

APPENDIX E

Noise Assessment

***Waterdown Road Corridor
(North Service Road to Dundas
Street)
Acoustic Assessment***

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Submitted by

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Executive Summary

This acoustic assessment was undertaken for the proposed Waterdown Road Corridor development which entails the redevelopment of Waterdown Road (from Craven Avenue to Mountain Brow Road East); and Mountain Brow Road East (from Waterdown Road to approximately half the distance to King Road). The redevelopment also includes a new road Mid-Block Road, to be located at the end of the Mountain Brow Road redevelopment connecting Mountain Brow Road East to Dundas Street East. The new road will service a future subdivision. Other roads affected by the project include Mill Street South from Mountain Brow Road East to Dundas Street East, and Dundas Street East between Hamilton Street South and Pamela Street.

The Ontario Ministry of Environment predictive road traffic noise model ORNAMENT/STAMSON was used to predict the acoustical impact of the proposed development. The 16-hour daytime outdoor equivalent sound levels (07:00 to 23:00 h), and 8-hour night-time outdoor equivalent sound levels (23:00 to 07:00 h) were predicted at selected existing and future noise sensitive receptors (i.e., residences) that were expected to be most impacted. In order to determine the impact of the proposed road redevelopment, the following three scenarios were modelled:

- Scenario 1 – Current 2008 configuration, based on existing traffic volumes;
- Scenario 2 – Future 2021 “no road-build” option, based on forecasted traffic volumes under the existing roadway configuration. This scenario assumes that anticipated future land development in Waterdown would be in place; and
- Scenario 3 – Future 2021 Mature State of Development, based on forecasted traffic volumes with the proposed new land development and proposed road improvements in place.

The noise modelling work was based on traffic data forecasts that were generated through the Phase 2 traffic modelling results. It is noted that the same traffic volumes would be generated under the future no-build and future build scenarios (it is assumed that the same amount of future development would be in place by 2021). How these scenarios differ though is with respect to how the traffic volumes are distributed to exiting and future roadways.

The results of the acoustic modelling indicated that receptors along Waterdown Road under the future build scenario would experience either an increase in noise levels (daytime and night-time) that was not considered to be perceptible or a decrease (improvement) in the predicted noise levels when compared to the future no-build condition.

The predicted noise levels at receptors along Mountain Brow Road in the future build condition indicated an increase over the no-build condition. The increase was not considered to be perceptible near the intersection of Waterdown Road and Mill Street South but becomes noticeable further east on Mountain Brow Road mid-way between Mill Street South and Mid-Block Road.

The predicted sound levels for receptors along Mill Street South and Dundas Street east were lower in the future build scenario than the future no-build scenario. This is a result of a decrease in predicted traffic volumes along these road segments. The predicted sound level improvement is not considered significant.

For new residences in the potential future subdivisions along Waterdown north of Flatt Road and on Mid-Block Road, sound barriers may be required to mitigate noise generated by future traffic on these road segments. The need for sound barriers will be dependant on the setback distances of the outdoor living area with respect to the centre of the nearest lane and the volume and speed of traffic on these roads.

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1. Introduction

Dillon Consulting Limited has been retained by The City of Hamilton, in coordination with the City of Burlington and Halton Region, to conduct an acoustic impact assessment of the proposed Waterdown Road Corridor development. This project is comprised of the following components:

- 1) Redevelopment of Waterdown Road, from Craven Avenue to Mountain Brow Road East which will entail widening the road to four lanes and a realignment north of Flatt Road;
- 2) Redevelopment of Mountain Brow Road East from Waterdown Road to a proposed new road, Mid-Block Road, located approximately half the distance to King Road which will result in the widening of Mountain Brow Road to four lanes;
- 3) Construction of a new road Mid-Block Road, located at the end of the Mountain Brow Road redevelopment, linking Mountain Brow Road East to Dundas Street East at Burke Street that will service a future sub-division.

The following are other roads/segments that will experience changes in traffic volume:

- Mill Street South from Mountain Brow Road East to Dundas Street East; and
- Dundas Street East between Hamilton Street South and Pamela Street.

The purpose of this acoustic assessment was to consider the impacts of road traffic generated noise on current and future noise sensitive land uses such as residences in the vicinity of the proposed new road sections and sections of existing roads to be improved.

1.1 Study Area

The study considered the impact on noise sensitive land uses adjacent to the sections of existing roads to be improved and the proposed new roads. The 2021 Mature State of Development concept plan which illustrates the scope of the project is presented in *Figure A-1 in Appendix A*.

The project spans across the municipalities of the City of Burlington and the City of Hamilton. Waterdown Road north of Highway 403 to Mountain Brow Road is in the City of Burlington (2008), while Mountain Brow Road East, Mill Street South, Dundas Street East, and the proposed Mid-Block Road are all located within the City of Hamilton (2008).

Land use along Waterdown Road (City of Burlington, 2008) is designated as:

- residential (zoning designation RNA1 and RNA2, defined as detached dwelling, group home or correctional group home, and D defined as residential development);
- holding residential (zoning H-RNA1 and H-RNA2);
- open space (zoning O3, defined as municipal and provincial parks, public and private open spaces, cultural heritage resources, archaeological restoration, walking trails and nature viewing, forest, wildlife and fisheries management, transportation and utilities, agriculture except within woodlot, and storm water management and erosion control excluding permanent detention and retention ponds); and
- utility services land use (zoned S, defined as any transportation, communication or utility use).

There are currently detached residential dwellings along Waterdown Road and its side roads, and open areas including wooded lands and ravines. *Figure B-1 in Appendix B* illustrates the zoning designation around Waterdown Road.

The land bounded by the roads Mountain Brow Road East, Dundas Street East, Mill Street South and Mid-Block Road falls within the City of Hamilton (2008). Currently, the landuse comprises primarily of residential, open spaces including wooded areas, and agricultural, and commercial landuse as designated by the former Town of Flamborough.

Landuse along Mill Street South comprises of:

- residential;
- open spaces; and
- commercial near the junction of Dundas Street East (potentially AC and HC, Automotive and Highway Commercial, respectively).

Landuse along Mountain Brow Road comprises of:

- residential;
- open spaces; and
- agricultural (designated as A).

The proposed Mid-Block Road is in an area that is currently agricultural (zone A) and has no existing dwellings however, future residential development is planned for this area.

Landuse along Dundas Street East between Hamilton Street South and Pamela Street is comprised of:

- residential (R1 and R5, Urban Residential/Single Detached and Core Area Residential, respectively); and
- commercial (AC and HC, Automotive and Highway Commercial, respectively).

1.2 Noise Sensitive Receptors

Twenty-one noise sensitive residential receptors plus two sensitive conservation area receptors were selected for this assessment and are identified in *Figure A-1 in Appendix A*. Descriptions of the receptors and distances from roadways are presented in *Table 1-1* and *Table 1-2*, respectively. The residential receptors were chosen for their potential to be impacted by road traffic noise sources based on their relative location (proximity) to the roads and the configuration of the roadways. All residential receptors were assessed at the outdoor living area (OLA) which is defined as being at least 3 m from the façade of the building at a height of 1.5 m on the side nearest to the road noise source. Distances are to the centre of either the East/West-bound or North/South-bound traffic regardless of the number of lanes per direction. Traffic was therefore modelled as two-way traffic represented as Lane 1 and 2. There is a sensitive ecological zone east of Waterdown Road between the Highway 403 and Flatt Road. The two conservation area receptors were selected to assess the potential impact of the road redevelopment on this potentially noise-sensitive ecozone.

Thirteen residential receptors were selected along Waterdown Road and identified as W01 to W13. Except for W05, these were all detached two storey dwellings with the OLA located approximately 13 m to 207 m from Waterdown Road. The receptors were all fronting Waterdown Road. Receptor W05 currently does not exist but was selected to estimate the future impact of the Waterdown Road redevelopment north of Flatt Road on the proposed subdivision planned for this segment of Waterdown Road. Receptors W01 to W11 were primarily influenced by road traffic noise along Waterdown Road. Receptor W01 that was closest to Highway 403 was more than 500 m from the highway. Noise levels at receptors W12 and W13 near the junction of Waterdown Road to Mill Street South and Mountain Brow Road were also influenced by traffic along Mill Street and Mountain Brow. The two conservation area receptors WC1 and WC2 were located approximately 115 m and 130 m east of Waterdown Road between Craven Avenue and Flatt Road near the base of the escarpment.

Two receptors W15 and W16 were selected to be representative of noise impact conditions along Mill Street South. Both were detached two storey dwellings and fronting Mill Street South. Two existing residences (fronting) along Mountain Brow Road were selected as receptors W14 and W17. The impact of the future Mid-Block Road and subdivision was modelled by future

receptors W19, W20 and W21. These future receptors will be either backing or having their sides facing the road. The impact of traffic generated noise on receptors along Dundas Street East was estimated by the impact on receptor W18. These residences were all detached two storey dwellings either fronting or with sides facing Dundas Street.

Table 1-1. Selected Noise Sensitive Receptors

Receptors	UTM Coordinates (m)		Status	Associated Roadway
	Easting	Northing		
W01	592040	4796457	Existing Residence	Waterdown Rd.
W02	591934	4796505	Existing Residence	Waterdown Rd.
W03	591654	4796511	Existing Residence	Waterdown Rd.
W04	591546	4796995	Existing Residence	Waterdown Rd.
W05	591504	4796948	Future Residence	Waterdown Rd.
W06	591244	4797186	Existing Residence	Waterdown Rd.
W07	591121	4797307	Existing Residence	Waterdown Rd.
W08	591216	4797368	Existing Residence	Waterdown Rd.
W09	591056	4797204	Existing Residence	Waterdown Rd.
W10	591003	4797442	Existing Residence	Waterdown Rd.
W11	590894	4797490	Existing Residence	Waterdown Rd.
W12	590680	4797826	Existing Residence	Waterdown Rd.
W13	590449	4797946	Existing Residence	Waterdown Rd.
W14	590503	4798009	Existing Residence	Mountain Brow Rd.
W15	590203	4798272	Existing Residence	Mill St. South
W16	589962	4798455	Existing Residence	Mill St. South
W17	590736	4798299	Existing Residence	Mountain Brow Rd.
W18	590088	4798804	Existing Residence	Dundas St. East
W19	590931	4798688	Future Residence	Mid-Block Rd.
W20	590792	4798837	Future Residence	Mid-Block Rd.
W21	590482	4799118	Future Residence	Mid-Block Rd.
WC1	591922	4796630	Existing Conservation	Waterdown Rd.
WC2	591827	4796723	Existing Conservation	Waterdown Rd.

Note – Noise impact at the receptors was assessed at the OLA.

Table 1-2. Separation Distances of Receptors from Road Laneways

Receptors	Associated Roadway	Distance to Road Lanes (m)					
		Existing Road Configuration		2021 No-Build Configuration		2021 Mature State of Development	
		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
W01	Waterdown Rd.	23	27	23	27	25	32
W02	Waterdown Rd.	13	17	13	17	13	19
W03	Waterdown Rd.	102	105	102	105	121	128
W04	Waterdown Rd.	22	26	22	26	30	37
W05	Waterdown Rd.	na	na	na	na	25	32
W06	Waterdown Rd.	20	23	20	23	21	28
W07	Waterdown Rd.	90	93	90	93	85	92
W08	Waterdown Rd.	187	190	187	190	186	193
W09	Waterdown Rd.	27	30	27	30	28	34
W10	Waterdown Rd.	48	52	48	52	47	54
W11	Waterdown Rd.	21	25	21	25	20	26
W12	Waterdown Rd.	35	38	35	38	33	40
W13	Waterdown Rd.	18	21	18	21	15	22
W14	Mountain Brow Rd.	15	18	15	18	16.5	24
W15	Mill St. South	95	98	95	98	95	98
W16	Mill St. South	15	17	15	17	15	17
W17	Mountain Brow Rd.	15	18	15	18	15	18
W18	Dundas St. East	15	18	15	18	15	18
W19	Mid-Block Rd.	na	na	na	na	28	37
W20	Mid-Block Rd.	na	na	na	na	16	24
W21	Mid-Block Rd.	na	na	na	na	16	24
WC1	Waterdown Rd.	105	108	105	108	103	110
WC2	Waterdown Rd.	111	113	111	113	109	116

Note – Distances are to the centre of either East/West-bound or North/South-bound traffic lanes and traffic is modelled as two-way traffic i.e. traffic with two lanes. Lane 1 is to the nearest centre.

2. Regulatory Requirements

2.1 Basic Acoustic Concepts

2.1.1 Human Perception of Sound

We hear sound or noise due to the ear's ability to detect changes in atmospheric pressure caused by the propagation of sound waves through the atmosphere. The intensity of sound is therefore interpreted as a form of pressure. The healthy human ear can generally detect sounds in the frequency range of 20 Hz to 20 000 Hz which is known as the audible frequency range. Our hearing is less sensitive to sound with frequencies outside of this range. Below this range, and with some overlap with the lower frequencies of the audible range, is the infra sound spectrum which ranges from 5 – 50 Hz. Sound that has frequencies above the audible range is known as ultra sound.

Within the audible range, our hearing is most sensitive to the higher frequencies and our response peaks for sound in the frequency of around 2 500 to 3 000 Hz. We therefore interpret sound with higher frequencies to be louder than sound of lower frequencies.

Since our response to sound is frequency dependant, our threshold of hearing which is the lowest or weakest sound the ear can detect is dependant on the frequency of the sound. Lower frequency sounds require higher sound pressure levels to be audible than sound made of higher frequencies. By convention, the threshold of hearing for a frequency of 1 000 Hz is 10^{-9} (one-billionth) of atmospheric pressure or zero decibels (dB). By contrast the upper hearing threshold where we experience pain is 10^{13} times the threshold of hearing (10^4 of atmospheric pressure) or 130 dB.

The decibel is therefore on a logarithmic scale and as a result, a change in sound level by 1 dB is not perceptible to the human ear. For changes in sound to be perceptible, the change must be 3 dB or greater and a 5 dB change is clearly noticeable. Humans perceive a 10 dB change as a doubling in the sound level and a 20 dB change as being four times as loud.

2.1.2 A-Weighting Scale of Sound

Because of the human ear's response to sound at different frequencies, the A-weighted scale, dB(A), was developed to represent the audible frequency range in terms of our perception and correlates well with our judgment of relative loudness. Therefore there weighting scale de-emphasizes sound levels in lower frequency bands (below 1000 Hz) and weights the measured or

predicted sound level to those frequencies in the middle and high frequency bands that humans are sensitive to. The A-weighted sound level is widely used to assess the acoustical impact on humans, however, there are limitations in that it does not provide any information on the spectral balance of the noise i.e., whether it is rumbly, hissy, or tonal in character (ASHRAE, 2001).

Typical sound levels for various common noise sources taken from ASHRAE (2001) are listed below in *Table 2-1* to provide a reference.

Table 2-1 Typical sound pressure levels for various sources

Sound Source	Sound pressure Level (dBA)
Military jet take off at 30 m	140
Artillery fire at 3 m	130
Passenger jet take off at 30 m	120
Loud rock band concert	110
Platform of subway station	100
Unmuffled large diesel engine at 40 m	90
Freight train at 30 m	70
Conversation speech at 1 m	60
Window air conditioner at 1 m	50
Quiet residential area	40
Whispered conversation at 2 m	30
Buzzing insect at 1 m	20
Threshold of good hearing	10
Threshold of excellent hearing	0

Table 1, Chapter 7, Sound and Vibration, 2001 ASHRAE Handbook Fundamentals (SI).

2.1.3 Definition of Sound Descriptors

The use of time averaged statistics is needed to describe sound and to provide some meaning to the measured sound levels. Some of the statistical descriptors commonly used to describe measured sound levels are briefly defined:

- Leq is the equivalent sound level in dBA and this is the value of a constant sound level which would be equivalent to a continuous time-varying sound if the constant sound level were to persist over an equal time interval;
- L₅ is the sound level expressed in dBA, that is exceeded 5% of the time for a one hour survey;

- L₁₀ is the sound level expressed in dBA, that is exceeded 10% of the time for a one hour survey;
- L₉₀ is the sound level expressed in dBA, that is exceeded 90% of the time for a one hour survey;
- L₉₅ is the sound level expressed in dBA that is exceeded 95% of the time for a one hour survey.

The statistical descriptor which is most commonly used in environmental noise impact assessments is the Leq.

2.2 Provincial

The Ministry of Transportation Ontario (MTO) provides guidance on the assessment and mitigation of highway generated noise on noise sensitive land use areas. This guidance document is entitled *Environmental Guide for Noise* (MTO, 2006). The noise impact is determined by comparing the future sound levels with and without the proposed road improvements for the Outdoor Living Areas (OLA) of noise sensitive areas. *Table 2-2* below summarises the mitigation efforts that are to be applied for the predicted change in noise levels above the ambient and the projected noise level with the proposed improvements.

Table 2-2. Outdoor Living Area Criterion for Road Traffic Noise – Mitigation Effort Required for Projected Noise Level with Proposed Improvements above the Ambient

Change in Noise Level Above Ambient/ Projected Noise Levels with Proposed Improvements	Mitigation Effort Required
< 5 dBA change and < 65 dBA	None
≥ 5 dBA change OR ≥ 65 dBA	<ul style="list-style-type: none"> ▪ Investigate noise control measures on right-of-way; ▪ Introduce noise control measures within right-of-way and mitigate to ambient if technically feasible; and ▪ Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row of receivers.

Table 2.1 in MTO (2006).

The *Environmental Guide for Noise* (MTO, 2006) notes that mitigation measures must attempt to achieve noise levels as close to, or lower than, the future predicted ambient without the proposed improvements as is technically, economically, and administratively feasible. Mitigation measures within the right-of-way include:

- Acoustical barriers;
- Berms;
- Vertical and horizontal alignments; and
- Pavement surfaces.

The *Environmental Guide for Noise* (MTO, 2006) also provides guidance on minimizing the noise generated by highway construction. Construction operations must also abide by municipal noise control bylaws. Where activities contravene the bylaw, exemptions must be obtained prior to construction. The municipal noise control bylaws of the respective municipalities are discussed in their relevant sections below.

The Ontario Ministry of Environment (MOE) provides guidance under its existing legislation, i.e. the *Environmental Protection Act* (EPA) and the *Environmental Assessment Act* (EAA), on the noise criteria for planning of **proposed new** sensitive land uses adjacent but not limited to industrial, aggregate, commercial, sewage and waste management facilities, airports, and road and rail transportation corridors (MOE, 1997a, b, and c).

The Noise Assessment Criteria in Land Use Planning guidance document prepared by the MOE (MOE, 1997a) identifies noise sensitive land uses as:

- residential developments;
- seasonal residential developments;
- hospitals, nursing/retirement homes;
- schools, day-care centres, etc.

In order to determine whether proposed new noise sensitive land uses are impacted by a noise source such as a transportation corridor, the MOE requires that a feasibility or detailed noise impact study be carried out as outlined in the *Noise Assessment Criteria in Land Use Planning: Requirements, Procedures and Implementation* (MOE, 1997b). Table 2-3 summarises the MOE (1997a) outdoor living area criterion for daytime and night-time.

Table 2-3. Outdoor Living Area Criterion for Road Traffic Noise

Time Period	Leq	Assessment
07:00 – 23:00	Leq (16), 55 dBA	Outdoor Living Area and Plane of Bedroom Window
23:00 – 07:00	Leq (8), 50 dBA	Plane of Bedroom Window

The guideline (MOE, 1997b) further outlines the outdoor living area daytime and night-time noise criteria for new residences and the recommended noise control measures. These control measures include outdoor minimum noise control, ventilation, and building code requirements for road, rail and aircraft noise (Tables 1, 2, 3 and 4 in MOE, 1997b). For outdoor living areas during daytime hours (07:00 – 23:00 h), when the Leq (16 h) is greater than 55 dBA warning clauses of *Type A* and *B* are required of new residential developments. These warning clauses indicate to purchasers or tenants that sound levels may on occasion interfere with activities of the dwelling occupants. These warning clauses are defined in the MOE (1997b) guideline. Noise mitigation measures (barriers) are also required if the sound levels are predicted to be greater than 60 dBA. This measure should reduce the Leq (16 h) to below 60 dBA and as close as possible to 55 dBA as is technically, economically and administratively feasible. At the plane of the bedroom window, if the Leq (8 h) exceeds 50 dBA and is less than or equal to 60 dBA developers are required to have the dwellings fitted to accommodate and/or installed central air systems with clause of *Type C* noting this, and buildings built to the latest Ontario building code.

2.3 The Regional Municipality of Halton

The Region of Halton's *Noise Abatement Policy for Regional Roads and New Developments* (Regional Municipality of Halton, 2000), provides guidance on the assessment of noise impacts on noise sensitive areas due to existing and new road developments. For a new development road that will be constructed past existing residences, where the noise level generated by the proposed new road results in a change of 5 dBA over current conditions, then noise abatement features must be incorporated into the new roadway design. The impact criterion is only applied to existing dwellings.

For new residential developments, the developer is required to abate the noise originating from traffic and other industrial and commercial noise sources based on the following criteria. During daytime hours of 0700 – 2300 h, the outdoor living area Leq (16 h) limit is 55 dBA, and the

indoor living area limit is 45 dBA. During night-time (2300 – 0700 h) the indoor bedroom area limit is 40 dBA. These criteria will be used to design a noise barrier where it may be required.

2.4 Municipality of The Corporation of The City of Burlington

Waterdown Road is in the jurisdiction of the City of Burlington. The City's Noise Abatement Policy (April 1, 1996) establishes the following criteria for the purpose of establishing the need for mitigation measures:

- noise levels of noise sensitive areas due to road traffic are in excess of 60 dBA during the hours from 07:00 h to 23:00 h; and
- noise mitigation measures should reduce noise levels by at least 5 dBA to the Provincial noise level objective of 55 dBA where it is technically and economically feasible.

For new developments, the proponent of the development project is responsible for the noise mitigation measures. The preference is for the use of alternative approaches to noise barriers and noise barriers used only in extreme cases and where no alternative exists.

For existing noise sensitive areas that are exposed to high noise levels due to their proximity to a City noise source, all forms of noise control measures must be considered when assessing retrofit options. A noise barrier retrofitting is to be considered only where technically and economically feasible. Retrofit requests are to be considered on a case by case basis. The City will provide noise abatement measures for the outdoor living area only and the homeowner will be responsible for noise abatement relating to indoor noise controls. Furthermore, where the ensuing noise increase is greater than 5 dBA due to the expanding or new road, the retrofit project will be fully financed from the Transportation Development Charges Reserve Fund.

In addition to the City's noise abatement policy, the City's Nuisance and Noise Control By-Law, By-Law No. 19-2003, amended by By-Law 49-2008, prescribes prohibitions on activities that can cause a nuisance, i.e. Section 4(2):

“No noise or vibrations shall be made, caused or created so as to be heard or felt or otherwise perceived outside the property and which are, in the view of all the circumstances including the nature of the neighbourhood and the use to which adjoining properties are put and the time of day during which such noise or vibrations are made, caused or created excessive or which are, or may cause a

nuisance to the public generally or to others residing or carrying on a manufacture, trade or business in the vicinity.”

The City relies on MOE noise guidelines for much of the limitations and performance standards. Limitations on sound emissions specific to construction activities of the roadway, Section 6(2) states that:

“No person shall emit or cause or permit the emission of any sound: from any piece of construction equipment of a type referred to in Schedule 4 – Publications, Publication NPC-115, at a work site, any part of which is located within 600m of a residential area, unless;

a) the piece of construction equipment was put into use prior to January 1, 1979;
or

b) the piece of construction equipment bears a label affixed by the manufacturer or distributor which states;

(i) the year of manufacture, and

(ii) that the item of equipment complies with the residential sound emission standards set out in Schedule 4 – Publications, Publication NPC-115, as applicable to that type of equipment and date of manufacture; or

c) the owner, operator, manufacturer or distributor provides proof that the item of equipment complies with the residential sound emission standard set out in Schedule 4 – Publications, Publication NPC-115, as applicable to that type of equipment and date of manufacture.”

Furthermore, under Schedule 2 – Time and Place Prohibitions, the operation of any construction equipment during construction is limited to the hours of 07:00 h to 21:00 h from Monday to Saturday and from 12:00 h to 21:00 h on Sundays.

2.5 Municipality of The City of Hamilton

Mountain Brow Road, the proposed Mid-Block Road, Mill Street South and Dundas Street East are under the jurisdiction of the City of Hamilton. The City’s draft *Transportation and Noise Policy Paper* (City of Hamilton, 2005) is based on the change in the mean 24-hour noise level from the future “no-build” to the future “build” condition. Increases of less than 5 dBA due to the build condition are considered as low impact, increases between 5 dBA and 10 dBA are deemed as moderate impact, and increases greater than 10 dBA are considered as high impacts.

The draft policy paper suggests the adoption of the MOE limit for continuous noise sources of 55 dBA when considering mitigation measures.

For new housing developments, the draft guideline suggests that developers provide noise mitigation measures such as noise barriers and the implementation of land use strategies so that there is sufficient distance between the transportation noise source and the noise sensitive areas of residential developments.

The City of Hamilton's Noise By-Law, By-Law No. 03-020, Bill 020, provides qualitative prohibitions for activities that can cause a nuisance. The City relies on MOE noise guidelines for much of the limitations and performance standards.

Section 7(3) of the Noise By-Law provides prohibitions by time and place on sound emissions specific to construction activities of the roadway. The following quotes Section 7 of the Noise By-Law:

“ 7 No person shall emit or cause or permit the emission of sound resulting from the following which sound is clearly audible at a Point of Reception located in Quiet Areas (7:00 pm - 7:00 am) or Residential Areas (7:00 pm - 7:00 am):

- (1) The operation of a commercial car wash with air drying equipment.*
- (2) The operation of Construction Equipment in connection with Construction.*
- (3) The operation of any powered or non-powered tool for purposes other than snow removal.”*

The noise performance standard for construction equipment is defined in Section 11(2):

“ 11 No person shall emit or cause or permit the emission of sound resulting from:

- (2) Construction Equipment such that the level of resultant sound at a Point of Reception exceeds the applicable sound level limit prescribed in Publication - N.P.C. 115 - Construction Equipment.”*

MOE document NPC 115 provides sound performance ratings for various construction equipment and these are listed below in *Figures 2-1, 2-2, 2-3 and 2-4.*

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

Figure 2-1. Sound performance standards for excavators, dozers, loaders, backhoes or other similar equipment as defined in NPC 115.

TABLE 115-2

Sound Emission Standards for Pneumatic Pavement Breakers

Standard	Date of Manufacture	Maximum Sound Level (dBA) as measured using Publication NPC - 103
Quiet Zone Sound Emission	January 1, 1979 and after	85
Residential Area Sound Emission Standard	January 1, 1979 to December 31, 1980	90
	January 1, 1981 and after	85

Figure 2-2. Sound performance standards for pneumatic pavement breakers as defined in NPC 115.

TABLE 115-3

Sound Emission Standards for Portable Air Compressors

Standard	Date of Manufacture	Maximum Sound Level (dBA) as measured using Publication NPC - 103
Quiet Zone Sound Emission Standard	January 1, 1979 to December 31, 1980	76
	January 1, 1981 and after	70
Residential Area Sound Emission	January 1, 1979 and after	76

Figure 2-3. Sound performance standards for portable air compressors as defined in NPC 115.

TABLE 115-4

Sound Emission Standard for Tracked Drills

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

Figure 2-4. Sound performance standard for tracked drills as defined in NPC 115.

3. Noise Impact Assessment Methodology

In order to study the noise impact of the proposed Waterdown Road redevelopment project, the impact at sensitive receptors due to the predicted traffic conditions for the mature state of development was compared against a scenario in which there was no redevelopment project. An assessment of the current noise impact at the same receptors due to existing traffic conditions was also performed to establish a baseline. These scenarios are summarised below:

- Scenario 1 – Current 2008 configuration, based on existing traffic volumes;
- Scenario 2 – Future 2021 “no road-build” option, based on forecasted traffic volumes under the existing roadway configuration. This scenario assumes that anticipated future land development in Waterdown would be in place; and
- Scenario 3 – Future 2021 Mature State of Development based on forecasted traffic volumes with the proposed new land development and proposed road improvements in place.

3.1 Scenario 1 - Current 2008 Configuration

Scenario 1 consists of the current road configuration and the traffic volumes for Waterdown Road, Mill Street South, Mountain Brow Road East, and Dundas Street East.

Road traffic volume data as Average Annual Daily Traffic (AADT) for the road segments identified above were based on measured volume counts made by the City of Burlington in 2006 for Waterdown Road and Mountain Brow Road. For Mill Street South and Dundas Street East (at various intersections), the City of Hamilton and Halton Region provided the turning movement counts based on 2007 and 2008 surveys. The 24-hr traffic count surveys conducted on Mountain Brow Road (at Flanders St.) and Dundas Street East (at Kerns Rd.) also provided the day (D) versus night-time (N) split in traffic volumes which were 93% (D) vs. 7% (N) and 91% (D) vs. 9% (N), respectively. It was assumed that the day/night split on Waterdown Road and Mill Street South would be similar to that of Mountain Brow Road and that the day versus night split at Dundas and Kerns would be applicable from Kerns west to Hamilton Street. *Table 3-1* below summarises the traffic data for the roads under consideration.

Table 3-1. Scenario 1 – 2008 Baseline traffic data and road description

Road Segment	Description	AADT (veh./day)*	% Medium Truck	% Heavy Truck	D/N Split %
Waterdown Road	2-lane undivided road; posted speed limit 60 km/h	7500	4	1	93% / 7%
Mill Street South	2-lane undivided road; posted speed limit 50 km/h	6500	3	1	93% / 7%
Mountain Brow Road	2-lane undivided road; posted speed limit 50 km/h	1500	4	0	93% / 7%
Dundas Street East	West of Mill St.S., Dundas is 2-lane undivided with 3 rd median lane used for turning; east of Mill St., Dundas is 2-lane undivided road; posted speed limit 50 km/h	19500	6	2	91% / 9%

* AADT is over a 24-hr period and includes both directions.

3.2 Scenario 2 - Future 2021 No-Build

Scenario 2 assumes the current road configuration as described in Scenario 1 but with the projected increased traffic volumes that would prevail in 2021. This scenario assumes that anticipated future land development in Waterdown would be in place.

Estimates of future volumes under both road network scenarios (i.e., Scenario 2 and Scenario 3) were obtained from traffic modelling undertaken as part of the Waterdown Aldershot Transportation Master Plan (WATMP) Phase 2 study. The traffic model provided projections for AM peak hour traffic volumes at the 2021 horizon based on anticipated future development levels. PM peak hour volumes and AADT volumes were then estimated assuming a similar hourly distribution as under existing conditions.

It was assumed that all road laneway configurations, day/night splits and speed limits for the above study roads would remain the same in 2021 but with increased AADT volume. *Table 3-2* summarises the traffic data for the future no-build scenario.

Table 3-2. Scenario 2 – 2021 No-Build traffic data and road description

Road Segment	Description	AADT (veh./day)*	% Medium Truck	% Heavy Truck	D/N Split %
Waterdown Road	2-lane undivided road; posted speed limit 60 km/h	10500	4	1	93% / 7%
Mill Street South	2-lane undivided road; posted speed limit 50 km/h	10500	3	1	93% / 7%
Mountain Brow Road	2-lane undivided road; posted speed limit 50 km/h	5500	4	0	93% / 7%
Dundas Street East	West of Mill St.S., Dundas is 2-lane undivided with 3 rd median lane used for turning; east of Mill St., Dundas is 2-lane undivided road; posted speed limit 50 km/h	22500	6	2	91% / 9%

* AADT is over a 24-hr period and includes both directions.

3.3 Scenario 3 - Future 2021 Mature State of Development

Scenario 3 entailed the redevelopment of Waterdown Road and Mountain Brow Road East to a 4-lane roadway. The redeveloped Waterdown Road will have a reduced posted speed limit of 50 km/h down from the 60 km/h under current and future Scenario 2 conditions. The project also included a new 4-lane road, currently referred to as Mid-Block Road, which would connect Mountain Brow Road and Dundas Street East and serve a planned subdivision east of Flanders Street. Mill Street South will remain as a 2-lane undivided road, and Dundas Street East between Hamilton Street and Pamela Street will remain as a 2-lane undivided road with a third median turning lane.

It was assumed that all day/night proportions and speed limits for the above study roads would remain the same in 2021 but with increased AADT volume for Waterdown Road, Mountain Brow Road and Mid-Block Road. Mill Street South was predicted to have decreased volumes compared to the 2021 no-build Scenario 2 as a result of traffic routing through Mountain Brow Road and Mid-Block Road. The segment of Dundas Street East between Hamilton Street and Pamela Street was also predicted to have decreased AADT volume due to traffic being routed to the proposed new East-West corridor that develops Parkside Drive. The projected changes in volumes were based on traffic modelling undertaken as part of the WATMP Phase 1 and 2. *Table 3-3* summarises the traffic data for the future mature state of development scenario.

Table 3-3. Scenario 3 – 2021 Mature State of Development traffic data and road description

Road Segment	Description	AADT (veh./day)*	% Medium Truck	% Heavy Truck	D/N Split %
Waterdown Road	4-lane undivided road; posted speed limit 50 km/h	19000	4	1	93% / 7%
Mill Street South	2-lane undivided road; posted speed limit 50 km/h	8500	3	1	93% / 7%
Mountain Brow Road	4-lane undivided road; posted speed limit 50 km/h	11000	4	1	93% / 7%
Mid-Block Road	4-lane undivided road; posted speed limit 50 km/h	11000	4	1	93% / 7%
Dundas Street East	West of Mill St.S., Dundas is 2-lane undivided with 3 rd median lane used for turning; east of Mill St., Dundas is 2-lane undivided road; posted speed limit 50 km/h	28000	6	2	91% / 9%

* AADT is over a 24-hr period and includes both directions.

3.4 Traffic Noise Modelling

The traffic noise impact was modelled using the MOE's STAMSON modeling program, which follows the ORNAMENT methodology for road traffic noise impact prediction (MOE, 1989). The following outlines the assumptions and model settings that were used.

- Noise predictions were made for 16-hr daytime (07:00 – 23:00 h) equivalent sound levels for outdoor living areas and 8-hr night-time (23:00 – 07:00 h) equivalent sound levels for the plane-of-a-bedroom-window. The point of assessment was 1.5 m above grade for outdoor living areas and 4.5 m above grade for a bedroom window.
- For all roadways, traffic was modelled as two lanes (i.e., East/West-bound or North/South-bound) and the AADT volume divided equally between the lanes. For certain night-time volumes on individual lanes that fell below the minimum 40 vehicles per hour required by STAMSON, it was necessary to combine the two lanes into one so that the night-time impact of the traffic from that source could be accounted for.

- The MOE's STAMSON model has a receptor-to-source separation range of 15 m to 500 m. Therefore, roadways closer than 15 m to the receptor were assumed to be at 15 m separation distance. Roadways further than 500 m were not considered in the assessment.
- Except for residential receptors W04 and W06, the land between the road and all other receptors was assumed to be essentially flat with little change in elevation. On the eastern side of Waterdown Road for approximately 1100 m north from Craven Avenue, there is an approximate 3 m change in elevation between the roadway and the dwellings due to the escarpment so that W04 and W06 were assessed at 3 m below the road elevation.
- Except for the receptor on Dundas Street East (W18), it was assumed that the ground between the roadways and point of reception were absorptive. This is a typical assumption for residences with lawns and shrubs in the verges. Aerial examination of receptor W18 indicated a predominantly paved ground between roadway and receptor so that ground absorption was taken as reflective.
- The two conservation receptors WC1 and WC2 were approximately 28 m below the grade of the Waterdown Road segment. The escarpment had an approximate gradient of 2:1 and ended with a lateral distance of approximately 50 m from the edge of Waterdown Road. This ecological zone is wooded and it was assumed that sensitive receptors residing in the tree canopy would be roughly 7 m above the floor of the escarpment. The ground was therefore assumed to be absorptive. For Scenario 3 where road development is considered, a safety concrete barrier of 0.82 m in height above the grade on the eastern side of the roadway that runs along this ecozone is planned. Under this scenario, this small barrier was considered. Height of the source behind this barrier was taken as 1.0 m based on the fraction of heavy truck traffic according to ORNAMENT (MOE, 1989).
- Depending on the configuration of a roadway with respect to a given receptor, the roadway was divided into segments to better model the orientation of the traffic flow. The appropriate angular relationships to the segments and distances were used in the modelling.
- For existing and future residential receptors W17 and W20, respectively, the barrier effect due to a row of houses was considered. For W17, a single row of houses of approximately 85% density acted as a barrier to noise emissions from Mill Street South. For the planned W20, an estimated six rows of houses with 90% density intervened between the receptor and Mountain Brow Road.

4. Modelling Results & Discussion

The predicted daytime Leq (16) and night-time Leq (8) for the three scenarios are summarised below in *Table 4-1* and illustrated in *Figures C-1 to C-6* in *Appendix C*.

4.1 Scenario 1 - Existing 2008 Conditions

The noise levels predicted under existing conditions ranged from 44 dBA to 67 dBA during the daytime (Leq(16)) for outdoor living areas and from 27 dBA to 60 dBA during night-time (Leq(8)) at the plane of the bedroom window. *Figures C-1* and *C-2* illustrates the daytime and night-time noise levels, respectively at the receptors. The highest noise levels were experienced by residences located within 20 m of the road source (W02, W16, and W18). Noise levels predicted for the two receptors WC1 and WC2 located in the ecozone were approximately 54 dBA and 46 dBA for daytime and night-time, respectively (see *Table 2-1*).

The STAMSON model does not consider noise impacts for roadways with traffic volumes less than 40 vehicles per hour. This limitation resulted in no night-time noise contribution from traffic on Mountain Brow Road which impacted receptors W12, W13, W14, W15, and W17. Therefore the predicted night-time levels may be underestimated. For receptors W12, W13 and W15, Mountain Brow Road is the closest noise source so that the night-time underestimation may be more significant than for the other sources.

4.2 Scenario 2 - 2021 No Build

By 2021, the increase in traffic volumes from present day volumes resulted in an increase in noise levels being predicted at all receptors. Receptor W17 on Mountain Brow Road was predicted to have the greatest increase of approximately 6 dBA during the daytime and approximately 23 dBA during the night-time over that estimated for the current conditions. This night-time increase is due largely to the modelling limitation described above in which Mountain Brow Road was not included in the night-time assessment for Scenario 1 as volumes were less than 40 vehicles per hour, but included in Scenario 2 as volumes were greater than the limit. Receptor W14 on Mountain Brow Road was also predicted to have a noticeable increase in the night-time noise levels in the future no-build scenario compared to the current condition. This increase, predicted to be approximately 6 dBA, was in part due to the modelling limitation. The increase in noise levels predicted under Scenario 2 over that predicted for Scenario 1 for all other

receptors were approximately 3 dBA or less during the daytime and night-time. Figures C-3 and C-4 illustrates the daytime and night-time noise levels, respectively at the receptors under this scenario.

Table 4-1. Predicted Daytime Leq (16) and Night-time Leq (8) for the Three Scenarios

Receptor	Description	Scenario 1 2008 Existing Condition		Scenario 2 2021 No Build		Scenario 3 2021 Mature State	
		Day time Leq (16) dBA	Night time Leq(8) dBA	Day time Leq (16) dBA	Night time Leq(8) dBA	Day time Leq (16) dBA	Night time Leq(8) dBA
W01	Existing Residence Waterdown Rd.	58.8	51.0	60.2	52.4	59.4	51.6
W02	Existing Residence Waterdown Rd.	61.6	53.7	63.1	55.1	62.2	54.3
W03	Existing Residence Waterdown Rd.	44.5	37.3	46.0	38.7	46.6	39.3
W04	Existing Residence Waterdown Rd.	59.0	51.3	60.5	52.7	60.8	53.1
W05	Future Residence Waterdown Rd.	NA	NA	NA	NA	59.9	52.1
W06	Existing Residence Waterdown Rd.	59.7	52.0	61.2	53.4	61.0	53.1
W07	Existing Residence Waterdown Rd.	50.2	42.9	51.7	44.2	52.7	45.2
W08	Existing Residence Waterdown Rd.	43.6	36.5	45.0	37.9	45.8	38.6
W09	Existing Residence Waterdown Rd.	57.0	49.3	58.5	50.7	58.7	50.8
W10	Existing Residence Waterdown Rd.	53.6	46.0	55.0	47.4	55.7	48.1
W11	Existing Residence Waterdown Rd.	59.2	51.3	60.6	52.8	61.6	53.7
W12	Existing Residence Waterdown Rd.	55.8	48.1	57.2	49.5	58.1	50.3
W13	Existing Residence Waterdown Rd.	59.2	51.1	61.0	53.1	61.6	53.6
W14	Existing Residence Mountain Brow Rd.	54.6	44.5	58.5	50.7	61.0	53.1
W15	Existing Residence Mill St. South	45.9	38.4	48.7	41.7	48.0	40.6

Receptor	Description	Scenario 1 2008 Existing Condition		Scenario 2 2021 No Build		Scenario 3 2021 Mature State	
		Day time Leq (16) dBA	Night time Leq(8) dBA	Day time Leq (16) dBA	Night time Leq(8) dBA	Day time Leq (16) dBA	Night time Leq(8) dBA
W16	Existing Residence Mill St. South	60.9	53.2	62.8	55.1	62.0	54.3
W17	Existing Residence Mountain Brow Rd.	51.5	26.6	57.1	49.1	61.6	53.5
W18	Existing Residence Dundas St. East	66.8	59.8	67.5	60.4	67.2	60.2
W19	Future Residence Mid-Block Rd.	NA	NA	NA	NA	57.1	49.3
W20	Future Residence Mid-Block Rd.	NA	NA	NA	NA	60.4	52.4
W21	Future Residence Mid-Block Rd.	NA	NA	NA	NA	61.2	53.6
WC1	Existing Conservation Waterdown Rd.	54.4	46.4	55.8	47.7	52.2	44.1
WC2	Existing Conservation Waterdown Rd.	54.2	46.1	55.6	47.5	55.2	47.1

4.3 Noise Impact of Scenario 3 - Mature State of Development

The predicted daytime Leq(16) and night-time Leq(8) levels are presented in *Table 4-1* above and *Figures C-5* and *C-6* illustrate the daytime and night-time sound levels, respectively at the receptors under Scenario 3. *Table 4-2* below summarises the change and expected impact the redevelopment will present.

Under Scenario 3, there is a predicted increase in sound levels in comparison to Scenario 2 at:

- Receptors W03, W04 and W07 to W12 along Waterdown Road;
- Receptors W13 and W14 near the junction of Waterdown Road to Mill Street South and Mountain Brow Road; and
- Receptor W17 on Mountain Brow Road.

The increase in sound levels for both daytime and night-time that were predicted at receptors W03, W04, and W07 to W14 were all less than 3 dBA. Therefore the change was not considered

to be perceptible. For receptor W17 the daytime and night-time sound levels were predicted to increase by approximately 4.5 dBA and 4.4 dBA, respectively over that predicted under the Scenario 2 no-build condition. Therefore the increase in sound levels predicted under Scenario 3 was considered to be noticeable when compared to those predicted under Scenario 2. Due to the increased traffic volumes predicted for Mountain Brow Road under the future build scenario, there is a potential for residences on this road to experience noticeable increases in traffic generated sound levels. For the receptors that were predicted to have an increase in the sound levels under Scenario 3 in comparison to Scenario 2, the predicted increases were less than 5 dBA, and therefore the impact due to the future build condition was considered to be low.

For existing receptors WC1, WC2, W01, W02 and W06 along Waterdown Road, there was a decrease in predicted sound levels in comparison to the no-build Scenario 2. The decrease in daytime and night-time levels was predicted to be noticeable only for receptor WC1. For the existing residential receptors along Waterdown Road, the ambient sound levels should not be perceived to be significantly different from sound levels prior to the redevelopment project.

Receptors along Mill Street South W15 and W16 were predicted to have a lower noise impact (as a result of lower traffic volumes) compared to future no-build situation. However, the improvement was considered insignificant as decreases were approximately 1 dBA or less. Similarly, there was an insignificant improvement at W18 on Dundas Street East.

For receptors W02, W04, W06, W11, and W13 along Waterdown Road, W16 on Mill St. South and W17 on Mountain Brow Road, the predicted daytime sound levels were greater than 60 dBA (approximately 61 to 62 dBA). The proximity of these residential receptors to the roadway was 20 m or less for dwellings that did not slope away from the roadway and 30 m or less for dwellings that sloped significantly away (approximately 3 m elevation change) from the roadway. Therefore residences that are in close proximity to Waterdown Road, Mill St. South and Mountain Brow Road would be expected to experience noise levels in excess of 60 dBA. However, the use of noise barriers to abate the daytime outdoor noise level by at least 5 dBA would not be technically or economically feasible as these residential receptors are all fronting the respective roadways.

For new receptors W05 on Waterdown Road, and W19, W20 and W21 on Mid-block Road, the predicted noise levels ranged from 57 dBA to 61 dBA during the daytime and 49 dBA to 54 dBA during night-time. For **proposed new** noise sensitive land uses such as residential subdivisions, when the daytime Leq (16) are above 60 dBA, the MOE (1997b) and the City of Burlington's

Noise Abatement Policy (1996) recommends that outdoor noise control measures such as barriers be considered in order to reduce the Leq (16) to below 60 dBA and as close as possible to 55 dBA as technically and economically feasible. However, the MTO (2006) suggests that mitigation measures be investigated when the outdoor living area noise impact is 65 dBA or greater and implemented when a minimum attenuation of 5 dBA is technically, economically, and administratively feasible. Dependant on traffic volumes and setback distances of the outdoor living area from the centre of the nearest lane, a noise barrier and further site mitigation measures may be required for the proposed developments in the area surrounding receptors W05, W19, W20 and W21. The lands in which these future potential receptors are located are currently open space and therefore not defined as noise sensitive receptors. It is recommended that noise impact at potential receptors be re-assessed as part any proposed development in order to incorporate site specific characteristics into the model. This will allow for detailed design of potential noise barriers including, but not limited to the height, exact location of the barriers relative to the road right-of-way and residential property-line, and selection of materials.

**Table 4-2. Change in Noise Impact Due to
Waterdown Road Corridor Redevelopment at Mature State 2021**

Receptor	Change		Impact
	Day (dBA)	Night (dBA)	
W01	-0.8	-0.8	Insignificant Improvement
W02	-0.9	-0.8	Insignificant Improvement
W03	0.6	0.6	Insignificant
W04	0.3	0.4	Insignificant
W05	NA	NA	NA – New Receptor
W06	-0.2	-0.3	Insignificant Improvement
W07	1.0	1.0	Insignificant
W08	0.8	0.7	Insignificant
W09	0.2	0.1	Insignificant
W10	0.7	0.7	Insignificant
W11	1.0	0.9	Insignificant
W12	0.9	0.8	Insignificant
W13	0.6	0.5	Insignificant
W14	2.5	2.4	Insignificant
W15	-0.7	-1.1	Insignificant Improvement
W16	-0.8	-0.8	Insignificant Improvement
W17	4.5	4.4	Noticeable Increase
W18	-0.3	-0.2	Insignificant Improvement
W19	NA	NA	NA – New Receptor
W20	NA	NA	NA – New Receptor
W21	NA	NA	NA – New Receptor
WC1	-3.6	-3.6	Noticeable Improvement
WC2	-0.4	-0.4	Insignificant Improvement

5. Noise Impact During Construction Phase

The construction phase of the proposed Waterdown Road Corridor redevelopment has the potential to affect the local ambient sound levels in the vicinity of the construction site. However, construction activities are non-stationary and variable so that noise sources are non-stationary and can vary depending on time of day and from day-to-day. Activities are influenced by the progression in construction phases, type of construction, weather, season, terrain and time of day.

Typical road construction related noise sources are:

- Tracked excavators
- Road graders
- Dozers and front-end loaders
- Dump trucks
- Rollers and vibratory rollers
- Pavers
- Mobile cranes

In an effort to minimise noise and vibration impacts during the construction phase, construction activities of the roadways will act in accordance with the City of Burlington’s Nuisance and Noise Control By-Law (By-Law No. 19-2003, amended by By-Law 49-2008) and the City of Hamilton’s Noise By-Law (By-Law No. 03-020), and follow construction industry best management practices. *Table 5-1* summarises the procedures to mitigate noise and vibration impacts.

Table 5-1. Mitigation Measures to Limit Construction Related Noise

Expected Onsite Impact	Mitigation Measures
Increase in noise levels from the use of machinery on site, delivery of materials, and general construction.	<ul style="list-style-type: none"> • Ensure that City of Burlington and City of Hamilton noise by-laws are followed. • Limit construction to between the hours of 07:00 h and 19:00 h. • Ensure that all equipment is well maintained. • Employ construction best management practices.

In addition to the noise generated by construction activities, road noise may increase temporarily due to traffic congestion and re-routing of the traffic during the construction phase. This may be more noticeable during the widening and realignment of Waterdown Road and widening of Mountain Brow Road. During the redevelopment of these roads, there is a potential for increased traffic and congestion and therefore road noise along Mill Street South, Kings Road and Kerns Road as traffic may be re-directed along these routes. During the construction of the Mid-Block Road, there is a potential for increased traffic and road noise along Dundas Street East, Mountain Brow Road and Waterdown Road/Mill Street South.

6. Conclusion

The noise impact of the Waterdown Road Corridor redevelopment project defined as Scenario 3 was assessed by comparing the predicted noise levels of the mature state of development in 2021 to that under the future no-build condition (Scenario 2).

For Waterdown Road segment, the predicted increases in noise levels (daytime and night-time Leq) due to the redevelopment over that predicted for the no-build condition were not considered to be perceptible as the differences were all below 3 dBA. There were three residential receptors (W01, W02, and W06) and the two sensitive conservation receptors (WC1 and WC2) that were predicted to have an improvement (decrease) in daytime and night-time Leq levels under Scenario 3 when compared to Scenario 2. The predicted improvements for the residential receptors were however not considered to be perceptible.

For Mountain Brow Road, the receptor closest to the intersection of Waterdown Road and Mill Street South, W14, was not predicted to experience a noticeable increase in daytime and night-time equivalent sound levels due to the future build scenario. However, further east along Mountain Brow Road at W17 the increase due to the future build scenario was predicted to be noticeable (i.e., greater than 3 dBA).

As a result of decreases in predicted traffic volumes on Mill Street South and Dundas Street East for the future build condition, noise levels predicted for receptors W15, W16, and W18 along these road segments were lower than what was predicted for the future no-build scenario. The predicted improvement was however not considered to be perceptible.

For new residences in the potential future subdivisions along Waterdown north of Flatt Road and on Mid-Block Road, sound barriers may be required to mitigate noise generated by future traffic on these road segments. The need for sound barriers will be dependant on the setback distances of the outdoor living area with respect to the centre of the nearest lane and the volume and speed of traffic on these roads.

7. References

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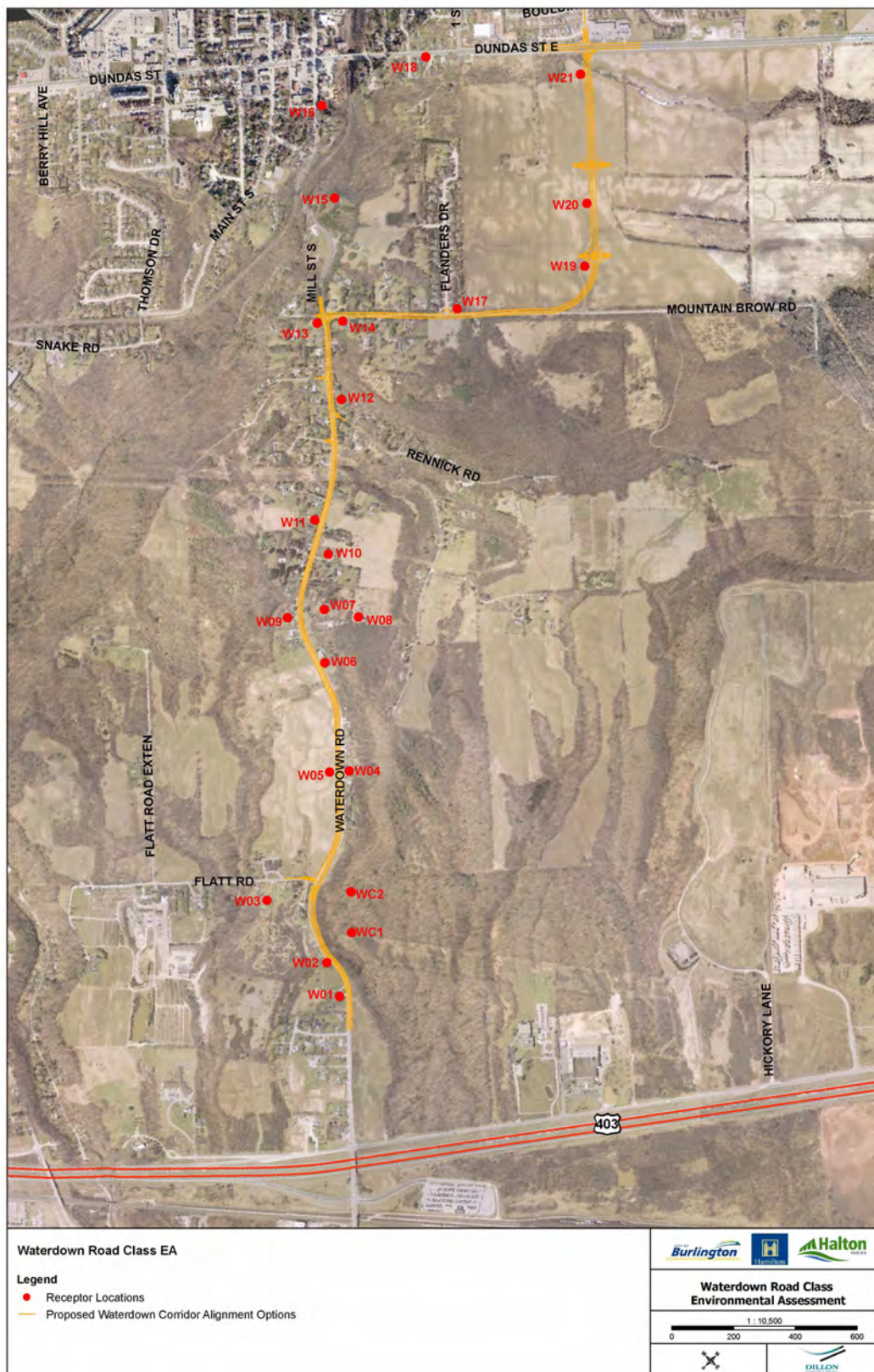
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Appendix A - Road Corridor Concept Plan

Figure A-1 Waterdown Road Corridor Mature State of Development with Noise Receptors



Appendix B - Municipal Zoning Maps

Figure B-1 City of Burlington Zoning Map



Land use along designations (City of Burlington, 2008)

- RNA1 and RNA2: Residential
- H-RNA1 and H-RNA2: Holding Residential
- O3: open space (defined as municipal and provincial parks, public and private open spaces, cultural heritage resources, archaeological restoration, walking trails and nature viewing, forest, wildlife and fisheries management, transportation and utilities, agriculture except within woodlot, and storm water management and erosion control excluding permanent detention and retention ponds)
- S: utility services land use (defined as any transportation, communication or utility use)

Appendix C - Predicted Noise Levels

Figure C-1 Scenario 1 – Existing 2008 Daytime Noise Levels

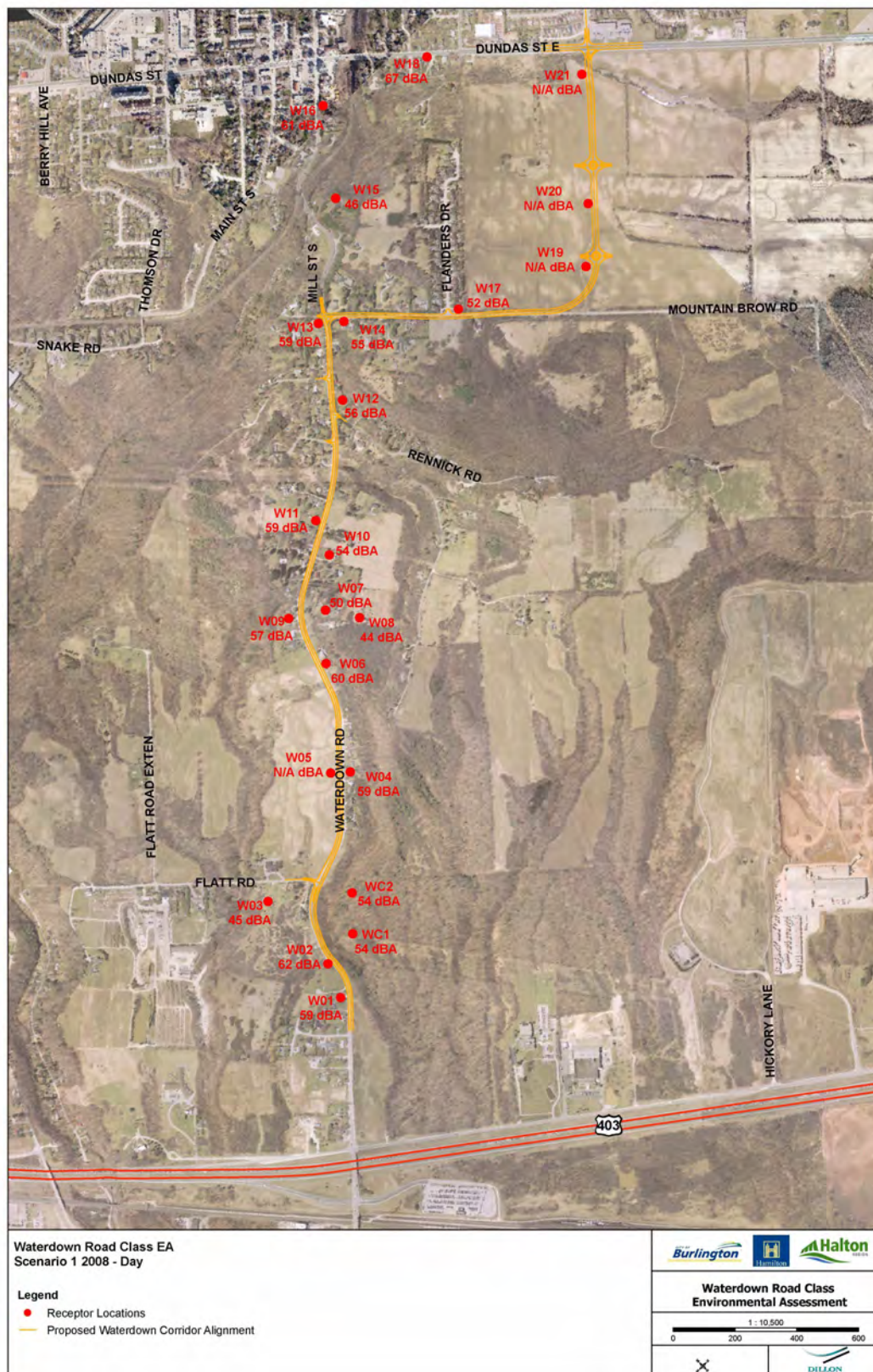


Figure C-2 Scenario 1 – Existing 2008 Night-time Noise Levels

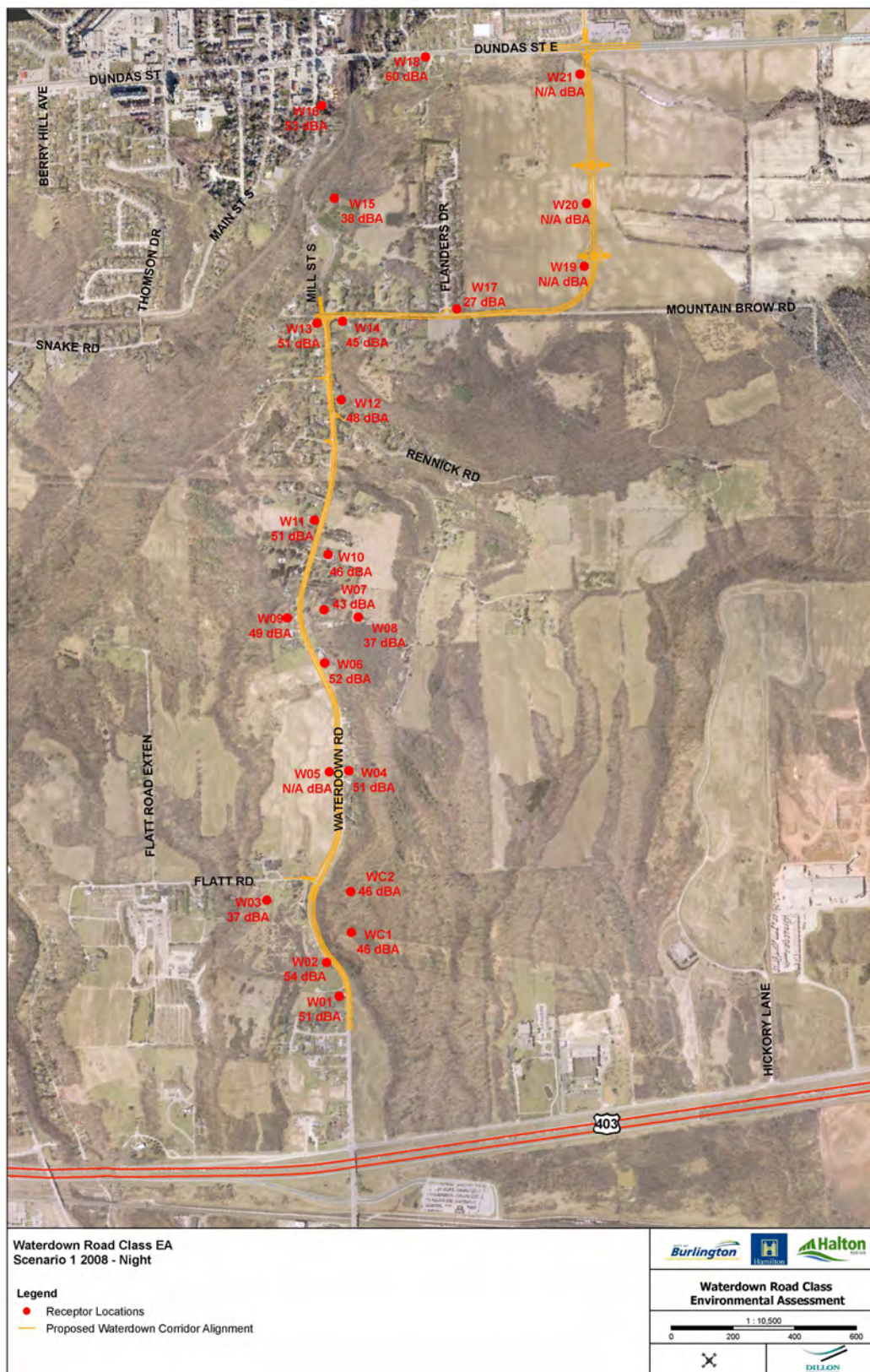


Figure C-3 Scenario 2 – 2021 No-Build Daytime Noise Levels

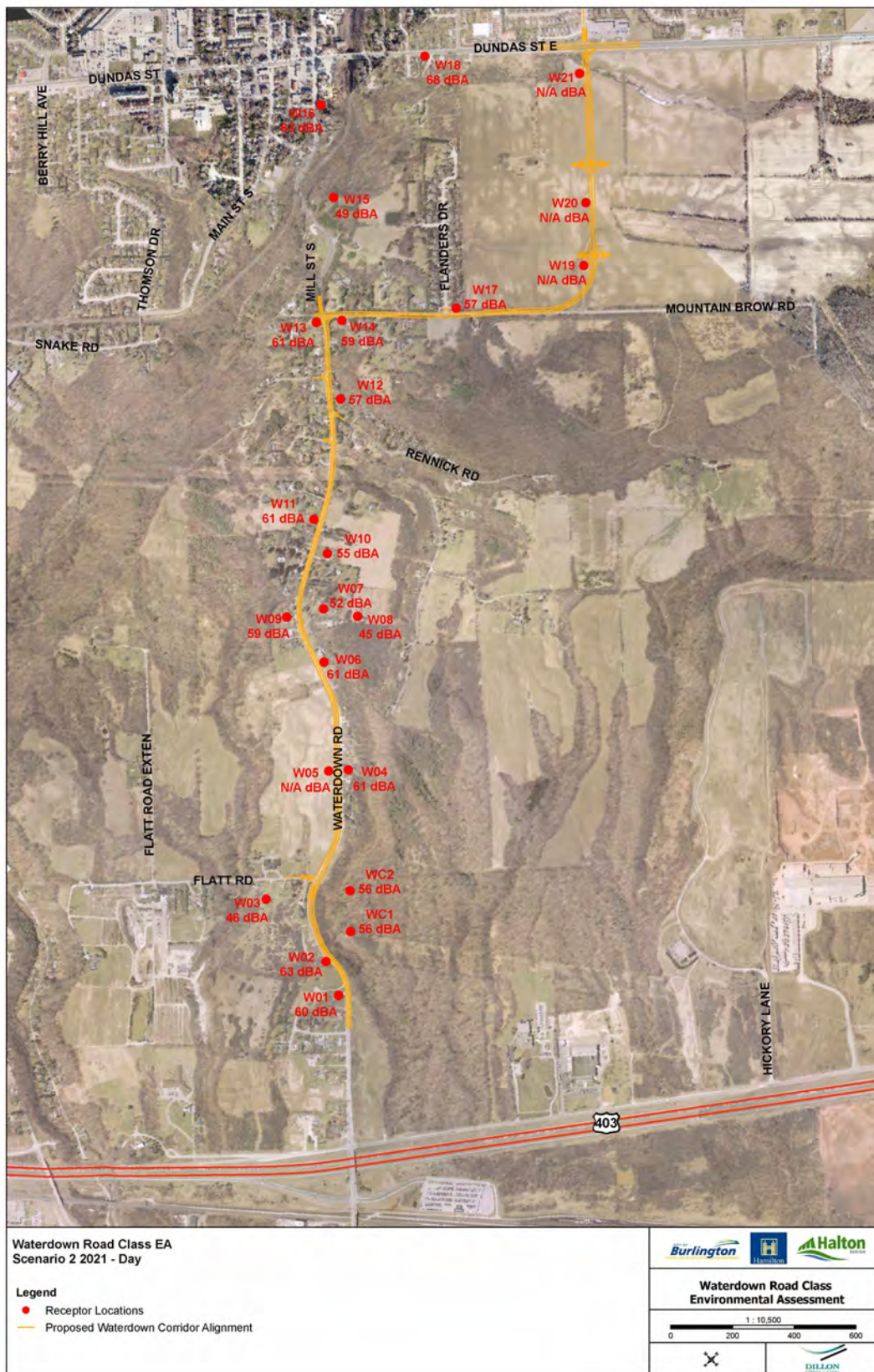


Figure C-4 Scenario 2 – 2021 No-Build Night-time Noise Levels



Figure C-5 Scenario 3 – 2021 Mature State of Development Daytime Noise Levels

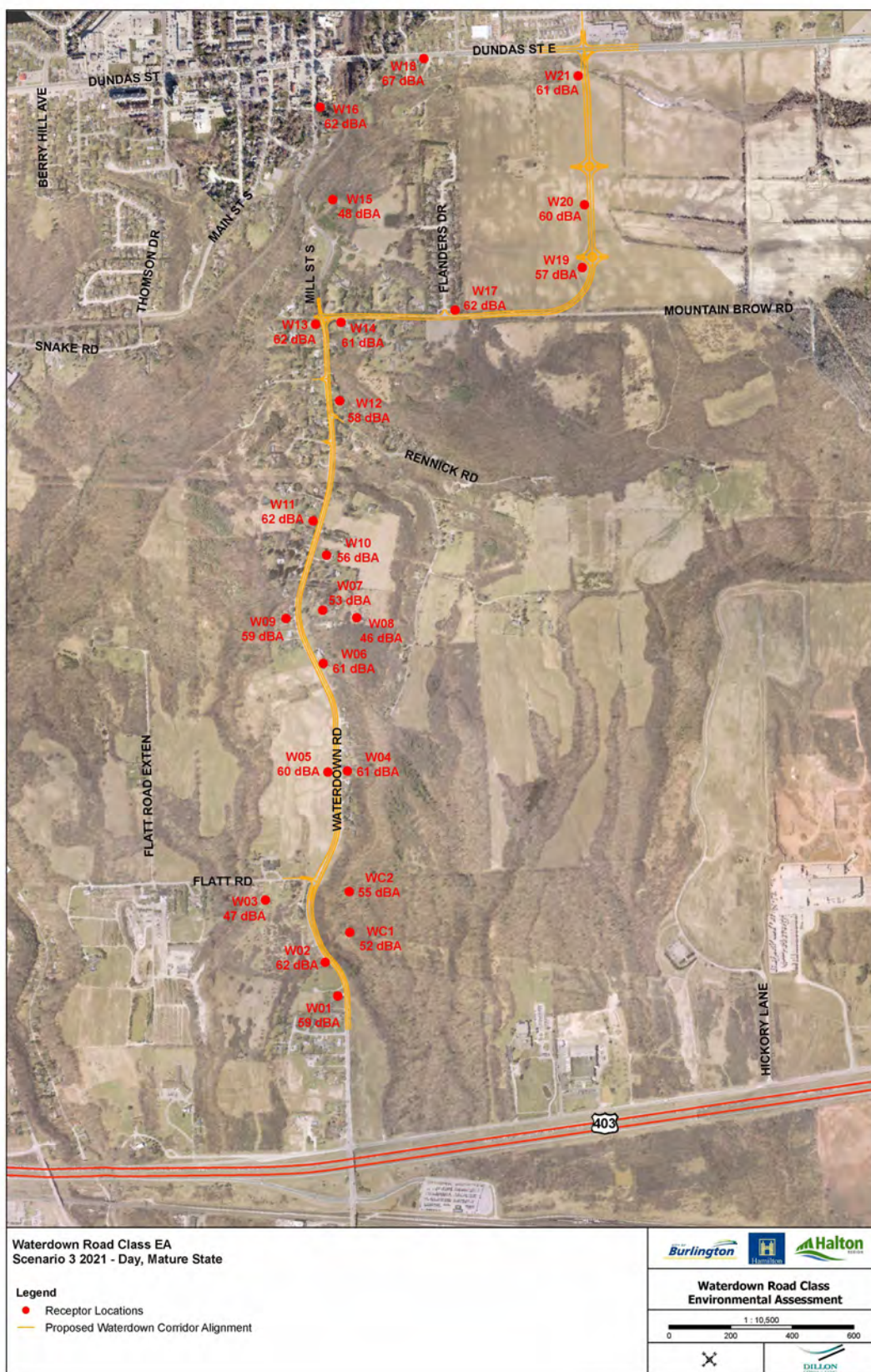
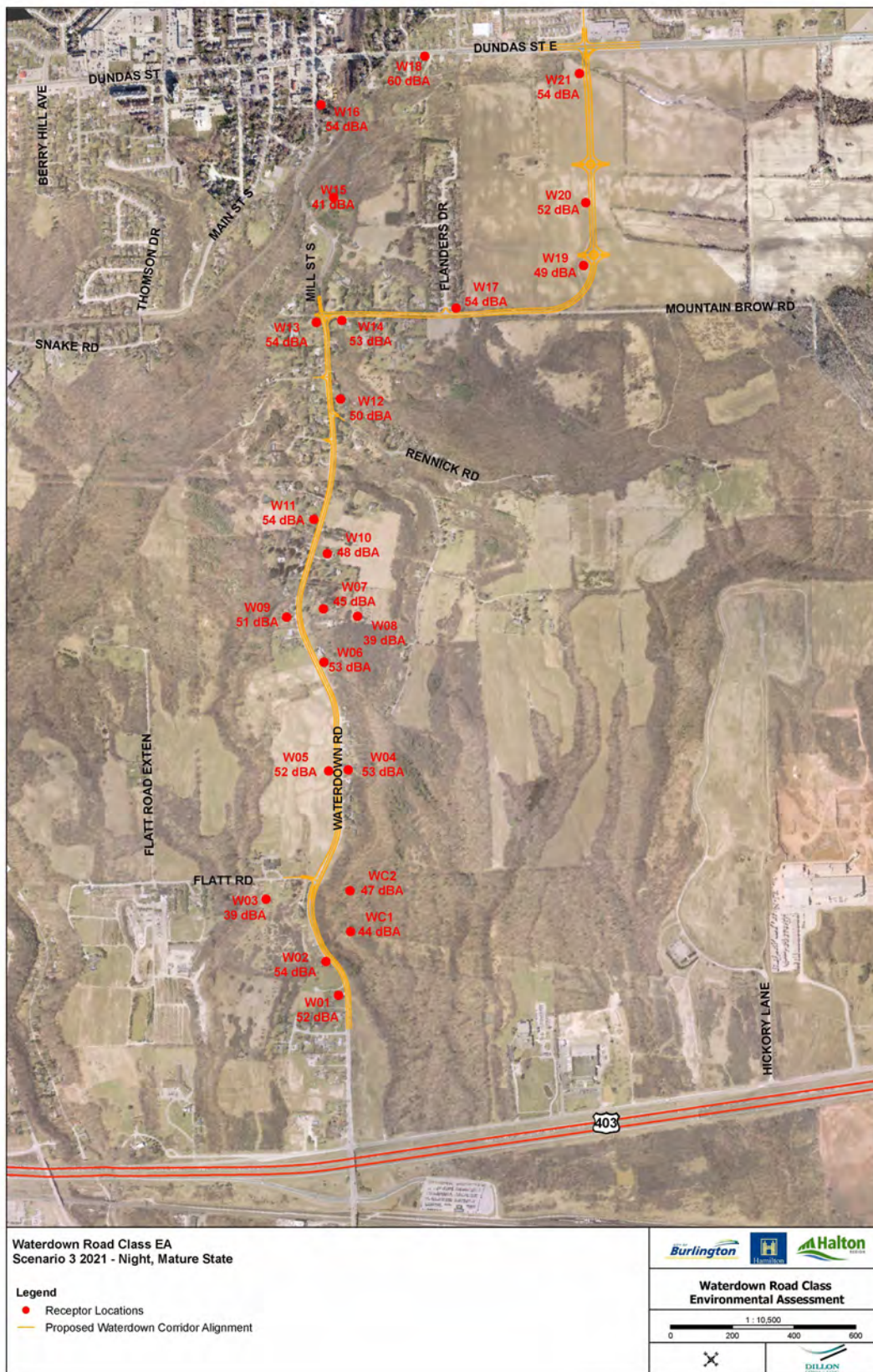


Figure C-6 Scenario 3 – 2021 Mature State of Development Night-time Noise Levels



Appendix D - Selected STAMSON Output Files

Receptors:

W01 Residence on Waterdown Road

WC1 Escarpment Ecological Receptor East of Waterdown Road

W04 Residence on Waterdown Road

W11 Residence on Waterdown Road

W13 Residence on Waterdown Road

W16 Residence on Mill Street South

W17 Residence on Mountain Brow Road

W20 Residence on proposed new Mid-Block Road

Scenario 1- Existing 2008

Filename: 08w01d.te Time Period: 16 hours
Description: 2008 W01 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0

Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 56.07 + 0.00) = 56.07 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.66 60.69 0.00 -3.08 -1.54 0.00 0.00 0.00 56.07

Segment Leq : 56.07 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 54.91 + 0.00) = 54.91 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.66 60.69 0.00 -4.24 -1.54 0.00 0.00 0.00 54.91

Segment Leq : 54.91 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 43.25 + 0.00) = 43.25 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.66 60.69 0.00 -8.68 -8.76 0.00 0.00 0.00 43.25

Segment Leq : 43.25 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 42.83 + 0.00) = 42.83 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.66 60.69 0.00 -9.10 -8.76 0.00 0.00 0.00 42.83

Segment Leq : 42.83 dBA

Total Leq All Segments: 58.78 dBA

TOTAL Leq FROM ALL SOURCES: 58.78

Filename: 08w01n.te Time Period: 8 hours

Description: 2008 W01 NIGHT

Road data, segment # 1: WTDWN S1 L12

Car traffic volume : 498 veh/TimePeriod
Medium truck volume : 22 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L12

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)

Receiver source distance : 25.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S2 L12

Car traffic volume : 498 veh/TimePeriod
Medium truck volume : 22 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S2 L12

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 52.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L12

Source height = 1.03 m

ROAD (0.00 + 50.73 + 0.00) = 50.73 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.58 55.67 0.00 -3.51 -1.43 0.00 0.00 0.00 50.73

Segment Leq : 50.73 dBA

Results segment # 2: WTDWN S2 L12

Source height = 1.03 m

ROAD (0.00 + 38.53 + 0.00) = 38.53 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.58 55.67 0.00 -8.55 -8.59 0.00 0.00 0.00 38.53

Segment Leq : 38.53 dBA

Total Leq All Segments: 50.98 dBA

TOTAL Leq FROM ALL SOURCES: 50.98

Filename: 08wclld.te Time Period: 16 hours
Description: 2008 WC1 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 105.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

```
-----
Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

Data for Segment # 2: WTDWN S1 L2

```
-----
Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 108.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

```

Road data, segment # 3: WTDWN S2 L1

```
-----
Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

Data for Segment # 3: WTDWN S2 L1

```
-----
Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 180.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

```

Road data, segment # 4: WTDWN S2 L2

```
-----
Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

Data for Segment # 4: WTDWN S2 L2

```
-----
Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 183.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

```

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 50.48 + 0.00) = 50.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	70	0.00	60.69	0.00	-8.45	-1.76	0.00	0.00	0.00	50.48

Segment Leq : 50.48 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 50.36 + 0.00) = 50.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	70	0.00	60.69	0.00	-8.45	-1.76	0.00	0.00	0.00	50.36

-50 70 0.00 60.69 0.00 -8.57 -1.76 0.00 0.00 0.00 50.36

Segment Leq : 50.36 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 44.34 + 0.00) = 44.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	60	0.00	60.69	0.00	-10.79	-5.56	0.00	0.00	0.00	44.34

Segment Leq : 44.34 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 44.26 + 0.00) = 44.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	60	0.00	60.69	0.00	-10.86	-5.56	0.00	0.00	0.00	44.26

Segment Leq : 44.26 dBA

Total Leq All Segments: 54.38 dBA

TOTAL Leq FROM ALL SOURCES: 54.38

Filename: 08wcln.te Time Period: 8 hours

Description: 2008 WC1 NIGHT

Road data, segment # 1: WTDWN S1 L12

Car traffic volume : 498 veh/TimePeriod
Medium truck volume : 22 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L12

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 106.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S2 L12

Car traffic volume : 498 veh/TimePeriod
Medium truck volume : 22 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S2 L12

Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 181.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L12

Source height = 1.03 m

ROAD (0.00 + 45.42 + 0.00) = 45.42 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-50 70 0.00 55.67 0.00 -8.49 -1.76 0.00 0.00 0.00 45.42

Segment Leq : 45.42 dBA

Results segment # 2: WTDWN S2 L12

Source height = 1.03 m

ROAD (0.00 + 39.29 + 0.00) = 39.29 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

10 60 0.00 55.67 0.00 -10.82 -5.56 0.00 0.00 0.00 39.29

Segment Leq : 39.29 dBA

Total Leq All Segments: 46.37 dBA

TOTAL Leq FROM ALL SOURCES: 46.37

Filename: 08w04d.te Time Period: 16 hours
Description: 2008 W04 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 m
Receiver height : 1.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

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
-80	80	0.58	60.69	0.00	-2.64	-1.48	0.00	0.00	0.00	56.57

Segment Leq : 56.57 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 55.42 + 0.00) = 55.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	80	0.58	60.69	0.00	-3.79	-1.48	0.00	0.00	0.00	55.42

Segment Leq : 55.42 dBA

Total Leq All Segments: 59.04 dBA

TOTAL Leq FROM ALL SOURCES: 59.04

Filename: 08w04n.te Time Period: 8 hours

Description: 2008 W04 NIGHT

Road data, segment # 1: WTDWN S1 L12

Car traffic volume : 498 veh/TimePeriod
Medium truck volume : 22 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L12

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 m
Receiver height : 4.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L12

Source height = 1.03 m

ROAD (0.00 + 51.28 + 0.00) = 51.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	80	0.49	55.67	0.00	-3.05	-1.35	0.00	0.00	0.00	51.28

Segment Leq : 51.28 dBA

Total Leq All Segments: 51.28 dBA

TOTAL Leq FROM ALL SOURCES: 51.28

Filename: 08w11d.te Time Period: 16 hours

Description: 2008 W11 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod

Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 56.74 + 0.00) = 56.74 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.66 60.69 0.00 -2.43 -1.52 0.00 0.00 0.00 56.74

Segment Leq : 56.74 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 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 80 0.66 60.69 0.00 -3.68 -1.52 0.00 0.00 0.00 55.49

Segment Leq : 55.49 dBA

Total Leq All Segments: 59.17 dBA

TOTAL Leq FROM ALL SOURCES: 59.17

Filename: 08w11n.te Time Period: 8 hours
Description: 2008 W11 NIGHT

Road data, segment # 1: WTDWN S1 L12

Car traffic volume : 498 veh/TimePeriod
Medium truck volume : 22 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L12

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L12

Source height = 1.03 m

ROAD (0.00 + 51.33 + 0.00) = 51.33 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.58 55.67 0.00 -2.94 -1.40 0.00 0.00 0.00 51.33

Segment Leq : 51.33 dBA

Total Leq All Segments: 51.33 dBA

TOTAL Leq FROM ALL SOURCES: 51.33

Filename: 08w13d.te Time Period: 16 hours
Description: 2008 W13 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: MILL S2 L1

Car traffic volume : 2902 veh/TimePeriod
Medium truck volume : 91 veh/TimePeriod
Heavy truck volume : 30 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: MILL S2 L1

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: MILL S2 L2

Car traffic volume : 2902 veh/TimePeriod
Medium truck volume : 91 veh/TimePeriod
Heavy truck volume : 30 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: MILL S2 L2

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MB RD S3 L1

Car traffic volume : 670 veh/TimePeriod
Medium truck volume : 28 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MB RD S3 L1

Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: MB RD S3 L2

Car traffic volume : 670 veh/TimePeriod
Medium truck volume : 28 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: MB RD S3 L2

Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 56.16 + 0.00) = 56.16 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-35 90 0.66 60.69 0.00 -1.89 -2.64 0.00 0.00 0.00 56.16

Segment Leq : 56.16 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 54.51 + 0.00) = 54.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.66	60.69	0.00	-3.54	-2.64	0.00	0.00	0.00	54.51

Segment Leq : 54.51 dBA

Results segment # 3: MILL S2 L1

Source height = 1.00 m

ROAD (0.00 + 48.36 + 0.00) = 48.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	57.92	0.00	-1.89	-7.67	0.00	0.00	0.00	48.36

Segment Leq : 48.36 dBA

Results segment # 4: MILL S2 L2

Source height = 1.00 m

ROAD (0.00 + 46.72 + 0.00) = 46.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	57.92	0.00	-3.54	-7.67	0.00	0.00	0.00	46.72

Segment Leq : 46.72 dBA

Results segment # 5: MB RD S3 L1

Source height = 0.50 m

ROAD (0.00 + 40.76 + 0.00) = 40.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	90	0.66	50.40	0.00	-1.31	-8.32	0.00	0.00	0.00	40.76

Segment Leq : 40.76 dBA

Results segment # 6: MB RD S3 L2

Source height = 0.50 m

ROAD (0.00 + 39.65 + 0.00) = 39.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	90	0.66	50.40	0.00	-2.43	-8.32	0.00	0.00	0.00	39.65

Segment Leq : 39.65 dBA

Total Leq All Segments: 59.20 dBA

TOTAL Leq FROM ALL SOURCES: 59.20

Filename: 08w13n.te Time Period: 8 hours
Description: 2008 W13 NIGHT

Road data, segment # 1: WTDWN S1 L12

Car traffic volume	: 498 veh/TimePeriod
Medium truck volume	: 22 veh/TimePeriod
Heavy truck volume	: 6 veh/TimePeriod
Posted speed limit	: 60 km/h
Road gradient	: 0 %

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L12

```
-----
Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 2: MILL S2 L12

```
-----
Car traffic volume : 436 veh/TimePeriod
Medium truck volume : 14 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 2: MILL S2 L12

```
-----
Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: WTDWN S1 L12

Source height = 1.03 m

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
-35	90	0.58	55.67	0.00	-2.63	-2.55	0.00	0.00	0.00	50.49

Segment Leq : 50.49 dBA

Results segment # 2: MILL S2 L12

Source height = 0.97 m

ROAD (0.00 + 42.50 + 0.00) = 42.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.59	52.57	0.00	-2.64	-7.43	0.00	0.00	0.00	42.50

Segment Leq : 42.50 dBA

Total Leq All Segments: 51.13 dBA

TOTAL Leq FROM ALL SOURCES: 51.13

Filename: 08W16D.te Time Period: 16 hours
Description: 2008 W16 DAY

Road data, segment # 1: MILL S1 L1

```
-----
Car traffic volume : 2902 veh/TimePeriod
Medium truck volume : 91 veh/TimePeriod
Heavy truck volume : 30 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: MILL S1 L1

```
-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
```

Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: MILL S1 L2

Car traffic volume : 2902 veh/TimePeriod
Medium truck volume : 91 veh/TimePeriod
Heavy truck volume : 20 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MILL S1 L2

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

Road data, segment # 3: DUNDAS S2 L1

Car traffic volume : 8163 veh/TimePeriod
Medium truck volume : 532 veh/TimePeriod
Heavy truck volume : 177 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: DUNDAS S2 L1

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 144.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: DUNDAS S2 L2

Car traffic volume : 8163 veh/TimePeriod
Medium truck volume : 532 veh/TimePeriod
Heavy truck volume : 177 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: DUNDAS S2 L2

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 149.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MILL S1 L1

Source height = 1.00 m

ROAD (0.00 + 56.47 + 0.00) = 56.47 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 57.92 0.00 0.00 -1.46 0.00 0.00 0.00 56.47

Segment Leq : 56.47 dBA

Results segment # 2: MILL S1 L2

Source height = 0.90 m

ROAD (0.00 + 55.10 + 0.00) = 55.10 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 57.46 0.00 -0.90 -1.46 0.00 0.00 0.00 55.10

Segment Leq : 55.10 dBA

Results segment # 3: DUNDAS S2 L1

Source height = 1.19 m

ROAD (0.00 + 53.62 + 0.00) = 53.62 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-75 70 0.00 64.38 0.00 -9.82 -0.94 0.00 0.00 0.00 53.62

Segment Leq : 53.62 dBA

Results segment # 4: DUNDAS S2 L2

Source height = 1.19 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

-75 70 0.00 64.38 0.00 -9.97 -0.94 0.00 0.00 0.00 53.47

Segment Leq : 53.47 dBA

Total Leq All Segments: 60.86 dBA

TOTAL Leq FROM ALL SOURCES: 60.86

Filename: 08w16n.te Time Period: 8 hours
Description: 2008 W16 NIGHT

Road data, segment # 1: MILL S1 L12

Car traffic volume : 436 veh/TimePeriod
Medium truck volume : 14 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MILL S1 L12

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 16.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: DUNDAS S2 L1

Car traffic volume : 807 veh/TimePeriod
Medium truck volume : 53 veh/TimePeriod
Heavy truck volume : 18 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: DUNDAS S2 L1

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 144.00 m

Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: DUNDAS S2 L2

Car traffic volume : 807 veh/TimePeriod
Medium truck volume : 53 veh/TimePeriod
Heavy truck volume : 18 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: DUNDAS S2 L2

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 149.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MILL S1 L12

Source height = 0.97 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 0.59 52.57 0.00 -0.44 -1.33 0.00 0.00 0.00 50.80

Segment Leq : 50.80 dBA

Results segment # 2: DUNDAS S2 L1

Source height = 1.20 m

ROAD (0.00 + 46.64 + 0.00) = 46.64 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-75 70 0.00 57.40 0.00 -9.82 -0.94 0.00 0.00 0.00 46.64

Segment Leq : 46.64 dBA

Results segment # 3: DUNDAS S2 L2

Source height = 1.20 m

ROAD (0.00 + 46.49 + 0.00) = 46.49 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-75 70 0.00 57.40 0.00 -9.97 -0.94 0.00 0.00 0.00 46.49

Segment Leq : 46.49 dBA

Total Leq All Segments: 53.24 dBA

TOTAL Leq FROM ALL SOURCES: 53.24

Filename: 08W17D.te Time Period: 16 hours
Description: 2008 W17 DAY

Road data, segment # 1: MB RD S1 L1

Car traffic volume : 670 veh/TimePeriod
Medium truck volume : 28 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MB RD S1 L1

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

Road data, segment # 2: MB RD S1 L2

Car traffic volume : 670 veh/TimePeriod
Medium truck volume : 28 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MB RD S1 L2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 17.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 3313 veh/TimePeriod
Medium truck volume : 140 veh/TimePeriod
Heavy truck volume : 35 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MILL S3 L1

Car traffic volume : 2902 veh/TimePeriod
Medium truck volume : 91 veh/TimePeriod
Heavy truck volume : 30 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MILL S3 L1

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: MILL S3 L2

Car traffic volume : 2902 veh/TimePeriod
Medium truck volume : 91 veh/TimePeriod
Heavy truck volume : 30 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: MILL S3 L2

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MB RD S1 L1

Source height = 0.50 m

ROAD (0.00 + 48.94 + 0.00) = 48.94 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 50.40 0.00 0.00 -1.46 0.00 0.00 0.00 48.94

Segment Leq : 48.94 dBA

Results segment # 2: MB RD S1 L2

Source height = 0.50 m

ROAD (0.00 + 47.83 + 0.00) = 47.83 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 50.40 0.00 -1.11 -1.46 0.00 0.00 0.00 47.83

Segment Leq : 47.83 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 31.17 + 0.00) = 31.17 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.37 60.69 0.00 -19.95 -4.57 -5.00 0.00 0.00 31.17

Segment Leq : 31.17 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 31.13 + 0.00) = 31.13 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.37 60.69 0.00 -20.00 -4.57 -5.00 0.00 0.00 31.13

Segment Leq : 31.13 dBA

Results segment # 5: MILL S3 L1

Source height = 1.00 m

ROAD (0.00 + 23.20 + 0.00) = 23.20 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 57.92 0.00 -24.09 -5.09 0.00 -5.54 0.00 23.20

Segment Leq : 23.20 dBA

Results segment # 6: MILL S3 L2

Source height = 1.00 m

ROAD (0.00 + 23.16 + 0.00) = 23.16 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 57.92 0.00 -24.14 -5.09 0.00 -5.53 0.00 23.16

Segment Leq : 23.16 dBA

Total Leq All Segments: 51.52 dBA

TOTAL Leq FROM ALL SOURCES: 51.52

Filename: 08W17N.te Time Period: 8 hours

Description: 2008 W17 NIGHT

Road data, segment # 1: WTDWN S1 L12

Car traffic volume : 498 veh/TimePeriod
Medium truck volume : 22 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L12

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 425.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: MILL S2 L12

Car traffic volume : 436 veh/TimePeriod
Medium truck volume : 14 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MILL S2 L12

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 425.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L12

Source height = 1.03 m

ROAD (0.00 + 25.74 + 0.00) = 25.74 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.28 53.85 0.00 -18.65 -4.46 -5.00 0.00 0.00 25.74

Segment Leq : 25.74 dBA
Results segment # 2: MILL S2 L12

Source height = 0.97 m

ROAD (0.00 + 18.98 + 0.00) = 18.98 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.59 52.57 0.00 -23.03 -5.02 0.00 -5.54 0.00 18.98

Segment Leq : 18.98 dBA

Total Leq All Segments: 26.57 dBA

TOTAL Leq FROM ALL SOURCES: 26.57

Scenario 2 – 2021 No-Build

Filename: 21w01d.te Time Period: 16 hours
Description: 2021 NO BUILD W01 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 23.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0

Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 57.52 + 0.00) = 57.52 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.66 62.15 0.00 -3.08 -1.54 0.00 0.00 0.00 57.52

Segment Leq : 57.52 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 56.36 + 0.00) = 56.36 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.66 62.15 0.00 -4.24 -1.54 0.00 0.00 0.00 56.36

Segment Leq : 56.36 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 44.70 + 0.00) = 44.70 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.66 62.15 0.00 -8.68 -8.76 0.00 0.00 0.00 44.70

Segment Leq : 44.70 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 44.28 + 0.00) = 44.28 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.66 62.15 0.00 -9.10 -8.76 0.00 0.00 0.00 44.28

Segment Leq : 44.28 dBA

Total Leq All Segments: 60.23 dBA

TOTAL Leq FROM ALL SOURCES: 60.23

Filename: 21w01n.te Time Period: 8 hours

Description: 2021 NO BUILD W01 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)

Receiver source distance : 23.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.02 m

ROAD (0.00 + 49.67 + 0.00) = 49.67 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.58 54.04 0.00 -2.94 -1.43 0.00 0.00 0.00 49.67

Segment Leq : 49.67 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.02 m

ROAD (0.00 + 48.57 + 0.00) = 48.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-78	90	0.58	54.04	0.00	-4.04	-1.43	0.00	0.00	0.00	48.57

Segment Leq : 48.57 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.02 m

ROAD (0.00 + 37.16 + 0.00) = 37.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-36	0.58	54.04	0.00	-8.28	-8.59	0.00	0.00	0.00	37.16

Segment Leq : 37.16 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.02 m

ROAD (0.00 + 36.76 + 0.00) = 36.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-36	0.58	54.04	0.00	-8.69	-8.59	0.00	0.00	0.00	36.76

Segment Leq : 36.76 dBA

Total Leq All Segments: 52.42 dBA

TOTAL Leq FROM ALL SOURCES: 52.42

Filename: 21wclld.te Time Period: 16 hours
Description: 2021 NO BUILD WC1 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 105.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 108.00 m

Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 180.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 183.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 51.93 + 0.00) = 51.93 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-50 70 0.00 62.15 0.00 -8.45 -1.76 0.00 0.00 0.00 51.93

Segment Leq : 51.93 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 51.81 + 0.00) = 51.81 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-50 70 0.00 62.15 0.00 -8.57 -1.76 0.00 0.00 0.00 51.81

Segment Leq : 51.81 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 45.79 + 0.00) = 45.79 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

10 60 0.00 62.15 0.00 -10.79 -5.56 0.00 0.00 0.00 45.79

Segment Leq : 45.79 dBA
Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 45.72 + 0.00) = 45.72 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

10 60 0.00 62.15 0.00 -10.86 -5.56 0.00 0.00 0.00 45.72

Segment Leq : 45.72 dBA

Total Leq All Segments: 55.83 dBA

TOTAL Leq FROM ALL SOURCES: 55.83

Filename: 21wcln.te Time Period: 8 hours
Description: 2021 NO BUILD WC1 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 105.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 108.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : 10.00 deg 60.00 deg

Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 180.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 183.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.02 m

ROAD (0.00 + 43.83 + 0.00) = 43.83 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-50 70 0.00 54.04 0.00 -8.45 -1.76 0.00 0.00 0.00 43.83

Segment Leq : 43.83 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.02 m

ROAD (0.00 + 43.70 + 0.00) = 43.70 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-50 70 0.00 54.04 0.00 -8.57 -1.76 0.00 0.00 0.00 43.70

Segment Leq : 43.70 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.02 m

ROAD (0.00 + 37.68 + 0.00) = 37.68 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

10 60 0.00 54.04 0.00 -10.79 -5.56 0.00 0.00 0.00 37.68

Segment Leq : 37.68 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.02 m

ROAD (0.00 + 37.61 + 0.00) = 37.61 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

10 60 0.00 54.04 0.00 -10.86 -5.56 0.00 0.00 0.00 37.61

Segment Leq : 37.61 dBA

Total Leq All Segments: 47.73 dBA

TOTAL Leq FROM ALL SOURCES: 47.73

Filename: 21w04d.te Time Period: 16 hours
Description: 2021 NO BUILD W04 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 m
Receiver height : 1.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 58.03 + 0.00) = 58.03 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-80 80 0.58 62.15 0.00 -2.64 -1.48 0.00 0.00 0.00 58.03

Segment Leq : 58.03 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 56.88 + 0.00) = 56.88 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-80 80 0.58 62.15 0.00 -3.79 -1.48 0.00 0.00 0.00 56.88

Segment Leq : 56.88 dBA

Total Leq All Segments: 60.50 dBA

TOTAL Leq FROM ALL SOURCES: 60.50

Filename: 21w04n.te Time Period: 8 hours
Description: 2021 NO BUILD W04 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.00 m
Receiver height : 4.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 4.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.02 m

ROAD (0.00 + 50.21 + 0.00) = 50.21 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-80 80 0.49 54.04 0.00 -2.49 -1.35 0.00 0.00 0.00 50.21

Segment Leq : 50.21 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.02 m

ROAD (0.00 + 49.12 + 0.00) = 49.12 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-80 80 0.49 54.04 0.00 -3.57 -1.35 0.00 0.00 0.00 49.12

Segment Leq : 49.12 dBA

Total Leq All Segments: 52.71 dBA

TOTAL Leq FROM ALL SOURCES: 52.71

Filename: 21w11d.te Time Period: 16 hours

Description: 2021 NO BUILD W11 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 58.20 + 0.00) = 58.20 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.66 62.15 0.00 -2.43 -1.52 0.00 0.00 0.00 58.20

Segment Leq : 58.20 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 56.94 + 0.00) = 56.94 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.66 62.15 0.00 -3.68 -1.52 0.00 0.00 0.00 56.94

Segment Leq : 56.94 dBA

Total Leq All Segments: 60.63 dBA

TOTAL Leq FROM ALL SOURCES: 60.63

Filename: 21w11N.te Time Period: 8 hours
Description: 2021 NO BUILD W11 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 349 veh/TimePeriod

Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.02 m

ROAD (0.00 + 50.32 + 0.00) = 50.32 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.58 54.04 0.00 -2.32 -1.40 0.00 0.00 0.00 50.32

Segment Leq : 50.32 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.02 m

ROAD (0.00 + 49.12 + 0.00) = 49.12 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.58 54.04 0.00 -3.51 -1.40 0.00 0.00 0.00 49.12

Segment Leq : 49.12 dBA

Total Leq All Segments: 52.77 dBA

TOTAL Leq FROM ALL SOURCES: 52.77

Filename: 21w13d.te Time Period: 16 hours
Description: 2021 NO BUILD W13 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: MILL S2 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: MILL S2 L1

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: MILL S2 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: MILL S2 L2

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MB RD S3 L1

Car traffic volume : 2455 veh/TimePeriod
Medium truck volume : 102 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MB RD S3 L1

Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: MB RD S3 L2

Car traffic volume : 2455 veh/TimePeriod
Medium truck volume : 102 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: MB RD S3 L2

Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 57.61 + 0.00) = 57.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.66	62.15	0.00	-1.89	-2.64	0.00	0.00	0.00	57.61

Segment Leq : 57.61 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 55.97 + 0.00) = 55.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.66	62.15	0.00	-3.54	-2.64	0.00	0.00	0.00	55.97

Segment Leq : 55.97 dBA

Results segment # 3: MILL S2 L1

Source height = 1.00 m

ROAD (0.00 + 50.74 + 0.00) = 50.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	60.30	0.00	-1.89	-7.67	0.00	0.00	0.00	50.74

Segment Leq : 50.74 dBA

Results segment # 4: MILL S2 L2

Source height = 1.00 m

ROAD (0.00 + 49.09 + 0.00) = 49.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	60.30	0.00	-3.54	-7.67	0.00	0.00	0.00	49.09

Segment Leq : 49.09 dBA

Results segment # 5: MB RD S3 L1

Source height = 0.50 m

ROAD (0.00 + 46.39 + 0.00) = 46.39 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

40 90 0.66 56.03 0.00 -1.31 -8.32 0.00 0.00 0.00 46.39

Segment Leq : 46.39 dBA

Results segment # 6: MB RD S3 L2

Source height = 0.50 m

ROAD (0.00 + 45.28 + 0.00) = 45.28 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

40 90 0.66 56.03 0.00 -2.43 -8.32 0.00 0.00 0.00 45.28

Segment Leq : 45.28 dBA

Total Leq All Segments: 60.97 dBA

TOTAL Leq FROM ALL SOURCES: 60.97

Filename: 21w13n.te Time Period: 8 hours
Description: 2021 NO BUILD W13 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.50 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: MILL S2 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: MILL S2 L1

```
-----
Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 4: MILL S2 L2

```
-----
Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 4: MILL S2 L2

```
-----
Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.50 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 5: MB RD S3 L12

```
-----
Car traffic volume : 370 veh/TimePeriod
Medium truck volume : 16 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 5: MB RD S3 L12

```
-----
Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: WTDWN S1 L1

Source height = 1.02 m

ROAD (0.00 + 49.68 + 0.00) = 49.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.58	54.04	0.00	-1.81	-2.55	0.00	0.00	0.00	49.68

Segment Leq : 49.68 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.02 m

ROAD (0.00 + 48.11 + 0.00) = 48.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.58	54.04	0.00	-3.38	-2.55	0.00	0.00	0.00	48.11

Segment Leq : 48.11 dBA

Results segment # 3: MILL S2 L1

Source height = 1.02 m

ROAD (0.00 + 42.98 + 0.00) = 42.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.58	52.21	0.00	-1.81	-7.43	0.00	0.00	0.00	42.98

Segment Leq : 42.98 dBA

Results segment # 4: MILL S2 L2

Source height = 1.02 m

ROAD (0.00 + 41.40 + 0.00) = 41.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.58	52.21	0.00	-3.38	-7.43	0.00	0.00	0.00	41.40

Segment Leq : 41.40 dBA

Results segment # 5: MB RD S3 L12

Source height = 0.50 m

ROAD (0.00 + 41.14 + 0.00) = 41.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	90	0.60	50.89	0.00	-1.64	-8.11	0.00	0.00	0.00	41.14

Segment Leq : 41.14 dBA

Total Leq All Segments: 53.10 dBA

TOTAL Leq FROM ALL SOURCES: 53.10

Filename: 21w16d.te Time Period: 16 hours
Description: 2021 NO BUILD W16 DAY

Road data, segment # 1: MILL S1 L1

Car traffic volume : 4638 veh/TimePeriod
 Medium truck volume : 195 veh/TimePeriod
 Heavy truck volume : 49 veh/TimePeriod
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MILL S1 L1

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

Road data, segment # 2: MILL S1 L2

Car traffic volume : 4638 veh/TimePeriod
 Medium truck volume : 195 veh/TimePeriod
 Heavy truck volume : 49 veh/TimePeriod
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MILL S1 L2

Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 17.00 m
 Receiver height : 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: DUNDAS S2 L1

Car traffic volume : 9419 veh/TimePeriod
Medium truck volume : 614 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: DUNDAS S2 L1

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 144.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: DUNDAS S2 L2

Car traffic volume : 9419 veh/TimePeriod
Medium truck volume : 614 veh/TimePeriod
Heavy truck volume : 205 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: DUNDAS S2 L2

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 149.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MILL S1 L1

Source height = 1.00 m

ROAD (0.00 + 58.84 + 0.00) = 58.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	60.30	0.00	0.00	-1.46	0.00	0.00	0.00	58.84

Segment Leq : 58.84 dBA

Results segment # 2: MILL S1 L2

Source height = 1.00 m

ROAD (0.00 + 57.94 + 0.00) = 57.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	60.30	0.00	-0.90	-1.46	0.00	0.00	0.00	57.94

Segment Leq : 57.94 dBA

Results segment # 3: DUNDAS S2 L1

Source height = 1.19 m

ROAD (0.00 + 54.25 + 0.00) = 54.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	70	0.00	65.01	0.00	-9.82	-0.94	0.00	0.00	0.00	54.25

Segment Leq : 54.25 dBA

Results segment # 4: DUNDAS S2 L2

Source height = 1.19 m

ROAD (0.00 + 54.10 + 0.00) = 54.10 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-75 70 0.00 65.01 0.00 -9.97 -0.94 0.00 0.00 0.00 54.10

Segment Leq : 54.10 dBA

Total Leq All Segments: 62.81 dBA

TOTAL Leq FROM ALL SOURCES: 62.81

Filename: 21w16N.te Time Period: 8 hours
Description: 2021 NO BUILD W16 NIGHT

Road data, segment # 1: MILL S1 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MILL S1 L1

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

Road data, segment # 2: MILL S1 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MILL S1 L2

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

Road data, segment # 3: DUNDAS S2 L1

Car traffic volume : 932 veh/TimePeriod
Medium truck volume : 61 veh/TimePeriod
Heavy truck volume : 20 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: DUNDAS S2 L1

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 144.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: DUNDAS S2 L2

```
-----
Car traffic volume : 932 veh/TimePeriod
Medium truck volume : 61 veh/TimePeriod
Heavy truck volume : 20 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
-----
```

Data for Segment # 4: DUNDAS S2 L2

```
-----
Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 149.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
-----
```

Results segment # 1: MILL S1 L1

Source height = 1.02 m

```
ROAD (0.00 + 50.88 + 0.00) = 50.88 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-90 90 0.58 52.21 0.00 0.00 -1.33 0.00 0.00 0.00 50.88
-----
```

Segment Leq : 50.88 dBA

Results segment # 2: MILL S1 L2

Source height = 1.02 m

```
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 0.58 52.21 0.00 -0.86 -1.33 0.00 0.00 0.00 50.02
-----
```

Segment Leq : 50.02 dBA

Results segment # 3: DUNDAS S2 L1

Source height = 1.19 m

```
ROAD (0.00 + 47.19 + 0.00) = 47.19 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-75 70 0.00 57.95 0.00 -9.82 -0.94 0.00 0.00 0.00 47.19
-----
```

Segment Leq : 47.19 dBA

Results segment # 4: DUNDAS S2 L2

Source height = 1.19 m

```
ROAD (0.00 + 47.04 + 0.00) = 47.04 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-75 70 0.00 57.95 0.00 -9.97 -0.94 0.00 0.00 0.00 47.04
-----
```

Segment Leq : 47.04 dBA

Total Leq All Segments: 55.13 dBA

TOTAL Leq FROM ALL SOURCES: 55.13

Filename: 21w17d.te Time Period: 16 hours
Description: 2021 NO BUILD W17 DAY

Road data, segment # 1: MB RD S1 L1

Car traffic volume : 2455 veh/TimePeriod
Medium truck volume : 102 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MB RD S1 L1

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

Road data, segment # 2: MB RD S1 L2

Car traffic volume : 2455 veh/TimePeriod
Medium truck volume : 102 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MB RD S1 L2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 17.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MILL S3 L1

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MILL S3 L1

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: MILL S3 L2

Car traffic volume : 4638 veh/TimePeriod
Medium truck volume : 195 veh/TimePeriod
Heavy truck volume : 49 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: MILL S3 L2

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MB RD S1 L1

Source height = 0.50 m

ROAD (0.00 + 54.57 + 0.00) = 54.57 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 56.03 0.00 0.00 -1.46 0.00 0.00 0.00 54.57

Segment Leq : 54.57 dBA

Results segment # 2: MB RD S1 L2

Source height = 0.50 m

ROAD (0.00 + 53.46 + 0.00) = 53.46 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 56.03 0.00 -1.11 -1.46 0.00 0.00 0.00 53.46

Segment Leq : 53.46 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 32.62 + 0.00) = 32.62 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.37 62.15 0.00 -19.95 -4.57 -5.00 0.00 0.00 32.62

Segment Leq : 32.62 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 32.58 + 0.00) = 32.58 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.37 62.15 0.00 -20.00 -4.57 -5.00 0.00 0.00 32.58

Segment Leq : 32.58 dBA

Results segment # 5: MILL S3 L1

Source height = 1.00 m

ROAD (0.00 + 25.58 + 0.00) = 25.58 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 60.30 0.00 -24.09 -5.09 0.00 -5.54 0.00 25.58

Segment Leq : 25.58 dBA

Results segment # 6: MILL S3 L2

Source height = 1.00 m

ROAD (0.00 + 25.53 + 0.00) = 25.53 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 60.30 0.00 -24.14 -5.09 0.00 -5.53 0.00 25.53

Segment Leq : 25.53 dBA

Total Leq All Segments: 57.10 dBA

TOTAL Leq FROM ALL SOURCES: 57.10

Filename: 21w17N.te Time Period: 8 hours
Description: 2021 NO BUILD W17 NIGHT

Road data, segment # 1: MB RD S1 L12

Car traffic volume : 370 veh/TimePeriod
Medium truck volume : 16 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MB RD S1 L12

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 16.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S2 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m

Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: MILL S3 L1

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: MILL S3 L1

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MILL S3 L2

Car traffic volume : 349 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MILL S3 L2

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MB RD S1 L12

Source height = 0.50 m

ROAD (0.00 + 49.08 + 0.00) = 49.08 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.60 50.89 0.00 -0.45 -1.35 0.00 0.00 0.00 49.08

Segment Leq : 49.08 dBA

Results segment # 2: WTDWN S2 L1

Source height = 1.02 m

ROAD (0.00 + 24.11 + 0.00) = 24.11 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.28 52.21 0.00 -18.64 -4.46 -5.00 0.00 0.00 24.11

Segment Leq : 24.11 dBA

Results segment # 3: WTDWN S2 L2

Source height = 1.02 m

ROAD (0.00 + 25.90 + 0.00) = 25.90 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.28 54.04 0.00 -18.68 -4.46 -5.00 0.00 0.00 25.90

Segment Leq : 25.90 dBA

Results segment # 4: MILL S3 L1

Source height = 1.02 m

ROAD (0.00 + 20.48 + 0.00) = 20.48 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.58 54.04 0.00 -22.99 -5.02 0.00 -5.54 0.00 20.48

Segment Leq : 20.48 dBA

Results segment # 5: MILL S3 L2

Source height = 1.02 m

ROAD (0.00 + 18.61 + 0.00) = 18.61 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.58 52.21 0.00 -23.04 -5.02 0.00 -5.53 0.00 18.61

Segment Leq : 18.61 dBA

Total Leq All Segments: 49.12 dBA

TOTAL Leq FROM ALL SOURCES: 49.12

Scenario 3 – 2021 Mature State of Development

Filename: 21ew01d.te Time Period: 16 hours
Description: 2021 EXPANSION W01 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 55.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg -36.00 deg

Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 62.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 56.82 + 0.00) = 56.82 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.66 62.87 0.00 -4.50 -1.54 0.00 0.00 0.00 56.82

Segment Leq : 56.82 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 55.21 + 0.00) = 55.21 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.66 62.87 0.00 -6.11 -1.54 0.00 0.00 0.00 55.21

Segment Leq : 55.21 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 44.74 + 0.00) = 44.74 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.66 62.87 0.00 -9.37 -8.76 0.00 0.00 0.00 44.74

Segment Leq : 44.74 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 43.87 + 0.00) = 43.87 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.66 62.87 0.00 -10.23 -8.76 0.00 0.00 0.00 43.87

Segment Leq : 43.87 dBA

Total Leq All Segments: 59.38 dBA

TOTAL Leq FROM ALL SOURCES: 59.38

Filename: 21ew01n.te Time Period: 8 hours
Description: 2021 EXPANSION W01 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)

No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -78.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 55.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 62.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.01 m

ROAD (0.00 + 49.01 + 0.00) = 49.01 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.58 54.73 0.00 -4.30 -1.43 0.00 0.00 0.00 49.01

Segment Leq : 49.01 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.01 m

ROAD (0.00 + 47.47 + 0.00) = 47.47 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-78 90 0.58 54.73 0.00 -5.83 -1.43 0.00 0.00 0.00 47.47

Segment Leq : 47.47 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.01 m

ROAD (0.00 + 37.20 + 0.00) = 37.20 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.58 54.73 0.00 -8.94 -8.59 0.00 0.00 0.00 37.20

Segment Leq : 37.20 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.01 m

ROAD (0.00 + 36.37 + 0.00) = 36.37 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 -36 0.58 54.73 0.00 -9.77 -8.59 0.00 0.00 0.00 36.37

Segment Leq : 36.37 dBA

Total Leq All Segments: 51.62 dBA

TOTAL Leq FROM ALL SOURCES: 51.62

Filename: 21ewcld.te Time Period: 16 hours
Description: 2021 EXPANSION WC1 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 103.00 m
Receiver height : 7.00 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -45.00 deg Angle2 : 50.00 deg
Barrier height : 0.82 m
Elevation : 28.00 m
Barrier receiver distance : 100.00 m
Source elevation : 1.00 m
Receiver elevation : 0.00 m
Barrier elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

```
-----
Angle1  Angle2      : -50.00 deg   70.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 110.00 m
Receiver height  :      7.00 m
Topography      :      4      (Elevated; with barrier)
Barrier angle1   : -45.00 deg   Angle2 : 50.00 deg
Barrier height   :      0.82 m
Elevation       :      28.00 m
Barrier receiver distance : 100.00 m
Source elevation :      1.00 m
Receiver elevation :      0.00 m
Barrier elevation :      28.00 m
Reference angle  :      0.00
-----
```

Road data, segment # 3: WTDWN S2 L1

```
-----
Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient      : 0 %
Road pavement     : 1 (Typical asphalt or concrete)
-----
```

Data for Segment # 3: WTDWN S2 L1

```
-----
Angle1  Angle2      : 10.00 deg   60.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 178.00 m
Receiver height  :      7.00 m
Topography      :      3      (Elevated; no barrier)
Elevation       :      28.00 m
Reference angle  :      0.00
-----
```

Road data, segment # 4: WTDWN S2 L2

```
-----
Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient      : 0 %
Road pavement     : 1 (Typical asphalt or concrete)
-----
```

Data for Segment # 4: WTDWN S2 L2

```
-----
Angle1  Angle2      : 10.00 deg   60.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 185.00 m
Receiver height  :      7.00 m
Topography      :      3      (Elevated; no barrier)
Elevation       :      28.00 m
Reference angle  :      0.00
-----
```

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

Barrier height for grazing incidence

```
-----
Source      ! Receiver      ! Barrier      ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----
1.00 !      7.00 !      -25.86 !      2.14
-----
```

ROAD (38.94 + 31.72 + 44.96) = 46.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-45	0.00	62.87	0.00	-8.37	-15.56	0.00	0.00	0.00	38.94
-45	50	0.00	62.87	0.00	-8.37	-2.78	0.00	0.00	-20.00	31.72
50	70	0.00	62.87	0.00	-8.37	-9.54	0.00	0.00	0.00	44.96

Segment Leq : 46.09 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.00	7.00	-25.55	2.45

ROAD (38.65 + 31.44 + 44.67) = 45.80 dBA											
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq	
-50	-45	0.00	62.87	0.00	-8.65	-15.56	0.00	0.00	0.00	38.65	
-45	50	0.00	62.87	0.00	-8.65	-2.78	0.00	0.00	-20.00	31.44	
50	70	0.00	62.87	0.00	-8.65	-9.54	0.00	0.00	0.00	44.67	

Segment Leq : 45.80 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 46.56 + 0.00) = 46.56 dBA											
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq	
10	60	0.00	62.87	0.00	-10.74	-5.56	0.00	0.00	0.00	46.56	

Segment Leq : 46.56 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 46.39 + 0.00) = 46.39 dBA											
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq	
10	60	0.00	62.87	0.00	-10.91	-5.56	0.00	0.00	0.00	46.39	

Segment Leq : 46.39 dBA

Total Leq All Segments: 52.24 dBA

TOTAL Leq FROM ALL SOURCES: 52.24

Filename: 21ewc1n.te Time Period: 8 hours

Description: 2021 EXPANSION WC1 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 103.00 m
Receiver height : 7.00 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -45.00 deg Angle2 : 50.00 deg
Barrier height : 0.82 m
Elevation : 28.00 m

Barrier receiver distance : 100.00 m
Source elevation : 1.00 m
Receiver elevation : 0.00 m
Barrier elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -50.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 110.00 m
Receiver height : 7.00 m
Topography : 4 (Elevated; with barrier)
Barrier angle : -45.00 deg Angle2 : 50.00 deg
Barrier height : 0.82 m
Elevation : 28.00 m
Barrier receiver distance : 100.00 m
Source elevation : 1.00 m
Receiver elevation : 0.00 m
Barrier elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 178.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : 10.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 185.00 m
Receiver height : 7.00 m
Topography : 3 (Elevated; no barrier)
Elevation : 28.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.01 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)								
1.01	7.00	-25.84	2.16								
ROAD (30.80 + 23.59 + 36.82) = 37.95 dBA											
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq	
-50	-45	0.00	54.73	0.00	-8.37	-15.56	0.00	0.00	0.00	30.80	
-45	50	0.00	54.73	0.00	-8.37	-2.78	0.00	0.00	-20.00	23.59	
50	70	0.00	54.73	0.00	-8.37	-9.54	0.00	0.00	0.00	36.82	

Segment Leq : 37.95 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.01 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)								
1.01	7.00	-25.53	2.47								
ROAD (30.52 + 23.30 + 36.54) = 37.67 dBA											
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq	
-50	-45	0.00	54.73	0.00	-8.65	-15.56	0.00	0.00	0.00	30.52	
-45	50	0.00	54.73	0.00	-8.65	-2.78	0.00	0.00	-20.00	23.30	
50	70	0.00	54.73	0.00	-8.65	-9.54	0.00	0.00	0.00	36.54	

Segment Leq : 37.67 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.01 m

ROAD (0.00 + 38.43 + 0.00) = 38.43 dBA										
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	60	0.00	54.73	0.00	-10.74	-5.56	0.00	0.00	0.00	38.43

Segment Leq : 38.43 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.01 m

ROAD (0.00 + 38.26 + 0.00) = 38.26 dBA										
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	60	0.00	54.73	0.00	-10.91	-5.56	0.00	0.00	0.00	38.26

Segment Leq : 38.26 dBA

Total Leq All Segments: 44.11 dBA

TOTAL Leq FROM ALL SOURCES: 44.11

Filename: 21ew04d.te Time Period: 16 hours
Description: 2021 EXPANSION EW04 DAY

Road data, segment # 1: WTDWN S1 L1

Car traffic volume	: 8393 veh/TimePeriod
Medium truck volume	: 353 veh/TimePeriod
Heavy truck volume	: 88 veh/TimePeriod
Posted speed limit	: 60 km/h

Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 m
Receiver height : 1.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -80.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 37.00 m
Receiver height : 1.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 58.46 + 0.00) = 58.46 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-80 80 0.59 64.71 0.00 -4.77 -1.48 0.00 0.00 0.00 58.46

Segment Leq : 58.46 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 57.02 + 0.00) = 57.02 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-80 80 0.59 64.71 0.00 -6.22 -1.48 0.00 0.00 0.00 57.02

Segment Leq : 57.02 dBA

Total Leq All Segments: 60.81 dBA

TOTAL Leq FROM ALL SOURCES: 60.81

Filename: 21ew04n.te Time Period: 8 hours
Description: 2021 EXPANSION EW04 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

```
-----
Angle1 Angle2      : -80.00 deg   80.00 deg
Wood depth          :           0   (No woods.)
No of house rows   :           0
Surface             :           1   (Absorptive ground surface)
Receiver source distance : 30.00 m
Receiver height     :           4.50 m
Topography          :           3   (Elevated; no barrier)
Elevation           :           3.00 m
Reference angle     :           0.00
```

Road data, segment # 2: WTDWN S1 L2

```
-----
Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient      : 0 %
Road pavement     : 1 (Typical asphalt or concrete)
```

Data for Segment # 2: WTDWN S1 L2

```
-----
Angle1 Angle2      : -80.00 deg   80.00 deg
Wood depth          :           0   (No woods.)
No of house rows   :           0
Surface             :           1   (Absorptive ground surface)
Receiver source distance : 37.00 m
Receiver height     :           4.50 m
Topography          :           3   (Elevated; no barrier)
Elevation           :           3.00 m
Reference angle     :           0.00
```

Results segment # 1: WTDWN S1 L1

Source height = 1.01 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
-80	80	0.49	56.57	0.00	-4.50	-1.35	0.00	0.00	0.00	50.72

Segment Leq : 50.72 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.01 m

ROAD (0.00 + 49.36 + 0.00) = 49.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	80	0.49	56.57	0.00	-5.86	-1.35	0.00	0.00	0.00	49.36

Segment Leq : 49.36 dBA

Total Leq All Segments: 53.10 dBA

TOTAL Leq FROM ALL SOURCES: 53.10

Filename: 21ewl1d.te Time Period: 16 hours
Description: 2021 EXPANSION W11 DAY

Road data, segment # 1: WTDWN S1 L1

```
-----
Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient      : 0 %
Road pavement     : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: WTDWN S1 L1

```
-----
Angle1 Angle2      : -90.00 deg   80.00 deg
Wood depth          :           0   (No woods.)
No of house rows   :           0
```


Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

ROAD (0.00 + 59.45 + 0.00) = 59.45 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.66 62.87 0.00 -1.89 -1.52 0.00 0.00 0.00 59.45

Segment Leq : 59.45 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

ROAD (0.00 + 57.38 + 0.00) = 57.38 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 80 0.66 62.87 0.00 -3.97 -1.52 0.00 0.00 0.00 57.38

Segment Leq : 57.38 dBA

Total Leq All Segments: 61.55 dBA

TOTAL Leq FROM ALL SOURCES: 61.55

Filename: 21ew11n.te Time Period: 8 hours
Description: 2021 EXPANSION W11 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.50 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

```
-----
Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 2: WTDWN S1 L2

```
-----
Angle1 Angle2 : -90.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: WTDWN S1 L1

Source height = 1.01 m

```
ROAD (0.00 + 51.52 + 0.00) = 51.52 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-90 80 0.58 54.73 0.00 -1.81 -1.40 0.00 0.00 0.00 51.52
-----
```

Segment Leq : 51.52 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.01 m

```
ROAD (0.00 + 49.54 + 0.00) = 49.54 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-90 80 0.58 54.73 0.00 -3.79 -1.40 0.00 0.00 0.00 49.54
-----
```

Segment Leq : 49.54 dBA

Total Leq All Segments: 53.65 dBA

TOTAL Leq FROM ALL SOURCES: 53.65

Filename: 21ew13d.te Time Period: 16 hours
Description: 2021 EXPANSION W13 DAY

Road data, segment # 1: WTDWN S1 L1

```
-----
Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: WTDWN S1 L1

```
-----
Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.70 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 2: WTDWN S1 L2

```
-----
Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
```

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.60 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: MILL S2 L1

Car traffic volume : 3755 veh/TimePeriod
Medium truck volume : 158 veh/TimePeriod
Heavy truck volume : 40 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: MILL S2 L1

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.70 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: MILL S2 L2

Car traffic volume : 3755 veh/TimePeriod
Medium truck volume : 158 veh/TimePeriod
Heavy truck volume : 40 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: MILL S2 L2

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.60 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MB RD S3 L1

Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MB RD S3 L1

Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: MB RD S3 L2

Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: MB RD S3 L2

```
-----
Angle1  Angle2      : 40.00 deg   90.00 deg
Wood depth      : 0           (No woods.)
No of house rows : 0
Surface         : 1           (Absorptive ground surface)
Receiver source distance : 21.50 m
Receiver height  : 1.50 m
Topography      : 1           (Flat/gentle slope; no barrier)
Reference angle  : 0.00
-----
```

Results segment # 1: WTDWN S1 L1

Source height = 1.00 m

```
ROAD (0.00 + 58.26 + 0.00) = 58.26 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-35    90    0.66 62.87  0.00 -1.97 -2.64  0.00  0.00  0.00 58.26
-----
```

Segment Leq : 58.26 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.00 m

```
ROAD (0.00 + 55.57 + 0.00) = 55.57 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-35    90    0.66 62.87  0.00 -4.65 -2.64  0.00  0.00  0.00 55.57
-----
```

Segment Leq : 55.57 dBA

Results segment # 3: MILL S2 L1

Source height = 1.00 m

```
ROAD (0.00 + 49.76 + 0.00) = 49.76 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-90   -35    0.66 59.39  0.00 -1.97 -7.67  0.00  0.00  0.00 49.76
-----
```

Segment Leq : 49.76 dBA

Results segment # 4: MILL S2 L2

Source height = 1.00 m

```
ROAD (0.00 + 47.07 + 0.00) = 47.07 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
-90   -35    0.66 59.39  0.00 -4.65 -7.67  0.00  0.00  0.00 47.07
-----
```

Segment Leq : 47.07 dBA

Results segment # 5: MB RD S3 L1

Source height = 1.00 m

```
ROAD (0.00 + 52.18 + 0.00) = 52.18 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
 40    90    0.66 60.50  0.00  0.00 -8.32  0.00  0.00  0.00 52.18
-----
```

Segment Leq : 52.18 dBA

Results segment # 6: MB RD S3 L2

Source height = 1.00 m

ROAD (0.00 + 49.58 + 0.00) = 49.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	90	0.66	60.50	0.00	-2.60	-8.32	0.00	0.00	0.00	49.58

Segment Leq : 49.58 dBA

Total Leq All Segments: 61.56 dBA

TOTAL Leq FROM ALL SOURCES: 61.56

Filename: 21ew13n.te Time Period: 8 hours
Description: 2021 EXPANSION W13 NIGHT

Road data, segment # 1: WTDWN S1 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WTDWN S1 L1

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 19.70 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WTDWN S1 L2

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WTDWN S1 L2

Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 28.60 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: MILL S2 L12

Car traffic volume : 566 veh/TimePeriod
Medium truck volume : 24 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: MILL S2 L12

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: MB RD S3 L1

Car traffic volume : 366 veh/TimePeriod

Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: MB RD S3 L1

Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MB RD S3 L2

Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MB RD S3 L2

Angle1 Angle2 : 40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.50 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WTDWN S1 L1

Source height = 1.01 m

ROAD (0.00 + 50.30 + 0.00) = 50.30 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-35 90 0.58 54.73 0.00 -1.88 -2.55 0.00 0.00 0.00 50.30

Segment Leq : 50.30 dBA

Results segment # 2: WTDWN S1 L2

Source height = 1.01 m

ROAD (0.00 + 47.74 + 0.00) = 47.74 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-35 90 0.58 54.73 0.00 -4.44 -2.55 0.00 0.00 0.00 47.74

Segment Leq : 47.74 dBA

Results segment # 3: MILL S2 L12

Source height = 1.00 m

ROAD (0.00 + 43.53 + 0.00) = 43.53 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 -35 0.58 54.19 0.00 -3.24 -7.43 0.00 0.00 0.00 43.53

Segment Leq : 43.53 dBA

Results segment # 4: MB RD S3 L1

Source height = 1.01 m

ROAD (0.00 + 44.24 + 0.00) = 44.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	90	0.58	52.29	0.00	0.00	-8.05	0.00	0.00	0.00	44.24

Segment Leq : 44.24 dBA

Results segment # 5: MB RD S3 L2

Source height = 1.01 m

ROAD (0.00 + 41.77 + 0.00) = 41.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	90	0.58	52.29	0.00	-2.48	-8.05	0.00	0.00	0.00	41.77

Segment Leq : 41.77 dBA

Total Leq All Segments: 53.63 dBA

TOTAL Leq FROM ALL SOURCES: 53.63

Filename: 21ew16d.te Time Period: 16 hours
Description: 2021 EXPANSION W16 DAY

Road data, segment # 1: MILL S1 L1

Car traffic volume : 3755 veh/TimePeriod
Medium truck volume : 158 veh/TimePeriod
Heavy truck volume : 40 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MILL S1 L1

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

Road data, segment # 2: MILL S1 L2

Car traffic volume : 3755 veh/TimePeriod
Medium truck volume : 158 veh/TimePeriod
Heavy truck volume : 40 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MILL S1 L2

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

Road data, segment # 3: DUNDAS S2 L1

Car traffic volume : 8372 veh/TimePeriod
Medium truck volume : 546 veh/TimePeriod
Heavy truck volume : 182 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: DUNDAS S2 L1

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)

No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 144.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: DUNDAS S2 L2

Car traffic volume : 8372 veh/TimePeriod
Medium truck volume : 546 veh/TimePeriod
Heavy truck volume : 182 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: DUNDAS S2 L2

Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 149.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MILL S1 L1

Source height = 1.00 m

ROAD (0.00 + 57.94 + 0.00) = 57.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.39	0.00	0.00	-1.46	0.00	0.00	0.00	57.94

Segment Leq : 57.94 dBA

Results segment # 2: MILL S1 L2

Source height = 1.00 m

ROAD (0.00 + 57.03 + 0.00) = 57.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	59.39	0.00	-0.90	-1.46	0.00	0.00	0.00	57.03

Segment Leq : 57.03 dBA

Results segment # 3: DUNDAS S2 L1

Source height = 1.19 m

ROAD (0.00 + 53.73 + 0.00) = 53.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	70	0.00	64.50	0.00	-9.82	-0.94	0.00	0.00	0.00	53.73

Segment Leq : 53.73 dBA

Results segment # 4: DUNDAS S2 L2

Source height = 1.19 m

ROAD (0.00 + 53.59 + 0.00) = 53.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	70	0.00	64.50	0.00	-9.97	-0.94	0.00	0.00	0.00	53.59

Segment Leq : 53.59 dBA

Total Leq All Segments: 62.02 dBA

TOTAL Leq FROM ALL SOURCES: 62.02

Filename: 21ew16N.te Time Period: 8 hours
Description: 2021 EXPANSION W16 NIGHT

Road data, segment # 1: MILL S1 L12

```
-----
Car traffic volume : 566 veh/TimePeriod
Medium truck volume : 24 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: MILL S1 L12

```
-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 16.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 2: DUNDAS S2 L1

```
-----
Car traffic volume : 828 veh/TimePeriod
Medium truck volume : 54 veh/TimePeriod
Heavy truck volume : 18 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 2: DUNDAS S2 L1

```
-----
Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 144.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 3: DUNDAS S2 L2

```
-----
Car traffic volume : 828 veh/TimePeriod
Medium truck volume : 54 veh/TimePeriod
Heavy truck volume : 18 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 3: DUNDAS S2 L2

```
-----
Angle1 Angle2 : -75.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 149.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: MILL S1 L12

Source height = 1.00 m

ROAD (0.00 + 52.42 + 0.00) = 52.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	54.19	0.00	-0.44	-1.33	0.00	0.00	0.00	52.42

Segment Leq : 52.42 dBA

Results segment # 2: DUNDAS S2 L1

Source height = 1.19 m

ROAD (0.00 + 46.70 + 0.00) = 46.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	70	0.00	57.46	0.00	-9.82	-0.94	0.00	0.00	0.00	46.70

Segment Leq : 46.70 dBA

Results segment # 3: DUNDAS S2 L2

Source height = 1.19 m

ROAD (0.00 + 46.55 + 0.00) = 46.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	70	0.00	57.46	0.00	-9.97	-0.94	0.00	0.00	0.00	46.55

Segment Leq : 46.55 dBA

Total Leq All Segments: 54.26 dBA

TOTAL Leq FROM ALL SOURCES: 54.26

Filename: 21ew17d.te Time Period: 16 hours
Description: 2021 EXPANSION W17 DAY

Road data, segment # 1: MB RD S1 L1

Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MB RD S1 L1

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

Road data, segment # 2: MB RD S1 L2

Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MB RD S1 L2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 17.50 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 8393 veh/TimePeriod
Medium truck volume : 353 veh/TimePeriod
Heavy truck volume : 88 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MILL S3 L1

Car traffic volume : 3755 veh/TimePeriod
Medium truck volume : 158 veh/TimePeriod
Heavy truck volume : 40 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MILL S3 L1

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: MILL S3 L2

Car traffic volume : 3755 veh/TimePeriod
Medium truck volume : 158 veh/TimePeriod
Heavy truck volume : 40 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: MILL S3 L2

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 7: MILLB S4 L1

Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 7: MILLB S4 L1

Angle1 Angle2 : -63.00 deg 0.00 deg

Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 8: MILLB S4 L2

Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 8: MILLB S4 L2

Angle1 Angle2 : -63.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 434.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MB RD S1 L1

Source height = 1.00 m

ROAD (0.00 + 59.04 + 0.00) = 59.04 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 60.50 0.00 0.00 -1.46 0.00 0.00 0.00 59.04

Segment Leq : 59.04 dBA

Results segment # 2: MB RD S1 L2

Source height = 1.00 m

ROAD (0.00 + 57.93 + 0.00) = 57.93 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.66 60.50 0.00 -1.11 -1.46 0.00 0.00 0.00 57.93

Segment Leq : 57.93 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.00 m

ROAD (0.00 + 33.34 + 0.00) = 33.34 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.38 62.87 0.00 -19.96 -4.57 -5.00 0.00 0.00 33.34

Segment Leq : 33.34 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.00 m

ROAD (0.00 + 33.30 + 0.00) = 33.30 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.38 62.87 0.00 -20.00 -4.57 -5.00 0.00 0.00 33.30

Segment Leq : 33.30 dBA

Results segment # 5: MILL S3 L1

Source height = 1.00 m

ROAD (0.00 + 24.67 + 0.00) = 24.67 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 59.39 0.00 -24.09 -5.09 0.00 -5.54 0.00 24.67

Segment Leq : 24.67 dBA

Results segment # 6: MILL S3 L2

Source height = 1.00 m

ROAD (0.00 + 24.63 + 0.00) = 24.63 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 59.39 0.00 -24.14 -5.09 0.00 -5.53 0.00 24.63

Segment Leq : 24.63 dBA

Results segment # 7: MILLB S4 L1

Source height = 1.00 m

ROAD (0.00 + 31.17 + 0.00) = 31.17 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-63 0 0.66 60.50 0.00 -24.14 -5.18 0.00 0.00 0.00 31.17

Segment Leq : 31.17 dBA

Results segment # 8: MILLB S4 L2

Source height = 1.00 m

ROAD (0.00 + 31.05 + 0.00) = 31.05 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-63 0 0.66 60.50 0.00 -24.26 -5.18 0.00 0.00 0.00 31.05

Segment Leq : 31.05 dBA

Total Leq All Segments: 61.55 dBA

TOTAL Leq FROM ALL SOURCES: 61.55

Filename: 21ew17n.te Time Period: 8 hours
Description: 2021 EXPANSION W17 NIGHT

Road data, segment # 1: MB RD S1 L1

Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MB RD S1 L1

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

Road data, segment # 2: MB RD S1 L2

Car traffic volume : 366 veh/TimePeriod

Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MB RD S1 L2

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 17.50 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WTDWN S2 L1

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WTDWN S2 L1

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 424.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WTDWN S2 L2

Car traffic volume : 632 veh/TimePeriod
Medium truck volume : 27 veh/TimePeriod
Heavy truck volume : 7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WTDWN S2 L2

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 1 (Wood depth 30 to less than 60 metres)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: MILL S3 L12

Car traffic volume : 566 veh/TimePeriod
Medium truck volume : 24 veh/TimePeriod
Heavy truck volume : 6 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: MILL S3 L12

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 85 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 425.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: MILLB S4 L1

Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod

Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: MILLB S4 L1

Angle1 Angle2 : -63.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 427.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 7: MILLB S4 L2

Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 7: MILLB S4 L2

Angle1 Angle2 : -63.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 434.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MB RD S1 L1

Source height = 1.01 m

ROAD (0.00 + 50.97 + 0.00) = 50.97 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.58 52.29 0.00 0.00 -1.33 0.00 0.00 0.00 50.97

Segment Leq : 50.97 dBA

Results segment # 2: MB RD S1 L2

Source height = 1.01 m

ROAD (0.00 + 49.91 + 0.00) = 49.91 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.58 52.29 0.00 -1.06 -1.33 0.00 0.00 0.00 49.91

Segment Leq : 49.91 dBA

Results segment # 3: WTDWN S2 L1

Source height = 1.01 m

ROAD (0.00 + 26.63 + 0.00) = 26.63 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-70 0 0.28 54.73 0.00 -18.64 -4.46 -5.00 0.00 0.00 26.63

Segment Leq : 26.63 dBA

Results segment # 4: WTDWN S2 L2

Source height = 1.01 m

ROAD (0.00 + 26.59 + 0.00) = 26.59 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

```
-----
-70      0      0.28  54.73   0.00 -18.68  -4.46  -5.00   0.00   0.00  26.59
-----
```

Segment Leq : 26.59 dBA

Results segment # 5: MILL S3 L12

Source height = 1.00 m

ROAD (0.00 + 20.61 + 0.00) = 20.61 dBA

```
-----
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
      0      65   0.58  54.19   0.00 -23.02  -5.02   0.00  -5.54   0.00  20.61
-----
```

Segment Leq : 20.61 dBA

Results segment # 6: MILLB S4 L1

Source height = 1.01 m

ROAD (0.00 + 24.13 + 0.00) = 24.13 dBA

```
-----
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
    -63      0   0.58  52.29   0.00 -23.05  -5.12   0.00   0.00   0.00  24.13
-----
```

Segment Leq : 24.13 dBA

Results segment # 7: MILLB S4 L2

Source height = 1.01 m

ROAD (0.00 + 24.02 + 0.00) = 24.02 dBA

```
-----
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----
    -63      0   0.58  52.29   0.00 -23.16  -5.12   0.00   0.00   0.00  24.02
-----
```

Segment Leq : 24.02 dBA

Total Leq All Segments: 53.51 dBA

TOTAL Leq FROM ALL SOURCES: 53.51

Filename: 21ew20d.te Time Period: 16 hours
Description: 2021 EXPANSION W20 DAY

Road data, segment # 1: MILLB S1 L1

```
-----
Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
-----
```

Data for Segment # 1: MILLB S1 L1

```
-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 16.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
-----
```

Road data, segment # 2: MILLB S1 L2

```
-----
Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
-----
```

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MILLB S1 L2

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

Road data, segment # 3: MB RD S2 L1

```
-----
Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 3: MB RD S2 L1

```
-----
Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 6
House density : 90 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 342.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 4: MB RD S2 L2

```
-----
Car traffic volume : 4859 veh/TimePeriod
Medium truck volume : 205 veh/TimePeriod
Heavy truck volume : 51 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 4: MB RD S2 L2

```
-----
Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 6
House density : 90 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 349.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: MILLB S1 L1

Source height = 1.00 m

ROAD (0.00 + 58.58 + 0.00) = 58.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	60.50	0.00	-0.47	-1.46	0.00	0.00	0.00	58.58

Segment Leq : 58.58 dBA

Results segment # 2: MILLB S1 L2

Source height = 1.00 m

ROAD (0.00 + 55.65 + 0.00) = 55.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	60.50	0.00	-3.39	-1.46	0.00	0.00	0.00	55.65

Segment Leq : 55.65 dBA

Results segment # 3: MB RD S2 L1

Source height = 1.00 m

ROAD (0.00 + 18.86 + 0.00) = 18.86 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 60.50 0.00 -22.54 -5.09 0.00 -14.00 0.00 18.86

Segment Leq : 18.86 dBA

Results segment # 4: MB RD S2 L2

Source height = 1.00 m

ROAD (0.00 + 18.73 + 0.00) = 18.73 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 65 0.66 60.50 0.00 -22.69 -5.09 0.00 -13.98 0.00 18.73

Segment Leq : 18.73 dBA

Total Leq All Segments: 60.37 dBA

TOTAL Leq FROM ALL SOURCES: 60.37

Filename: 21ew20N.te Time Period: 8 hours
Description: 2021 EXPANSION W20 NIGHT

Road data, segment # 1: MILLB S1 L1

Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: MILLB S1 L1

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 16.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: MILLB S1 L2

Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: MILLB S1 L2

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

Road data, segment # 3: MB RD S2 L1

Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: MB RD S2 L1

```
-----
Angle1  Angle2      : 0.00 deg  65.00 deg
Wood depth      : 0          (No woods.)
No of house rows : 6
House density   : 90 %
Surface         : 1          (Absorptive ground surface)
Receiver source distance : 342.00 m
Receiver height  : 4.50 m
Topography      : 1          (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Road data, segment # 4: MB RD S2 L2

```
-----
Car traffic volume : 366 veh/TimePeriod
Medium truck volume : 15 veh/TimePeriod
Heavy truck volume : 4 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient      : 0 %
Road pavement     : 1 (Typical asphalt or concrete)
```

Data for Segment # 4: MB RD S2 L2

```
-----
Angle1  Angle2      : 0.00 deg  65.00 deg
Wood depth      : 0          (No woods.)
No of house rows : 6
House density   : 90 %
Surface         : 1          (Absorptive ground surface)
Receiver source distance : 349.00 m
Receiver height  : 4.50 m
Topography      : 1          (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Results segment # 1: MILLB S1 L1

Source height = 1.01 m

ROAD (0.00 + 50.52 + 0.00) = 50.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	52.29	0.00	-0.44	-1.33	0.00	0.00	0.00	50.52

Segment Leq : 50.52 dBA

Results segment # 2: MILLB S1 L2

Source height = 1.01 m

ROAD (0.00 + 47.73 + 0.00) = 47.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	52.29	0.00	-3.23	-1.33	0.00	0.00	0.00	47.73

Segment Leq : 47.73 dBA

Results segment # 3: MB RD S2 L1

Source height = 1.01 m

ROAD (0.00 + 11.75 + 0.00) = 11.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	65	0.58	52.29	0.00	-21.52	-5.02	0.00	-14.00	0.00	11.75

Segment Leq : 11.75 dBA

Results segment # 4: MB RD S2 L2

Source height = 1.01 m

ROAD (0.00 + 11.63 + 0.00) = 11.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	65	0.58	52.29	0.00	-21.66	-5.02	0.00	-13.98	0.00	11.63

Segment Leq : 11.63 dBA

Total Leq All Segments: 52.36 dBA

TOTAL Leq FROM ALL SOURCES: 52.36