



SENES Consultants Limited

Specialists in Energy, Nuclear and Environmental Sciences

NOISE AND VIBRATION IMPACT ASSESSMENT

407 TRANSITWAY

Prepared for:

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December 2010

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1.0 INTRODUCTION

1.1 OVERVIEW OF PROJECT

A Transit Project Assessment, based on the “Transit Projects and Greater Toronto Transportation Authority Undertakings, Ontario Regulation 231/08”, is being undertaken to study the implementation of a 23 kilometre bus rapid transit (BRT) system (the 407 Transitway) parallel to Highway 407 between Highway 400 and Kennedy Road in Vaughan, Richmond Hill and Markham, Ontario. The Transitway will be a grade-separated route consisting of a two lane roadway to be used solely by buses.

As part of the environmental assessment team, SENES Consultants Limited (SENES) was retained by the Ontario Ministry of Transportation (MTO) to complete a project-specific Noise and Vibration Impact Assessment (NVIA) to establish the noise and vibration impacts that may arise from the implementation of this undertaking. The preferred 407 Transitway alignment along the Highway 407 corridor from Highway 400 to Kennedy Road developed by Delcan Corporation was used for this Noise and Vibration Impact Assessment.

1.2 OVERVIEW OF NOISE AND VIBRATION IMPACT ASSESSMENT APPROACH

Noise from the 407 Transitway is assessed using protocols developed by the Ontario Ministry of Transportation (MTO). The general approach to the noise impact assessment is as follows:

- **Existing Conditions Scenario** – Predicting existing sound levels from road traffic;
- **Future No Build Scenario** – Predicting future sound levels at a 10 year horizon assuming that the 407 Transitway project does not proceed;
- **Future Build Scenario** – Predicting sound levels at a 10 year horizon assuming that the 407 Transitway project *does* proceed.

The difference in sound levels between the “future build” scenario and the “future no-build” scenario is an indicator of the noise impact of the project. The noise assessment protocol, described in Section 3.0, outlines criteria values and thresholds that define the degree of impact and the point at which mitigation must be considered.

The approach to the vibration impact assessment involved the review of vibration studies that SENES has completed for similar types of projects in the past, and assessing the likelihood for vibration impacts on sensitive land uses along the preferred route.

1.3 REPORT FORMAT

In addition to this introductory section, this noise and vibration impact assessment includes the following six (6) sections, as outlined in Table 1.1.

Table 1.1 Report Overview

Section	Description
1.0	STUDY AREA DESCRIPTION
3.0	REGULATORY REQUIREMENTS
4.0	ASSESSMENT METHODOLOGY
5.0	NOISE IMPACT ANALYSIS
6.0	VIBRATION IMPACT ANALYSIS
7.0	CONCLUSIONS

2.0 STUDY AREA DESCRIPTION

The preferred alignment for the 407 Transitway extends between Highway 400 and Kennedy Road. The majority of the alignment is parallel to the existing Highway 407; however, certain segments diverge and run parallel to Highway 7. A broad view of the entire preferred alignment is provided in Figure 2.1.

The 407 Transitway alignment is not contained entirely within a single municipality. The portion from the westerly limit to Yonge Street (approximately) is in the City of Vaughan; a small portion in the middle, approximately between Yonge Street and Bayview Avenue is in the Town of Richmond Hill; and the portion from Bayview Avenue to the easterly limit is in the Town of Markham. For the most part, the 407 Transitway study area consists of primarily 20th century urban development with commercial, industrial and residential areas, and linear transportation corridors such as roads and railway lines. The corridor primarily serves commuter traffic demands. Figures 2.2 and 2.3 show the existing land use designations within the west and east portions of the transitway. Since this assessment is based on preliminary design, land use designations were used as a guide to identify noise sensitive areas. During the Detailed Design phase of this project, detailed zoning information will be used if further noise assessment studies are required.

The boundary of the study area is defined as being approximately 500 m on either side of Highway 407 between Highway 400 and Kennedy Road. For the purposes of the noise and vibration assessment, only those receptors that are closest to the preferred 407 Transitway alignment were considered, as they represent the most impacted locations.

Figure 2.1 407 Transitway Preferred Route

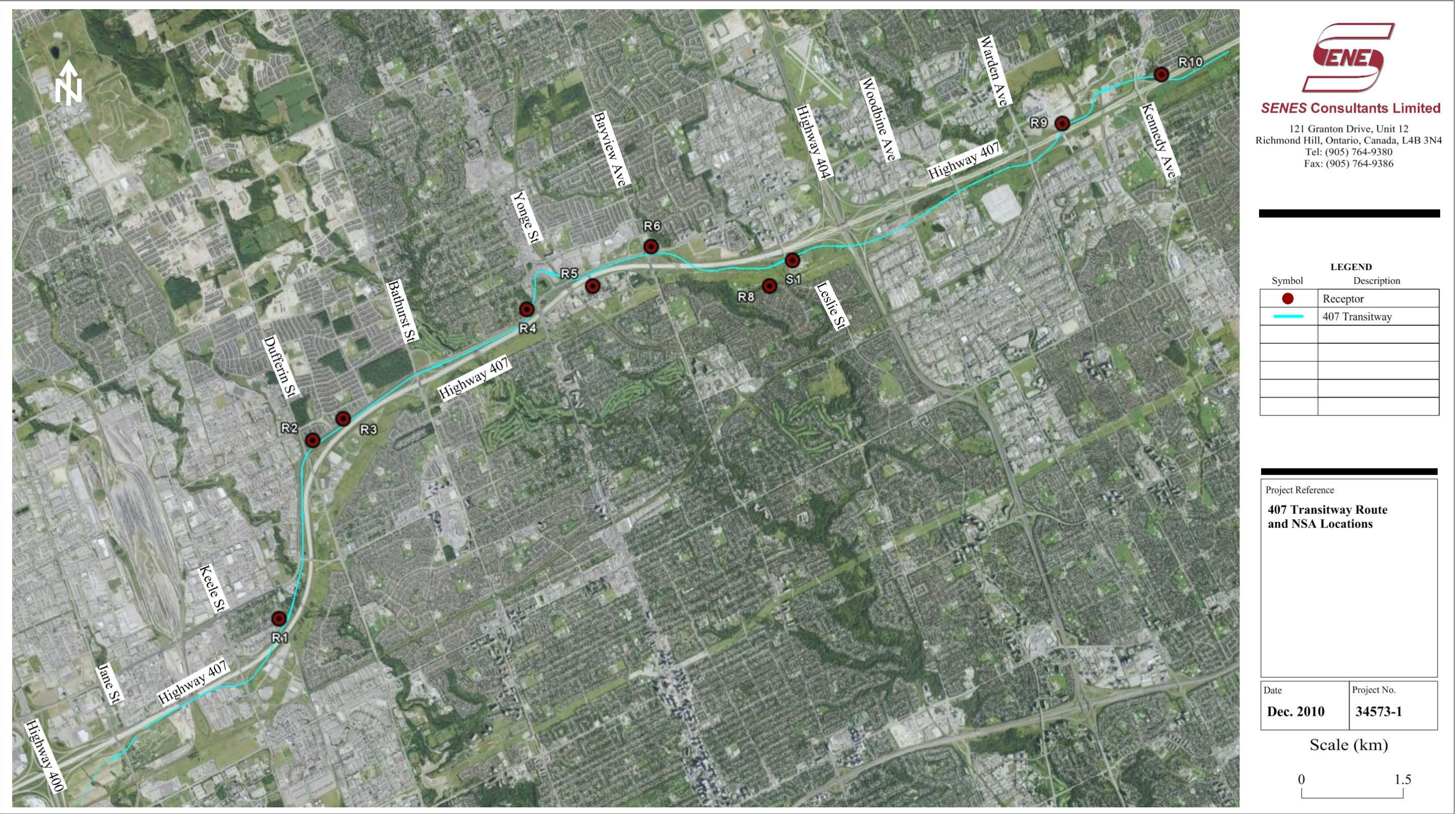


Figure 2.2 Land Use Map (West Study Area)

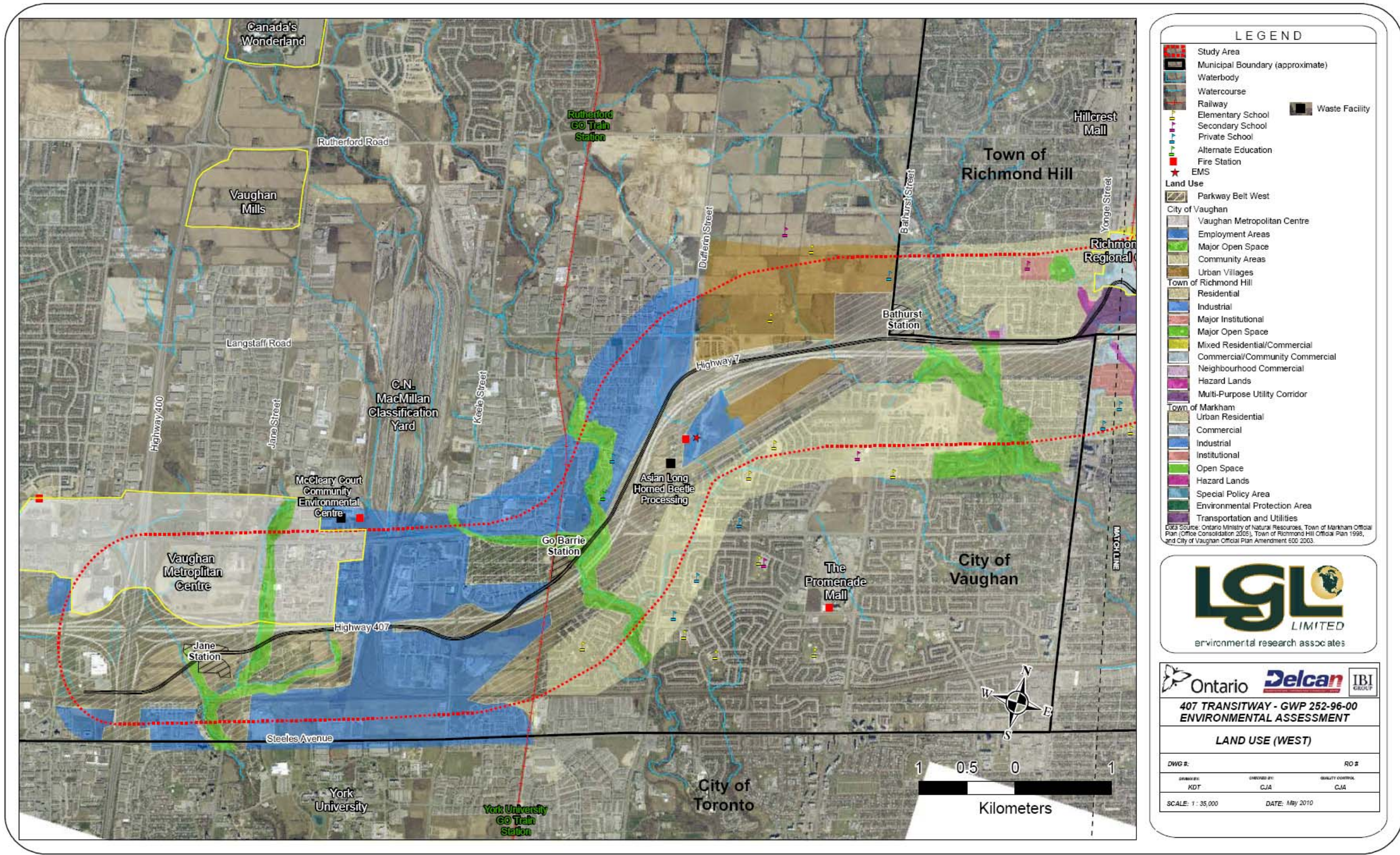
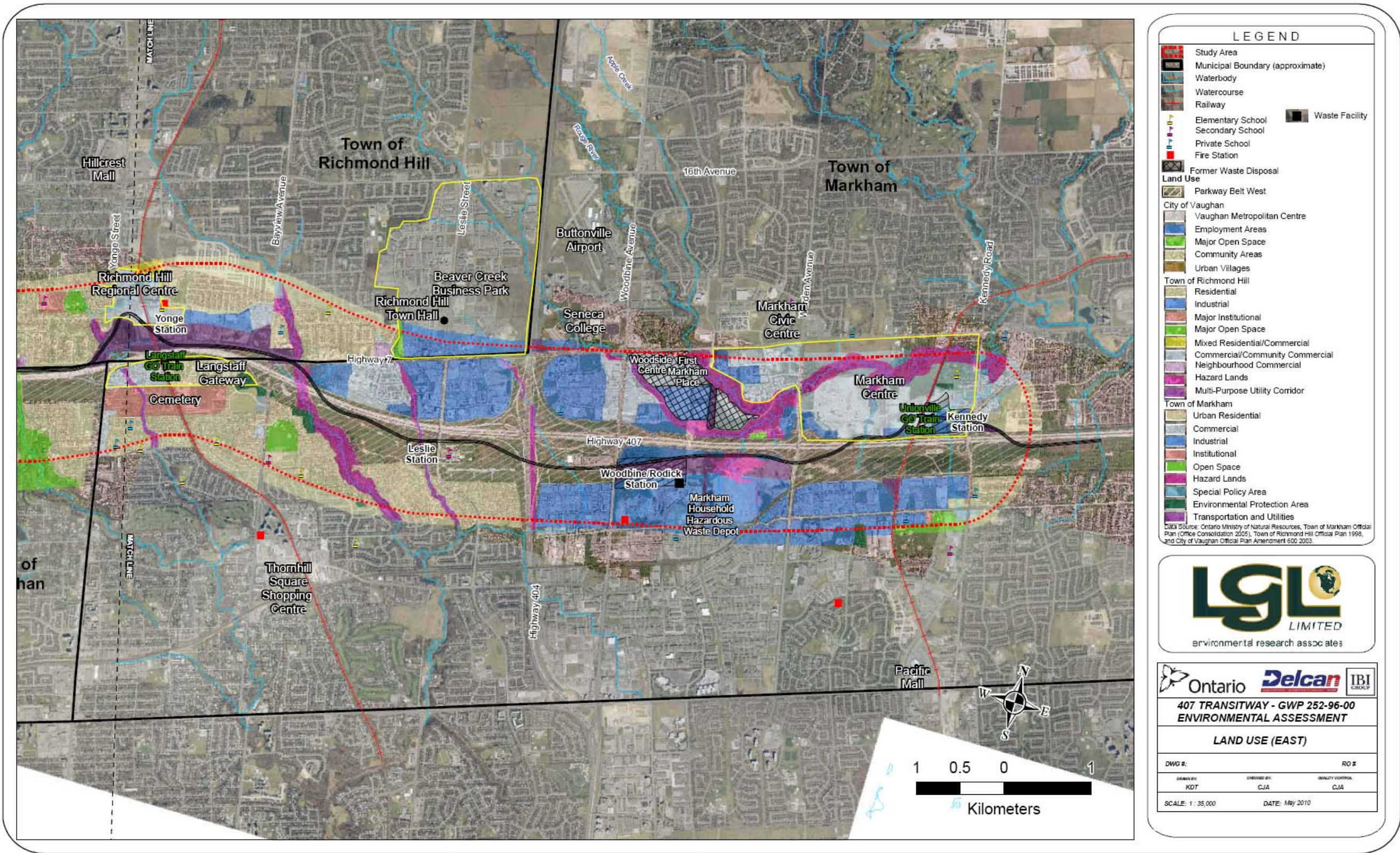


Figure 2.3 Land Use Map (East Study Area)



3.0 REGULATORY REQUIREMENTS

3.1 MTO ENVIRONMENTAL GUIDE FOR NOISE

In light of the potential for noise impacts from projects under jurisdiction of the MTO, a protocol has been prepared by the MTO to assist in the assessment of noise impacts for highway projects. This protocol applies to projects where the proposed route of a highway is near to NSAs. In order for a NSA to fall within the MTO definition, it must have an Outdoor Living Area (OLA). The MTO protocol defines OLAs and NSAs as follows:

Outdoor Living Area: An area at ground level, adjacent to an NSA and accommodating outdoor living activities. This area may be situated on any side of the NSA. The usual distance from the dwelling wall is 3 m. The vertical height is 1.2 m above the existing ground surface. Where unknown, the side closest to the highway should be assumed. Paved areas for multiple dwelling units may not be defined as an OLA.

Noise Sensitive Area:

- Private homes such as single family residences (owned or rental);
- Townhouses (owned or rental);
- Multiple unit buildings, such as apartments with OLAs for use by all occupants;
- Hospitals, nursing homes for the aged, where there are OLAs for all the patients;
- Educational facilities and day care centres, where there are OLAs for students;
- Campgrounds that provide overnight accommodation; and
- Hotels/motels where there are OLAs (i.e. swimming pool area, etc.) for visitors.

Land uses below, by themselves *do not* qualify as NSAs:

- Apartment balconies above ground floor;
- Churches;
- Cemeteries;
- Parks and picnic areas which are not part of an NSA;
- All commercial; and
- All industrial.

The MTO protocol requires that future sound levels with the proposed project be compared to the future sound levels without the project. If the result of this comparison is an increase in sound level above future ambient, then there may be a requirement to consider mitigation depending on the severity of the change. The future sound levels are to be predicted at a 10-year horizon beyond the full build-out year of the project being assessed. Table 3.1 summarizes the criteria for assessing whether mitigation is required.

Table 3.1 MTO Criteria for Noise Mitigation Assessment

Change in Noise Level Above Ambient / Projected Noise Level with Proposed Improvements	Mitigation Effort Required
< 5 dB change AND < 65 dBA	<ul style="list-style-type: none">• None
≥ 5 dB 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, economically and administratively feasible;• Noise control measures, where introduced, should achieve a minimum of 5 dB attenuation over first row receivers.

In short, if the increase above ambient due to the project is greater than 5 dB, or the resulting sound level at the NSA is greater than 65 dBA then mitigation must be considered. If the increase is less than 5 dB, then mitigation does not need to be considered provided that the sound level does not increase to greater than 65 dBA.

The MTO protocol requires that all sound levels used in the assessment be predicted using approved methodologies. The MTO currently accepts two methodologies. The Ontario Ministry of the Environment (MOE) Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) method is accepted for simple terrain, and where increases due to the proposed project are not expected to exceed 5 dB. The United States Federal Highway Administration (FHWA) STAMINA model may be used for more complex scenarios such as grade separations and sections of complex topography.

The MTO protocol includes several requirements for addressing noise from the construction of the undertaking. If there is potential for construction to impact any NSAs for reasons including (but not limited to) proximity and hours of operation, this must be identified along with potential mitigating measures. Mitigating measures may include (but not be limited to) timing constraints, minimum equipment setbacks, or quieter equipment. The MTO requires that the local by-laws be observed and exemptions sought, where possible, for any activities that may be restricted by the by-law. Where there is potential for noise impacts due to construction, the MTO protocol requires that a noise complaint process be implemented.

3.2 ONTARIO MINISTRY OF THE ENVIRONMENT NPC-115

Noise Pollution Control Publication 115 (MOE, 1978a) of the Ontario Model Municipal Noise Control By-Law stipulates specific sound emission standards for various pieces of construction equipment. This publication does not set receptor based sound level limits due to construction activities but rather sets limits for noise generated by each individual piece of equipment.

Table 3.2 lists Residential Area sound emission standards and Quiet Zone sound emission standards for specific items of new construction equipment based on their date of manufacture and power rating. Quiet zone and residential area sound emission standards for excavation equipment, dozers, loaders, backhoes or other related equipment are provided below:

Table 3.2 Sound Emission Standards Construction Equipment

Date of Manufacture	Power Rating Less than 75 kW (dBA)	Power Rating 75 kW and Larger (dBA)
January 1, 1979 to December 31, 1980	85	88
January 1, 1981 and after	83	85

3.3 ONTARIO MINISTRY OF THE ENVIRONMENT NPC-118

Noise Pollution Control Publication 118 (MOE, 1978b) of the Ontario Model Municipal Noise Control By-Law sets sound emission standards for motorized conveyances of various types. This publication does not set receptor based sound level limits due to heavy vehicle operation but sets limits for noise generated by each individual piece of equipment.

Table 3.3 lists for various years of manufacture, the sound emission standard for a heavy vehicle powered by a diesel engine. Heavy vehicle refers to a motorized conveyance having a registered gross weight of more than 4,500 kg.

Table 3.3 Sound Emission Standards for Heavy Vehicles

Date of Manufacture	Maximum Sound Level (dBA)
Prior to January 1, 1979	100
January 1, 1979 and after	95

[†] as measured in accordance with NPC - 103, Section 9

3.4 ONTARIO MINISTRY OF THE ENVIRONMENT NPC-205

Noise Pollution Control (NPC) Publication 205 (MOE, 1995) establishes sound level limits for stationary sources such as industrial and commercial establishments or ancillary transportation facilities, affecting points of reception in Class 1 and 2 Areas (Urban). NPC-205 states that the sound level limit must be established based on the principle of "predictable worst-case" noise impact. Generally, the limit is based on the background sound level at the receptors and must represent the minimum background sound level that occurs or is likely to occur during the operation of the stationary source under assessment.

Sound levels from steady stationary noise sources are quantified using the energy equivalent sound level, L_{eq} , in dBA. For urban areas, the daytime limit at a critical receptor for steady noise from a stationary source is the higher of either the one-hour L_{eq} resulting from existing volumes of road traffic and any industry that is not under investigation for noise excess, or 50 dBA. The night-time limit is the higher of either the ambient (road traffic plus industry) one-hour L_{eq} noise level, or 45 dBA. If the stationary source contains any noticeable features such as tonal components or buzzing, a 5 dB tonal penalty must be added to the noise level of the source as per NPC-104 (MOE, 1978c).

No restrictions apply to a stationary source resulting in a one hour L_{eq} lower than the minimum values for the time periods specified in Table 3.4.

Table 3.4 Minimum Values of One-Hour L_{eq} by Time of Day

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

3.5 CITY OF VAUGHAN – BY-LAW TO REGULATE NOISE (96-2006)

The City of Vaughan By-Law to Regulate Noise (City of Vaughan, 2006) applies to transportation projects mainly during the construction phase. The By-Law defines specific hours during which construction activities are allowed. The following excerpts from Section 10 of the By-Law describe the hours during which construction is prohibited:

- (1) No person shall, between 1900 hours of one day and 0700 hours of the next day operate or cause to be operated, any construction vehicle or construction equipment in connection with the construction of any building or structure, highway, motor car, steam boiler or other engine or machine;*
- (2) Despite subsection (1), no person shall operate or cause to be operated any construction vehicle or construction equipment before 0700 hours and no later than 1900 hours on any Saturday and not at all on Sunday or statutory holidays.*

If the construction is in a Quiet Zone (an area of 250 m radius around any hospital or seniors retirement facility), then the times quoted as 1900 hours in the above subsections change to 1700 hours.

Further to the above, the following general prohibition must be observed:

“The operation of any item of construction equipment shall not discharge into the open air, on any property other than a highway the exhaust except through a proper muffler or legal device, which effectively prevents loud or explosive noises.”

The By-Law does contain a provision to allow construction activities to be exempted from the requirements above. In order to qualify for an exemption, the construction equipment must comply with the sound level limits defined for construction equipment in the MOE publication NPC-115 (see section 3.2), and the activity for which exemption is sought must not exceed eleven (11) calendar days. Applications for exemption must be made sixty (60) days prior to the commencement of the construction activity.

3.6 TOWN OF RICHMOND HILL – NOISE BY-LAW (1055)

The Town of Richmond Hill By-Law 1055 (Town of Richmond Hill, 2008) includes requirements that apply to transportation projects during the construction phase. Construction activities are regulated by time and place restrictions, as well as a requirement for adequate muffling. The time and place restrictions are defined for Residential Areas and Quiet Zones. Quiet Zones are lands in which there are hospitals, nursing homes or senior citizen’s housing. The times during which construction is prohibited in these two area types are identical, and are as follows:

- 7:00 p.m. one day to 7:00 a.m. next day; and
- All day Sundays and statutory holidays.

Further to this, section 1055.2.13 of the by-law prohibits “*the operation of any item of construction equipment in a quiet zone or residential area without effective muffling devices in good working order and in constant operation*”.

There is a provision in the by-law that allows for an application for exemption to be made for any restriction within the by-law. Exemptions, if granted, do not last longer than six (6) months unless a request for extension is granted.

3.7 TOWN OF MARKHAM – BY-LAW TO REGULATE NOISE (2003-137)

The Town of Markham Noise By-Law 2003-137 (Town of Markham, 2005) includes requirements that apply to transportation projects primarily during the construction phase. Section 3, subsections (1) and (2) of the By-Law identify general prohibitions and time restrictions that apply to construction projects. According to Section 3(1), the following is prohibited:

“the operation of construction equipment without effective muffling devices in good working order and constant operation.”

According to Section 3(2), the following time restrictions for construction activities must be observed in Quiet Zones and Residential Areas, which are areas defined in the Town of Markham Zoning By-Law:

- All day Sundays and Statutory Holidays; and
- 1900 one day to 0700 next day.

Further to the above, the Town of Markham requires the sound level limits in the applicable MOE NPC publications to be observed. The emission of sound resulting from the operation of construction equipment that is included in MOE publication 115 is prohibited within 600 m of a Residential Area, unless:

- a) the equipment was put into use prior to January 1, 1979; or
- b) the equipment bears a label affixed by the manufacturer or distributor, which states:
 - i. the year of manufacture; and
 - ii. that the equipment complies with the residential sound emission standards set out in 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 Publication NPC-115, as applicable to the type of equipment and date of manufacture.

If the work area is located in a Quiet Zone, sound emission resulting from the operation of construction equipment that is included in MOE publication 115 is prohibited, unless:

- a) the equipment bears a label affixed by the manufacturer or distributor, which states:
 - i. the year of manufacture; and
 - ii. that the equipment complies with the residential sound emission standards set out in Publication NPC-115, as applicable to that type of equipment and date of manufacture.

The by-law also requires any motorized conveyance that is described in the MOE publication NPC-118 to comply with the sound level limits defined therein. This would apply to the operation of heavy vehicles (i.e., those greater than 4,500 kg), which would include buses.

There is a provision in the by-law that allows for an application for exemption to be made for any restriction within the by-law.

3.8 SUMMARY OF ASSESSMENT CRITERIA

Based on the information presented in the preceding Sections, the project noise assessment criteria are presented Table 3.5.

Table 3.5 Summary of Noise and Vibration Criteria

Component	Protocol	Criteria	Mitigation
Existing/ Future Noise	MTO	Future ambient noise levels without the influence of the proposed improvement	To be considered when criteria is exceeded by more than 5 dB, or when sound levels increase from <65 dBA to ≥65 dBA
	NPC-205	Stationary Sources; Day: 50 dBA Evening: 47 dBA Night: 45 dBA	To be implemented when criteria is exceeded
Construction Noise	NPC-115	See Table 3.2	Not addressed
	NPC-118	See Table 3.3	Not addressed
	City of Vaughan – Noise By-Law	Time and Place Restrictions; Requirement for Adequate Muffling	Not addressed
	Town of Richmond Hill – Noise By-Law	Time and Place Restrictions; Requirement for Adequate Muffling	Not addressed
	Town of Markham – Noise By-Law	Time and Place Restrictions; Requirement for Adequate Muffling; Compliance with NPC-115, NPC-118	Not addressed

4.0 ASSESSMENT METHODOLOGY

4.1 DOCUMENTATION REVIEW AND RECEPTOR SELECTION

The assessment began with a thorough review of the study area, including the proposed 407 Transitway alignment and the land uses along the corridor. Using aerial photography, NSAs were identified for inclusion in the assessment, based upon land use plans and proximity of sensitive land uses to the 407 Transitway route. The definition of an NSA provided in Section 3.1 was used to select receptor locations. In addition to existing NSAs, receptors were also included in the assessment where aerial photography indicated that an area was under development for residential use.

A total of eleven (11) receptors were selected for assessment, including nine (10) residential land uses and one (1) school (R1 – R10, and S1). The receptor locations are listed in Table 4.1. Aerial photographs illustrating the receptor locations are provided in Figure 2.1 and Appendix A. Two receptors, R7 and R9, were selected to represent future zoned noise sensitive land uses. The assessment of these receptors, as with all others, was based on the worst-case design with respect to outdoor environmental noise impact. It should be noted that the receptor located at the school does not meet the strict definition of an NSA according to the MTO definition, as there does not appear to be an OLA within 3 m of the building façade that faces the 407 Transitway. A receptor was considered here for informational purposes (i.e., as a worst-case scenario).

Table 4.1 Receptor Location Summary

Receptor ID	Receptor Type	Receptor Location	Approximate Distance to 407 Transitway (m)
R1	House	Hartley Court	102
R2	Townhouse	Yellowood Circle	82
R3	House	Sassafras Circle	84
R4	House	Langstaff Road West	54
R5	House	Cedar Avenue	174
R6	Apartment	NE Corner of Bayview Ave and Hwy 7	121
R7	Future House	Future Development, South of South Park Rd	50
R8	House	Huntington Park Drive	267
R9	Future House	Future Development, NE Corner of Warden Ave and Highway 407	62
R10	House	Greenburg Gate	60
S1	School	St. Robert Catholic High School	31

4.2 TRAFFIC DATA AND ASSUMPTIONS

The existing 407 traffic volume data were provided by MTO. Annual growth rate used for future Highway 407 traffic projection was obtained from MTO's Greater Golden Horseshoe (GGH) Model. The assumption of truck percentage and split ratios on Highway 407 was approved by MTO before proceeding with the noise modelling. Projected bus volumes were also derived from the GGH Model. Using this information, IBI provided SENES with traffic data for future conditions (with and without the project) for Highway 407 and the 407 Transitway. Highway 407 was regarded as being the dominant source of background traffic noise in the area. Furthermore, the effect of Highway 7 was accounted for in the assessment at receptors R2, R3, R4, and R6 as these receptors are directly exposed to Highway 7. While receptors in the vicinity of R7 may also be exposed to noise from Highway 7, those with full exposure to the 407 Transitway will likely be shielded from Highway 7 by other homes in the development. The Highway 7 traffic data were provided by IBI as part of the previous environmental assessment for the York Region Rapid Transit Plan project.

The traffic volumes were provided as 24-hour totals for each segment of Highway 407 in the study area. The traffic data provided for Highway 407 were not categorized into the same vehicle classification descriptors as required by the MOE model used in the analysis (see Section 4.3); therefore, assumptions were made in order to reclassify the Highway 407 traffic data such that it could be used in the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT). The specific issue is that for Highway 407, traffic counts are provided for automobiles and two types of trucks, both of which are heavier than 4,500 kg but with no further description of how much heavier one type is versus the other. As will be discussed in Section 4.3, the MOE ORNAMENT method is very specific in how the two types of trucks are to be categorized with regard to gross weight. Therefore, an assumption was made to split the total trucks on Highway 407 into the classifications defined by ORNAMENT.

While the MTO provides typical percentages to apply in splitting a total truck volume between heavy and medium trucks where actual data is not available, these were not deemed appropriate for Highway 407 as it is a toll highway and has less truck traffic than a typical provincial freeway. For example, the MTO recommends that the total fleet volume on a freeway be assumed to be 20% trucks, and to split these at a ratio of 3:1 (heavy trucks to medium trucks). It was found that, on an average 24-hour basis over the study area, the total truck volume on the Highway 407 is approximately 7% of the total fleet. According to the MTO protocol, it would be expected that the ratio would lean less towards heavy trucks in instances where the total truck percentage decreases from 20% (i.e., for other types of highways, a 13% truck volume is to be assumed at a ratio of 3:2 for heavy trucks to medium trucks). Due to the uncertainty, it was conservatively assumed that there would be a slightly higher proportion of heavier trucks than

this 3:2 ratio predicts, and therefore a ratio of 2:1 (heavy trucks to medium trucks) was assumed. This assumption was approved by the MTO before proceeding with the modelling.

The existing traffic volumes (2008) as provided by IBI Group are provided in Appendix B, along with the annual growth percentages for each segment. Also provided in Appendix B are the projected traffic volumes to 2041 (10-year horizon beyond commencement of operation) and the re-classification of truck volumes as described above.

4.3 TRAFFIC NOISE MODELLING

4.3.1 STAMSON

The traffic sound levels were estimated using the STAMSON traffic noise model, which is based on the MOE ORNAMENT calculation method for traffic noise. Sound levels due to road noise include the contribution from three vehicle categories:

Automobiles

- All vehicles having two axles and four wheels designed primarily for the transportation of nine or fewer passengers or the transportation of cargo (e.g., vans and light trucks). Generally, the gross vehicle weight is less than 4,500 kg.

Medium Trucks

- All vehicles having two axles and six wheels designed for the transportation of cargo. Generally, the gross vehicle weight is greater than 4,500 but less than 12,000 kg. City buses are also included in this category.

Heavy Trucks

- All vehicles having three or more axles designed for the transportation of cargo. Generally, the gross vehicle weight is greater than 12,000 kg. Inter-city buses are included in this category.

Key parameters utilized by STAMSON in the calculation of road noise include vehicle speed, road surface, topography gradient, ground surface conditions (absorptive or reflective), angle of exposure, and the presence or absence of sound barriers. In order to predict sound levels for road traffic, the STAMSON model requires an hourly traffic flow of at least 40 vehicles/hour; travelling at least 40 km/h; and receptors must be located between 15 m and 500 m from the traffic source.

Due to the limitations of the STAMSON software, there was a need to make adjustments to a portion of the modelled results in order to arrive at representative sound levels for the future-build scenario under consideration. The limitation in STAMSON that resulted in further refinement of sound level predictions was:

- the restriction that the hourly traffic flow be greater than 40 vehicles per hour. During night-time hours, the total bus volume on the 407 Transitway is projected to 172 buses. Averaging this total over the 8-hour period results in 21.5 buses per hour.

Due to the above restriction, the 407 Transitway sound level impacts were modelled separately for each receptor point, and the night-time bus volumes were modelled at the minimum allowable by STAMSON – 320 buses over the 8-hour period. A further calculation was then performed on the night-time result to adjust the sound level downward to reflect the lower actual traffic volume. The expectation for a line source (i.e., a road) would be that if the traffic volume decreased by half, the calculated sound level at the receptor would reduce by 3 dB (with all other parameters such as vehicle speed, road surface type, etc. being equal). Since the traffic volume in this scenario is decreasing by slightly less than half, the reduction to the sound level would likewise be expected to decrease by slightly less than 3 dB. The following equation was used to calculate the actual reduction:

$$\text{Sound Level Reduction (dB)} = 10 \log \left[\frac{v_1}{v_2} \right]$$

where:

v_1 = actual traffic volume; and
 v_2 = modelled traffic volume.

Solving the above equation results in a reduction of 2.6 dB, which is the expected result.

It should be noted also that there are parking lots associated with several of the bus stations along the preferred route (described in Section 5.2). Many of these stations are not close to sensitive receptor locations; however there are two that are in close proximity to residences (GO Barrie Station and Leslie Station). While the MTO protocol does not include specific requirements with regard to assessment of parking lots, it was decided through discussion with MTO that the entrance/exit to these lots would be modelled and included in the future-build prediction for the nearest receptors. This modelling was completed in STAMSON. Due to the limitations of STAMSON, the vehicles were modelled as travelling at a speed of 40 km/hr (the minimum allowable input), which is likely to be an over-estimate resulting in conservatively high

predictions of noise impact. Traffic volume data for the parking lots were provided by IBI Group.

4.3.2 TNM

There was one instance in which the route of the 407 Transitway and surrounding terrain were too complex to model in STAMSON (receptor R4). For this reason, the FHWA Traffic Noise Model (TNM) was used. Specifically, the TNM algorithms that have been incorporated into a module for use within the Cadna-A sound propagation model by DataKustik were applied. The same vehicle classification categories as noted above for STAMSON apply to this model.

As with STAMSON, TNM utilizes information on the vehicle type, vehicle speed, and pavement type to predict receptor sound levels. The benefit of this software platform is that roads, receptors and barriers may be plotted in a graphical user interface in actual Universal Transverse Mercator (UTM) coordinates with the route plan and aerial photography as a base map underlay.

5.0 NOISE IMPACT ANALYSIS

The following section summarizes the results of the traffic noise modelling completed for the existing scenario, future no-build scenario and the future-build scenario. A summary of the analysis is provided along with an assessment of the need for mitigation. Also addressed in this section is the impact due to stationary sources (i.e., bus stations) and construction activities.

5.1 407 TRANSITWAY ASSESSMENT

As discussed in section 3.1, the predicted future sound levels resulting from the project are compared to the future ambient sound levels without the project. The MTO requires that future sound levels be predicted at 10 years beyond the full project build-out date which based on current information is predicted to be 2031. Therefore, all predictions of future sound levels are based on traffic projections for the year 2041. This includes traffic on Highway 407 as well as projected future bus volumes on the 407 Transitway.

Table 5.1 summarizes the predicted sound levels at each of the receptor locations for the various scenarios modelled, and provides an indication as to whether consideration to some form of mitigation is required according to the MTO protocol.

Table 5.1 Summary of Predicted Sound Levels

Receptor ID	Existing Conditions (dBA)	Future No-Build Ambient Sound Level (dBA)	Future-Build Sound Level (dBA)	Noise Impact due to Project (dB)	Increment Requiring Mitigation (dB)	Mitigation Consideration? (Yes/No)
R1	55.0	58.5	58.6	+0.1	5	No
R2	64.8	67.6	68.5	+0.9	5	Yes
R3	67.2	70.3	70.7	+0.4	5	Yes
R4 ¹	54.7	57.1	61.6	+4.5	5	No
R5	61.6	64.4	64.5	+0.1	5	No
R6	62.1	63.8	63.9	+0.1	5	No
R7	59.8	62.8	63.9	+1.1	5	No
R8	54.2	57.1	57.4	+0.3	5	No
R9	61.4	65.7	66.1	+0.4	5	Yes
R10	63.2	67.7	68.0	+0.3	5	Yes
S1	59.8	62.6	64.2	+1.6	5	No

¹ – Modelled using the TNM module in Cadna-A due to complex grade separations, terrain and barrier locations

The results in Table 5.1 indicate that the sound level criteria are not exceeded by greater than 5 dB at any receptor point. Additionally, there are no instances in which future-build sound levels increase from <65 dBA to a value ≥ 65 dBA. Any future-build sound levels that are shown to exceed 65 dBA also exceeded 65 dBA in the future no-build case as well. However, since the future no-build sound level at R2, R3, R9 and R10 are predicted to exceed 65 dBA, MTO will investigate the feasibility of installing noise mitigation at these receptors during the detailed design stage of the project.

The greatest impact is predicted to be at receptor R4, at which the predicted increase above the future no-build sound level is 4.5 dB. It should be noted that receptor R4 was not modelled in STAMSON due to the complexity of the study area at this location. The 407 Transitway separates from grade at this location, and turns north to pass over Highway 7 and Yonge Street before returning to grade. In this area Highway 7 is somewhat elevated on an earthen berm, which shields the residences represented by receptor R4 from Highway 407 to some extent. There is a barrier wall along the north side of Highway 7 that further shields the receptors from both Highway 7 traffic noise and Highway 407 traffic noise. Finally, the elevated sections of the 407 Transitway have a 1 m barrier wall on either side. Due to this complexity, the receptor sound levels were modelled using the FHWA TNM module in the Cadna-A software platform. In previous work completed for MTO (and reviewed by the MOE), SENES has used the more robust Cadna-A model for such situations in order to take these features into account.

Highway 7 and Yonge Street traffic data provided by IBI as part of the environmental assessment for the York Region Rapid Transit Plan project were utilized to provide a more complete picture of existing and future sound levels in this area (SENES, 2005a and 2005b). The traffic volumes were projected to the assessment years and modelled along with Highway 407 and the 407 Transitway. The projections were based on the annual growth rates from the previous project work for which this data were originally generated. The traffic volume and annual growth data are provided in Appendix B. Noise from Highway 7 was also accounted for at receptors R2, R3, and R6. While R7 (future development) is located near Highway 7, the effect of Highway 7 was not accounted for as the development is expected to shield those receptors closest to the 407 Transitway.

It was anticipated that receptor R4 would experience the greatest increase over future no-build sound levels, as the preferred routing for the 407 Transitway brings it approximately 50 m from the nearest residences. The proximity of the Transitway to the residences, combined with the elevated road segments in this area contribute to this increase. The 1 m barriers along the elevated sections of the 407 Transitway design help in reducing these impacts.

Other receptor locations are predicted to experience minimal increases in sound levels compared to the project future no-build levels. This is expected given the relatively low traffic volumes on the 407 Transitway, and the proximity of receptors to existing sources of traffic noise.

The predicted noise impact for receptor R1 includes the effect of the nearby parking lot for the GO Barrie bus station that is proposed for this area. As per guidance from MTO (verbal), the entrance/exit of the parking lot was modelled in STAMSON using traffic volumes provided by IBI. It was found that the impact due to the parking lot was minimal in comparison to background noise and noise from the 407 Transitway. The sound level due to the parking lot was predicted to be approximately 32 dBA on a 24-hr basis. As there are receptors in the area of the Leslie Station parking lot (albeit not as close as the GO Barrie (Concord) Station), a similar modelling study was completed in this area. This is included with the model outputs for R1 in Appendix D. As anticipated, the result was less than for the GO Barrie (Concord) Station and therefore the predicted impacts due to these lots are not considered to be significant.

Receptors R7 and R9 are each located in areas under development, and specific locations for modelling were selected based on where the maximum impact was likely to occur. Since the modelling was completed, a detailed layout of the development represented by R7 was made available which indicates that R7 is located much closer to the 407 Transitway than the actual location of the nearest sensitive buildings. Therefore, the predicted sound level impact at R7 is considered to be highly conservative for this area.

As was noted above, the future noise level at R9 is expected to exceed 65 dBA; therefore, the MTO will investigate the feasibility of installing noise mitigation at this receptor during the detailed design stage of the project. While the future noise level at R9 is predicted to be less than 65 dBA, it exceeds 55 dBA. Since R7 is a potential location for future noise sensitive development, MOE noise guidelines require that a sound barrier should be investigated at this location. As the actual construction date of the project is likely to be in the distant future, the MTO will revisit the noise predictions at a point closer to the actual project construction. The MTO will ensure that the project complies with the appropriate noise policy of the day and will re-investigate and provide noise mitigation if it is required in the future.

A summary of traffic data, calculations and results for each receptor are provided in Appendix C. The STAMSON model output files are provided in Appendix D. Please note that the sound levels shown in Table 5.1 above are 24-hour L_{eq} sound levels as required by the MTO guide. The STAMSON outputs, as shown in Appendix D, are presented as 16-hr and 8-hr L_{eq} sound levels in case further details are sought on day/night levels. The 16-hr and 8-hr L_{eq} sound levels from the STAMON outputs were combined to provide the 24-hr L_{eq} sound levels shown in the table. Furthermore, as was noted earlier, the night-time bus volume on the 407 Transitway was too low to be modelled in STAMSON therefore a correction for the 407 Transitway sound levels

had to be accounted for outside of the STAMSON model. Calculation details are provided in Appendix C.

Due to curvature on sections of Highway 407 and the proposed 407 Transitway, it was not possible to model all sections of these roadways as being straight and flat with full exposure to all receptors. Angles of exposure were utilized as necessary to account for the curved sections of Highway 407 and the proposed 407 Transitway (i.e., the roads were split into smaller segments to account for the curve, limited by the associated angle of exposure for each segment). Angles of exposure were also used where there was a change in traffic volumes on the road being modelled, or where the grade changed on the road being modelled.

5.2 STATIONARY SOURCE NOISE IMPACT

The MTO protocol requires that any stationary sources that are considered part of the project be included in the analysis. The assessment of these stationary sources is to be in accordance with the MOE guidance provided in their publication NPC-205.

The 407 Transitway includes seven (7) bus stations where buses will temporarily idle to allow passengers to board/alight the buses. Three (3) of the bus stations are considered main intermodal stations (Spadina subway/Jane, Yonge/Richmond Hill Centre and Kennedy stations) which will connect with larger transportation systems such as proposed subway line extensions. It is important to note that these intermodal bus facilities are not being proposed as part of the current undertaking; they are being proposed by the TTC in the case of Jane and Yonge Stations, and York Region's Viva Program in the case of Kennedy Station. The remaining four (4) stations will be smaller stations where buses will stop for very short periods to allow passengers to get on and off. All bus stations will include added parking lots and some will have passenger pick-up and drop-off (PPUDO) areas. These stations will not have any significant stationary noise sources associated with them (i.e., ventilation exhaust fans), as they are generally small enclosures with staircases and/or other means of allowing passengers to access the bus platforms from street level and vice versa. Refer to Appendix F for the 60% preliminary design bus station plans from Delcan.

It should be noted that the impact of Yonge/Richmond Hill Centre Station, which is an intermodal station connecting to the Yonge subway line extension, has already been assessed as part of a previous Environmental Assessment (SSWA, 2009). That assessment predicted no noise impacts from this station. Additionally, a station in close vicinity to the proposed location of Spadina subway/Jane Station (another intermodal station, connecting to the Spadina subway extension) was assessed previously (SSWA, 2006) and no noise impacts were predicted. The reasons cited in both assessment reports for there being no predicted noise impacts from these

stations were a combination of setback distance from sensitive land uses and high ambient sound levels due to existing traffic.

At the Spadina subway/Jane Station site, an Operations and Maintenance (O&M) Facility is proposed. The proposed location for Spadina subway/Jane Station is approximately 700 m from the nearest sensitive land use, being a hotel on the opposite (north) side of Highway 407. According to Delcan, there will be minimal ventilation fans associated with the O&M facility. As the assessment of stationary sources is to be in accordance with MOE requirements, the MOE Primary Noise Screening Form was completed for this facility, resulting in a minimum required separation distance of 400 m. Given the actual 700 m setback distance, the O&M facility is anticipated to have no significant noise impact on the nearest sensitive receptor. A Certificate of Approval will be sought for this facility during the permitting process.

5.3 CONSTRUCTION NOISE IMPACT

It is likely the construction of the 407 Transitway will cause nearby receptor sound levels to increase above ambient conditions, due to proximity. Construction activities are temporary in nature, but would be considered a source of annoyance if construction occurs outside of normal weekday construction periods when ambient sound levels are the lowest.

Time and place restrictions as described in the various noise by-laws for the municipalities through which the 407 Transitway will pass have been outlined in Section 3.0. Construction must either occur within these limitations, or exemptions must be sought prior to commencement of construction. Furthermore, all construction equipment is required to be properly maintained to limit noise emissions. The noise limits for construction equipment are stipulated in the MOE NPC-115 and NPC-118 guidelines, as described in Section 3.0. As there is potential for noise impacts from construction, the MTO requires that a protocol be implemented to respond to noise complaints during the construction phase.

6.0 VIBRATION IMPACT ANALYSIS

SENES has completed vibration impact assessments for similar project types (bus transit) in urban settings. In particular, SENES completed a vibration assessment along the Highway 7 corridor in 2005 as part of the York Rapid Transit Plan (YRTP) (SENES, 2005b). The results of the assessment demonstrated that vibration levels from existing traffic were not perceptible at the closest sensitive receptors (generally well below 0.1 mm/s). Based on SENES' experience, this is the expected result as the traffic volume generally consists of rubberized-tire vehicles. The vibration levels from such traffic are typically negligible, with the exception of instances in which there is an expansion joint in the roadbed.

As the buses operating on the 407 Transitway will also be rubberized-tire vehicles travelling on a smooth surface, it is not anticipated that their operation will contribute significantly to existing vibration levels in the study area.

7.0 CONCLUSIONS

The following key conclusions are drawn from the preceding information:

- Highway 407 and Highway 7 are the existing dominant noise sources at receptor locations along the proposed 407 Transitway.
- The 407 Transitway is predicted to cause minimal increases above future no-build sound levels (< 5 dB increase) at all receptor locations. Highway 407 and Highway 7 are predicted to continue to dominate the future sound environment at these receptors.
- There are four receptors, namely R2, R3, R9 and R10, where the future no-build sound levels are predicted to exceed 65 dBA. While the predicted incremental noise from the proposed 407 Transitway at each of these receptors is less than 1 dB, that is, well below the 5 dB increase permitted by the MTO Guide, the MTO will investigate the feasibility of installing noise mitigation at these receptors during the detailed design stage of the project.
- As the actual construction date of the project is likely to be in the distant future, the MTO will revisit the noise predictions at certain receptors closer to the time of construction and provide noise mitigation if it is required in the future. The MTO will ensure that the project complies with the appropriate noise policy of the day.
- There are three intermodal bus facilities within the 407 Transitway corridor at Jane Street, Yonge Street and Kennedy Road that are potential sources of stationary noise. It is important to note, however, that these intermodal bus facilities are not being proposed as part of the current undertaking; they are being proposed by the TTC in the case of Jane and Yonge Stations, and York Region's Viva Program in the case of Kennedy Station. In any case, previous noise studies completed for these bus facilities indicate that they are unlikely to cause a noise impact at any of the receptor locations.
- Construction should be limited to the time and place restrictions outlined in the various applicable municipal noise by-laws, or an exemption must be sought prior to commencement of construction. Furthermore, all construction equipment should be properly maintained to limit noise emissions and comply with the noise limits outlined in NPC-115 and NPC-118 guidelines.
- As construction has potential to impact receptors due to proximity, the MTO requires that a protocol be implemented to respond to complaints.
- Based on previous project experience with respect to bus transit in the Highway 7 corridor, there are no expected vibration impacts resulting from the operation of the 407 Transitway. Generally, vehicles with rubber tires operating on smooth paved surfaces do not contribute significantly to ground-borne vibration levels.

8.0 REFERENCES

- City of Vaughan 2006. *By-Law Number 96-2006 A By-law to Regulate Noise*.
- Ontario Ministry of the Environment (MOE) 1978a. *Noise Pollution Control (NPC) Branch Publication 115, Construction Equipment*.
- Ontario Ministry of the Environment (MOE) 1978b. *Noise Pollution Control (NPC) Branch Publication 118, Motorized Conveyances*.
- Ontario Ministry of the Environment (MOE) 1978c. *Noise Pollution Control (NPC) Branch Publication 104, Sound Level Adjustments*.
- Ontario Ministry of the Environment (MOE) 1995. *Noise Pollution Control (NPC) Branch Publication 205, Sound Level Limits for Stationary Sources in Class 1&2 Areas (Urban)*.
- Ontario Ministry of Transportation (MTO) 2006. *Environmental Guide for Noise*, October.
- S.S. Wilson Associates (SSWA) 2009. *Noise and Vibration Impact Study, Viva Next, Yonge Subway Extension, Finch Avenue to Highway 7*, January.
- S.S. Wilson Associates (SSWA) 2006. *Noise and Vibration Impact Study, Toronto Transit Commission, Environmental Assessment – Spadina Subway Extension, Downsview Station to Steeles Avenue West*, February.
- SENES Consultants Limited (SENES) 2005a. *Yonge Street Corridor Public Transit Improvements Environmental Assessment – Noise and Vibration Impact Assessment*, June.
- SENES Consultants Limited (SENES) 2005b. *Highway 7 Corridor and Vaughan North-South Link Public Transit Improvements Environmental Assessment – Noise and Vibration Impact Assessment*, August.
- Town of Markham 2005. *By-Law No. 2003-137 A By-Law to Regulate Noise Within the Town of Markham*, May.
- Town of Richmond Hill 2008. *Chapter 1055 Noise*, October.

APPENDIX A

RECEPTOR LOCATIONS

Figure A.1 – Aerial View of Receptor R1

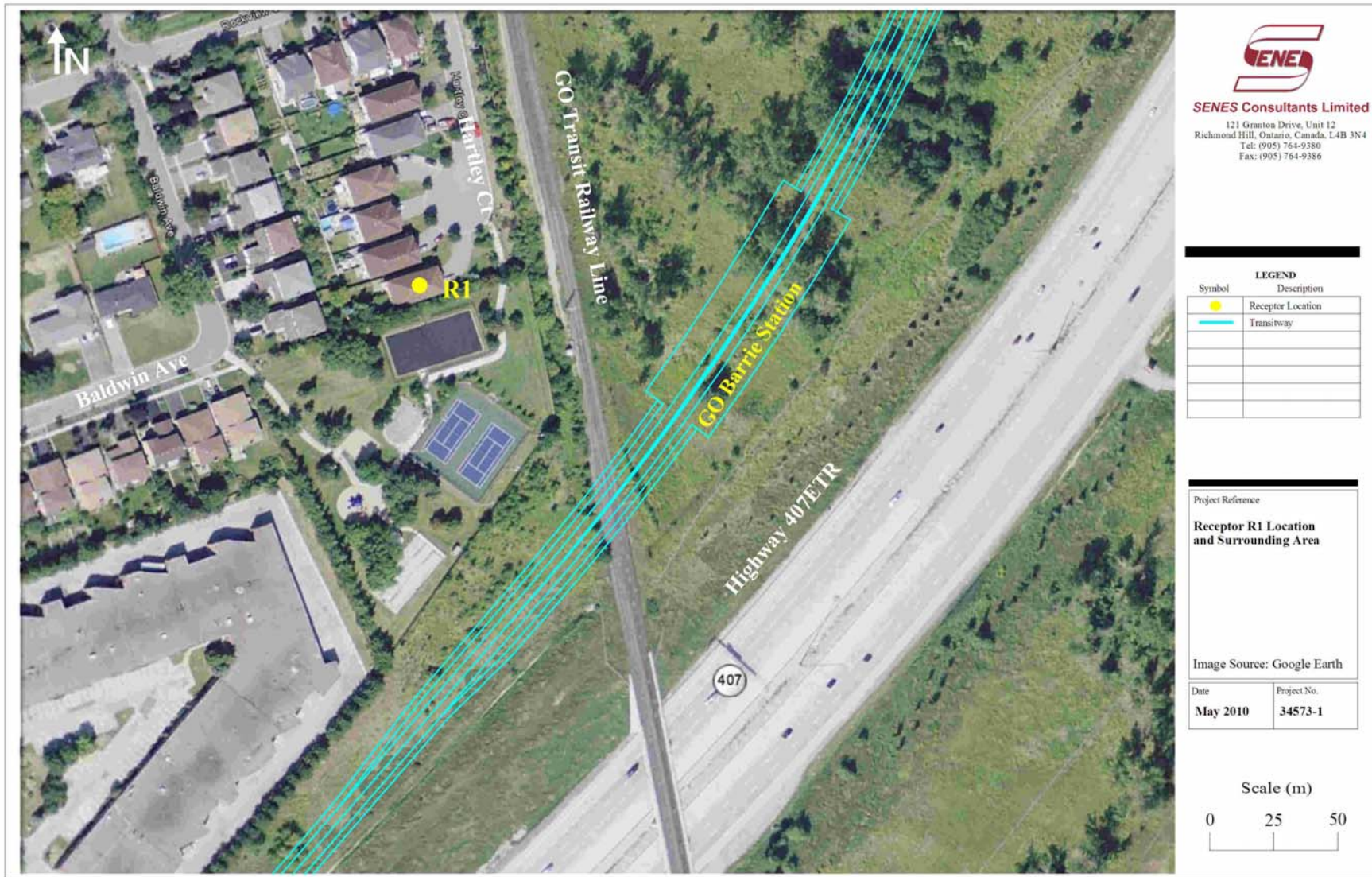


Figure A.2 – Aerial View of Receptor R2 and R3



Figure A.3 – Aerial View of Receptor R4



Figure A.4 – Aerial View of Receptor R5

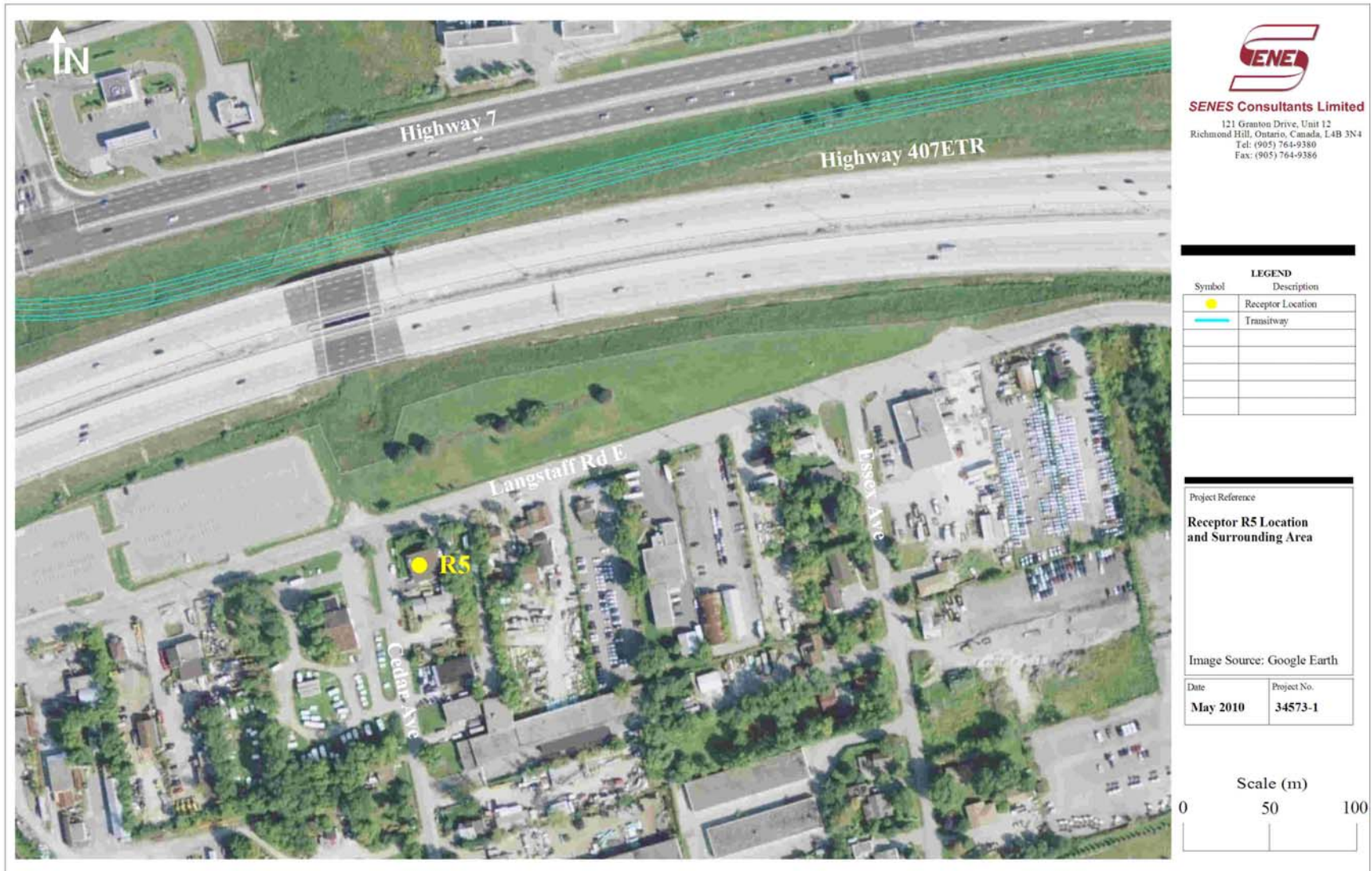


Figure A.5 – Aerial View of Receptor R6

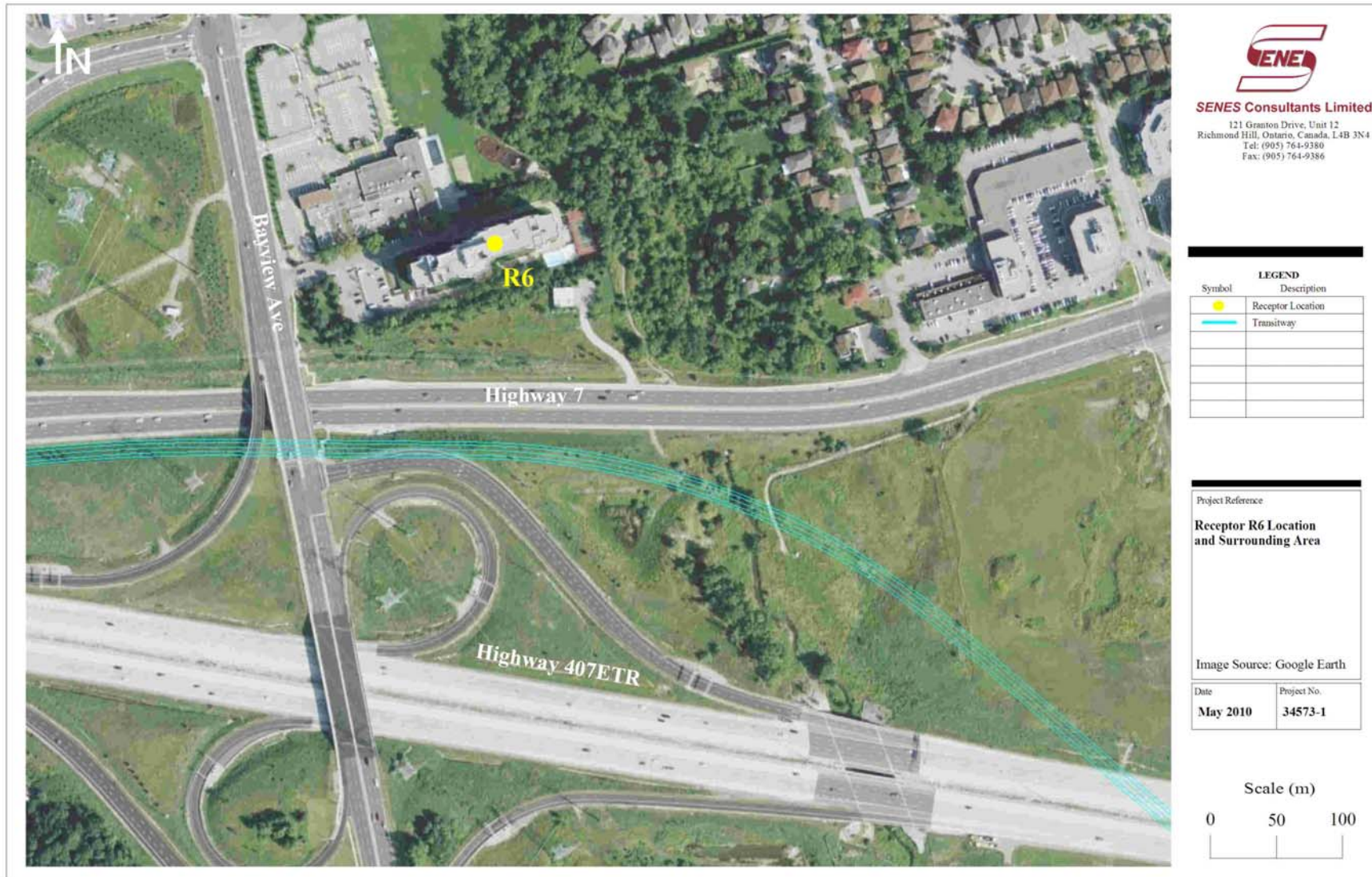


Figure A.6 – Aerial View of Receptor R7

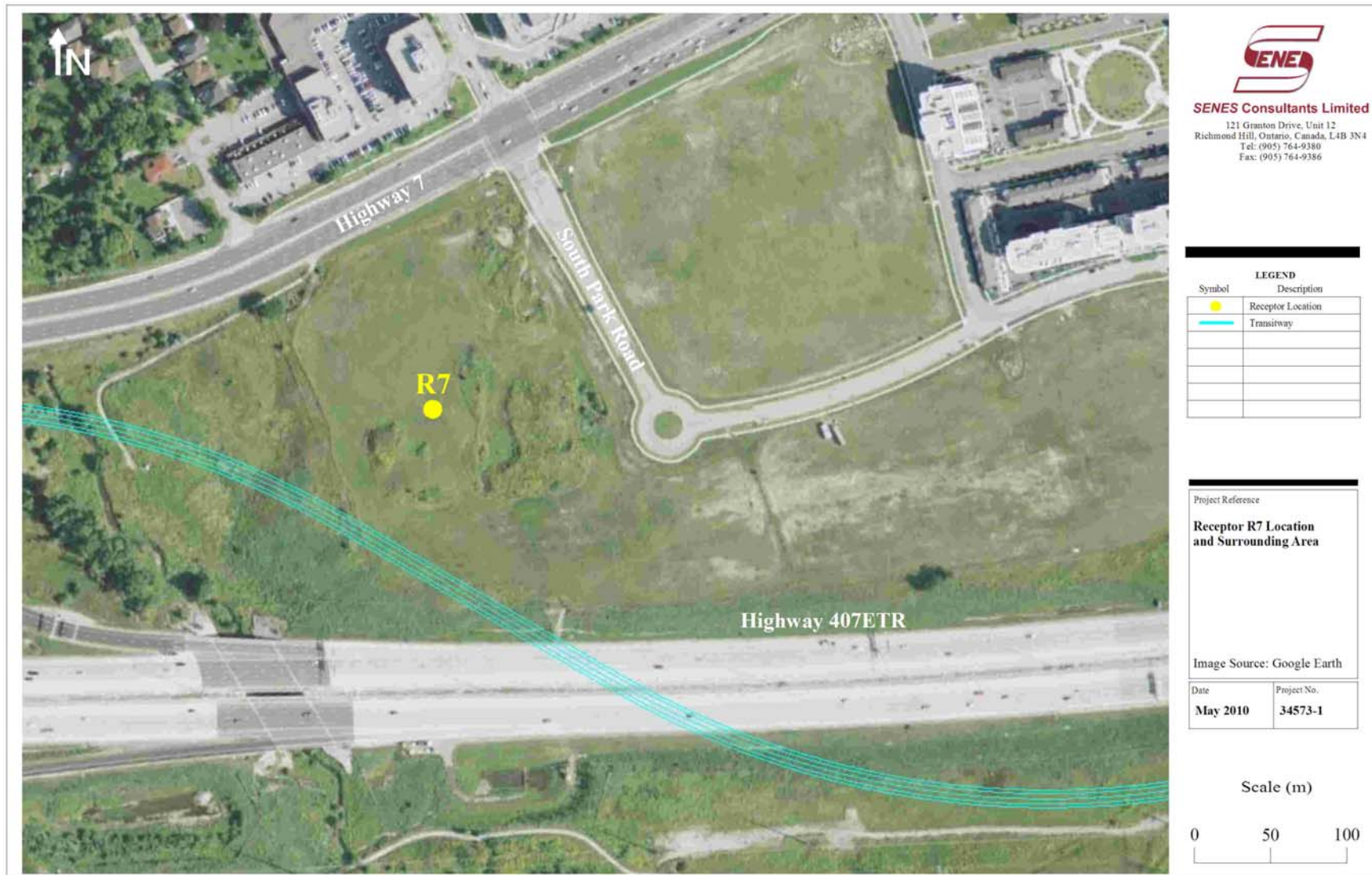


Figure A.7 – Aerial View of Receptor R8



Figure A.8 – Aerial View of Receptor R9



Figure A.9 – Aerial View of Receptor R10

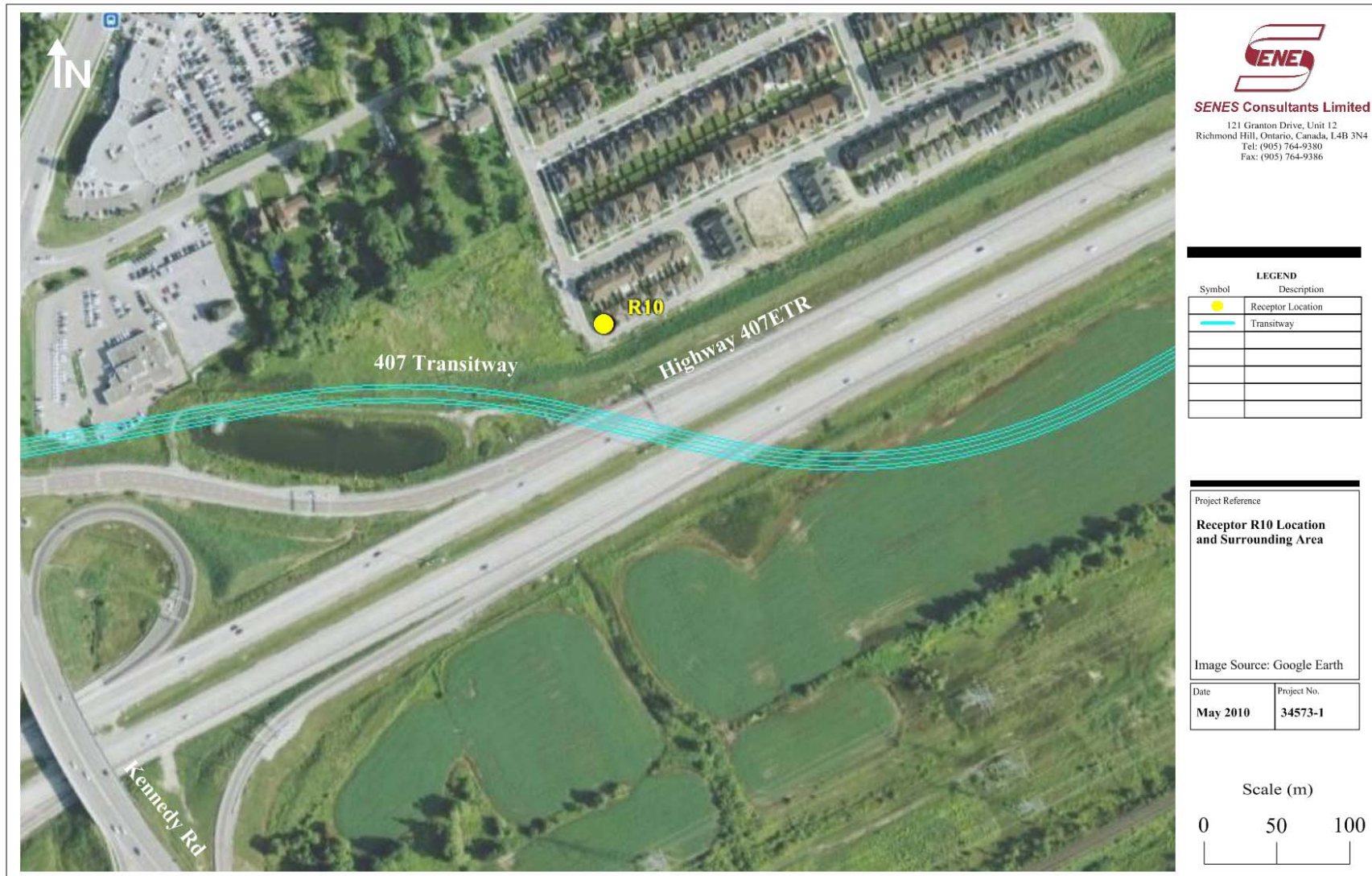


Figure A.10 – Aerial View of Receptor S1



APPENDIX B

TRAFFIC DATA SUMMARY

Table B.1 – Existing (2008) Traffic Volumes on Highway 407 as Provided by IBI Group

Traffic Volume for a Typical Weekday in 2008

LOCATION	SECTION		24 Hour								16 Hour								8 Hour							
			Total		Light		HSU		HMU		Total		Light		HSU		HMU		Total		Light		HSU		HMU	
	FROM	TO	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
	Highway 400	Jane Street	58822	56469	53514	51201	5284	5241	24	27	54685	52948	49899	48177	4766	4753	20	18	4137	3521	3615	3024	518	488	4	9
	Jane Street	Keele Street	59922	57563	54885	52470	5019	5077	18	16	55905	53887	51372	49227	4518	4649	15	11	4017	3676	3513	3243	501	428	3	5
	Keele Street	Dufferin Street	55826	53602	51801	49574	4013	4013	12	15	52449	50100	48872	46379	3567	3711	10	10	3377	3502	2929	3195	446	302	2	5
	Dufferin Street	Bathurst Street	54492	51719	50362	47722	4118	3979	12	18	51239	48259	47601	44559	3628	3687	10	13	3253	3460	2761	3163	490	292	2	5
	Bathurst Street	Yonge Street	54691	51894	50543	47803	4134	4075	14	16	51454	48554	47777	44766	3665	3776	12	12	3237	3340	2766	3037	469	299	2	4
	Yonge Street	Bayview Avenue	52837	50016	48945	46169	3880	3832	12	15	49773	46850	46307	43288	3456	3551	10	11	3064	3166	2638	2881	424	281	2	4
	Bayview Avenue	Leslie Street	53771	51390	49449	47126	4303	4249	19	15	50646	48156	46821	44222	3809	3923	16	11	3125	3234	2628	2904	494	326	3	4
	Leslie Street	Highwat 404	47516	46044	43464	42005	4033	4026	19	13	44695	42987	41102	39264	3577	3714	16	9	2821	3057	2362	2741	456	312	3	4
	Highway 404	Woodbine Avenue	40288	37443	37493	34833	2785	2605	10	5	38048	34737	35523	32329	2516	2406	9	2	2240	2706	1970	2504	269	199	1	3
	Woodbine Avenue	Warden Avenue	39003	36191	36467	33852	2529	2334	7	5	36955	33361	34666	31195	2283	2164	6	2	2048	2830	1801	2657	246	170	1	3
	Warden Avenue	Kennedy Road	35213	32512	32986	30487	2216	2022	11	3	33459	29729	31450	27865	2000	1862	9	2	1754	2783	1536	2622	216	160	2	1

According to information from 407ETR, the vehicles are classified as follows:

- **Light:** 5,000 kg and lighter; includes cars, vans, pickups, limos, SUVs and light duty trucks
- **HSU:** Heavy Single Unit Vehicle; over 5,000 kg
- **HMU:** Heavy Multiple Unit Vehicle; over 5,000 kg

Table B.2 – Reclassified Existing (2008) Traffic Volumes on Highway 407

SECTION		24 Hour								16 Hour								8 Hour							
		Total		Cars		Medium Trucks		Heavy Trucks		Total		Cars		Medium Trucks		Heavy Trucks		Total		Cars		Medium Trucks		Heavy Trucks	
FROM	TO	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
Highway 400	Jane Street	58,822	56,469	53,514	51,201	1,769	1,756	3,539	3,512	54,685	52,948	49,899	48,177	1,595	1,590	3,191	3,181	4,137	3,521	3,615	3,024	174	166	348	331
Jane Street	Keele Street	59,922	57,563	54,885	52,470	1,679	1,698	3,358	3,395	55,905	53,887	51,372	49,227	1,511	1,553	3,022	3,107	4,017	3,676	3,513	3,243	168	144	336	289
Keele Street	Dufferin Street	55,826	53,602	51,801	49,574	1,342	1,343	2,683	2,685	52,449	50,100	48,872	46,379	1,192	1,240	2,385	2,481	3,377	3,502	2,929	3,195	149	102	299	205
Dufferin Street	Bathurst Street	54,492	51,719	50,362	47,722	1,377	1,332	2,753	2,665	51,239	48,259	47,601	44,559	1,213	1,233	2,425	2,467	3,253	3,460	2,761	3,163	164	99	328	198
Bathurst Street	Yonge Street	54,691	51,894	50,543	47,803	1,383	1,364	2,765	2,727	51,454	48,554	47,777	44,766	1,226	1,263	2,451	2,525	3,237	3,340	2,766	3,037	157	101	314	202
Yonge Street	Bayview Avenue	52,837	50,016	48,945	46,169	1,297	1,282	2,595	2,565	49,773	46,850	46,307	43,288	1,155	1,187	2,311	2,375	3,064	3,166	2,638	2,881	142	95	284	190
Bayview Avenue	Leslie Street	53,771	51,390	49,449	47,126	1,441	1,421	2,881	2,843	50,646	48,156	46,821	44,222	1,275	1,311	2,550	2,623	3,125	3,234	2,628	2,904	166	110	331	220
Leslie Street	Highway 404	47,516	46,044	43,464	42,005	1,351	1,346	2,701	2,693	44,695	42,987	41,102	39,264	1,198	1,241	2,395	2,482	2,821	3,057	2,362	2,741	153	105	306	211
Highway 404	Woodbine Avenue	40,288	37,443	37,493	34,833	932	870	1,863	1,740	38,048	34,737	35,523	32,329	842	803	1,683	1,605	2,240	2,706	1,970	2,504	90	67	180	135
Woodbine Avenue	Warden Avenue	39,003	36,191	36,467	33,852	845	780	1,691	1,559	36,955	33,361	34,666	31,195	763	722	1,526	1,444	2,048	2,830	1,801	2,657	82	58	165	115
Warden Avenue	Kennedy Road	35,213	32,512	32,986	30,487	742	675	1,485	1,350	33,459	29,729	31,450	27,865	670	621	1,339	1,243	1,754	2,783	1,536	2,622	73	54	145	107

Table B.3 – Annual Growth Rates for Highway 407 Traffic

LOCATION	SECTION		2006-2031 Growth		2006-2031 Annual Growth Rate	
	FROM	TO	EB	WB	EB	WB
	Highway 400	Jane Street	63.8%	77.2%	2.0%	2.3%
	Jane Street	Keele Street	79.5%	58.9%	2.4%	1.9%
	Keele Street	Dufferin Street	91.5%	56.6%	2.6%	1.8%
	Dufferin Street	Bathurst Street	81.2%	79.6%	2.4%	2.4%
	Bathurst Street	Yonge Street	63.9%	79.0%	2.0%	2.4%
	Yonge Street	Bayview Avenue	55.8%	80.7%	1.8%	2.4%
	Bayview Avenue	Leslie Street	45.6%	90.0%	1.5%	2.6%
	Leslie Street	Highway 404	51.3%	93.9%	1.7%	2.7%
	Highway 404	Woodbine Avenue	51.9%	78.2%	1.7%	2.3%
	Woodbine Avenue	Warden Avenue	105.3%	91.3%	2.9%	2.6%
	Warden Avenue	Kennedy Road	134.6%	100.4%	3.5%	2.8%

Note: IBI Group stated through e-mail correspondence that the annual growth rates could be applied through to 2041

Table B.4 – Projected (2041) Traffic Volumes on Highway 407

SECTION		24 Hour								16 Hour								8 Hour							
		Total		Cars		Medium Trucks		Heavy Trucks		Total		Cars		Medium Trucks		Heavy Trucks		Total		Cars		Medium Trucks		Heavy Trucks	
FROM	TO	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
Highway 400	Jane Street	112,792	120,182	102,613	108,970	3,393	3,737	6,785	7,474	104,859	112,688	95,682	102,534	3,059	3,385	6,118	6,769	7,933	7,494	6,932	6,436	334	353	667	705
Jane Street	Keele Street	129,749	106,082	118,842	96,696	3,636	3,129	7,271	6,257	121,051	99,307	111,236	90,719	3,272	2,863	6,544	5,725	8,698	6,774	7,607	5,976	364	266	728	532
Keele Street	Dufferin Street	131,582	96,858	122,095	89,579	3,162	2,426	6,325	4,852	123,622	90,530	115,191	83,806	2,810	2,241	5,621	4,483	7,960	6,328	6,904	5,773	352	185	704	370
Dufferin Street	Bathurst Street	119,396	111,989	110,347	103,334	3,016	2,885	6,033	5,770	112,268	104,497	104,297	96,485	2,657	2,671	5,314	5,341	7,128	7,492	6,050	6,849	359	214	719	429
Bathurst Street	Yonge Street	104,954	111,942	96,994	103,118	2,653	2,942	5,307	5,883	98,742	104,738	91,686	96,566	2,352	2,724	4,704	5,447	6,212	7,205	5,308	6,551	301	218	603	436
Yonge Street	Bayview Avenue	94,894	109,233	87,904	100,831	2,330	2,801	4,660	5,601	89,391	102,318	83,167	94,539	2,075	2,593	4,150	5,186	5,503	6,914	4,738	6,292	255	207	510	415
Bayview Avenue	Leslie Street	88,272	119,896	81,177	109,948	2,365	3,316	4,730	6,632	83,142	112,351	76,863	103,172	2,093	3,059	4,186	6,119	5,130	7,545	4,314	6,775	272	257	544	513
Leslie Street	Highway 404	82,046	110,350	75,049	100,670	2,332	3,227	4,664	6,453	77,175	103,023	70,971	94,101	2,068	2,974	4,136	5,948	4,871	7,326	4,078	6,569	264	252	528	505
Highway 404	Woodbine Avenue	69,943	80,272	65,091	74,677	1,617	1,865	3,235	3,730	66,054	74,471	61,671	69,308	1,461	1,721	2,922	3,442	3,889	5,801	3,420	5,368	156	144	312	289
Woodbine Avenue	Warden Avenue	100,774	85,206	94,222	79,699	2,184	1,836	4,368	3,671	95,482	78,543	89,568	73,443	1,971	1,700	3,943	3,400	5,292	6,663	4,653	6,255	213	136	425	272
Warden Avenue	Kennedy Road	108,537	81,367	101,673	76,299	2,288	1,689	4,576	3,379	103,131	74,402	96,939	69,737	2,064	1,555	4,128	3,110	5,406	6,965	4,734	6,562	224	134	448	269

Table B.5 – Bus Volumes on the 407 Transitway (Projected to 2041)

Time	Current Number of Buses			Forecasted Number of Buses (2031)			Forecasted Number of Buses (2041)		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
5:01-6:00	3	0	0	39	0	0	48	0	0
6:01-7:00	5	3	2	65	39	26	79	48	32
7:01-8:00	6	4	3	78	52	39	95	63	48
8:01-9:00	6	4	4	78	52	52	95	63	63
9:01-10:00	5	4	4	65	52	52	79	63	63
10:01-11:00	4	4	4	52	52	52	63	63	63
11:01-12:00	4	4	4	52	52	52	63	63	63
12:01-13:00	4	4	4	52	52	52	63	63	63
13:01-14:00	4	4	4	52	52	52	63	63	63
14:01-15:00	5	4	4	65	52	52	79	63	63
15:01-16:00	6	4	4	78	52	52	95	63	63
16:01-17:00	6	4	4	78	52	52	95	63	63
17:01-18:00	6	4	4	78	52	52	95	63	63
18:01-19:00	5	4	4	65	52	52	79	63	63
19:01-20:00	4	3	3	52	39	39	63	48	48
20:01-21:00	4	3	3	52	39	39	63	48	48
21:01-22:00	3	3	2	39	39	26	48	48	32
22:01-23:00	3	2	2	39	26	26	48	32	32
23:01-24:00	3	2	2	39	26	26	48	32	32
Total	86	64	61	1118	832	793	1363	1014	967

Table B.6 – Parking Lot Traffic Data

AM Peak Hour	GO Barrie	Leslie
In	480	750
Out	118	180
PM Peak Hour		
In	118	180
Out	400	620

SENES Assumptions

Assumed both the AM and PM Peaks occur during Daytime Hours (07:00 to 23:00)

Assumed all other hours have an average total (in and out) volume of 50 vehicles (assumption approved by IBI)

Go Barrie

Daytime Total Volume: 1816
Night Total Volume: 400

Leslie

Daytime Total Volume: 2430
Night Total Volume: 400

Yonge Street Traffic Volume Estimation (for R4 Modelling)

Data based on 33434 - York Rapid Transit - Yonge St Noise Study (June 2005 Report)

2001 AADT for Yonge St (between 407EB Off-Ramp and Garden Ave):	31,980
2003 AADT for Yonge St (between 407EB Off-Ramp and Garden Ave):	32,490

Annual Growth Rate:	0.79%
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2041 AADT for Yonge St (between 407EB Off-Ramp and Garden Ave):	43,884
--	--------

Percent Automobiles:	96%
----------------------	-----

Percent Medium

Trucks:	4%
---------	----

Percent Heavy

Trucks:	0%
---------	----

Day/Night

Split:	60/40
--------	-------

Daytime Hourly Traffic Volume (one direction):	823
--	-----

Night-time Hourly Traffic Volume (one direction):	1097
---	------

2008 AADT for Yonge St (between 407EB Off-Ramp and Garden Ave):	33,801
--	--------

Daytime Hourly Traffic Volume (one direction):	634
--	-----

Night-time Hourly Traffic Volume (one direction):	845
---	-----

Highway 7 Traffic Volume Estimation (for R4 Modelling)

Data based on 33434 - Highway 7 Corridor and Vaughan N-S Link Noise Study (August 2005 Report)

2021 AADT for Highway 7 (between Bathurst St and Yonge St): 49,536

20-Year Growth

Rate: 16.5%

2041 AADT for Highway 7 (between Bathurst St and Yonge St): 57,709

Percent

Automobiles: 94.5%

Percent Medium

Trucks: 2.3%

Percent Heavy

Trucks: 3.3%

Day/Night

Split: 90/10

Daytime Hourly Traffic Volume (both directions): 3246

Night-time Hourly Traffic Volume (both directions): 721

2001 AADT for Highway 7 (between Bathurst St and Yonge St): 42,520

Annual Growth Rate: 0.77%

2008 AADT for Highway 7 (between Bathurst St and Yonge St): 44,855

Daytime Hourly Traffic Volume (both directions): 2,523

Night-time Hourly Traffic Volume (both directions): 561

Highway 7 Traffic Volume Estimation (Receptors R2, R3)

Data based on 33434 - Highway 7 Corridor and Vaughan N-S Link Noise Study (August 2005 Report)

2001 AADT for Highway 7 (between Bathurst St and Dufferin St): 35,115

2021 AADT for Highway 7 (between Bathurst St and Dufferin St): 50,390

20-Year Growth Rate: 43.5%

Annual Growth Rate: 1.82%

2041 AADT for Highway 7 (between Bathurst St and Dufferin St): 72,310

2008 AADT for Highway 7 (between Bathurst St and Dufferin St): 39,847

Percent Automobiles: 94.5%

Percent Medium Trucks: 2.3%

Percent Heavy Trucks: 3.3%

Day/Night Split: 90/10

EB/WB Split: 50/50

Year	Day		Night	
	EB	WB	EB	WB
2008	17931	17931	1992	1992
2021	22676	22676	2520	2520
2041	32539	32539	3615	3615

2041:

	Day			Night		
	Cars	M. Truck	H. Truck	Cars	M. Truck	H. Truck
EB	30750	732	1058	3417	81	118
WB	30750	732	1058	3417	81	118

2008:

	Day			Night		
	Cars	M. Truck	H. Truck	Cars	M. Truck	H. Truck
EB	16945	403	583	1883	45	65
WB	16945	403	583	1883	45	65

Highway 7 Traffic Volume Estimation (Receptor R6)

Data based on 33434 - Highway 7 Corridor and Vaughan N-S Link Noise Study (August 2005 Report)

2001 AADT for Highway 7 (between Leslie St and Bayview Ave): 51,050

2021 AADT for Highway 7 (between Leslie St and Bayview Ave): 58,197

20-Year Growth Rate: 14.0%

Annual Growth Rate: 0.66%

2041 AADT for Highway 7 (between Leslie St and Bayview Ave): 66,345

2008 AADT for Highway 7 (between Leslie St and Bayview Ave): 53,446

Percent Automobiles: 94.5%

Percent Medium Trucks: 2.3%

Percent Heavy Trucks: 3.3%

Day/Night Split: 90/10

EB/WB Split: 50/50

Year	Day		Night	
	EB	WB	EB	WB
2008	24051	24051	2672	2672
2021	26189	26189	2910	2910
2041	29855	29855	3317	3317

2041:

	Day			Night		
	Cars	M. Truck	H. Truck	Cars	M. Truck	H. Truck
EB	28213	672	970	3135	75	108
WB	28213	672	970	3135	75	108

2008:

	Day			Night		
	Cars	M. Truck	H. Truck	Cars	M. Truck	H. Truck
EB	22728	541	782	2525	60	87
WB	22728	541	782	2525	60	87

APPENDIX C

CALCULATIONS AND RESULT SUMMARY

Modelling Parameters and Results Summary: Receptor R1 - OLA/Facade - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area / Building Façade
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 3
 Road Segment Description: Keele St to Dufferin St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-2 to 50	100	239	239	1.5	4.5	52,449	48,872	1,192	2,385	3,377	2,929	149	299
407EB2	-40 to 6	100	239	239	1.5	4.5	52,449	48,872	1,192	2,385	3,377	2,929	149	299
407WB1	-2 to 50	100	199	199	1.5	4.5	50,100	46,379	1,240	2,481	3,502	3,195	102	205
407WB2	-40 to 6	100	199	199	1.5	4.5	50,100	46,379	1,240	2,481	3,502	3,195	102	205

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407EB2	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407WB1	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407WB2	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m

STAMSON Modelling Results

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)
R1OLAEEx	55.2	50.5

Modelling Parameters and Results Summary: Receptor R1 - OLA/Facade - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area / Building Façade
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 3
 Road Segment Description: Keele St to Dufferin St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-2 to 50	100	239	239	1.5	4.5	123,622	115,191	2,810	5,621	7,960	6,904	352	704
407EB2	-40 to 6	100	239	239	1.5	4.5	123,622	115,191	2,810	5,621	7,960	6,904	352	704
407WB1	-2 to 50	100	199	199	1.5	4.5	90,530	83,806	2,241	4,483	6,328	5,773	185	370
407WB2	-40 to 6	100	199	199	1.5	4.5	90,530	83,806	2,241	4,483	6,328	5,773	185	370

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407EB2	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407WB1	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407WB2	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m

STAMSON Modelling Results

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)
R1OLAFNB	58.7	54.2

Modelling Parameters and Results Summary: Receptor R1 - OLA/Facade - Future Build (2041)

Modelling Scenario: Future Build (2041)
 Receptor Location: Outdoor Living Area / Building Façade
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 3
 Road Segment Description: Keele St to Dufferin St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	-2 to 50	100	239	239	1.5	4.5	123,622	115,191	2,810	5,621	7,960	6,904	352	704
407EB2	-40 to 6	100	239	239	1.5	4.5	123,622	115,191	2,810	5,621	7,960	6,904	352	704
407WB1	-2 to 50	100	199	199	1.5	4.5	90,530	83,806	2,241	4,483	6,328	5,773	185	370
407WB2	-40 to 6	100	199	199	1.5	4.5	90,530	83,806	2,241	4,483	6,328	5,773	185	370
Transitway														
TW1	-20 to 58	100	122	122	1.5	4.5	1,189	-	1,189	-	174	-	174	-
TW2	-32 to -12	100	124	124	1.5	4.5	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407EB2	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407WB1	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
407WB2	Earthen berm in direction of receptor - approximately 6 m in height	4 - Elevated with barrier	Source Barrier Distance = 186 m
<i>Transitway</i>			
TW1	Transitway below grade - modelled at average depth of 4 m	4 - Elevated with barrier	Source Barrier Distance = 112 m
TW2	Transitway below grade - modelled at average depth of 3 m	4 - Elevated with barrier	Source Barrier Distance = 114 m

STAMSON Modelling Results

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)
R1OLAFB	58.6	54.1	N/A	58.6	54.1
R1OLATW	41.1	40.0	-2.6	41.1	37.4
Total	-	-	N/A	58.7	54.2

Modelling Parameters and Results Summary: Receptor R2 - OLA/Facade - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Three-storey Townhouse

Road Segment ID: 4
 Road Segment Description: Dufferin St to Bathurst St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	3 to 65	100	277	277	1.2	1.2	51,239	47,601	1,213	2,425	3,253	2,761	164	328
407EB2	-87 to -9	100	278	278	1.2	1.2	51,239	47,601	1,213	2,425	3,253	2,761	164	328
407WB1	3 to 65	100	234	234	1.2	1.2	48,259	44,559	1,233	2,467	3,460	3,163	99	198
407WB2	-87 to -9	100	238	238	1.2	1.2	48,259	44,559	1,233	2,467	3,460	3,163	99	198
Highway 7														
H7EB1	49 to 81	80	50	50	1.2	1.2	17,931	16,945	403	583	1,992	1,883	45	65
H7EB2	-90 to 38	80	60	60	1.2	1.2	17,931	16,945	403	583	1,992	1,883	45	65
H7WB1	49 to 81	80	35	35	1.2	1.2	17,931	16,945	403	583	1,992	1,883	45	65
H7WB2	-90 to 38	80	45	45	1.2	1.2	17,931	16,945	403	583	1,992	1,883	45	65

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
<i>Highway 7</i>			
H7EB1	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7EB2	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB1	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB2	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R2407Ex	59.7	52.2	58.3
R2H7Ex	65.1	58.5	63.8
Total	66.2	59.4	64.8

Modelling Parameters and Results Summary: Receptor R2 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Three-storey Townhouse

Road Segment ID: 4
 Road Segment Description: Dufferin St to Bathurst St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	3 to 65	100	277	277	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407EB2	-87 to -9	100	278	278	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407WB1	3 to 65	100	234	234	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
407WB1	-87 to -9	100	238	238	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
Highway 7														
H7EB1	49 to 81	80	50	50	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7EB2	-90 to 38	80	60	60	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7WB1	49 to 81	80	35	35	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7WB2	-90 to 38	80	45	45	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
<i>Highway 7</i>			
H7EB1	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7EB2	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB1	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB2	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R2407FNB	63.0	55.6	61.6
R2H7F	67.7	61.1	66.3
Total	68.9	62.2	67.6

Modelling Parameters and Results Summary: Receptor R2 - OLA - Future Build (2041)

Modelling Scenario: Future Build (2041)
Receptor Location: Outdoor Living Area
Receptor Description: Three-storey Townhouse

Road Segment ID: 4
Road Segment Description: Dufferin St to Bathurst St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	3 to 65	100	277	277	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407EB2	-87 to -9	100	278	278	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407WB1	3 to 65	100	234	234	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
407WB2	-87 to -9	100	238	238	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
Highway 7														
H7EB1	49 to 81	80	50	50	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7EB2	-90 to 38	80	60	60	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7WB1	49 to 81	80	35	35	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7WB2	-90 to 38	80	45	45	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
Transitway														
TW1	18 to 80	100	86	86	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW2	-87 to 29	100	85	85	1.2	1.2	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
Highway 407ETR			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
Highway 7			
H7EB1	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7EB2	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB1	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB2	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
Transitway			
TW1	Transitway is at grade	1 - Flat/gentle slope, no barrier	N/A
TW2	Transitway is at grade	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R2407FB	63.0	55.6	N/A	63.0	55.6	61.6
R2H7F	67.7	61.1	N/A	67.7	61.1	66.3
R2OLATW	62.1	59.4	-2.6	62.1	56.7	60.9
Total	-	-	N/A	69.8	63.3	68.5

Modelling Parameters and Results Summary: Receptor R3 - OLA - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 4
 Road Segment Description: Dufferin St to Bathurst St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance		Receptor Height		16 Hour				8 Hour			
			(m)		(m)		Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
			16-hr	8-hr	16-hr	8-hr								
Highway 407ETR														
407EB1	50 to 90	100	173	173	1.2	1.2	51,239	47,601	1,213	2,425	3,253	2,761	164	328
407EB2	-80 to 43	100	172	172	1.2	1.2	51,239	47,601	1,213	2,425	3,253	2,761	164	328
407WB1	50 to 90	100	129	129	1.2	1.2	48,259	44,559	1,233	2,467	3,460	3,163	99	198
407WB2	-80 to 43	100	128	128	1.2	1.2	48,259	44,559	1,233	2,467	3,460	3,163	99	198
Highway 7														
H7EB	-90 to 90	80	59	59	1.2	1.2	17,931	16,945	403	583	1,992	1,883	45	65
H7WB	-90 to 90	80	43	43	1.2	1.2	17,931	16,945	403	583	1,992	1,883	45	65

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
<i>Highway 7</i>			
H7EB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R3407Ex	66.1	58.8	64.7
R3H7Ex	64.9	58.4	63.6
Total	68.5	61.6	67.2

Modelling Parameters and Results Summary: Receptor R3 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 4
 Road Segment Description: Dufferin St to Bathurst St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	50 to 90	100	173	173	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407EB2	-80 to 43	100	172	172	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407WB1	50 to 90	100	129	129	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
407WB1	-80 to 43	100	128	128	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
Highway 7														
H7EB	-90 to 90	80	59	59	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7WB	-90 to 90	80	43	43	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
<i>Highway 7</i>			
H7EB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R3407FNB	69.5	62.2	68.1
R3H7F	67.5	61.0	66.2
Total	71.6	64.6	70.3

Modelling Parameters and Results Summary: Receptor R3 - OLA - Future Build (2041)

Modelling Scenario: Future Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 4
 Road Segment Description: Dufferin St to Bathurst St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	50 to 90	100	173	173	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407EB2	-80 to 43	100	172	172	1.2	1.2	112,268	104,297	2,657	5,314	7,128	6,050	359	719
407WB1	50 to 90	100	129	129	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
407WB2	-80 to 43	100	128	128	1.2	1.2	104,497	96,485	2,671	5,341	7,492	6,849	214	429
Highway 7														
H7EB	-90 to 90	80	59	59	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
H7WB	-90 to 90	80	43	43	1.2	1.2	32,539	30,750	732	1,058	3,615	3,417	81	118
Transitway														
TW	18 to 80	100	86	86	1.2	1.2	1,189	-	1,189	-	174	-	174	-

¹ - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Barrier Receiver Distance = 113 m
<i>Highway 7</i>			
H7EB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
<i>Transitway</i>			
TW	Transitway is at grade	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R3OLAFB	69.5	62.2	N/A	69.5	62.2	68.1
R3H7	67.5	61.0	N/A	67.5	61.0	66.2
R3OLATW	61.9	59.3	-3	61.9	56.6	60.8
Total	-	-	N/A	72.0	65.2	70.7

Modelling Parameters and Results Summary: Receptor R5 - OLA - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 6
 Road Segment Description: Yonge St to Bayview Ave

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-81 to -48	100	143	143	1.2	1.2	49,773	46,307	1,155	2,311	3,064	2,638	142	284
407EB2	-53 to -12	100	123	123	1.2	1.2	49,773	46,307	1,155	2,311	3,064	2,638	142	284
407EB3	-19 to 40	100	117	117	1.2	1.2	49,773	46,307	1,155	2,311	3,064	2,638	142	284
407EB4	36 to 64	100	128	128	1.2	1.2	49,773	46,307	1,155	2,311	3,064	2,638	142	284
407EB5	56 to 70	100	171	171	1.2	1.2	49,773	46,307	1,155	2,311	3,064	2,638	142	284
407WB1	-81 to -48	100	187	187	1.2	1.2	46,850	43,288	1,187	2,375	3,166	2,881	95	190
407WB2	-53 to -12	100	166	166	1.2	1.2	46,850	43,288	1,187	2,375	3,166	2,881	95	190
407WB3	-19 to 40	100	158	158	1.2	1.2	46,850	43,288	1,187	2,375	3,166	2,881	95	190
407WB4	36 to 64	100	168	168	1.2	1.2	46,850	43,288	1,187	2,375	3,166	2,881	95	190
407WB5	56 to 70	100	211	211	1.2	1.2	46,850	43,288	1,187	2,375	3,166	2,881	95	190

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407EB2	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407EB3	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 107 m
407EB4	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 115 m
407EB5	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 155 m
407WB1	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407WB2	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407WB3	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 107 m
407WB4	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 115 m
407WB5	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 155 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R5OLAEEx	63	57	62

Modelling Parameters and Results Summary: Receptor R5 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 6
 Road Segment Description: Yonge St to Bayview Ave

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-81 to -48	100	143	143	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB2	-53 to -12	100	123	123	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB3	-19 to 40	100	117	117	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB4	36 to 64	100	128	128	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB5	56 to 70	100	171	171	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407WB1	-81 to -48	100	187	187	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB2	-53 to -12	100	166	166	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB3	-19 to 40	100	158	158	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB4	36 to 64	100	168	168	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB5	56 to 70	100	211	211	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407EB2	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407EB3	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 107 m
407EB4	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 115 m
407EB5	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 155 m
407WB1	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407WB2	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407WB3	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 107 m
407WB4	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 115 m
407WB5	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 155 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R5OLAFNB	66	58	64

Modelling Parameters and Results Summary: Receptor R5 - OLA - Future Build (2041)

Modelling Scenario: Future Build (2041)
Receptor Location: Outdoor Living Area
Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 6
Road Segment Description: Yonge St to Bayview Ave

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	-81 to -48	100	143	143	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB2	-53 to -12	100	123	123	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB3	-19 to 40	100	117	117	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB4	36 to 64	100	128	128	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB5	56 to 70	100	171	171	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407WB1	-81 to -48	100	187	187	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB2	-53 to -12	100	166	166	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB3	-19 to 40	100	158	158	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB4	36 to 64	100	168	168	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB5	56 to 70	100	211	211	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
Transitway														
TW1	-66 to -58	100	126	126	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW2	-42 to -26	100	174	174	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW3	-22 to 8	100	180	180	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW4	8 to 48	100	180	180	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW5	44 to 90	100	195	195	1.2	1.2	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
Highway 407ETR			
407EB1	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407EB2	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407EB3	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 107 m
407EB4	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 115 m
407EB5	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 155 m
407WB1	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407WB2	No obstructions between source and receiver	1 - Flat/gentle slope, no barrier	N/A
407WB3	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 107 m
407WB4	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 115 m
407WB5	Earthen berm between source and receiver - approx. 3 m	4 - Elevated with barrier	Receiver/Barrier Dist = 155 m
Transitway			
TW1	Transitway is 2 m below grade with a 5% slope	4 - Elevated with barrier	Receiver/Barrier Dist = 118 m
TW2	Transitway is 2 m below grade with a 5% slope	4 - Elevated with barrier	Receiver/Barrier Dist = 167 m
TW3	Transitway is at grade on a 5% slope	1 - Flat/gentle slope, no barrier	N/A
TW4	Transitway is at grade on a 0.3% slope	1 - Flat/gentle slope, no barrier	N/A
TW5	Transitway is at grade on a 1% slope	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R5OLAFB	66	58	N/A	66	58	64
R5OLATW	49	46	-3	49	43	48
Total	-	-	N/A	66	58	64

Modelling Parameters and Results Summary: Receptor R6 - OLA - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Apartment Building

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	6 to 65	100	347	347	1.2	1.2	49,773	46,307	1,155	2,311	3,064	2,638	142	284
407EB2	-90 to 6	100	347	347	1.2	1.2	50,646	46,821	1,275	2,550	3,125	2,628	166	331
407WB1	6 to 65	100	305	305	1.2	1.2	46,850	43,288	1,187	2,375	3,166	2,881	95	190
407WB2	-90 to 6	100	305	305	1.2	1.2	48,156	44,222	1,311	2,623	3,234	2,904	110	220
Highway 7														
H7EB	-90 to 90	80	98	98	1.2	1.2	24,051	22728	541	782	2,672	2525	60	87
H7WB	-90 to 90	80	84	84	1.2	1.2	24,051	22728	541	782	2,672	2525	60	87

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
<i>Highway 7</i>			
H7EB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R6407Ex	58.4	50.8	57.0
R6H7Ex	61.8	55.3	60.5
Total	63.5	56.6	62.1

Modelling Parameters and Results Summary: Receptor R6 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Apartment Building

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	6 to 65	100	347	347	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB2	-90 to 6	100	347	347	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407WB1	6 to 65	100	305	305	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB2	-90 to 6	100	305	305	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
Highway 7														
H7EB	-90 to 90	80	98	98	1.2	1.2	29,855	28213	672	970	3,317	3135	75	108
H7WB	-90 to 90	80	84	84	1.2	1.2	29,855	28213	672	970	3,317	3135	75	108

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
<i>Highway 7</i>			
H7EB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R6407FNB	61.5	53.8	60.0
R6H7F	62.8	56.3	61.5
Total	65.2	58.2	63.8

Modelling Parameters and Results Summary: Receptor R6 - OLA - Future Build (2041)

Modelling Scenario: Future Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Apartment Building

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	6 to 65	100	347	347	1.2	1.2	89,391	83,167	2,075	4,150	5,503	4,738	255	510
407EB2	-90 to 6	100	347	347	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407WB1	6 to 65	100	305	305	1.2	1.2	102,318	94,539	2,593	5,186	6,914	6,292	207	415
407WB2	-90 to 6	100	305	305	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
Highway 7														
H7EB	-90 to 90	80	98	98	1.2	1.2	29,855	28213	672	970	3,317	3135	75	108
H7WB	-90 to 90	80	84	84	1.2	1.2	29,855	28213	672	970	3,317	3135	75	108
Transitway														
TW1	50 to 90	100	122	122	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW2	10 to 48	100	128	128	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW3	-38 to 8	100	129	129	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW4	-63 to -47	100	112	112	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW5	-78 to -74	100	70	70	1.2	1.2	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
<i>Highway 7</i>			
H7EB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
H7WB	Receptors visible from Highway 7	1 - Flat/gentle slope, no barrier	N/A
<i>Transitway</i>			
TW1	Transitway is on 3% grade, avg. 2 m below grade	4 - Elevated with barrier	Rec./Barrier Distance = 114 m
TW2	Transitway is on 3% grade, avg. 6 m below grade	4 - Elevated with barrier	Rec./Barrier Distance = 122 m
TW3	Transitway is on 1% grade, avg. 7 m below grade	4 - Elevated with barrier	Rec./Barrier Distance = 122 m
TW4	Transitway is on 1% grade, avg. 5 m below grade	4 - Elevated with barrier	Rec./Barrier Distance = 106 m
TW5	Transitway is at grade	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R6407FB	61.5	53.8	N/A	61.5	53.8	60.0
R6H7F	62.8	56.3	N/A	62.8	56.3	61.5
R6OLATW	43.3	40.7	-3	43.3	38.0	42.2
Total	-	-	N/A	65.2	58.3	63.9

Modelling Parameters and Results Summary: Receptor R7 - OLA - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Potential Future Residential Area (under development)

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-65 to 73	100	168	168	1.2	1.2	50,646	46,821	1,275	2,550	3,125	2,628	166	331
407EB2	-90 to -61	100	190	190	1.2	1.2	50,646	46,821	1,275	2,550	3,125	2,628	166	331
407WB1	-65 to 73	100	126	126	1.2	1.2	48,156	44,222	1,311	2,623	3,234	2,904	110	220
407WB2	-90 to -61	100	149	149	1.2	1.2	48,156	44,222	1,311	2,623	3,234	2,904	110	220

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 115 m
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 137 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 115 m
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 137 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R7OLAEEx	61	54	60

Modelling Parameters and Results Summary: Receptor R7 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Potential Future Residential Area (under development)

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-65 to 73	100	168	168	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB2	-90 to -61	100	190	190	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407WB1	-65 to 73	100	126	126	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB2	-90 to -61	100	149	149	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 115 m
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 137 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 115 m
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 137 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R7OLAFNB	64	57	63

Modelling Parameters and Results Summary: Receptor R7 - OLA - Future Build (2041)

Modelling Scenario: Future Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Potential Future Residential Area (under development)

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	-65 to 73	100	168	168	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB2	-90 to -61	100	190	190	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407WB1	-65 to 73	100	126	126	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB2	-90 to -61	100	149	149	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
Transitway														
TW1	82 to 85	100	24	24	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW2	47 to 72	100	53	53	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW3	-66 to 41	100	58	58	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW4	-77 to -65	100	60	60	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW5	-90 to -64	100	124	124	1.2	1.2	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 115 m
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 137 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 115 m
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver/Barrier Distance = 137 m
<i>Transitway</i>			
TW1	Transitway is at grade	1 - Flat/gentle slope, no barrier	N/A
TW2	Transitway is changing grade by 3.5%	1 - Flat/gentle slope, no barrier	Modelled with grade of 3.5%
TW3	Transitway is approximately 3 m above grade, with 3.5% slope	4 - Elevated with barrier	Receiver/Barrier Distance = 52 m
TW4	Transitway is approximately 9 m above grade	4 - Elevated with barrier	Receiver/Barrier Distance = 55 m
TW5	Transitway is approximately 3.5 m above grade, with 0.5% slope	4 - Elevated with barrier	Receiver/Barrier Distance = 119 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R7OLAFB	64	57	N/A	64	57	63
R7OLATW	59	56	-3	59	53	58
Total	-	-	N/A	65	58	64

Modelling Parameters and Results Summary: Receptor R8 - OLA - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-90 to -24	100	408	408	1.2	1.2	50,646	46,821	1,275	2,550	3,125	2,628	166	331
407EB2	-17 to 35	100	433	433	1.2	1.2	50,646	46,821	1,275	2,550	3,125	2,628	166	331
407EB3	41 to 64	100	403	403	1.2	1.2	44,695	41,102	1,198	2,395	2,821	2,362	153	306
407WB1	-90 to -24	100	454	454	1.2	1.2	48,156	44,222	1,311	2,623	3,234	2,904	110	220
407WB2	-17 to 35	100	475	475	1.2	1.2	48,156	44,222	1,311	2,623	3,234	2,904	110	220
407WB3	41 to 64	100	436	436	1.2	1.2	42,987	39,264	1,241	2,482	3,057	2,741	105	211

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB3	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 394 m
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB3	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 394 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R8OLAEEx	56	49	54

Modelling Parameters and Results Summary: Receptor R8 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-90 to -24	100	408	408	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB2	-17 to 35	100	433	433	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB3	41 to 64	100	403	403	1.2	1.2	77,175	70,971	2,068	4,136	4,871	4,078	264	528
407WB1	-90 to -24	100	454	454	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB2	-17 to 35	100	475	475	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB3	41 to 64	100	436	436	1.2	1.2	103,023	94,101	2,974	5,948	7,326	6,569	252	505

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB3	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 394 m
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB3	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 394 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R8OLAFNB	59	51	57

Modelling Parameters and Results Summary: Receptor R8 - OLA/Facade - Future Build (2041)

Modelling Scenario: Future Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two-storey Residential Dwelling

Road Segment ID: 7
 Road Segment Description: Bayview Ave to Leslie St

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	-90 to -24	100	408	408	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB2	-17 to 35	100	433	433	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB3	41 to 64	100	403	403	1.2	1.2	77,175	70,971	2,068	4,136	4,871	4,078	264	528
407WB1	-90 to -24	100	454	454	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB2	-17 to 35	100	475	475	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB3	41 to 64	100	436	436	1.2	1.2	103,023	94,101	2,974	5,948	7,326	6,569	252	505
Transitway														
TW1	-90 to -39	100	240	240	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW2	-33 to -19	100	259	259	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW3	-11 to 6	100	269	269	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW4	16 to 39	100	259	259	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW5	41 to 66	100	251	251	1.2	1.2	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB3	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 394 m
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB3	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 394 m
<i>Transitway</i>			
TW1	Transitway is at grade, on a 3% slope	1 - Flat/gentle slope, no barrier	Modelled with grade of 3%
TW2	Transitway is 2 m above grade, on a 1% slope	4 - Elevated with barrier	Receiver Barrier Distance = 253 m
TW3	Transitway is 2 m above grade, on a 1% slope	4 - Elevated with barrier	Receiver Barrier Distance = 263 m
TW4	Transitway is 2 m above grade, on a 4.3% slope	4 - Elevated with barrier	Receiver Barrier Distance = 248 m
TW5	Transitway is 2 m below grade	4 - Elevated with barrier	Receiver Barrier Distance = 240 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R8OLAFB	59	51	N/A	59	51	57
R8OLATW	46	43	-3	46	41	45
Total	-	-	N/A	59	51	57

Modelling Parameters and Results Summary: Receptor R9 - OLA - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Potential Future Residential Area (under development)

Road Segment ID: 11
 Road Segment Description: Warden Ave to Kennedy Rd

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	79 to 90	100	155	155	1.2	1.2	36,955	34,666	763	1,526	2,048	1,801	82	165
407EB2	-90 to 79	100	155	155	1.2	1.2	33,459	31,450	670	1,339	1,754	1,536	73	145
407WB1	79 to 90	100	115	115	1.2	1.2	33,361	31,195	722	1,444	2,830	2,657	58	115
407WB2	-90 to 79	100	115	115	1.2	1.2	29,729	27,865	621	1,243	2,783	2,622	54	107

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R9OLAEEx	63	55	61

Modelling Parameters and Results Summary: Receptor R9 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Potential Future Residential Area (under development)

Road Segment ID: 11
 Road Segment Description: Warden Ave to Kennedy Rd

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	79 to 90	100	155	155	1.2	1.2	95,482	89,568	1,971	3,943	5,292	4,653	213	425
407EB2	-90 to 79	100	155	155	1.2	1.2	103,131	96,939	2,064	4,128	5,406	4,734	224	448
407WB1	79 to 90	100	115	115	1.2	1.2	78,543	73,443	1,700	3,400	6,663	6,255	136	272
407WB2	-90 to 79	100	115	115	1.2	1.2	74,402	69,737	1,555	3,110	6,965	6,562	134	269

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R9OLAFNB	67	59	66

Modelling Parameters and Results Summary: Receptor R9 - OLA - Future Build (2041)

Modelling Scenario: Future Build (2041)
Receptor Location: Outdoor Living Area
Receptor Description: Potential Future Residential Area (under development)

Road Segment ID: 11
Road Segment Description: Warden Ave to Kennedy Rd

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	79 to 90	100	155	155	1.2	1.2	95,482	89,568	1,971	3,943	5,292	4,653	213	425
407EB2	-90 to 79	100	155	155	1.2	1.2	103,131	96,939	2,064	4,128	5,406	4,734	224	448
407WB1	79 to 90	100	115	115	1.2	1.2	78,543	73,443	1,700	3,400	6,663	6,255	136	272
407WB2	-90 to 79	100	115	115	1.2	1.2	74,402	69,737	1,555	3,110	6,965	6,562	134	269
Transitway														
TW1	66 to 71	100	264	264	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW2	73 to 77	100	150	150	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW3	68 to 75	100	135	135	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW4	71 to 78	100	77	77	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW5	45 to 76	100	55	55	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW6	-41 to 26	100	69	69	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW7	-82 to -58	100	48	48	1.2	1.2	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
Highway 407ETR			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
Transitway			
TW1	Transitway is 3 m below grade, on a 3% slope	4 - Elevated with barrier	Source Barrier Distance = 259 m
TW2	Transitway is at grade	1 - Flat/gentle slope, no barrier	N/A
TW3	Transitway is 2.5 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 130 m
TW4	Transitway is 4.5 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 71 m
TW5	Transitway is 8 m above grade	4 - Elevated with barrier	Receiver-Barrier Distance = 49 m
TW6	Transitway is 12 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 63 m
TW7	Transitway is 5 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 43 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R9OLAFB	67	59	N/A	67	59	66
R9OLATW	57	54	-3	57	51	55
Total	-	-	N/A	67	60	66

Modelling Parameters and Results Summary: Receptor R10 - OLA - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two Storey Residential Dwelling

Road Segment ID: 11
 Road Segment Description: Warden Ave to Kennedy Rd

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-90 to 90	100	108	108	1.2	1.2	33,459	31,450	670	1,339	1,754	1,536	73	145
407WB1	-90 to 90	100	73	73	1.2	1.2	29,729	27,865	621	1,243	2,783	2,622	54	107

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 45 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 45 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R9OLAEEx	65	57	63.2

Modelling Parameters and Results Summary: Receptor R10 - OLA - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Outdoor Living Area
 Receptor Description: Two Storey Residential Dwelling

Road Segment ID: 11
 Road Segment Description: Warden Ave to Kennedy Rd

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-90 to 90	100	108	108	1.2	1.2	103,131	96,939	2,064	4,128	5,406	4,734	224	448
407WB1	-90 to 90	100	73	73	1.2	1.2	74,402	69,737	1,555	3,110	6,965	6,562	134	269

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 45 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 45 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
R10OLAFNB	69	61	67.7

Modelling Parameters and Results Summary: Receptor R10 - OLA - Future Build (2041)

Modelling Scenario: Future Build (2041)
Receptor Location: Outdoor Living Area
Receptor Description: Two Storey Residential Dwelling

Road Segment ID: 11
Road Segment Description: Warden Ave to Kennedy Rd

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	-90 to 90	100	155	155	1.2	1.2	103,131	96,939	2,064	4,128	5,406	4,734	224	448
407WB1	-90 to 90	100	115	115	1.2	1.2	74,402	69,737	1,555	3,110	6,965	6,562	134	269
Transitway														
TW1	81 to 85	100	26	26	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW2	45 to 72	100	58	58	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW3	1 to 34	100	66	66	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW4	-68 to +1	100	66	66	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW5	-66 to -49	100	118	118	1.2	1.2	1,189	-	1,189	-	174	-	174	-
TW6	-60 to -49	100	185	185	1.2	1.2	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
Highway 407ETR			
407EB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 45 m
407WB1	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 45 m
Transitway			
TW1	Transitway is 2 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 20 m
TW2	Transitway is 9 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 52 m
TW3	Transitway is 10 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 60 m
TW4	Transitway is 9 m above grade	4 - Elevated with barrier	Receiver-Barrier Distance = 60 m
TW5	Transitway is 8 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 112 m
TW6	Transitway is 2 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver-Barrier Distance = 179 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
R9OLAFB	69	61	N/A	69	61	68
R9OLATW	57	54	-3	57	52	56
Total	-	-	N/A	69	62	68.0

Modelling Parameters and Results Summary: Receptor SR1 - Existing Conditions

Modelling Scenario: Existing Conditions (2008)
 Receptor Location: Façade of Building
 Receptor Description: St. Roberts Catholic School

Road Segment ID: 8
 Road Segment Description: Leslie St to Highway 404

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-90 to -35	100	163	163	1.2	1.2	50,646	46,821	1,275	2,550	3,125	2,628	166	331
407EB2	-30 to 84	100	163	163	1.2	1.2	44,695	41,102	1,198	2,395	2,821	2,362	153	306
407WB1	-90 to -35	100	204	204	1.2	1.2	48,156	44,222	1,311	2,623	3,234	2,904	110	220
407WB2	-30 to 84	100	204	204	1.2	1.2	42,987	39,264	1,241	2,482	3,057	2,741	105	211

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 132 m
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 132 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
SR1Ex	61	54	60

Modelling Parameters and Results Summary: Receptor SR1 - Future No-Build (2041)

Modelling Scenario: Future No-Build (2041)
 Receptor Location: Façade of Building
 Receptor Description: St. Roberts Catholic School

Road Segment ID: 8
 Road Segment Description: Leslie St to Highway 404

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
407EB1	-90 to -35	100	163	163	1.2	1.2	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB2	-30 to 84	100	163	163	1.2	1.2	77,175	70,971	2,068	4,136	4,871	4,078	264	528
407WB1	-90 to -35	100	204	204	1.2	1.2	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB2	-30 to 84	100	204	204	1.2	1.2	103,023	94,101	2,974	5,948	7,326	6,569	252	505

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 132 m
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 132 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	24-hr (dBA)
SR7FNB	64	57	63

Modelling Parameters and Results Summary: Receptor SR1 - Future Build (2041)

Modelling Scenario: Future Build (2041)
 Receptor Location: Façade of Building
 Receptor Description: St. Roberts Catholic School

Road Segment ID: 8
 Road Segment Description: Leslie St to Highway 404

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour ¹			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Highway 407ETR														
407EB1	-90 to -35	100	163	163	1.5	4.5	83,142	76,863	2,093	4,186	5,130	4,314	272	544
407EB2	-30 to 84	100	163	163	1.5	4.5	77,175	70,971	2,068	4,136	4,871	4,078	264	528
407WB1	-90 to -35	100	204	204	1.5	4.5	112,351	103,172	3,059	6,119	7,545	6,775	257	513
407WB2	-30 to 84	100	204	204	1.5	4.5	103,023	94,101	2,974	5,948	7,326	6,569	252	505
Transitway														
TW1	-90 to -82	100	40	40	1.5	4.5	1,189	-	1,189	-	174	-	174	-
TW2	-82 to -23	100	40	40	1.5	4.5	1,189	-	1,189	-	174	-	174	-
TW3	-23 to 76	100	40	40	1.5	4.5	1,189	-	1,189	-	174	-	174	-
TW4	76 to 83	100	40	40	1.5	4.5	1,189	-	1,189	-	174	-	174	-
TW5	73 to 77	100	41	41	1.5	4.5	1,189	-	1,189	-	174	-	174	-

1 - STAMSON cannot model a traffic volume that is less than 40 vehicles per hour. The night (8-hour) bus volume of 174 is less than 40 vph, therefore it was modelled at the minimum of 320 vehicles in an 8-hour period and adjusted

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Highway 407ETR</i>			
407EB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407EB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 132 m
407WB1	Receptors slightly elevated but still visible from Highway 407	1 - Flat/gentle slope, no barrier	N/A
407WB2	Earthen berm in direction of receptor - approximately 3 m in height	4 - Elevated with barrier	Receiver Barrier Distance = 132 m
<i>Transitway</i>			
TW1	Transitway is 2 m above grade, on a 4.25% slope	4 - Elevated with barrier	Receiver Barrier Distance = 34 m
TW2	Transitway is 2 m below grade	4 - Elevated with barrier	Receiver Barrier Distance = 34 m
TW3	Transitway is 4 m above grade, on a 4% slope	4 - Elevated with barrier	Receiver Barrier Distance = 34 m
TW4	Transitway is at grade, on a 2.5% slope	1 - Flat/gentle slope, no barrier	N/A
TW5	Transitway is 2 m below grade	4 - Elevated with barrier	Receiver Barrier Distance = 34 m

STAMSON Modelling Results

24-Hour (1.2 m Receptor at OLA)

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)	Adjustment (dB) for Low 8-hr Traffic Volume	FINAL Day 16-hr Leq (dBA)	FINAL Night 8-hr Leq (dBA)	FINAL Night 24-hr Leq (dBA)
SR7FB	64	57	N/A	64	57	63
SR7TW	60	58	-3	60	55	59
Total	-	-	N/A	66	59	64

Modelling Parameters and Results Summary: Nearest House to Leslie Station

Modelling Scenario: Future Build (2041)
 Receptor Location: Façade of Building
 Receptor Description: House

Road Segment ID: 8
 Road Segment Description: Leslie St to Highway 404

STAMSON Modelling Parameters

Source ID	Exposure	Speed Limit (km/hr)	S-R Distance (m)		Receptor Height (m)		16 Hour				8 Hour			
			16-hr	8-hr	16-hr	8-hr	Total	Cars	Medium Trucks	Heavy Trucks	Total	Cars	Medium Trucks	Heavy Trucks
Parking Lot Entrance (Leslie Station)														
PL1	47 to 58	40	94	94	1.5	4.5	2,430	2,430	-	-	400	400	-	-
PL2	-55 to -44	40	92	92	1.5	4.5	2,430	2,430	-	-	400	400	-	-

Topographical Features:

Source ID	Topographical Features	STAMSON Topography Preset	Additional Info
<i>Parking Lot Entrance (Leslie Station)</i>			
PL1	Assumed no obstructions	1 - Flat/gentle slope, no barrier	N/A
PL2	Assumed no obstructions	1 - Flat/gentle slope, no barrier	N/A

STAMSON Modelling Results

Run ID	Day 16-hr Leq (dBA)	Night 8-hr Leq (dBA)
LSPL	27.6	23.4

APPENDIX D

STAMSON MODEL OUTPUT FILES

Existing Conditions Runs

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 08:46:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 48872/2929 veh/TimePeriod
Medium truck volume : 1192/149 veh/TimePeriod
Heavy truck volume : 2385/299 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 1.00 deg 55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 236.00 / 236.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 1.00 deg Angle2 : 55.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 181.00 / 181.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 48872/2929 veh/TimePeriod
Medium truck volume : 1192/149 veh/TimePeriod
Heavy truck volume : 2385/299 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -55.00 deg 11.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 232.00 / 232.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 177.00 / 177.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 46379/3195 veh/TimePeriod
Medium truck volume : 1240/102 veh/TimePeriod
Heavy truck volume : 2481/205 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 1.00 deg 55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 194.00 / 194.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 1.00 deg Angle2 : 55.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 181.00 / 181.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

Page 3

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 46379/3195 veh/TimePeriod
Medium truck volume : 1240/102 veh/TimePeriod
Heavy truck volume : 2481/205 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -55.00 deg 11.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 192.00 / 192.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 177.00 / 177.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.46 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.46 ! 1.20 ! 2.80 ! 2.80

ROAD (0.00 + 51.64 + 0.00) = 51.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	79.33	0.00	-13.53	-5.33	0.00	0.00	-8.84	51.64

Segment Leq : 51.64 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.46 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.46	1.20	2.82	2.82

ROAD (0.00 + 52.55 + 0.00) = 52.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	79.33	0.00	-13.44	-4.44	0.00	0.00	-8.90	52.55

Segment Leq : 52.55 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.49 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.49	1.20	1.87	1.87

ROAD (0.00 + 46.29 + 0.00) = 46.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	79.34	0.00	-12.55	-5.33	0.00	0.00	-15.17	46.29

Segment Leq : 46.29 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.49 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.49 !	1.20 !	1.94 !	1.94

ROAD (0.00 + 47.76 + 0.00) = 47.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	79.34	0.00	-12.50	-4.44	0.00	0.00	-14.65	47.76

Segment Leq : 47.76 dBA

Total Leq All Segments: 56.31 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.72 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.72 !	1.20 !	3.00 !	3.00

ROAD (0.00 + 45.05 + 0.00) = 45.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.12	72.29	0.00	-13.43	-5.32	0.00	0.00	-8.49	45.05

Segment Leq : 45.05 dBA

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Results segment # 2: 407EB2 (night)

Source height = 1.72 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.72	1.20	3.02	3.02

ROAD (0.00 + 45.96 + 0.00) = 45.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.12	72.29	0.00	-13.35	-4.43	0.00	0.00	-8.54	45.96

Segment Leq : 45.96 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.56 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.56	1.20	1.93	1.93

ROAD (0.00 + 38.33 + 0.00) = 38.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	71.24	0.00	-12.53	-5.32	0.00	0.00	-15.05	38.33

Segment Leq : 38.33 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.56 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.56 !	1.20 !	2.00 !	2.00

ROAD (0.00 + 39.79 + 0.00) = 39.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	71.24	0.00	-12.48	-4.44	0.00	0.00	-14.53	39.79

Segment Leq : 39.79 dBA

Total Leq All Segments: 49.43 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.31
(NIGHT): 49.43

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 08:57:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2407ec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 47601/2761 veh/TimePeriod
Medium truck volume : 1213/164 veh/TimePeriod
Heavy truck volume : 2425/328 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 3.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 277.00 / 277.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 47601/2761 veh/TimePeriod
Medium truck volume : 1213/164 veh/TimePeriod
Heavy truck volume : 2425/328 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -87.00 deg -9.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 278.00 / 278.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 44559/3163 veh/TimePeriod
Medium truck volume : 1233/99 veh/TimePeriod
Heavy truck volume : 2467/198 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 3.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 234.00 / 234.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 44559/3163 veh/TimePeriod
Medium truck volume : 1233/99 veh/TimePeriod
Heavy truck volume : 2467/198 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -87.00 deg -9.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 238.00 / 238.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

ROAD (0.00 + 52.97 + 0.00) = 52.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
3	65	0.66	79.33	0.00	-21.02	-5.33	0.00	0.00	0.00	52.97

Segment Leq : 52.97 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.47 m

ROAD (0.00 + 53.14 + 0.00) = 53.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-87	-9	0.66	79.33	0.00	-21.05	-5.14	0.00	0.00	0.00	53.14
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Segment Leq : 53.14 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 54.12 + 0.00) = 54.12 dBA

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

3	65	0.66	79.26	0.00	-19.81	-5.33	0.00	0.00	0.00	54.12
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Segment Leq : 54.12 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.50 m

ROAD (0.00 + 54.19 + 0.00) = 54.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-87	-9	0.66	79.26	0.00	-19.93	-5.14	0.00	0.00	0.00	54.19
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Segment Leq : 54.19 dBA

Total Leq All Segments: 59.66 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.78 m

ROAD (0.00 + 46.18 + 0.00) = 46.18 dBA

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

3	65	0.66	72.54	0.00	-21.02	-5.33	0.00	0.00	0.00	46.18
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Segment Leq : 46.18 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.78 m

ROAD (0.00 + 46.35 + 0.00) = 46.35 dBA

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

-87	-9	0.66	72.54	0.00	-21.05	-5.14	0.00	0.00	0.00	46.35
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Segment Leq : 46.35 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.55 m

ROAD (0.00 + 45.99 + 0.00) = 45.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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3	65	0.66	71.12	0.00	-19.81	-5.33	0.00	0.00	0.00	45.99
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Segment Leq : 45.99 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.55 m

ROAD (0.00 + 46.06 + 0.00) = 46.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-87	-9	0.66	71.12	0.00	-19.93	-5.14	0.00	0.00	0.00	46.06
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Segment Leq : 46.06 dBA

Total Leq All Segments: 52.17 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.66

(NIGHT): 52.17

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-12-2010 09:25:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2h7ex.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: EB1 (day/night)

Car traffic volume : 16945/1883 veh/TimePeriod
Medium truck volume : 403/45 veh/TimePeriod
Heavy truck volume : 583/65 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: EB1 (day/night)

Angle1 Angle2 : 49.00 deg 81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 46.00 / 46.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: EB2 (day/night)

Car traffic volume : 16945/1883 veh/TimePeriod
Medium truck volume : 403/45 veh/TimePeriod
Heavy truck volume : 583/65 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: EB2 (day/night)

Angle1 Angle2 : -90.00 deg 38.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 57.00 / 57.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: WB1 (day/night)

Car traffic volume : 16945/1883 veh/TimePeriod
Medium truck volume : 403/45 veh/TimePeriod
Heavy truck volume : 583/65 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WB1 (day/night)

Angle1 Angle2 : 49.00 deg 81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 / 32.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WB2 (day/night)

Car traffic volume : 16945/1883 veh/TimePeriod
Medium truck volume : 403/45 veh/TimePeriod
Heavy truck volume : 583/65 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WB2 (day/night)

Angle1 Angle2 : -90.00 deg 38.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: EB1 (day)

Source height = 1.34 m

ROAD (0.00 + 53.79 + 0.00) = 53.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
49	81	0.66	71.94	0.00	-8.08	-10.07	0.00	0.00	0.00	53.79

Segment Leq : 53.79 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: EB2 (day)

Source height = 1.34 m

ROAD (0.00 + 59.78 + 0.00) = 59.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	38	0.66	71.94	0.00	-9.62	-2.53	0.00	0.00	0.00	59.78
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Segment Leq : 59.78 dBA

Results segment # 3: WB1 (day)

Source height = 1.34 m

ROAD (0.00 + 56.41 + 0.00) = 56.41 dBA

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

49	81	0.66	71.94	0.00	-5.46	-10.07	0.00	0.00	0.00	56.41
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Segment Leq : 56.41 dBA

Results segment # 4: WB2 (day)

Source height = 1.34 m

ROAD (0.00 + 61.99 + 0.00) = 61.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	38	0.66	71.94	0.00	-7.42	-2.53	0.00	0.00	0.00	61.99
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Segment Leq : 61.99 dBA

Total Leq All Segments: 65.06 dBA

Results segment # 1: EB1 (night)

Source height = 1.34 m

ROAD (0.00 + 47.27 + 0.00) = 47.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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49	81	0.66	65.42	0.00	-8.08	-10.07	0.00	0.00	0.00	47.27
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Segment Leq : 47.27 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: EB2 (night)

Source height = 1.34 m

ROAD (0.00 + 53.26 + 0.00) = 53.26 dBA

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

-90	38	0.66	65.42	0.00	-9.62	-2.53	0.00	0.00	0.00	53.26
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Segment Leq : 53.26 dBA

Results segment # 3: WB1 (night)

Source height = 1.34 m

ROAD (0.00 + 49.88 + 0.00) = 49.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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49	81	0.66	65.42	0.00	-5.46	-10.07	0.00	0.00	0.00	49.88
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Segment Leq : 49.88 dBA

Results segment # 4: WB2 (night)

Source height = 1.34 m

ROAD (0.00 + 55.46 + 0.00) = 55.46 dBA

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

-90	38	0.66	65.42	0.00	-7.42	-2.53	0.00	0.00	0.00	55.46
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Segment Leq : 55.46 dBA

Total Leq All Segments: 58.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.06

(NIGHT): 58.54

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 09:01:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3407ec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 47601/2761 veh/TimePeriod
Medium truck volume : 1213/164 veh/TimePeriod
Heavy truck volume : 2425/328 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 173.00 / 173.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 50.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 47601/2761 veh/TimePeriod
Medium truck volume : 1213/164 veh/TimePeriod
Heavy truck volume : 2425/328 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -80.00 deg 43.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 172.00 / 172.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 43.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 44559/3163 veh/TimePeriod
Medium truck volume : 1233/99 veh/TimePeriod
Heavy truck volume : 2467/198 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 129.00 / 129.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 50.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 44559/3163 veh/TimePeriod
Medium truck volume : 1233/99 veh/TimePeriod
Heavy truck volume : 2467/198 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -80.00 deg 43.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 128.00 / 128.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 43.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.47 ! 1.20 ! 2.42 ! 2.42

ROAD (0.00 + 57.10 + 0.00) = 57.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	79.33	0.00	-10.62	-6.53	0.00	0.00	-5.08	57.10

Segment Leq : 57.10 dBA

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Results segment # 2: 407EB2 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.47	1.20	2.41	2.41

ROAD (0.00 + 61.90 + 0.00) = 61.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	79.33	0.00	-10.59	-1.65	0.00	0.00	-5.18	61.90

Segment Leq : 61.90 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	1.84	1.84

ROAD (0.00 + 57.62 + 0.00) = 57.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	79.26	0.00	-9.34	-6.53	0.00	0.00	-5.76	57.62

Segment Leq : 57.62 dBA

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Results segment # 4: 407WB2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	1.82	1.82

ROAD (0.00 + 61.50 + 0.00) = 61.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	79.26	0.00	-9.31	-1.65	0.00	0.00	-6.80	61.50

Segment Leq : 61.50 dBA

Total Leq All Segments: 66.08 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.78 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.78	1.20	2.62	2.62

ROAD (0.00 + 50.35 + 0.00) = 50.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	72.54	0.00	-10.62	-6.53	0.00	0.00	-5.03	50.35

Segment Leq : 50.35 dBA

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Results segment # 2: 407EB2 (night)

Source height = 1.78 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.78	1.20	2.61	2.61

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
-80	43	0.00	72.54	0.00	-10.59	-1.65	0.00	0.00	-5.08	55.21

Segment Leq : 55.21 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.55	1.20	1.88	1.88

ROAD (0.00 + 49.53 + 0.00) = 49.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	71.12	0.00	-9.34	-6.53	0.00	0.00	-5.72	49.53

Segment Leq : 49.53 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.55 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.55	!	1.20	!
		1.86	!
			1.86

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
-80	43	0.00	71.12	0.00	-9.31	-1.65	0.00	0.00	-6.70	53.46

Segment Leq : 53.46 dBA

Total Leq All Segments: 58.76 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.08
(NIGHT): 58.76

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-12-2010 09:31:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3h7ex.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: H7EB (day/night)

Car traffic volume : 16945/1883 veh/TimePeriod
Medium truck volume : 403/45 veh/TimePeriod
Heavy truck volume : 583/65 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: H7EB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 59.00 / 59.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: H7WB (day/night)

Car traffic volume : 16945/1883 veh/TimePeriod
Medium truck volume : 403/45 veh/TimePeriod
Heavy truck volume : 583/65 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: H7WB (day/night)

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

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: H7EB (day)

Source height = 1.34 m

ROAD (0.00 + 60.61 + 0.00) = 60.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	90	0.66	71.94	0.00	-9.87	-1.46	0.00	0.00	0.00	60.61
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Segment Leq : 60.61 dBA

Results segment # 2: H7WB (day)

Source height = 1.34 m

ROAD (0.00 + 62.89 + 0.00) = 62.89 dBA

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

-90	90	0.66	71.94	0.00	-7.59	-1.46	0.00	0.00	0.00	62.89
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Segment Leq : 62.89 dBA

Total Leq All Segments: 64.91 dBA

Results segment # 1: H7EB (night)

Source height = 1.34 m

ROAD (0.00 + 54.09 + 0.00) = 54.09 dBA

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

-90	90	0.66	65.42	0.00	-9.87	-1.46	0.00	0.00	0.00	54.09
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Segment Leq : 54.09 dBA

Results segment # 2: H7WB (night)

Source height = 1.34 m

ROAD (0.00 + 56.37 + 0.00) = 56.37 dBA

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

-90	90	0.66	65.42	0.00	-7.59	-1.46	0.00	0.00	0.00	56.37
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Segment Leq : 56.37 dBA

Total Leq All Segments: 58.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.91
(NIGHT): 58.39

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 09:06:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5olaec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 46307/2638 veh/TimePeriod
Medium truck volume : 1155/142 veh/TimePeriod
Heavy truck volume : 2311/284 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -81.00 deg -48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 143.00 / 143.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 46307/2638 veh/TimePeriod
Medium truck volume : 1155/142 veh/TimePeriod
Heavy truck volume : 2311/284 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -53.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 123.00 / 123.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 3: 407EB3 (day/night)

Car traffic volume : 46307/2638 veh/TimePeriod
Medium truck volume : 1155/142 veh/TimePeriod
Heavy truck volume : 2311/284 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407EB3 (day/night)

Angle1 Angle2 : -19.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 117.00 / 117.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -19.00 deg Angle2 : 40.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 107.00 / 107.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: 407EB4 (day/night)

Car traffic volume : 46307/2638 veh/TimePeriod
Medium truck volume : 1155/142 veh/TimePeriod
Heavy truck volume : 2311/284 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407EB4 (day/night)

Angle1 Angle2 : 36.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 128.00 / 128.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 36.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 5: 407EB5 (day/night)

Car traffic volume : 46307/2638 veh/TimePeriod
Medium truck volume : 1155/142 veh/TimePeriod
Heavy truck volume : 2311/284 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: 407EB5 (day/night)

Angle1 Angle2 : 56.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 171.00 / 171.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 56.00 deg Angle2 : 70.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 155.00 / 155.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 6: 407WB1 (day/night)

Car traffic volume : 43288/2881 veh/TimePeriod
Medium truck volume : 1187/95 veh/TimePeriod
Heavy truck volume : 2375/190 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: 407WB1 (day/night)

Angle1 Angle2 : -81.00 deg -48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 187.00 / 187.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 7: 407WB2 (day/night)

Car traffic volume : 43288/2881 veh/TimePeriod
Medium truck volume : 1187/95 veh/TimePeriod
Heavy truck volume : 2375/190 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 7: 407WB2 (day/night)

Angle1 Angle2 : -53.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 166.00 / 166.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 8: 407WB3 (day/night)

Car traffic volume : 43288/2881 veh/TimePeriod
Medium truck volume : 1187/95 veh/TimePeriod
Heavy truck volume : 2375/190 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 8: 407WB3 (day/night)

Angle1 Angle2 : -19.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 158.00 / 158.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -19.00 deg Angle2 : 40.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 107.00 / 107.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 9: 407WB4 (day/night)

Car traffic volume : 43288/2881 veh/TimePeriod
Medium truck volume : 1187/95 veh/TimePeriod
Heavy truck volume : 2375/190 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 9: 407WB4 (day/night)

Angle1 Angle2 : 36.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 168.00 / 168.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 36.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 10: 407WB5 (day/night)

Car traffic volume : 43288/2881 veh/TimePeriod
Medium truck volume : 1187/95 veh/TimePeriod
Heavy truck volume : 2375/190 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 10: 407WB5 (day/night)

Angle1 Angle2 : 56.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 211.00 / 211.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 56.00 deg Angle2 : 70.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 155.00 / 155.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.47 m

ROAD (0.00 + 53.01 + 0.00) = 53.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	79.15	0.00	-16.26	-9.89	0.00	0.00	0.00	53.01

Segment Leq : 53.01 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.47 m

ROAD (0.00 + 57.00 + 0.00) = 57.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	79.15	0.00	-15.17	-6.98	0.00	0.00	0.00	57.00

Segment Leq : 57.00 dBA

Results segment # 3: 407EB3 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.47 !	1.20 !	1.70 !	1.70

ROAD (0.00 + 53.33 + 0.00) = 53.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.40	79.15	0.00	-12.49	-4.95	0.00	0.00	-8.38	53.33

Segment Leq : 53.33 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407EB4 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.47	1.20	1.75	1.75

ROAD (0.00 + 50.33 + 0.00) = 50.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.40	79.15	0.00	-13.04	-8.88	0.00	0.00	-6.91	50.33

Segment Leq : 50.33 dBA

Results segment # 5: 407EB5 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.47	1.50	1.75	1.75

ROAD (0.00 + 45.84 + 0.00) = 45.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.39	79.15	0.00	-14.70	-12.45	0.00	0.00	-6.16	45.84

Segment Leq : 45.84 dBA

Results segment # 6: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 51.03 + 0.00) = 51.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	79.11	0.00	-18.19	-9.89	0.00	0.00	0.00	51.03

Segment Leq : 51.03 dBA

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Results segment # 7: 407WB2 (day)

Source height = 1.50 m

ROAD (0.00 + 54.80 + 0.00) = 54.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	79.11	0.00	-17.33	-6.98	0.00	0.00	0.00	54.80

Segment Leq : 54.80 dBA

Results segment # 8: 407WB3 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	2.47	2.47

ROAD (0.00 + 54.75 + 0.00) = 54.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.39	79.11	0.00	-14.21	-4.95	0.00	0.00	-5.20	54.75

Segment Leq : 54.75 dBA

Results segment # 9: 407WB4 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	2.45	2.45

ROAD (0.00 + 50.53 + 0.00) = 50.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.39	79.11	0.00	-14.58	-8.86	0.00	0.00	-5.14	50.53

Segment Leq : 50.53 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 10: 407WB5 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	2.30	2.30

ROAD (0.00 + 45.57 + 0.00) = 45.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.39	79.11	0.00	-15.96	-12.44	0.00	0.00	-5.14	45.57

Segment Leq : 45.57 dBA

Total Leq All Segments: 62.88 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.74 m

ROAD (0.00 + 45.87 + 0.00) = 45.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	72.01	0.00	-16.26	-9.89	0.00	0.00	0.00	45.87

Segment Leq : 45.87 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.74 m

ROAD (0.00 + 49.86 + 0.00) = 49.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	72.01	0.00	-15.17	-6.98	0.00	0.00	0.00	49.86

Segment Leq : 49.86 dBA

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Results segment # 3: 407EB3 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
-----+-----+-----+-----			
1.74 !	1.20 !	1.95 !	1.95

ROAD (0.00 + 47.24 + 0.00) = 47.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-19	40	0.39	72.01	0.00	-12.41	-4.95	0.00	0.00	-7.41	47.24

Segment Leq : 47.24 dBA

Results segment # 4: 407EB4 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
-----+-----+-----+-----			
1.74 !	1.20 !	1.99 !	1.99

ROAD (0.00 + 43.89 + 0.00) = 43.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
36	64	0.39	72.01	0.00	-12.96	-8.87	0.00	0.00	-6.30	43.89

Segment Leq : 43.89 dBA

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Results segment # 5: 407EB5 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.74	4.50	2.28	2.28

ROAD (0.00 + 40.83 + 0.00) = 40.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.29	72.01	0.00	-13.66	-12.11	0.00	0.00	-5.41	40.83

Segment Leq : 40.83 dBA

Results segment # 6: 407WB1 (night)

Source height = 1.57 m

ROAD (0.00 + 44.13 + 0.00) = 44.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.57	70.87	0.00	-17.18	-9.55	0.00	0.00	0.00	44.13

Segment Leq : 44.13 dBA

Results segment # 7: 407WB2 (night)

Source height = 1.57 m

ROAD (0.00 + 47.59 + 0.00) = 47.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.57	70.87	0.00	-16.37	-6.91	0.00	0.00	0.00	47.59

Segment Leq : 47.59 dBA

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Results segment # 8: 407WB3 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.57	4.50	3.48	3.48

ROAD (0.00 + 50.78 + 0.00) = 50.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.30	70.87	0.00	-13.27	-4.93	0.00	0.00	-4.83	47.84*
-19	40	0.48	70.87	0.00	-15.11	-4.97	0.00	0.00	0.00	50.78

* Bright Zone !

Segment Leq : 50.78 dBA

Results segment # 9: 407WB4 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.57	4.50	3.44	3.44

ROAD (0.00 + 46.32 + 0.00) = 46.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.30	70.87	0.00	-13.62	-8.68	0.00	0.00	-4.91	43.66*
36	64	0.48	70.87	0.00	-15.51	-9.04	0.00	0.00	0.00	46.32

* Bright Zone !

Segment Leq : 46.32 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 10: 407WB5 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.57	4.50	3.14	3.14

ROAD (0.00 + 41.15 + 0.00) = 41.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.30	70.87	0.00	-14.90	-12.13	0.00	0.00	-4.99	38.84*
56	70	0.48	70.87	0.00	-16.97	-12.75	0.00	0.00	0.00	41.15

* Bright Zone !

Segment Leq : 41.15 dBA

Total Leq All Segments: 56.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.88
(NIGHT): 56.85

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 09:10:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6407ec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 46307/2638 veh/TimePeriod
Medium truck volume : 1155/142 veh/TimePeriod
Heavy truck volume : 2311/284 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 6.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 347.00 / 347.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 46821/2628 veh/TimePeriod
Medium truck volume : 1275/166 veh/TimePeriod
Heavy truck volume : 2550/331 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg 6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 347.00 / 347.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 43288/2881 veh/TimePeriod
Medium truck volume : 1187/95 veh/TimePeriod
Heavy truck volume : 2375/190 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 6.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 305.00 / 305.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 44222/2904 veh/TimePeriod
Medium truck volume : 1311/110 veh/TimePeriod
Heavy truck volume : 2623/220 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg 6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 305.00 / 305.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

ROAD (0.00 + 50.92 + 0.00) = 50.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
6	65	0.66	79.15	0.00	-22.65	-5.59	0.00	0.00	0.00	50.92

Segment Leq : 50.92 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.50 m

ROAD (0.00 + 52.71 + 0.00) = 52.71 dBA

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

-90	6	0.66	79.43	0.00	-22.65	-4.08	0.00	0.00	0.00	52.71
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Segment Leq : 52.71 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 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
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

6	65	0.66	79.11	0.00	-21.72	-5.59	0.00	0.00	0.00	51.81
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Segment Leq : 51.81 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.53 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
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-90	6	0.66	79.42	0.00	-21.72	-4.08	0.00	0.00	0.00	53.62
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Segment Leq : 53.62 dBA

Total Leq All Segments: 58.40 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.74 m

ROAD (0.00 + 43.78 + 0.00) = 43.78 dBA

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

6	65	0.66	72.01	0.00	-22.65	-5.59	0.00	0.00	0.00	43.78
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Segment Leq : 43.78 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.80 m

ROAD (0.00 + 45.80 + 0.00) = 45.80 dBA

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

-90	6	0.66	72.52	0.00	-22.64	-4.08	0.00	0.00	0.00	45.80
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Segment Leq : 45.80 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.57 m

ROAD (0.00 + 43.57 + 0.00) = 43.57 dBA

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

6	65	0.66	70.87	0.00	-21.72	-5.59	0.00	0.00	0.00	43.57
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Segment Leq : 43.57 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.61 m

ROAD (0.00 + 45.52 + 0.00) = 45.52 dBA

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

-90	6	0.66	71.31	0.00	-21.72	-4.08	0.00	0.00	0.00	45.52
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Segment Leq : 45.52 dBA

Total Leq All Segments: 50.80 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.40

(NIGHT): 50.80

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-12-2010 08:56:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6h7ex.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: H7EB (day/night)

Car traffic volume : 22728/2525 veh/TimePeriod
Medium truck volume : 541/60 veh/TimePeriod
Heavy truck volume : 782/87 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: H7EB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 98.00 / 98.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: H7WB (day/night)

Car traffic volume : 22728/2525 veh/TimePeriod
Medium truck volume : 541/60 veh/TimePeriod
Heavy truck volume : 782/87 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: H7WB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 84.00 / 84.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: H7EB (day)

Source height = 1.34 m

ROAD (0.00 + 58.23 + 0.00) = 58.23 dBA

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

-90	90	0.66	73.21	0.00	-13.53	-1.46	0.00	0.00	0.00	58.23
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Segment Leq : 58.23 dBA

Results segment # 2: H7WB (day)

Source height = 1.34 m

ROAD (0.00 + 59.34 + 0.00) = 59.34 dBA

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

-90	90	0.66	73.21	0.00	-12.42	-1.46	0.00	0.00	0.00	59.34
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Segment Leq : 59.34 dBA

Total Leq All Segments: 61.83 dBA

Results segment # 1: H7EB (night)

Source height = 1.34 m

ROAD (0.00 + 51.70 + 0.00) = 51.70 dBA

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

-90	90	0.66	66.68	0.00	-13.53	-1.46	0.00	0.00	0.00	51.70
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Segment Leq : 51.70 dBA

Results segment # 2: H7WB (night)

Source height = 1.34 m

ROAD (0.00 + 52.81 + 0.00) = 52.81 dBA

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

-90	90	0.66	66.68	0.00	-12.42	-1.46	0.00	0.00	0.00	52.81
-----	----	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 52.81 dBA

Total Leq All Segments: 55.30 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.83
(NIGHT): 55.30

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 09:13:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7olaec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 46821/2628 veh/TimePeriod
Medium truck volume : 1275/166 veh/TimePeriod
Heavy truck volume : 2550/331 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -65.00 deg 73.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 168.00 / 168.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -65.00 deg Angle2 : 73.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 46821/2628 veh/TimePeriod
Medium truck volume : 1275/166 veh/TimePeriod
Heavy truck volume : 2550/331 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg -61.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 190.00 / 190.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 137.00 / 137.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 44222/2904 veh/TimePeriod
Medium truck volume : 1311/110 veh/TimePeriod
Heavy truck volume : 2623/220 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : -65.00 deg 73.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 126.00 / 126.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -65.00 deg Angle2 : 73.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 44222/2904 veh/TimePeriod
Medium truck volume : 1311/110 veh/TimePeriod
Heavy truck volume : 2623/220 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg -61.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 149.00 / 149.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 137.00 / 137.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.20 ! 2.35 ! 2.35

ROAD (0.00 + 57.88 + 0.00) = 57.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	79.43	0.00	-14.68	-1.64	0.00	0.00	-5.23	57.88

Segment Leq : 57.88 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.50 !	1.20 !	2.25 !	2.25

ROAD (0.00 + 48.31 + 0.00) = 48.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	79.43	0.00	-15.43	-10.60	0.00	0.00	-5.09	48.31

Segment Leq : 48.31 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.53 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.53 !	1.20 !	1.76 !	1.76

ROAD (0.00 + 57.40 + 0.00) = 57.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	79.42	0.00	-12.92	-1.64	0.00	0.00	-7.45	57.40

Segment Leq : 57.40 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.53 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.53	1.20	1.74	1.74

ROAD (0.00 + 49.06 + 0.00) = 49.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	79.42	0.00	-13.94	-10.59	0.00	0.00	-5.83	49.06

Segment Leq : 49.06 dBA

Total Leq All Segments: 61.18 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.80 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.80	1.20	2.56	2.56

ROAD (0.00 + 51.20 + 0.00) = 51.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.39	72.52	0.00	-14.58	-1.63	0.00	0.00	-5.11	51.20

Segment Leq : 51.20 dBA

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Results segment # 2: 407EB2 (night)

Source height = 1.80 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.80 !	1.20 !	2.47 !	2.47

ROAD (0.00 + 41.61 + 0.00) = 41.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.39	72.52	0.00	-15.33	-10.54	0.00	0.00	-5.05	41.61

Segment Leq : 41.61 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.61 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.61 !	1.20 !	1.84 !	1.84

ROAD (0.00 + 49.57 + 0.00) = 49.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	71.31	0.00	-12.90	-1.64	0.00	0.00	-7.20	49.57

Segment Leq : 49.57 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.61 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.61	1.20	1.82	1.82

ROAD (0.00 + 41.08 + 0.00) = 41.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	71.31	0.00	-13.91	-10.58	0.00	0.00	-5.74	41.08

Segment Leq : 41.08 dBA

Total Leq All Segments: 53.97 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.18
(NIGHT): 53.97

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 09:16:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r80laec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 46821/2628 veh/TimePeriod
Medium truck volume : 1275/166 veh/TimePeriod
Heavy truck volume : 2550/331 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -90.00 deg -24.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 408.00 / 408.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 46821/2628 veh/TimePeriod
Medium truck volume : 1275/166 veh/TimePeriod
Heavy truck volume : 2550/331 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -17.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 433.00 / 433.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 3: 407EB3 (day/night)

Car traffic volume : 41102/2362 veh/TimePeriod
Medium truck volume : 1198/153 veh/TimePeriod
Heavy truck volume : 2395/306 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407EB3 (day/night)

Angle1 Angle2 : 41.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 403.00 / 403.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 41.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 394.00 / 394.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: 407WB1 (day/night)

Car traffic volume : 44222/2904 veh/TimePeriod
Medium truck volume : 1311/110 veh/TimePeriod
Heavy truck volume : 2623/220 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB1 (day/night)

Angle1 Angle2 : -90.00 deg -24.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 454.00 / 454.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 5: 407WB2 (day/night)

Car traffic volume : 44222/2904 veh/TimePeriod
Medium truck volume : 1311/110 veh/TimePeriod
Heavy truck volume : 2623/220 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: 407WB2 (day/night)

Angle1 Angle2 : -17.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 475.00 / 475.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: 407WB3 (day/night)

Car traffic volume : 39264/2741 veh/TimePeriod
Medium truck volume : 1241/105 veh/TimePeriod
Heavy truck volume : 2482/211 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: 407WB3 (day/night)

Angle1 Angle2 : 41.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 436.00 / 436.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 41.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 394.00 / 394.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.50 m

ROAD (0.00 + 49.17 + 0.00) = 49.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.66	79.43	0.00	-23.81	-6.44	0.00	0.00	0.00	49.17

Segment Leq : 49.17 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.50 m

ROAD (0.00 + 49.66 + 0.00) = 49.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	35	0.66	79.43	0.00	-24.24	-5.53	0.00	0.00	0.00	49.66

Segment Leq : 49.66 dBA

Results segment # 3: 407EB3 (day)

Source height = 1.52 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.52 !	1.20 !	1.58 !	1.58

ROAD (0.00 + 41.43 + 0.00) = 41.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.40	79.05	0.00	-19.99	-9.82	0.00	0.00	-7.82	41.43

Segment Leq : 41.43 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB1 (day)

Source height = 1.53 m

ROAD (0.00 + 48.39 + 0.00) = 48.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.66	79.42	0.00	-24.58	-6.44	0.00	0.00	0.00	48.39

Segment Leq : 48.39 dBA

Results segment # 5: 407WB2 (day)

Source height = 1.53 m

ROAD (0.00 + 48.99 + 0.00) = 48.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	35	0.66	79.42	0.00	-24.90	-5.53	0.00	0.00	0.00	48.99

Segment Leq : 48.99 dBA

Results segment # 6: 407WB3 (day)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.55 !	1.50 !	1.83 !	1.83

ROAD (0.00 + 43.42 + 0.00) = 43.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.39	79.08	0.00	-20.32	-9.80	0.00	0.00	-5.55	43.42

Segment Leq : 43.42 dBA

Total Leq All Segments: 55.55 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (night)

Source height = 1.80 m

ROAD (0.00 + 42.27 + 0.00) = 42.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.66	72.52	0.00	-23.81	-6.44	0.00	0.00	0.00	42.27

Segment Leq : 42.27 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.80 m

ROAD (0.00 + 42.76 + 0.00) = 42.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	35	0.66	72.52	0.00	-24.24	-5.53	0.00	0.00	0.00	42.76

Segment Leq : 42.76 dBA

Results segment # 3: 407EB3 (night)

Source height = 1.81 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.81 !	1.20 !	1.87 !	1.87

ROAD (0.00 + 35.54 + 0.00) = 35.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.39	72.16	0.00	-19.86	-9.80	0.00	0.00	-6.95	35.54

Segment Leq : 35.54 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB1 (night)

Source height = 1.61 m

ROAD (0.00 + 40.28 + 0.00) = 40.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.66	71.31	0.00	-24.58	-6.44	0.00	0.00	0.00	40.28

Segment Leq : 40.28 dBA

Results segment # 5: 407WB2 (night)

Source height = 1.61 m

ROAD (0.00 + 42.29 + 0.00) = 42.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	35	0.57	71.31	0.00	-23.51	-5.51	0.00	0.00	0.00	42.29

Segment Leq : 42.29 dBA

Results segment # 6: 407WB3 (night)

Source height = 1.62 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.62 !	4.50 !	2.19 !	2.19

ROAD (0.00 + 37.27 + 0.00) = 37.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.30	71.11	0.00	-18.97	-9.59	0.00	0.00	-5.27	37.27

Segment Leq : 37.27 dBA

Total Leq All Segments: 48.59 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.55
(NIGHT): 48.59

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 09:20:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r90laec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 34666/1801 veh/TimePeriod
Medium truck volume : 763/82 veh/TimePeriod
Heavy truck volume : 1526/165 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 79.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 155.00 / 155.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 31450/1536 veh/TimePeriod
Medium truck volume : 670/73 veh/TimePeriod
Heavy truck volume : 1339/145 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 155.00 / 155.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 31195/2657 veh/TimePeriod
Medium truck volume : 722/58 veh/TimePeriod
Heavy truck volume : 1444/115 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 79.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 / 115.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 27865/2622 veh/TimePeriod
Medium truck volume : 621/54 veh/TimePeriod
Heavy truck volume : 1243/107 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 / 115.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.43 m

ROAD (0.00 + 41.66 + 0.00) = 41.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
79	90	0.66	77.58	0.00	-16.84	-19.08	0.00	0.00	0.00	41.66

Segment Leq : 41.66 dBA

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Results segment # 2: 407EB2 (day)

Source height = 1.41 m

ROAD (0.00 + 58.70 + 0.00) = 58.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	79	0.66	77.07	0.00	-16.84	-1.53	0.00	0.00	0.00	58.70
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Segment Leq : 58.70 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.44 m

ROAD (0.00 + 43.48 + 0.00) = 43.48 dBA

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

79	90	0.66	77.24	0.00	-14.68	-19.08	0.00	0.00	0.00	43.48
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Segment Leq : 43.48 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.43 m

ROAD (0.00 + 60.44 + 0.00) = 60.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	79	0.66	76.66	0.00	-14.68	-1.53	0.00	0.00	0.00	60.44
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Segment Leq : 60.44 dBA

Total Leq All Segments: 62.75 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.68 m

ROAD (0.00 + 33.91 + 0.00) = 33.91 dBA

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

79	90	0.66	69.82	0.00	-16.84	-19.08	0.00	0.00	0.00	33.91
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Segment Leq : 33.91 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.70 m

ROAD (0.00 + 50.87 + 0.00) = 50.87 dBA

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

-90	79	0.66	69.24	0.00	-16.84	-1.53	0.00	0.00	0.00	50.87
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Segment Leq : 50.87 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.42 m

ROAD (0.00 + 35.63 + 0.00) = 35.63 dBA

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

79	90	0.66	69.39	0.00	-14.68	-19.08	0.00	0.00	0.00	35.63
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Segment Leq : 35.63 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.40 m

ROAD (0.00 + 52.98 + 0.00) = 52.98 dBA

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

-90	79	0.66	69.19	0.00	-14.68	-1.53	0.00	0.00	0.00	52.98
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Segment Leq : 52.98 dBA

Total Leq All Segments: 55.14 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.75

(NIGHT): 55.14

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 10-12-2010 13:27:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10ex.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB (day/night)

Car traffic volume : 31450/1536 veh/TimePeriod
Medium truck volume : 670/73 veh/TimePeriod
Heavy truck volume : 1339/145 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 108.00 / 108.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 45.00 / 45.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 2: 407WB (day/night)

Car traffic volume : 27865/2622 veh/TimePeriod
Medium truck volume : 621/54 veh/TimePeriod
Heavy truck volume : 1243/107 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407WB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 73.00 / 73.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 45.00 / 45.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB (day)

Source height = 1.41 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.41 ! 1.20 ! 3.04 ! 3.04

ROAD (0.00 + 62.19 + 0.00) = 62.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	77.07	0.00	-12.02	-0.98	0.00	0.00	-5.00	59.07*
-90	90	0.58	77.07	0.00	-13.56	-1.32	0.00	0.00	0.00	62.19

* Bright Zone !

Segment Leq : 62.19 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407WB (day)

Source height = 1.43 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.43 !	1.20 !	2.49 !	2.49

ROAD (0.00 + 60.81 + 0.00) = 60.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	76.66	0.00	-9.63	-0.98	0.00	0.00	-5.24	60.81

Segment Leq : 60.81 dBA

Total Leq All Segments: 64.56 dBA

Results segment # 1: 407EB (night)

Source height = 1.70 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.70 !	1.20 !	3.16 !	3.16

ROAD (0.00 + 54.44 + 0.00) = 54.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.39	69.24	0.00	-11.94	-0.97	0.00	0.00	-4.98	51.34*
-90	90	0.57	69.24	0.00	-13.49	-1.31	0.00	0.00	0.00	54.44

* Bright Zone !

Segment Leq : 54.44 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407WB (night)

Source height = 1.40 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.40	!	1.20	!
		2.47	!
			2.47

ROAD (0.00 + 53.31 + 0.00) = 53.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	69.19	0.00	-9.63	-0.98	0.00	0.00	-5.26	53.31

Segment Leq : 53.31 dBA

Total Leq All Segments: 56.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.56
(NIGHT): 56.92

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 09:22:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: sl.ec.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 46821/2628 veh/TimePeriod
Medium truck volume : 1275/166 veh/TimePeriod
Heavy truck volume : 3125/331 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 163.00 / 163.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 41102/2362 veh/TimePeriod
Medium truck volume : 1198/153 veh/TimePeriod
Heavy truck volume : 2395/306 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -30.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 163.00 / 163.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 84.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 132.00 / 132.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 44222/2904 veh/TimePeriod
Medium truck volume : 1311/110 veh/TimePeriod
Heavy truck volume : 2623/220 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 204.00 / 204.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 39264/2741 veh/TimePeriod
Medium truck volume : 1241/105 veh/TimePeriod
Heavy truck volume : 2482/211 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -30.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 204.00 / 204.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 84.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 132.00 / 132.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.57 m

ROAD (0.00 + 55.03 + 0.00) = 55.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	79.90	0.00	-17.20	-7.67	0.00	0.00	0.00	55.03

Segment Leq : 55.03 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.52 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.52 !	1.20 !	2.03 !	2.03

ROAD (0.00 + 56.30 + 0.00) = 56.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.40	79.05	0.00	-14.49	-2.57	0.00	0.00	-5.69	56.30

Segment Leq : 56.30 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.53 m

ROAD (0.00 + 52.93 + 0.00) = 52.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	79.42	0.00	-18.82	-7.67	0.00	0.00	0.00	52.93

Segment Leq : 52.93 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.55 !	1.20 !	2.49 !	2.49

ROAD (0.00 + 55.56 + 0.00) = 55.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.40	79.08	0.00	-15.84	-2.57	0.00	0.00	-5.11	55.56

Segment Leq : 55.56 dBA

Total Leq All Segments: 61.14 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.80 m

ROAD (0.00 + 47.66 + 0.00) = 47.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	72.52	0.00	-17.20	-7.67	0.00	0.00	0.00	47.66

Segment Leq : 47.66 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.81 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.81 !	1.20 !	2.27 !	2.27

ROAD (0.00 + 49.79 + 0.00) = 49.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.39	72.16	0.00	-14.40	-2.56	0.00	0.00	-5.41	49.79

Segment Leq : 49.79 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: 407WB1 (night)

Source height = 1.61 m

ROAD (0.00 + 44.83 + 0.00) = 44.83 dBA

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

-90	-35	0.66	71.31	0.00	-18.82	-7.67	0.00	0.00	0.00	44.83
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Segment Leq : 44.83 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.62 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.62 !	1.20 !	2.53 !	2.53

ROAD (0.00 + 47.63 + 0.00) = 47.63 dBA

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

-30	84	0.40	71.11	0.00	-15.82	-2.57	0.00	0.00	-5.09	47.63
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Segment Leq : 47.63 dBA

Total Leq All Segments: 53.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.14
(NIGHT): 53.84

Future No-Build Runs

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 12:45:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 115191/6904 veh/TimePeriod
Medium truck volume : 2810/352 veh/TimePeriod
Heavy truck volume : 5621/704 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 1.00 deg 55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 236.00 / 236.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 1.00 deg Angle2 : 55.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 181.00 / 181.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 115191/6904 veh/TimePeriod
Medium truck volume : 2810/352 veh/TimePeriod
Heavy truck volume : 5621/704 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -55.00 deg 11.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 232.00 / 232.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 177.00 / 177.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 83806/5773 veh/TimePeriod
Medium truck volume : 2241/185 veh/TimePeriod
Heavy truck volume : 4483/370 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 1.00 deg 55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 194.00 / 194.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 1.00 deg Angle2 : 55.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 181.00 / 181.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 83806/5773 veh/TimePeriod
Medium truck volume : 2241/185 veh/TimePeriod
Heavy truck volume : 4483/370 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -55.00 deg 11.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 192.00 / 192.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 177.00 / 177.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.46 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.46 ! 1.20 ! 2.80 ! 2.80

ROAD (0.00 + 55.36 + 0.00) = 55.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	83.05	0.00	-13.53	-5.33	0.00	0.00	-8.84	55.36

Segment Leq : 55.36 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.46 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.46 !	1.20 !	2.82 !	2.82

ROAD (0.00 + 56.28 + 0.00) = 56.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	83.05	0.00	-13.44	-4.44	0.00	0.00	-8.90	56.28

Segment Leq : 56.28 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.49 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.49 !	1.20 !	1.87 !	1.87

ROAD (0.00 + 48.86 + 0.00) = 48.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	81.91	0.00	-12.55	-5.33	0.00	0.00	-15.17	48.86

Segment Leq : 48.86 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.49 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.49	1.20	1.94	1.94

ROAD (0.00 + 50.33 + 0.00) = 50.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	81.91	0.00	-12.50	-4.44	0.00	0.00	-14.65	50.33

Segment Leq : 50.33 dBA

Total Leq All Segments: 59.79 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.72 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.72	1.20	3.00	3.00

ROAD (0.00 + 48.77 + 0.00) = 48.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.12	76.01	0.00	-13.43	-5.32	0.00	0.00	-8.49	48.77

Segment Leq : 48.77 dBA

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Results segment # 2: 407EB2 (night)

Source height = 1.72 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.72	1.20	3.02	3.02

ROAD (0.00 + 49.69 + 0.00) = 49.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.12	76.01	0.00	-13.35	-4.43	0.00	0.00	-8.54	49.69

Segment Leq : 49.69 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.56 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.56	1.20	1.93	1.93

ROAD (0.00 + 40.90 + 0.00) = 40.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	73.80	0.00	-12.53	-5.32	0.00	0.00	-15.05	40.90

Segment Leq : 40.90 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.56 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.56	1.20	2.00	2.00

ROAD (0.00 + 42.36 + 0.00) = 42.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	73.80	0.00	-12.48	-4.44	0.00	0.00	-14.53	42.36

Segment Leq : 42.36 dBA

Total Leq All Segments: 52.97 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.79
(NIGHT): 52.97

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 12:43:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2407fnb.te Time Period: Day/Night 16/8 hours
Description: Receptor R2 - Highway 407

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 3.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 277.00 / 277.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -87.00 deg -9.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 278.00 / 278.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 3.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 234.00 / 234.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -87.00 deg -9.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 238.00 / 238.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

ROAD (0.00 + 56.38 + 0.00) = 56.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
3	65	0.66	82.73	0.00	-21.02	-5.33	0.00	0.00	0.00	56.38

Segment Leq : 56.38 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.47 m

ROAD (0.00 + 56.55 + 0.00) = 56.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-87	-9	0.66	82.73	0.00	-21.05	-5.14	0.00	0.00	0.00	56.55
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Segment Leq : 56.55 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 57.48 + 0.00) = 57.48 dBA

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

3	65	0.66	82.62	0.00	-19.81	-5.33	0.00	0.00	0.00	57.48
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Segment Leq : 57.48 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.50 m

ROAD (0.00 + 57.55 + 0.00) = 57.55 dBA

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

-87	-9	0.66	82.62	0.00	-19.93	-5.14	0.00	0.00	0.00	57.55
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Segment Leq : 57.55 dBA

Total Leq All Segments: 63.04 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.78 m

ROAD (0.00 + 49.59 + 0.00) = 49.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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3	65	0.66	75.94	0.00	-21.02	-5.33	0.00	0.00	0.00	49.59
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Segment Leq : 49.59 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.78 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
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-87	-9	0.66	75.94	0.00	-21.05	-5.14	0.00	0.00	0.00	49.76
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Segment Leq : 49.76 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.55 m

ROAD (0.00 + 49.34 + 0.00) = 49.34 dBA

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

3	65	0.66	74.48	0.00	-19.81	-5.33	0.00	0.00	0.00	49.34
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Segment Leq : 49.34 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.55 m

ROAD (0.00 + 49.41 + 0.00) = 49.41 dBA

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

-87	-9	0.66	74.48	0.00	-19.93	-5.14	0.00	0.00	0.00	49.41
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Segment Leq : 49.41 dBA

Total Leq All Segments: 55.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.04

(NIGHT): 55.55

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-12-2010 08:00:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2h7f.te Time Period: Day/Night 16/8 hours
Description: Receptor R2 - Highway 7

Road data, segment # 1: EB1 (day/night)

Car traffic volume : 30750/3417 veh/TimePeriod
Medium truck volume : 732/81 veh/TimePeriod
Heavy truck volume : 1058/118 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: EB1 (day/night)

Angle1 Angle2 : 49.00 deg 81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 46.00 / 46.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: EB2 (day/night)

Car traffic volume : 30750/3417 veh/TimePeriod
Medium truck volume : 732/81 veh/TimePeriod
Heavy truck volume : 1058/118 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: EB2 (day/night)

Angle1 Angle2 : -90.00 deg 38.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 57.00 / 57.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: WB1 (day/night)

Car traffic volume : 30750/3417 veh/TimePeriod
Medium truck volume : 732/81 veh/TimePeriod
Heavy truck volume : 1058/118 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WB1 (day/night)

Angle1 Angle2 : 49.00 deg 81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 / 32.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: WB2 (day/night)

Car traffic volume : 30750/3417 veh/TimePeriod
Medium truck volume : 732/81 veh/TimePeriod
Heavy truck volume : 1058/118 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WB2 (day/night)

Angle1 Angle2 : -90.00 deg 38.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: EB1 (day)

Source height = 1.34 m

ROAD (0.00 + 56.38 + 0.00) = 56.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
49	81	0.66	74.53	0.00	-8.08	-10.07	0.00	0.00	0.00	56.38

Segment Leq : 56.38 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: EB2 (day)

Source height = 1.34 m

ROAD (0.00 + 62.37 + 0.00) = 62.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	38	0.66	74.53	0.00	-9.62	-2.53	0.00	0.00	0.00	62.37

Segment Leq : 62.37 dBA

Results segment # 3: WB1 (day)

Source height = 1.34 m

ROAD (0.00 + 58.99 + 0.00) = 58.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
49	81	0.66	74.53	0.00	-5.46	-10.07	0.00	0.00	0.00	58.99

Segment Leq : 58.99 dBA

Results segment # 4: WB2 (day)

Source height = 1.34 m

ROAD (0.00 + 64.57 + 0.00) = 64.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	38	0.66	74.53	0.00	-7.42	-2.53	0.00	0.00	0.00	64.57

Segment Leq : 64.57 dBA

Total Leq All Segments: 67.65 dBA

Results segment # 1: EB1 (night)

Source height = 1.34 m

ROAD (0.00 + 49.85 + 0.00) = 49.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
49	81	0.66	68.00	0.00	-8.08	-10.07	0.00	0.00	0.00	49.85

Segment Leq : 49.85 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: EB2 (night)

Source height = 1.34 m

ROAD (0.00 + 55.85 + 0.00) = 55.85 dBA

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

-90	38	0.66	68.00	0.00	-9.62	-2.53	0.00	0.00	0.00	55.85
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Segment Leq : 55.85 dBA

Results segment # 3: WB1 (night)

Source height = 1.34 m

ROAD (0.00 + 52.47 + 0.00) = 52.47 dBA

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

49	81	0.66	68.00	0.00	-5.46	-10.07	0.00	0.00	0.00	52.47
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Segment Leq : 52.47 dBA

Results segment # 4: WB2 (night)

Source height = 1.34 m

ROAD (0.00 + 58.05 + 0.00) = 58.05 dBA

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

-90	38	0.66	68.00	0.00	-7.42	-2.53	0.00	0.00	0.00	58.05
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Segment Leq : 58.05 dBA

Total Leq All Segments: 61.13 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.65

(NIGHT): 61.13

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 12:48:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3407fnb.te Time Period: Day/Night 16/8 hours
Description: Receptor R3 - Highway 407

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 173.00 / 173.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 50.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -80.00 deg 43.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 172.00 / 172.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 43.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 129.00 / 129.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 50.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -80.00 deg 43.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 128.00 / 128.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 43.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.47 ! 1.20 ! 2.42 ! 2.42

ROAD (0.00 + 60.51 + 0.00) = 60.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	82.73	0.00	-10.62	-6.53	0.00	0.00	-5.08	60.51

Segment Leq : 60.51 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

Page 4

Results segment # 2: 407EB2 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.47	1.20	2.41	2.41

ROAD (0.00 + 65.30 + 0.00) = 65.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	82.73	0.00	-10.59	-1.65	0.00	0.00	-5.18	65.30

Segment Leq : 65.30 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	1.84	1.84

ROAD (0.00 + 60.98 + 0.00) = 60.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	82.62	0.00	-9.34	-6.53	0.00	0.00	-5.76	60.98

Segment Leq : 60.98 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	1.82	1.82

ROAD (0.00 + 64.85 + 0.00) = 64.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	82.62	0.00	-9.31	-1.65	0.00	0.00	-6.80	64.85

Segment Leq : 64.85 dBA

Total Leq All Segments: 69.46 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.78 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.78	1.20	2.62	2.62

ROAD (0.00 + 53.76 + 0.00) = 53.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	75.94	0.00	-10.62	-6.53	0.00	0.00	-5.03	53.76

Segment Leq : 53.76 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.78 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.78	1.20	2.61	2.61

ROAD (0.00 + 58.62 + 0.00) = 58.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	75.94	0.00	-10.59	-1.65	0.00	0.00	-5.08	58.62

Segment Leq : 58.62 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.55	1.20	1.88	1.88

ROAD (0.00 + 52.88 + 0.00) = 52.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	74.48	0.00	-9.34	-6.53	0.00	0.00	-5.72	52.88

Segment Leq : 52.88 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.55 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.55	!	1.20	!
		1.86	!
			1.86

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
-80	43	0.00	74.48	0.00	-9.31	-1.65	0.00	0.00	-6.70	56.82

Segment Leq : 56.82 dBA

Total Leq All Segments: 62.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.46
(NIGHT): 62.15

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-12-2010 08:05:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3h7f.te Time Period: Day/Night 16/8 hours
Description: Receptor R3 - Highway 7

Road data, segment # 1: H7EB (day/night)

Car traffic volume : 30750/3417 veh/TimePeriod
Medium truck volume : 732/81 veh/TimePeriod
Heavy truck volume : 1058/118 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: H7EB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 59.00 / 59.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: H7WB (day/night)

Car traffic volume : 30750/3417 veh/TimePeriod
Medium truck volume : 732/81 veh/TimePeriod
Heavy truck volume : 1058/118 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: H7WB (day/night)

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

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: H7EB (day)

Source height = 1.34 m

ROAD (0.00 + 63.20 + 0.00) = 63.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	90	0.66	74.53	0.00	-9.87	-1.46	0.00	0.00	0.00	63.20
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Segment Leq : 63.20 dBA

Results segment # 2: H7WB (day)

Source height = 1.34 m

ROAD (0.00 + 65.48 + 0.00) = 65.48 dBA

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

-90	90	0.66	74.53	0.00	-7.59	-1.46	0.00	0.00	0.00	65.48
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Segment Leq : 65.48 dBA

Total Leq All Segments: 67.50 dBA

Results segment # 1: H7EB (night)

Source height = 1.34 m

ROAD (0.00 + 56.67 + 0.00) = 56.67 dBA

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

-90	90	0.66	68.00	0.00	-9.87	-1.46	0.00	0.00	0.00	56.67
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 56.67 dBA

Results segment # 2: H7WB (night)

Source height = 1.34 m

ROAD (0.00 + 58.95 + 0.00) = 58.95 dBA

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

-90	90	0.66	68.00	0.00	-7.59	-1.46	0.00	0.00	0.00	58.95
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 58.95 dBA

Total Leq All Segments: 60.97 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.50
(NIGHT): 60.97

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 12:51:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r50lafnb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -81.00 deg -48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 143.00 / 143.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -53.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 123.00 / 123.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 3: 407EB3 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407EB3 (day/night)

Angle1 Angle2 : -19.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 117.00 / 117.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -19.00 deg Angle2 : 40.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 107.00 / 107.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: 407EB4 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407EB4 (day/night)

Angle1 Angle2 : 36.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 128.00 / 128.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 36.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 5: 407EB5 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: 407EB5 (day/night)

Angle1 Angle2 : 56.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 171.00 / 171.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 56.00 deg Angle2 : 70.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 155.00 / 155.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 6: 407WB1 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: 407WB1 (day/night)

Angle1 Angle2 : -81.00 deg -48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 187.00 / 187.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 7: 407WB2 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 7: 407WB2 (day/night)

Angle1 Angle2 : -53.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 166.00 / 166.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 8: 407WB3 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 8: 407WB3 (day/night)

Angle1 Angle2 : -19.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 158.00 / 158.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -19.00 deg Angle2 : 40.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 107.00 / 107.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 9: 407WB4 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 9: 407WB4 (day/night)

Angle1 Angle2 : 36.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 168.00 / 168.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 36.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 10: 407WB5 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 10: 407WB5 (day/night)

Angle1 Angle2 : 56.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 211.00 / 211.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 56.00 deg Angle2 : 70.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 155.00 / 155.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

Page 6

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

ROAD (0.00 + 55.55 + 0.00) = 55.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	81.70	0.00	-16.26	-9.89	0.00	0.00	0.00	55.55

Segment Leq : 55.55 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.47 m

ROAD (0.00 + 59.54 + 0.00) = 59.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	81.70	0.00	-15.17	-6.98	0.00	0.00	0.00	59.54

Segment Leq : 59.54 dBA

Results segment # 3: 407EB3 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.47 !	1.20 !	1.70 !	1.70

ROAD (0.00 + 55.87 + 0.00) = 55.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.40	81.70	0.00	-12.49	-4.95	0.00	0.00	-8.38	55.87

Segment Leq : 55.87 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407EB4 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.47 !	1.20 !	1.75 !	1.75

ROAD (0.00 + 52.87 + 0.00) = 52.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.40	81.70	0.00	-13.04	-8.88	0.00	0.00	-6.91	52.87

Segment Leq : 52.87 dBA

Results segment # 5: 407EB5 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.47 !	1.20 !	1.72 !	1.72

ROAD (0.00 + 48.21 + 0.00) = 48.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.40	81.70	0.00	-14.80	-12.48	0.00	0.00	-6.21	48.21

Segment Leq : 48.21 dBA

Results segment # 6: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 54.43 + 0.00) = 54.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	82.50	0.00	-18.19	-9.89	0.00	0.00	0.00	54.43

Segment Leq : 54.43 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 7: 407WB2 (day)

Source height = 1.50 m

ROAD (0.00 + 58.19 + 0.00) = 58.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	82.50	0.00	-17.33	-6.98	0.00	0.00	0.00	58.19

Segment Leq : 58.19 dBA

Results segment # 8: 407WB3 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	2.37	2.37

ROAD (0.00 + 57.97 + 0.00) = 57.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.40	82.50	0.00	-14.31	-4.95	0.00	0.00	-5.28	57.97

Segment Leq : 57.97 dBA

Results segment # 9: 407WB4 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	2.35	2.35

ROAD (0.00 + 53.75 + 0.00) = 53.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.40	82.50	0.00	-14.68	-8.88	0.00	0.00	-5.19	53.75

Segment Leq : 53.75 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 10: 407WB5 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	2.22	2.22

ROAD (0.00 + 48.79 + 0.00) = 48.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.40	82.50	0.00	-16.06	-12.47	0.00	0.00	-5.18	48.79

Segment Leq : 48.79 dBA

Total Leq All Segments: 65.78 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.74 m

ROAD (0.00 + 48.41 + 0.00) = 48.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	74.55	0.00	-16.26	-9.89	0.00	0.00	0.00	48.41

Segment Leq : 48.41 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.74 m

ROAD (0.00 + 52.40 + 0.00) = 52.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	74.55	0.00	-15.17	-6.98	0.00	0.00	0.00	52.40

Segment Leq : 52.40 dBA

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Results segment # 3: 407EB3 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.74 !	1.20 !	1.95 !	1.95

ROAD (0.00 + 49.78 + 0.00) = 49.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.39	74.55	0.00	-12.41	-4.95	0.00	0.00	-7.41	49.78

Segment Leq : 49.78 dBA

Results segment # 4: 407EB4 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.74 !	1.20 !	1.99 !	1.99

ROAD (0.00 + 46.43 + 0.00) = 46.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.39	74.55	0.00	-12.96	-8.87	0.00	0.00	-6.30	46.43

Segment Leq : 46.43 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: 407EB5 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.74	1.20	1.97	1.97

ROAD (0.00 + 41.58 + 0.00) = 41.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.39	74.55	0.00	-14.71	-12.45	0.00	0.00	-5.81	41.58

Segment Leq : 41.58 dBA

Results segment # 6: 407WB1 (night)

Source height = 1.57 m

ROAD (0.00 + 46.18 + 0.00) = 46.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	74.26	0.00	-18.19	-9.89	0.00	0.00	0.00	46.18

Segment Leq : 46.18 dBA

Results segment # 7: 407WB2 (night)

Source height = 1.57 m

ROAD (0.00 + 49.95 + 0.00) = 49.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	74.26	0.00	-17.33	-6.98	0.00	0.00	0.00	49.95

Segment Leq : 49.95 dBA

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Results segment # 8: 407WB3 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.57 !	1.20 !	2.42 !	2.42

ROAD (0.00 + 49.78 + 0.00) = 49.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.40	74.26	0.00	-14.29	-4.95	0.00	0.00	-5.24	49.78

Segment Leq : 49.78 dBA

Results segment # 9: 407WB4 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.57 !	1.20 !	2.40 !	2.40

ROAD (0.00 + 45.56 + 0.00) = 45.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.40	74.26	0.00	-14.66	-8.88	0.00	0.00	-5.17	45.56

Segment Leq : 45.56 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 10: 407WB5 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.57 !	1.20 !	2.26 !	2.26

ROAD (0.00 + 40.60 + 0.00) = 40.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.40	74.26	0.00	-16.04	-12.47	0.00	0.00	-5.16	40.60

Segment Leq : 40.60 dBA

Total Leq All Segments: 58.32 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.78
(NIGHT): 58.32

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 12:54:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6407fnb.te Time Period: Day/Night 16/8 hours
Description: Receptor R6 - Highway 407

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 6.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 347.00 / 347.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg 6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 347.00 / 347.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 6.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 305.00 / 305.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg 6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 305.00 / 305.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 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
6	65	0.66	81.70	0.00	-22.65	-5.59	0.00	0.00	0.00	53.46

Segment Leq : 53.46 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.50 m

ROAD (0.00 + 54.86 + 0.00) = 54.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	6	0.66	81.59	0.00	-22.65	-4.08	0.00	0.00	0.00	54.86
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Segment Leq : 54.86 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 55.20 + 0.00) = 55.20 dBA

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

6	65	0.66	82.50	0.00	-21.72	-5.59	0.00	0.00	0.00	55.20
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Segment Leq : 55.20 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.53 m

ROAD (0.00 + 57.30 + 0.00) = 57.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	6	0.66	83.10	0.00	-21.72	-4.08	0.00	0.00	0.00	57.30
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Segment Leq : 57.30 dBA

Total Leq All Segments: 61.45 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.74 m

ROAD (0.00 + 46.32 + 0.00) = 46.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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6	65	0.66	74.55	0.00	-22.65	-5.59	0.00	0.00	0.00	46.32
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Segment Leq : 46.32 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.80 m

ROAD (0.00 + 47.95 + 0.00) = 47.95 dBA

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

-90	6	0.66	74.68	0.00	-22.64	-4.08	0.00	0.00	0.00	47.95
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Segment Leq : 47.95 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.57 m

ROAD (0.00 + 46.96 + 0.00) = 46.96 dBA

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

6	65	0.66	74.26	0.00	-21.72	-5.59	0.00	0.00	0.00	46.96
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Segment Leq : 46.96 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.61 m

ROAD (0.00 + 49.19 + 0.00) = 49.19 dBA

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

-90	6	0.66	74.99	0.00	-21.72	-4.08	0.00	0.00	0.00	49.19
-----	---	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 49.19 dBA

Total Leq All Segments: 53.76 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.45

(NIGHT): 53.76

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-12-2010 08:19:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6h7f.te Time Period: Day/Night 16/8 hours
Description: Receptor R6 - Highway 7

Road data, segment # 1: H7EB (day/night)

Car traffic volume : 28213/3135 veh/TimePeriod
Medium truck volume : 672/75 veh/TimePeriod
Heavy truck volume : 970/108 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: H7EB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 98.00 / 98.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: H7WB (day/night)

Car traffic volume : 28213/3317 veh/TimePeriod
Medium truck volume : 672/75 veh/TimePeriod
Heavy truck volume : 970/108 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: H7WB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 84.00 / 84.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: H7EB (day)

Source height = 1.34 m

ROAD (0.00 + 59.16 + 0.00) = 59.16 dBA

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

-90	90	0.66	74.15	0.00	-13.53	-1.46	0.00	0.00	0.00	59.16
-----	----	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 59.16 dBA

Results segment # 2: H7WB (day)

Source height = 1.34 m

ROAD (0.00 + 60.28 + 0.00) = 60.28 dBA

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

-90	90	0.66	74.15	0.00	-12.42	-1.46	0.00	0.00	0.00	60.28
-----	----	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 60.28 dBA

Total Leq All Segments: 62.77 dBA

Results segment # 1: H7EB (night)

Source height = 1.34 m

ROAD (0.00 + 52.64 + 0.00) = 52.64 dBA

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

-90	90	0.66	67.63	0.00	-13.53	-1.46	0.00	0.00	0.00	52.64
-----	----	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 52.64 dBA

Results segment # 2: H7WB (night)

Source height = 1.33 m

ROAD (0.00 + 53.85 + 0.00) = 53.85 dBA

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

-90	90	0.66	67.73	0.00	-12.42	-1.46	0.00	0.00	0.00	53.85
-----	----	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 53.85 dBA

Total Leq All Segments: 56.30 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.77
(NIGHT): 56.30

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 12:56:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7olafnb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -65.00 deg 73.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 168.00 / 168.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -65.00 deg Angle2 : 73.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg -61.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 190.00 / 190.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 137.00 / 137.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : -65.00 deg 73.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 126.00 / 126.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -65.00 deg Angle2 : 73.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg -61.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 149.00 / 149.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 137.00 / 137.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.20 ! 2.35 ! 2.35

ROAD (0.00 + 60.03 + 0.00) = 60.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	81.59	0.00	-14.68	-1.64	0.00	0.00	-5.23	60.03

Segment Leq : 60.03 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	2.25	2.25

ROAD (0.00 + 50.47 + 0.00) = 50.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	81.59	0.00	-15.43	-10.60	0.00	0.00	-5.09	50.47

Segment Leq : 50.47 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.53 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.53	1.20	1.76	1.76

ROAD (0.00 + 61.08 + 0.00) = 61.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	83.10	0.00	-12.92	-1.64	0.00	0.00	-7.45	61.08

Segment Leq : 61.08 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.53 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.53	1.20	1.74	1.74

ROAD (0.00 + 52.74 + 0.00) = 52.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	83.10	0.00	-13.94	-10.59	0.00	0.00	-5.83	52.74

Segment Leq : 52.74 dBA

Total Leq All Segments: 64.13 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.80 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.80	1.20	2.56	2.56

ROAD (0.00 + 53.36 + 0.00) = 53.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.39	74.68	0.00	-14.58	-1.63	0.00	0.00	-5.11	53.36

Segment Leq : 53.36 dBA

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Results segment # 2: 407EB2 (night)

Source height = 1.80 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.80	1.20	2.47	2.47

ROAD (0.00 + 43.77 + 0.00) = 43.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.39	74.68	0.00	-15.33	-10.54	0.00	0.00	-5.05	43.77

Segment Leq : 43.77 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.61 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.61	1.20	1.84	1.84

ROAD (0.00 + 53.25 + 0.00) = 53.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	74.99	0.00	-12.90	-1.64	0.00	0.00	-7.20	53.25

Segment Leq : 53.25 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.61 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.61 !	1.20 !	1.82 !	1.82

ROAD (0.00 + 44.76 + 0.00) = 44.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	74.99	0.00	-13.92	-10.58	0.00	0.00	-5.74	44.76

Segment Leq : 44.76 dBA

Total Leq All Segments: 56.83 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.13
(NIGHT): 56.83

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 12:59:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r80lafnb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -90.00 deg -24.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 408.00 / 408.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -17.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 433.00 / 433.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 3: 407EB3 (day/night)

Car traffic volume : 70971/4078 veh/TimePeriod
Medium truck volume : 2068/264 veh/TimePeriod
Heavy truck volume : 4136/528 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407EB3 (day/night)

Angle1 Angle2 : 41.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 403.00 / 403.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 41.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 394.00 / 394.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: 407WB1 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB1 (day/night)

Angle1 Angle2 : -90.00 deg -24.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 454.00 / 454.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 5: 407WB2 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: 407WB2 (day/night)

Angle1 Angle2 : -17.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 475.00 / 475.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: 407WB3 (day/night)

Car traffic volume : 94101/6569 veh/TimePeriod
Medium truck volume : 2974/252 veh/TimePeriod
Heavy truck volume : 5948/505 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: 407WB3 (day/night)

Angle1 Angle2 : 41.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 436.00 / 436.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 41.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 394.00 / 394.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.50 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	-24	0.66	81.59	0.00	-23.81	-6.44	0.00	0.00	0.00	51.33

Segment Leq : 51.33 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.50 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
-17	35	0.66	81.59	0.00	-24.24	-5.53	0.00	0.00	0.00	51.81

Segment Leq : 51.81 dBA

Results segment # 3: 407EB3 (day)

Source height = 1.52 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.52 !	1.20 !	1.58 !	1.58

ROAD (0.00 + 43.80 + 0.00) = 43.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.40	81.42	0.00	-19.99	-9.82	0.00	0.00	-7.82	43.80

Segment Leq : 43.80 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB1 (day)

Source height = 1.53 m

ROAD (0.00 + 52.07 + 0.00) = 52.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.66	83.10	0.00	-24.58	-6.44	0.00	0.00	0.00	52.07

Segment Leq : 52.07 dBA

Results segment # 5: 407WB2 (day)

Source height = 1.53 m

ROAD (0.00 + 52.66 + 0.00) = 52.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	35	0.66	83.10	0.00	-24.91	-5.53	0.00	0.00	0.00	52.66

Segment Leq : 52.66 dBA

Results segment # 6: 407WB3 (day)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.55 !	1.20 !	1.81 !	1.81

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
41	64	0.40	82.88	0.00	-20.45	-9.82	0.00	0.00	-5.57	47.04

Segment Leq : 47.04 dBA

Total Leq All Segments: 58.50 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (night)

Source height = 1.80 m

ROAD (0.00 + 44.42 + 0.00) = 44.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.66	74.68	0.00	-23.81	-6.44	0.00	0.00	0.00	44.42

Segment Leq : 44.42 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.80 m

ROAD (0.00 + 44.91 + 0.00) = 44.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	35	0.66	74.68	0.00	-24.24	-5.53	0.00	0.00	0.00	44.91

Segment Leq : 44.91 dBA

Results segment # 3: 407EB3 (night)

Source height = 1.81 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.81 !	1.20 !	1.87 !	1.87

ROAD (0.00 + 37.91 + 0.00) = 37.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.39	74.53	0.00	-19.86	-9.80	0.00	0.00	-6.96	37.91

Segment Leq : 37.91 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB1 (night)

Source height = 1.61 m

ROAD (0.00 + 43.96 + 0.00) = 43.96 dBA

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

-90	-24	0.66	74.99	0.00	-24.58	-6.44	0.00	0.00	0.00	43.96
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Segment Leq : 43.96 dBA

Results segment # 5: 407WB2 (night)

Source height = 1.61 m

ROAD (0.00 + 44.55 + 0.00) = 44.55 dBA

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

-17	35	0.66	74.99	0.00	-24.91	-5.53	0.00	0.00	0.00	44.55
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Segment Leq : 44.55 dBA

Results segment # 6: 407WB3 (night)

Source height = 1.62 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.62 !	1.20 !	1.87 !	1.87

ROAD (0.00 + 39.15 + 0.00) = 39.15 dBA

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

41	64	0.40	74.90	0.00	-20.42	-9.81	0.00	0.00	-5.52	39.15
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Segment Leq : 39.15 dBA

Total Leq All Segments: 51.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.50

(NIGHT): 51.02

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 13:01:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9olafnb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 89568/4653 veh/TimePeriod
Medium truck volume : 1971/213 veh/TimePeriod
Heavy truck volume : 3943/425 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 79.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 155.00 / 155.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 96939/4734 veh/TimePeriod
Medium truck volume : 2064/224 veh/TimePeriod
Heavy truck volume : 4128/448 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 155.00 / 155.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 73443/6255 veh/TimePeriod
Medium truck volume : 1700/136 veh/TimePeriod
Heavy truck volume : 3400/272 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 79.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 / 115.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 69737/6562 veh/TimePeriod
Medium truck volume : 1555/134 veh/TimePeriod
Heavy truck volume : 3110/269 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 / 115.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.43 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
79	90	0.66	81.70	0.00	-16.84	-19.08	0.00	0.00	0.00	45.79

Segment Leq : 45.79 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.41 m

ROAD (0.00 + 63.59 + 0.00) = 63.59 dBA

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

-90	79	0.66	81.96	0.00	-16.84	-1.53	0.00	0.00	0.00	63.59
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Segment Leq : 63.59 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.44 m

ROAD (0.00 + 47.20 + 0.00) = 47.20 dBA

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

79	90	0.66	80.96	0.00	-14.68	-19.08	0.00	0.00	0.00	47.20
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Segment Leq : 47.20 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.43 m

ROAD (0.00 + 64.43 + 0.00) = 64.43 dBA

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

-90	79	0.66	80.65	0.00	-14.68	-1.53	0.00	0.00	0.00	64.43
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Segment Leq : 64.43 dBA

Total Leq All Segments: 67.12 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.68 m

ROAD (0.00 + 38.03 + 0.00) = 38.03 dBA

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

79	90	0.66	73.94	0.00	-16.84	-19.08	0.00	0.00	0.00	38.03
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Segment Leq : 38.03 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.70 m

ROAD (0.00 + 55.76 + 0.00) = 55.76 dBA

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

-90	79	0.66	74.13	0.00	-16.84	-1.53	0.00	0.00	0.00	55.76
-----	----	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 55.76 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.42 m

ROAD (0.00 + 39.36 + 0.00) = 39.36 dBA

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

79	90	0.66	73.12	0.00	-14.68	-19.08	0.00	0.00	0.00	39.36
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Segment Leq : 39.36 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.40 m

ROAD (0.00 + 56.97 + 0.00) = 56.97 dBA

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

-90	79	0.66	73.18	0.00	-14.68	-1.53	0.00	0.00	0.00	56.97
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Segment Leq : 56.97 dBA

Total Leq All Segments: 59.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.12

(NIGHT): 59.49

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 25-11-2010 09:52:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10fnb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB (day/night)

Car traffic volume : 96939/4734 veh/TimePeriod
Medium truck volume : 2064/224 veh/TimePeriod
Heavy truck volume : 4128/448 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 108.00 / 108.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 45.00 / 45.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 2: 407WB (day/night)

Car traffic volume : 69737/6562 veh/TimePeriod
Medium truck volume : 1555/134 veh/TimePeriod
Heavy truck volume : 3110/269 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407WB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 73.00 / 73.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 45.00 / 45.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB (day)

Source height = 1.41 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.41 ! 1.20 ! 3.04 ! 3.04

ROAD (0.00 + 67.08 + 0.00) = 67.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	81.96	0.00	-12.02	-0.98	0.00	0.00	-5.00	63.96*
-90	90	0.58	81.96	0.00	-13.56	-1.32	0.00	0.00	0.00	67.08

* Bright Zone !

Segment Leq : 67.08 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407WB (day)

Source height = 1.43 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.43	1.20	2.49	2.49

ROAD (0.00 + 64.79 + 0.00) = 64.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	80.65	0.00	-9.63	-0.98	0.00	0.00	-5.24	64.79

Segment Leq : 64.79 dBA

Total Leq All Segments: 69.09 dBA

Results segment # 1: 407EB (night)

Source height = 1.70 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.70	1.20	3.16	3.16

ROAD (0.00 + 59.33 + 0.00) = 59.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.39	74.13	0.00	-11.94	-0.97	0.00	0.00	-4.98	56.23*
-90	90	0.57	74.13	0.00	-13.49	-1.31	0.00	0.00	0.00	59.33

* Bright Zone !

Segment Leq : 59.33 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407WB (night)

Source height = 1.40 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.40	!	1.20	!
		2.48	!
			2.48

ROAD (0.00 + 57.30 + 0.00) = 57.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	73.18	0.00	-9.63	-0.98	0.00	0.00	-5.26	57.30

Segment Leq : 57.30 dBA

Total Leq All Segments: 61.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.09
(NIGHT): 61.44

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 17-05-2010 13:04:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 163.00 / 163.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 70971/4078 veh/TimePeriod
Medium truck volume : 2068/264 veh/TimePeriod
Heavy truck volume : 4136/528 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -30.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 163.00 / 163.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 84.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 132.00 / 132.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 204.00 / 204.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 94101/6569 veh/TimePeriod
Medium truck volume : 2974/252 veh/TimePeriod
Heavy truck volume : 5948/505 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -30.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 204.00 / 204.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 84.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 132.00 / 132.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.50 m

ROAD (0.00 + 56.72 + 0.00) = 56.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	81.59	0.00	-17.20	-7.67	0.00	0.00	0.00	56.72

Segment Leq : 56.72 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.52 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.52 !	1.20 !	2.03 !	2.03

ROAD (0.00 + 58.67 + 0.00) = 58.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.40	81.42	0.00	-14.49	-2.57	0.00	0.00	-5.69	58.67

Segment Leq : 58.67 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.53 m

ROAD (0.00 + 56.61 + 0.00) = 56.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	83.10	0.00	-18.82	-7.67	0.00	0.00	0.00	56.61

Segment Leq : 56.61 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.55 !	1.20 !	2.49 !	2.49

ROAD (0.00 + 59.35 + 0.00) = 59.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.40	82.88	0.00	-15.84	-2.57	0.00	0.00	-5.11	59.35

Segment Leq : 59.35 dBA

Total Leq All Segments: 64.02 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.80 m

ROAD (0.00 + 49.81 + 0.00) = 49.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	74.68	0.00	-17.20	-7.67	0.00	0.00	0.00	49.81

Segment Leq : 49.81 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.81 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.81 !	1.20 !	2.27 !	2.27

ROAD (0.00 + 52.16 + 0.00) = 52.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.39	74.53	0.00	-14.40	-2.56	0.00	0.00	-5.41	52.16

Segment Leq : 52.16 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: 407WB1 (night)

Source height = 1.61 m

ROAD (0.00 + 48.51 + 0.00) = 48.51 dBA

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

-90	-35	0.66	74.99	0.00	-18.82	-7.67	0.00	0.00	0.00	48.51
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Segment Leq : 48.51 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.62 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.62 !	1.20 !	2.53 !	2.53

ROAD (0.00 + 51.42 + 0.00) = 51.42 dBA

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

-30	84	0.40	74.90	0.00	-15.82	-2.57	0.00	0.00	-5.09	51.42
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Segment Leq : 51.42 dBA

Total Leq All Segments: 56.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.02

(NIGHT): 56.72

Future Build (R1)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 08:31:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 115191/6904 veh/TimePeriod
Medium truck volume : 2810/352 veh/TimePeriod
Heavy truck volume : 5621/704 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 1.00 deg 55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 236.00 / 236.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 1.00 deg Angle2 : 55.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 181.00 / 181.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 115191/6904 veh/TimePeriod
Medium truck volume : 2810/352 veh/TimePeriod
Heavy truck volume : 5621/704 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -55.00 deg 11.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 232.00 / 232.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 177.00 / 177.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 83806/5773 veh/TimePeriod
Medium truck volume : 2241/185 veh/TimePeriod
Heavy truck volume : 4483/370 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 1.00 deg 55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 194.00 / 194.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 1.00 deg Angle2 : 55.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 181.00 / 181.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 83806/5773 veh/TimePeriod
Medium truck volume : 2241/185 veh/TimePeriod
Heavy truck volume : 4483/370 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -55.00 deg 11.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 192.00 / 192.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 177.00 / 177.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.46 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.46 ! 1.20 ! 2.80 ! 2.80

ROAD (0.00 + 55.36 + 0.00) = 55.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	83.05	0.00	-13.53	-5.33	0.00	0.00	-8.84	55.36

Segment Leq : 55.36 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.46 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.46	1.20	2.82	2.82

ROAD (0.00 + 56.28 + 0.00) = 56.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	83.05	0.00	-13.44	-4.44	0.00	0.00	-8.90	56.28

Segment Leq : 56.28 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.49 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.49	1.20	1.87	1.87

ROAD (0.00 + 48.86 + 0.00) = 48.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	81.91	0.00	-12.55	-5.33	0.00	0.00	-15.17	48.86

Segment Leq : 48.86 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.49 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.49	1.20	1.94	1.94

ROAD (0.00 + 50.33 + 0.00) = 50.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	81.91	0.00	-12.50	-4.44	0.00	0.00	-14.65	50.33

Segment Leq : 50.33 dBA

Total Leq All Segments: 59.79 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.72 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.72	1.20	3.00	3.00

ROAD (0.00 + 48.77 + 0.00) = 48.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.12	76.01	0.00	-13.43	-5.32	0.00	0.00	-8.49	48.77

Segment Leq : 48.77 dBA

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Results segment # 2: 407EB2 (night)

Source height = 1.72 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.72	1.20	3.02	3.02

ROAD (0.00 + 49.69 + 0.00) = 49.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.12	76.01	0.00	-13.35	-4.43	0.00	0.00	-8.54	49.69

Segment Leq : 49.69 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.56 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.56	1.20	1.93	1.93

ROAD (0.00 + 40.90 + 0.00) = 40.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	55	0.13	73.80	0.00	-12.53	-5.32	0.00	0.00	-15.05	40.90

Segment Leq : 40.90 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.56 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.56 !	1.20 !	2.00 !	2.00

ROAD (0.00 + 42.36 + 0.00) = 42.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	11	0.13	73.80	0.00	-12.48	-4.44	0.00	0.00	-14.53	42.36

Segment Leq : 42.36 dBA

Total Leq All Segments: 52.97 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.79
(NIGHT): 52.97

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 08:33:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : -17.00 deg 63.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 113.00 / 113.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -17.00 deg Angle2 : 63.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 104.00 / 104.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : -50.00 deg -10.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 112.00 / 112.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -50.00 deg Angle2 : -10.00 deg
Barrier height : 4.00 m
Elevation : 4.00 m
Barrier receiver distance : 103.00 / 103.00 m
Source elevation : 0.00 m
Receiver elevation : 4.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: TW1 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 1.20 ! 0.79 ! 0.79

ROAD (0.00 + 41.68 + 0.00) = 41.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	63	0.43	69.67	0.00	-12.53	-3.85	0.00	0.00	-11.61	41.68

Segment Leq : 41.68 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: TW2 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	0.88	0.88

ROAD (0.00 + 36.78 + 0.00) = 36.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-10	0.34	69.67	0.00	-11.69	-6.78	0.00	0.00	-14.42	36.78

Segment Leq : 36.78 dBA

Total Leq All Segments: 42.90 dBA

Results segment # 1: TW1 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	0.79	0.79

ROAD (0.00 + 38.99 + 0.00) = 38.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	63	0.43	66.98	0.00	-12.53	-3.85	0.00	0.00	-11.61	38.99

Segment Leq : 38.99 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: TW2 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	0.88	0.88

ROAD (0.00 + 34.09 + 0.00) = 34.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-10	0.34	66.98	0.00	-11.69	-6.78	0.00	0.00	-14.42	34.09

Segment Leq : 34.09 dBA

Total Leq All Segments: 40.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 42.90
(NIGHT): 40.21

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 14-05-2010 08:35:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: PL1 (day/night)

Car traffic volume : 1816/400 veh/TimePeriod
Medium truck volume : 0/0 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: PL1 (day/night)

Angle1 Angle2 : -62.00 deg -48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 98.00 / 98.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: PL2 (day/night)

Car traffic volume : 1816/400 veh/TimePeriod
Medium truck volume : 0/0 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: PL2 (day/night)

Angle1 Angle2 : -40.00 deg -16.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 204.00 / 204.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: PL1 (day)

Source height = 0.50 m

ROAD (0.00 + 30.69 + 0.00) = 30.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-62	-48	0.00	49.93	0.00	-8.15	-11.09	0.00	0.00	0.00	30.69
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Segment Leq : 30.69 dBA

Results segment # 2: PL2 (day)

Source height = 0.50 m

ROAD (0.00 + 29.84 + 0.00) = 29.84 dBA

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

-40	-16	0.00	49.93	0.00	-11.34	-8.75	0.00	0.00	0.00	29.84
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Segment Leq : 29.84 dBA

Total Leq All Segments: 33.30 dBA

Results segment # 1: PL1 (night)

Source height = 0.50 m

ROAD (0.00 + 27.13 + 0.00) = 27.13 dBA

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

-62	-48	0.00	46.37	0.00	-8.15	-11.09	0.00	0.00	0.00	27.13
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Segment Leq : 27.13 dBA

Results segment # 2: PL2 (night)

Source height = 0.50 m

ROAD (0.00 + 26.28 + 0.00) = 26.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-40	-16	0.00	46.37	0.00	-11.34	-8.75	0.00	0.00	0.00	26.28
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Segment Leq : 26.28 dBA

Total Leq All Segments: 29.74 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 33.30
(NIGHT): 29.74

Future Build (R2)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 11:53:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r20lafb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 3.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 277.00 / 277.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -87.00 deg -9.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 278.00 / 278.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 3.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 234.00 / 234.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -87.00 deg -9.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 238.00 / 238.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

ROAD (0.00 + 56.38 + 0.00) = 56.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
3	65	0.66	82.73	0.00	-21.02	-5.33	0.00	0.00	0.00	56.38

Segment Leq : 56.38 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.47 m

ROAD (0.00 + 56.55 + 0.00) = 56.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	-9	0.66	82.73	0.00	-21.05	-5.14	0.00	0.00	0.00	56.55

Segment Leq : 56.55 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 57.48 + 0.00) = 57.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
3	65	0.66	82.62	0.00	-19.81	-5.33	0.00	0.00	0.00	57.48

Segment Leq : 57.48 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.50 m

ROAD (0.00 + 57.55 + 0.00) = 57.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	-9	0.66	82.62	0.00	-19.93	-5.14	0.00	0.00	0.00	57.55

Segment Leq : 57.55 dBA

Total Leq All Segments: 63.04 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.78 m

ROAD (0.00 + 49.59 + 0.00) = 49.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
3	65	0.66	75.94	0.00	-21.02	-5.33	0.00	0.00	0.00	49.59

Segment Leq : 49.59 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.78 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
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-87	-9	0.66	75.94	0.00	-21.05	-5.14	0.00	0.00	0.00	49.76
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Segment Leq : 49.76 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.55 m

ROAD (0.00 + 49.34 + 0.00) = 49.34 dBA

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

3	65	0.66	74.48	0.00	-19.81	-5.33	0.00	0.00	0.00	49.34
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Segment Leq : 49.34 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.55 m

ROAD (0.00 + 49.41 + 0.00) = 49.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-87	-9	0.66	74.48	0.00	-19.93	-5.14	0.00	0.00	0.00	49.41
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Segment Leq : 49.41 dBA

Total Leq All Segments: 55.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.04

(NIGHT): 55.55

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 12:52:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2olatw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : 18.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 86.00 / 86.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : -87.00 deg 29.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 85.00 / 85.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: TW1 (day)

Source height = 0.50 m

ROAD (0.00 + 57.46 + 0.00) = 57.46 dBA

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

18	80	0.00	69.67	0.00	-7.58	-4.63	0.00	0.00	0.00	57.46
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Segment Leq : 57.46 dBA

Results segment # 2: TW2 (day)

Source height = 0.50 m

ROAD (0.00 + 60.23 + 0.00) = 60.23 dBA

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

-87	29	0.00	69.67	0.00	-7.53	-1.91	0.00	0.00	0.00	60.23
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 60.23 dBA

Total Leq All Segments: 62.07 dBA

Results segment # 1: TW1 (night)

Source height = 0.50 m

ROAD (0.00 + 54.77 + 0.00) = 54.77 dBA

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

18	80	0.00	66.98	0.00	-7.58	-4.63	0.00	0.00	0.00	54.77
----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 54.77 dBA

Results segment # 2: TW2 (night)

Source height = 0.50 m

ROAD (0.00 + 57.54 + 0.00) = 57.54 dBA

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

-87	29	0.00	66.98	0.00	-7.53	-1.91	0.00	0.00	0.00	57.54
-----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 57.54 dBA

Total Leq All Segments: 59.38 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.07
(NIGHT): 59.38

Future Build (R3)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 12:49:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r30lafb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 173.00 / 173.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 50.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 104297/6050 veh/TimePeriod
Medium truck volume : 2657/359 veh/TimePeriod
Heavy truck volume : 5314/719 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -80.00 deg 43.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 172.00 / 172.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 43.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 129.00 / 129.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 50.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 96485/6849 veh/TimePeriod
Medium truck volume : 2671/214 veh/TimePeriod
Heavy truck volume : 5341/429 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -80.00 deg 43.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 128.00 / 128.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 43.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 113.00 / 113.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.47 ! 1.20 ! 2.42 ! 2.42

ROAD (0.00 + 60.51 + 0.00) = 60.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	82.73	0.00	-10.62	-6.53	0.00	0.00	-5.08	60.51

Segment Leq : 60.51 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.47	1.20	2.41	2.41

ROAD (0.00 + 65.30 + 0.00) = 65.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	82.73	0.00	-10.59	-1.65	0.00	0.00	-5.18	65.30

Segment Leq : 65.30 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	1.84	1.84

ROAD (0.00 + 60.98 + 0.00) = 60.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	82.62	0.00	-9.34	-6.53	0.00	0.00	-5.76	60.98

Segment Leq : 60.98 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	1.82	1.82

ROAD (0.00 + 64.85 + 0.00) = 64.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	82.62	0.00	-9.31	-1.65	0.00	0.00	-6.80	64.85

Segment Leq : 64.85 dBA

Total Leq All Segments: 69.46 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.78 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.78	1.20	2.62	2.62

ROAD (0.00 + 53.76 + 0.00) = 53.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	75.94	0.00	-10.62	-6.53	0.00	0.00	-5.03	53.76

Segment Leq : 53.76 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.78 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.78	1.20	2.61	2.61

ROAD (0.00 + 58.62 + 0.00) = 58.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	43	0.00	75.94	0.00	-10.59	-1.65	0.00	0.00	-5.08	58.62

Segment Leq : 58.62 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.55	1.20	1.88	1.88

ROAD (0.00 + 52.88 + 0.00) = 52.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.00	74.48	0.00	-9.34	-6.53	0.00	0.00	-5.72	52.88

Segment Leq : 52.88 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.55	!	1.20	!
		1.86	!
			1.86

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
-80	43	0.00	74.48	0.00	-9.31	-1.65	0.00	0.00	-6.70	56.82

Segment Leq : 56.82 dBA

Total Leq All Segments: 62.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.46
(NIGHT): 62.15

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 12:51:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3olatw.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW (day/night)

Angle1 Angle2 : -84.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 86.00 / 86.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: TW (day)

Source height = 0.50 m

ROAD (0.00 + 61.94 + 0.00) = 61.94 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -84 90 0.00 69.67 0.00 -7.58 -0.15 0.00 0.00 0.00 61.94

Segment Leq : 61.94 dBA

Total Leq All Segments: 61.94 dBA

Results segment # 1: TW (night)

Source height = 0.50 m

ROAD (0.00 + 59.25 + 0.00) = 59.25 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -84 90 0.00 66.98 0.00 -7.58 -0.15 0.00 0.00 0.00 59.25

Segment Leq : 59.25 dBA

Total Leq All Segments: 59.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.94
(NIGHT): 59.25

Future Build (R5)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 13:02:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r50lafb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -81.00 deg -48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 143.00 / 143.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -53.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 123.00 / 123.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 3: 407EB3 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407EB3 (day/night)

Angle1 Angle2 : -19.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 117.00 / 117.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -19.00 deg Angle2 : 40.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 107.00 / 107.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: 407EB4 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407EB4 (day/night)

Angle1 Angle2 : 36.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 128.00 / 128.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 36.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 5: 407EB5 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: 407EB5 (day/night)

Angle1 Angle2 : 56.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 171.00 / 171.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 56.00 deg Angle2 : 70.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 155.00 / 155.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 6: 407WB1 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: 407WB1 (day/night)

Angle1 Angle2 : -81.00 deg -48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 187.00 / 187.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 7: 407WB2 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 7: 407WB2 (day/night)

Angle1 Angle2 : -53.00 deg -12.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 166.00 / 166.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 8: 407WB3 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 8: 407WB3 (day/night)

Angle1 Angle2 : -19.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 158.00 / 158.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -19.00 deg Angle2 : 40.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 107.00 / 107.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 9: 407WB4 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 9: 407WB4 (day/night)

Angle1 Angle2 : 36.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 168.00 / 168.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 36.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 10: 407WB5 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 10: 407WB5 (day/night)

Angle1 Angle2 : 56.00 deg 70.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 211.00 / 211.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 56.00 deg Angle2 : 70.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 155.00 / 155.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.47 m

ROAD (0.00 + 55.55 + 0.00) = 55.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	81.70	0.00	-16.26	-9.89	0.00	0.00	0.00	55.55

Segment Leq : 55.55 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.47 m

ROAD (0.00 + 59.54 + 0.00) = 59.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	81.70	0.00	-15.17	-6.98	0.00	0.00	0.00	59.54

Segment Leq : 59.54 dBA

Results segment # 3: 407EB3 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.47 !	1.20 !	1.70 !	1.70

ROAD (0.00 + 55.87 + 0.00) = 55.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.40	81.70	0.00	-12.49	-4.95	0.00	0.00	-8.38	55.87

Segment Leq : 55.87 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407EB4 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.47	1.20	1.75	1.75

ROAD (0.00 + 52.87 + 0.00) = 52.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.40	81.70	0.00	-13.04	-8.88	0.00	0.00	-6.91	52.87

Segment Leq : 52.87 dBA

Results segment # 5: 407EB5 (day)

Source height = 1.47 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.47	1.20	1.72	1.72

ROAD (0.00 + 48.21 + 0.00) = 48.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.40	81.70	0.00	-14.80	-12.48	0.00	0.00	-6.21	48.21

Segment Leq : 48.21 dBA

Results segment # 6: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 54.43 + 0.00) = 54.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	82.50	0.00	-18.19	-9.89	0.00	0.00	0.00	54.43

Segment Leq : 54.43 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 7: 407WB2 (day)

Source height = 1.50 m

ROAD (0.00 + 58.19 + 0.00) = 58.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-53	-12	0.66	82.50	0.00	-17.33	-6.98	0.00	0.00	0.00	58.19
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Segment Leq : 58.19 dBA

Results segment # 8: 407WB3 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
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1.50 !	1.20 !	2.37 !	2.37
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ROAD (0.00 + 57.97 + 0.00) = 57.97 dBA

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

-19	40	0.40	82.50	0.00	-14.31	-4.95	0.00	0.00	-5.28	57.97
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Segment Leq : 57.97 dBA

Results segment # 9: 407WB4 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
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1.50 !	1.20 !	2.35 !	2.35
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ROAD (0.00 + 53.75 + 0.00) = 53.75 dBA

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

36	64	0.40	82.50	0.00	-14.68	-8.88	0.00	0.00	-5.19	53.75
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Segment Leq : 53.75 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 10: 407WB5 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	2.22	2.22

ROAD (0.00 + 48.79 + 0.00) = 48.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.40	82.50	0.00	-16.06	-12.47	0.00	0.00	-5.18	48.79

Segment Leq : 48.79 dBA

Total Leq All Segments: 65.78 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.74 m

ROAD (0.00 + 48.41 + 0.00) = 48.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	74.55	0.00	-16.26	-9.89	0.00	0.00	0.00	48.41

Segment Leq : 48.41 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.74 m

ROAD (0.00 + 52.40 + 0.00) = 52.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	74.55	0.00	-15.17	-6.98	0.00	0.00	0.00	52.40

Segment Leq : 52.40 dBA

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Results segment # 3: 407EB3 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.74	1.20	1.95	1.95

ROAD (0.00 + 49.78 + 0.00) = 49.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.39	74.55	0.00	-12.41	-4.95	0.00	0.00	-7.41	49.78

Segment Leq : 49.78 dBA

Results segment # 4: 407EB4 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.74	1.20	1.99	1.99

ROAD (0.00 + 46.43 + 0.00) = 46.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.39	74.55	0.00	-12.96	-8.87	0.00	0.00	-6.30	46.43

Segment Leq : 46.43 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: 407EB5 (night)

Source height = 1.74 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.74 !	1.20 !	1.97 !	1.97

ROAD (0.00 + 41.58 + 0.00) = 41.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.39	74.55	0.00	-14.71	-12.45	0.00	0.00	-5.81	41.58

Segment Leq : 41.58 dBA

Results segment # 6: 407WB1 (night)

Source height = 1.57 m

ROAD (0.00 + 46.18 + 0.00) = 46.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	-48	0.66	74.26	0.00	-18.19	-9.89	0.00	0.00	0.00	46.18

Segment Leq : 46.18 dBA

Results segment # 7: 407WB2 (night)

Source height = 1.57 m

ROAD (0.00 + 49.95 + 0.00) = 49.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-12	0.66	74.26	0.00	-17.33	-6.98	0.00	0.00	0.00	49.95

Segment Leq : 49.95 dBA

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Results segment # 8: 407WB3 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.57	1.20	2.42	2.42

ROAD (0.00 + 49.78 + 0.00) = 49.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-19	40	0.40	74.26	0.00	-14.29	-4.95	0.00	0.00	-5.24	49.78

Segment Leq : 49.78 dBA

Results segment # 9: 407WB4 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.57	1.20	2.40	2.40

ROAD (0.00 + 45.56 + 0.00) = 45.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	64	0.40	74.26	0.00	-14.66	-8.88	0.00	0.00	-5.17	45.56

Segment Leq : 45.56 dBA

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Results segment # 10: 407WB5 (night)

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.57 !	1.20 !	2.26 !	2.26

ROAD (0.00 + 40.60 + 0.00) = 40.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
56	70	0.40	74.26	0.00	-16.04	-12.47	0.00	0.00	-5.16	40.60

Segment Leq : 40.60 dBA

Total Leq All Segments: 58.32 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.78
(NIGHT): 58.32

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 13:04:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5olatw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 5 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : -66.00 deg -58.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 126.00 / 126.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -66.00 deg Angle2 : -58.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 118.00 / 118.00 m
Source elevation : 0.00 m
Receiver elevation : 2.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 5 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : -42.00 deg -26.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 174.00 / 174.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -42.00 deg Angle2 : -26.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 167.00 / 167.00 m
Source elevation : 0.00 m
Receiver elevation : 2.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: TW3 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 5 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: TW3 (day/night)

Angle1 Angle2 : -22.00 deg 8.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 180.00 / 180.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 4: TW4 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: TW4 (day/night)

Angle1 Angle2 : 8.00 deg 48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 180.00 / 180.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: TW5 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: TW5 (day/night)

Angle1 Angle2 : 44.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 195.00 / 195.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: TW1 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50 !	1.20 !	0.67 !	0.67

ROAD (0.00 + 33.04 + 0.00) = 33.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	-58	0.52	69.67	0.00	-14.04	-15.23	0.00	0.00	-7.36	33.04

Segment Leq : 33.04 dBA

Results segment # 2: TW2 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50 !	1.20 !	0.61 !	0.61

ROAD (0.00 + 33.31 + 0.00) = 33.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-42	-26	0.52	69.67	0.00	-16.17	-10.94	0.00	0.00	-9.25	33.31

Segment Leq : 33.31 dBA

Results segment # 3: TW3 (day)

Source height = 0.50 m

ROAD (0.00 + 43.92 + 0.00) = 43.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-22	8	0.66	69.67	0.00	-17.91	-7.84	0.00	0.00	0.00	43.92

Segment Leq : 43.92 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: TW4 (day)

Source height = 0.50 m

ROAD (0.00 + 44.80 + 0.00) = 44.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
8	48	0.66	69.67	0.00	-17.91	-6.95	0.00	0.00	0.00	44.80

Segment Leq : 44.80 dBA

Results segment # 5: TW5 (day)

Source height = 0.50 m

ROAD (0.00 + 42.28 + 0.00) = 42.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
44	90	0.66	69.67	0.00	-18.49	-8.90	0.00	0.00	0.00	42.28

Segment Leq : 42.28 dBA

Total Leq All Segments: 48.80 dBA

Results segment # 1: TW1 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	0.67	0.67

ROAD (0.00 + 30.35 + 0.00) = 30.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	-58	0.52	66.98	0.00	-14.04	-15.23	0.00	0.00	-7.36	30.35

Segment Leq : 30.35 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: TW2 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50	!	1.20	!
		0.61	!
			0.61

ROAD (0.00 + 30.62 + 0.00) = 30.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-42	-26	0.52	66.98	0.00	-16.17	-10.94	0.00	0.00	-9.25	30.62

Segment Leq : 30.62 dBA

Results segment # 3: TW3 (night)

Source height = 0.50 m

ROAD (0.00 + 41.23 + 0.00) = 41.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-22	8	0.66	66.98	0.00	-17.91	-7.84	0.00	0.00	0.00	41.23

Segment Leq : 41.23 dBA

Results segment # 4: TW4 (night)

Source height = 0.50 m

ROAD (0.00 + 42.11 + 0.00) = 42.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
8	48	0.66	66.98	0.00	-17.91	-6.95	0.00	0.00	0.00	42.11

Segment Leq : 42.11 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: TW5 (night)

Source height = 0.50 m

ROAD (0.00 + 39.59 + 0.00) = 39.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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44	90	0.66	66.98	0.00	-18.49	-8.90	0.00	0.00	0.00	39.59
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Segment Leq : 39.59 dBA

Total Leq All Segments: 46.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 48.80

(NIGHT): 46.11

Future Build (R6)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 13:19:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r60lafb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 83167/4738 veh/TimePeriod
Medium truck volume : 2075/255 veh/TimePeriod
Heavy truck volume : 4150/510 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 6.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 347.00 / 347.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg 6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 347.00 / 347.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

Page 2

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 94539/6292 veh/TimePeriod
Medium truck volume : 2593/207 veh/TimePeriod
Heavy truck volume : 5186/415 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 6.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 305.00 / 305.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg 6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 305.00 / 305.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.47 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
6	65	0.66	81.70	0.00	-22.65	-5.59	0.00	0.00	0.00	53.46

Segment Leq : 53.46 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.50 m

ROAD (0.00 + 54.86 + 0.00) = 54.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	6	0.66	81.59	0.00	-22.65	-4.08	0.00	0.00	0.00	54.86
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Segment Leq : 54.86 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.50 m

ROAD (0.00 + 55.20 + 0.00) = 55.20 dBA

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

6	65	0.66	82.50	0.00	-21.72	-5.59	0.00	0.00	0.00	55.20
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Segment Leq : 55.20 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.53 m

ROAD (0.00 + 57.30 + 0.00) = 57.30 dBA

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

-90	6	0.66	83.10	0.00	-21.72	-4.08	0.00	0.00	0.00	57.30
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Segment Leq : 57.30 dBA

Total Leq All Segments: 61.45 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.74 m

ROAD (0.00 + 46.32 + 0.00) = 46.32 dBA

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

6	65	0.66	74.55	0.00	-22.65	-5.59	0.00	0.00	0.00	46.32
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Segment Leq : 46.32 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.80 m

ROAD (0.00 + 47.95 + 0.00) = 47.95 dBA

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

-90	6	0.66	74.68	0.00	-22.64	-4.08	0.00	0.00	0.00	47.95
-----	---	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 47.95 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.57 m

ROAD (0.00 + 46.96 + 0.00) = 46.96 dBA

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

6	65	0.66	74.26	0.00	-21.72	-5.59	0.00	0.00	0.00	46.96
---	----	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 46.96 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.61 m

ROAD (0.00 + 49.19 + 0.00) = 49.19 dBA

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

-90	6	0.66	74.99	0.00	-21.72	-4.08	0.00	0.00	0.00	49.19
-----	---	------	-------	------	--------	-------	------	------	------	-------

Segment Leq : 49.19 dBA

Total Leq All Segments: 53.76 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.45

(NIGHT): 53.76

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 13:21:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6olatw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 3 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : 50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 122.00 / 122.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 50.00 deg Angle2 : 90.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 114.00 / 114.00 m
Source elevation : 0.00 m
Receiver elevation : 2.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 3 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : 10.00 deg 48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 128.00 / 128.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 10.00 deg Angle2 : 48.00 deg
Barrier height : 6.00 m
Elevation : 6.00 m
Barrier receiver distance : 122.00 / 122.00 m
Source elevation : 0.00 m
Receiver elevation : 6.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: TW3 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: TW3 (day/night)

Angle1 Angle2 : -38.00 deg 8.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 129.00 / 129.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -38.00 deg Angle2 : 8.00 deg
Barrier height : 7.00 m
Elevation : 7.00 m
Barrier receiver distance : 122.00 / 122.00 m
Source elevation : 0.00 m
Receiver elevation : 7.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 4: TW4 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: TW4 (day/night)

Angle1 Angle2 : -63.00 deg -47.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 112.00 / 112.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -63.00 deg Angle2 : -47.00 deg
Barrier height : 5.00 m
Elevation : 5.00 m
Barrier receiver distance : 106.00 / 106.00 m
Source elevation : 0.00 m
Receiver elevation : 5.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 5: TW5 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: TW5 (day/night)

Angle1 Angle2 : -78.00 deg -74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Results segment # 1: TW1 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50	!	1.20	!
		0.68	!
			0.68

ROAD (0.00 + 39.99 + 0.00) = 39.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	90	0.52	69.67	0.00	-13.83	-9.24	0.00	0.00	-6.62	39.99

Segment Leq : 39.99 dBA

Results segment # 2: TW2 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50	!	1.20	!
		0.81	!
			0.81

ROAD (0.00 + 32.29 + 0.00) = 32.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	48	0.16	69.67	0.00	-10.79	-6.86	0.00	0.00	-19.72	32.29

Segment Leq : 32.29 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: TW3 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50	!	1.20	!
		0.92	!
			0.92

ROAD (0.00 + 33.74 + 0.00) = 33.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-38	8	0.07	69.67	0.00	-9.99	-5.94	0.00	0.00	-20.00	33.74

Segment Leq : 33.74 dBA

Results segment # 4: TW4 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50	!	1.20	!
		0.81	!
			0.81

ROAD (0.00 + 31.15 + 0.00) = 31.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	-47	0.25	69.67	0.00	-10.91	-11.12	0.00	0.00	-16.49	31.15

Segment Leq : 31.15 dBA

Results segment # 5: TW5 (day)

Source height = 0.50 m

ROAD (0.00 + 37.96 + 0.00) = 37.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-78	-74	0.66	69.67	0.00	-11.11	-20.60	0.00	0.00	0.00	37.96

Segment Leq : 37.96 dBA

Total Leq All Segments: 43.34 dBA

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Results segment # 1: TW1 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
-----+-----+-----+-----			
0.50 !	1.20 !	0.68 !	0.68

ROAD (0.00 + 37.30 + 0.00) = 37.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
50	90	0.52	66.98	0.00	-13.83	-9.24	0.00	0.00	-6.62	37.30
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Segment Leq : 37.30 dBA

Results segment # 2: TW2 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
-----+-----+-----+-----			
0.50 !	1.20 !	0.81 !	0.81

ROAD (0.00 + 29.60 + 0.00) = 29.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	48	0.16	66.98	0.00	-10.79	-6.86	0.00	0.00	-19.72	29.60
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Segment Leq : 29.60 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: TW3 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	0.92 !	0.92

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
-38	8	0.07	66.98	0.00	-9.99	-5.94	0.00	0.00	-20.00	31.05

Segment Leq : 31.05 dBA

Results segment # 4: TW4 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	0.81 !	0.81

ROAD (0.00 + 28.46 + 0.00) = 28.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	-47	0.25	66.98	0.00	-10.91	-11.12	0.00	0.00	-16.49	28.46

Segment Leq : 28.46 dBA

Results segment # 5: TW5 (night)

Source height = 0.50 m

ROAD (0.00 + 35.27 + 0.00) = 35.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-78	-74	0.66	66.98	0.00	-11.11	-20.60	0.00	0.00	0.00	35.27

Segment Leq : 35.27 dBA

Total Leq All Segments: 40.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 43.34
(NIGHT): 40.65

Future Build (R7)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 13:27:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r70lafb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -65.00 deg 73.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 168.00 / 168.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -65.00 deg Angle2 : 73.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg -61.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 190.00 / 190.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 137.00 / 137.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : -65.00 deg 73.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 126.00 / 126.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -65.00 deg Angle2 : 73.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 115.00 / 115.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg -61.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 149.00 / 149.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 137.00 / 137.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.50 ! 1.20 ! 2.35 ! 2.35

ROAD (0.00 + 60.03 + 0.00) = 60.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	81.59	0.00	-14.68	-1.64	0.00	0.00	-5.23	60.03

Segment Leq : 60.03 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.20	2.25	2.25

ROAD (0.00 + 50.47 + 0.00) = 50.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	81.59	0.00	-15.43	-10.60	0.00	0.00	-5.09	50.47

Segment Leq : 50.47 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.53 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.53	1.20	1.76	1.76

ROAD (0.00 + 61.08 + 0.00) = 61.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	83.10	0.00	-12.92	-1.64	0.00	0.00	-7.45	61.08

Segment Leq : 61.08 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.53 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.53	1.20	1.74	1.74

ROAD (0.00 + 52.74 + 0.00) = 52.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	83.10	0.00	-13.94	-10.59	0.00	0.00	-5.83	52.74

Segment Leq : 52.74 dBA

Total Leq All Segments: 64.13 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.80 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.80	1.20	2.56	2.56

ROAD (0.00 + 53.36 + 0.00) = 53.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.39	74.68	0.00	-14.58	-1.63	0.00	0.00	-5.11	53.36

Segment Leq : 53.36 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.80 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.80	1.20	2.47	2.47

ROAD (0.00 + 43.77 + 0.00) = 43.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.39	74.68	0.00	-15.33	-10.54	0.00	0.00	-5.05	43.77

Segment Leq : 43.77 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.61 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.61	1.20	1.84	1.84

ROAD (0.00 + 53.25 + 0.00) = 53.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	73	0.40	74.99	0.00	-12.90	-1.64	0.00	0.00	-7.20	53.25

Segment Leq : 53.25 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (night)

Source height = 1.61 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.61 !	1.20 !	1.82 !	1.82

ROAD (0.00 + 44.76 + 0.00) = 44.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-61	0.40	74.99	0.00	-13.92	-10.58	0.00	0.00	-5.74	44.76

Segment Leq : 44.76 dBA

Total Leq All Segments: 56.83 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.13
(NIGHT): 56.83

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 13:29:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r70latw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : 82.00 deg 85.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : 47.00 deg 72.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 / 53.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 3: TW3 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: TW3 (day/night)

Angle1 Angle2 : -66.00 deg 41.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 58.00 / 58.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -66.00 deg Angle2 : 41.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 52.00 / 52.00 m
Source elevation : 3.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: TW4 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: TW4 (day/night)

Angle1 Angle2 : -77.00 deg -65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -77.00 deg Angle2 : -65.00 deg
Barrier height : 9.00 m
Elevation : 9.00 m
Barrier receiver distance : 55.00 / 55.00 m
Source elevation : 9.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 5: TW5 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: TW5 (day/night)

Angle1 Angle2 : -90.00 deg -64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 124.00 / 124.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 3.50 m
Elevation : 3.50 m
Barrier receiver distance : 119.00 / 119.00 m
Source elevation : 3.50 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: TW1 (day)

Source height = 0.50 m

ROAD (0.00 + 42.25 + 0.00) = 42.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
82	85	0.66	69.67	0.00	-3.39	-24.04	0.00	0.00	0.00	42.25

Segment Leq : 42.25 dBA

Results segment # 2: TW2 (day)

Source height = 0.50 m

ROAD (0.00 + 50.01 + 0.00) = 50.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
47	72	0.66	69.67	0.00	-9.10	-10.56	0.00	0.00	0.00	50.01

Segment Leq : 50.01 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: TW3 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	3.26 !	3.26

ROAD (0.00 + 57.48 + 0.00) = 57.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	41	0.43	69.67	0.00	-8.39	-2.61	0.00	0.00	-4.71	53.96*
-66	41	0.61	69.67	0.00	-9.45	-2.74	0.00	0.00	0.00	57.48

* Bright Zone !

Segment Leq : 57.48 dBA

Results segment # 4: TW4 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	8.81 !	8.81

ROAD (0.00 + 46.82 + 0.00) = 46.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	-65	0.00	69.67	0.00	-6.02	-11.76	0.00	0.00	-5.07	46.82

Segment Leq : 46.82 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: TW5 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	3.89	3.89

ROAD (0.00 + 42.54 + 0.00) = 42.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-64	0.38	69.67	0.00	-12.70	-11.15	0.00	0.00	-4.81	41.01*
-90	-64	0.59	69.67	0.00	-14.62	-12.51	0.00	0.00	0.00	42.54

* Bright Zone !

Segment Leq : 42.54 dBA

Total Leq All Segments: 58.71 dBA

Results segment # 1: TW1 (night)

Source height = 0.50 m

ROAD (0.00 + 39.56 + 0.00) = 39.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
82	85	0.66	66.98	0.00	-3.39	-24.04	0.00	0.00	0.00	39.56

Segment Leq : 39.56 dBA

Results segment # 2: TW2 (night)

Source height = 0.50 m

ROAD (0.00 + 47.32 + 0.00) = 47.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
47	72	0.66	66.98	0.00	-9.10	-10.56	0.00	0.00	0.00	47.32

Segment Leq : 47.32 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: TW3 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	3.26 !	3.26

ROAD (0.00 + 54.79 + 0.00) = 54.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	41	0.43	66.98	0.00	-8.39	-2.61	0.00	0.00	-4.71	51.27*
-66	41	0.61	66.98	0.00	-9.45	-2.74	0.00	0.00	0.00	54.79

* Bright Zone !

Segment Leq : 54.79 dBA

Results segment # 4: TW4 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	8.81 !	8.81

ROAD (0.00 + 44.13 + 0.00) = 44.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	-65	0.00	66.98	0.00	-6.02	-11.76	0.00	0.00	-5.07	44.13

Segment Leq : 44.13 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: TW5 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	3.89	3.89

ROAD (0.00 + 39.85 + 0.00) = 39.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-64	0.38	66.98	0.00	-12.70	-11.15	0.00	0.00	-4.81	38.32*
-90	-64	0.59	66.98	0.00	-14.62	-12.51	0.00	0.00	0.00	39.85

* Bright Zone !

Segment Leq : 39.85 dBA

Total Leq All Segments: 56.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.71
(NIGHT): 56.02

Future Build (R8)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 13:38:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r80lafb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -90.00 deg -24.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 408.00 / 408.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -17.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 433.00 / 433.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407EB3 (day/night)

Car traffic volume : 70971/4078 veh/TimePeriod
Medium truck volume : 2068/264 veh/TimePeriod
Heavy truck volume : 4136/528 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407EB3 (day/night)

Angle1 Angle2 : 41.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 403.00 / 403.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 41.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 394.00 / 394.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: 407WB1 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB1 (day/night)

Angle1 Angle2 : -90.00 deg -24.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 454.00 / 454.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 5: 407WB2 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: 407WB2 (day/night)

Angle1 Angle2 : -17.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 475.00 / 475.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 6: 407WB3 (day/night)

Car traffic volume : 94101/6569 veh/TimePeriod
Medium truck volume : 2974/252 veh/TimePeriod
Heavy truck volume : 5948/505 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: 407WB3 (day/night)

Angle1 Angle2 : 41.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 436.00 / 436.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 41.00 deg Angle2 : 64.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 394.00 / 394.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.50 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	-24	0.66	81.59	0.00	-23.81	-6.44	0.00	0.00	0.00	51.33

Segment Leq : 51.33 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.50 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
-17	35	0.66	81.59	0.00	-24.24	-5.53	0.00	0.00	0.00	51.81

Segment Leq : 51.81 dBA

Results segment # 3: 407EB3 (day)

Source height = 1.52 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.52 !	1.20 !	1.58 !	1.58

ROAD (0.00 + 43.80 + 0.00) = 43.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.40	81.42	0.00	-19.99	-9.82	0.00	0.00	-7.82	43.80

Segment Leq : 43.80 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB1 (day)

Source height = 1.53 m

ROAD (0.00 + 52.07 + 0.00) = 52.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	-24	0.66	83.10	0.00	-24.58	-6.44	0.00	0.00	0.00	52.07
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Segment Leq : 52.07 dBA

Results segment # 5: 407WB2 (day)

Source height = 1.53 m

ROAD (0.00 + 52.66 + 0.00) = 52.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-17	35	0.66	83.10	0.00	-24.91	-5.53	0.00	0.00	0.00	52.66
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Segment Leq : 52.66 dBA

Results segment # 6: 407WB3 (day)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.55 !	1.20 !	1.81 !	1.81

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
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

41	64	0.40	82.88	0.00	-20.45	-9.82	0.00	0.00	-5.57	47.04
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Segment Leq : 47.04 dBA

Total Leq All Segments: 58.50 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (night)

Source height = 1.80 m

ROAD (0.00 + 44.42 + 0.00) = 44.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-24	0.66	74.68	0.00	-23.81	-6.44	0.00	0.00	0.00	44.42

Segment Leq : 44.42 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.80 m

ROAD (0.00 + 44.91 + 0.00) = 44.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-17	35	0.66	74.68	0.00	-24.24	-5.53	0.00	0.00	0.00	44.91

Segment Leq : 44.91 dBA

Results segment # 3: 407EB3 (night)

Source height = 1.81 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.81 !	1.20 !	1.87 !	1.87

ROAD (0.00 + 37.91 + 0.00) = 37.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	64	0.39	74.53	0.00	-19.86	-9.80	0.00	0.00	-6.96	37.91

Segment Leq : 37.91 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB1 (night)

Source height = 1.61 m

ROAD (0.00 + 43.96 + 0.00) = 43.96 dBA

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

-90	-24	0.66	74.99	0.00	-24.58	-6.44	0.00	0.00	0.00	43.96
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Segment Leq : 43.96 dBA

Results segment # 5: 407WB2 (night)

Source height = 1.61 m

ROAD (0.00 + 44.55 + 0.00) = 44.55 dBA

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

-17	35	0.66	74.99	0.00	-24.91	-5.53	0.00	0.00	0.00	44.55
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Segment Leq : 44.55 dBA

Results segment # 6: 407WB3 (night)

Source height = 1.62 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.62 !	1.20 !	1.87 !	1.87

ROAD (0.00 + 39.15 + 0.00) = 39.15 dBA

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

41	64	0.40	74.90	0.00	-20.42	-9.81	0.00	0.00	-5.52	39.15
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Segment Leq : 39.15 dBA

Total Leq All Segments: 51.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.50

(NIGHT): 51.02

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 15:13:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8olatw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 3 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : -90.00 deg -39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 240.00 / 240.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : -33.00 deg -19.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 259.00 / 259.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -33.00 deg Angle2 : -19.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 253.00 / 253.00 m
Source elevation : 2.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 3: TW3 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: TW3 (day/night)

Angle1 Angle2 : -11.00 deg 6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 269.00 / 269.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -11.00 deg Angle2 : 6.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 263.00 / 263.00 m
Source elevation : 2.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: TW4 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: TW4 (day/night)

Angle1 Angle2 : 16.00 deg 39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 259.00 / 259.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 16.00 deg Angle2 : 39.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 248.00 / 248.00 m
Source elevation : 2.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 5: TW5 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: TW5 (day/night)

Angle1 Angle2 : 41.00 deg 66.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 251.00 / 251.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 41.00 deg Angle2 : 66.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 240.00 / 240.00 m
Source elevation : 0.00 m
Receiver elevation : 2.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: TW1 (day)

Source height = 0.50 m

ROAD (0.00 + 41.50 + 0.00) = 41.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-39	0.66	69.67	0.00	-19.99	-8.18	0.00	0.00	0.00	41.50

Segment Leq : 41.50 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: TW2 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.47	2.47

ROAD (0.00 + 38.00 + 0.00) = 38.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	-19	0.52	69.67	0.00	-18.79	-11.34	0.00	0.00	-4.04	35.50*
-33	-19	0.64	69.67	0.00	-20.28	-11.40	0.00	0.00	0.00	38.00

* Bright Zone !

Segment Leq : 38.00 dBA

Results segment # 3: TW3 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.47	2.47

ROAD (0.00 + 38.86 + 0.00) = 38.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-11	6	0.52	69.67	0.00	-19.04	-10.26	0.00	0.00	-3.92	36.45*
-11	6	0.64	69.67	0.00	-20.55	-10.26	0.00	0.00	0.00	38.86

* Bright Zone !

Segment Leq : 38.86 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: TW4 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.44	2.44

ROAD (0.00 + 40.10 + 0.00) = 40.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
16	39	0.52	69.67	0.00	-18.79	-9.22	0.00	0.00	-4.54	37.11*
16	39	0.64	69.67	0.00	-20.28	-9.29	0.00	0.00	0.00	40.10

* Bright Zone !

Segment Leq : 40.10 dBA

Results segment # 5: TW5 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	0.62	0.62

ROAD (0.00 + 34.01 + 0.00) = 34.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	66	0.52	69.67	0.00	-18.59	-9.78	0.00	0.00	-7.30	34.01

Segment Leq : 34.01 dBA

Total Leq All Segments: 46.11 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: TW1 (night)

Source height = 0.50 m

ROAD (0.00 + 38.81 + 0.00) = 38.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-39	0.66	66.98	0.00	-19.99	-8.18	0.00	0.00	0.00	38.81

Segment Leq : 38.81 dBA

Results segment # 2: TW2 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	2.47 !	2.47

ROAD (0.00 + 35.31 + 0.00) = 35.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	-19	0.52	66.98	0.00	-18.79	-11.34	0.00	0.00	-4.04	32.81*
-33	-19	0.64	66.98	0.00	-20.28	-11.40	0.00	0.00	0.00	35.31

* Bright Zone !

Segment Leq : 35.31 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: TW3 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.47	2.47

ROAD (0.00 + 36.17 + 0.00) = 36.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-11	6	0.52	66.98	0.00	-19.04	-10.26	0.00	0.00	-3.92	33.76*
-11	6	0.64	66.98	0.00	-20.55	-10.26	0.00	0.00	0.00	36.17

* Bright Zone !

Segment Leq : 36.17 dBA

Results segment # 4: TW4 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.44	2.44

ROAD (0.00 + 37.41 + 0.00) = 37.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
16	39	0.52	66.98	0.00	-18.79	-9.22	0.00	0.00	-4.54	34.42*
16	39	0.64	66.98	0.00	-20.28	-9.29	0.00	0.00	0.00	37.41

* Bright Zone !

Segment Leq : 37.41 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: TW5 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	0.62	0.62

ROAD (0.00 + 31.32 + 0.00) = 31.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
41	66	0.52	66.98	0.00	-18.59	-9.78	0.00	0.00	-7.30	31.32

Segment Leq : 31.32 dBA

Total Leq All Segments: 43.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.11
(NIGHT): 43.42

Future Build (R9)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 15:18:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r90lafb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 89568/4653 veh/TimePeriod
Medium truck volume : 1971/213 veh/TimePeriod
Heavy truck volume : 3943/425 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : 79.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 155.00 / 155.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 96939/4734 veh/TimePeriod
Medium truck volume : 2064/224 veh/TimePeriod
Heavy truck volume : 4128/448 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -90.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 155.00 / 155.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 73443/6255 veh/TimePeriod
Medium truck volume : 1700/136 veh/TimePeriod
Heavy truck volume : 3400/272 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : 79.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 / 115.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 69737/6562 veh/TimePeriod
Medium truck volume : 1555/134 veh/TimePeriod
Heavy truck volume : 3110/269 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -90.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 115.00 / 115.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 407EB1 (day)

Source height = 1.43 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
79	90	0.66	81.70	0.00	-16.84	-19.08	0.00	0.00	0.00	45.79

Segment Leq : 45.79 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (day)

Source height = 1.41 m

ROAD (0.00 + 63.59 + 0.00) = 63.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
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-90	79	0.66	81.96	0.00	-16.84	-1.53	0.00	0.00	0.00	63.59
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Segment Leq : 63.59 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.44 m

ROAD (0.00 + 47.20 + 0.00) = 47.20 dBA

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

79	90	0.66	80.96	0.00	-14.68	-19.08	0.00	0.00	0.00	47.20
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Segment Leq : 47.20 dBA

Results segment # 4: 407WB2 (day)

Source height = 1.43 m

ROAD (0.00 + 64.43 + 0.00) = 64.43 dBA

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

-90	79	0.66	80.65	0.00	-14.68	-1.53	0.00	0.00	0.00	64.43
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Segment Leq : 64.43 dBA

Total Leq All Segments: 67.12 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.68 m

ROAD (0.00 + 38.03 + 0.00) = 38.03 dBA

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

79	90	0.66	73.94	0.00	-16.84	-19.08	0.00	0.00	0.00	38.03
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Segment Leq : 38.03 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407EB2 (night)

Source height = 1.70 m

ROAD (0.00 + 55.76 + 0.00) = 55.76 dBA

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

-90	79	0.66	74.13	0.00	-16.84	-1.53	0.00	0.00	0.00	55.76
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Segment Leq : 55.76 dBA

Results segment # 3: 407WB1 (night)

Source height = 1.42 m

ROAD (0.00 + 39.36 + 0.00) = 39.36 dBA

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

79	90	0.66	73.12	0.00	-14.68	-19.08	0.00	0.00	0.00	39.36
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Segment Leq : 39.36 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.40 m

ROAD (0.00 + 56.97 + 0.00) = 56.97 dBA

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

-90	79	0.66	73.18	0.00	-14.68	-1.53	0.00	0.00	0.00	56.97
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Segment Leq : 56.97 dBA

Total Leq All Segments: 59.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.12

(NIGHT): 59.49

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 15:20:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9olatw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 3 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : 66.00 deg 71.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 264.00 / 264.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 66.00 deg Angle2 : 71.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 259.00 / 259.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : 73.00 deg 77.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 150.00 / 150.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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Road data, segment # 3: TW3 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: TW3 (day/night)

Angle1 Angle2 : 68.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 68.00 deg Angle2 : 75.00 deg
Barrier height : 2.50 m
Elevation : 2.50 m
Barrier receiver distance : 130.00 / 130.00 m
Source elevation : 2.50 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: TW4 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: TW4 (day/night)

Angle1 Angle2 : 71.00 deg 78.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 77.00 / 77.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 71.00 deg Angle2 : 78.00 deg
Barrier height : 4.50 m
Elevation : 4.50 m
Barrier receiver distance : 71.00 / 71.00 m
Source elevation : 4.50 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 5: TW5 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: TW5 (day/night)

Angle1 Angle2 : 45.00 deg 76.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 55.00 / 55.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 45.00 deg Angle2 : 76.00 deg
Barrier height : 8.00 m
Elevation : 8.00 m
Barrier receiver distance : 49.00 / 49.00 m
Source elevation : 8.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 6: TW6 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: TW6 (day/night)

Angle1 Angle2 : -41.00 deg 26.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 69.00 / 69.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -41.00 deg Angle2 : 26.00 deg
Barrier height : 12.00 m
Elevation : 12.00 m
Barrier receiver distance : 63.00 / 63.00 m
Source elevation : 12.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 7: TW7 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 7: TW7 (day/night)

Angle1 Angle2 : -82.00 deg -58.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 48.00 / 48.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -82.00 deg Angle2 : -58.00 deg
Barrier height : 5.00 m
Elevation : 5.00 m
Barrier receiver distance : 43.00 / 43.00 m
Source elevation : 5.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: TW1 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 1.20 ! 0.57 ! 0.57

ROAD (0.00 + 23.29 + 0.00) = 23.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
66	71	0.43	69.67	0.00	-17.80	-17.44	0.00	0.00	-11.14	23.29

Segment Leq : 23.29 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: TW2 (day)

Source height = 0.50 m

ROAD (0.00 + 32.66 + 0.00) = 32.66 dBA

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

73	77	0.66	69.67	0.00	-16.60	-20.41	0.00	0.00	0.00	32.66
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Segment Leq : 32.66 dBA

Results segment # 3: TW3 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height	! Receiver (m) !	Barrier Height (m) !	Elevation of Barrier Top (m)
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0.50 !	1.20 !	2.93 !	2.93
--------	--------	--------	------

ROAD (0.00 + 36.95 + 0.00) = 36.95 dBA

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

68	75	0.47	69.67	0.00	-14.07	-16.47	0.00	0.00	-4.66	34.47*
68	75	0.62	69.67	0.00	-15.50	-17.22	0.00	0.00	0.00	36.95

* Bright Zone !

Segment Leq : 36.95 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: TW4 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	4.70	4.70

ROAD (0.00 + 41.22 + 0.00) = 41.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
71	78	0.29	69.67	0.00	-9.19	-15.79	0.00	0.00	-4.95	39.74*
71	78	0.56	69.67	0.00	-11.11	-17.34	0.00	0.00	0.00	41.22

* Bright Zone !

Segment Leq : 41.22 dBA

Results segment # 5: TW5 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	7.70	7.70

ROAD (0.00 + 51.19 + 0.00) = 51.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
45	76	0.00	69.67	0.00	-5.64	-7.64	0.00	0.00	-5.20	51.19

Segment Leq : 51.19 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 6: TW6 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	11.52	11.52

ROAD (0.00 + 52.81 + 0.00) = 52.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	26	0.00	69.67	0.00	-6.63	-4.29	0.00	0.00	-5.95	52.81

Segment Leq : 52.81 dBA

Results segment # 7: TW7 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	5.05	5.05

ROAD (0.00 + 50.46 + 0.00) = 50.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-82	-58	0.25	69.67	0.00	-6.31	-9.97	0.00	0.00	-4.99	48.40*
-82	-58	0.55	69.67	0.00	-7.82	-11.39	0.00	0.00	0.00	50.46

* Bright Zone !

Segment Leq : 50.46 dBA

Total Leq All Segments: 56.57 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: TW1 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50 !	1.20 !	0.57 !	0.57

ROAD (0.00 + 20.60 + 0.00) = 20.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
66	71	0.43	66.98	0.00	-17.80	-17.44	0.00	0.00	-11.14	20.60

Segment Leq : 20.60 dBA

Results segment # 2: TW2 (night)

Source height = 0.50 m

ROAD (0.00 + 29.97 + 0.00) = 29.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
73	77	0.66	66.98	0.00	-16.60	-20.41	0.00	0.00	0.00	29.97

Segment Leq : 29.97 dBA

Results segment # 3: TW3 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50 !	1.20 !	2.93 !	2.93

ROAD (0.00 + 34.26 + 0.00) = 34.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
68	75	0.47	66.98	0.00	-14.07	-16.47	0.00	0.00	-4.66	31.78*
68	75	0.62	66.98	0.00	-15.50	-17.22	0.00	0.00	0.00	34.26

* Bright Zone !

Segment Leq : 34.26 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: TW4 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	4.70 !	4.70

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
71	78	0.29	66.98	0.00	-9.19	-15.79	0.00	0.00	-4.95	37.05*
71	78	0.56	66.98	0.00	-11.11	-17.34	0.00	0.00	0.00	38.53

* Bright Zone !

Segment Leq : 38.53 dBA

Results segment # 5: TW5 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	7.70 !	7.70

ROAD (0.00 + 48.50 + 0.00) = 48.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
45	76	0.00	66.98	0.00	-5.64	-7.64	0.00	0.00	-5.20	48.50

Segment Leq : 48.50 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 6: TW6 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	11.52	11.52

ROAD (0.00 + 50.12 + 0.00) = 50.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	26	0.00	66.98	0.00	-6.63	-4.29	0.00	0.00	-5.95	50.12

Segment Leq : 50.12 dBA

Results segment # 7: TW7 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	5.05	5.05

ROAD (0.00 + 47.77 + 0.00) = 47.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-82	-58	0.25	66.98	0.00	-6.31	-9.97	0.00	0.00	-4.99	45.71*
-82	-58	0.55	66.98	0.00	-7.82	-11.39	0.00	0.00	0.00	47.77

* Bright Zone !

Segment Leq : 47.77 dBA

Total Leq All Segments: 53.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.57
(NIGHT): 53.88

Future Build (R10)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 25-11-2010 10:51:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10fb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB (day/night)

Car traffic volume : 96939/4734 veh/TimePeriod
Medium truck volume : 2064/224 veh/TimePeriod
Heavy truck volume : 4128/448 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 108.00 / 108.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 45.00 / 45.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 2: 407WB (day/night)

Car traffic volume : 69737/6562 veh/TimePeriod
Medium truck volume : 1555/134 veh/TimePeriod
Heavy truck volume : 3110/269 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407WB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 73.00 / 73.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 45.00 / 45.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: 407EB (day)

Source height = 1.41 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
1.41 ! 1.20 ! 3.04 ! 3.04

ROAD (0.00 + 67.08 + 0.00) = 67.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	81.96	0.00	-12.02	-0.98	0.00	0.00	-5.00	63.96*
-90	90	0.58	81.96	0.00	-13.56	-1.32	0.00	0.00	0.00	67.08

* Bright Zone !

Segment Leq : 67.08 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407WB (day)

Source height = 1.43 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.43	1.20	2.49	2.49

ROAD (0.00 + 64.79 + 0.00) = 64.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	80.65	0.00	-9.63	-0.98	0.00	0.00	-5.24	64.79

Segment Leq : 64.79 dBA

Total Leq All Segments: 69.09 dBA

Results segment # 1: 407EB (night)

Source height = 1.70 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.70	1.20	3.16	3.16

ROAD (0.00 + 59.33 + 0.00) = 59.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.39	74.13	0.00	-11.94	-0.97	0.00	0.00	-4.98	56.23*
-90	90	0.57	74.13	0.00	-13.49	-1.31	0.00	0.00	0.00	59.33

* Bright Zone !

Segment Leq : 59.33 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: 407WB (night)

Source height = 1.40 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
1.40	!	1.20	!
		2.48	!
			2.48

ROAD (0.00 + 57.30 + 0.00) = 57.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.40	73.18	0.00	-9.63	-0.98	0.00	0.00	-5.26	57.30

Segment Leq : 57.30 dBA

Total Leq All Segments: 61.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.09
(NIGHT): 61.44

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-12-2010 13:43:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10tw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : 81.00 deg 85.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 / 26.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 81.00 deg Angle2 : 85.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 20.00 / 20.00 m
Source elevation : 2.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : 45.00 deg 72.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 58.00 / 58.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 45.00 deg Angle2 : 72.00 deg
Barrier height : 9.00 m
Elevation : 9.00 m
Barrier receiver distance : 52.00 / 52.00 m
Source elevation : 9.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: TW3 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: TW3 (day/night)

Angle1 Angle2 : 1.00 deg 34.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 66.00 / 66.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 1.00 deg Angle2 : 34.00 deg
Barrier height : 10.00 m
Elevation : 10.00 m
Barrier receiver distance : 60.00 / 60.00 m
Source elevation : 10.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 4: TW4 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: TW4 (day/night)

Angle1 Angle2 : -68.00 deg 1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 66.00 / 66.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 1.00 deg
Barrier height : 9.00 m
Elevation : 9.00 m
Barrier receiver distance : 60.00 / 60.00 m
Source elevation : 9.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 5: TW5 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: TW5 (day/night)

Angle1 Angle2 : -66.00 deg -49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 118.00 / 118.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -66.00 deg Angle2 : -49.00 deg
Barrier height : 8.00 m
Elevation : 8.00 m
Barrier receiver distance : 112.00 / 112.00 m
Source elevation : 8.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Road data, segment # 6: TW6 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: TW6 (day/night)

Angle1 Angle2 : -60.00 deg -49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 185.00 / 185.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -60.00 deg Angle2 : -49.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 179.00 / 179.00 m
Source elevation : 2.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: TW1 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 1.20 ! 2.20 ! 2.20

ROAD (0.00 + 43.37 + 0.00) = 43.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
81	85	0.52	69.67	0.00	-3.63	-21.29	0.00	0.00	-4.97	39.78*
81	85	0.64	69.67	0.00	-3.92	-22.39	0.00	0.00	0.00	43.37

* Bright Zone !

Segment Leq : 43.37 dBA

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Results segment # 2: TW2 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
-----+-----+-----+-----			
0.50 !	1.20 !	8.64 !	8.64

ROAD (0.00 + 50.25 + 0.00) = 50.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
45	72	0.00	69.67	0.00	-5.87	-8.24	0.00	0.00	-5.31	50.25

Segment Leq : 50.25 dBA

Results segment # 3: TW3 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
-----+-----+-----+-----			
0.50 !	1.20 !	9.65 !	9.65

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
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	34	0.00	69.67	0.00	-6.43	-7.37	0.00	0.00	-5.51	50.36

Segment Leq : 50.36 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: TW4 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	8.75	8.75

ROAD (0.00 + 53.84 + 0.00) = 53.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	1	0.00	69.67	0.00	-6.43	-4.16	0.00	0.00	-5.24	53.84

Segment Leq : 53.84 dBA

Results segment # 5: TW5 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	8.13	8.13

ROAD (0.00 + 45.10 + 0.00) = 45.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	-49	0.00	69.67	0.00	-8.96	-10.25	0.00	0.00	-4.96	45.51*
-66	-49	0.46	69.67	0.00	-13.07	-11.50	0.00	0.00	0.00	45.10

* Bright Zone !

Segment Leq : 45.10 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 6: TW6 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.46	2.46

ROAD (0.00 + 38.13 + 0.00) = 38.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	-49	0.52	69.67	0.00	-16.57	-13.37	0.00	0.00	-4.42	35.31*
-60	-49	0.64	69.67	0.00	-17.88	-13.65	0.00	0.00	0.00	38.13

* Bright Zone !

Segment Leq : 38.13 dBA

Total Leq All Segments: 57.14 dBA

Results segment # 1: TW1 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.20	2.20

ROAD (0.00 + 40.68 + 0.00) = 40.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
81	85	0.52	66.98	0.00	-3.63	-21.29	0.00	0.00	-4.97	37.09*
81	85	0.64	66.98	0.00	-3.92	-22.39	0.00	0.00	0.00	40.68

* Bright Zone !

Segment Leq : 40.68 dBA

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Results segment # 2: TW2 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	8.64	8.64

ROAD (0.00 + 47.56 + 0.00) = 47.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
45	72	0.00	66.98	0.00	-5.87	-8.24	0.00	0.00	-5.31	47.56

Segment Leq : 47.56 dBA

Results segment # 3: TW3 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	9.65	9.65

ROAD (0.00 + 47.67 + 0.00) = 47.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	34	0.00	66.98	0.00	-6.43	-7.37	0.00	0.00	-5.51	47.67

Segment Leq : 47.67 dBA

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Results segment # 4: TW4 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	8.75 !	8.75

ROAD (0.00 + 51.15 + 0.00) = 51.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	1	0.00	66.98	0.00	-6.43	-4.16	0.00	0.00	-5.24	51.15

Segment Leq : 51.15 dBA

Results segment # 5: TW5 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	8.13 !	8.13

ROAD (0.00 + 42.41 + 0.00) = 42.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	-49	0.00	66.98	0.00	-8.96	-10.25	0.00	0.00	-4.96	42.82*
-66	-49	0.46	66.98	0.00	-13.07	-11.50	0.00	0.00	0.00	42.41

* Bright Zone !

Segment Leq : 42.41 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 6: TW6 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.46	2.46

ROAD (0.00 + 35.44 + 0.00) = 35.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	-49	0.52	66.98	0.00	-16.57	-13.37	0.00	0.00	-4.42	32.62*
-60	-49	0.64	66.98	0.00	-17.88	-13.65	0.00	0.00	0.00	35.44

* Bright Zone !

Segment Leq : 35.44 dBA

Total Leq All Segments: 54.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.14
(NIGHT): 54.45

Future Build (S1)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 11:39:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: sr7fb.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 407EB1 (day/night)

Car traffic volume : 76863/4314 veh/TimePeriod
Medium truck volume : 2093/272 veh/TimePeriod
Heavy truck volume : 4186/544 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 407EB1 (day/night)

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 163.00 / 163.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 407EB2 (day/night)

Car traffic volume : 70971/4078 veh/TimePeriod
Medium truck volume : 2068/264 veh/TimePeriod
Heavy truck volume : 4136/528 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 407EB2 (day/night)

Angle1 Angle2 : -30.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 163.00 / 163.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 84.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 132.00 / 132.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 3: 407WB1 (day/night)

Car traffic volume : 103172/6775 veh/TimePeriod
Medium truck volume : 3059/257 veh/TimePeriod
Heavy truck volume : 6119/513 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 407WB1 (day/night)

Angle1 Angle2 : -90.00 deg -35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 204.00 / 204.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: 407WB2 (day/night)

Car traffic volume : 94101/6569 veh/TimePeriod
Medium truck volume : 2974/252 veh/TimePeriod
Heavy truck volume : 5948/505 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: 407WB2 (day/night)

Angle1 Angle2 : -30.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 204.00 / 204.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 84.00 deg
Barrier height : 3.00 m
Elevation : 3.00 m
Barrier receiver distance : 132.00 / 132.00 m
Source elevation : 0.00 m
Receiver elevation : 3.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: 407EB1 (day)

Source height = 1.50 m

ROAD (0.00 + 56.72 + 0.00) = 56.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	81.59	0.00	-17.20	-7.67	0.00	0.00	0.00	56.72

Segment Leq : 56.72 dBA

Results segment # 2: 407EB2 (day)

Source height = 1.52 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.52 !	1.20 !	2.03 !	2.03

ROAD (0.00 + 58.67 + 0.00) = 58.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.40	81.42	0.00	-14.49	-2.57	0.00	0.00	-5.69	58.67

Segment Leq : 58.67 dBA

Results segment # 3: 407WB1 (day)

Source height = 1.53 m

ROAD (0.00 + 56.61 + 0.00) = 56.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	83.10	0.00	-18.82	-7.67	0.00	0.00	0.00	56.61

Segment Leq : 56.61 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 4: 407WB2 (day)

Source height = 1.55 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.55	1.20	2.49	2.49

ROAD (0.00 + 59.35 + 0.00) = 59.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.40	82.88	0.00	-15.84	-2.57	0.00	0.00	-5.11	59.35

Segment Leq : 59.35 dBA

Total Leq All Segments: 64.02 dBA

Results segment # 1: 407EB1 (night)

Source height = 1.80 m

ROAD (0.00 + 49.81 + 0.00) = 49.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	74.68	0.00	-17.20	-7.67	0.00	0.00	0.00	49.81

Segment Leq : 49.81 dBA

Results segment # 2: 407EB2 (night)

Source height = 1.81 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.81	1.20	2.27	2.27

ROAD (0.00 + 52.16 + 0.00) = 52.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.39	74.53	0.00	-14.40	-2.56	0.00	0.00	-5.41	52.16

Segment Leq : 52.16 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: 407WB1 (night)

Source height = 1.61 m

ROAD (0.00 + 48.51 + 0.00) = 48.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-35	0.66	74.99	0.00	-18.82	-7.67	0.00	0.00	0.00	48.51

Segment Leq : 48.51 dBA

Results segment # 4: 407WB2 (night)

Source height = 1.62 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.62	1.20	2.53	2.53

ROAD (0.00 + 51.42 + 0.00) = 51.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	84	0.40	74.90	0.00	-15.82	-2.57	0.00	0.00	-5.09	51.42

Segment Leq : 51.42 dBA

Total Leq All Segments: 56.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.02
(NIGHT): 56.72

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2010 12:54:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: sr7tw.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: TW1 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: TW1 (day/night)

Angle1 Angle2 : -90.00 deg -82.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -82.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 34.00 / 34.00 m
Source elevation : 2.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 2: TW2 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: TW2 (day/night)

Angle1 Angle2 : -82.00 deg -23.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -82.00 deg Angle2 : -23.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 34.00 / 34.00 m
Source elevation : 0.00 m
Receiver elevation : 2.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: TW3 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 4 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: TW3 (day/night)

Angle1 Angle2 : -23.00 deg 76.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -23.00 deg Angle2 : 76.00 deg
Barrier height : 4.00 m
Elevation : 4.00 m
Barrier receiver distance : 34.00 / 34.00 m
Source elevation : 4.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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Road data, segment # 4: TW4 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: TW4 (day/night)

Angle1 Angle2 : 76.00 deg 83.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.20 / 1.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: TW5 (day/night)

Car traffic volume : 0/0 veh/TimePeriod
Medium truck volume : 1189/320 veh/TimePeriod
Heavy truck volume : 0/0 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: TW5 (day/night)

Angle1 Angle2 : 73.00 deg 77.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 41.00 / 41.00 m
Receiver height : 1.20 / 1.20 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 73.00 deg Angle2 : 77.00 deg
Barrier height : 2.00 m
Elevation : 2.00 m
Barrier receiver distance : 34.00 / 34.00 m
Source elevation : 0.00 m
Receiver elevation : 2.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 1: TW1 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	2.31 !	2.31

ROAD (0.00 + 41.55 + 0.00) = 41.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-82	0.52	69.67	0.00	-6.47	-19.78	0.00	0.00	-4.97	38.46*
-90	-82	0.64	69.67	0.00	-6.98	-21.14	0.00	0.00	0.00	41.55

* Bright Zone !

Segment Leq : 41.55 dBA

Results segment # 2: TW2 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	0.91 !	0.91

ROAD (0.00 + 49.42 + 0.00) = 49.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-82	-23	0.52	69.67	0.00	-6.47	-6.17	0.00	0.00	-7.62	49.42

Segment Leq : 49.42 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 3: TW3 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	4.01	4.01

ROAD (0.00 + 59.69 + 0.00) = 59.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-23	76	0.34	69.67	0.00	-5.70	-3.00	0.00	0.00	-5.00	55.97*
-23	76	0.58	69.67	0.00	-6.73	-3.25	0.00	0.00	0.00	59.69

* Bright Zone !

Segment Leq : 59.69 dBA

Results segment # 4: TW4 (day)

Source height = 0.50 m

ROAD (0.00 + 43.60 + 0.00) = 43.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
76	83	0.66	69.67	0.00	-7.07	-19.00	0.00	0.00	0.00	43.60

Segment Leq : 43.60 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: TW5 (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	0.96	0.96

ROAD (0.00 + 37.32 + 0.00) = 37.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
73	77	0.52	69.67	0.00	-6.63	-19.58	0.00	0.00	-6.14	37.32

Segment Leq : 37.32 dBA

Total Leq All Segments: 60.26 dBA

Results segment # 1: TW1 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.20	2.31	2.31

ROAD (0.00 + 38.86 + 0.00) = 38.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-82	0.52	66.98	0.00	-6.47	-19.78	0.00	0.00	-4.97	35.77*
-90	-82	0.64	66.98	0.00	-6.98	-21.14	0.00	0.00	0.00	38.86

* Bright Zone !

Segment Leq : 38.86 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 2: TW2 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50	!	1.20	!
		0.91	!
			0.91

ROAD (0.00 + 46.73 + 0.00) = 46.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-82	-23	0.52	66.98	0.00	-6.47	-6.17	0.00	0.00	-7.62	46.73

Segment Leq : 46.73 dBA

Results segment # 3: TW3 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source	! Receiver	! Barrier	! Elevation of
Height (m)	! Height (m)	! Height (m)	! Barrier Top (m)
0.50	!	1.20	!
		4.01	!
			4.01

ROAD (0.00 + 57.00 + 0.00) = 57.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-23	76	0.34	66.98	0.00	-5.70	-3.00	0.00	0.00	-5.00	53.28*
-23	76	0.58	66.98	0.00	-6.73	-3.25	0.00	0.00	0.00	57.00

* Bright Zone !

Segment Leq : 57.00 dBA

Results segment # 4: TW4 (night)

Source height = 0.50 m

ROAD (0.00 + 40.91 + 0.00) = 40.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
76	83	0.66	66.98	0.00	-7.07	-19.00	0.00	0.00	0.00	40.91

Segment Leq : 40.91 dBA

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)

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Results segment # 5: TW5 (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
0.50 !	1.20 !	0.96 !	0.96

ROAD (0.00 + 34.63 + 0.00) = 34.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
73	77	0.52	66.98	0.00	-6.63	-19.58	0.00	0.00	-6.14	34.63

Segment Leq : 34.63 dBA

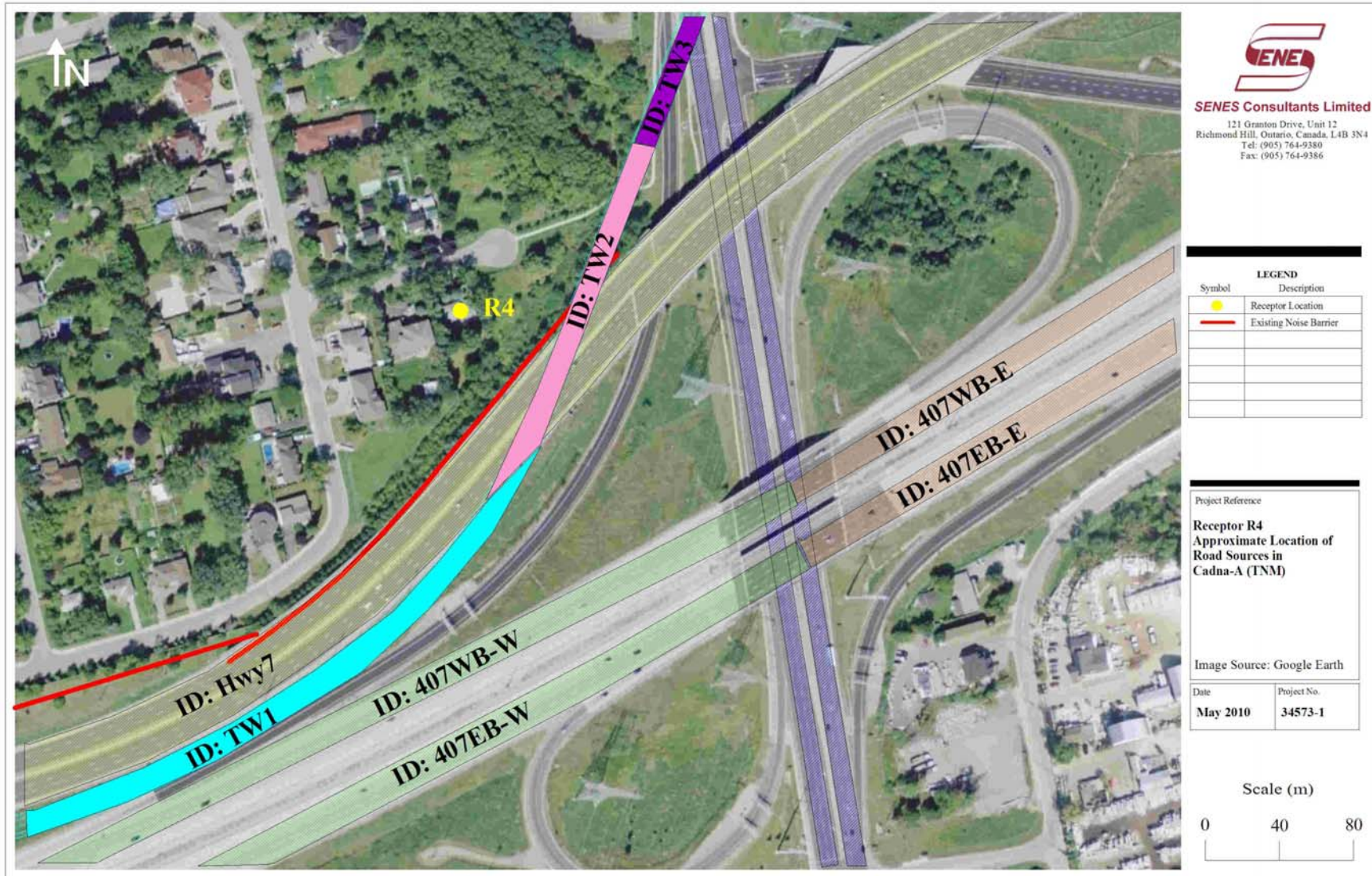
Total Leq All Segments: 57.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.26
(NIGHT): 57.57

APPENDIX E

CADNA-A TABLES (RECEPTOR R4 MODEL)

Noise and Vibration Impact Assessment for the 407 Transitway (Highway 400 to Kennedy Road)



Existing Conditions - Receptor R4: Cadna-A Tables

Road Sources

Name	ID	Lme		Exact Count Data						Speed Limit		SCS Dist.	Surface		Gradient (%)	Mult. Reflection		
		Day (dBA)	Night (dBA)	Total (per hour)		% Med.		% Hvy.		Auto (km/h)	Truck (km/h)		Dstro (dB)	Type		Dreft (dB)	Hbuild (m)	Dist. (m)
				Day	Night	Day	Night	Day	Night									
407EBR WB (West of Yonge)	407WB-W	73.1	64.6	3035	417	2.6	3.0	5.2	6.0	100	100	w16	0	1	0	0		
407EBR EB (West of Yonge)	407EB-W	73.4	64.7	3216	405	2.4	4.9	4.8	9.7	100	100	w16	0	1	0	0		
407EBR WB (East of Yonge)	407WB-E	73	64.3	2928	396	2.5	3.0	5.1	6.0	100	100	w16	0	1	0	0		
407EBR EB (East of Yonge)	407EB-E	73.2	64.4	3111	383	2.3	4.6	4.6	9.3	100	100	w16	0	1	0	0		
Highway 7 (Both Directions)	Hwy7	67.5	60.9	2523	561	2.3	2.3	3.3	3.3	70		w30	0	1	0	0		
Yonge St NB	YongeNB	59.9	61.1	634	845	4.0	4.0	0.0	0.0	60		w8	0	1	0	0		
Yonge St SB	YongeSB	59.9	61.1	634	845	4.0	4.0	0.0	0.0	60		w8	0	1	0	0		

Barriers

Name	ID	Absorption		Z-Ext. (m)	Cantilever		Height		
		left	right		horz. (m)	vert. (m)	Begin (m)	End (m)	
Hwy 7 Barrier	Hwy7Barrier1	0.21	0.21				3	r	
Highway 7 Barrier	Hwy7Barrier2	0.21	0.21				3	r	

Partial Levels

Source Name	ID	Partial Level R4		
		Day	Night	Total
407EBR WB (West of Yonge)	407WB-W	50.4	41.8	48.9
407EBR EB (West of Yonge)	407EB-W	49.4	40.8	47.9
407EBR WB (East of Yonge)	407WB-E	43.9	35.3	42.4
407EBR EB (East of Yonge)	407EB-E	44.1	35.4	42.6
Highway 7 (Both Directions)	Hwy7	51.4	44.8	50.1
Yonge St NB	YongeNB	40.4	41.7	40.9
Yonge St SB	YongeSB	40.5	41.7	41.0

Future No-Build - Receptor R4: Cadna-A Tables

Road Sources

Name	ID	Lme		Exact Count Data						Speed Limit		SCS Dist.	Surface		Gradient (%)	Mult. Reflection		
		Day (dBA)	Night (dBA)	Total (per hour)		% Med.		% Hvy.		Auto (km/h)	Truck (km/h)		Dstro (dB)	Type		Dreft (dB)	Hbuild (m)	Dist. (m)
				Day	Night	Day	Night	Day	Night									
407EBR WB (West of Yonge)	407WB-W	76.5	67.9	6546	901	2.6	3.0	5.2	6.0	100	100	w16	0	1	0	0		
407EBR EB (West of Yonge)	407EB-W	76.2	67.6	6171	776	2.4	4.9	4.8	9.7	100	100	w16	0	1	0	0		
407EBR WB (East of Yonge)	407WB-E	76.4	67.7	6395	864	2.5	3.0	5.1	6.0	100	100	w16	0	1	0	0		
407EBR EB (East of Yonge)	407EB-E	75.7	67	5587	688	2.3	4.6	4.6	9.3	100	100	w16	0	1	0	0		
Highway 7 (Both Directions)	Hwy7	68.6	62	3246	721	2.3	2.3	3.3	3.3	70		w30	0	1	0	0		
Yonge St NB	YongeNB	61	62.3	823	1097	4.0	4.0	0.0	0.0	60		w8	0	1	0	0		
Yonge St SB	YongeSB	61	62.3	823	1097	4.0	4.0	0.0	0.0	60		w8	0	1	0	0		

Barriers

Name	ID	Absorption		Z-Ext. (m)	Cantilever		Height		
		left	right		horz. (m)	vert. (m)	Begin (m)	End (m)	
Hwy 7 Barrier	Hwy7Barrier1	0.21	0.21				3	r	
Highway 7 Barrier	Hwy7Barrier2	0.21	0.21				3	r	

Partial Levels

Source Name	ID	Partial Level R4		
		Day	Night	Total
407EBR WB (West of Yonge)	407WB-W	53.7	45.2	52.3
407EBR EB (West of Yonge)	407EB-W	52.2	43.6	50.7
407EBR WB (East of Yonge)	407WB-E	47.3	38.7	45.8
407EBR EB (East of Yonge)	407EB-E	46.7	37.9	45.2
Highway 7 (Both Directions)	Hwy7	52.4	45.8	51.1
Yonge St NB	YongeNB	41.6	42.8	42.0
Yonge St SB	YongeSB	41.6	42.9	42.1

Future Build - Receptor R4: Cadna-A Tables

Road Sources

Name	ID	Lme		Exact Count Data						Speed Limit		SCS Dist.	Surface		Gradient (%)	Mult. Reflection		
		Day (dBA)	Night (dBA)	Total (per hour)		% Med.		% Hvy.		Auto (km/h)	Truck (km/h)		Dstro (dB)	Type		Dreft (dB)	Hbuild (m)	Dist. (m)
				Day	Night	Day	Night	Day	Night									
407EBR WB (West of Yonge)	407WB-W	76.5	67.9	6546	901	2.6	3.0	5.2	6.0	100	100	w16	0	1	0	0		
407EBR EB (West of Yonge)	407EB-W	76.2	67.6	6171	776	2.4	4.9	4.8	9.7	100	100	w16	0	1	0	0		
407EBR WB (East of Yonge)	407WB-E	76.4	67.7	6395	864	2.5	3.0	5.1	6.0	100	100	w16	0	1	0	0		
407EBR EB (East of Yonge)	407EB-E	75.7	67	5587	688	2.3	4.6	4.6	9.3	100	100	w16	0	1	0	0		
Highway 7 (Both Directions)	Hwy7	68.6	62	3246	721	2.3	2.3	3.3	3.3	70		w30	0	1	0	0		
Yonge St NB	YongeNB	61	62.3	823	1097	4.0	4.0	0.0	0.0	60		w8	0	1	0	0		
Yonge St SB	YongeSB	61	62.3	823	1097	4.0	4.0	0.0	0.0	60		w8	0	1	0	0		
Transitway 1	TW1	62.9	57.7	74	22	100	100	0.0	0.0	100	100	w12	0	1	0	0		
Transitway 2	TW2	62.9	57.7	74	22	100	100	0.0	0.0	100	100	w12	0	1	0	0		
Transitway 3	TW3	62.9	57.7	74	22	100	100	0.0	0.0	100	100	w12	0	1	0	0		

Barriers

Name	ID	Absorption		Z-Ext. (m)	Cantilever		Height			
		left	right		horz. (m)	vert. (m)	Begin (m)		End (m)	
Hwy 7 Barrier	Hwy7Barrier1	0.21	0.21				3	r		
Highway 7 Barrier	Hwy7Barrier2	0.21	0.21				3	r		
Transitway 1 Left	TW1-L	0.21	0.21	1			1	r	10	r
Transitway 1 Right	TW1-R	0.21	0.21	1			1	r	10	r
Transitway 2 Left	TW2-L	0.21	0.21	1						
Transitway 2 Right	TW2-R	0.21	0.21	1						
Transitway 3 Left	TW3-L	0.21	0.21	1			10	r	1	r
Transitway 3 Right	TW3-R	0.21	0.21	1			10	r	1	r

Partial Levels



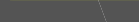






Source Name	ID	Partial Level R4		
		Day	Night	Total
407EBR WB (West of Yonge)	407WB-W	53.8	45.2	52.3
407EBR EB (West of Yonge)	407EB-W	52.2	43.6	50.8
407EBR WB (East of Yonge)	407WB-E	47.3	38.7	45.8
407EBR EB (East of Yonge)	407EB-E	46.7	37.9	45.2
Highway 7 (Both Directions)	Hwy7	52.3	45.8	51.0
Yonge St NB	YongeNB	41.8	43.0	42.2
Yonge St SB	YongeSB	42.5	43.7	42.9
Transitway 1	TW1	54.5	49.2	53.4
Transitway 2	TW2	59.5	54.2	58.3
Transitway 3	TW3	46.4	41.1	45.2

APPENDIX F

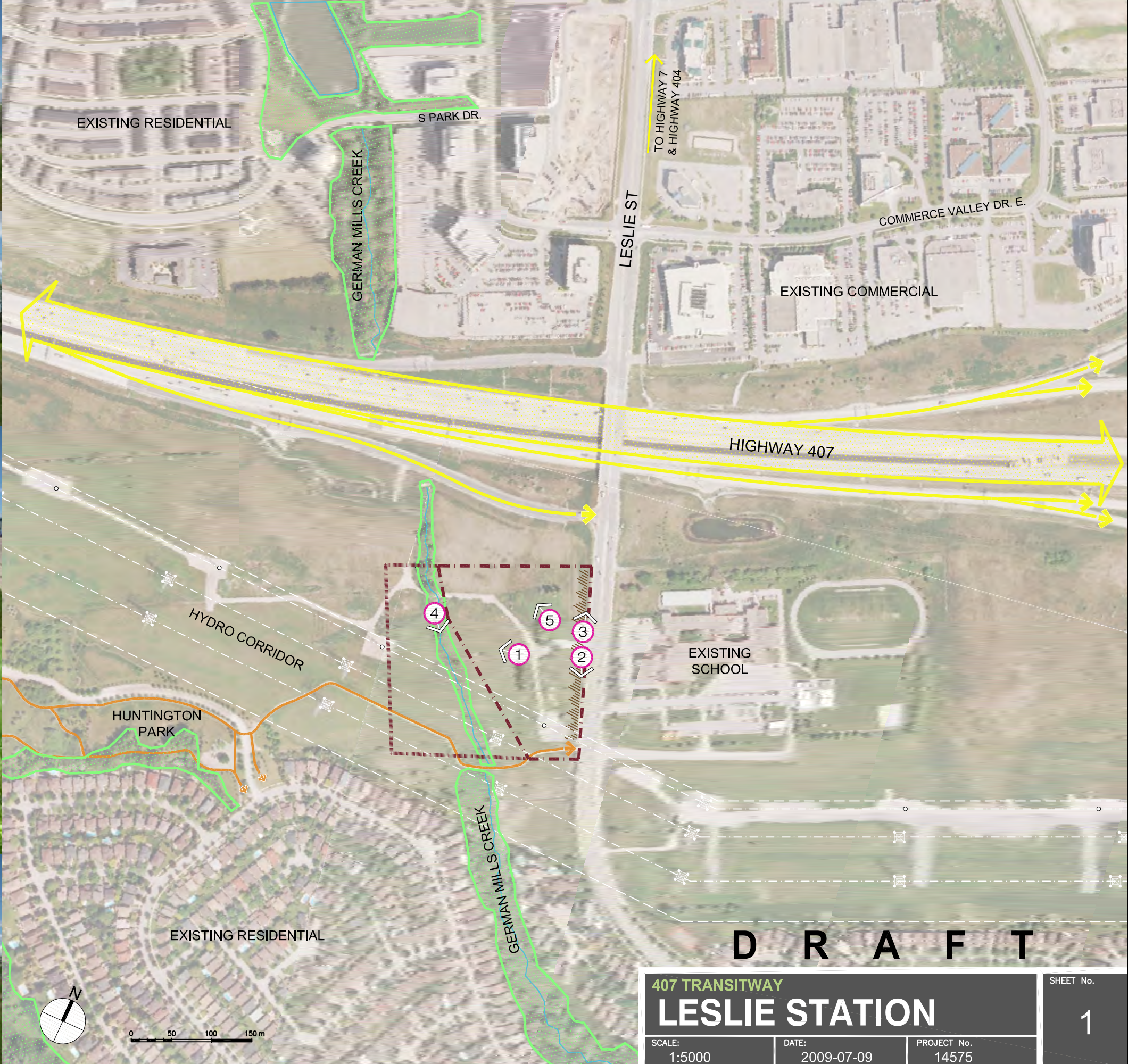
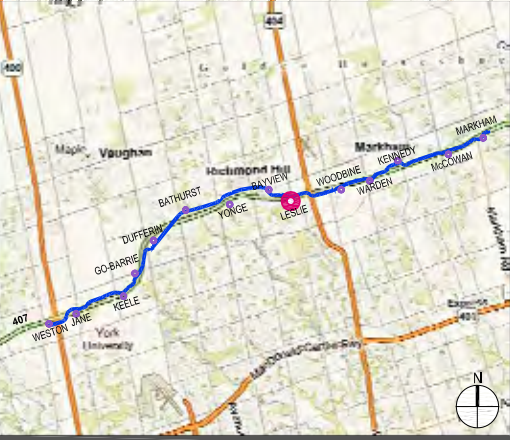
BUS STATION PLANS (DELCAN)

SHEET TITLE:
EXISTING CONDITIONS

LEGEND

-  SITE BOUNDARY
-  HIGHWAY 407
-  PEDESTRIAN / CYCLING TRAIL
-  CREEK / WATER BODY
-  WOODLOT
-  HYRDO TOWER / HYDRO POLE
-  HYDRO LINE EASEMENTS
-  STEEP GRADE SLOPE / BERM
-  LOCATION & DIRECTION OF PHOTO

KEY PLAN



DRAFT

407 TRANSITWAY
LESLIE STATION




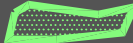










SCALE: 1:5000	DATE: 2009-07-09	PROJECT No. 14575
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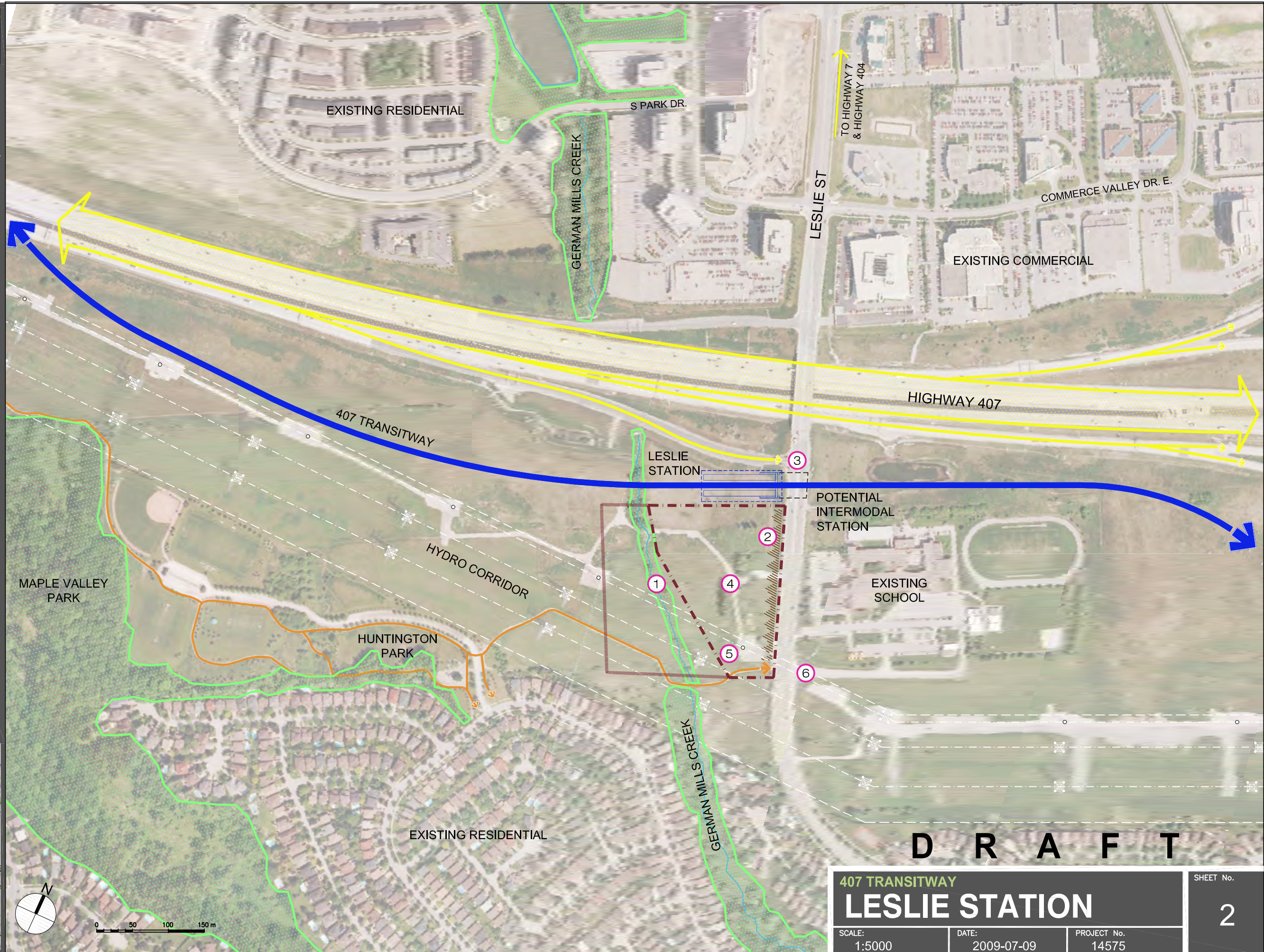
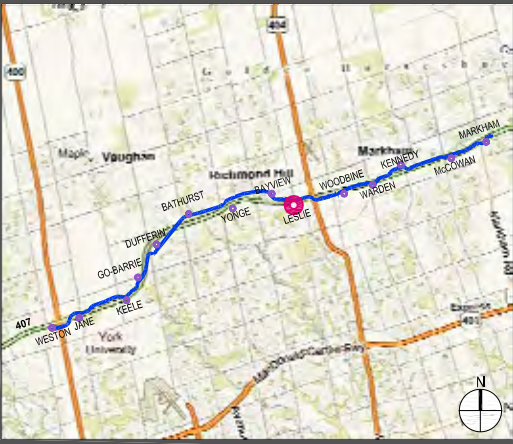
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SITE CONSTRAINTS

LEGEND

-  SITE BOUNDARY
-  PEDESTRIAN / CYCLING TRAIL
-  RIVER / CREEK
-  WOODLOT
-  407 BRT ROUTE
-  HYRDO TOWER / HYDRO POLE
-  HYDRO LINE EASEMENTS
-  STEEP GRADE SLOPE / BERM
-  1 EXISTING GERMAN MILLS CREEK TO BE PRESERVED
-  2 SLOPE / LESLIE ST ELEVATION
-  3 LOCATION OF INTERSECTION
-  4 RELOCATION OF ROADS AND TRAILS WITHIN SITE
-  5 HYDRO TOWERS
-  6 SCHOOL ENTRY

KEY PLAN



D R A F T

407 TRANSITWAY

LESLIE STATION

SCALE:
1:5000





















DATE:
2009-07-09

PROJECT No.
14575

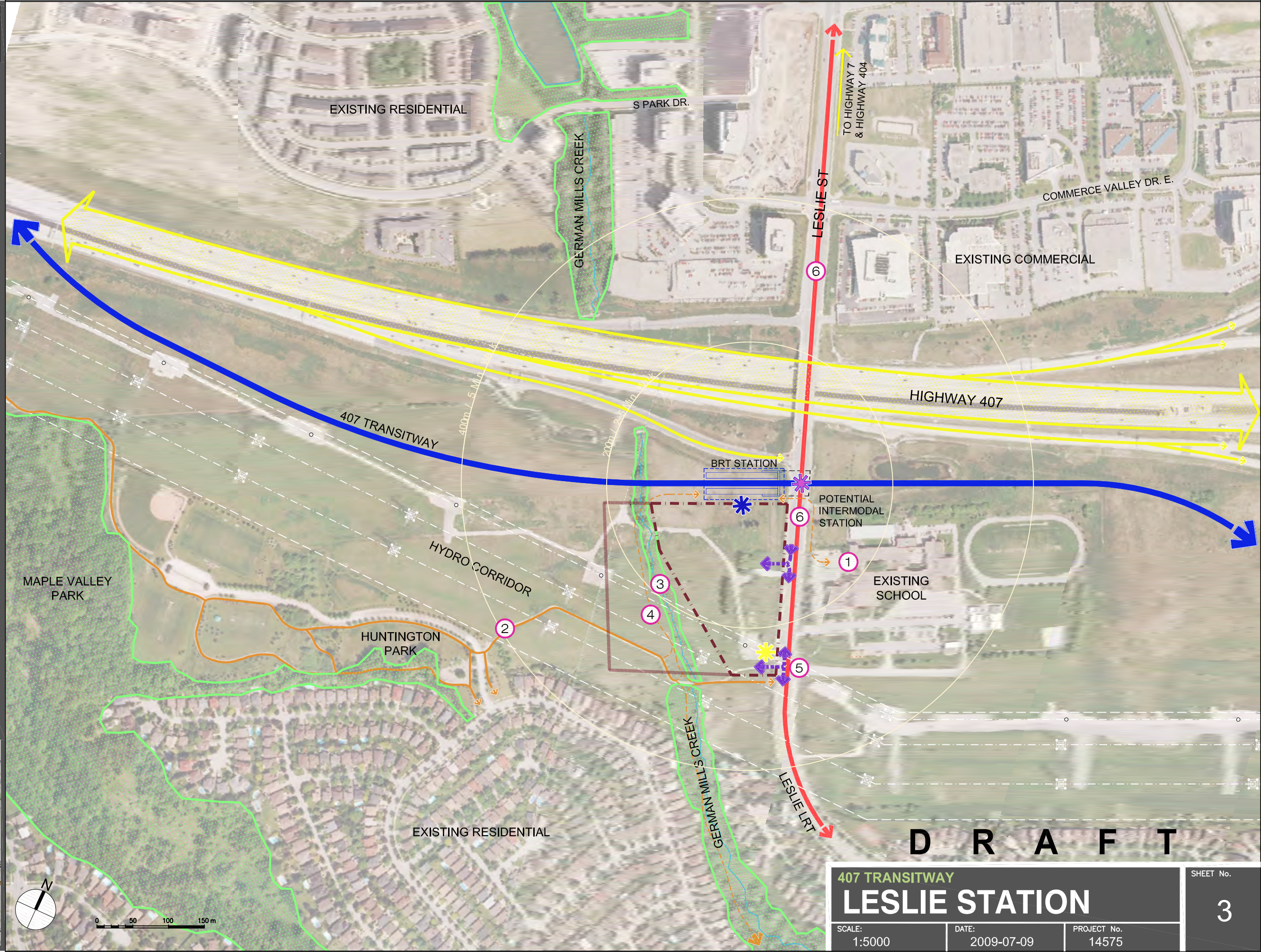
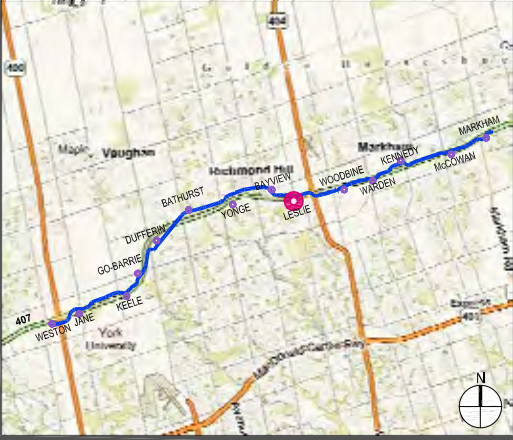
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SHEET TITLE:
OPPORTUNITIES

LEGEND

-  SITE BOUNDARY
-  HIGHWAY 407
-  PEDESTRIAN / CYCLING TRAIL
-  PROPOSED PEDESTRIAN / CYCLING TRAIL
-  RIVER / CREEK
-  WOODLOT
-  407 BRT ROUTE
-  PROPOSED BUS/AUTO ACCESS
-  HYRDO TOWER / HYDRO POLE
-  HYDRO LINE EASEMENTS
-  FUTURE LRT
-  TRANSIT PLAZA
-  GATEWAY FEATURE
-  PROPOSED LRT STATION
-  1 POTENTIAL PEDESTRIAN ACCESS TO SCHOOL
-  2 PEDESTRIAN CONNECTION TO RESIDENTIAL DEVELOPMENT
-  3 PRESERVE EXISTING NATURAL FEATURES AROUND SITE
-  4 POTENTIAL TRAIL ACCESS TO EXISTING TRIALS
-  5 INGRESS / EGRESS TO SITE BUSES / VEHICULAR
-  6 PROPOSED LESLIE ST. LRT

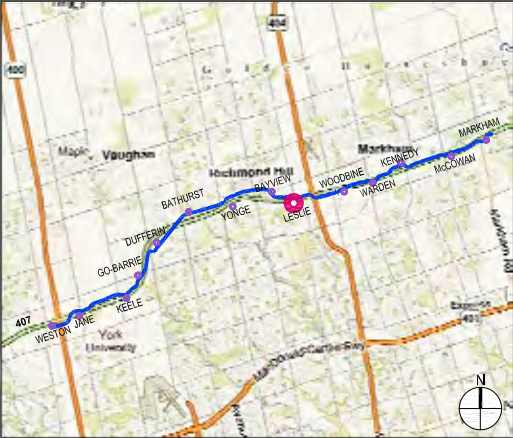
KEY PLAN



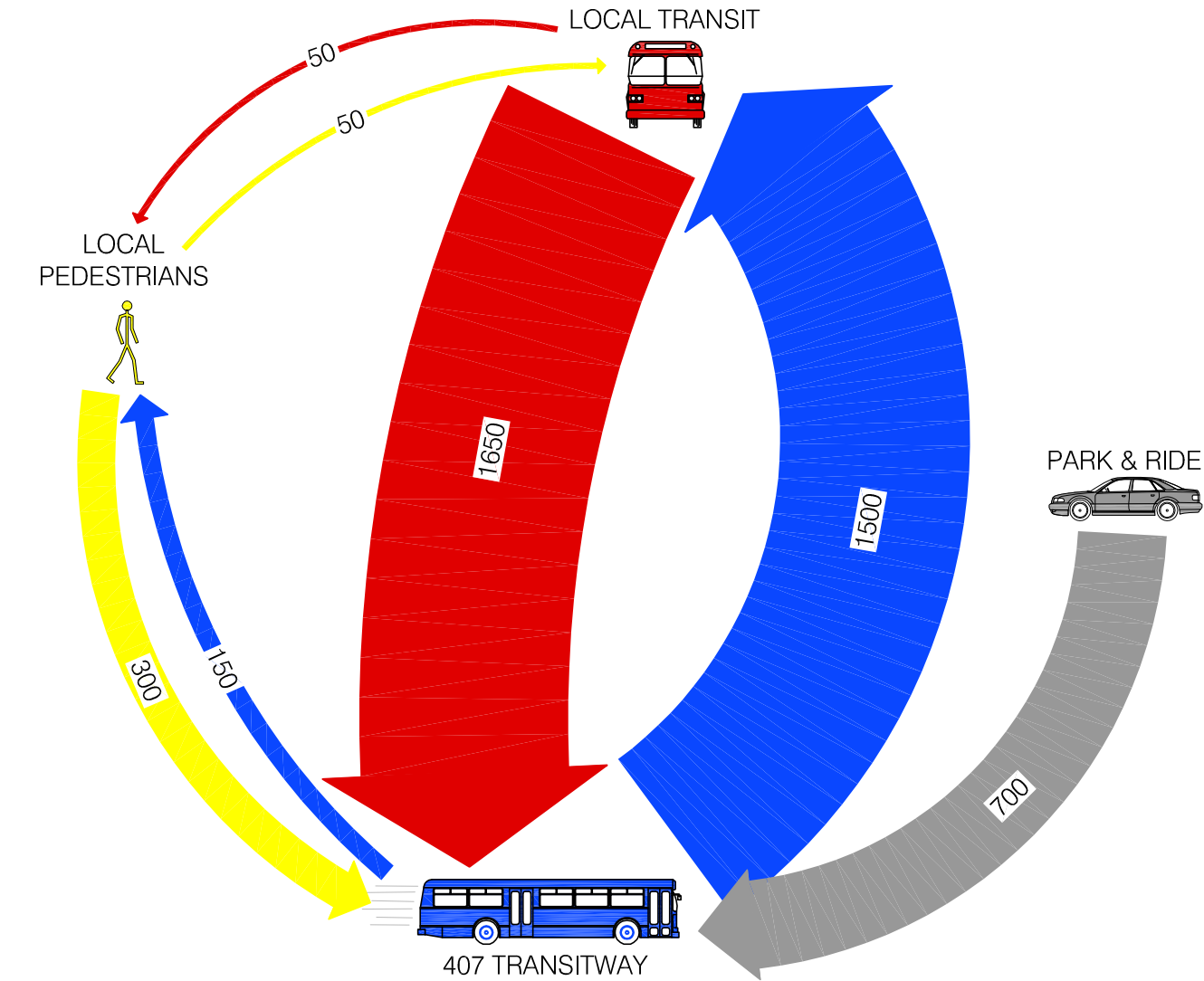
SHEET TITLE:

PASSENGER FLOW ANALYSIS

KEY PLAN



PASSENGER FLOW SCHEMATIC DIAGRAM - PROJECTED MORNING PEAK HOUR (2031)



PASSENGER FLOW MATRIX - PROJECTED MORNING PEAK HOUR (2031)

		DESTINATION			
ORIGIN		407 Transitway	Local Transit	Local Pedestrians	Total
	407 Transitway	-	1,500	150	1,650
	Local Transit	1,650	-	50	1,700
	Park & Ride*	700	-	-	700
	Local Pedestrians	300	50	-	350
	Total	2,650	1,550	200	4,400

* 1090 spots for 407 Transitway. Additional 200 spaces for carpools.

DRAFT

407 TRANSITWAY
LESLIE STATION

SCALE:
N.T.S.

DATE:
2009-07-09

PROJECT No.
14575

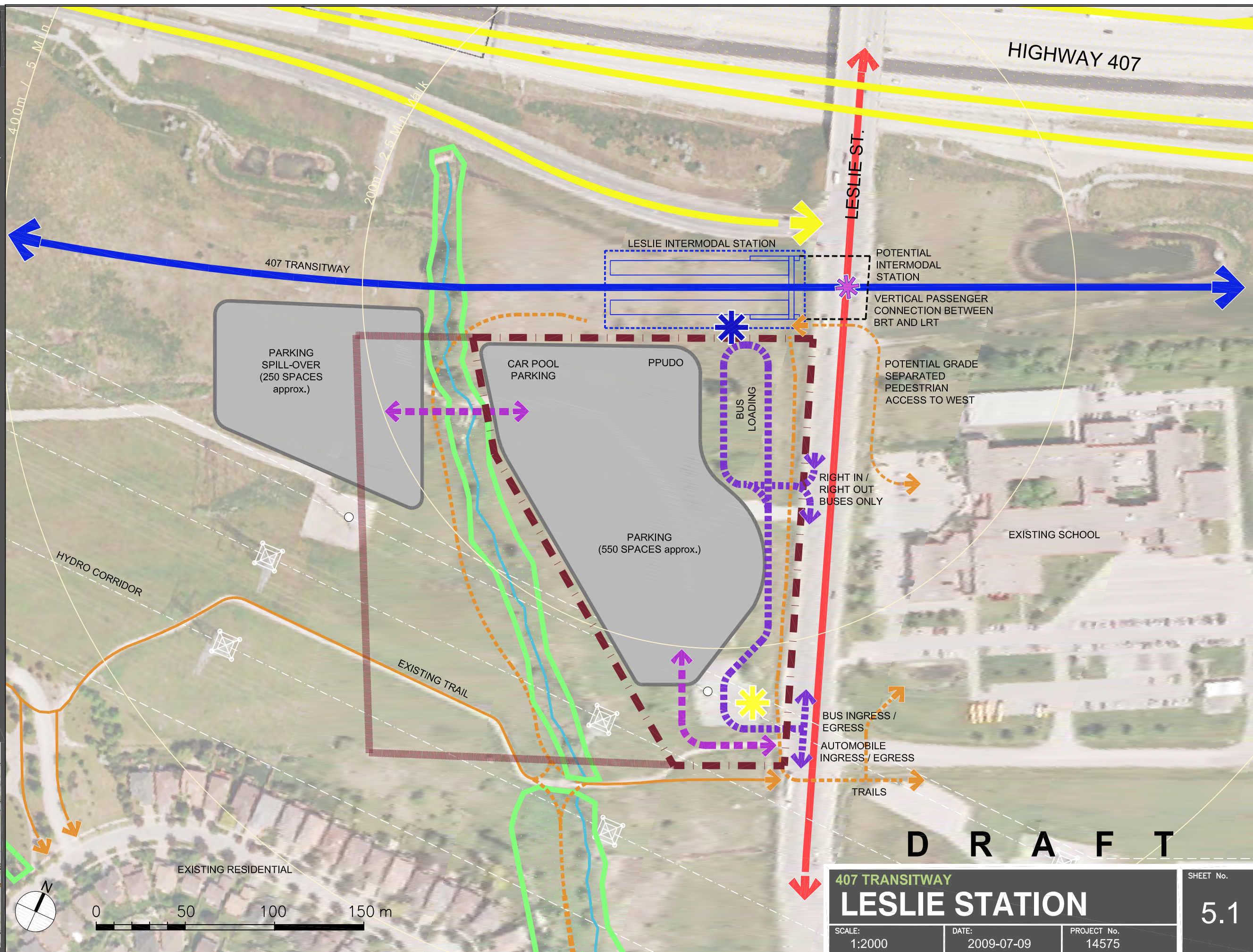
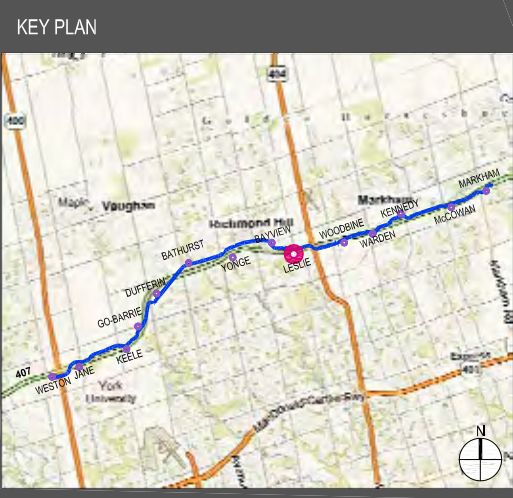
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SHEET TITLE:

SCHEMATIC CONCEPT OPTION 1

- LEGEND
- SITE BOUNDARY
 - HIGHWAY 407
 - PEDESTRIAN / CYCLING TRAIL
 - PROPOSED PEDESTRIAN / CYCLING TRAIL
 - RIVER / CREEK
 - WOODLOT
 - 407 BRT ROUTE
 - PROPOSED AUTO ACCESS
 - PROPOSED LOCAL BUS ACCESS
 - HYRDO TOWER / HYRDO POLE
 - HYDRD LINE EASEMENTS
 - FUTURE LRT
 - TRANSIT PLAZA
 - GATEWAY FEATURE
 - PROPOSED INTERMODAL LINK

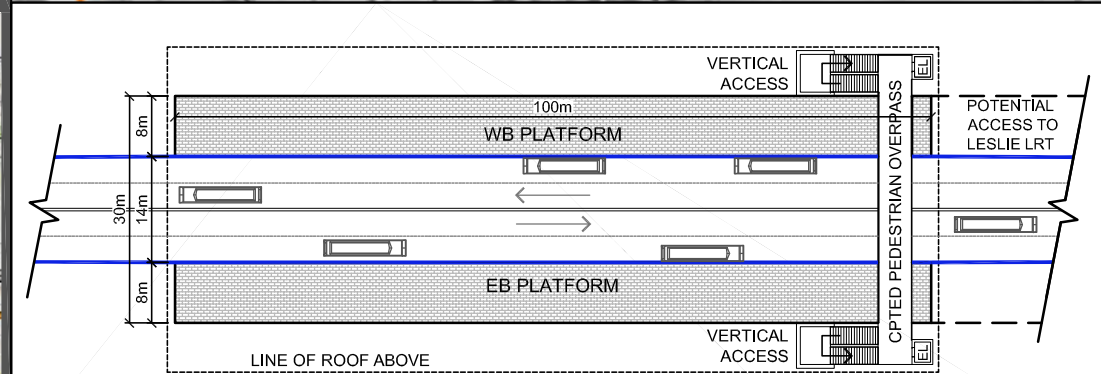
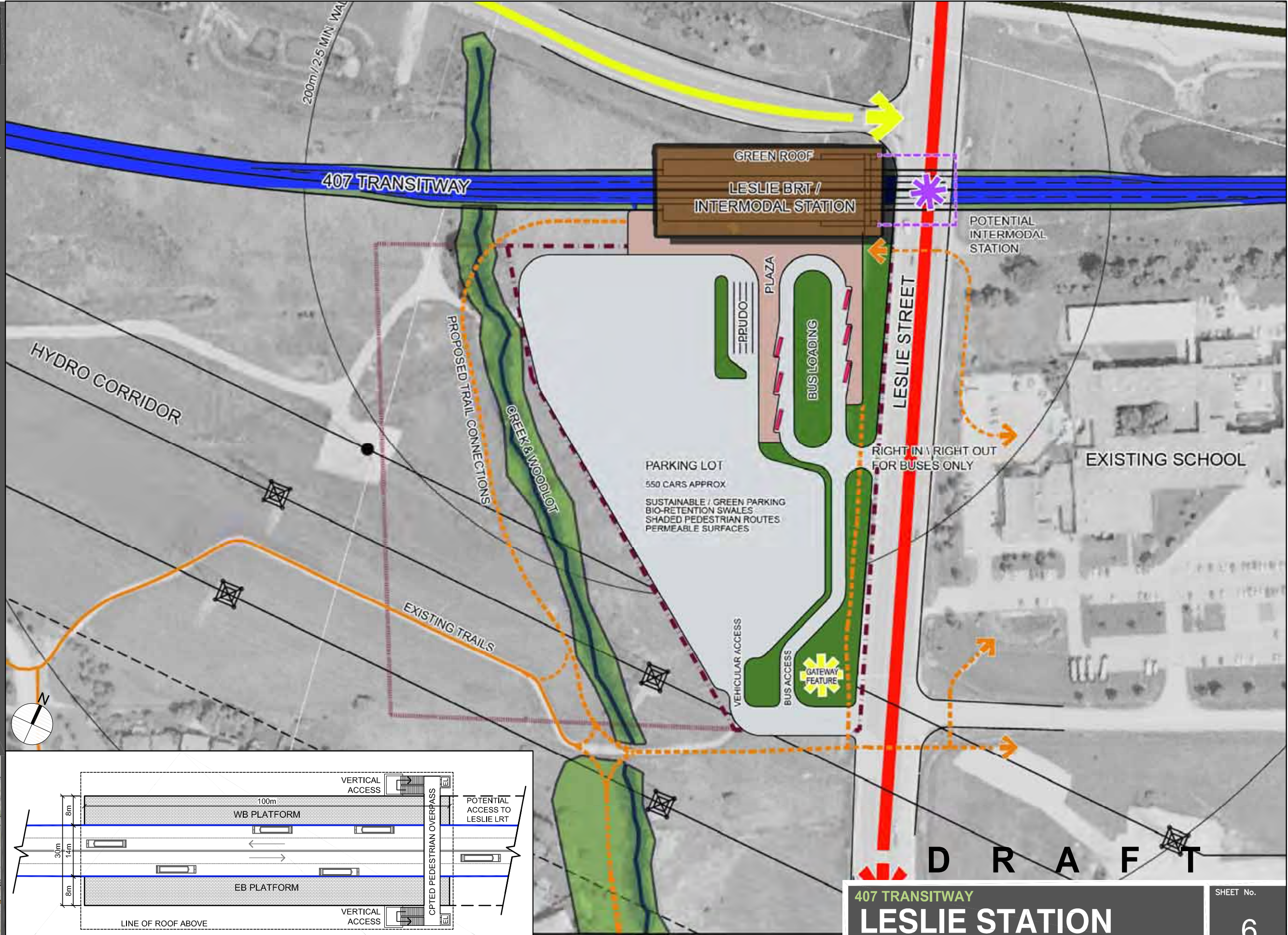
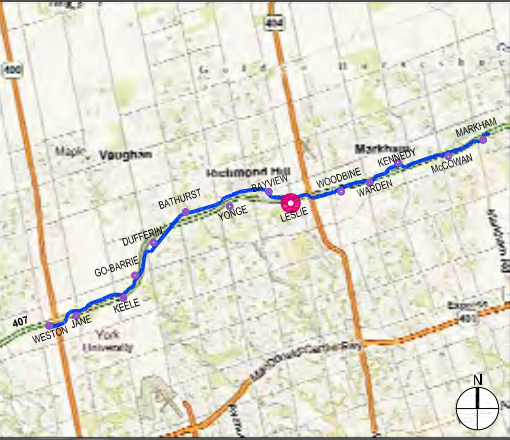


SHEET TITLE:

SITE PLAN PREFERRED OPTION

- LEGEND
- SITE BOUNDARY
 - HIGHWAY 407
 - PEDESTRIAN / CYCLING TRAIL
 - PROPOSED PEDESTRIAN / CYCLING TRAIL
 - RIVER / CREEK
 - WOODLOT
 - 407 BRT ROUTE
 - HYRDO TOWER / HYDRO POLE
 - FUTURE LRT
 - GATEWAY FEATURE
 - PROPOSED INTERMODAL LINK

KEY PLAN



TYPICAL STATION - FLOOR PLAN / Scale: 1:1000

DRAFT

407 TRANSITWAY
LESLIE STATION

SCALE:
N.T.S.

DATE:
2009-07-09







PROJECT No.
14575

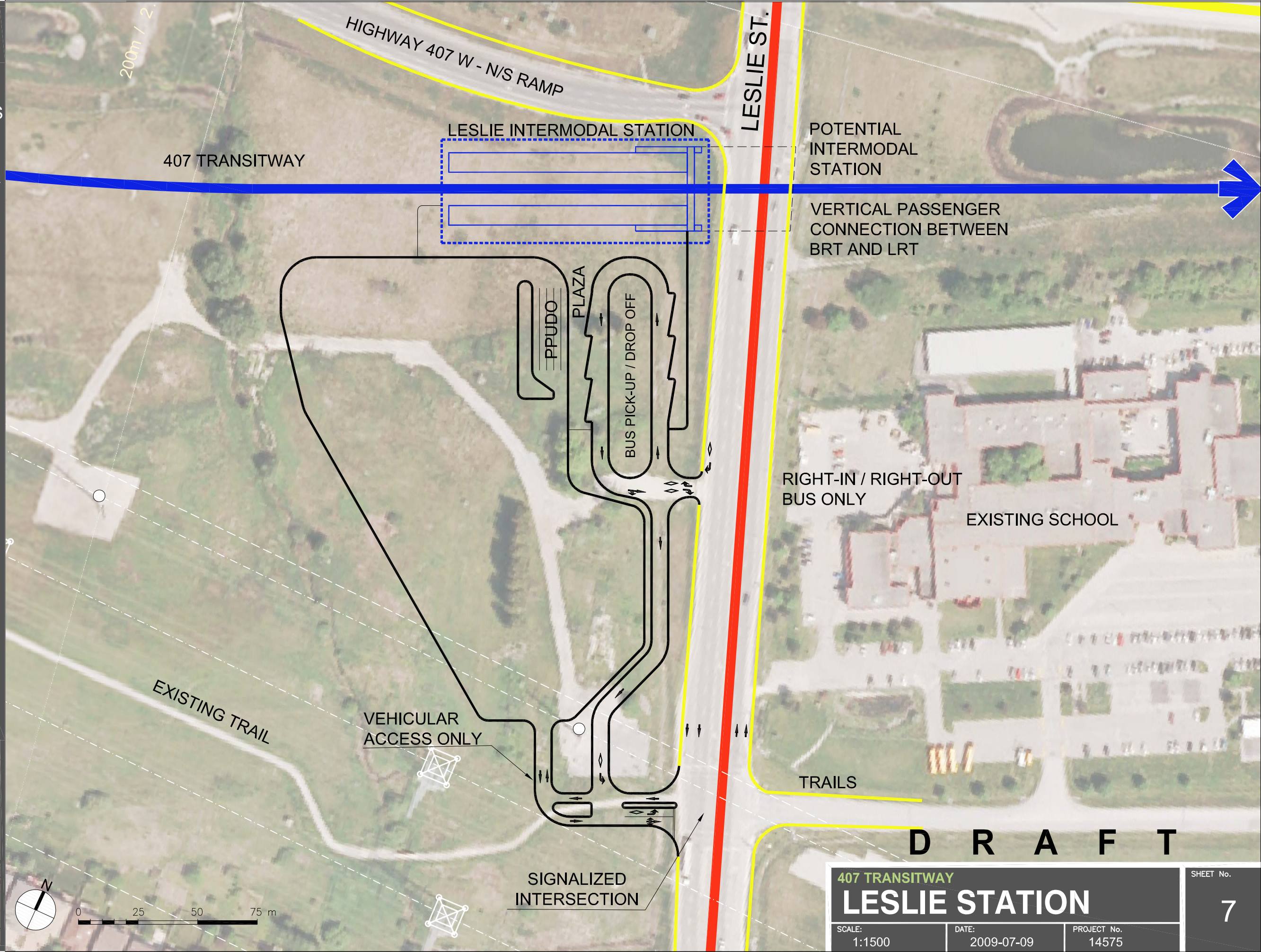
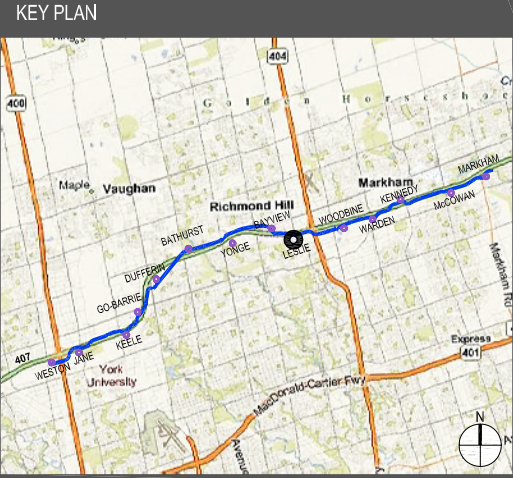
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SHEET TITLE:

SCHEMATIC CONCEPT VEHICULAR & BUS ACCESS

LEGEND

-  407 BRT ROUTE
-  FUTURE LRT
-  EXISTING STREETS / HIGHWAYS
-  PROPOSED VEHICULAR / BUS ACCESS
-  BUS LANE
-  HYDRD TOWER / HYDRO POLE

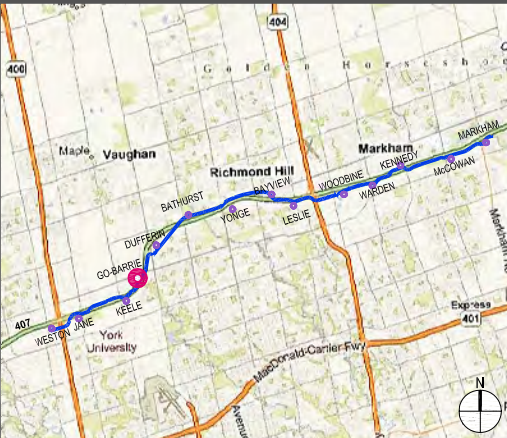


SHEET TITLE:
EXISTING CONDITIONS

LEGEND

-  SITE BOUNDARY
-  HIGHWAY 7
-  HIGHWAY 407
-  RAILWAY ACCESS
-  PEDESTRIAN / CYCLING TRAIL
-  FLOOD PLAIN
-  RIVER / CREEK
-  WOODLOT
-  407 BRT ROUTE
-  STEEP GRADE SLOPE / BERM
-  LOCATION & DIRECTION OF PHOTO

KEY PLAN



407 TRANSITWAY

GO BARRIE STATION

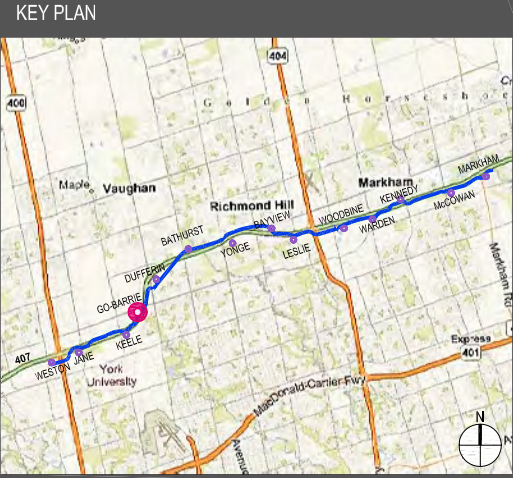
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DATE: 2009-07-09

PROJECT No. 14575

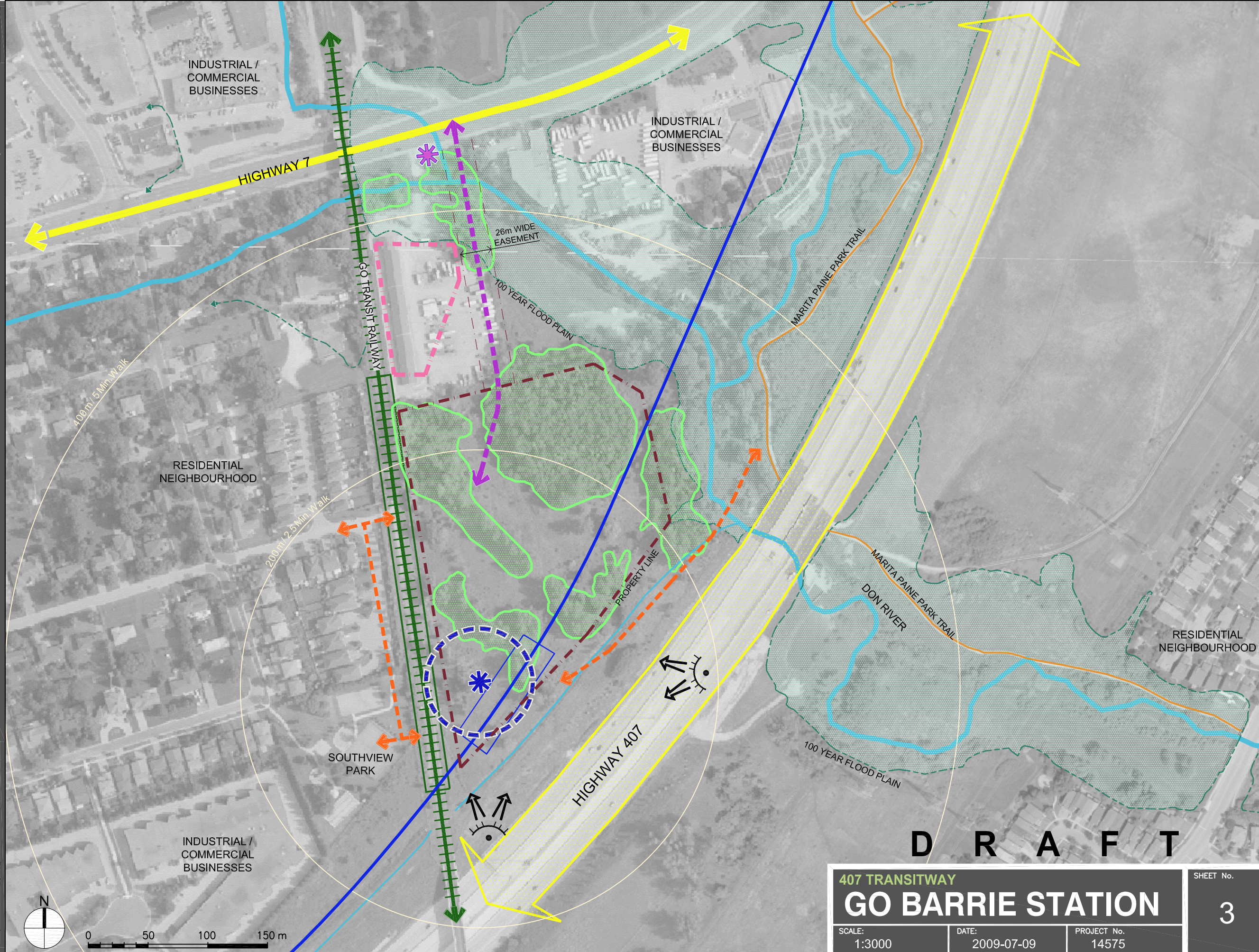
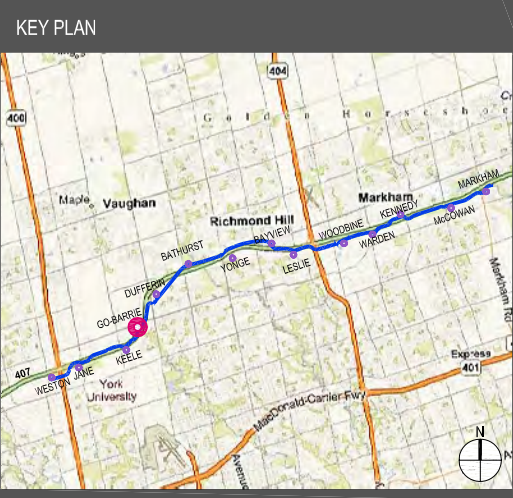
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SITE CONSTRAINTS

- LEGEND
- SITE BOUNDARY
 - HIGHWAY 7
 - HIGHWAY 407
 - RAILWAY ACCESS
 - PEDESTRIAN / CYCLING TRAIL
 - FLOOD PLAIN
 - RIVER / CREEK
 - WOODLOT
 - 407 BRT ROUTE
 - STEEP GRADE SLOPE / BERM
 - ON-GRADE RAIL CORRIDOR
 - LIMITED FRONT ACCESS
 - PROPERTY REQUIRED (APPROX.)
 - 1
CONSTRAINED SITE ACCESS DUE TO OVERPASS



SHEET TITLE:
OPPORTUNITIES

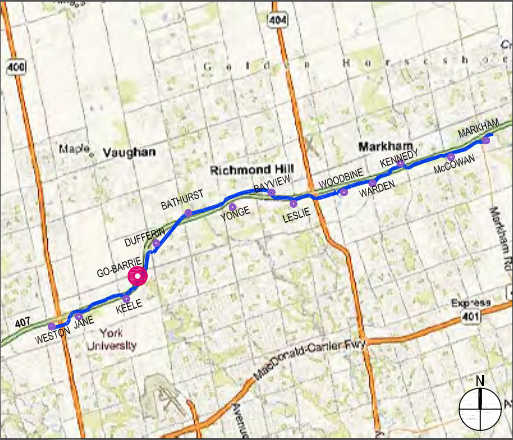
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- SITE BOUNDARY
 - HIGHWAY 7
 - HIGHWAY 407
 - RAILWAY ACCESS
 - PEDESTRIAN / CYCLING TRAIL
 - FLOOD PLAIN
 - RIVER / CREEK
 - WOODLOT
 - 407 BRT ROUTE
 - PROPOSED INTERMODAL STATION
 - OPPORTUNITY FOR GATEWAY FEATURE
 - PROPOSED BUS / AUTO ACCESS
 - POTENTIAL PEDESTRIAN LINKAGE
 - POTENTIAL T.O.D.
 - VIEWS TO TRANSIT STRUCTURE



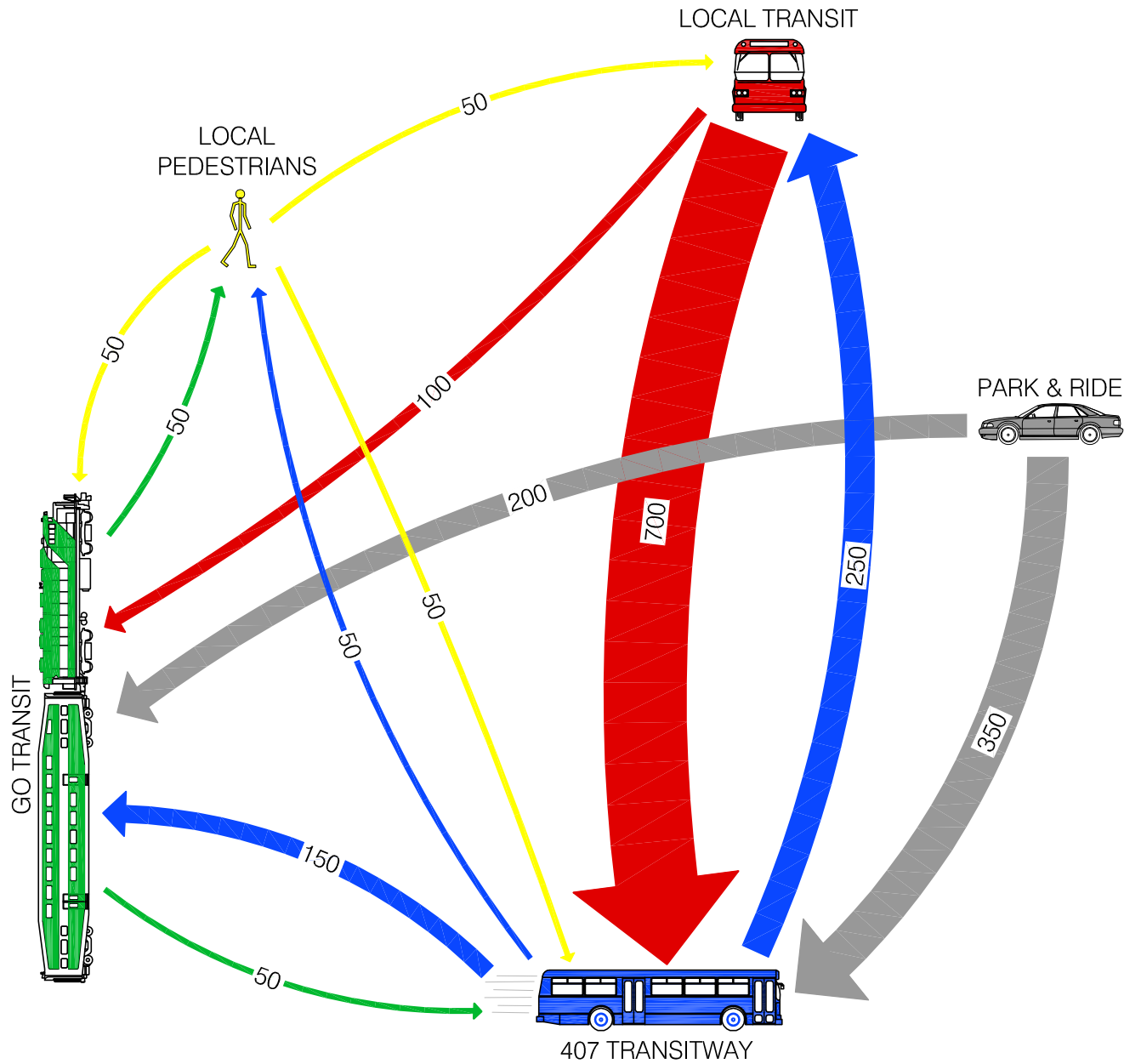
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PASSENGER FLOW ANALYSIS

KEY PLAN



PASSENGER FLOW SCHEMATIC DIAGRAM - PROJECTED MORNING PEAK HOUR (2031)



PASSENGER FLOW MATRIX - PROJECTED MORNING PEAK HOUR (2031)

		DESTINATION				
ORIGIN		407 Transitway	Local Transit	GO Rail	Local Walk	Total
	407 Transitway	-	250	150	50	450
	Local Transit	700	-	100	-	800
	Park & Ride*	350	-	200	-	550
	GO Rail	50	-	-	50	100
	Local Walk	50	50	50	-	150
	Total	1,150	300	500	100	2,050

* 200 spaces for GO Rail, 250 spots for 407 Transitway. Additional 200 spaces for carpools.

DRAFT

407 TRANSITWAY
GO BARRIE STATION

SCALE:
N.T.S.

DATE:
2009-07-09

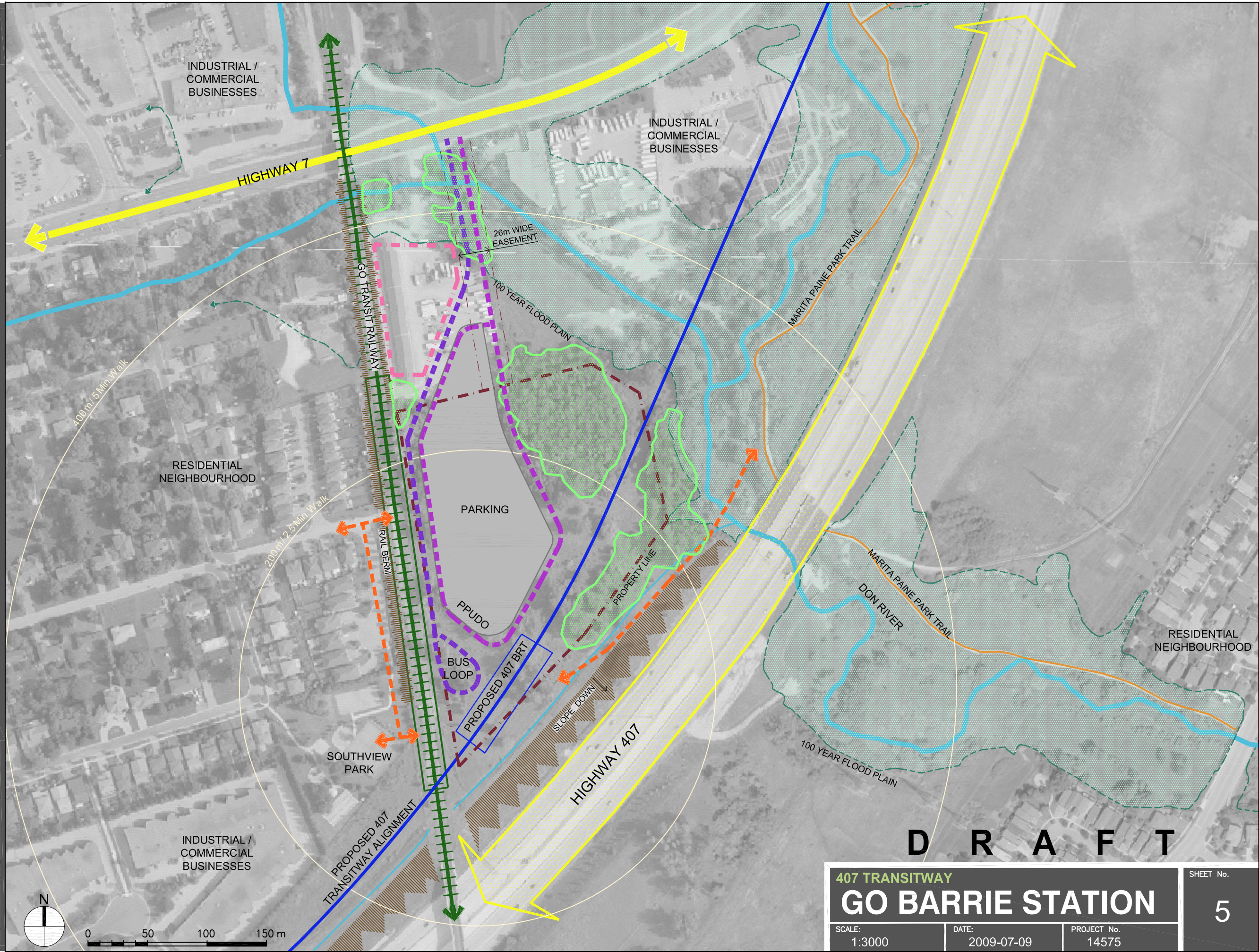
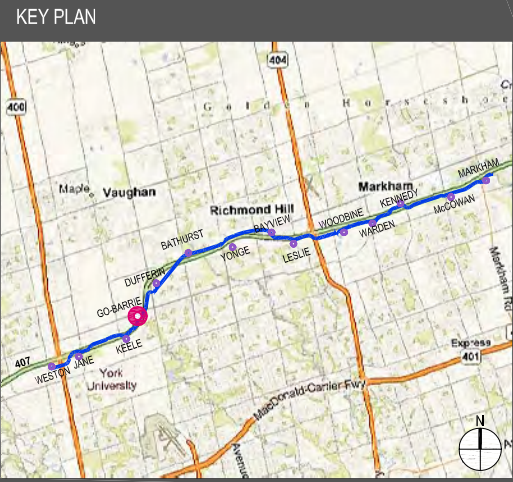
PROJECT No.
14575

SHEET No.

4

SHEET TITLE:
CONCEPT SCHEMATIC

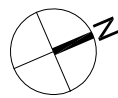
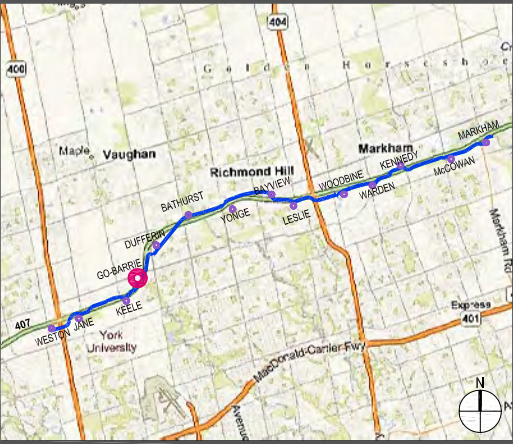
- LEGEND
- SITE BOUNDARY
 - HIGHWAY 7
 - HIGHWAY 407
 - RAILWAY ACCESS
 - PEDESTRIAN / CYCLING TRAIL
 - FLOOD PLAIN
 - RIVER / CREEK
 - WOODLOT
 - 407 BRT ROUTE
 - PROPOSED LOCAL BUS ACCESS
 - PROPOSED AUTO ACCESS
 - POTENTIAL PEDESTRIAN LINKAGE
 - POTENTIAL T.O.D.



SHEET TITLE:
SITE PLAN
OPTION 1



KEY PLAN



D R A F T

407 TRANSITWAY
GO BARRIE STATION

SCALE: N.T.S.	DATE: 2009-07-09	PROJECT No. 14575
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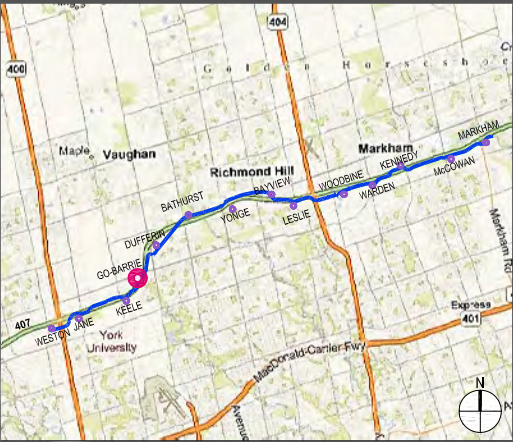
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SHEET TITLE:

SITE PLAN
OPTION 2



KEY PLAN



DRAFT

407 TRANSITWAY

GO BARRIE STATION

SCALE: N.T.S.	DATE: 2009-07-09	PROJECT No. 14575
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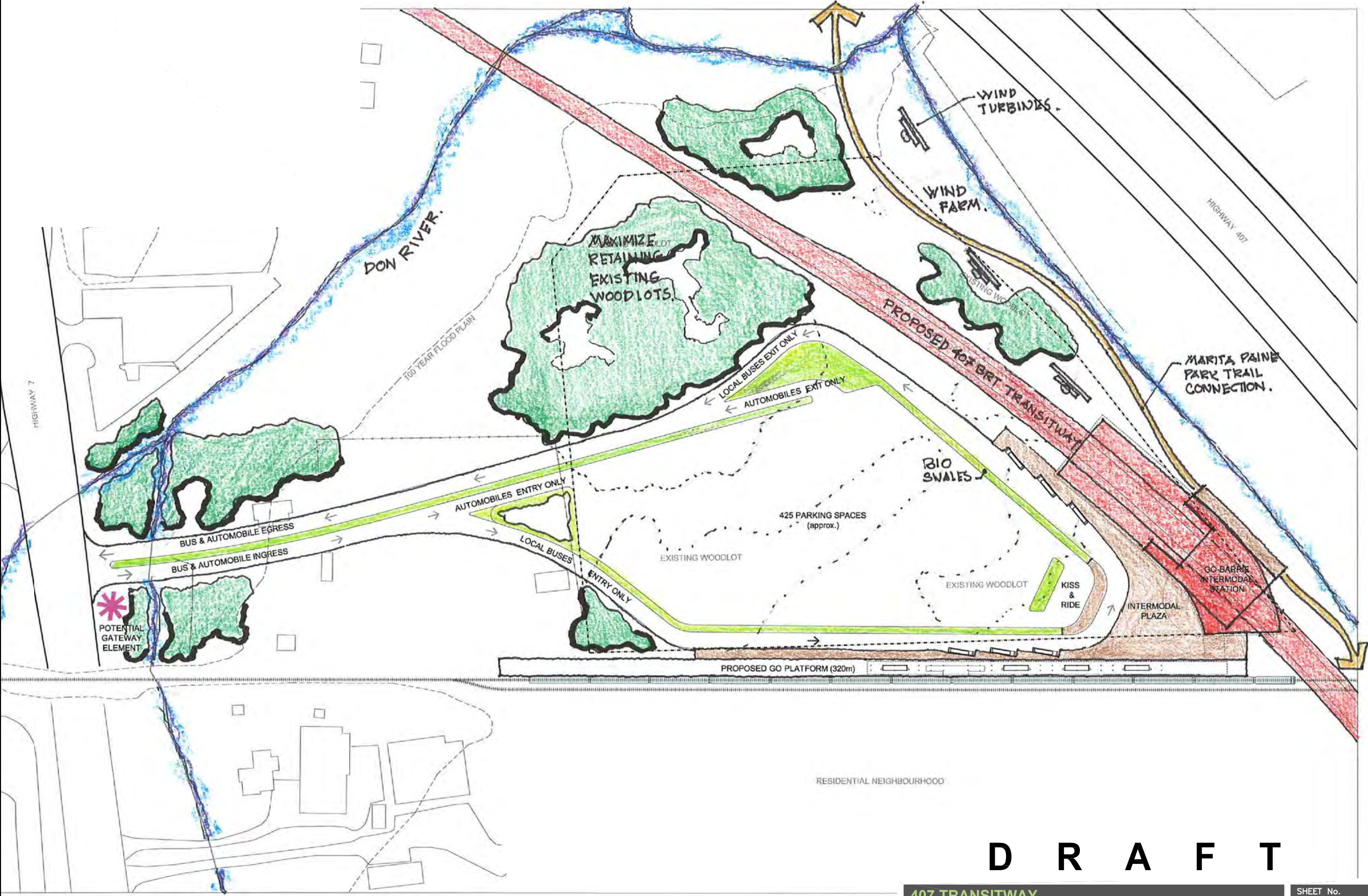
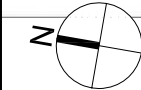
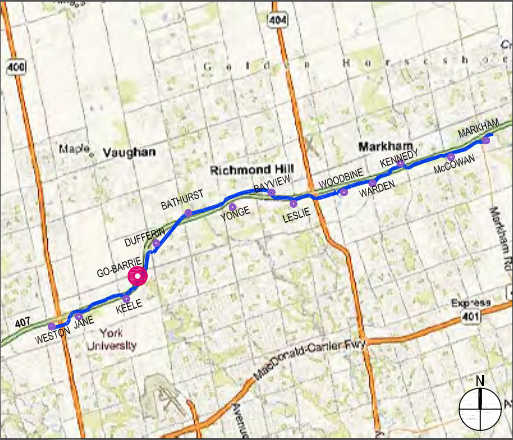
SHEET No.

6.2

SHEET TITLE:

SITE PLAN
OPTION 3

KEY PLAN



DRAFT

407 TRANSITWAY

GO BARRIE STATION

SCALE: N.T.S.	DATE: 2009-07-09	PROJECT No. 14575
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SHEET No.

6.3

SHEET TITLE:

SITE PLAN

OPTION 4 (PREFERRED)

- LEGEND

SITE BOUNDARY

HIGHWAY 7

HIGHWAY 407

RAILWAY ACCESS

PEDESTRIAN / CYCLING TRAIL

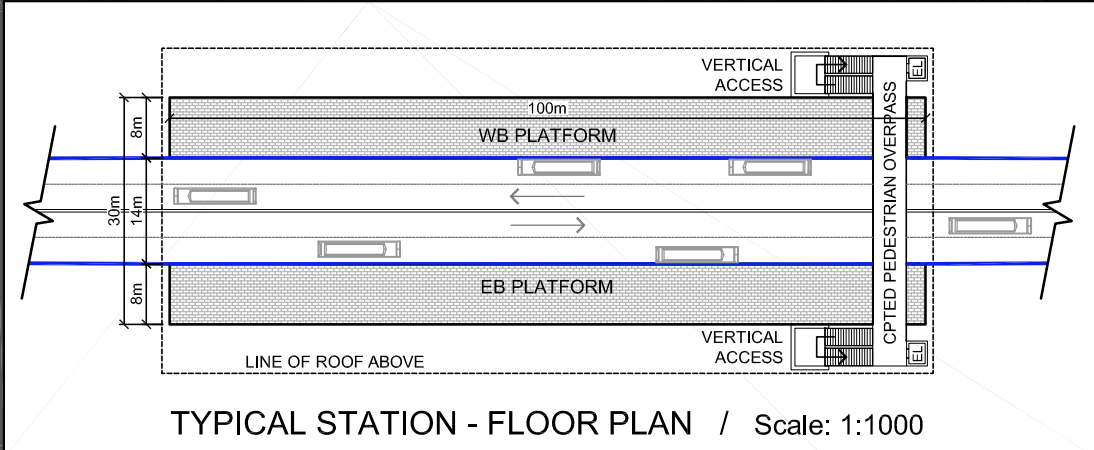
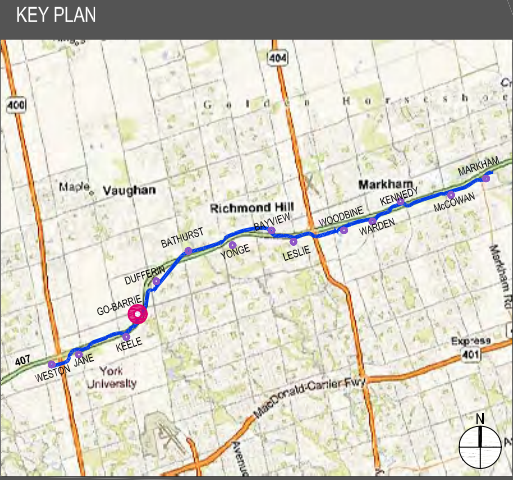
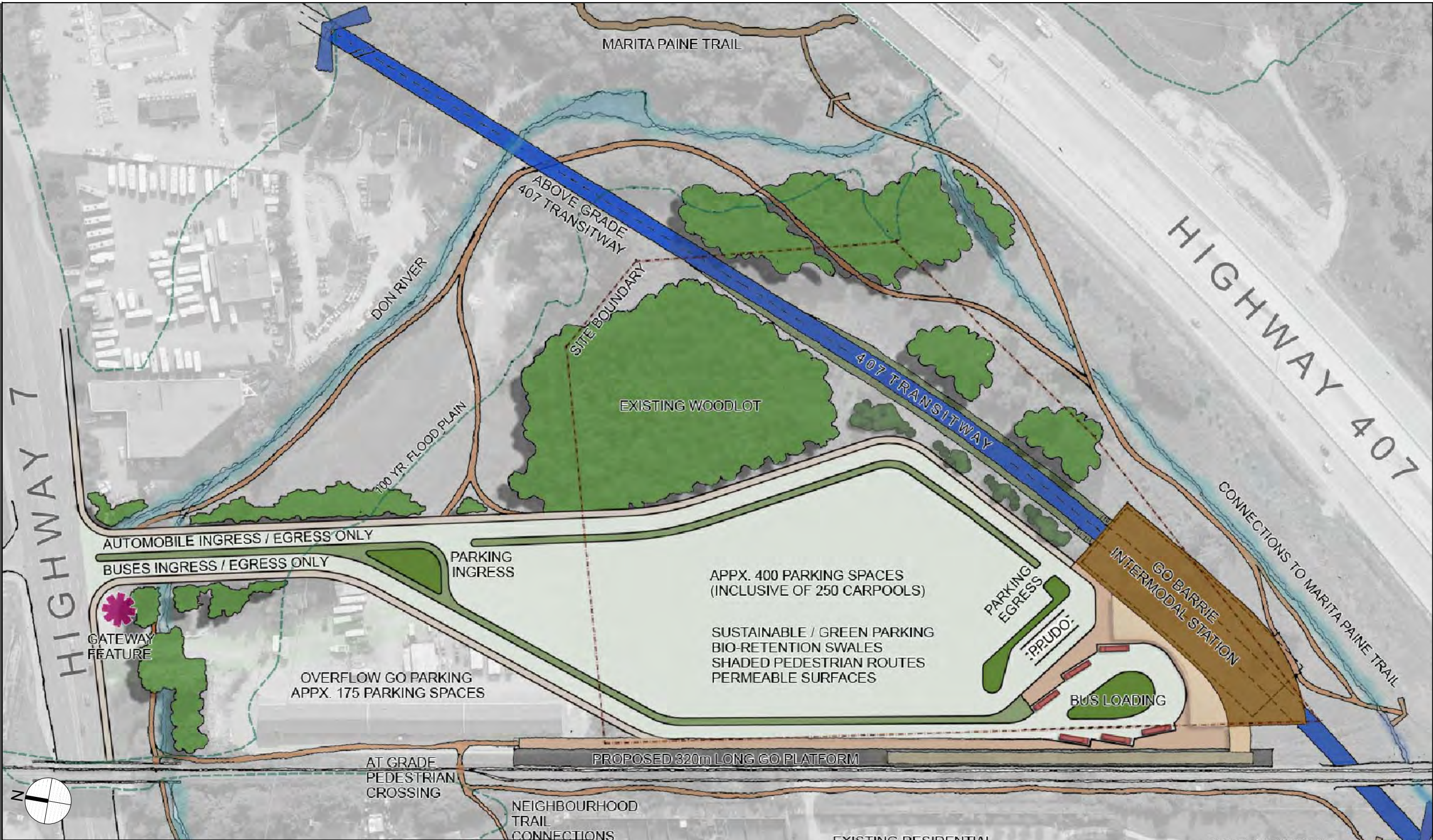
FLOOD PLAIN

RIVER / CREEK

WOODLOT

407 BRT ROUTE

OPPORTUNITY FOR GATEWAY FEATURE



TYPICAL STATION - FLOOR PLAN

Scale: 1:1000

DRAFT

407 TRANSITWAY

GO BARRIE STATION

SCALE:

N.T.S.

DATE:

2009-07-09

PROJECT No.








14575

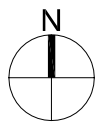
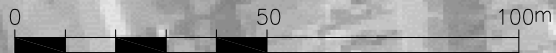
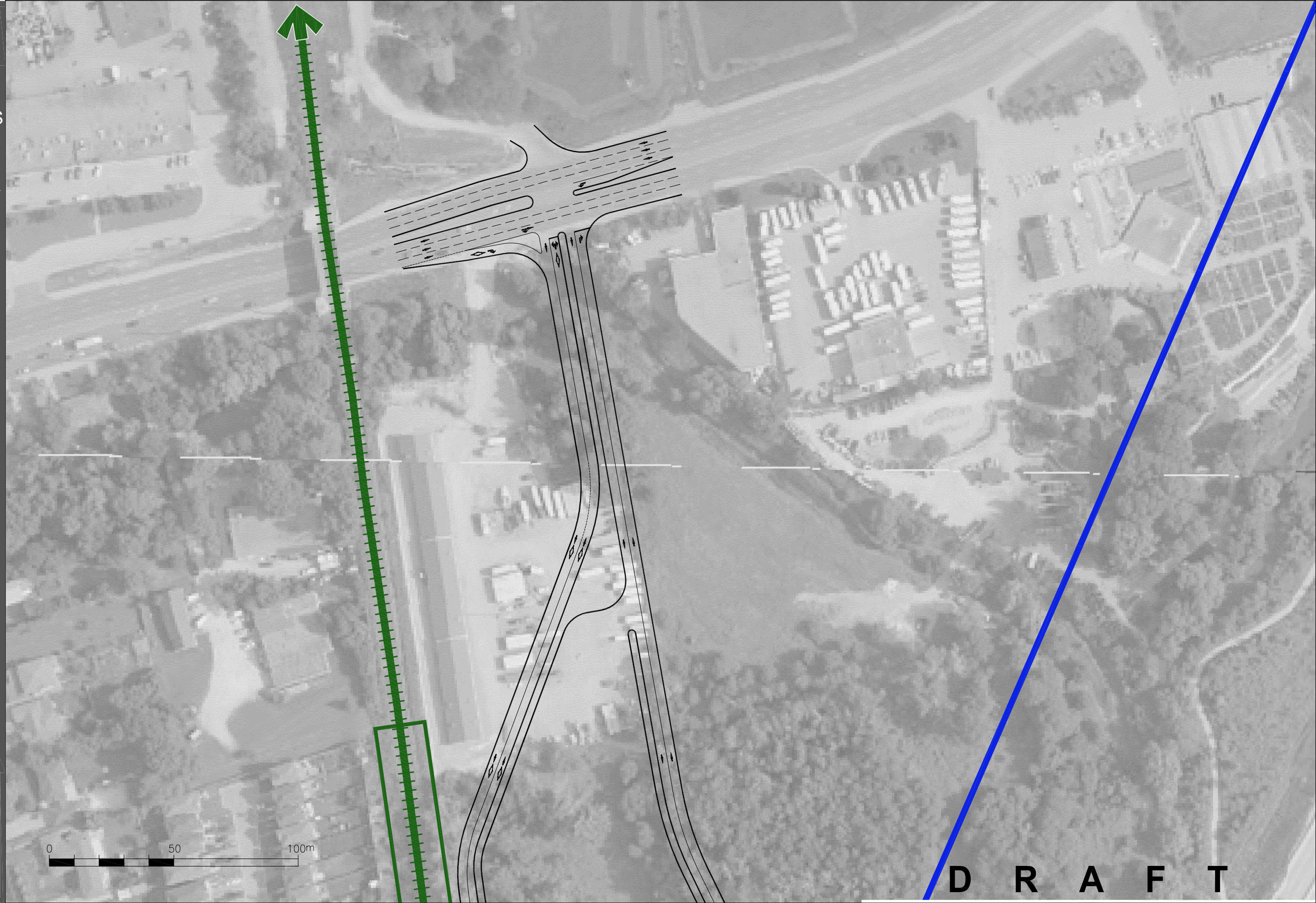
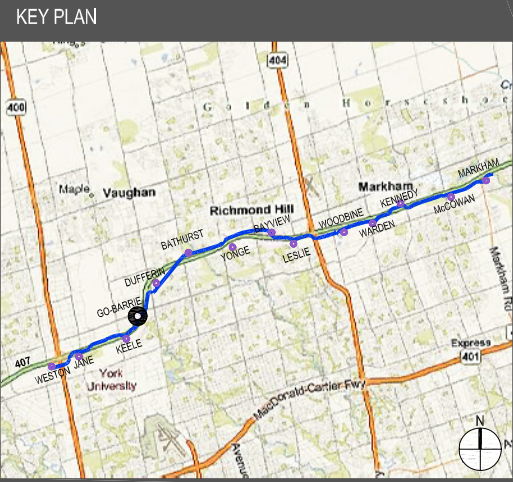
SHEET No.

6.4

SHEET TITLE:

SCHEMATIC CONCEPT VEHICULAR & BUS ACCESS

- LEGEND
-  407 BRT ROUTE
 -  EXISTING STREETS / HIGHWAYS
 -  PROPOSED VEHICULAR / BUS ACCESS
 -  BUS LANE
 -  CREEK / WATER BODY
 -  HYRDO TOWER / HYDRO POLE
 -  RAILWAY ACCESS



D R A F T

407 TRANSITWAY

GO BARRIE STATION

SCALE: 1:1500	DATE: 2009-07-09	PROJECT No. 14575
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SHEET No.
7

SHEET TITLE:

EXISTING CONDITIONS

LEGEND




SITE BOUNDARY




HIGHWAY 407



CREEK / WATER BODY



MAJOR ROADS



WOODLOT



FLOODPLAIN




HYRDO TOWER



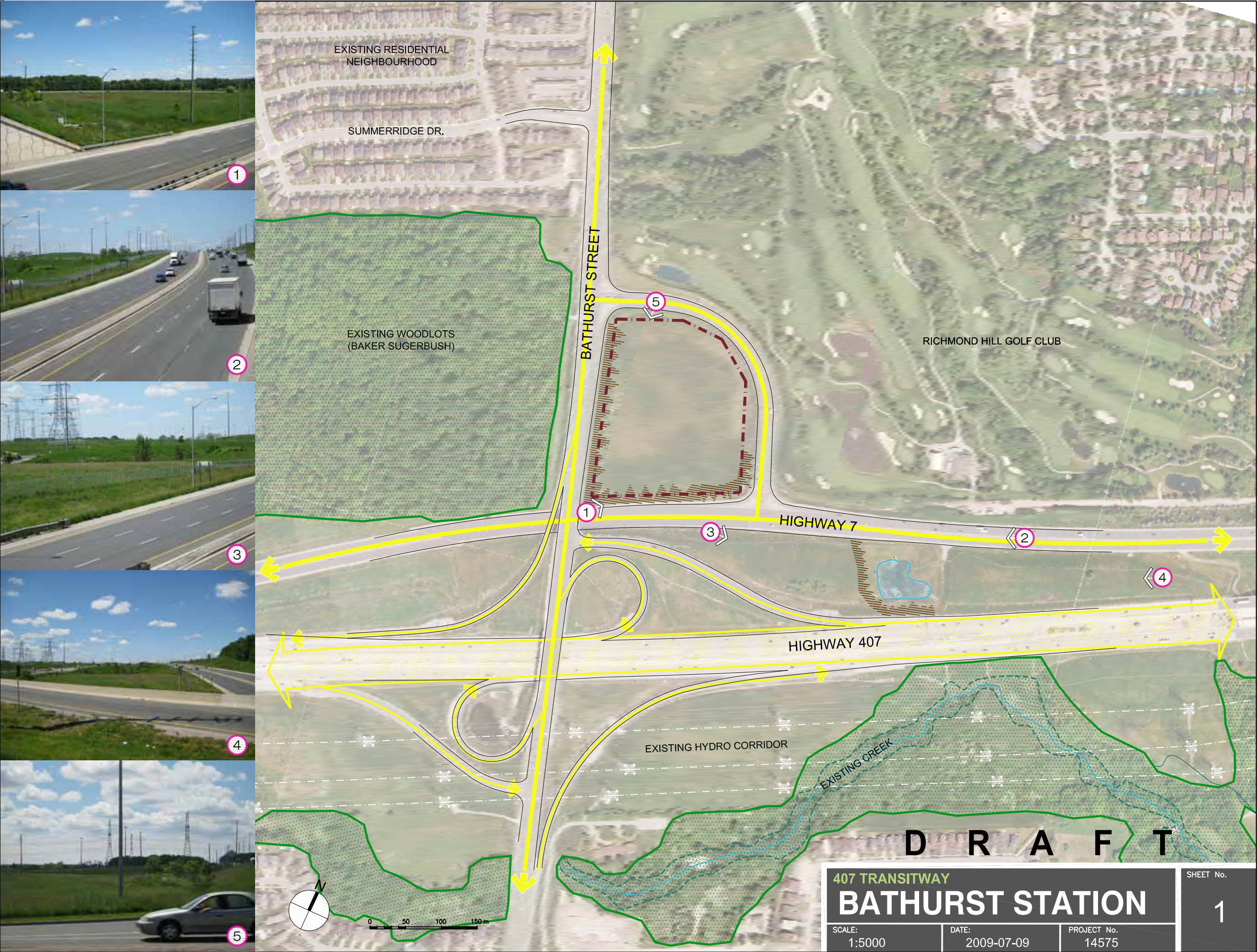
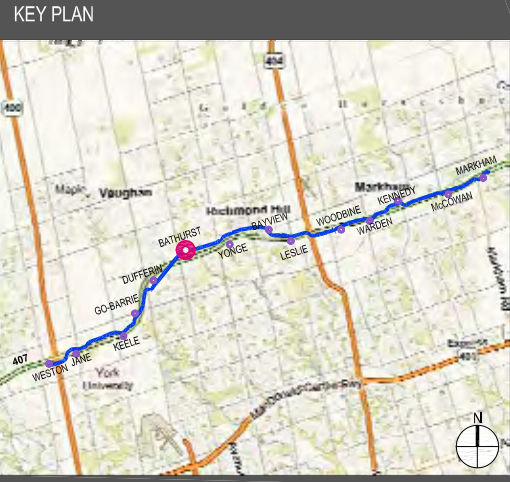
HYDRO LINE



STEEP GRADE SLOPE / BERM






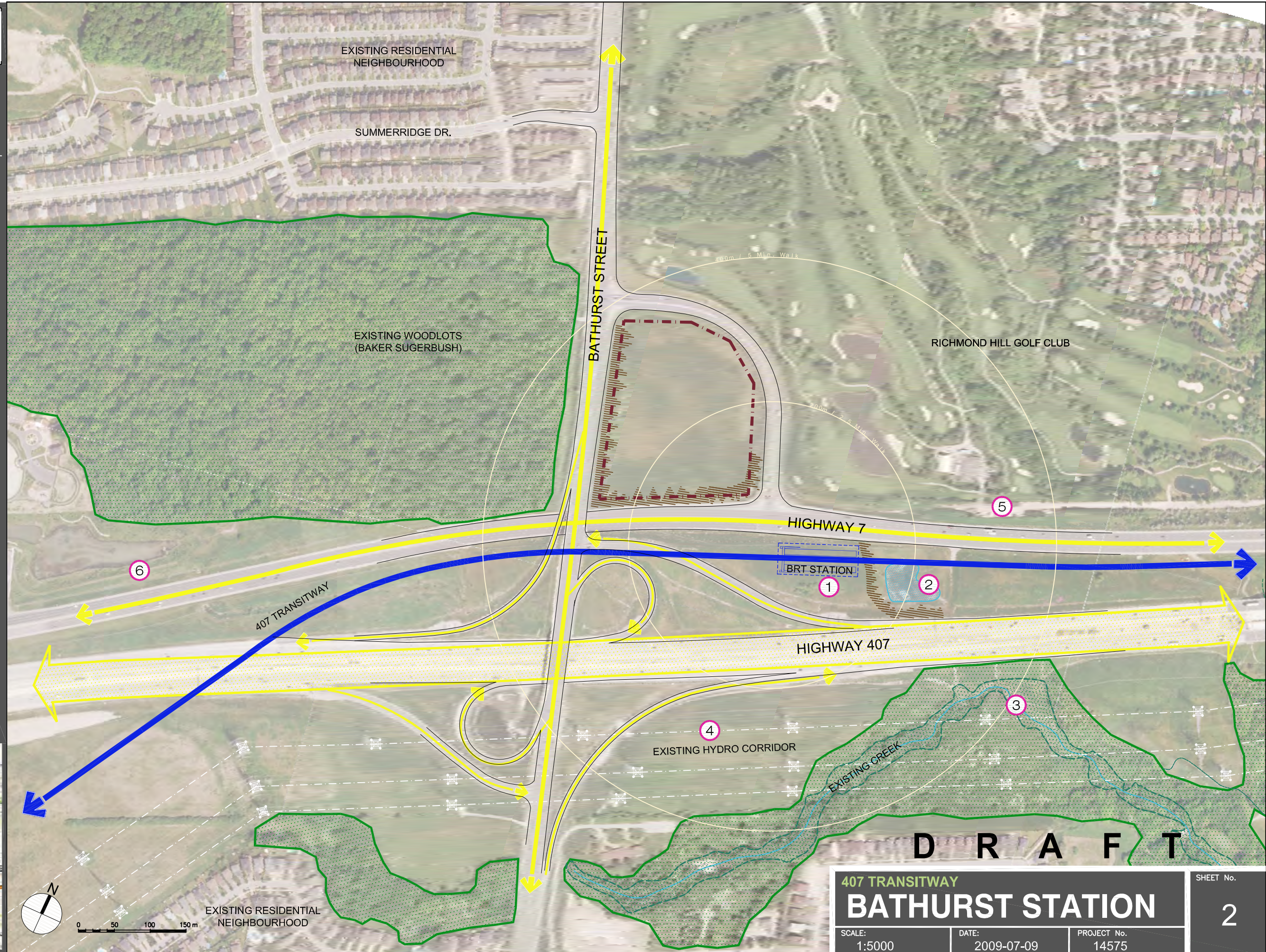
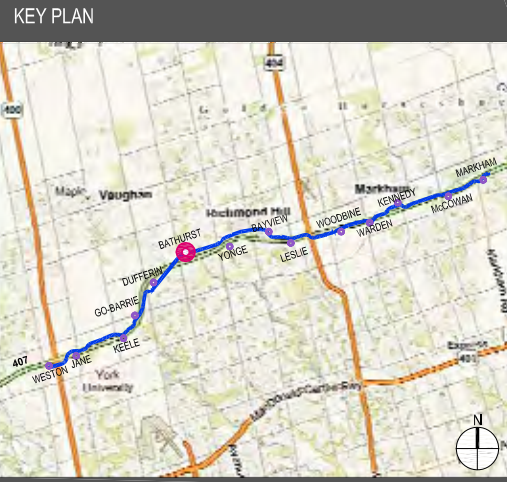
LOCATION & DIRECTION OF PHOTO



SHEET TITLE:

CONSTRAINTS

- LEGEND
-  SITE BOUNDARY
 -  HIGHWAY 407
 -  CREEK / WATER BODY
 -  407 BRT ROUTE
 -  CONSESSION
 -  MAJOR ROADS
 -  WOODLOT
 -  FLOODPLAIN
 -  HYRDO TOWER
 -  HYDRO LINE
 -  STEEP GRADE SLOPE / BERM
 -  1 LIMITED SPACE PROHIBITS STATION AREA PLANNING
 -  2 EXISTING POND
 -  3 EXISTING CREEK
 -  4 EXISTING HYDRO CORRIDOR
 -  5 LIMITED CONSESSION PROHIBITS 407 TRANSITWAY NORTH OF HIGHWAY 7
 -  6 ECOLOGICALLY SENSITIVE SITE PROHIBITS 407 TRANSITWAY NORTH OF HIGHWAY 7



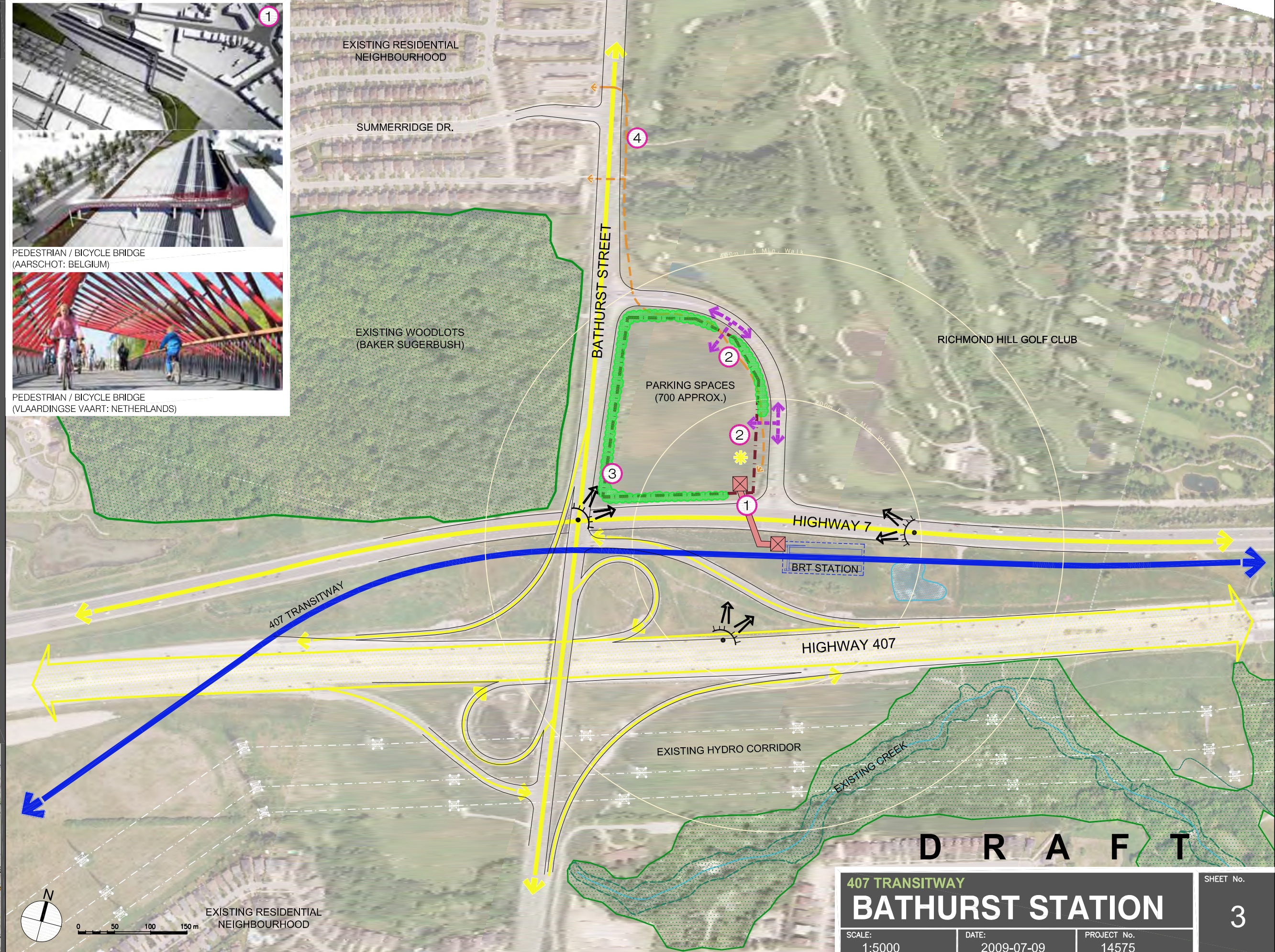
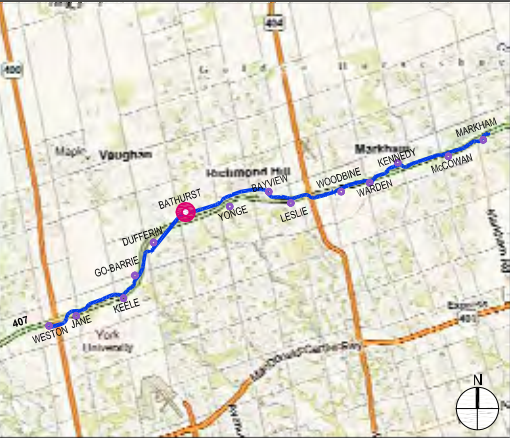
SHEET TITLE:

OPPORTUNITIES

LEGEND

- SITE BOUNDARY
- HIGHWAY 407
- PROPOSED PEDESTRIAN / CYCLING TRAIL
- CREEK / WATER BODY
- 407 BRT ROUTE
- MAJOR ROADS
- PROPOSED BUS / AUTO ACCESS
- WOODLOT
- FLOODPLAIN
- LANDSCAPE BUFFER
- HYRDO TOWER
- HYDRO LINE
- POTENTIAL VIEWS
- GATEWAY FEATURE
- POTENTIAL OVERHEAD PEDESTRIAN BRIDGE / GATEWAY
- POTENTIAL ACCESS TO SITE
- LANDSCAPE BUFFER FOR AT-GRADE PARKING
- PROPOSED TRAILS TO EXISTING RESIDENTIAL

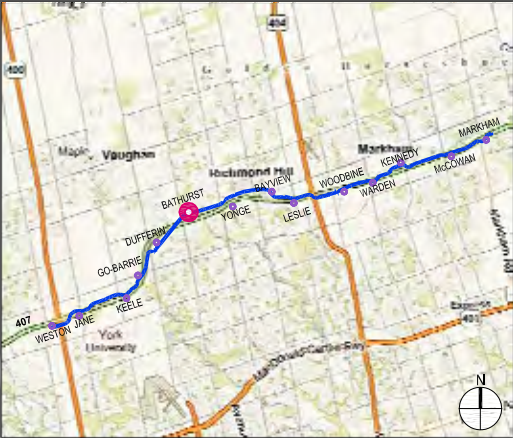
KEY PLAN



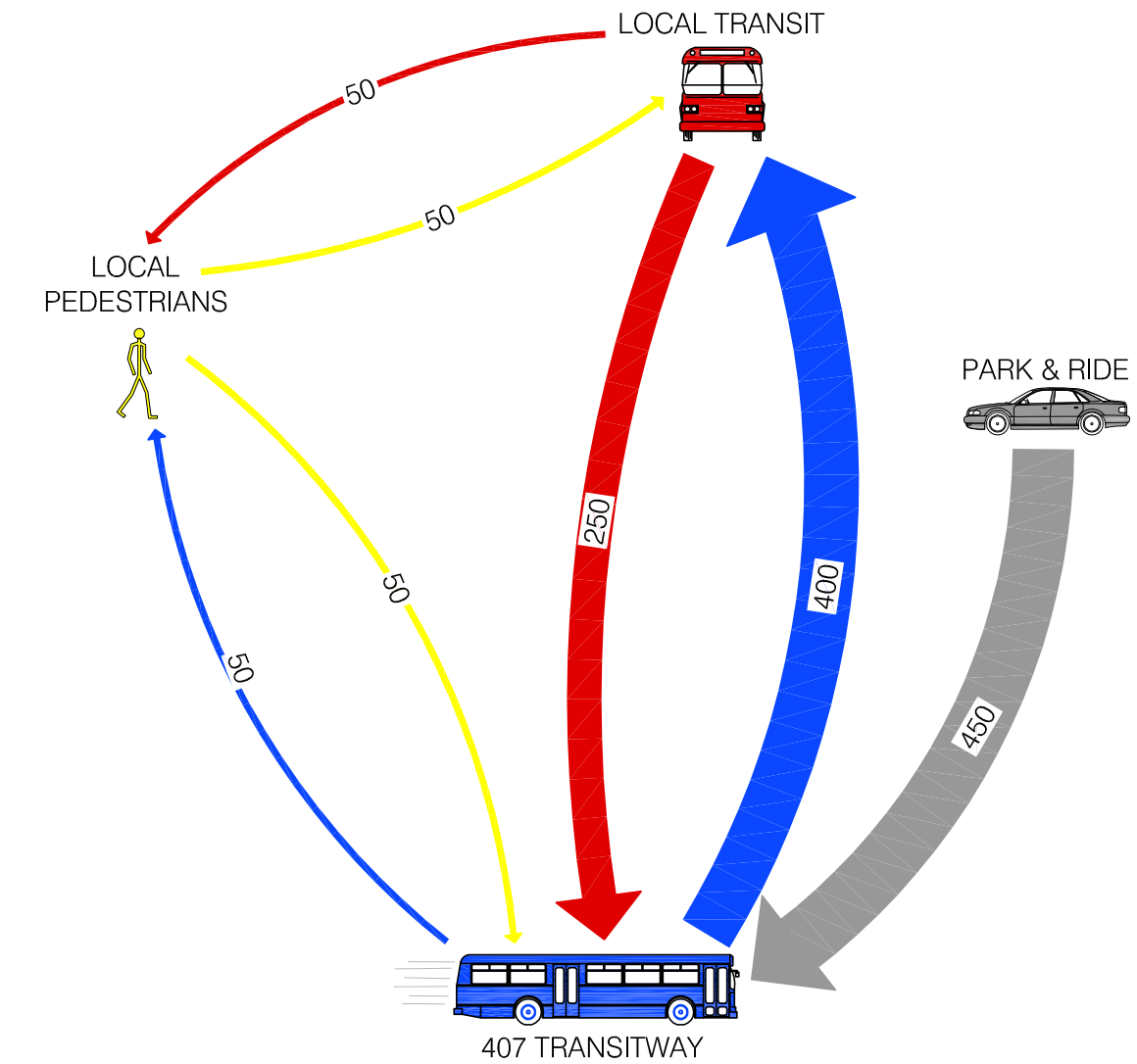
SHEET TITLE:

PASSENGER FLOW ANALYSIS

KEY PLAN



PASSENGER FLOW SCHEMATIC DIAGRAM - PROJECTED MORNING PEAK HOUR (2031)



PROJECTED PASSENGER FLOW MATRIX - MORNING PEAK HOUR (2031)

ORIGIN	DESTINATION			
	407 Transitway	-	400	50
	Local Transit	250	-	50
	Park & Ride*	450	-	-
	Local Pedestrians	50	50	-
	Total	750	450	100

* 900 spots for 407 Transitway. Additional 200 spaces for carpoolers.

DRAFT

407 TRANSITWAY
BATHURST STATION

SCALE: N.T.S.	DATE: 2009-07-09	PROJECT No. 14575
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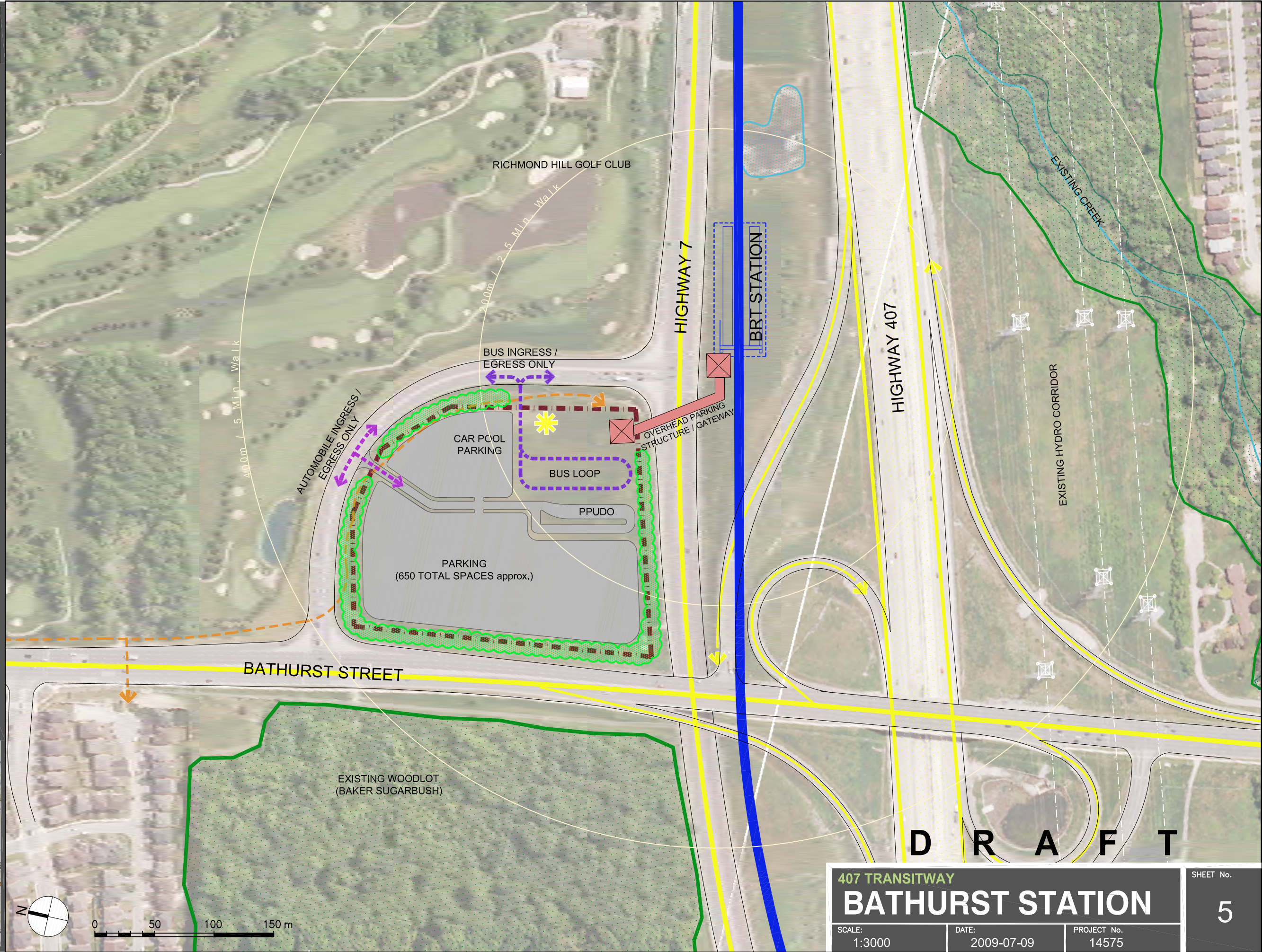
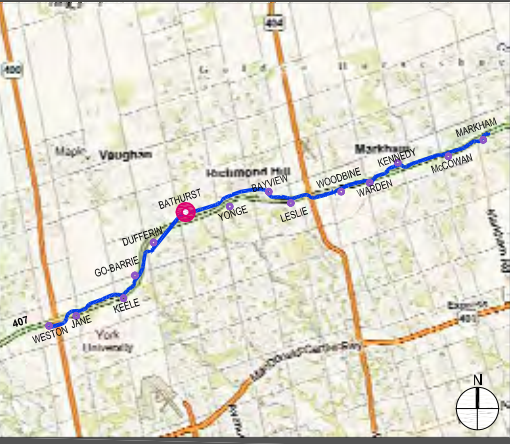
SHEET No.
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SHEET TITLE:

CONCEPT SCHEMATIC

- LEGEND
- SITE BOUNDARY
 - HIGHWAY 407
 - PROPOSED PEDESTRIAN / CYCLING TRAIL
 - CREEK / WATER BODY
 - 407 BRT ROUTE
 - MAJOR ROADS
 - PROPOSED LOCAL BUS ACCESS
 - PROPOSED AUTOMOBILE ACCESS
 - WOODLOT
 - FLOODPLAIN
 - LANDSCAPE BUFFER
 - HYRDO TOWER
 - HYDRO LINE EASEMENTS

KEY PLAN

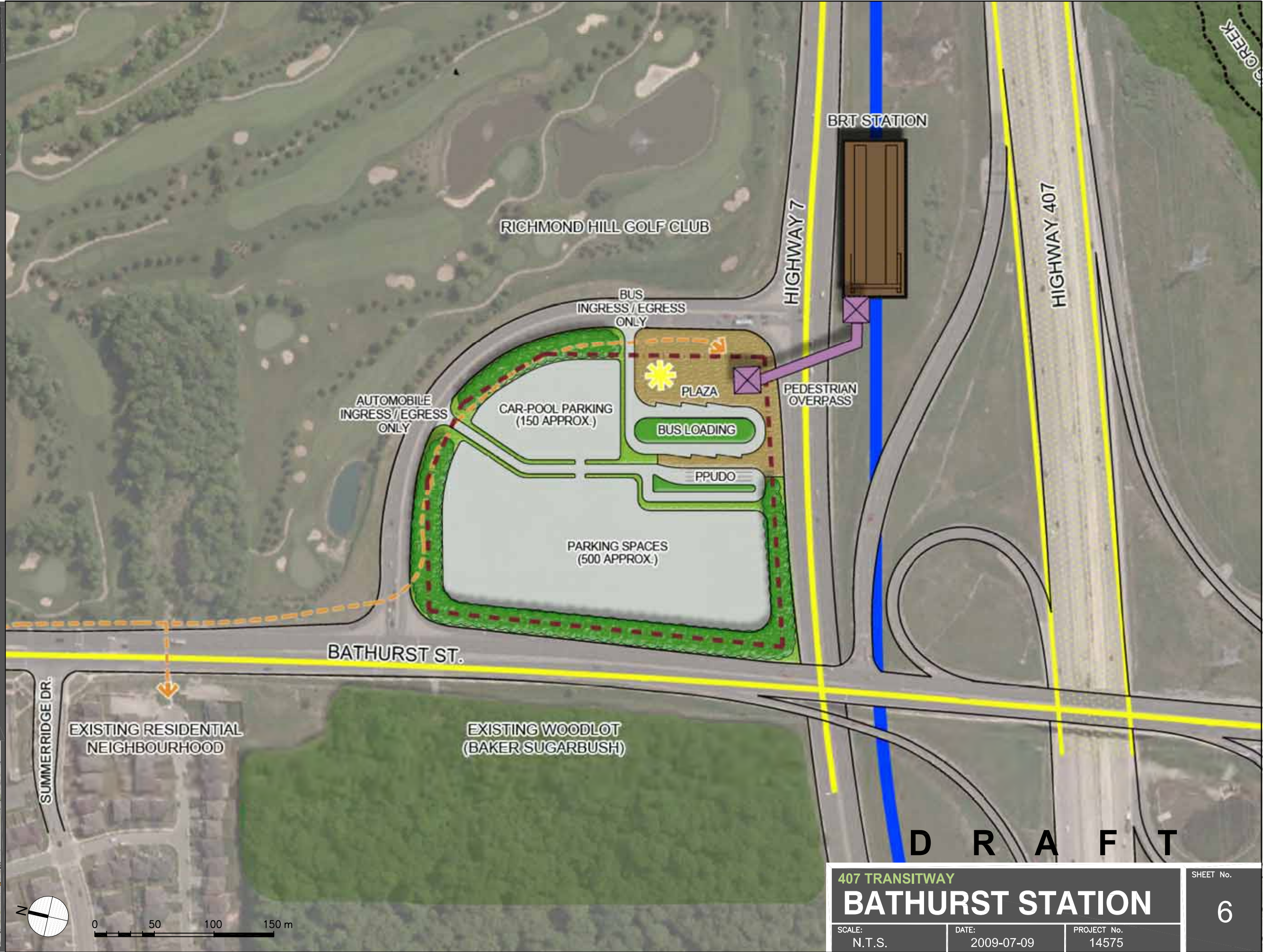
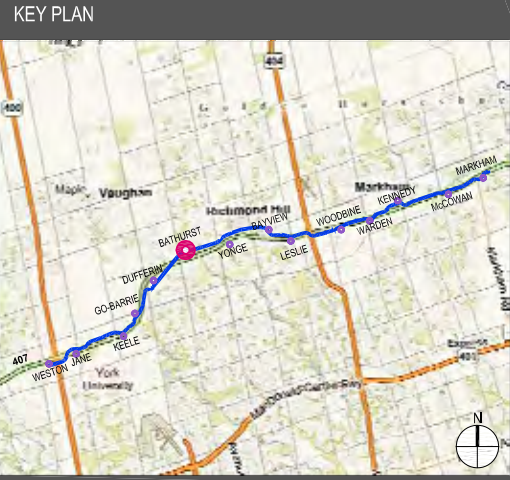


SHEET TITLE:

SITE PLAN

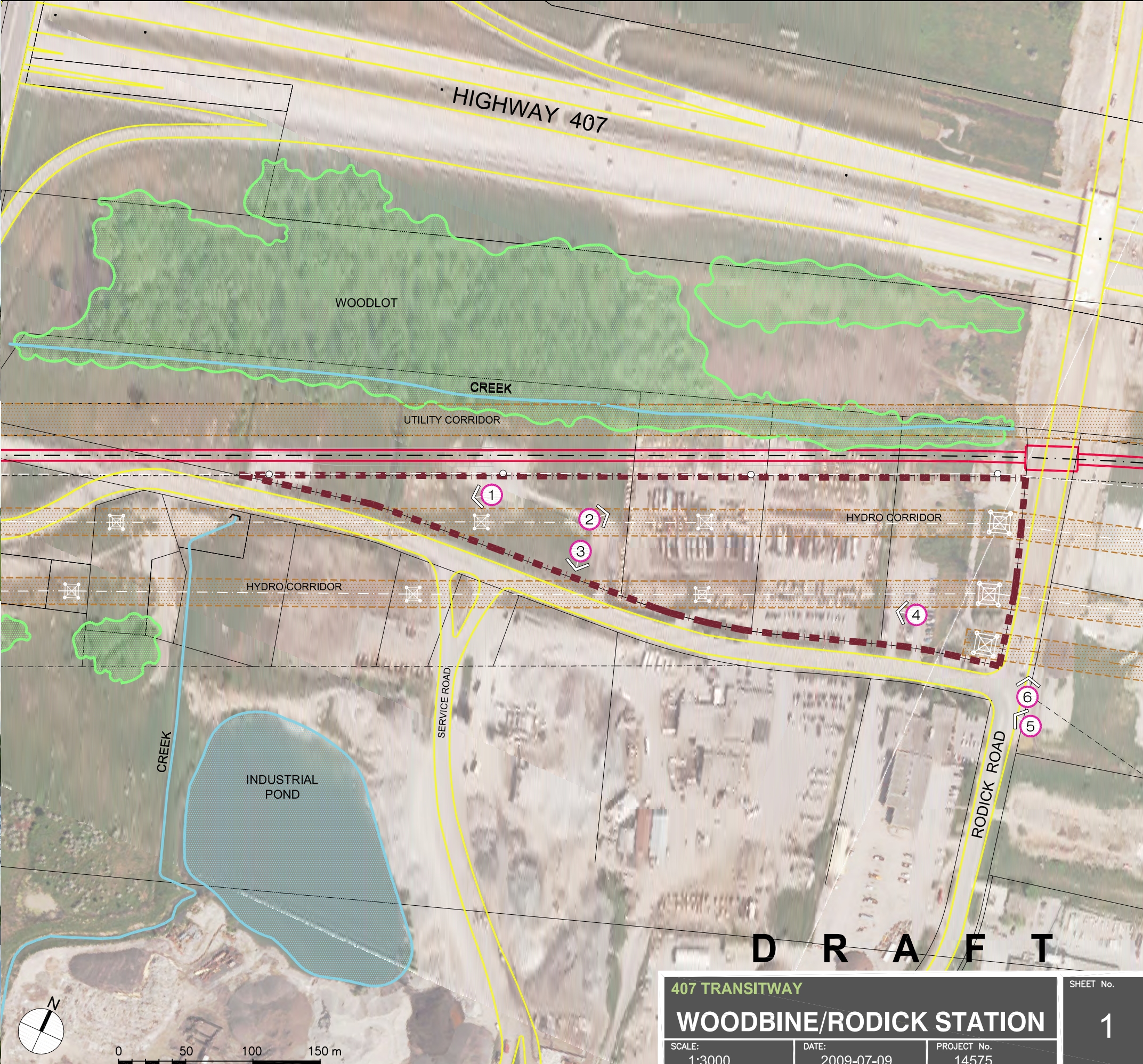
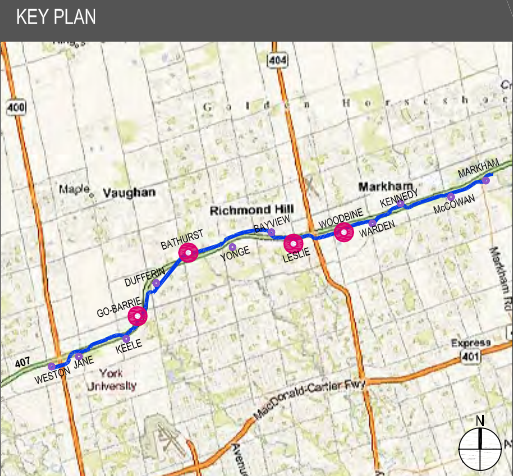
LEGEND

- SITE BOUNDARY
- HIGHWAY 407
- PROPOSED PEDESTRIAN / CYCLING TRAIL
- CREEK / WATER BODY
- 407 BRT ROUTE
- MAJOR ROADS
- WOODLOT
- FLOODPLAIN
- LANDSCAPE BUFFER
- HYRDO TOWER
- HYDRO LINE EASEMENTS
- GATEWAY FEATURE



SHEET TITLE:
EXISTING CONDITIONS

- LEGEND
-  SITE BOUNDARY
 -  STREETS / HIGHWAYS
 -  CREEK / WATER BODY
 -  WOODLOT
 -  407 BRT ROUTE
 -  HYRDO TOWER / HYDRO POLE
 -  HYDRO / UTILITY CORRIDOR
 -  LOCATION & DIRECTION OF PHOTO

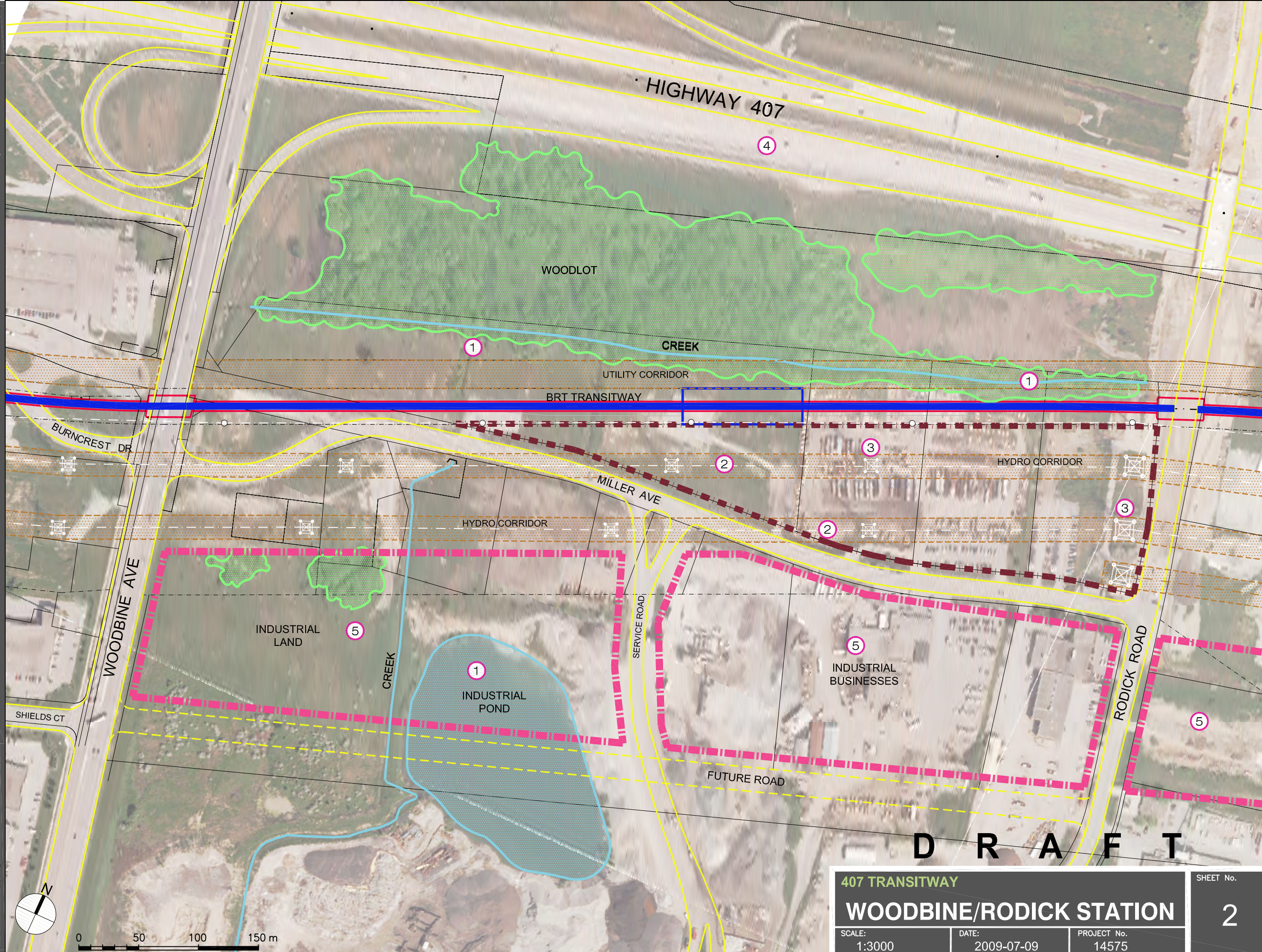
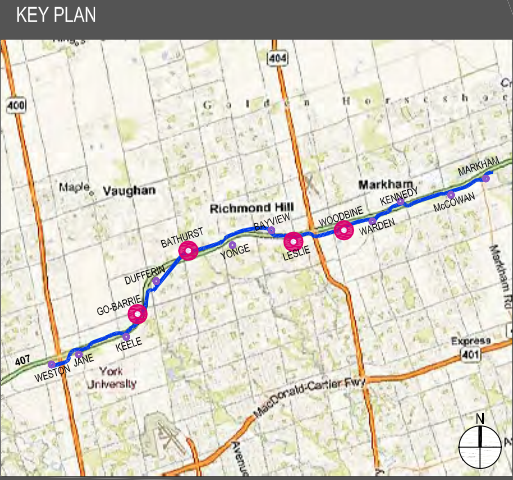


D R A F T

407 TRANSITWAY			SHEET No. 1
WOODBINE/RODICK STATION			
SCALE: 1:3000	DATE: 2009-07-09	PROJECT No. 14575	

SHEET TITLE:
SITE CONSTRAINTS

- LEGEND
- SITE BOUNDARY
 - STREETS / HIGHWAYS
 - CREEK / WATER BODY
 - WOODLOT
 - 407 BRT ROUTE
 - HYRDO TOWER / HYDRO POLE
 - HYDRO / UTILITY CORRIDOR
 - EXISTING INDUSTRIAL USES
 - 1 WATER BODY
 - 2 NO BUS PARKING UNDER HYDRO CORRIDOR
 - 3 HYDRO TOWER LOCATION
 - 4 LACK OF VISIBILITY FROM HIGHWAY 407
 - 5 NON-TRANSIT SUPPORTIVE DEVELOPMENT



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407 TRANSITWAY

WOODBINE/RODICK STATION

SCALE: 1:3000

DATE: 2009-07-09

PROJECT No. 14575

SHEET No.

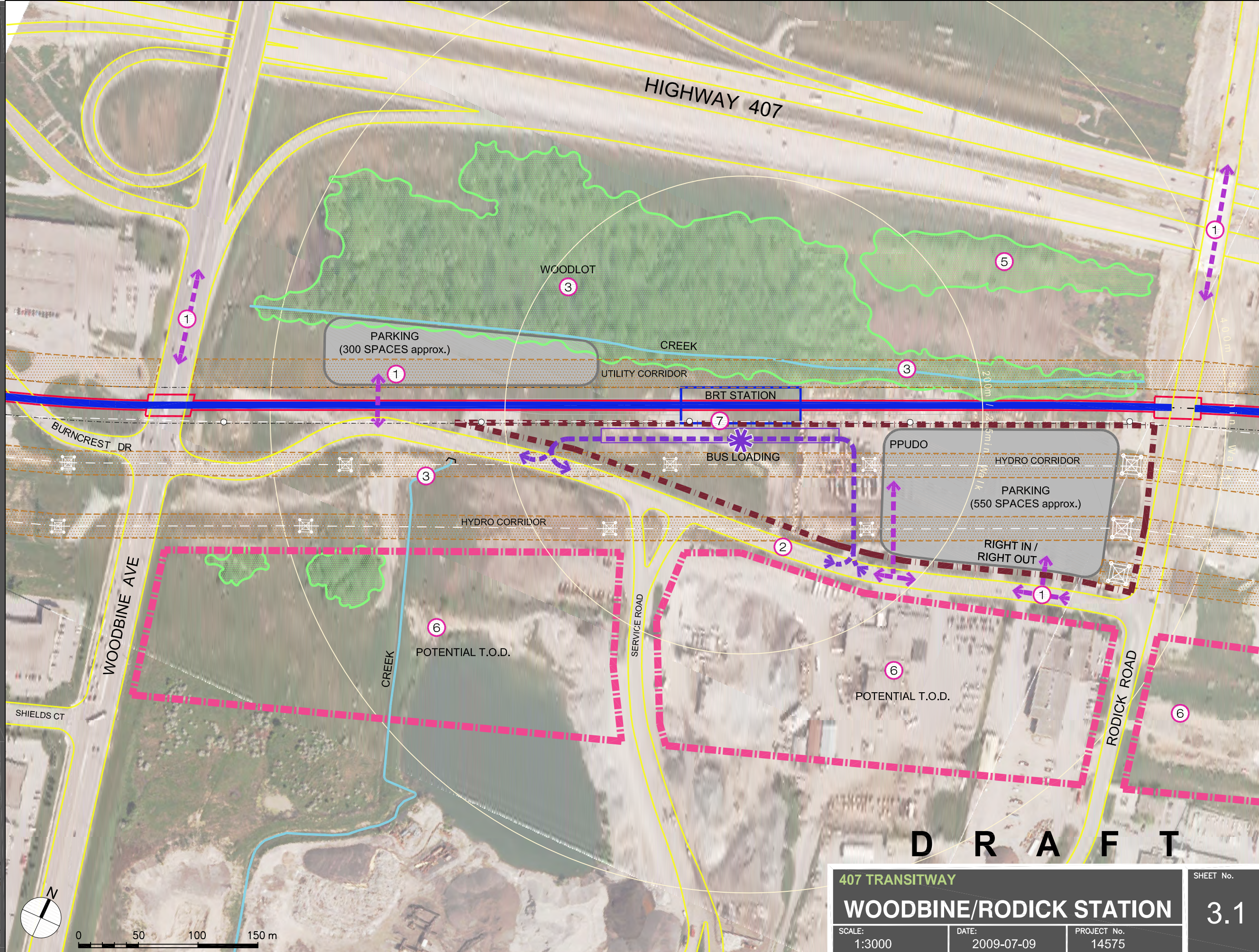
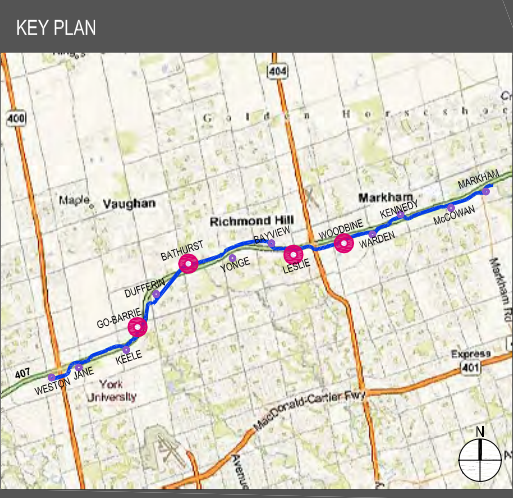
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SHEET TITLE:

OPPORTUNITIES / SCHEMATIC - OPTION 1

USING EXISTING MILLER AVE


- LEGEND
- SITE BOUNDARY
 - STREETS / HIGHWAYS
 - CREEK / WATER BODY
 - WOODLOT
 - 407 BRT ROUTE
 - HYRDO TOWER / HYDRO POLE
 - HYDRO / UTILITY CORRIDOR
 - PROPOSED LOCAL BUS ACCESS
 - PROPOSED AUTOMOBILE ACCESS
 - POTENTIAL T.O.D.
- 1 VEHICULAR CONNECTION
 - 2 POTENTIAL LOCAL BUS ROUTE
 - 3 PRESERVE EXISTING WOODLOT
 - 4 PRESERVE EXISTING WATER BODY
 - 5 POTENTIAL GREEN BUFFER
 - 6 FUTURE T.O.D. DEVELOPMENT
 - 7 SOLAR ORIENTATION

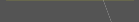



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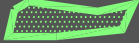
OPPORTUNITIES /
SCHEMATIC - OPTION 2


USING PROPOSED FUTURE ROAD


- LEGEND
- 


SITE BOUNDARY
- 


STREETS / HIGHWAYS
- 


CREEK / WATER BODY
- 


WOODLOT
- 


407 BRT ROUTE
- 


HYRDO TOWER / HYRDO POLE
- 


PROPOSED LOCAL BUS ACCESS
- 


PROPOSED AUTOMOBILE ACCESS
- 


POTENTIAL T.O.D.
- 


VEHICULAR CONNECTION
- 


POTENTIAL LOCAL BUS ROUTE
- 

PRESERVE EXISTING WOODLOT
- 

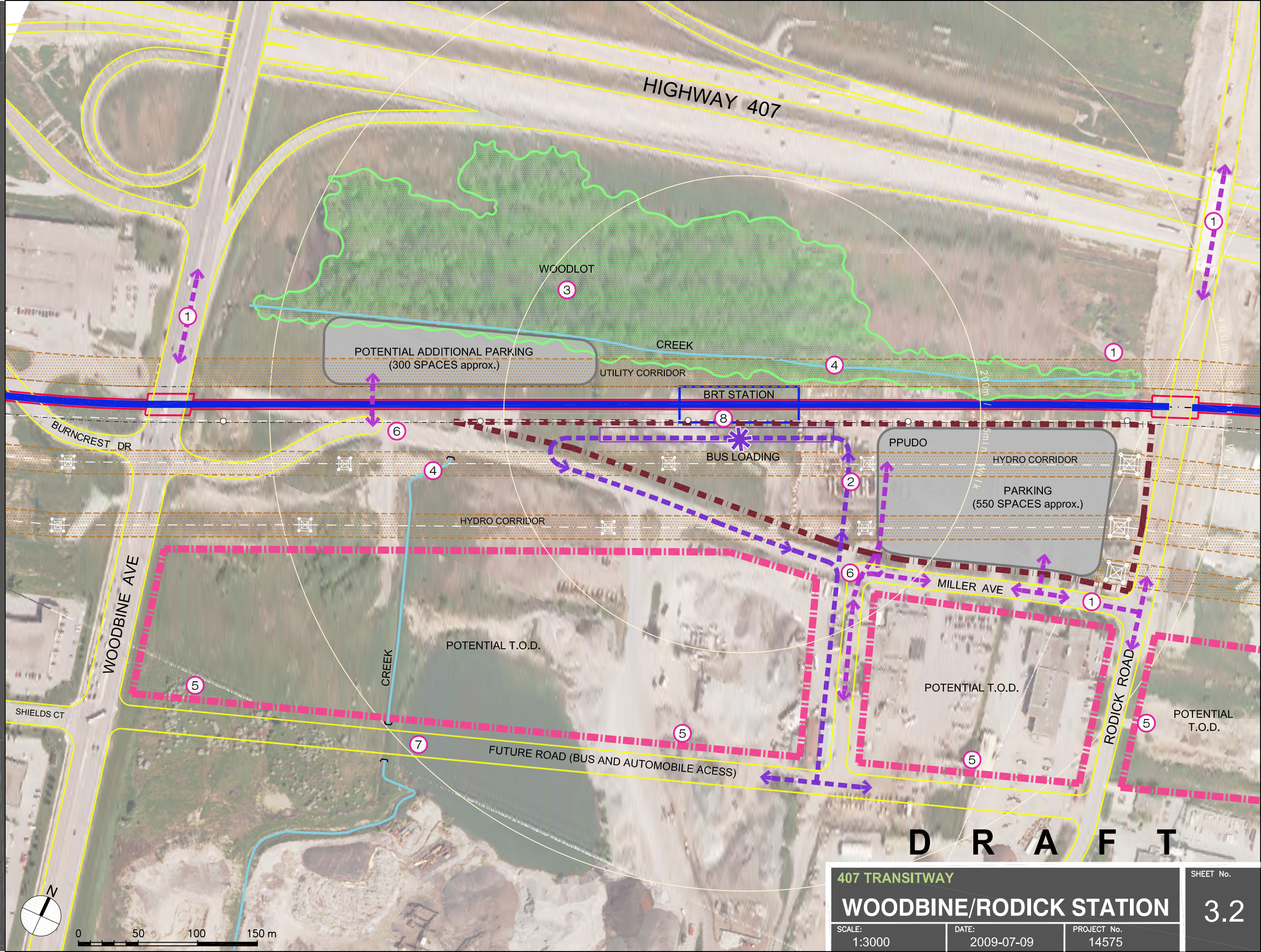
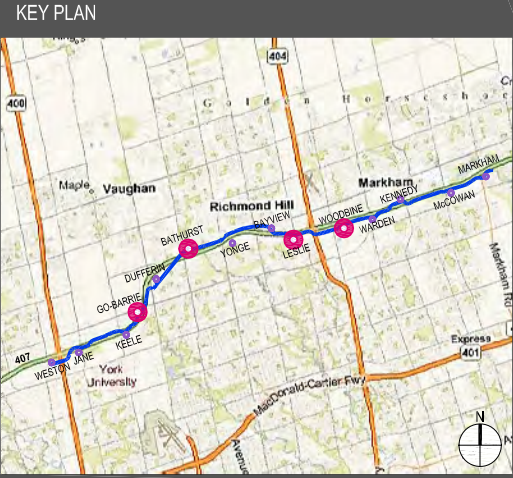
PRESERVE EXISTING WATER BODY
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FUTURE T.O.D. DEVELOPMENT WITH GOOD FRONTAGE
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REVISE EXISTING MILLER AVE
- 

CREATE PROPOSED NEW ROAD
- 

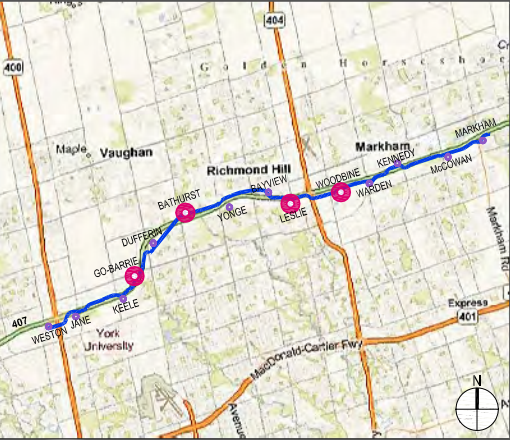
SOLAR ORIENTATION



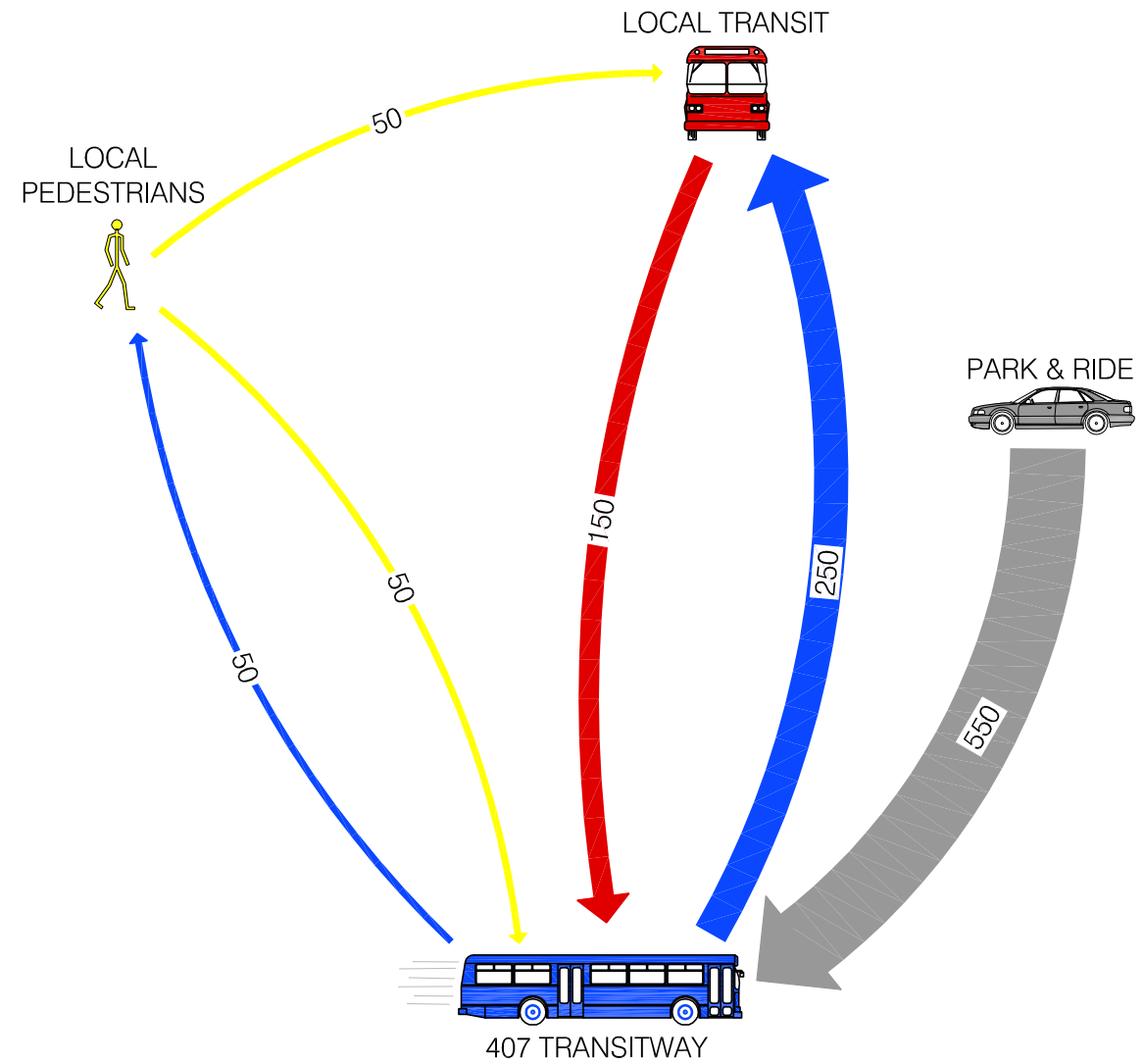
SHEET TITLE:

PASSENGER FLOW ANALYSIS

KEY PLAN



PASSENGER FLOW SCHEMATIC DIAGRAM - PROJECTED MORNING PEAK HOUR (2031)



PASSENGER FLOW MATRIX - PROJECTED MORNING PEAK HOUR (2031)

		DESTINATION			
ORIGIN		407 Transitway	Local Transit	Local Pedestrians	Total
	407 Transitway	-	250	50	300
	Local Transit	150	-	-	150
	Park & Ride*	550	-	-	550
	Local Pedestrians	50	50	-	100
	Total	750	300	50	1,100

* 750 spots for 407 Transitway. Additional 200 spaces for carpools.

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407 TRANSITWAY

WOODBINE/RODICK STATION

SCALE:
1:3000

DATE:
2009-07-09

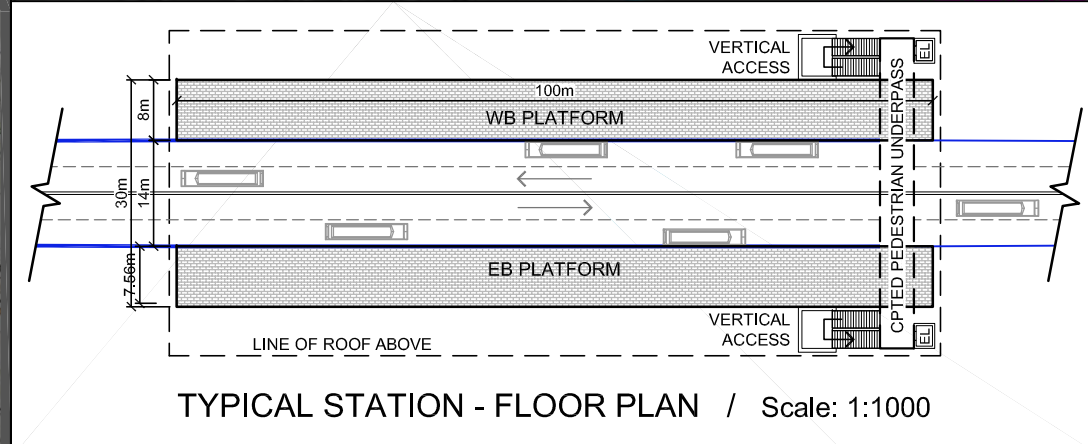
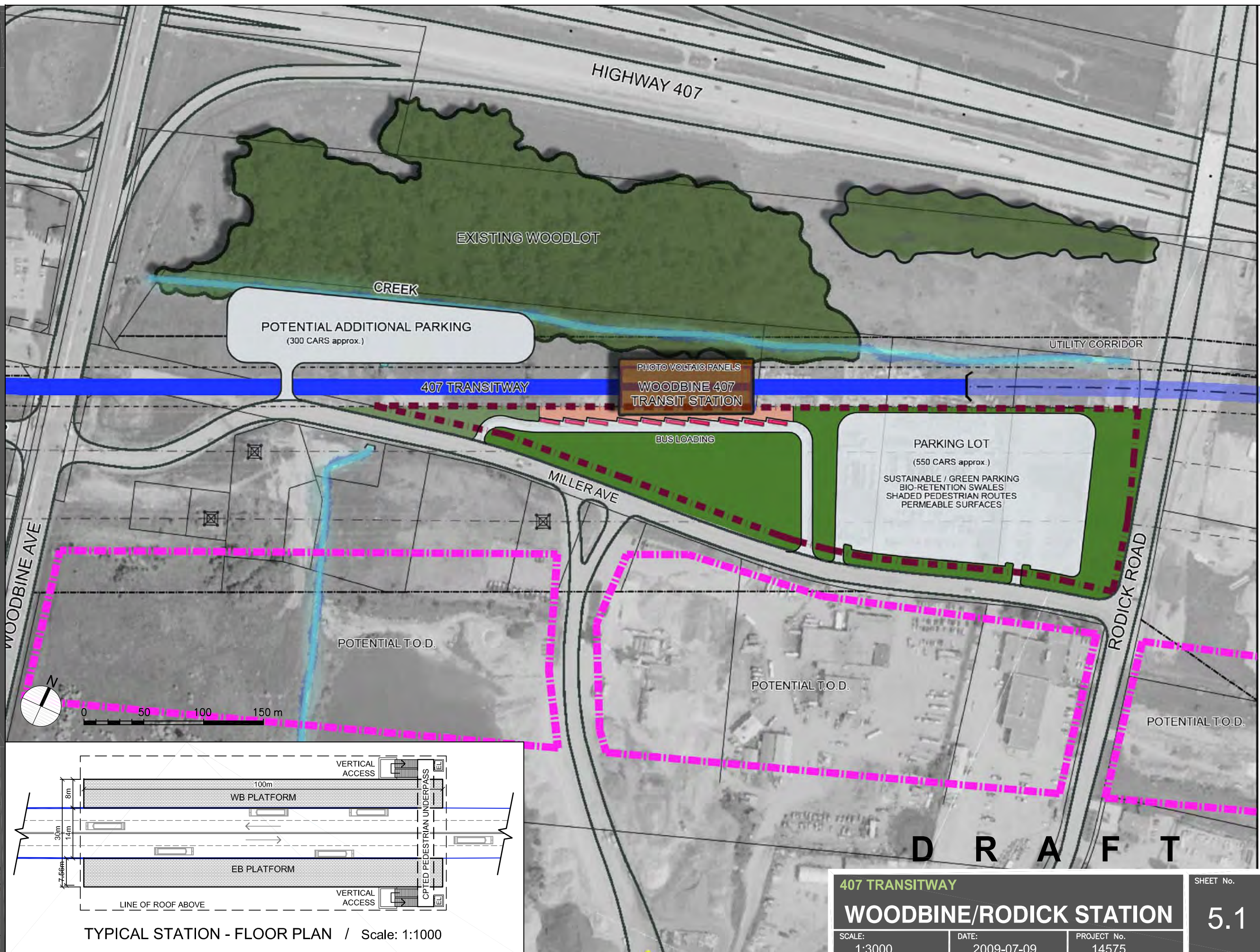
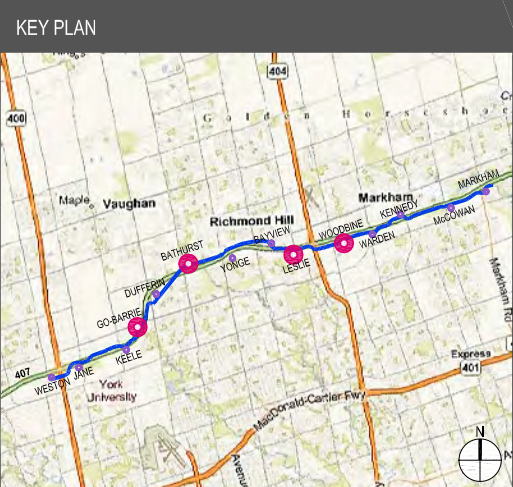
PROJECT No.
14575

SHEET No.

4

SHEET TITLE:
**SITE PLAN
OPTION 1**
USING EXISTING MILLER AVE


- LEGEND
- SITE BOUNDARY
 - STREETS / HIGHWAYS
 - CREEK / WATER BODY
 - WOODLOT
 - 407 BRT ROUTE
 - HYRDO TOWER / HYDRO POLE
 - PROPOSED LOCAL BUS ACCESS
 - PROPOSED AUTOMOBILE ACCESS
 - POTENTIAL T.O.D.





SHEET TITLE:

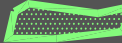
SITE PLAN
OPTION 2


USING PROPOSED FUTURE ROAD


- LEGEND
- 


SITE BOUNDARY
- 

STREETS / HIGHWAYS
- 

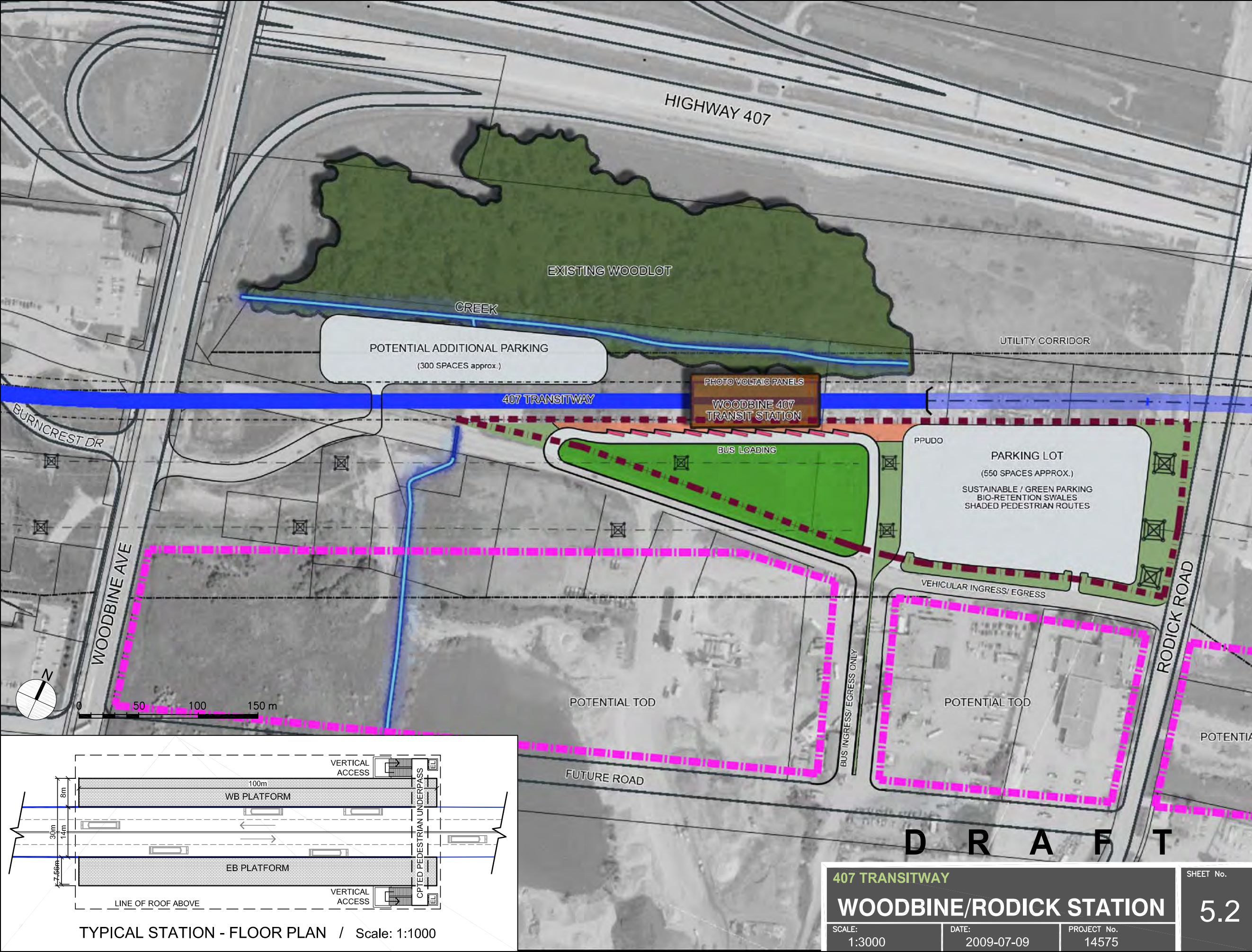
CREEK / WATER BODY
- 

WOODLOT
- 

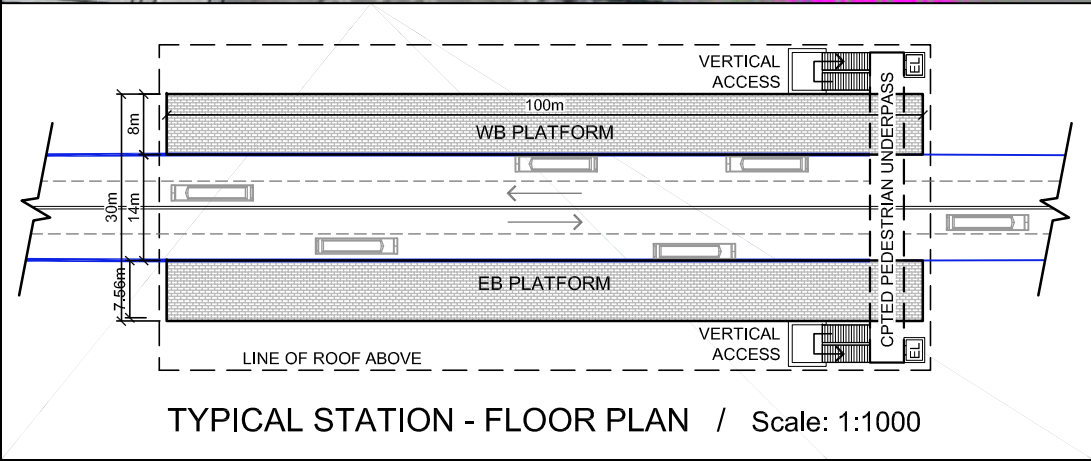
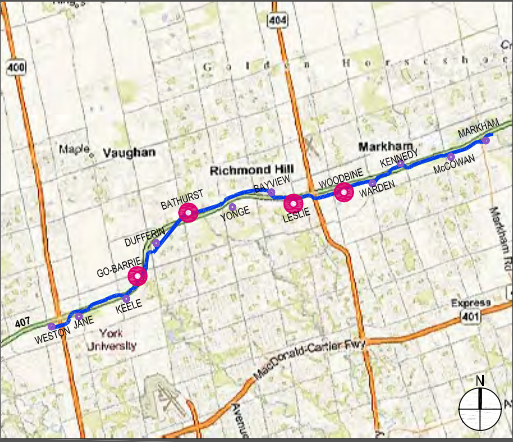
407 BRT ROUTE
- 

HYRDO TOWER / HYDRO POLE
- 

POTENTIAL T.O.D.



KEY PLAN



TYPICAL STATION - FLOOR PLAN / Scale: 1:1000

407 TRANSITWAY

WOODBINE/RODICK STATION

SCALE: 1:3000	DATE: 2009-07-09	PROJECT No. 14575
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SHEET No.

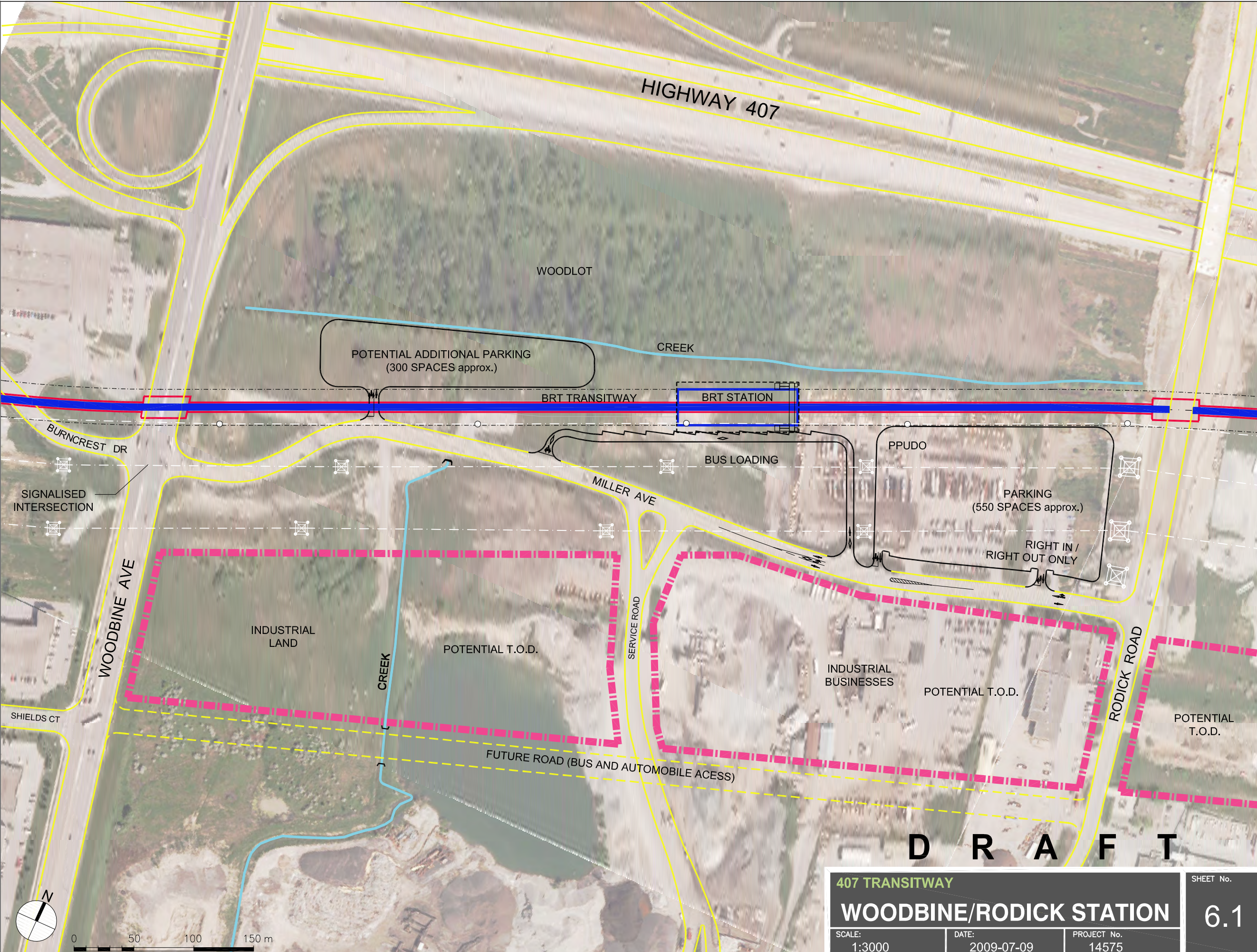
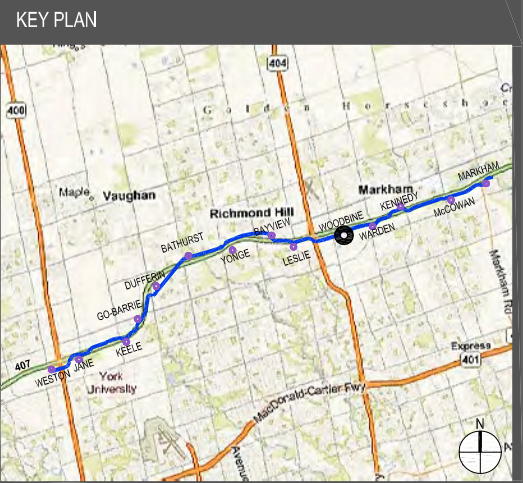
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SHEET TITLE:

SCHEMATIC CONCEPT VEHICULAR & BUS ACCESS


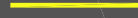




OPTION 1

- LEGEND
- 407 BRT ROUTE
 - EXISTING STREETS / HIGHWAYS
 - PROPOSED VEHICULAR / BUS ACCESS
 - BUS LANE
 - CREEK / WATER BODY
 - HYRDO TOWER / HYDRO POLE



SHEET TITLE:

SCHEMATIC CONCEPT VEHICULAR & BUS ACCESS OPTION 2

- LEGEND
-  407 BRT ROUTE
 -  EXISTING STREETS / HIGHWAYS
 -  PROPOSED VEHICULAR / BUS ACCESS
 -  BUS LANE
 -  CREEK / WATER BODY
 -  HYRDO TOWER / HYDRO POLE

