reference angle  : 0.00
  
```

Segment # 1: Y_NB_St.-Mul (day)

Source height = 1.06 m

ROAD (0.00 + 64.98 + 0.00) = 64.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.98	0.00	0.00	0.00	0.00	0.00	0.00	64.98

Segment Leq : 64.98 dBA

Segment # 2: Y_SB-St.-Mul (day)

Source height = 1.04 m

ROAD (0.00 + 61.35 + 0.00) = 61.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.74	0.00	-2.39	0.00	0.00	0.00	0.00	61.35

Segment Leq : 61.35 dBA

Segment # 3: ST-EB-Y-IND (day)

Source height = 0.97 m

ROAD (0.00 + 55.69 + 0.00) = 55.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.79	0.00	-7.10	0.00	0.00	0.00	0.00	55.69

Segment Leq : 55.69 dBA

Segment # 4: ST-WB-Y-IND (day)

Source height = 1.13 m

ROAD (0.00 + 57.37 + 0.00) = 57.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.06	0.00	-6.69	0.00	0.00	0.00	0.00	57.37

Segment Leq : 57.37 dBA

Total Leq All Segments: 67.35 dBA

Segment # 1: Y_NB_St.-Mul (night)

Source height = 1.05 m

ROAD (0.00 + 50.76 + 0.00) = 50.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.16	0.00	-5.40	0.00	0.00	0.00	0.00	50.76

Segment Leq : 50.76 dBA

Segment # 2: Y_SB-St.-Mul (night)

Source height = 1.03 m

ROAD (0.00 + 49.65 + 0.00) = 49.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.96	0.00	-6.30	0.00	0.00	0.00	0.00	49.65

Segment Leq : 49.65 dBA

Segment # 3: ST-EB-Y-IND (night)

Source height = 0.98 m

ROAD (0.00 + 46.40 + 0.00) = 46.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.68	0.00	-9.28	0.00	0.00	0.00	0.00	46.40

Segment Leq : 46.40 dBA

Segment # 4: ST-WB-Y-IND (night)

Source height = 1.14 m

ROAD (0.00 + 47.33 + 0.00) = 47.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.36	0.00	-9.03	0.00	0.00	0.00	0.00	47.33

Segment Leq : 47.33 dBA

Total Leq All Segments: 54.90 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.35
(NIGHT): 54.90

Filename: 2006r14.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Mul-Eag (day/night)

Car traffic volume : 11936/919 veh/TimePeriod *
Medium truck volume : 285/22 veh/TimePeriod *
Heavy truck volume : 174/13 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 13349
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.30
Heavy Truck % of Total Volume : 1.40
Day (16 hrs) % of Total Volume : 92.85

Data for Segment # 1: Y_NB_Mul-Eag (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 26.00 / 30.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Mul-Eag (day/night)

```

-----
Car traffic volume : 11076/1059 veh/TimePeriod *
Medium truck volume : 187/18 veh/TimePeriod *
Heavy truck volume : 152/15 veh/TimePeriod *
Posted speed limit : 55 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 12507
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.64
Heavy Truck % of Total Volume : 1.33
Day (16 hrs) % of Total Volume : 91.27
  
```

Data for Segment # 2: Y_SB-Mul-Eag (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 41.00 / 45.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: Y_NB_Mul-Eag (day)

Source height = 1.09 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.09 ! 1.50 ! 1.47 ! 1.47
  
```

ROAD (0.00 + 55.36 + 0.00) = 55.36 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.00 65.81 0.00 -2.39 0.00 0.00 0.00 0.00 -8.06 55.36
-----
  
```

Segment Leq : 55.36 dBA

Results segment # 2: Y_SB-Mul-Eag (day)

Source height = 1.07 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.07	1.50	1.48	1.48

ROAD (0.00 + 52.34 + 0.00) = 52.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.66	0.00	-4.37	0.00	0.00	0.00	-7.95	52.34

Segment Leq : 52.34 dBA

Total Leq All Segments: 57.12 dBA

Results segment # 1: Y_NB_Mul-Eag (night)

Source height = 1.08 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.08	4.50	3.86	3.86

ROAD (0.00 + 54.63 + 0.00) = 54.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.64	0.00	-3.01	0.00	0.00	0.00	-0.27	54.36*
-90	90	0.00	57.64	0.00	-3.01	0.00	0.00	0.00	0.00	54.63

* Bright Zone !

Segment Leq : 54.63 dBA

Results segment # 2: Y_SB-Mul-Eag (night)

Source height = 1.08 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.08 ! 4.50 ! 3.97 ! 3.97

ROAD (0.00 + 52.76 + 0.00) = 52.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.53	0.00	-4.77	0.00	0.00	0.00	-0.31	52.46*
-90	90	0.00	57.53	0.00	-4.77	0.00	0.00	0.00	0.00	52.76

* Bright Zone !

Segment Leq : 52.76 dBA

Total Leq All Segments: 56.81 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.12
(NIGHT): 56.81

Filename: 2006r15.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Eag-Mil (day/night)

Car traffic volume : 14831/977 veh/TimePeriod *
Medium truck volume : 242/16 veh/TimePeriod *
Heavy truck volume : 148/10 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 16223
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.59
Heavy Truck % of Total Volume : 0.97
Day (16 hrs) % of Total Volume : 93.82

Data for Segment # 1: Y_NB_Eag-Mil (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 84.00 / 90.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Eag-Mil (day/night)

```

-----
Car traffic volume : 14508/1334 veh/TimePeriod *
Medium truck volume : 187/17 veh/TimePeriod *
Heavy truck volume : 151/14 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 16212
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.26
Heavy Truck % of Total Volume : 1.02
Day (16 hrs) % of Total Volume : 91.58

```

Data for Segment # 2: Y_SB-Eag-Mil (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 97.00 / 101.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Eag-Mil (day)

Source height = 0.99 m

ROAD (0.00 + 58.67 + 0.00) = 58.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.15	0.00	-7.48	0.00	0.00	0.00	0.00	58.67

Segment Leq : 58.67 dBA

Results segment # 2: Y_SB-Eag-Mil (day)

Source height = 1.00 m

ROAD (0.00 + 57.71 + 0.00) = 57.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.82	0.00	-8.11	0.00	0.00	0.00	0.00	57.71

Segment Leq : 57.71 dBA

Total Leq All Segments: 61.23 dBA

Results segment # 1: Y_NB_Eag-Mil (night)

Source height = 1.00 m

ROAD (0.00 + 49.60 + 0.00) = 49.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.39	0.00	-7.78	0.00	0.00	0.00	0.00	49.60

Segment Leq : 49.60 dBA

Results segment # 2: Y_SB-Eag-Mil (night)

Source height = 1.01 m

ROAD (0.00 + 50.19 + 0.00) = 50.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.47	0.00	-8.28	0.00	0.00	0.00	0.00	50.19

Segment Leq : 50.19 dBA

Total Leq All Segments: 52.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.23
(NIGHT): 52.92

Filename: 2006r16.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Dav-Lon (day/night)

Car traffic volume : 11973/766 veh/TimePeriod *
Medium truck volume : 231/15 veh/TimePeriod *
Heavy truck volume : 139/9 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 13133
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.87
Heavy Truck % of Total Volume : 1.13
Day (16 hrs) % of Total Volume : 93.99

Data for Segment # 1: Y_NB_Dav-Lon (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 / 30.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 15.00 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Dav-Lon (day/night)

```

-----
Car traffic volume : 10658/1162 veh/TimePeriod *
Medium truck volume : 232/25 veh/TimePeriod *
Heavy truck volume : 188/21 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 12286
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.09
Heavy Truck % of Total Volume : 1.70
Day (16 hrs) % of Total Volume : 90.17

```

Data for Segment # 2: Y_SB-Dav-Lon (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 42.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 15.00 / 19.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

```

Results segment # 1: Y_NB_Dav-Lon (day)

Source height = 1.03 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.03 ! 1.50 ! 1.23 ! 1.23

```

ROAD (0.00 + 54.83 + 0.00) = 54.83 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.56 65.69 0.00 -3.74 -1.29 0.00 0.00 -5.83 54.83
-----

```

Segment Leq : 54.83 dBA

Results segment # 2: Y_SB-Dav-Lon (day)

Source height = 1.14 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
1.14	!	1.50	!	1.36	!	1.36

ROAD (0.00 + 52.61 + 0.00) = 52.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.56	65.58	0.00	-6.30	-1.29	0.00	0.00	-5.38	52.61

Segment Leq : 52.61 dBA

Total Leq All Segments: 56.87 dBA

Results segment # 1: Y_NB_Dav-Lon (night)

Source height = 1.03 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
1.03	!	4.50	!	3.85	!	3.85

ROAD (0.00 + 50.69 + 0.00) = 50.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	56.79	0.00	-4.44	-1.13	0.00	0.00	-0.20	51.02*
-90	90	0.58	56.79	0.00	-4.77	-1.33	0.00	0.00	0.00	50.69

* Bright Zone !

Segment Leq : 50.69 dBA

Results segment # 2: Y_SB-Dav-Lon (night)

Source height = 1.15 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)			
1.15	!	4.50	!	2.98	!	2.98

ROAD (0.00 + 50.61 + 0.00) = 50.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	59.00	0.00	-6.58	-1.12	0.00	0.00	-1.90	49.40*
-90	90	0.58	59.00	0.00	-7.07	-1.32	0.00	0.00	0.00	50.61

* Bright Zone !

Segment Leq : 50.61 dBA

Total Leq All Segments: 53.66 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.87
(NIGHT): 53.66

Filename: 2006r17.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Lon-Bri (day/night)

Car traffic volume : 15005/1143 veh/TimePeriod *
Medium truck volume : 221/17 veh/TimePeriod *
Heavy truck volume : 134/10 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 16530
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.44
Heavy Truck % of Total Volume : 0.87
Day (16 hrs) % of Total Volume : 92.92

Data for Segment # 1: Y_NB_Lon-Bri (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Lon-Bri (day/night)

```

-----
Car traffic volume : 15304/1324 veh/TimePeriod *
Medium truck volume : 197/17 veh/TimePeriod *
Heavy truck volume : 160/14 veh/TimePeriod *
Posted speed limit : 57 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 17016
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.26
Heavy Truck % of Total Volume : 1.02
Day (16 hrs) % of Total Volume : 92.04

```

Data for Segment # 2: Y_SB-Lon-Bri (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 50.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Lon-Bri (day)

Source height = 0.97 m

ROAD (0.00 + 58.62 + 0.00) = 58.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.19	0.00	-6.11	-1.46	0.00	0.00	0.00	58.62

Segment Leq : 58.62 dBA

Results segment # 2: Y_SB-Lon-Bri (day)

Source height = 1.01 m

ROAD (0.00 + 56.50 + 0.00) = 56.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	65.88	0.00	-7.92	-1.46	0.00	0.00	0.00	56.50

Segment Leq : 56.50 dBA

Total Leq All Segments: 60.70 dBA

Results segment # 1: Y_NB_Lon-Bri (night)

Source height = 0.96 m

ROAD (0.00 + 50.09 + 0.00) = 50.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	58.00	0.00	-6.58	-1.33	0.00	0.00	0.00	50.09

Segment Leq : 50.09 dBA

Results segment # 2: Y_SB-Lon-Bri (night)

Source height = 1.01 m

ROAD (0.00 + 48.66 + 0.00) = 48.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	58.28	0.00	-8.29	-1.33	0.00	0.00	0.00	48.66

Segment Leq : 48.66 dBA

Total Leq All Segments: 52.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.70
(NIGHT): 52.44

Filename: 2006r18.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: G_EB_Yon-Mai (day/night)

Car traffic volume : 16229/1556 veh/TimePeriod *
Medium truck volume : 341/33 veh/TimePeriod *
Heavy truck volume : 569/55 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 18783
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.99
Heavy Truck % of Total Volume : 3.32
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: G_EB_Yon-Mai (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: G_WB-Yon-Mai (day/night)

Car traffic volume : 12705/1076 veh/TimePeriod *
Medium truck volume : 173/15 veh/TimePeriod *
Heavy truck volume : 205/17 veh/TimePeriod *
Posted speed limit : 66 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 14192
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.32
Heavy Truck % of Total Volume : 1.57
Day (16 hrs) % of Total Volume : 92.19

Data for Segment # 2: G_WB-Yon-Mai (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: G_EB_Yon-Mai (day)

Source height = 1.35 m

ROAD (0.00 + 61.66 + 0.00) = 61.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	69.02	0.00	-5.90	-1.46	0.00	0.00	0.00	61.66

Segment Leq : 61.66 dBA

Results segment # 2: G_WB-Yon-Mai (day)

Source height = 1.12 m

ROAD (0.00 + 61.52 + 0.00) = 61.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.21	0.00	-4.24	-1.46	0.00	0.00	0.00	61.52

Segment Leq : 61.52 dBA

Total Leq All Segments: 64.60 dBA

Results segment # 1: G_EB_Yon-Mai (night)

Source height = 1.35 m

ROAD (0.00 + 54.20 + 0.00) = 54.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	61.87	0.00	-6.36	-1.31	0.00	0.00	0.00	54.20

Segment Leq : 54.20 dBA

Results segment # 2: G_WB-Yon-Mai (night)

Source height = 1.11 m

ROAD (0.00 + 53.17 + 0.00) = 53.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.48	0.00	-4.99	-1.32	0.00	0.00	0.00	53.17

Segment Leq : 53.17 dBA

Total Leq All Segments: 56.73 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.60
(NIGHT): 56.73

Filename: 2006r19.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: D_EB_Yon-Mai (day/night)

Car traffic volume : 10620/1018 veh/TimePeriod *
Medium truck volume : 188/18 veh/TimePeriod *
Heavy truck volume : 304/29 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12178
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.69
Heavy Truck % of Total Volume : 2.74
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: D_EB_Yon-Mai (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 48.00 / 52.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: D_WB-Yon-Mai (day/night)

```

-----
Car traffic volume : 11550/978   veh/TimePeriod  *
Medium truck volume :   124/11   veh/TimePeriod  *
Heavy truck volume  :   291/25   veh/TimePeriod  *
Posted speed limit  :    66 km/h
Road gradient       :    0 %
Road pavement      :    1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 12979
Percentage of Annual Growth      : 0.00
Number of Years of Growth        : 0.00
Medium Truck % of Total Volume   : 1.04
Heavy Truck % of Total Volume    : 2.43
Day (16 hrs) % of Total Volume   : 92.19

```

Data for Segment # 2: D_WB-Yon-Mai (day/night)

```

-----
Angle1  Angle2      : -90.00 deg   90.00 deg
Wood depth      : 0 (No woods.)
No of house rows : 0 / 0
Surface         : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 46.00 m
Receiver height : 1.50 / 4.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: D_EB_Yon-Mai (day)

Source height = 1.29 m

ROAD (0.00 + 56.77 + 0.00) = 56.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.61	0.00	-8.39	-1.46	0.00	0.00	0.00	56.77

Segment Leq : 56.77 dBA

Results segment # 2: D_WB-Yon-Mai (day)

Source height = 1.25 m

ROAD (0.00 + 58.67 + 0.00) = 58.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.55	0.00	-7.42	-1.46	0.00	0.00	0.00	58.67

Segment Leq : 58.67 dBA

Total Leq All Segments: 60.83 dBA

Results segment # 1: D_EB_Yon-Mai (night)

Source height = 1.28 m

ROAD (0.00 + 49.60 + 0.00) = 49.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.43	0.00	-8.51	-1.31	0.00	0.00	0.00	49.60

Segment Leq : 49.60 dBA

Results segment # 2: D_WB-Yon-Mai (night)

Source height = 1.25 m

ROAD (0.00 + 50.89 + 0.00) = 50.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.88	0.00	-7.68	-1.32	0.00	0.00	0.00	50.89

Segment Leq : 50.89 dBA

Total Leq All Segments: 53.30 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.83
(NIGHT): 53.30

Filename: 2006r20.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: D_EB_Bay-Les (day/night)

Car traffic volume : 10428/1000 veh/TimePeriod *
Medium truck volume : 190/18 veh/TimePeriod *
Heavy truck volume : 308/30 veh/TimePeriod *
Posted speed limit : 48 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 11974
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.74
Heavy Truck % of Total Volume : 2.82
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: D_EB_Bay-Les (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 13.00 / 17.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: D_WB-Bay-Les (day/night)

```

-----
Car traffic volume : 9586/812 veh/TimePeriod *
Medium truck volume : 131/11 veh/TimePeriod *
Heavy truck volume : 307/26 veh/TimePeriod *
Posted speed limit : 57 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 10873
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.31
Heavy Truck % of Total Volume : 3.06
Day (16 hrs) % of Total Volume : 92.19
  
```

Data for Segment # 2: D_WB-Bay-Les (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 13.00 / 19.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: D_EB_Bay-Les (day)

Source height = 1.30 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.30 ! 1.50 ! 1.42 ! 1.42
  
```

ROAD (0.00 + 52.70 + 0.00) = 52.70 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.56 64.83 0.00 -5.53 -1.28 0.00 0.00 -5.32 52.70
-----
  
```

Segment Leq : 52.70 dBA

Results segment # 2: D_WB-Bay-Les (day)

 Source height = 1.32 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.32	1.50	1.41	1.41

ROAD (0.00 + 55.41 + 0.00) = 55.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.56	66.05	0.00	-3.97	-1.28	0.00	0.00	-5.39	55.41

Segment Leq : 55.41 dBA

Total Leq All Segments: 57.27 dBA

Results segment # 1: D_EB_Bay-Les (night)

 Source height = 1.30 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.30	4.50	3.07	3.07

ROAD (0.00 + 50.02 + 0.00) = 50.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	57.69	0.00	-5.92	-1.11	0.00	0.00	-1.24	49.42*
-90	90	0.58	57.69	0.00	-6.36	-1.31	0.00	0.00	0.00	50.02

* Bright Zone !

Segment Leq : 50.02 dBA

Results segment # 2: D_WB-Bay-Les (night)

Source height = 1.32 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.32 ! 4.50 ! 2.55 ! 2.55

ROAD (0.00 + 52.06 + 0.00) = 52.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	58.34	0.00	-4.62	-1.11	0.00	0.00	-3.55	49.05*
-90	90	0.58	58.34	0.00	-4.97	-1.31	0.00	0.00	0.00	52.06

* Bright Zone !

Segment Leq : 52.06 dBA

Total Leq All Segments: 54.17 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.27
(NIGHT): 54.17

*Yonge Street Corridor – Public Transit Improvements Environmental Assessment
Noise and Vibration Impact Assessment*

APPENDIX C

STAMSON DATA SHEETS PREDICTED FUTURE (2021) BASELINE TRAFFIC NOISE LEVELS

Filename: 2021br1.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Gam-Sto (day/night)

Car traffic volume : 17883/1305 veh/TimePeriod *
Medium truck volume : 744/54 veh/TimePeriod *
Heavy truck volume : 452/33 veh/TimePeriod *
Posted speed limit : 72 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 20471
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.90
Heavy Truck % of Total Volume : 2.37
Day (16 hrs) % of Total Volume : 93.20

Data for Segment # 1: Y_NB_Gam-Sto (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 16.00 / 20.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.52 m
Barrier receiver distance : 3.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Gam-Sto (day/night)

```

-----
Car traffic volume : 15657/1513 veh/TimePeriod *
Medium truck volume : 483/47 veh/TimePeriod *
Heavy truck volume : 392/38 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 18129
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.92
Heavy Truck % of Total Volume : 2.37
Day (16 hrs) % of Total Volume : 91.19
  
```

Data for Segment # 2: Y_SB-Gam-Sto (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 37.00 / 41.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.52 m
Barrier receiver distance : 3.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: Y_NB_Gam-Sto (day)

Source height = 1.24 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.24 ! 1.50 ! 1.45 ! 1.45
  
```

ROAD (0.00 + 65.69 + 0.00) = 65.69 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.00 71.00 0.00 -0.28 0.00 0.00 0.00 0.00 -5.03 65.69
-----
  
```

Segment Leq : 65.69 dBA

Results segment # 2: Y_SB-Gam-Sto (day)

Source height = 1.24 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.24	1.50	1.48	1.48

ROAD (0.00 + 55.93 + 0.00) = 55.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.87	0.00	-3.92	0.00	0.00	0.00	-5.01	55.93

Segment Leq : 55.93 dBA

Total Leq All Segments: 66.13 dBA

Results segment # 1: Y_NB_Gam-Sto (night)

Source height = 1.24 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.24	4.50	3.36	3.36

ROAD (0.00 + 61.39 + 0.00) = 61.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.64	0.00	-1.25	0.00	0.00	0.00	-0.24	61.14*
-90	90	0.00	62.64	0.00	-1.25	0.00	0.00	0.00	0.00	61.39

* Bright Zone !

Segment Leq : 61.39 dBA

Results segment # 2: Y_SB-Gam-Sto (night)

Source height = 1.24 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
1.24 !	4.50 !	3.94 !	3.94

ROAD (0.00 + 53.37 + 0.00) = 53.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.74	0.00	-4.37	0.00	0.00	0.00	-0.17	53.20*
-90	90	0.00	57.74	0.00	-4.37	0.00	0.00	0.00	0.00	53.37

* Bright Zone !

Segment Leq : 53.37 dBA

Total Leq All Segments: 62.03 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.13
(NIGHT): 62.03

Filename: 2021Br2.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Sto-Kin (day/night)

Car traffic volume : 13465/982 veh/TimePeriod *
Medium truck volume : 754/55 veh/TimePeriod *
Heavy truck volume : 458/33 veh/TimePeriod *
Posted speed limit : 77 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 15748
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.14
Heavy Truck % of Total Volume : 3.12
Day (16 hrs) % of Total Volume : 93.20

Data for Segment # 1: Y_NB_Sto-Kin (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 17.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Sto-Kin (day/night)

```

-----
Car traffic volume : 12424/1200 veh/TimePeriod *
Medium truck volume : 597/58 veh/TimePeriod *
Heavy truck volume : 485/47 veh/TimePeriod *
Posted speed limit : 48 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 14811
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.42
Heavy Truck % of Total Volume : 3.59
Day (16 hrs) % of Total Volume : 91.19

```

Data for Segment # 2: Y_SB-Sto-Kin (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 33.00 / 37.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Sto-Kin (day)

Source height = 1.33 m

ROAD (0.00 + 71.21 + 0.00) = 71.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	71.21	0.00	0.00	0.00	0.00	0.00	0.00	71.21

Segment Leq : 71.21 dBA

Results segment # 2: Y_SB-Sto-Kin (day)

Source height = 1.38 m

ROAD (0.00 + 63.41 + 0.00) = 63.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.84	0.00	-3.42	0.00	0.00	0.00	0.00	63.41

Segment Leq : 63.41 dBA

Total Leq All Segments: 71.88 dBA

Results segment # 1: Y_NB_Sto-Kin (night)

Source height = 1.33 m

ROAD (0.00 + 62.28 + 0.00) = 62.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.82	0.00	-0.54	0.00	0.00	0.00	0.00	62.28

Segment Leq : 62.28 dBA

Results segment # 2: Y_SB-Sto-Kin (night)

Source height = 1.38 m

ROAD (0.00 + 55.79 + 0.00) = 55.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.71	0.00	-3.92	0.00	0.00	0.00	0.00	55.79

Segment Leq : 55.79 dBA

Total Leq All Segments: 63.16 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.88
(NIGHT): 63.16

Filename: 2021br3.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_NLa-Bla (day/night)

Car traffic volume : 17685/1399 veh/TimePeriod *
Medium truck volume : 881/70 veh/TimePeriod *
Heavy truck volume : 535/42 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 20611
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.61
Heavy Truck % of Total Volume : 2.80
Day (16 hrs) % of Total Volume : 92.67

Data for Segment # 1: Y_NB_NLa-Bla (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 4.00 / 4.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-NLa-Bla (day/night)

```

-----
Car traffic volume : 14319/1289 veh/TimePeriod *
Medium truck volume : 560/50 veh/TimePeriod *
Heavy truck volume : 454/41 veh/TimePeriod *
Posted speed limit : 49 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 16713
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.65
Heavy Truck % of Total Volume : 2.96
Day (16 hrs) % of Total Volume : 91.74
  
```

Data for Segment # 2: Y_SB-NLa-Bla (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 4.00 / 0.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Segment # 1: Y_NB_NLa-Bla (day)

Source height = 1.29 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.29 ! 1.50 ! 1.44 ! 1.44
  
```

ROAD (0.00 + 63.12 + 0.00) = 63.12 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.58 69.45 0.00 0.00 -1.31 0.00 0.00 -5.02 63.12
-----
  
```

Segment Leq : 63.12 dBA

Segment # 2: Y_SB-NLa-Bla (day)

Source height = 1.31 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.31	1.50	1.48	1.48

ROAD (0.00 + 54.84 + 0.00) = 54.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	66.96	0.00	-5.80	-1.31	0.00	0.00	-5.00	54.84

Segment Leq : 54.84 dBA

Total Leq All Segments: 63.72 dBA

Segment # 1: Y_NB_NLa-Bla (night)

Source height = 1.29 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.29	4.50	3.64	3.64

ROAD (0.00 + 60.12 + 0.00) = 60.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	61.43	0.00	0.00	-1.15	0.00	0.00	-0.12	60.16*
-90	90	0.58	61.43	0.00	0.00	-1.31	0.00	0.00	0.00	60.12

* Bright Zone !

Segment Leq : 60.12 dBA

Segment # 2: Y_SB-NLa-Bla (night)

Source height = 1.31 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.31 ! 4.50 ! 4.50 ! 4.50

ROAD (0.00 + 53.23 + 0.00) = 53.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	59.51	0.00	-4.68	-1.15	0.00	0.00	99.00	152.68
-90	90	0.58	59.51	0.00	-4.97	-1.31	0.00	0.00	0.00	53.23

* Bright Zone !

Segment Leq : 53.23 dBA

Total Leq All Segments: 60.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.72
(NIGHT): 60.93

Filename: 2021br4.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Bla-Blo (day/night)

Car traffic volume : 16787/1328 veh/TimePeriod *
Medium truck volume : 807/64 veh/TimePeriod *
Heavy truck volume : 490/39 veh/TimePeriod *
Posted speed limit : 56 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 19514
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.46
Heavy Truck % of Total Volume : 2.71
Day (16 hrs) % of Total Volume : 92.67

Data for Segment # 1: Y_NB_Bla-Blo (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 43.00 / 47.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Bla-Blo (day/night)

```

-----
Car traffic volume : 14280/1286 veh/TimePeriod *
Medium truck volume : 563/51 veh/TimePeriod *
Heavy truck volume : 457/41 veh/TimePeriod *
Posted speed limit : 48 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 16678
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.68
Heavy Truck % of Total Volume : 2.99
Day (16 hrs) % of Total Volume : 91.74

```

Data for Segment # 2: Y_SB-Bla-Blo (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 28.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Segment # 1: Y_NB_Bla-Blo (day)

Source height = 1.28 m

ROAD (0.00 + 59.75 + 0.00) = 59.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	68.80	0.00	-7.59	-1.46	0.00	0.00	0.00	59.75

Segment Leq : 59.75 dBA

Segment # 2: Y_SB-Bla-Blo (day)

Source height = 1.31 m

ROAD (0.00 + 61.95 + 0.00) = 61.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.80	0.00	-3.39	-1.46	0.00	0.00	0.00	61.95

Segment Leq : 61.95 dBA

Total Leq All Segments: 64.00 dBA

Segment # 1: Y_NB_Bla-Blo (night)

Source height = 1.28 m

ROAD (0.00 + 51.67 + 0.00) = 51.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	60.81	0.00	-7.82	-1.31	0.00	0.00	0.00	51.67

Segment Leq : 51.67 dBA

Segment # 2: Y_SB-Bla-Blo (night)

Source height = 1.31 m

ROAD (0.00 + 53.76 + 0.00) = 53.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.35	0.00	-4.27	-1.31	0.00	0.00	0.00	53.76

Segment Leq : 53.76 dBA

Total Leq All Segments: 55.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.00
(NIGHT): 55.85

Filename: 2021br5.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Blo-Ind (day/night)

Car traffic volume : 10300/788 veh/TimePeriod *
Medium truck volume : 471/36 veh/TimePeriod *
Heavy truck volume : 286/22 veh/TimePeriod *
Posted speed limit : 71 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 11904
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.26
Heavy Truck % of Total Volume : 2.59
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Blo-Ind (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 41.00 / 45.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Car traffic volume : 9466/855 veh/TimePeriod *
Medium truck volume : 286/26 veh/TimePeriod *
Heavy truck volume : 232/21 veh/TimePeriod *
Posted speed limit : 56 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 10884
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.86
Heavy Truck % of Total Volume : 2.32
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 54.00 / 60.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Segment # 1: Y_NB_Blo-Ind (day)

Source height = 1.27 m

ROAD (0.00 + 60.01 + 0.00) = 60.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	68.72	0.00	-7.25	-1.46	0.00	0.00	0.00	60.01

Segment Leq : 60.01 dBA

Segment # 2: Y_SB-Blo-Ind (day)

Source height = 1.23 m

ROAD (0.00 + 54.89 + 0.00) = 54.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	65.58	0.00	-9.23	-1.46	0.00	0.00	0.00	54.89

Segment Leq : 54.89 dBA

Total Leq All Segments: 61.17 dBA

Segment # 1: Y_NB_Blo-Ind (night)

Source height = 1.27 m

ROAD (0.00 + 51.74 + 0.00) = 51.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	60.58	0.00	-7.52	-1.31	0.00	0.00	0.00	51.74

Segment Leq : 51.74 dBA

Segment # 2: Y_SB-Blo-Ind (night)

Source height = 1.24 m

ROAD (0.00 + 47.34 + 0.00) = 47.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	58.16	0.00	-9.50	-1.32	0.00	0.00	0.00	47.34

Segment Leq : 47.34 dBA

Total Leq All Segments: 53.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.17
(NIGHT): 53.09

Filename: 2021bar6.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Blo-Ind (day/night)

Car traffic volume : 10300/788 veh/TimePeriod *
Medium truck volume : 471/36 veh/TimePeriod *
Heavy truck volume : 286/22 veh/TimePeriod *
Posted speed limit : 71 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 11904
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.26
Heavy Truck % of Total Volume : 2.59
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Blo-Ind (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 44.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Car traffic volume : 9466/855 veh/TimePeriod *
Medium truck volume : 286/26 veh/TimePeriod *
Heavy truck volume : 232/21 veh/TimePeriod *
Posted speed limit : 56 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 10884
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.86
Heavy Truck % of Total Volume : 2.32
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 34.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Blo-Ind (day)

Source height = 1.27 m

ROAD (0.00 + 60.19 + 0.00) = 60.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	68.72	0.00	-7.07	-1.46	0.00	0.00	0.00	60.19

Segment Leq : 60.19 dBA

Results segment # 2: Y_SB-Blo-Ind (day)

Source height = 1.23 m

ROAD (0.00 + 59.13 + 0.00) = 59.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	65.58	0.00	-5.00	-1.46	0.00	0.00	0.00	59.13

Segment Leq : 59.13 dBA

Total Leq All Segments: 62.70 dBA

Results segment # 1: Y_NB_Blo-Ind (night)

Source height = 1.27 m

ROAD (0.00 + 51.36 + 0.00) = 51.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	60.58	0.00	-7.76	-1.46	0.00	0.00	0.00	51.36

Segment Leq : 51.36 dBA

Results segment # 2: Y_SB-Blo-Ind (night)

Source height = 1.24 m

ROAD (0.00 + 50.80 + 0.00) = 50.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.16	0.00	-5.90	-1.46	0.00	0.00	0.00	50.80

Segment Leq : 50.80 dBA

Total Leq All Segments: 54.10 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.70
(NIGHT): 54.10

Filename: 2021bar7.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 16869/1291 veh/TimePeriod *
Medium truck volume : 513/39 veh/TimePeriod *
Heavy truck volume : 311/24 veh/TimePeriod *
Posted speed limit : 57 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 19048
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.90
Heavy Truck % of Total Volume : 1.76
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Indus_Hend N (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 48.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Elevation : 0.00 m
Barrier receiver distance : 15.00 / 18.00 m
Source elevation : 0.00 m
Receiver elevation : 3.65 m
Barrier elevation : 3.65 m
Reference angle : 0.00

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

```

-----
Car traffic volume : 13977/1262 veh/TimePeriod *
Medium truck volume : 334/30 veh/TimePeriod *
Heavy truck volume : 271/24 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 15898
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.29
Heavy Truck % of Total Volume : 1.86
Day (16 hrs) % of Total Volume : 91.72
  
```

Data for Segment # 2: Indus_Hend S (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Elevation : 0.00 m
Barrier receiver distance : 15.00 / 18.00 m
Source elevation : 0.00 m
Receiver elevation : 3.65 m
Barrier elevation : 3.65 m
Reference angle : 0.00
  
```

Results segment # 1: Indus_Hend N (day)

Source height = 1.15 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.15 ! 1.50 ! 0.17 ! 3.82
  
```

ROAD (0.00 + 49.80 + 0.00) = 49.80 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.53 67.71 0.00 -7.28 -1.22 0.00 0.00 -9.41 49.80
-----
  
```

Segment Leq : 49.80 dBA

Results segment # 2: Indus_Hend S (day)

Source height = 1.17 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.17	1.50	-0.21	3.44

ROAD (0.00 + 46.12 + 0.00) = 46.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.53	63.60	0.00	-5.62	-1.22	0.00	0.00	-10.64	46.12

Segment Leq : 46.12 dBA

Total Leq All Segments: 51.35 dBA

Results segment # 1: Indus_Hend N (night)

Source height = 1.15 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.15	4.50	1.88	5.53

ROAD (0.00 + 45.88 + 0.00) = 45.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.44	59.57	0.00	-7.26	-1.05	0.00	0.00	-5.38	45.88

Segment Leq : 45.88 dBA

Results segment # 2: Indus_Hend S (night)

Source height = 1.16 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.16 !	4.50 !	1.19 !	4.84

ROAD (0.00 + 42.35 + 0.00) = 42.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.44	56.12	0.00	-5.80	-1.05	0.00	0.00	-6.92	42.35

Segment Leq : 42.35 dBA

Total Leq All Segments: 47.47 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.35
(NIGHT): 47.47

Filename: 2021bar8.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Hen-Ken (day/night)

Car traffic volume : 16409/1256 veh/TimePeriod *
Medium truck volume : 526/40 veh/TimePeriod *
Heavy truck volume : 319/24 veh/TimePeriod *
Posted speed limit : 49 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 18575
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.05
Heavy Truck % of Total Volume : 1.85
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Hen-Ken (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 26.00 / 29.00 m
Receiver height : 1.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Hen-Ken (day/night)

```

-----
Car traffic volume : 20722/1871 veh/TimePeriod *
Medium truck volume : 611/55 veh/TimePeriod *
Heavy truck volume : 496/45 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 23799
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.80
Heavy Truck % of Total Volume : 2.27
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Hen-Ken (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.00 / 22.00 m
Receiver height : 1.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Hen-Ken (day)

Source height = 1.17 m

ROAD (0.00 + 63.93 + 0.00) = 63.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.32	0.00	-2.39	0.00	0.00	0.00	0.00	63.93

Segment Leq : 63.93 dBA

Results segment # 2: Y_SB-Hen-Ken (day)

Source height = 1.23 m

ROAD (0.00 + 64.92 + 0.00) = 64.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.94	0.00	-1.03	0.00	0.00	0.00	0.00	64.92

Segment Leq : 64.92 dBA

Total Leq All Segments: 67.46 dBA

Results segment # 1: Y_NB_Hen-Ken (night)

Source height = 1.16 m

ROAD (0.00 + 55.26 + 0.00) = 55.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.13	0.00	-2.86	0.00	0.00	0.00	0.00	55.26

Segment Leq : 55.26 dBA

Results segment # 2: Y_SB-Hen-Ken (night)

Source height = 1.23 m

ROAD (0.00 + 56.86 + 0.00) = 56.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.52	0.00	-1.66	0.00	0.00	0.00	0.00	56.86

Segment Leq : 56.86 dBA

Total Leq All Segments: 59.14 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.46
(NIGHT): 59.14

Filename: 2021br9.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Ken-Wel (day/night)

Car traffic volume : 13643/1044 veh/TimePeriod *
Medium truck volume : 518/40 veh/TimePeriod *
Heavy truck volume : 316/24 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 15585
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.58
Heavy Truck % of Total Volume : 2.18
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Ken-Wel (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 21.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Ken-Wel (day/night)

```

-----
Car traffic volume : 17023/1537 veh/TimePeriod *
Medium truck volume : 474/43 veh/TimePeriod *
Heavy truck volume : 384/35 veh/TimePeriod *
Posted speed limit : 42 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 19495
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.65
Heavy Truck % of Total Volume : 2.15
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Ken-Wel (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 28.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Ken-Wel (day)

Source height = 1.22 m

ROAD (0.00 + 64.73 + 0.00) = 64.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.19	0.00	-1.46	0.00	0.00	0.00	0.00	64.73

Segment Leq : 64.73 dBA

Results segment # 2: Y_SB-Ken-Wel (day)

Source height = 1.21 m

ROAD (0.00 + 62.62 + 0.00) = 62.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.33	0.00	-2.71	0.00	0.00	0.00	0.00	62.62

Segment Leq : 62.62 dBA

Total Leq All Segments: 66.81 dBA

Results segment # 1: Y_NB_Ken-Wel (night)

Source height = 1.21 m

ROAD (0.00 + 55.99 + 0.00) = 55.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.03	0.00	-2.04	0.00	0.00	0.00	0.00	55.99

Segment Leq : 55.99 dBA

Results segment # 2: Y_SB-Ken-Wel (night)

Source height = 1.21 m

ROAD (0.00 + 54.77 + 0.00) = 54.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.92	0.00	-3.15	0.00	0.00	0.00	0.00	54.77

Segment Leq : 54.77 dBA

Total Leq All Segments: 58.43 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.81
(NIGHT): 58.43

Filename: 2021br10.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Wel-Aur (day/night)

Car traffic volume : 11520/798 veh/TimePeriod *
Medium truck volume : 310/21 veh/TimePeriod *
Heavy truck volume : 189/13 veh/TimePeriod *
Posted speed limit : 48 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12852
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.58
Heavy Truck % of Total Volume : 1.57
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Wel-Aur (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Wel-Aur (day/night)

```

-----
Car traffic volume : 14976/1304 veh/TimePeriod *
Medium truck volume : 359/31 veh/TimePeriod *
Heavy truck volume : 292/25 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 16989
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.30
Heavy Truck % of Total Volume : 1.87
Day (16 hrs) % of Total Volume : 91.99

```

Data for Segment # 2: Y_SB-Wel-Aur (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 18.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Wel-Aur (day)

Source height = 1.12 m

ROAD (0.00 + 64.13 + 0.00) = 64.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.13	0.00	0.00	0.00	0.00	0.00	0.00	64.13

Segment Leq : 64.13 dBA

Results segment # 2: Y_SB-Wel-Aur (day)

Source height = 1.17 m

ROAD (0.00 + 63.91 + 0.00) = 63.91 dBA

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

Segment Leq : 63.91 dBA

Total Leq All Segments: 67.03 dBA

Results segment # 1: Y_NB_Wel-Aur (night)

Source height = 1.12 m

ROAD (0.00 + 55.52 + 0.00) = 55.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.52	0.00	0.00	0.00	0.00	0.00	0.00	55.52

Segment Leq : 55.52 dBA

Results segment # 2: Y_SB-Wel-Aur (night)

Source height = 1.16 m

ROAD (0.00 + 55.49 + 0.00) = 55.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.28	0.00	-0.79	0.00	0.00	0.00	0.00	55.49

Segment Leq : 55.49 dBA

Total Leq All Segments: 58.52 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.03
(NIGHT): 58.52

Filename: 2021br11.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Aur-Orc (day/night)

Car traffic volume : 9544/661 veh/TimePeriod *
Medium truck volume : 328/23 veh/TimePeriod *
Heavy truck volume : 199/14 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 10770
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.26
Heavy Truck % of Total Volume : 1.98
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Aur-Orc (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 29.00 / 32.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Aur-Orc (day/night)

```

-----
Car traffic volume : 10563/920   veh/TimePeriod  *
Medium truck volume :   266/23   veh/TimePeriod  *
Heavy truck volume  :   216/19   veh/TimePeriod  *
Posted speed limit  :    44 km/h
Road gradient       :    0 %
Road pavement      :    1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 12007
Percentage of Annual Growth      : 0.00
Number of Years of Growth        : 0.00
Medium Truck % of Total Volume   : 2.41
Heavy Truck % of Total Volume    : 1.96
Day (16 hrs) % of Total Volume   : 91.99

```

Data for Segment # 2: Y_SB-Aur-Orc (day/night)

```

-----
Angle1  Angle2      : -90.00 deg   90.00 deg
Wood depth      : 0 (No woods.)
No of house rows : 0 / 0
Surface        : 2 (Reflective ground surface)
Receiver source distance : 19.00 / 22.00 m
Receiver height : 1.50 / 4.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Aur-Orc (day)

Source height = 1.19 m

ROAD (0.00 + 62.86 + 0.00) = 62.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.72	0.00	-2.86	0.00	0.00	0.00	0.00	62.86

Segment Leq : 62.86 dBA

Results segment # 2: Y_SB-Aur-Orc (day)

Source height = 1.18 m

ROAD (0.00 + 62.35 + 0.00) = 62.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.38	0.00	-1.03	0.00	0.00	0.00	0.00	62.35

Segment Leq : 62.35 dBA

Total Leq All Segments: 65.62 dBA

Results segment # 1: Y_NB_Aur-Orc (night)

Source height = 1.19 m

ROAD (0.00 + 53.88 + 0.00) = 53.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.17	0.00	-3.29	0.00	0.00	0.00	0.00	53.88

Segment Leq : 53.88 dBA

Results segment # 2: Y_SB-Aur-Orc (night)

Source height = 1.19 m

ROAD (0.00 + 54.14 + 0.00) = 54.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.81	0.00	-1.66	0.00	0.00	0.00	0.00	54.14

Segment Leq : 54.14 dBA

Total Leq All Segments: 57.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.62
(NIGHT): 57.02

Filename: 2021br12.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Orc-St. (day/night)

Car traffic volume : 9053/627 veh/TimePeriod *
Medium truck volume : 512/35 veh/TimePeriod *
Heavy truck volume : 310/21 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 10559
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.18
Heavy Truck % of Total Volume : 3.14
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Orc-St. (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 61.00 / 65.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Orc-St. (day/night)

```

-----
Car traffic volume : 13974/1217 veh/TimePeriod *
Medium truck volume : 211/18 veh/TimePeriod *
Heavy truck volume : 172/15 veh/TimePeriod *
Posted speed limit : 72 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 15608
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.47
Heavy Truck % of Total Volume : 1.20
Day (16 hrs) % of Total Volume : 91.99

```

Data for Segment # 2: Y_SB-Orc-St. (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 78.00 / 82.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Orc-St. (day)

Source height = 1.33 m

ROAD (0.00 + 63.77 + 0.00) = 63.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.86	0.00	-6.09	0.00	0.00	0.00	0.00	63.77

Segment Leq : 63.77 dBA

Results segment # 2: Y_SB-Orc-St. (day)

Source height = 1.05 m

ROAD (0.00 + 61.01 + 0.00) = 61.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.17	0.00	-7.16	0.00	0.00	0.00	0.00	61.01

Segment Leq : 61.01 dBA

Total Leq All Segments: 65.62 dBA

Results segment # 1: Y_NB_Orc-St. (night)

Source height = 1.32 m

ROAD (0.00 + 54.86 + 0.00) = 54.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.23	0.00	-6.37	0.00	0.00	0.00	0.00	54.86

Segment Leq : 54.86 dBA

Results segment # 2: Y_SB-Orc-St. (night)

Source height = 1.05 m

ROAD (0.00 + 53.19 + 0.00) = 53.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.57	0.00	-7.38	0.00	0.00	0.00	0.00	53.19

Segment Leq : 53.19 dBA

Total Leq All Segments: 57.12 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.62
(NIGHT): 57.12

Filename: 2021R13.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_St.-Mul (day/night)

Car traffic volume : 11506/766 veh/TimePeriod *
Medium truck volume : 249/17 veh/TimePeriod *
Heavy truck volume : 151/10 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12698
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.09
Heavy Truck % of Total Volume : 1.27
Day (16 hrs) % of Total Volume : 93.76

Data for Segment # 1: Y_NB_St.-Mul (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 47.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-St.-Mul (day/night)

Car traffic volume : 13392/1130 veh/TimePeriod *
Medium truck volume : 194/16 veh/TimePeriod *
Heavy truck volume : 158/13 veh/TimePeriod *
Posted speed limit : 45 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 14903
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.41
Heavy Truck % of Total Volume : 1.15
Day (16 hrs) % of Total Volume : 92.22

Data for Segment # 2: Y_SB-St.-Mul (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.00 / 68.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: J-EB-YO-IND (day/night)

Car traffic volume : 16752/1606 veh/TimePeriod *
Medium truck volume : 219/21 veh/TimePeriod *
Heavy truck volume : 149/14 veh/TimePeriod *
Posted speed limit : 43 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 18762
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.28
Heavy Truck % of Total Volume : 0.87
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 3: J-EB-YO-IND (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 77.00 / 127.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: J-WB-YO-IND (day/night)

```

-----
Car traffic volume : 17743/1503 veh/TimePeriod *
Medium truck volume : 495/42 veh/TimePeriod *
Heavy truck volume : 306/26 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 20115
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.67
Heavy Truck % of Total Volume : 1.65
Day (16 hrs) % of Total Volume : 92.19

```

Data for Segment # 4: J-WB-YO-IND (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 120.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Segment # 1: Y_NB_St.-Mul (day)

Source height = 1.06 m

ROAD (0.00 + 65.76 + 0.00) = 65.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.76	0.00	0.00	0.00	0.00	0.00	0.00	65.76

Segment Leq : 65.76 dBA

Segment # 2: Y_SB-St.-Mul (day)

Source height = 1.04 m

ROAD (0.00 + 60.20 + 0.00) = 60.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.21	0.00	-3.01	0.00	0.00	0.00	0.00	60.20

Segment Leq : 60.20 dBA

Segment # 3: J-EB-YO-IND (day)

Source height = 0.97 m

ROAD (0.00 + 56.11 + 0.00) = 56.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.22	0.00	-7.10	0.00	0.00	0.00	0.00	56.11

Segment Leq : 56.11 dBA

Segment # 4: J-WB-YO-IND (day)

Source height = 1.13 m

ROAD (0.00 + 61.23 + 0.00) = 61.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.92	0.00	-6.69	0.00	0.00	0.00	0.00	61.23

Segment Leq : 61.23 dBA

Total Leq All Segments: 68.16 dBA

Segment # 1: Y_NB_St.-Mul (night)

Source height = 1.06 m

ROAD (0.00 + 52.06 + 0.00) = 52.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.02	0.00	-4.96	0.00	0.00	0.00	0.00	52.06

Segment Leq : 52.06 dBA

Segment # 2: Y_SB-St.-Mul (night)

Source height = 1.03 m

ROAD (0.00 + 48.86 + 0.00) = 48.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.43	0.00	-6.56	0.00	0.00	0.00	0.00	48.86

Segment Leq : 48.86 dBA

Segment # 3: J-EB-YO-IND (night)

Source height = 0.96 m

ROAD (0.00 + 46.74 + 0.00) = 46.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.01	0.00	-9.28	0.00	0.00	0.00	0.00	46.74

Segment Leq : 46.74 dBA

Segment # 4: J-WB-YO-IND (night)

Source height = 1.13 m

ROAD (0.00 + 51.18 + 0.00) = 51.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.21	0.00	-9.03	0.00	0.00	0.00	0.00	51.18

Segment Leq : 51.18 dBA

Total Leq All Segments: 56.19 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.16
(NIGHT): 56.19

Filename: 2021r14.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Mul-Eag (day/night)

Car traffic volume : 16918/1303 veh/TimePeriod *
Medium truck volume : 404/31 veh/TimePeriod *
Heavy truck volume : 246/19 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 18921
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.30
Heavy Truck % of Total Volume : 1.40
Day (16 hrs) % of Total Volume : 92.85

Data for Segment # 1: Y_NB_Mul-Eag (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 23.00 / 27.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Mul-Eag (day/night)

```

-----
Car traffic volume : 19936/1907 veh/TimePeriod *
Medium truck volume : 337/32 veh/TimePeriod *
Heavy truck volume : 273/26 veh/TimePeriod *
Posted speed limit : 51 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 22512
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.64
Heavy Truck % of Total Volume : 1.33
Day (16 hrs) % of Total Volume : 91.27
  
```

Data for Segment # 2: Y_SB-Mul-Eag (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 43.00 / 47.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: Y_NB_Mul-Eag (day)

Source height = 1.09 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.09 ! 1.50 ! 1.47 ! 1.47
  
```

ROAD (0.00 + 57.37 + 0.00) = 57.37 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.00 67.32 0.00 -1.86 0.00 0.00 0.00 0.00 -8.10 57.37
-----
  
```

Segment Leq : 57.37 dBA

Results segment # 2: Y_SB-Mul-Eag (day)

Source height = 1.07 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.07	1.50	1.48	1.48

ROAD (0.00 + 53.96 + 0.00) = 53.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.48	0.00	-4.57	0.00	0.00	0.00	-7.94	53.96

Segment Leq : 53.96 dBA

Total Leq All Segments: 59.00 dBA

Results segment # 1: Y_NB_Mul-Eag (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	4.50	3.79	3.79

ROAD (0.00 + 56.65 + 0.00) = 56.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.20	0.00	-2.55	0.00	0.00	0.00	-0.29	56.36*
-90	90	0.00	59.20	0.00	-2.55	0.00	0.00	0.00	0.00	56.65

* Bright Zone !

Segment Leq : 56.65 dBA

Results segment # 2: Y_SB-Mul-Eag (night)

Source height = 1.07 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.07 !	4.50 !	4.09 !	4.09

ROAD (0.00 + 54.33 + 0.00) = 54.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.29	0.00	-4.96	0.00	0.00	0.00	-0.23	54.10*
-90	90	0.00	59.29	0.00	-4.96	0.00	0.00	0.00	0.00	54.33

* Bright Zone !

Segment Leq : 54.33 dBA

Total Leq All Segments: 58.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.00
(NIGHT): 58.65

Filename: 2021br15.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Eag-Mil (day/night)

Car traffic volume : 25789/1699 veh/TimePeriod *
Medium truck volume : 342/23 veh/TimePeriod *
Heavy truck volume : 208/14 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 28074
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.30
Heavy Truck % of Total Volume : 0.79
Day (16 hrs) % of Total Volume : 93.82

Data for Segment # 1: Y_NB_Eag-Mil (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 79.00 / 83.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Eag-Mil (day/night)

Car traffic volume : 29776/2738 veh/TimePeriod *
Medium truck volume : 384/35 veh/TimePeriod *
Heavy truck volume : 311/29 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 33272
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.26
Heavy Truck % of Total Volume : 1.02
Day (16 hrs) % of Total Volume : 91.58

Data for Segment # 2: Y_SB-Eag-Mil (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 101.00 / 105.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Y_NB_Eag-Mil (day)

Source height = 0.94 m

ROAD (0.00 + 60.98 + 0.00) = 60.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.20	0.00	-7.22	0.00	0.00	0.00	0.00	60.98

Segment Leq : 60.98 dBA

Results segment # 2: Y_SB-Eag-Mil (day)

Source height = 1.01 m

ROAD (0.00 + 59.75 + 0.00) = 59.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.04	0.00	-8.28	0.00	0.00	0.00	0.00	59.75

Segment Leq : 59.75 dBA

Total Leq All Segments: 63.42 dBA

Results segment # 1: Y_NB_Eag-Mil (night)

Source height = 0.95 m

ROAD (0.00 + 52.00 + 0.00) = 52.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.43	0.00	-7.43	0.00	0.00	0.00	0.00	52.00

Segment Leq : 52.00 dBA

Results segment # 2: Y_SB-Eag-Mil (night)

Source height = 1.01 m

ROAD (0.00 + 52.25 + 0.00) = 52.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.70	0.00	-8.45	0.00	0.00	0.00	0.00	52.25

Segment Leq : 52.25 dBA

Total Leq All Segments: 55.14 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.42
(NIGHT): 55.14

Filename: 2021Br16.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Dav-Lon (day/night)

Car traffic volume : 21244/1358 veh/TimePeriod *
Medium truck volume : 410/26 veh/TimePeriod *
Heavy truck volume : 247/16 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 23301
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.87
Heavy Truck % of Total Volume : 1.13
Day (16 hrs) % of Total Volume : 93.99

Data for Segment # 1: Y_NB_Dav-Lon (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 28.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 15.00 / 19.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Dav-Lon (day/night)

```

-----
Car traffic volume : 18425/2009 veh/TimePeriod *
Medium truck volume : 400/44 veh/TimePeriod *
Heavy truck volume : 326/35 veh/TimePeriod *
Posted speed limit : 56 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 21238
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.09
Heavy Truck % of Total Volume : 1.70
Day (16 hrs) % of Total Volume : 90.17
  
```

Data for Segment # 2: Y_SB-Dav-Lon (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 / 43.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 15.00 / 19.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Segment # 1: Y_NB_Dav-Lon (day)

Source height = 1.03 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.03 ! 1.50 ! 1.21 ! 1.21
  
```

ROAD (0.00 + 57.71 + 0.00) = 57.71 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.56 68.19 0.00 -3.19 -1.29 0.00 0.00 -5.99 57.71
-----
  
```

Segment Leq : 57.71 dBA

Segment # 2: Y_SB-Dav-Lon (day)

Source height = 1.14 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.14	1.50	1.36	1.36

ROAD (0.00 + 54.49 + 0.00) = 54.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.56	67.63	0.00	-6.48	-1.29	0.00	0.00	-5.37	54.49

Segment Leq : 54.49 dBA

Total Leq All Segments: 59.40 dBA

Segment # 1: Y_NB_Dav-Lon (night)

Source height = 1.03 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.03	4.50	2.15	2.15

ROAD (0.00 + 53.64 + 0.00) = 53.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	59.27	0.00	-4.00	-1.13	0.00	0.00	-4.70	49.44*
-90	90	0.58	59.27	0.00	-4.29	-1.33	0.00	0.00	0.00	53.64

* Bright Zone !

Segment Leq : 53.64 dBA

Segment # 2: Y_SB-Dav-Lon (night)

Source height = 1.14 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.14 ! 4.50 ! 3.01 ! 3.01

ROAD (0.00 + 52.44 + 0.00) = 52.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	60.99	0.00	-6.73	-1.12	0.00	0.00	-1.75	51.39*
-90	90	0.58	60.99	0.00	-7.23	-1.32	0.00	0.00	0.00	52.44

* Bright Zone !

Segment Leq : 52.44 dBA

Total Leq All Segments: 56.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.40
(NIGHT): 56.09

Filename: 2021BR17.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Lon-Bri (day/night)

Car traffic volume : 22255/1696 veh/TimePeriod *
Medium truck volume : 328/25 veh/TimePeriod *
Heavy truck volume : 198/15 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 24517
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.44
Heavy Truck % of Total Volume : 0.87
Day (16 hrs) % of Total Volume : 92.92

Data for Segment # 1: Y_NB_Lon-Bri (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Lon-Bri (day/night)

```

-----
Car traffic volume : 26463/2289 veh/TimePeriod *
Medium truck volume : 341/30 veh/TimePeriod *
Heavy truck volume : 276/24 veh/TimePeriod *
Posted speed limit : 54 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 29422
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.26
Heavy Truck % of Total Volume : 1.02
Day (16 hrs) % of Total Volume : 92.04

```

Data for Segment # 2: Y_SB-Lon-Bri (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 / 53.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Segment # 1: Y_NB_Lon-Bri (day)

Source height = 0.97 m

ROAD (0.00 + 60.54 + 0.00) = 60.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.90	0.00	-5.90	-1.46	0.00	0.00	0.00	60.54

Segment Leq : 60.54 dBA

Segment # 2: Y_SB-Lon-Bri (day)

Source height = 1.00 m

ROAD (0.00 + 57.72 + 0.00) = 57.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.71	0.00	-8.53	-1.46	0.00	0.00	0.00	57.72

Segment Leq : 57.72 dBA

Total Leq All Segments: 62.37 dBA

Segment # 1: Y_NB_Lon-Bri (night)

Source height = 0.96 m

ROAD (0.00 + 51.99 + 0.00) = 51.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	59.72	0.00	-6.40	-1.33	0.00	0.00	0.00	51.99

Segment Leq : 51.99 dBA

Segment # 2: Y_SB-Lon-Bri (night)

Source height = 1.01 m

ROAD (0.00 + 50.09 + 0.00) = 50.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	60.10	0.00	-8.69	-1.33	0.00	0.00	0.00	50.09

Segment Leq : 50.09 dBA

Total Leq All Segments: 54.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.37
(NIGHT): 54.15

Filename: 2021BR18.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: G_EB_Yon-Mai (day/night)

Car traffic volume : 22444/2152 veh/TimePeriod *
Medium truck volume : 472/45 veh/TimePeriod *
Heavy truck volume : 787/75 veh/TimePeriod *
Posted speed limit : 42 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 25976
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.99
Heavy Truck % of Total Volume : 3.32
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: G_EB_Yon-Mai (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: G_WB-Yon-Mai (day/night)

```

-----
Car traffic volume : 19535/1655 veh/TimePeriod *
Medium truck volume : 266/22 veh/TimePeriod *
Heavy truck volume : 316/27 veh/TimePeriod *
Posted speed limit : 51 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 21821
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.32
Heavy Truck % of Total Volume : 1.57
Day (16 hrs) % of Total Volume : 92.19

```

Data for Segment # 2: G_WB-Yon-Mai (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Segment # 1: G_EB_Yon-Mai (day)

Source height = 1.35 m

ROAD (0.00 + 60.22 + 0.00) = 60.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.58	0.00	-5.90	-1.46	0.00	0.00	0.00	60.22

Segment Leq : 60.22 dBA

Segment # 2: G_WB-Yon-Mai (day)

Source height = 1.12 m

ROAD (0.00 + 60.91 + 0.00) = 60.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.60	0.00	-4.24	-1.46	0.00	0.00	0.00	60.91

Segment Leq : 60.91 dBA

Total Leq All Segments: 63.59 dBA

Segment # 1: G_EB_Yon-Mai (night)

Source height = 1.35 m

ROAD (0.00 + 52.72 + 0.00) = 52.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	60.39	0.00	-6.36	-1.31	0.00	0.00	0.00	52.72

Segment Leq : 52.72 dBA

Segment # 2: G_WB-Yon-Mai (night)

Source height = 1.12 m

ROAD (0.00 + 52.59 + 0.00) = 52.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	58.90	0.00	-4.99	-1.32	0.00	0.00	0.00	52.59

Segment Leq : 52.59 dBA

Total Leq All Segments: 55.67 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.59
(NIGHT): 55.67

Filename: 2021BR19.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: D_EB_Yon-Mai (day/night)

Car traffic volume : 12988/1245 veh/TimePeriod *
Medium truck volume : 230/22 veh/TimePeriod *
Heavy truck volume : 372/36 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 14893
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.69
Heavy Truck % of Total Volume : 2.74
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: D_EB_Yon-Mai (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 54.00 / 58.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: D_WB-Yon-Mai (day/night)

```

-----
Car traffic volume : 11892/1007 veh/TimePeriod *
Medium truck volume : 128/11 veh/TimePeriod *
Heavy truck volume : 299/25 veh/TimePeriod *
Posted speed limit : 46 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13363
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.04
Heavy Truck % of Total Volume : 2.43
Day (16 hrs) % of Total Volume : 92.19

```

Data for Segment # 2: D_WB-Yon-Mai (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 37.00 / 41.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Segment # 1: D_EB_Yon-Mai (day)

Source height = 1.29 m

ROAD (0.00 + 53.47 + 0.00) = 53.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.16	0.00	-9.23	-1.46	0.00	0.00	0.00	53.47

Segment Leq : 53.47 dBA

Segment # 2: D_WB-Yon-Mai (day)

Source height = 1.25 m

ROAD (0.00 + 56.49 + 0.00) = 56.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.46	0.00	-6.51	-1.46	0.00	0.00	0.00	56.49

Segment Leq : 56.49 dBA

Total Leq All Segments: 58.25 dBA

Segment # 1: D_EB_Yon-Mai (night)

Source height = 1.29 m

ROAD (0.00 + 46.45 + 0.00) = 46.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	57.02	0.00	-9.26	-1.31	0.00	0.00	0.00	46.45

Segment Leq : 46.45 dBA

Segment # 2: D_WB-Yon-Mai (night)

Source height = 1.24 m

ROAD (0.00 + 48.51 + 0.00) = 48.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	56.71	0.00	-6.89	-1.32	0.00	0.00	0.00	48.51

Segment Leq : 48.51 dBA

Total Leq All Segments: 50.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.25
(NIGHT): 50.61

Filename: 2021br20.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: D_EB_Bay-Les (day/night)

Car traffic volume : 11169/1071 veh/TimePeriod *
Medium truck volume : 204/20 veh/TimePeriod *
Heavy truck volume : 330/32 veh/TimePeriod *
Posted speed limit : 45 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12825
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.74
Heavy Truck % of Total Volume : 2.82
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: D_EB_Bay-Les (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 36.00 / 40.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 13.00 / 17.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: D_WB-Bay-Les (day/night)

```

-----
Car traffic volume : 11965/1014 veh/TimePeriod *
Medium truck volume : 164/14 veh/TimePeriod *
Heavy truck volume : 383/32 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13572
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.31
Heavy Truck % of Total Volume : 3.06
Day (16 hrs) % of Total Volume : 92.19
  
```

Data for Segment # 2: D_WB-Bay-Les (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 / 26.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 13.00 / 17.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: D_EB_Bay-Les (day)

Source height = 1.30 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.30 ! 1.50 ! 1.43 ! 1.43
  
```

ROAD (0.00 + 52.08 + 0.00) = 52.08 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.56 64.58 0.00 -5.92 -1.28 0.00 0.00 -5.30 52.08
-----
  
```

Segment Leq : 52.08 dBA

Results segment # 2: D_WB-Bay-Les (day)

Source height = 1.32 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.32	1.50	1.40	1.40

ROAD (0.00 + 56.99 + 0.00) = 56.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.56	66.39	0.00	-2.59	-1.28	0.00	0.00	-5.53	56.99

Segment Leq : 56.99 dBA

Total Leq All Segments: 58.21 dBA

Results segment # 1: D_EB_Bay-Les (night)

Source height = 1.30 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.30	4.50	3.14	3.14

ROAD (0.00 + 49.42 + 0.00) = 49.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	57.45	0.00	-6.25	-1.11	0.00	0.00	-1.12	48.97*
-90	90	0.58	57.45	0.00	-6.71	-1.31	0.00	0.00	0.00	49.42

* Bright Zone !

Segment Leq : 49.42 dBA

Results segment # 2: D_WB-Bay-Les (night)

Source height = 1.32 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)			
1.32	!	4.50	!	2.42	!	2.42

ROAD (0.00 + 53.57 + 0.00) = 53.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	58.65	0.00	-3.50	-1.11	0.00	0.00	-3.83	50.20*
-90	90	0.58	58.65	0.00	-3.76	-1.31	0.00	0.00	0.00	53.57

* Bright Zone !

Segment Leq : 53.57 dBA

Total Leq All Segments: 54.98 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.21
(NIGHT): 54.98

*Yonge Street Corridor – Public Transit Improvements Environmental Assessment
Noise and Vibration Impact Assessment*

APPENDIX D

STAMSON DATA SHEETS PREDICTED FUTURE (2021) SOUND LEVELS DUE TO ADDED BUS TRANSIT TRAFFIC

Filename: 2021br1.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Gam-Sto (day/night)

Car traffic volume : 17735/1294 veh/TimePeriod *
Medium truck volume : 454/33 veh/TimePeriod *
Heavy truck volume : 275/20 veh/TimePeriod *
Posted speed limit : 72 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 19811
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.46
Heavy Truck % of Total Volume : 1.49
Day (16 hrs) % of Total Volume : 93.20

Data for Segment # 1: Y_NB_Gam-Sto (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 16.00 / 20.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.52 m
Barrier receiver distance : 3.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Gam-Sto (day/night)

```

-----
Car traffic volume : 15511/1499 veh/TimePeriod *
Medium truck volume : 231/22 veh/TimePeriod *
Heavy truck volume : 188/18 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 17469
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.45
Heavy Truck % of Total Volume : 1.18
Day (16 hrs) % of Total Volume : 91.19
  
```

Data for Segment # 2: Y_SB-Gam-Sto (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 37.00 / 41.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.52 m
Barrier receiver distance : 3.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: Y_NB_Gam-Sto (day)

Source height = 1.10 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.10 ! 1.50 ! 1.43 ! 1.43
  
```

ROAD (0.00 + 64.48 + 0.00) = 64.48 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.00 69.82 0.00 -0.28 0.00 0.00 0.00 0.00 -5.06 64.48
-----
  
```

Segment Leq : 64.48 dBA

Results segment # 2: Y_SB-Gam-Sto (day)

Source height = 1.04 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.04	1.50	1.46	1.46

ROAD (0.00 + 53.85 + 0.00) = 53.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.79	0.00	-3.92	0.00	0.00	0.00	-5.02	53.85

Segment Leq : 53.85 dBA

Total Leq All Segments: 64.84 dBA

Results segment # 1: Y_NB_Gam-Sto (night)

Source height = 1.10 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.10	4.50	3.31	3.31

ROAD (0.00 + 60.21 + 0.00) = 60.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.46	0.00	-1.25	0.00	0.00	0.00	-0.26	59.95*
-90	90	0.00	61.46	0.00	-1.25	0.00	0.00	0.00	0.00	60.21

* Bright Zone !

Segment Leq : 60.21 dBA

Results segment # 2: Y_SB-Gam-Sto (night)

Source height = 1.04 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.04	4.50	3.91	3.91

ROAD (0.00 + 51.26 + 0.00) = 51.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.63	0.00	-4.37	0.00	0.00	0.00	-0.18	51.09*
-90	90	0.00	55.63	0.00	-4.37	0.00	0.00	0.00	0.00	51.26

* Bright Zone !

Segment Leq : 51.26 dBA

Total Leq All Segments: 60.73 dBA

RT/Custom data, segment # 1: BR-NB-GA-ST (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
Speed : 70 km/h

Data for Segment # 1: BR-NB-GA-ST (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 24.00 / 28.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.52 m
Barrier receiver distance : 3.00 / 7.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-GA-ST (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
 Speed : 70 km/h

Data for Segment # 2: BR-SB-GA-ST (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 28.00 / 32.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
 Barrier height : 1.52 m
 Barrier receiver distance : 3.00 / 7.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: BR-NB-GA-ST (day)

 Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.38	1.38

RT/Custom (0.00 + 54.28 + 0.00) = 54.28 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.45	-2.04	0.00	0.00	0.00	-5.13	54.28

 Segment Leq : 54.28 dBA

Results segment # 2: BR-SB-GA-ST (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	1.50	!	1.39	!	1.39

RT/Custom (0.00 + 53.64 + 0.00) = 53.64 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.45	-2.71	0.00	0.00	0.00	-5.10	53.64

Segment Leq : 53.64 dBA

Total Leq All Segments: 56.98 dBA

Results segment # 1: BR-NB-GA-ST (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	4.50	!	3.50	!	3.50

RT/Custom (0.00 + 54.09 + 0.00) = 54.09 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.80	-2.71	0.00	0.00	0.00	-0.24	53.85*
-90	90	0.00	56.80	-2.71	0.00	0.00	0.00	0.00	54.09

* Bright Zone !

Segment Leq : 54.09 dBA

Results segment # 2: BR-SB-GA-ST (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	4.50	!	3.62	!	3.62

RT/Custom (0.00 + 53.51 + 0.00) = 53.51 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.80	-3.29	0.00	0.00	0.00	-0.22	53.29*
-90	90	0.00	56.80	-3.29	0.00	0.00	0.00	0.00	53.51

* Bright Zone !

Segment Leq : 53.51 dBA

Total Leq All Segments: 56.82 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.50
(NIGHT): 62.21

Filename: 2021br2.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Sto-Kin (day/night)

Car traffic volume : 13312/971 veh/TimePeriod *
Medium truck volume : 461/34 veh/TimePeriod *
Heavy truck volume : 280/20 veh/TimePeriod *
Posted speed limit : 77 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 15078
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.28
Heavy Truck % of Total Volume : 1.99
Day (16 hrs) % of Total Volume : 93.20

Data for Segment # 1: Y_NB_Sto-Kin (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 17.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Sto-Kin (day/night)

```

-----
Car traffic volume : 12092/1168 veh/TimePeriod *
Medium truck volume : 333/32 veh/TimePeriod *
Heavy truck volume : 270/26 veh/TimePeriod *
Posted speed limit : 46 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13921
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.62
Heavy Truck % of Total Volume : 2.13
Day (16 hrs) % of Total Volume : 91.19

```

Data for Segment # 2: Y_SB-Sto-Kin (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 33.00 / 37.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Sto-Kin (day)

Source height = 1.19 m

ROAD (0.00 + 69.91 + 0.00) = 69.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.91	0.00	0.00	0.00	0.00	0.00	0.00	69.91

Segment Leq : 69.91 dBA

Results segment # 2: Y_SB-Sto-Kin (day)

Source height = 1.21 m

ROAD (0.00 + 61.19 + 0.00) = 61.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.61	0.00	-3.42	0.00	0.00	0.00	0.00	61.19

Segment Leq : 61.19 dBA

Total Leq All Segments: 70.46 dBA

Results segment # 1: Y_NB_Sto-Kin (night)

Source height = 1.18 m

ROAD (0.00 + 60.99 + 0.00) = 60.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.53	0.00	-0.54	0.00	0.00	0.00	0.00	60.99

Segment Leq : 60.99 dBA

Results segment # 2: Y_SB-Sto-Kin (night)

Source height = 1.21 m

ROAD (0.00 + 53.54 + 0.00) = 53.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.46	0.00	-3.92	0.00	0.00	0.00	0.00	53.54

Segment Leq : 53.54 dBA

Total Leq All Segments: 61.71 dBA

RT/Custom data, segment # 1: BR-NB-ST-KI (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
Speed : 80 km/h

Data for Segment # 1: BR-NB-ST-KI (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 22.00 / 26.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-ST-KI (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
Speed : 80 km/h

Data for Segment # 2: BR-SB-ST-KI (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 26.00 / 30.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-ST-KI (day)

Source height = 0.50 m

RT/Custom (0.00 + 61.17 + 0.00) = 61.17 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.84	-1.66	0.00	0.00	0.00	0.00	61.17

Segment Leq : 61.17 dBA

Results segment # 2: BR-SB-ST-KI (day)

Source height = 0.50 m

RT/Custom (0.00 + 60.45 + 0.00) = 60.45 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.84	-2.39	0.00	0.00	0.00	0.00	60.45

Segment Leq : 60.45 dBA

Total Leq All Segments: 63.84 dBA

Results segment # 1: BR-NB-ST-KI (night)

Source height = 0.50 m

RT/Custom (0.00 + 55.80 + 0.00) = 55.80 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.19	-2.39	0.00	0.00	0.00	0.00	55.80

Segment Leq : 55.80 dBA

Results segment # 2: BR-SB-ST-KI (night)

Source height = 0.50 m

RT/Custom (0.00 + 55.18 + 0.00) = 55.18 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.19	-3.01	0.00	0.00	0.00	0.00	55.18

Segment Leq : 55.18 dBA

Total Leq All Segments: 58.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.31
(NIGHT): 63.41

Filename: 2021br3.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_NLa-Bla (day/night)

Car traffic volume : 18737/1482 veh/TimePeriod *
Medium truck volume : 651/51 veh/TimePeriod *
Heavy truck volume : 396/31 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 21348
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.29
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 92.67

Data for Segment # 1: Y_NB_NLa-Bla (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 4.00 / 4.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-NLa-Bla (day/night)

```
-----
Car traffic volume : 13804/1243 veh/TimePeriod *
Medium truck volume : 289/26 veh/TimePeriod *
Heavy truck volume : 235/21 veh/TimePeriod *
Posted speed limit : 48 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

* Refers to calculated road volumes based on the following input:

```
24 hr Traffic Volume (AADT or SADT): 15618
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.02
Heavy Truck % of Total Volume : 1.64
Day (16 hrs) % of Total Volume : 91.74
```

Data for Segment # 2: Y_SB-NLa-Bla (day/night)

```
-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 4.00 / 0.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
```

Results segment # 1: Y_NB_NLa-Bla (day)

Source height = 1.19 m

Barrier height for grazing incidence

```
-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.19 ! 1.50 ! 1.42 ! 1.42
```

ROAD (0.00 + 62.33 + 0.00) = 62.33 dBA

```
-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.58 68.68 0.00 0.00 -1.32 0.00 0.00 -5.04 62.33
-----
```

Segment Leq : 62.33 dBA

Results segment # 2: Y_SB-NLa-Bla (day)

Source height = 1.13 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.13	1.50	1.46	1.46

ROAD (0.00 + 52.68 + 0.00) = 52.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	64.83	0.00	-5.82	-1.32	0.00	0.00	-5.01	52.68

Segment Leq : 52.68 dBA

Total Leq All Segments: 62.78 dBA

Results segment # 1: Y_NB_NLa-Bla (night)

Source height = 1.19 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.19	4.50	3.62	3.62

ROAD (0.00 + 59.33 + 0.00) = 59.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	60.65	0.00	0.00	-1.16	0.00	0.00	-0.13	59.37*
-90	90	0.58	60.65	0.00	0.00	-1.32	0.00	0.00	0.00	59.33

* Bright Zone !

Segment Leq : 59.33 dBA

Results segment # 2: Y_SB-NLa-Bla (night)

Source height = 1.13 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.13	4.50	4.50	4.50

ROAD (0.00 + 51.07 + 0.00) = 51.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	57.37	0.00	-4.70	-1.16	0.00	0.00	99.00	150.51
-90	90	0.58	57.37	0.00	-4.98	-1.32	0.00	0.00	0.00	51.07

* Bright Zone !

Segment Leq : 51.07 dBA

Total Leq All Segments: 59.93 dBA

RT/Custom data, segment # 1: BR-NB-NO-BL (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 1: BR-NB-NO-BL (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 / 17.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.50 m
Barrier receiver distance : 4.00 / 0.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-NO-BL (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
 Speed : 60 km/h

Data for Segment # 2: BR-SB-NO-BL (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 28.00 / 24.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
 Barrier height : 1.50 m
 Barrier receiver distance : 4.00 / 0.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: BR-NB-NO-BL (day)

 Source height = 0.50 m

Barrier height for grazing incidence

 Source ! Receiver ! Barrier ! Elevation of
 Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
 -----+-----+-----+-----
 0.50 ! 1.50 ! 1.31 ! 1.31

RT/Custom (0.00 + 50.97 + 0.00) = 50.97 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	59.85	-2.34	-1.35	0.00	0.00	-5.18	50.97

Segment Leq : 50.97 dBA

Results segment # 2: BR-SB-NO-BL (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.36	1.36

RT/Custom (0.00 + 49.06 + 0.00) = 49.06 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	59.85	-4.34	-1.35	0.00	0.00	-5.10	49.06

Segment Leq : 49.06 dBA

Total Leq All Segments: 53.13 dBA

Results segment # 1: BR-NB-NO-BL (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	4.50	4.50	4.50

RT/Custom (0.00 + 52.98 + 0.00) = 52.98 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.51	55.20	-0.82	-1.19	0.00	0.00	99.00	152.19
-90	90	0.60	55.20	-0.87	-1.35	0.00	0.00	0.00	52.98

* Bright Zone !

Segment Leq : 52.98 dBA

Results segment # 2: BR-SB-NO-BL (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 4.50 ! 4.50 ! 4.50

RT/Custom (0.00 + 50.58 + 0.00) = 50.58 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.51	55.20	-3.08	-1.19	0.00	0.00	99.00	149.93
-90	90	0.60	55.20	-3.27	-1.35	0.00	0.00	0.00	50.58

* Bright Zone !

Segment Leq : 50.58 dBA

Total Leq All Segments: 54.95 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.22
(NIGHT): 61.13

Filename: 2021br4.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Bla-Blo (day/night)

Car traffic volume : 18122/1433 veh/TimePeriod *
Medium truck volume : 587/46 veh/TimePeriod *
Heavy truck volume : 357/28 veh/TimePeriod *
Posted speed limit : 55 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 20574
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.08
Heavy Truck % of Total Volume : 1.87
Day (16 hrs) % of Total Volume : 92.67

Data for Segment # 1: Y_NB_Bla-Blo (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 43.00 / 47.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Bla-Blo (day/night)

```

-----
Car traffic volume : 14068/1267 veh/TimePeriod *
Medium truck volume : 306/28 veh/TimePeriod *
Heavy truck volume : 249/22 veh/TimePeriod *
Posted speed limit : 47 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 15939
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.09
Heavy Truck % of Total Volume : 1.70
Day (16 hrs) % of Total Volume : 91.74

```

Data for Segment # 2: Y_SB-Bla-Blo (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 28.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Bla-Blo (day)

Source height = 1.17 m

ROAD (0.00 + 58.81 + 0.00) = 58.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.85	0.00	-7.59	-1.46	0.00	0.00	0.00	58.81

Segment Leq : 58.81 dBA

Results segment # 2: Y_SB-Bla-Blo (day)

Source height = 1.14 m

ROAD (0.00 + 59.98 + 0.00) = 59.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.82	0.00	-3.39	-1.46	0.00	0.00	0.00	59.98

Segment Leq : 59.98 dBA

Total Leq All Segments: 62.44 dBA

Results segment # 1: Y_NB_Bla-Blo (night)

Source height = 1.17 m

ROAD (0.00 + 50.67 + 0.00) = 50.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.82	0.00	-7.84	-1.32	0.00	0.00	0.00	50.67

Segment Leq : 50.67 dBA

Results segment # 2: Y_SB-Bla-Blo (night)

Source height = 1.14 m

ROAD (0.00 + 51.74 + 0.00) = 51.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	57.35	0.00	-4.29	-1.32	0.00	0.00	0.00	51.74

Segment Leq : 51.74 dBA

Total Leq All Segments: 54.25 dBA

RT/Custom data, segment # 1: BR-NB-BL-BLO (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 1: BR-NB-BL-BLO (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 37.00 / 41.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-BL-BLO (day/night)

1 - Bus:

Traffic volume : 420/72 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 2: BR-SB-BL-BLO (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.00 / 33.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-BL-BLO (day)

Source height = 0.50 m

RT/Custom (0.00 + 51.88 + 0.00) = 51.88 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.85	-6.51	-1.46	0.00	0.00	0.00	51.88

Segment Leq : 51.88 dBA

Results segment # 2: BR-SB-BL-BLO (day)

Source height = 0.50 m

RT/Custom (0.00 + 53.64 + 0.00) = 53.64 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.85	-4.75	-1.46	0.00	0.00	0.00	53.64

Segment Leq : 53.64 dBA

Total Leq All Segments: 55.86 dBA

Results segment # 1: BR-NB-BL-BLO (night)

Source height = 0.50 m

RT/Custom (0.00 + 46.86 + 0.00) = 46.86 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	55.20	-6.99	-1.35	0.00	0.00	0.00	46.86

Segment Leq : 46.86 dBA

Results segment # 2: BR-SB-BL-BLO (night)

Source height = 0.50 m

RT/Custom (0.00 + 48.37 + 0.00) = 48.37 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	55.20	-5.48	-1.35	0.00	0.00	0.00	48.37

Segment Leq : 48.37 dBA

Total Leq All Segments: 50.69 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.31
(NIGHT): 55.83

Filename: 2021br5.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Blo-Ind (day/night)

Car traffic volume : 10773/825 veh/TimePeriod *
Medium truck volume : 330/25 veh/TimePeriod *
Heavy truck volume : 200/15 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12168
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.92
Heavy Truck % of Total Volume : 1.77
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Blo-Ind (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 41.00 / 45.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Car traffic volume : 9339/843 veh/TimePeriod *
Medium truck volume : 139/13 veh/TimePeriod *
Heavy truck volume : 113/10 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 10457
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.45
Heavy Truck % of Total Volume : 1.18
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 54.00 / 60.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Blo-Ind (day)

Source height = 1.15 m

ROAD (0.00 + 59.06 + 0.00) = 59.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.77	0.00	-7.25	-1.46	0.00	0.00	0.00	59.06

Segment Leq : 59.06 dBA

Results segment # 2: Y_SB-Blo-Ind (day)

Source height = 1.04 m

ROAD (0.00 + 52.60 + 0.00) = 52.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.29	0.00	-9.23	-1.46	0.00	0.00	0.00	52.60

Segment Leq : 52.60 dBA

Total Leq All Segments: 59.94 dBA

Results segment # 1: Y_NB_Blo-Ind (night)

Source height = 1.15 m

ROAD (0.00 + 50.72 + 0.00) = 50.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.58	0.00	-7.54	-1.32	0.00	0.00	0.00	50.72

Segment Leq : 50.72 dBA

Results segment # 2: Y_SB-Blo-Ind (night)

Source height = 1.04 m

ROAD (0.00 + 44.98 + 0.00) = 44.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	55.84	0.00	-9.54	-1.33	0.00	0.00	0.00	44.98

Segment Leq : 44.98 dBA

Total Leq All Segments: 51.75 dBA

RT/Custom data, segment # 1: BR-NB-BLO-IN (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 70 km/h

Data for Segment # 1: BR-NB-BLO-IN (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 47.00 / 51.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-BLO-IN (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 70 km/h

Data for Segment # 2: BR-SB-BLO-IN (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 51.00 / 55.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-BLO-IN (day)

Source height = 0.50 m

RT/Custom (0.00 + 49.33 + 0.00) = 49.33 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.02	-8.23	-1.46	0.00	0.00	0.00	49.33

Segment Leq : 49.33 dBA

Results segment # 2: BR-SB-BLO-IN (day)

Source height = 0.50 m

RT/Custom (0.00 + 48.74 + 0.00) = 48.74 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.02	-8.82	-1.46	0.00	0.00	0.00	48.74

Segment Leq : 48.74 dBA

Total Leq All Segments: 52.06 dBA

Results segment # 1: BR-NB-BLO-IN (night)

Source height = 0.50 m

RT/Custom (0.00 + 44.60 + 0.00) = 44.60 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	54.46	-8.50	-1.35	0.00	0.00	0.00	44.60

Segment Leq : 44.60 dBA

Results segment # 2: BR-SB-BLO-IN (night)

Source height = 0.50 m

RT/Custom (0.00 + 44.08 + 0.00) = 44.08 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	54.46	-9.03	-1.35	0.00	0.00	0.00	44.08

Segment Leq : 44.08 dBA

Total Leq All Segments: 47.36 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.60
(NIGHT): 53.09

Filename: 2021br6.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Blo-Ind (day/night)

Car traffic volume : 10773/825 veh/TimePeriod *
Medium truck volume : 330/25 veh/TimePeriod *
Heavy truck volume : 200/15 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12168
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.92
Heavy Truck % of Total Volume : 1.77
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Blo-Ind (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 44.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Car traffic volume : 9339/843 veh/TimePeriod *
Medium truck volume : 139/13 veh/TimePeriod *
Heavy truck volume : 113/10 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 10457
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.45
Heavy Truck % of Total Volume : 1.18
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Blo-Ind (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 34.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Blo-Ind (day)

Source height = 1.15 m

ROAD (0.00 + 59.24 + 0.00) = 59.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.77	0.00	-7.07	-1.46	0.00	0.00	0.00	59.24

Segment Leq : 59.24 dBA

Results segment # 2: Y_SB-Blo-Ind (day)

Source height = 1.04 m

ROAD (0.00 + 56.84 + 0.00) = 56.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.29	0.00	-5.00	-1.46	0.00	0.00	0.00	56.84

Segment Leq : 56.84 dBA

Total Leq All Segments: 61.21 dBA

Results segment # 1: Y_NB_Blo-Ind (night)

Source height = 1.15 m

ROAD (0.00 + 50.37 + 0.00) = 50.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.58	0.00	-7.76	-1.46	0.00	0.00	0.00	50.37

Segment Leq : 50.37 dBA

Results segment # 2: Y_SB-Blo-Ind (night)

Source height = 1.04 m

ROAD (0.00 + 48.49 + 0.00) = 48.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	55.84	0.00	-5.90	-1.46	0.00	0.00	0.00	48.49

Segment Leq : 48.49 dBA

Total Leq All Segments: 52.54 dBA

RT/Custom data, segment # 1: BR-NB-BLO-IN (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 70 km/h

Data for Segment # 1: BR-NB-BLO-IN (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 44.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-BLO-IN (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 70 km/h

Data for Segment # 2: BR-SB-BLO-IN (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 34.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-BLO-IN (day)

Source height = 0.50 m

RT/Custom (0.00 + 50.49 + 0.00) = 50.49 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.02	-7.07	-1.46	0.00	0.00	0.00	50.49

Segment Leq : 50.49 dBA

Results segment # 2: BR-SB-BLO-IN (day)

Source height = 0.50 m

RT/Custom (0.00 + 52.57 + 0.00) = 52.57 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.02	-5.00	-1.46	0.00	0.00	0.00	52.57

Segment Leq : 52.57 dBA

Total Leq All Segments: 54.66 dBA

Results segment # 1: BR-NB-BLO-IN (night)

Source height = 0.50 m

RT/Custom (0.00 + 45.25 + 0.00) = 45.25 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	54.46	-7.76	-1.46	0.00	0.00	0.00	45.25

Segment Leq : 45.25 dBA

Results segment # 2: BR-SB-BLO-IN (night)

Source height = 0.50 m

RT/Custom (0.00 + 47.10 + 0.00) = 47.10 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	54.46	-5.90	-1.46	0.00	0.00	0.00	47.10

Segment Leq : 47.10 dBA

Total Leq All Segments: 49.28 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.08
(NIGHT): 54.22

Filename: 2021br7.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 16732/1281 veh/TimePeriod *
Medium truck volume : 346/26 veh/TimePeriod *
Heavy truck volume : 209/16 veh/TimePeriod *
Posted speed limit : 57 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 18610
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 1.21
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Indus_Hend N (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 48.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Elevation : 0.00 m
Barrier receiver distance : 15.00 / 18.00 m
Source elevation : 0.00 m
Receiver elevation : 3.65 m
Barrier elevation : 3.65 m
Reference angle : 0.00

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

```

-----
Car traffic volume : 13856/1251 veh/TimePeriod *
Medium truck volume : 187/17 veh/TimePeriod *
Heavy truck volume : 152/14 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 15477
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.32
Heavy Truck % of Total Volume : 1.07
Day (16 hrs) % of Total Volume : 91.72
  
```

Data for Segment # 2: Indus_Hend S (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Elevation : 0.00 m
Barrier receiver distance : 15.00 / 18.00 m
Source elevation : 0.00 m
Receiver elevation : 3.65 m
Barrier elevation : 3.65 m
Reference angle : 0.00
  
```

Results segment # 1: Indus_Hend N (day)

Source height = 1.05 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.05 ! 1.50 ! 0.13 ! 3.78
  
```

ROAD (0.00 + 48.76 + 0.00) = 48.76 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.53 66.78 0.00 -7.30 -1.23 0.00 0.00 -9.49 48.76
-----
  
```

Segment Leq : 48.76 dBA

Results segment # 2: Indus_Hend S (day)

Source height = 1.02 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.02	1.50	-0.27	3.38

ROAD (0.00 + 44.43 + 0.00) = 44.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.53	62.07	0.00	-5.63	-1.23	0.00	0.00	-10.78	44.43

Segment Leq : 44.43 dBA

Total Leq All Segments: 50.12 dBA

Results segment # 1: Indus_Hend N (night)

Source height = 1.05 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.05	4.50	1.84	5.49

ROAD (0.00 + 44.85 + 0.00) = 44.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.44	58.62	0.00	-7.27	-1.06	0.00	0.00	-5.44	44.85

Segment Leq : 44.85 dBA

Results segment # 2: Indus_Hend S (night)

Source height = 1.02 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.02	4.50	1.12	4.77

ROAD (0.00 + 40.72 + 0.00) = 40.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.44	54.68	0.00	-5.81	-1.06	0.00	0.00	-7.08	40.72

Segment Leq : 40.72 dBA

Total Leq All Segments: 46.27 dBA

RT/Custom data, segment # 1: BR-NB-IN-HE (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 50 km/h

Data for Segment # 1: BR-NB-IN-HE (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 48.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Elevation : 0.00 m
Barrier receiver distance : 15.00 / 18.00 m
Source elevation : 0.00 m
Receiver elevation : 3.65 m
Barrier elevation : 3.65 m
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-IN-HE (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
 Speed : 50 km/h

Data for Segment # 2: BR-SB-IN-HE (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 35.00 / 38.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 4 (Elevated; with barrier)
 Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
 Barrier height : 2.40 m
 Elevation : 0.00 m
 Barrier receiver distance : 15.00 / 18.00 m
 Source elevation : 0.00 m
 Receiver elevation : 3.65 m
 Barrier elevation : 3.65 m
 Reference angle : 0.00

Results segment # 1: BR-NB-IN-HE (day)

 Source height = 0.50 m

Barrier height for grazing incidence

 Source ! Receiver ! Barrier ! Elevation of
 Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
 -----+-----+-----+-----
 0.50 ! 1.50 ! -0.05 ! 3.60

RT/Custom (0.00 + 37.00 + 0.00) = 37.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.55	55.53	-7.38	-1.26	0.00	0.00	-9.89	37.00

Segment Leq : 37.00 dBA

Results segment # 2: BR-SB-IN-HE (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	1.50	!	-0.49	!	3.16

RT/Custom (0.00 + 37.35 + 0.00) = 37.35 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.55	55.53	-5.69	-1.26	0.00	0.00	-11.23	37.35

Segment Leq : 37.35 dBA

Total Leq All Segments: 40.19 dBA

Results segment # 1: BR-NB-IN-HE (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	4.50	!	1.63	!	5.28

RT/Custom (0.00 + 36.75 + 0.00) = 36.75 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.46	50.97	-7.35	-1.09	0.00	0.00	-5.77	36.75

Segment Leq : 36.75 dBA

Results segment # 2: BR-SB-IN-HE (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	4.50	!	0.88	!	4.53

RT/Custom (0.00 + 36.31 + 0.00) = 36.31 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.46	50.97	-5.88	-1.09	0.00	0.00	-7.69	36.31

Segment Leq : 36.31 dBA

Total Leq All Segments: 39.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.54
(NIGHT): 47.11

Filename: 2021br8.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Hen-Ken (day/night)

Car traffic volume : 14652/1121 veh/TimePeriod *
Medium truck volume : 303/23 veh/TimePeriod *
Heavy truck volume : 185/14 veh/TimePeriod *
Posted speed limit : 49 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 16298
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 1.22
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Hen-Ken (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 26.00 / 29.00 m
Receiver height : 1.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Hen-Ken (day/night)

```

-----
Car traffic volume : 17565/1586 veh/TimePeriod *
Medium truck volume : 372/34 veh/TimePeriod *
Heavy truck volume : 303/27 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 19887
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.04
Heavy Truck % of Total Volume : 1.66
Day (16 hrs) % of Total Volume : 91.72

```

Data for Segment # 2: Y_SB-Hen-Ken (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.00 / 22.00 m
Receiver height : 1.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Hen-Ken (day)

Source height = 1.05 m

ROAD (0.00 + 62.34 + 0.00) = 62.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.73	0.00	-2.39	0.00	0.00	0.00	0.00	62.34

Segment Leq : 62.34 dBA

Results segment # 2: Y_SB-Hen-Ken (day)

Source height = 1.14 m

ROAD (0.00 + 63.23 + 0.00) = 63.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.26	0.00	-1.03	0.00	0.00	0.00	0.00	63.23

Segment Leq : 63.23 dBA

Total Leq All Segments: 65.82 dBA

Results segment # 1: Y_NB_Hen-Ken (night)

Source height = 1.05 m

ROAD (0.00 + 53.69 + 0.00) = 53.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.56	0.00	-2.86	0.00	0.00	0.00	0.00	53.69

Segment Leq : 53.69 dBA

Results segment # 2: Y_SB-Hen-Ken (night)

Source height = 1.13 m

ROAD (0.00 + 55.14 + 0.00) = 55.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.80	0.00	-1.66	0.00	0.00	0.00	0.00	55.14

Segment Leq : 55.14 dBA

Total Leq All Segments: 57.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.82
(NIGHT): 57.49

Filename: 2021br9.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Ken-Wel (day/night)

Car traffic volume : 13979/1070 veh/TimePeriod *
Medium truck volume : 366/28 veh/TimePeriod *
Heavy truck volume : 221/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 15681
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.51
Heavy Truck % of Total Volume : 1.52
Day (16 hrs) % of Total Volume : 92.89

Data for Segment # 1: Y_NB_Ken-Wel (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 21.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Ken-Wel (day/night)

Car traffic volume : 15519/1401 veh/TimePeriod *
Medium truck volume : 287/26 veh/TimePeriod *
Heavy truck volume : 233/21 veh/TimePeriod *
Posted speed limit : 47 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17487
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.79
Heavy Truck % of Total Volume : 1.45
Day (16 hrs) % of Total Volume : 91.72

Data for Segment # 2: Y_SB-Ken-Wel (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 28.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Y_NB_Ken-Wel (day)

Source height = 1.11 m

ROAD (0.00 + 63.81 + 0.00) = 63.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.27	0.00	-1.46	0.00	0.00	0.00	0.00	63.81

Segment Leq : 63.81 dBA

Results segment # 2: Y_SB-Ken-Wel (day)

Source height = 1.10 m

ROAD (0.00 + 62.12 + 0.00) = 62.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.83	0.00	-2.71	0.00	0.00	0.00	0.00	62.12

Segment Leq : 62.12 dBA

Total Leq All Segments: 66.06 dBA

Results segment # 1: Y_NB_Ken-Wel (night)

Source height = 1.11 m

ROAD (0.00 + 55.09 + 0.00) = 55.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.13	0.00	-2.04	0.00	0.00	0.00	0.00	55.09

Segment Leq : 55.09 dBA

Results segment # 2: Y_SB-Ken-Wel (night)

Source height = 1.10 m

ROAD (0.00 + 54.24 + 0.00) = 54.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.40	0.00	-3.15	0.00	0.00	0.00	0.00	54.24

Segment Leq : 54.24 dBA

Total Leq All Segments: 57.70 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.06
(NIGHT): 57.70

Filename: 2021br10.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Wel-Aur (day/night)

Car traffic volume : 11818/819 veh/TimePeriod *
Medium truck volume : 151/10 veh/TimePeriod *
Heavy truck volume : 92/6 veh/TimePeriod *
Posted speed limit : 48 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12896
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.25
Heavy Truck % of Total Volume : 0.76
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Wel-Aur (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Wel-Aur (day/night)

```

-----
Car traffic volume : 15027/1308 veh/TimePeriod *
Medium truck volume : 214/19 veh/TimePeriod *
Heavy truck volume : 174/15 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 16758
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.39
Heavy Truck % of Total Volume : 1.13
Day (16 hrs) % of Total Volume : 91.99

```

Data for Segment # 2: Y_SB-Wel-Aur (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 18.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Wel-Aur (day)

Source height = 0.93 m

ROAD (0.00 + 62.61 + 0.00) = 62.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.61	0.00	0.00	0.00	0.00	0.00	0.00	62.61

Segment Leq : 62.61 dBA

Results segment # 2: Y_SB-Wel-Aur (day)

Source height = 1.03 m

ROAD (0.00 + 62.55 + 0.00) = 62.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.55	0.00	0.00	0.00	0.00	0.00	0.00	62.55

Segment Leq : 62.55 dBA

Total Leq All Segments: 65.59 dBA

Results segment # 1: Y_NB_Wel-Aur (night)

Source height = 0.92 m

ROAD (0.00 + 53.92 + 0.00) = 53.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	53.92	0.00	0.00	0.00	0.00	0.00	0.00	53.92

Segment Leq : 53.92 dBA

Results segment # 2: Y_SB-Wel-Aur (night)

Source height = 1.03 m

ROAD (0.00 + 54.15 + 0.00) = 54.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.95	0.00	-0.79	0.00	0.00	0.00	0.00	54.15

Segment Leq : 54.15 dBA

Total Leq All Segments: 57.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.59
(NIGHT): 57.05

Filename: 2021br11.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Aur-Orc (day/night)

Car traffic volume : 9603/665 veh/TimePeriod *
Medium truck volume : 167/12 veh/TimePeriod *
Heavy truck volume : 102/7 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 10555
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.69
Heavy Truck % of Total Volume : 1.03
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Aur-Orc (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 29.00 / 32.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Aur-Orc (day/night)

```

-----
Car traffic volume : 9647/840 veh/TimePeriod *
Medium truck volume : 99/9 veh/TimePeriod *
Heavy truck volume : 81/7 veh/TimePeriod *
Posted speed limit : 48 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 10682
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.01
Heavy Truck % of Total Volume : 0.82
Day (16 hrs) % of Total Volume : 91.99

```

Data for Segment # 2: Y_SB-Aur-Orc (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.00 / 22.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Aur-Orc (day)

Source height = 1.01 m

ROAD (0.00 + 61.35 + 0.00) = 61.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.21	0.00	-2.86	0.00	0.00	0.00	0.00	61.35

Segment Leq : 61.35 dBA

Results segment # 2: Y_SB-Aur-Orc (day)

Source height = 0.95 m

ROAD (0.00 + 60.71 + 0.00) = 60.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.73	0.00	-1.03	0.00	0.00	0.00	0.00	60.71

Segment Leq : 60.71 dBA

Total Leq All Segments: 64.05 dBA

Results segment # 1: Y_NB_Aur-Orc (night)

Source height = 1.01 m

ROAD (0.00 + 52.34 + 0.00) = 52.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.63	0.00	-3.29	0.00	0.00	0.00	0.00	52.34

Segment Leq : 52.34 dBA

Results segment # 2: Y_SB-Aur-Orc (night)

Source height = 0.95 m

ROAD (0.00 + 52.48 + 0.00) = 52.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.15	0.00	-1.66	0.00	0.00	0.00	0.00	52.48

Segment Leq : 52.48 dBA

Total Leq All Segments: 55.42 dBA

RT/Custom data, segment # 1: BR-NB-AU-ORC (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 50 km/h

Data for Segment # 1: BR-NB-AU-ORC (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 29.00 / 32.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-AU-ORC (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 50 km/h

Data for Segment # 2: BR-SB-AU-ORC (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.00 / 22.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-AU-ORC (day)

Source height = 0.50 m

RT/Custom (0.00 + 52.66 + 0.00) = 52.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.53	-2.86	0.00	0.00	0.00	0.00	52.66

Segment Leq : 52.66 dBA

Results segment # 2: BR-SB-AU-ORC (day)

Source height = 0.50 m

RT/Custom (0.00 + 54.50 + 0.00) = 54.50 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.53	-1.03	0.00	0.00	0.00	0.00	54.50

Segment Leq : 54.50 dBA

Total Leq All Segments: 56.69 dBA

Results segment # 1: BR-NB-AU-ORC (night)

Source height = 0.50 m

RT/Custom (0.00 + 47.68 + 0.00) = 47.68 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	50.97	-3.29	0.00	0.00	0.00	0.00	47.68

Segment Leq : 47.68 dBA

Results segment # 2: BR-SB-AU-ORC (night)

Source height = 0.50 m

RT/Custom (0.00 + 49.30 + 0.00) = 49.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	50.97	-1.66	0.00	0.00	0.00	0.00	49.30

Segment Leq : 49.30 dBA

Total Leq All Segments: 51.58 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.78
(NIGHT): 56.92

Filename: 2021br12.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Orc-St. (day/night)

Car traffic volume : 9093/630 veh/TimePeriod *
Medium truck volume : 514/36 veh/TimePeriod *
Heavy truck volume : 311/22 veh/TimePeriod *
Posted speed limit : 79 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 10605
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.18
Heavy Truck % of Total Volume : 3.14
Day (16 hrs) % of Total Volume : 93.52

Data for Segment # 1: Y_NB_Orc-St. (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 61.00 / 65.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Orc-St. (day/night)

```

-----
Car traffic volume : 13018/1134 veh/TimePeriod *
Medium truck volume : 197/17 veh/TimePeriod *
Heavy truck volume : 161/14 veh/TimePeriod *
Posted speed limit : 76 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 14540
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.47
Heavy Truck % of Total Volume : 1.20
Day (16 hrs) % of Total Volume : 91.99

```

Data for Segment # 2: Y_SB-Orc-St. (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 78.00 / 82.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Orc-St. (day)

Source height = 1.33 m

ROAD (0.00 + 63.67 + 0.00) = 63.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.76	0.00	-6.09	0.00	0.00	0.00	0.00	63.67

Segment Leq : 63.67 dBA

Results segment # 2: Y_SB-Orc-St. (day)

Source height = 1.05 m

ROAD (0.00 + 61.27 + 0.00) = 61.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.43	0.00	-7.16	0.00	0.00	0.00	0.00	61.27

Segment Leq : 61.27 dBA

Total Leq All Segments: 65.64 dBA

Results segment # 1: Y_NB_Orc-St. (night)

Source height = 1.34 m

ROAD (0.00 + 54.86 + 0.00) = 54.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.23	0.00	-6.37	0.00	0.00	0.00	0.00	54.86

Segment Leq : 54.86 dBA

Results segment # 2: Y_SB-Orc-St. (night)

Source height = 1.05 m

ROAD (0.00 + 53.45 + 0.00) = 53.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.83	0.00	-7.38	0.00	0.00	0.00	0.00	53.45

Segment Leq : 53.45 dBA

Total Leq All Segments: 57.22 dBA

RT/Custom data, segment # 1: BR-NB-ORC-ST (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 1: BR-NB-ORC-ST (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 66.00 / 70.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-ORC-ST (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 2: BR-SB-ORC-ST (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 69.00 / 73.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-ORC-ST (day)

Source height = 0.50 m

RT/Custom (0.00 + 50.99 + 0.00) = 50.99 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.42	-6.43	0.00	0.00	0.00	0.00	50.99

Segment Leq : 50.99 dBA

Results segment # 2: BR-SB-ORC-ST (day)

Source height = 0.50 m

RT/Custom (0.00 + 50.79 + 0.00) = 50.79 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.42	-6.63	0.00	0.00	0.00	0.00	50.79

Segment Leq : 50.79 dBA

Total Leq All Segments: 53.90 dBA

Results segment # 1: BR-NB-ORC-ST (night)

Source height = 0.50 m

RT/Custom (0.00 + 46.17 + 0.00) = 46.17 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	52.86	-6.69	0.00	0.00	0.00	0.00	46.17

Segment Leq : 46.17 dBA

Results segment # 2: BR-SB-ORC-ST (night)

Source height = 0.50 m

RT/Custom (0.00 + 45.99 + 0.00) = 45.99 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	52.86	-6.87	0.00	0.00	0.00	0.00	45.99

Segment Leq : 45.99 dBA

Total Leq All Segments: 49.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.93
(NIGHT): 57.84

Filename: 2021br13.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_St.-Mul (day/night)

Car traffic volume : 11736/781 veh/TimePeriod *
Medium truck volume : 89/6 veh/TimePeriod *
Heavy truck volume : 53/4 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12669
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 0.75
Heavy Truck % of Total Volume : 0.45
Day (16 hrs) % of Total Volume : 93.76

Data for Segment # 1: Y_NB_St.-Mul (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.00 / 47.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-St.-Mul (day/night)

Car traffic volume : 12741/1075 veh/TimePeriod *
Medium truck volume : 41/3 veh/TimePeriod *
Heavy truck volume : 33/3 veh/TimePeriod *
Posted speed limit : 47 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 13896
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 0.32
Heavy Truck % of Total Volume : 0.26
Day (16 hrs) % of Total Volume : 92.22

Data for Segment # 2: Y_SB-St.-Mul (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.00 / 68.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: J-EB-YO-IND (day/night)

Car traffic volume : 16415/1574 veh/TimePeriod *
Medium truck volume : 215/21 veh/TimePeriod *
Heavy truck volume : 146/14 veh/TimePeriod *
Posted speed limit : 42 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 18384
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.28
Heavy Truck % of Total Volume : 0.87
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 3: J-EB-YO-IND (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 77.00 / 127.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: J-WB-YO-IND (day/night)

```

-----
Car traffic volume : 17095/1448 veh/TimePeriod *
Medium truck volume : 477/40 veh/TimePeriod *
Heavy truck volume : 295/25 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 19380
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.67
Heavy Truck % of Total Volume : 1.65
Day (16 hrs) % of Total Volume : 92.19

```

Data for Segment # 4: J-WB-YO-IND (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 120.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_St.-Mul (day)

Source height = 0.82 m

ROAD (0.00 + 64.20 + 0.00) = 64.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.20	0.00	0.00	0.00	0.00	0.00	0.00	64.20

Segment Leq : 64.20 dBA

Results segment # 2: Y_SB-St.-Mul (day)

Source height = 0.71 m

ROAD (0.00 + 58.23 + 0.00) = 58.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.24	0.00	-3.01	0.00	0.00	0.00	0.00	58.23

Segment Leq : 58.23 dBA

Results segment # 3: J-EB-YO-IND (day)

Source height = 0.97 m

ROAD (0.00 + 55.79 + 0.00) = 55.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.90	0.00	-7.10	0.00	0.00	0.00	0.00	55.79

Segment Leq : 55.79 dBA

Results segment # 4: J-WB-YO-IND (day)

Source height = 1.13 m

ROAD (0.00 + 61.23 + 0.00) = 61.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.92	0.00	-6.69	0.00	0.00	0.00	0.00	61.23

Segment Leq : 61.23 dBA

Total Leq All Segments: 66.99 dBA

Results segment # 1: Y_NB_St.-Mul (night)

Source height = 0.84 m

ROAD (0.00 + 50.58 + 0.00) = 50.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.54	0.00	-4.96	0.00	0.00	0.00	0.00	50.58

Segment Leq : 50.58 dBA

Results segment # 2: Y_SB-St.-Mul (night)

Source height = 0.73 m

ROAD (0.00 + 46.97 + 0.00) = 46.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	53.54	0.00	-6.56	0.00	0.00	0.00	0.00	46.97

Segment Leq : 46.97 dBA

Results segment # 3: J-EB-YO-IND (night)

Source height = 0.97 m

ROAD (0.00 + 46.46 + 0.00) = 46.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.73	0.00	-9.28	0.00	0.00	0.00	0.00	46.46

Segment Leq : 46.46 dBA

Results segment # 4: J-WB-YO-IND (night)

Source height = 1.13 m

ROAD (0.00 + 51.17 + 0.00) = 51.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.21	0.00	-9.03	0.00	0.00	0.00	0.00	51.17

Segment Leq : 51.17 dBA

Total Leq All Segments: 55.31 dBA

RT/Custom data, segment # 1: BR-NB-ST-MUL (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 65 km/h

Data for Segment # 1: BR-NB-ST-MUL (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 16.00 / 54.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-ST-MUL (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 65 km/h

Data for Segment # 2: BR-SB-ST-MUL (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 23.00 / 60.00 m
Receiver height : 1.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-ST-MUL (day)

Source height = 0.50 m

RT/Custom (0.00 + 57.97 + 0.00) = 57.97 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.25	-0.28	0.00	0.00	0.00	0.00	57.97

Segment Leq : 57.97 dBA

Results segment # 2: BR-SB-ST-MUL (day)

Source height = 0.50 m

RT/Custom (0.00 + 56.39 + 0.00) = 56.39 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.25	-1.86	0.00	0.00	0.00	0.00	56.39

Segment Leq : 56.39 dBA

Total Leq All Segments: 60.26 dBA

Results segment # 1: BR-NB-ST-MUL (night)

Source height = 0.50 m

RT/Custom (0.00 + 48.13 + 0.00) = 48.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	53.69	-5.56	0.00	0.00	0.00	0.00	48.13

Segment Leq : 48.13 dBA

Results segment # 2: BR-SB-ST-MUL (night)

Source height = 0.50 m

RT/Custom (0.00 + 47.67 + 0.00) = 47.67 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	53.69	-6.02	0.00	0.00	0.00	0.00	47.67

Segment Leq : 47.67 dBA

Total Leq All Segments: 50.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.83
(NIGHT): 56.65

Filename: 2021br14.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Mul-Eag (day/night)

Car traffic volume : 17836/1373 veh/TimePeriod *
Medium truck volume : 263/20 veh/TimePeriod *
Heavy truck volume : 159/12 veh/TimePeriod *
Posted speed limit : 58 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 19664
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.44
Heavy Truck % of Total Volume : 0.87
Day (16 hrs) % of Total Volume : 92.85

Data for Segment # 1: Y_NB_Mul-Eag (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 23.00 / 27.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Mul-Eag (day/night)

```

-----
Car traffic volume : 19187/1835 veh/TimePeriod *
Medium truck volume : 182/17 veh/TimePeriod *
Heavy truck volume : 148/14 veh/TimePeriod *
Posted speed limit : 52 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 21384
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 0.93
Heavy Truck % of Total Volume : 0.76
Day (16 hrs) % of Total Volume : 91.27
  
```

Data for Segment # 2: Y_SB-Mul-Eag (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 43.00 / 47.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: Y_NB_Mul-Eag (day)

Source height = 0.97 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.97 ! 1.50 ! 1.46 ! 1.46
  
```

ROAD (0.00 + 56.57 + 0.00) = 56.57 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.00 66.59 0.00 -1.86 0.00 0.00 0.00 0.00 -8.16 56.57
-----
  
```

Segment Leq : 56.57 dBA

Results segment # 2: Y_SB-Mul-Eag (day)

Source height = 0.93 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)			
0.93	!	1.50	!	1.48	!	1.48

ROAD (0.00 + 52.85 + 0.00) = 52.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.40	0.00	-4.57	0.00	0.00	0.00	-7.98	52.85

Segment Leq : 52.85 dBA

Total Leq All Segments: 58.11 dBA

Results segment # 1: Y_NB_Mul-Eag (night)

Source height = 0.96 m

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)			
0.96	!	4.50	!	3.77	!	3.77

ROAD (0.00 + 55.88 + 0.00) = 55.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.43	0.00	-2.55	0.00	0.00	0.00	-0.30	55.58*
-90	90	0.00	58.43	0.00	-2.55	0.00	0.00	0.00	0.00	55.88

* Bright Zone !

Segment Leq : 55.88 dBA

Results segment # 2: Y_SB-Mul-Eag (night)

Source height = 0.93 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.93	4.50	4.07	4.07

ROAD (0.00 + 53.23 + 0.00) = 53.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.19	0.00	-4.96	0.00	0.00	0.00	-0.23	53.00*
-90	90	0.00	58.19	0.00	-4.96	0.00	0.00	0.00	0.00	53.23

* Bright Zone !

Segment Leq : 53.23 dBA

Total Leq All Segments: 57.76 dBA

RT/Custom data, segment # 1: BR-NB-MUL-EA (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 1: BR-NB-MUL-EA (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.00 / 34.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-MUL-EA (day/night)

1 - Bus:

Traffic volume : 240/24 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 2: BR-SB-MUL-EA (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 38.00 / 42.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.13 m
Barrier receiver distance : 1.60 / 5.60 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: BR-NB-MUL-EA (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.45	1.45

RT/Custom (0.00 + 46.19 + 0.00) = 46.19 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.42	-3.01	0.00	0.00	0.00	-8.22	46.19

Segment Leq : 46.19 dBA

Results segment # 2: BR-SB-MUL-EA (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.46	1.46

RT/Custom (0.00 + 45.26 + 0.00) = 45.26 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.42	-4.04	0.00	0.00	0.00	-8.12	45.26

Segment Leq : 45.26 dBA

Total Leq All Segments: 48.76 dBA

Results segment # 1: BR-NB-MUL-EA (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	4.50	3.84	3.84

RT/Custom (0.00 + 49.31 + 0.00) = 49.31 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	52.86	-3.55	0.00	0.00	0.00	-0.29	49.02*
-90	90	0.00	52.86	-3.55	0.00	0.00	0.00	0.00	49.31

* Bright Zone !

Segment Leq : 49.31 dBA

Results segment # 2: BR-SB-MUL-EA (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 4.50 ! 3.97 ! 3.97

RT/Custom (0.00 + 45.96 + 0.00) = 45.96 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	50.43	-4.47	0.00	0.00	0.00	-0.26	45.70*
-90	90	0.00	50.43	-4.47	0.00	0.00	0.00	0.00	45.96

* Bright Zone !

Segment Leq : 45.96 dBA

Total Leq All Segments: 50.96 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.58
(NIGHT): 58.59

Filename: 2021br15.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Eag-Mil (day/night)

Car traffic volume : 22399/1475 veh/TimePeriod *
Medium truck volume : 366/24 veh/TimePeriod *
Heavy truck volume : 223/15 veh/TimePeriod *
Posted speed limit : 59 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 24502
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.59
Heavy Truck % of Total Volume : 0.97
Day (16 hrs) % of Total Volume : 93.82

Data for Segment # 1: Y_NB_Eag-Mil (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 79.00 / 83.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Eag-Mil (day/night)

```

-----
Car traffic volume : 28859/2653 veh/TimePeriod *
Medium truck volume : 372/34 veh/TimePeriod *
Heavy truck volume : 301/28 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 32248
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.26
Heavy Truck % of Total Volume : 1.02
Day (16 hrs) % of Total Volume : 91.58

```

Data for Segment # 2: Y_SB-Eag-Mil (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 101.00 / 105.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Eag-Mil (day)

Source height = 0.99 m

ROAD (0.00 + 60.73 + 0.00) = 60.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.94	0.00	-7.22	0.00	0.00	0.00	0.00	60.73

Segment Leq : 60.73 dBA

Results segment # 2: Y_SB-Eag-Mil (day)

Source height = 1.00 m

ROAD (0.00 + 59.62 + 0.00) = 59.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.90	0.00	-8.28	0.00	0.00	0.00	0.00	59.62

Segment Leq : 59.62 dBA

Total Leq All Segments: 63.22 dBA

Results segment # 1: Y_NB_Eag-Mil (night)

Source height = 1.00 m

ROAD (0.00 + 51.73 + 0.00) = 51.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.16	0.00	-7.43	0.00	0.00	0.00	0.00	51.73

Segment Leq : 51.73 dBA

Results segment # 2: Y_SB-Eag-Mil (night)

Source height = 1.01 m

ROAD (0.00 + 52.11 + 0.00) = 52.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.56	0.00	-8.45	0.00	0.00	0.00	0.00	52.11

Segment Leq : 52.11 dBA

Total Leq All Segments: 54.93 dBA

RT/Custom data, segment # 1: BR-NB-EA-MIL (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 1: BR-NB-EA-MIL (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 87.00 / 91.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-EA-MIL (day/night)

1 - Bus:

Traffic volume : 240/42 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 2: BR-SB-EA-MIL (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 94.00 / 98.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-EA-MIL (day)

Source height = 0.50 m

RT/Custom (0.00 + 49.79 + 0.00) = 49.79 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.42	-7.63	0.00	0.00	0.00	0.00	49.79

Segment Leq : 49.79 dBA

Results segment # 2: BR-SB-EA-MIL (day)

Source height = 0.50 m

RT/Custom (0.00 + 42.73 + 0.00) = 42.73 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	57.42	-13.23	-1.46	0.00	0.00	0.00	42.73

Segment Leq : 42.73 dBA

Total Leq All Segments: 50.57 dBA

Results segment # 1: BR-NB-EA-MIL (night)

Source height = 0.50 m

RT/Custom (0.00 + 45.03 + 0.00) = 45.03 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	52.86	-7.83	0.00	0.00	0.00	0.00	45.03

Segment Leq : 45.03 dBA

Results segment # 2: BR-SB-EA-MIL (night)

Source height = 0.50 m

RT/Custom (0.00 + 38.46 + 0.00) = 38.46 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	52.86	-13.04	-1.35	0.00	0.00	0.00	38.46

Segment Leq : 38.46 dBA

Total Leq All Segments: 45.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.45
(NIGHT): 55.44

Filename: r16new.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Dav-Lon (day/night)

Car traffic volume : 20199/1292 veh/TimePeriod *
Medium truck volume : 321/21 veh/TimePeriod *
Heavy truck volume : 195/12 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 22039
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.55
Heavy Truck % of Total Volume : 0.94
Day (16 hrs) % of Total Volume : 93.99

Data for Segment # 1: Y_NB_Dav-Lon (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 28.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 15.00 / 19.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Y_SB-Dav-Lon (day/night)

```

-----
Car traffic volume : 17993/1962 veh/TimePeriod *
Medium truck volume : 335/36 veh/TimePeriod *
Heavy truck volume : 272/30 veh/TimePeriod *
Posted speed limit : 57 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 20627
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.80
Heavy Truck % of Total Volume : 1.46
Day (16 hrs) % of Total Volume : 90.17
  
```

Data for Segment # 2: Y_SB-Dav-Lon (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 43.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 15.00 / 19.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: Y_NB_Dav-Lon (day)

Source height = 0.99 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.99 ! 1.50 ! 1.18 ! 1.18
  
```

ROAD (0.00 + 57.05 + 0.00) = 57.05 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.57 67.61 0.00 -3.20 -1.30 0.00 0.00 -6.07 57.05
-----
  
```

Segment Leq : 57.05 dBA

Results segment # 2: Y_SB-Dav-Lon (day)

Source height = 1.10 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
1.10	!	1.50	!	1.36	!	1.36

ROAD (0.00 + 53.69 + 0.00) = 53.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.56	67.33	0.00	-6.99	-1.29	0.00	0.00	-5.36	53.69

Segment Leq : 53.69 dBA

Total Leq All Segments: 58.70 dBA

Results segment # 1: Y_NB_Dav-Lon (night)

Source height = 0.98 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.98	!	4.50	!	2.11	!	2.11

ROAD (0.00 + 53.02 + 0.00) = 53.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	58.65	0.00	-4.00	-1.13	0.00	0.00	-4.77	48.75*
-90	90	0.59	58.65	0.00	-4.30	-1.33	0.00	0.00	0.00	53.02

* Bright Zone !

Segment Leq : 53.02 dBA

Results segment # 2: Y_SB-Dav-Lon (night)

Source height = 1.10 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.10	4.50	3.00	3.00

ROAD (0.00 + 52.17 + 0.00) = 52.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	60.73	0.00	-6.74	-1.12	0.00	0.00	-1.87	51.00*
-90	90	0.58	60.73	0.00	-7.24	-1.32	0.00	0.00	0.00	52.17

* Bright Zone !

Segment Leq : 52.17 dBA

Total Leq All Segments: 55.63 dBA

RT/Custom data, segment # 1: BR-NB-DA-LON (day/night)

1 - Bus:

Traffic volume : 96/18 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 1: BR-NB-DA-LON (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 28.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 15.00 / 19.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-DA-LON (day/night)

1 - Bus:

Traffic volume : 96/18 veh/TimePeriod
 Speed : 60 km/h

Data for Segment # 2: BR-SB-DA-LON (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 39.00 / 43.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
 Barrier height : 1.82 m
 Barrier receiver distance : 15.00 / 19.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: BR-NB-DA-LON (day)

 Source height = 0.50 m

Barrier height for grazing incidence

 Source ! Receiver ! Barrier ! Elevation of
 Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
 -----+-----+-----+-----
 0.50 ! 1.50 ! 1.00 ! 1.00

RT/Custom (0.00 + 41.08 + 0.00) = 41.08 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	53.44	-4.76	-1.32	0.00	0.00	-6.28	41.08

Segment Leq : 41.08 dBA

Results segment # 2: BR-SB-DA-LON (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	1.50	!	1.12	!	1.12

RT/Custom (0.00 + 39.74 + 0.00) = 39.74 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	53.44	-6.56	-1.32	0.00	0.00	-5.82	39.74

Segment Leq : 39.74 dBA

Total Leq All Segments: 43.47 dBA

Results segment # 1: BR-NB-DA-LON (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)			
0.50	!	4.50	!	1.79	!	1.79

RT/Custom (0.00 + 38.98 + 0.00) = 38.98 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	49.18	-4.04	-1.16	0.00	0.00	-5.00	38.98

Segment Leq : 38.98 dBA

Results segment # 2: BR-SB-DA-LON (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 4.50 ! 2.73 ! 2.73

RT/Custom (0.00 + 40.51 + 0.00) = 40.51 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	49.18	-6.82	-1.16	0.00	0.00	-3.42	37.78*
-90	90	0.60	49.18	-7.32	-1.35	0.00	0.00	0.00	40.51

* Bright Zone !

Segment Leq : 40.51 dBA

Total Leq All Segments: 42.82 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.83
(NIGHT): 55.85

Filename: R17new.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Y_NB_Lon-Bri (day/night)

Car traffic volume : 21543/1641 veh/TimePeriod *
Medium truck volume : 250/19 veh/TimePeriod *
Heavy truck volume : 151/12 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 23617
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.14
Heavy Truck % of Total Volume : 0.69
Day (16 hrs) % of Total Volume : 92.92

Data for Segment # 1: Y_NB_Lon-Bri (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 36.00 / 32.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Y_SB-Lon-Bri (day/night)

```

-----
Car traffic volume : 25699/2223 veh/TimePeriod *
Medium truck volume : 272/24 veh/TimePeriod *
Heavy truck volume : 223/19 veh/TimePeriod *
Posted speed limit : 54 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 28459
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.04
Heavy Truck % of Total Volume : 0.85
Day (16 hrs) % of Total Volume : 92.04

```

Data for Segment # 2: Y_SB-Lon-Bri (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 49.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: Y_NB_Lon-Bri (day)

Source height = 0.91 m

ROAD (0.00 + 59.61 + 0.00) = 59.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.38	0.00	-6.31	-1.46	0.00	0.00	0.00	59.61

Segment Leq : 59.61 dBA

Results segment # 2: Y_SB-Lon-Bri (day)

Source height = 0.96 m

ROAD (0.00 + 57.87 + 0.00) = 57.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.25	0.00	-7.92	-1.46	0.00	0.00	0.00	57.87

Segment Leq : 57.87 dBA

Total Leq All Segments: 61.84 dBA

Results segment # 1: Y_NB_Lon-Bri (night)

Source height = 0.92 m

ROAD (0.00 + 52.70 + 0.00) = 52.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	59.25	0.00	-5.22	-1.33	0.00	0.00	0.00	52.70

Segment Leq : 52.70 dBA

Results segment # 2: Y_SB-Lon-Bri (night)

Source height = 0.96 m

ROAD (0.00 + 50.13 + 0.00) = 50.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	59.62	0.00	-8.16	-1.33	0.00	0.00	0.00	50.13

Segment Leq : 50.13 dBA

Total Leq All Segments: 54.61 dBA

RT/Custom data, segment # 1: BR-NB-LON-BR (day/night)

1 - Bus:

Traffic volume : 96/18 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 1: BR-NB-LON-BR (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 34.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-SB-LON-BR (day/night)

1 - Bus:

Traffic volume : 96/18 veh/TimePeriod
Speed : 60 km/h

Data for Segment # 2: BR-SB-LON-BR (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 41.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-NB-LON-BR (day)

Source height = 0.50 m

RT/Custom (0.00 + 45.28 + 0.00) = 45.28 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	53.44	-6.70	-1.46	0.00	0.00	0.00	45.28

Segment Leq : 45.28 dBA

Results segment # 2: BR-SB-LON-BR (day)

Source height = 0.50 m

RT/Custom (0.00 + 44.06 + 0.00) = 44.06 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	53.44	-7.92	-1.46	0.00	0.00	0.00	44.06

Segment Leq : 44.06 dBA

Total Leq All Segments: 47.72 dBA

Results segment # 1: BR-NB-LON-BR (night)

Source height = 0.50 m

RT/Custom (0.00 + 42.14 + 0.00) = 42.14 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	49.18	-5.69	-1.35	0.00	0.00	0.00	42.14

Segment Leq : 42.14 dBA

Results segment # 2: BR-SB-LON-BR (night)

Source height = 0.50 m

RT/Custom (0.00 + 40.84 + 0.00) = 40.84 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	49.18	-6.99	-1.35	0.00	0.00	0.00	40.84

Segment Leq : 40.84 dBA

Total Leq All Segments: 44.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.00
(NIGHT): 55.02

Filename: brt18Ne.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: G_EB_Yon-Mai (day/night)

Car traffic volume : 22280/2136 veh/TimePeriod *
Medium truck volume : 468/45 veh/TimePeriod *
Heavy truck volume : 781/75 veh/TimePeriod *
Posted speed limit : 43 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 25786
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.99
Heavy Truck % of Total Volume : 3.32
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: G_EB_Yon-Mai (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: G_WB-Yon-Mai (day/night)

```

-----
Car traffic volume : 20006/1695 veh/TimePeriod *
Medium truck volume : 272/23 veh/TimePeriod *
Heavy truck volume : 323/27 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 22347
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.32
Heavy Truck % of Total Volume : 1.57
Day (16 hrs) % of Total Volume : 92.19

```

Data for Segment # 2: G_WB-Yon-Mai (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: G_EB_Yon-Mai (day)

Source height = 1.35 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
-90	90	0.66	67.74	0.00	-5.90	-1.46	0.00	0.00	0.00	60.38

Segment Leq : 60.38 dBA

Results segment # 2: G_WB-Yon-Mai (day)

Source height = 1.12 m

ROAD (0.00 + 60.82 + 0.00) = 60.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	66.52	0.00	-4.24	-1.46	0.00	0.00	0.00	60.82

Segment Leq : 60.82 dBA

Total Leq All Segments: 63.62 dBA

Results segment # 1: G_EB_Yon-Mai (night)

Source height = 1.35 m

ROAD (0.00 + 52.91 + 0.00) = 52.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	60.57	0.00	-6.36	-1.31	0.00	0.00	0.00	52.91

Segment Leq : 52.91 dBA

Results segment # 2: G_WB-Yon-Mai (night)

Source height = 1.12 m

ROAD (0.00 + 52.47 + 0.00) = 52.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	58.78	0.00	-4.99	-1.32	0.00	0.00	0.00	52.47

Segment Leq : 52.47 dBA

Total Leq All Segments: 55.71 dBA

RT/Custom data, segment # 1: BR-EB-YO-MAI (day/night)

1 - Bus:

Traffic volume : 150/27 veh/TimePeriod
Speed : 80 km/h

Data for Segment # 1: BR-EB-YO-MAI (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-WB-YO-MAI (day/night)

1 - Bus:

Traffic volume : 150/27 veh/TimePeriod
Speed : 80 km/h

Data for Segment # 2: BR-WB-YO-MAI (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 31.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-EB-YO-MAI (day)

Source height = 0.50 m

RT/Custom (0.00 + 51.01 + 0.00) = 51.01 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.36	-5.90	-1.46	0.00	0.00	0.00	51.01

Segment Leq : 51.01 dBA

Results segment # 2: BR-WB-YO-MAI (day)

Source height = 0.50 m

RT/Custom (0.00 + 52.67 + 0.00) = 52.67 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.36	-4.24	-1.46	0.00	0.00	0.00	52.67

Segment Leq : 52.67 dBA

Total Leq All Segments: 54.93 dBA

Results segment # 1: BR-EB-YO-MAI (night)

Source height = 0.50 m

RT/Custom (0.00 + 46.11 + 0.00) = 46.11 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	53.93	-6.46	-1.35	0.00	0.00	0.00	46.11

Segment Leq : 46.11 dBA

Results segment # 2: BR-WB-YO-MAI (night)

Source height = 0.50 m

RT/Custom (0.00 + 47.53 + 0.00) = 47.53 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	53.93	-5.04	-1.35	0.00	0.00	0.00	47.53

Segment Leq : 47.53 dBA

Total Leq All Segments: 49.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.17
(NIGHT): 56.72

Filename: 2021br19.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: D_EB_Yon-Mai (day/night)

Car traffic volume : 12933/1240 veh/TimePeriod *
Medium truck volume : 145/14 veh/TimePeriod *
Heavy truck volume : 234/22 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 14589
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.09
Heavy Truck % of Total Volume : 1.76
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: D_EB_Yon-Mai (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 54.00 / 58.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: D_WB-Yon-Mai (day/night)

```

-----
Car traffic volume : 12066/1022 veh/TimePeriod *
Medium truck volume : 64/5 veh/TimePeriod *
Heavy truck volume : 149/13 veh/TimePeriod *
Posted speed limit : 46 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13319
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 0.52
Heavy Truck % of Total Volume : 1.21
Day (16 hrs) % of Total Volume : 92.19

```

Data for Segment # 2: D_WB-Yon-Mai (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 37.00 / 41.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

Results segment # 1: D_EB_Yon-Mai (day)

Source height = 1.15 m

ROAD (0.00 + 52.09 + 0.00) = 52.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	62.79	0.00	-9.23	-1.46	0.00	0.00	0.00	52.09

Segment Leq : 52.09 dBA

Results segment # 2: D_WB-Yon-Mai (day)

Source height = 1.05 m

ROAD (0.00 + 54.78 + 0.00) = 54.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	62.75	0.00	-6.51	-1.46	0.00	0.00	0.00	54.78

Segment Leq : 54.78 dBA

Total Leq All Segments: 56.65 dBA

Results segment # 1: D_EB_Yon-Mai (night)

Source height = 1.15 m

ROAD (0.00 + 44.96 + 0.00) = 44.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	55.57	0.00	-9.28	-1.32	0.00	0.00	0.00	44.96

Segment Leq : 44.96 dBA

Results segment # 2: D_WB-Yon-Mai (night)

Source height = 1.06 m

ROAD (0.00 + 46.84 + 0.00) = 46.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	55.08	0.00	-6.91	-1.33	0.00	0.00	0.00	46.84

Segment Leq : 46.84 dBA

Total Leq All Segments: 49.01 dBA

RT/Custom data, segment # 1: BR-EB-YO-MAI (day/night)

1 - Bus:

Traffic volume : 204/36 veh/TimePeriod
Speed : 50 km/h

Data for Segment # 1: BR-EB-YO-MAI (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 48.00 / 52.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

RT/Custom data, segment # 2: BR-WB-YO-MAI (day/night)

1 - Bus:

Traffic volume : 204/36 veh/TimePeriod
Speed : 50 km/h

Data for Segment # 2: BR-WB-YO-MAI (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 46.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: BR-EB-YO-MAI (day)

Source height = 0.50 m

RT/Custom (0.00 + 44.98 + 0.00) = 44.98 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	54.82	-8.39	-1.46	0.00	0.00	0.00	44.98

Segment Leq : 44.98 dBA

Results segment # 2: BR-WB-YO-MAI (day)

Source height = 0.50 m

RT/Custom (0.00 + 45.94 + 0.00) = 45.94 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	54.82	-7.42	-1.46	0.00	0.00	0.00	45.94

Segment Leq : 45.94 dBA

Total Leq All Segments: 48.50 dBA

Results segment # 1: BR-EB-YO-MAI (night)

Source height = 0.50 m

RT/Custom (0.00 + 40.31 + 0.00) = 40.31 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	50.30	-8.64	-1.35	0.00	0.00	0.00	40.31

Segment Leq : 40.31 dBA

Results segment # 2: BR-WB-YO-MAI (night)

Source height = 0.50 m

RT/Custom (0.00 + 41.16 + 0.00) = 41.16 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	50.30	-7.79	-1.35	0.00	0.00	0.00	41.16

Segment Leq : 41.16 dBA

Total Leq All Segments: 43.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.27
(NIGHT): 50.15

Filename: 2021br20.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: D_EB_Bay-Les (day/night)

Car traffic volume : 11173/1071 veh/TimePeriod *
Medium truck volume : 121/12 veh/TimePeriod *
Heavy truck volume : 195/19 veh/TimePeriod *
Posted speed limit : 45 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 12591
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.05
Heavy Truck % of Total Volume : 1.70
Day (16 hrs) % of Total Volume : 91.25

Data for Segment # 1: D_EB_Bay-Les (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 36.00 / 40.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 13.00 / 17.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: D_WB-Bay-Les (day/night)

```

-----
Car traffic volume : 11890/1007 veh/TimePeriod *
Medium truck volume : 96/8 veh/TimePeriod *
Heavy truck volume : 225/19 veh/TimePeriod *
Posted speed limit : 53 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
  
```

* Refers to calculated road volumes based on the following input:

```

24 hr Traffic Volume (AADT or SADT): 13246
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 0.79
Heavy Truck % of Total Volume : 1.84
Day (16 hrs) % of Total Volume : 92.19
  
```

Data for Segment # 2: D_WB-Bay-Les (day/night)

```

-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 / 26.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 13.00 / 17.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
  
```

Results segment # 1: D_EB_Bay-Les (day)

Source height = 1.14 m

Barrier height for grazing incidence

```

-----
Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.14 ! 1.50 ! 1.37 ! 1.37
  
```

ROAD (0.00 + 50.49 + 0.00) = 50.49 dBA

```

-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
-90 90 0.56 63.10 0.00 -5.94 -1.29 0.00 0.00 -5.39 50.49
-----
  
```

Segment Leq : 50.49 dBA

Results segment # 2: D_WB-Bay-Les (day)

Source height = 1.17 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.17 !	1.50 !	1.30 !	1.30

ROAD (0.00 + 55.32 + 0.00) = 55.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.56	64.97	0.00	-2.60	-1.29	0.00	0.00	-5.77	55.32

Segment Leq : 55.32 dBA

Total Leq All Segments: 56.55 dBA

Results segment # 1: D_EB_Bay-Les (night)

Source height = 1.15 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.15 !	4.50 !	3.07 !	3.07

ROAD (0.00 + 47.92 + 0.00) = 47.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	55.98	0.00	-6.27	-1.12	0.00	0.00	-1.30	47.29*
-90	90	0.58	55.98	0.00	-6.73	-1.32	0.00	0.00	0.00	47.92

* Bright Zone !

Segment Leq : 47.92 dBA

Results segment # 2: D_WB-Bay-Les (night)

 Source height = 1.16 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.16	4.50	2.32	2.32

ROAD (0.00 + 52.15 + 0.00) = 52.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	57.25	0.00	-3.51	-1.12	0.00	0.00	-4.23	48.38*
-90	90	0.58	57.25	0.00	-3.77	-1.32	0.00	0.00	0.00	52.15

* Bright Zone !

Segment Leq : 52.15 dBA

Total Leq All Segments: 53.54 dBA

RT/Custom data, segment # 1: BR-EB-BAY-LE (day/night)

 1 - Bus:

Traffic volume : 204/36 veh/TimePeriod
 Speed : 50 km/h

Data for Segment # 1: BR-EB-BAY-LE (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 36.00 / 40.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
 Barrier height : 1.82 m
 Barrier receiver distance : 13.00 / 17.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

RT/Custom data, segment # 2: BR-WB-BAY-LE (day/night)

1 - Bus:

Traffic volume : 204/36 veh/TimePeriod
Speed : 50 km/h

Data for Segment # 2: BR-WB-BAY-LE (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 / 26.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.82 m
Barrier receiver distance : 13.00 / 17.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: BR-EB-BAY-LE (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.14	1.14

RT/Custom (0.00 + 41.65 + 0.00) = 41.65 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	54.82	-6.01	-1.32	0.00	0.00	-5.84	41.65

Segment Leq : 41.65 dBA

Results segment # 2: BR-WB-BAY-LE (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.91	0.91

RT/Custom (0.00 + 43.87 + 0.00) = 43.87 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	54.82	-2.63	-1.32	0.00	0.00	-7.00	43.87

Segment Leq : 43.87 dBA

Total Leq All Segments: 45.91 dBA

Results segment # 1: BR-EB-BAY-LE (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	4.50	2.80	2.80

RT/Custom (0.00 + 42.13 + 0.00) = 42.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	50.30	-6.35	-1.16	0.00	0.00	-2.91	39.88*
-90	90	0.60	50.30	-6.82	-1.35	0.00	0.00	0.00	42.13

* Bright Zone !

Segment Leq : 42.13 dBA

Results segment # 2: BR-WB-BAY-LE (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 4.50 ! 1.88 ! 1.88

RT/Custom (0.00 + 45.12 + 0.00) = 45.12 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	50.30	-3.56	-1.16	0.00	0.00	-4.99	40.59*
-90	90	0.60	50.30	-3.82	-1.35	0.00	0.00	0.00	45.12

* Bright Zone !

Segment Leq : 45.12 dBA

Total Leq All Segments: 46.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.91
(NIGHT): 54.39