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Canada-United States-Ontario-Michigan
Border Transportation Partnership

Noise and Vibration Impact Assessment

Technically and Environmentally Preferred Alternative

December 2008

PREFACE

The Detroit River International Crossing (DRIC) Environmental Assessment study was conducted by a partnership of the federal, state and provincial governments in Canada and the United States in accordance with the requirements of the Canadian Environmental Assessment Act (CEAA), the Ontario Environmental Assessment Act (OEAA), and the U.S. National Environmental Policy Act (NEPA). In 2005, the Canadian and U.S. Study Teams identified 15 potential river crossing locations and associated plaza and access road alternatives. The results of the assessment of these alternatives led to the identification of an Area of Continued Analysis (ACA). Within the ACA, practical alternatives were developed for the crossings, plazas and access road alternatives.

Through the analysis of the practical alternatives, and in conjunction with ongoing consultation efforts, a new alternative was developed that combined beneficial features of the original alternatives. The new alternative was identified as The Parkway in August 2007 and included 7 kilometres of below grade freeway, an optimized service road system, a green corridor with 10 tunneled sections totalling 1.5 km in length, a grade separated recreational trail system, and extensive green areas.

Upon completion of the analysis of the practical alternatives, the alternatives were evaluated. The Partnership announced the results of the evaluation for the access road component in May 2008. Referred to as The Windsor-Essex Parkway, the Technically and Environmentally Preferred Alternative (TEPA) access road consisted of the major components of the Parkway with some refinements made to reflect additional community consultation and analysis. These refinements included an additional tunnel in the Spring Garden area, more green space and a refined trail network. The components of the TEPA for the international bridge crossing (Crossing X-10B) and Canadian plaza (Plaza B1) were announced in June 2008.

The remainder of 2008 focused on detailed analysis and identification of impacts and appropriate mitigation measures for the TEPA, along with further refinements. A separate Technical Memorandum (December 2008) documents the assessment of further refinements that were made to the TEPA. This report summarizes the work undertaken in this regard specific to the Noise and Vibration Impact Assessment and the TEPA. These measures were also documented in a draft version of the Ontario Environmental Assessment Report, which was made available to the public, agencies, municipalities, First Nations, and other interested parties for review in November 2008.

Additional reports and details are available at the study website (www.partnershipborderstudy.com)

EXECUTIVE SUMMARY

This document provides an overview of the noise and vibration impact assessment completed for the Technical and Environmentally Preferred Alternative (TEPA) as part of the Detroit River International Crossing (DRIC) Environmental Assessment. Subsequent to selection of the TEPA, several refinements to the TEPA were developed based on stakeholder consultation and with the objective of mitigating its effects. Two of these refinements to the TEPA were analyzed for inclusion in this report. These refinements include a core-collector system in the Spring Garden area and adjustments to the Cousineau Road and Hearthwood Place Tunnels. Specifically, the core-collector refinement consists of shifting The Windsor-Essex Parkway alignment to be integrated into the E.C. Row Expressway corridor, further away from the Spring Garden area. The tunnels at Cousineau Road and Hearthwood Place have been revised in terms of location and the length of tunnels.

Overall, further references to the Technically and Environmentally Preferred Alternative (TEPA) made within this report refer to the combination of the original TEPA and these two TEPA refinements.

Noise is generally described as unwanted sound. However, noise and sound are often used interchangeably. The unit used for measuring sound is the decibel (dB). To better reflect the response of human receptors to sounds measured by instruments, "*weighting scales*" are used. The "*A weighted scale*" is used to duplicate the human response to the audible frequency range. Sound levels so adjusted are referred to as "*A weighted decibels*" and assigned the unit abbreviation dBA.

Vibration is the movement of particles in time and space. Any moving disturbance produces vibration. Like sound, vibration travels in the form of waves from the source to the receiver. However, unlike sound, vibration requires the presence of a solid medium for its existence, transmission and perception. The vibration levels from a given source are established either through prediction or through measurements at a sensitive receptor location.

Assessing Noise and Vibration Impacts

The Ontario Ministries of Transportation (MTO) and Environment (MOE) have developed a series of policies and guidelines for assessing noise impacts from transportation projects which must be applied to all MTO projects in the province. In late 2006, the MTO released its Environmental Guide for Noise to provide guidance to MTO personnel and consultants in the analysis of highway noise and its effects. In general terms, the noise impact is determined by comparing the predicted noise levels after the implementation of a TEPA with the predicted future “No-Build” noise levels experienced by sensitive receptors. Typically, where the TEPA noise levels are predicted to exceed the future “No-Build” noise levels by 5 or more decibels (dB), mitigation measures to reduce the predicted noise levels to within 5 dB of the future “No-Build” noise levels are to be considered. However, additional mitigation may also be required in specific circumstances.

Vibration impact is usually evaluated in terms of both human response to building vibration and potential of structural damage to buildings. It is generally accepted that 0.14 mm/sec is the threshold of vibration perception for the average person. At 50 mm/sec, vibrations are likely to cause structural damage to buildings.

How the Analysis was Performed

The methodology for estimating noise levels consisted of the following key steps for evaluation of The Windsor-Essex Parkway; Plaza B1 and Crossing B:

1. Traffic data were established for the base year (2006), as well as for future years (2015, 2025 and 2035), representing baseline conditions and conditions for the TEPA. Also, certain key information was determined, including Annual Average Daily Traffic (AADT), percentage of automobiles, percentage of heavy and medium trucks, speed limit, road elevation, local topography, surrounding ground conditions, etc.
2. Sensitive noise receptors along the TEPA route were identified. The receptors selected for assessment were those that were most potentially impacted (i.e. subject to frontline exposure) by the TEPA. Multiple receptors were selected to capture the anticipated variations in exposure to noise from traffic based on the alignment of existing roads, and variations in traffic volumes. On this basis, a total of 41 receptors were selected along The Windsor-Essex Parkway.
3. Baseline future ("No-Build") and project noise levels were estimated at each of the receptors, using the MOE's STAMSON traffic noise model. This was performed for 2015, 2025, and 2035. The key inputs to the STAMSON noise model are: traffic volume, percentage of automobiles, percentage of heavy and medium trucks, posted speed limit, road gradient, road surface type, local topography, surrounding ground surface cover, noise source height, receptor height and source to receptor distance.
4. The impact of the plaza/crossing was assessed based on two groups of receptors; a total of 21 and 13 receptors were identified in Sandwich Towne and areas between Ojibway Parkway to Malden Road, respectively.
5. The CADNA-A noise model was used to estimate receptor noise levels for the plaza and crossing. This model can be used to predict noise levels from both stationary and mobile noise sources. The modelling approach considered vehicle queuing, idling and acceleration. The key inputs to this model included maximum hourly vehicular traffic (cars and trucks), plaza layout, vehicle sound levels, locations of vehicles at plaza sites.

The methodology used for estimating vibration from the DRIC project consisted of the following key steps:

1. Identified areas and facilities in proximity to the crossing, plaza and access road alternatives that were potentially vulnerable to ground vibrations.
2. Receptors within the potentially vulnerable areas were identified for vibration monitoring.
3. Ground vibration levels were measured at two locations (side by side) at each of eight receptors. The traffic at each location was monitored over a period of 30 minutes. The monitoring was conducted over two different days to identify any differences in the vibration patterns. (Note: If traffic is busy, truck speed reduces considerably, thereby reducing the vibration levels).

Predicted Noise and Vibration Impacts

The following points summarize the noise and vibration impacts predicted at receptor locations near the TEPA:

- In terms of construction related noise, additional details on construction equipment quantities, work schedules and duration will be available during subsequent design phases. However, based on past experience, it is anticipated that activities such as clearing, excavation, soil compaction, roadway construction, etc., would increase sound levels at receptor locations in close proximity to construction staging and work areas. A wide variety of mitigation measures can be employed to reduce construction noise at receptor locations.
- Without mitigation, noise exceedances of >5 dB were observed at many of the receptors along The Windsor-Essex Parkway when compared to the future "No-Build" sound levels. In several cases, an exceedance of >10 dB was predicted.
- Given their relative distances to sensitive receptors, the noise generated solely from the plaza location and crossing is not expected to cause a high noise impact. The noise modeling results show that a high noise impact (> 10 dB above future "No-Build" receptor sound levels) is predicted, without mitigation, for some of the receptors located in the Ojibway Parkway to Malden Road area.
- Baseline vibration levels were measured in 2006 at eight locations, including areas close to a church and houses. The TEPA was reviewed to identify residences, hospitals and other potentially vulnerable receptors, within 25 m from the edge of the roadway. The results showed for the most part that, the levels measured were within the threshold of perception limit of 0.14 mm/sec. These levels decay slowly with distance at close proximities to the road edges and should the roadway contain an expansion joint, etc., these levels may increase to the threshold level of perception. Hence, as a precautionary measure, receptors within 25 m from the edge of the roadway were counted as potential locations where vibration levels could potentially reach the threshold value of 0.14 mm/sec.

Mitigation Measures

Mitigation measures were identified to address both construction and operation effects for the TEPA as outlined below:

Construction Phase

While no quantitative analysis was completed on construction noise, several construction noise mitigation measures are proposed including compliance with provincial noise emission standards for construction equipment stipulated in the Model Municipal Noise Control By-law, time and place restrictions stipulated in local noise by-laws, and best construction practices, etc.

Analysis Procedures for The Windsor-Essex Parkway

Additional assessment was undertaken for noise sensitive receptors that showed more than 5 dB increase in project sound levels above the future "No-Build" sound levels. For each road segment where such exceedances were predicted, the effect of a 5 m (16 ft) high noise barrier was used to estimate sound level reductions.

Analysis procedures for Plaza/Crossing:

For the TEPA a 5 m high acoustic barrier was modeled along the proposed approach roadway leading to Plaza B1.

Mitigation Results

1. The study determined that many locations adjacent to The Windsor-Essex Parkway will realize reductions in noise levels and that most other locations will be below the threshold for hearing an increase in noise in comparison with the future "No-Build".
2. Vibration mitigation measures are not required for the TEPA since vibration levels are not expected to approach 50 mm/sec which is the threshold for structural damage.

Conclusions

Based on the noise and vibration analyses completed, the following key conclusions can be drawn:

1. Without mitigation, there is a potential for noise impacts from the TEPA.
2. With a 5 m high barrier in place, the proposed project is predicted to result in no to marginal noise impact for The Windsor-Essex Parkway, except for one receptor located in Spring Garden where the night time noise exceedance after mitigation is predicted to be a maximum of 6 dB above the future "No-Build" sound levels in the worst-case year 2035. It should also be noted that for many receptors, especially along the north side of the Windsor-Essex Parkway, a decrease in noise levels compared to future "No-Build" noise levels was predicted.
3. For Plaza B1, a potential noise impact was identified for receptors in the Ojibway Parkway to Malden Road areas that are in the vicinity of the proposed approach roadway. However, the receptor sound levels can be reduced to within 5 dB above the future "No-Build" sound levels with a 5 m high acoustic barrier installed on the proposed approach roadway.
4. The Windsor-Essex Parkway is not expected to cause vibrations in the 50 mm/sec range; therefore, no structural damage is anticipated from vehicular traffic.
5. There are several route segments with receptors within 25 m from the edge of the roadway. As noted above, at this distance, there is a potential for receptors along the route to experience vibration levels near the threshold value of 0.14 mm/sec. The area with the highest number of receptors within 25 m is between Malden Road and Pulford Street. The area with the least number of receptors within 25 m is between Highway 3 and North Talbot Road.

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Technically and Environmentally Preferred Alternative

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1. POTENTIAL ENVIRONMENTAL EFFECTS

From a noise and vibration perspective, the potential for environmental effects exist both during the construction and operation phases of the DRIC project. For the noise and vibration assessment, it is assumed that all houses located within the proposed right-of-way (ROW) for The Windsor-Essex Parkway will be displaced by the project. Therefore, noise sensitive areas were only identified outside of the ROW. For the areas outside of the proposed ROW, a minimum of one representative receptor location closest to the proposed ROW was selected for analysis. The receptors are located between 15 m to greater than 500 m from The Windsor-Essex Parkway. For the vibration assessment, areas within 25 m from the edge of the roadway and 50 m of the crossing and plaza options were defined as the area of investigation.

Assessment Protocol

For this study, the following protocol was established in consultation with the Ministry of Environment in May 2006 for assessing noise impact of the proposed project.

- The objective for outdoor noise levels will be the higher of the L_{eq} 55 dBA or existing ambient, determined by traffic noise predictions.
- Stationary noise sources such as the plaza location will be assessed in accordance with publication NPC-205 of the MOE Model Municipal Noise Control By-law.
- Noise mitigation measures will be investigated if the predicted future "No-Build" sound levels at the closest receptor are exceeded by > 5 dBA.

In addition to the quantitative limits outlined in the protocol above, traffic noise impact may be described qualitatively using the scale shown in Table 1.1 below. In general, the scale rates the impact of background sound level exceedances.

TABLE 1.1 QUALITATIVE CRITERIA* FOR ASSESSING TRAFFIC NOISE

Increase in Background Noise Level	Loudness	Impact Rating
up to 3 dBA	hardly perceptible	marginal to none
4 to 5 dBA	noticeable	Low
6 to 10 dBA	almost twice as loud	Moderate
11 plus dBA	more than twice as loud	High

*adapted from Table 6.9 in MOE 1990.

1.1. Construction Phase

1.1.1 Construction Activities and Duration

Noise from construction activities could potentially affect residents in the immediate vicinity of construction sites and staging areas. The construction period is expected to last for about four to five years and the extent of the noise impact would be dependent on the type and duration of construction activity in a given location and the proximity of receptors to the construction noise sources. Preliminary construction staging and methods are outlined in the *Draft Practical Alternatives Evaluation – Constructability Report for Access Road Alternatives (May 2008)* and the *Draft Practical Alternatives Evaluation – Constructability Report for Plaza and Crossing Alternatives (May 2008).*

1.1.2 Noise Generating Construction Activities

Based on the foregoing, it is expected that the following activities could potentially increase receptor noise levels during the construction phases of DRIC project:

- Clearing – operation of heavy equipment such as bulldozers and brush chippers and power tools such as chain saws, etc.
- Excavation – operation of mobile heavy equipment such as excavators, front end loaders, dump trucks, etc.
- Soil compaction – operation of mobile heavy equipment such as compactors, graders, dump trucks, etc.
- Roadway, tunnel and bridge construction – operation of mobile heavy equipment such as excavators, front end loaders, compactors, graders, pavement breakers, dump trucks, as well as stationary equipment such as drilling rigs, pile drivers, and construction cranes.
- Traffic detours – increasing traffic volumes, and ultimately noise, on local streets.

1.1.3 Construction Noise Impact

In terms of construction related noise, additional details on construction methodology, equipment quantities, work schedules and duration will be available during subsequent phases of the design. For example a compressed construction schedule involving the use larger numbers of heavy equipment could generate more noise, albeit over a shorter duration. However based on past experience, it is anticipated that receptors that are located closest to construction staging and activity areas will be exposed to the highest noise impacts. It is also expected that the majority of construction activities would occur during daytime hours, and for this reason daytime construction noise levels are expected to be higher than at nighttime. Further details regarding construction methods and staging requirements are available in the *Draft Practical Alternatives Evaluation – Constructability*

Report for Access Road Alternatives (May 2008) and the *Draft Practical Alternatives Evaluation – Constructability Report for Plaza and Crossing Alternatives (May 2008).*

To avoid, or at least reduce the effects of construction noise, various noise mitigation measures will be employed. These are discussed in Section 2 of this report.

1.2. Operation Phase

1.2.1. Overall Noise Assessment Methodology

The following outlines the key steps of the methodology used for estimating sound levels for The Windsor-Essex Parkway.

1) Confirmed Traffic Data – Utilized the latest traffic data as provided by the traffic consultant to prepare TEPA traffic volume profiles for the base year (2006), as well as for future scenario years (2015, 2025 and 2035). The traffic data obtained for the future scenario years include data representing future "No-Build"/baseline conditions and "build" conditions. Certain key information was determined, including Annual Average Daily Traffic (AADT), percentage of automobiles, percentage of heavy and medium trucks, posted speed limit, road elevation, local topography, surrounding ground conditions, etc.

2) Verified Roadway Characteristics Information - Utilized information concerning roadway characteristics such as road/crossing elevation, road width, road pavement (typical asphalt or concrete), number of lanes, plaza layout using AutoCAD/GIS drawings from the lead engineering consultant. The distances from representative receptors to the closest roads were determined based on the review of aerial photographs and GIS drawings provided by the lead engineering consultant.

3) Identified Additional Receptor Locations - Identified closest sensitive noise receptors. New receptors were added to those previously selected for the practical alternatives evaluation as the ROW for The Windsor-Essex Parkway was refined and delineated. The receptors selected for assessment were those determined to be potentially most likely to be impacted (i.e., subject to frontline exposure) by The Windsor-Essex Parkway. Multiple receptors were selected to capture the anticipated variations in exposure to noise from traffic based on the alignment of existing roads, the alignment of The Windsor-Essex Parkway, and variations in traffic volumes. As was stated previously, receptors within the ROW were not considered as it was determined that these receptors will be displaced by the project. On this basis, a total of 41 receptors closest to The Windsor-Essex Parkway were selected (see Table 1.2 and figures 1.1 to 1.6).

TABLE 1.2 RECEPTOR SELECTIONS

Route Segment	Description	No. of Receptors South Side	No. of Receptors North Side
G – H	Malden Road to Pulford Street	11	3
H – I	Pulford Street to North of Lennon Drain	5	3
I – J	North of Lennon Drain to Cousineau Road	2	1
J – K	Cousineau Road to Howard Avenue	6	3
K – L	Howard Avenue to Highway 401/Highway 3	3	2
L – M	Highway 401/Highway 3 to North Talbot Road	2	1
	Total	29	13

4) Estimated Sound Levels For The Windsor-Essex Parkway - Estimated sound levels for future "No-Build" and future "build" (i.e., with The Windsor-Essex Parkway at each of the receptor locations for the three scenario years). Traffic sound levels were estimated using the Ontario Ministry of the Environment (MOE) approved computer modelling program, STAMSON noise model version 5.0. This model is receptor-specific and estimates noise emissions from roadways based on traffic parameters.

In general, the policy of a 24-hr L_{eq} sound level is used for representing freeway noise and for assessing impacts and mitigation needs, and no specific differentiation is made between daytime and nighttime noise conditions. This study is unique in that there is ample traffic data available which allows for differentiation in traffic volumes and composition (light, medium and heavy vehicles) for both daytime and nighttime. Further, through the public consultation process, the public has emphasized that there are recognizable differences between daytime and nighttime noise conditions. Based on these factors, it was determined that it would be prudent to differentiate between the daytime L_{eq} (16 hours) and nighttime L_{eq} (8 hours) noise conditions.

5) Estimated Sound Levels for Plaza B1 and Crossing B– Plaza B1 Crossing B is the TEPA for plaza/crossing combination. Based on the traffic volumes, speed limits and road alignment profiles, future "No-Build" and future "build" sound levels were estimated for Crossing B and Plaza B1. The CADNA_A noise model was used to estimate receptor sound levels from crossing traffic as well as from traffic from Plaza B1. The outdoor noise propagation model is based on ISO 9613, Part 1: Calculation of the absorption of sound by the atmosphere, 1993 and Part 2: General method of calculation (ISO 9613-2:1996).

Given the complexity in modelling sound levels from the plaza/crossing as part of the DRIC Study, the preferred noise prediction method is to use a comprehensive model, in which, among other things, road curvature, road elevation and variable ground adsorption can be appropriately incorporated. Following are the key reasons for the use of the CADNA_A model, instead of the STAMSON model, in this special circumstance:

i. The crossing locations are greater than 500 m from some of the receptors of concern. The STAMSON model cannot be used for estimating noise levels beyond 500 m.

ii. The CADNA_A model is able to integrate the geometry and elevation of each crossing over its entire length, thus allowing for a predication of noise from the entire roadway. This is important in this instance, as the road profile varies from at grade elevation to 50 m at its maximum height. It also curves. The STAMSON model is best suited for estimating noise from a point source of traffic, along a straight line.

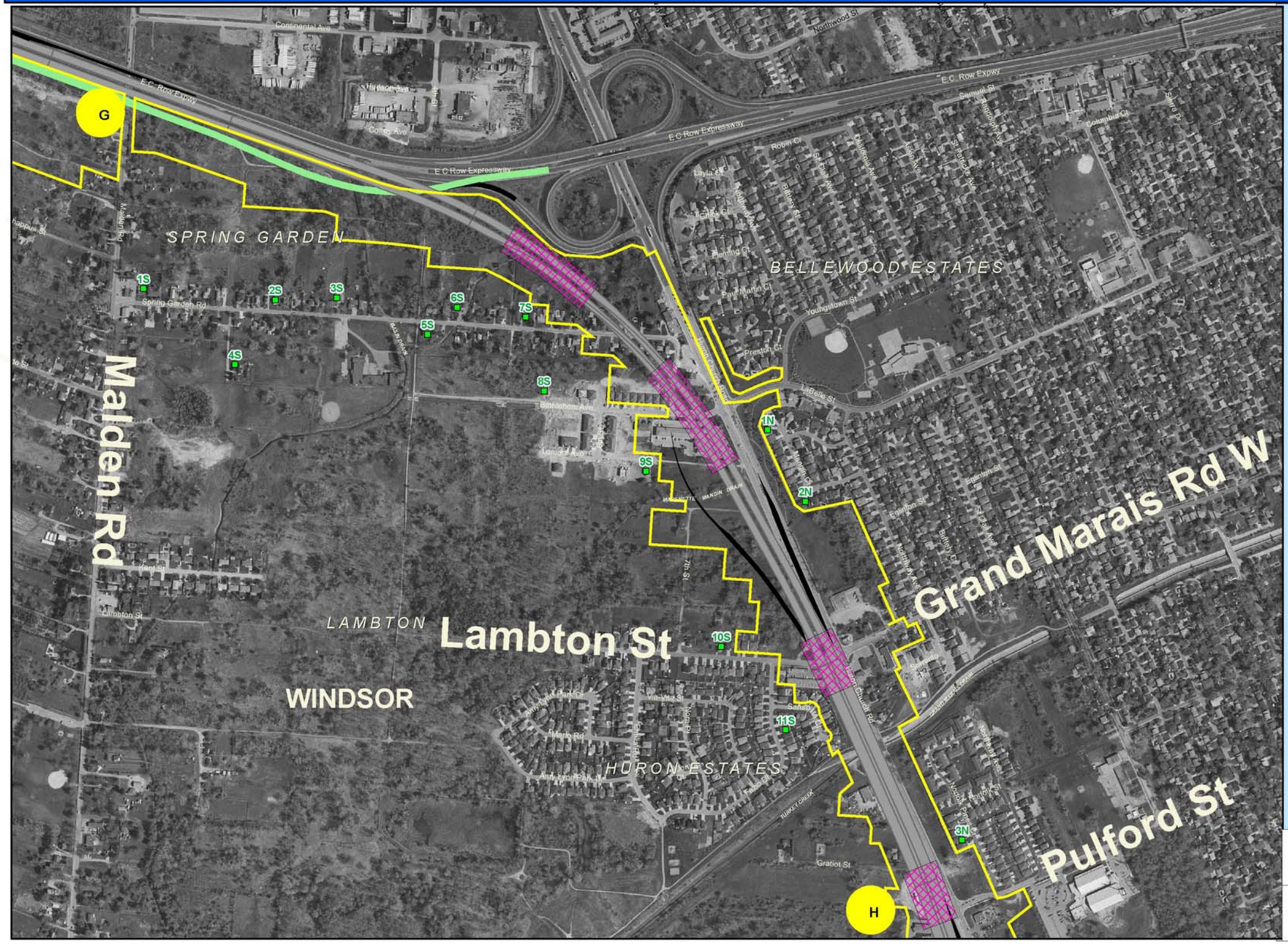
iii. The CADNA_A model could handle traffic queuing that occurs at the plaza locations, STAMSON is not well suited for this.

iv. The CADNA_A model could handle stop and go traffic noise, a situation that will occur at the plazas. STAMSON does not reasonably account for stop and go traffic.

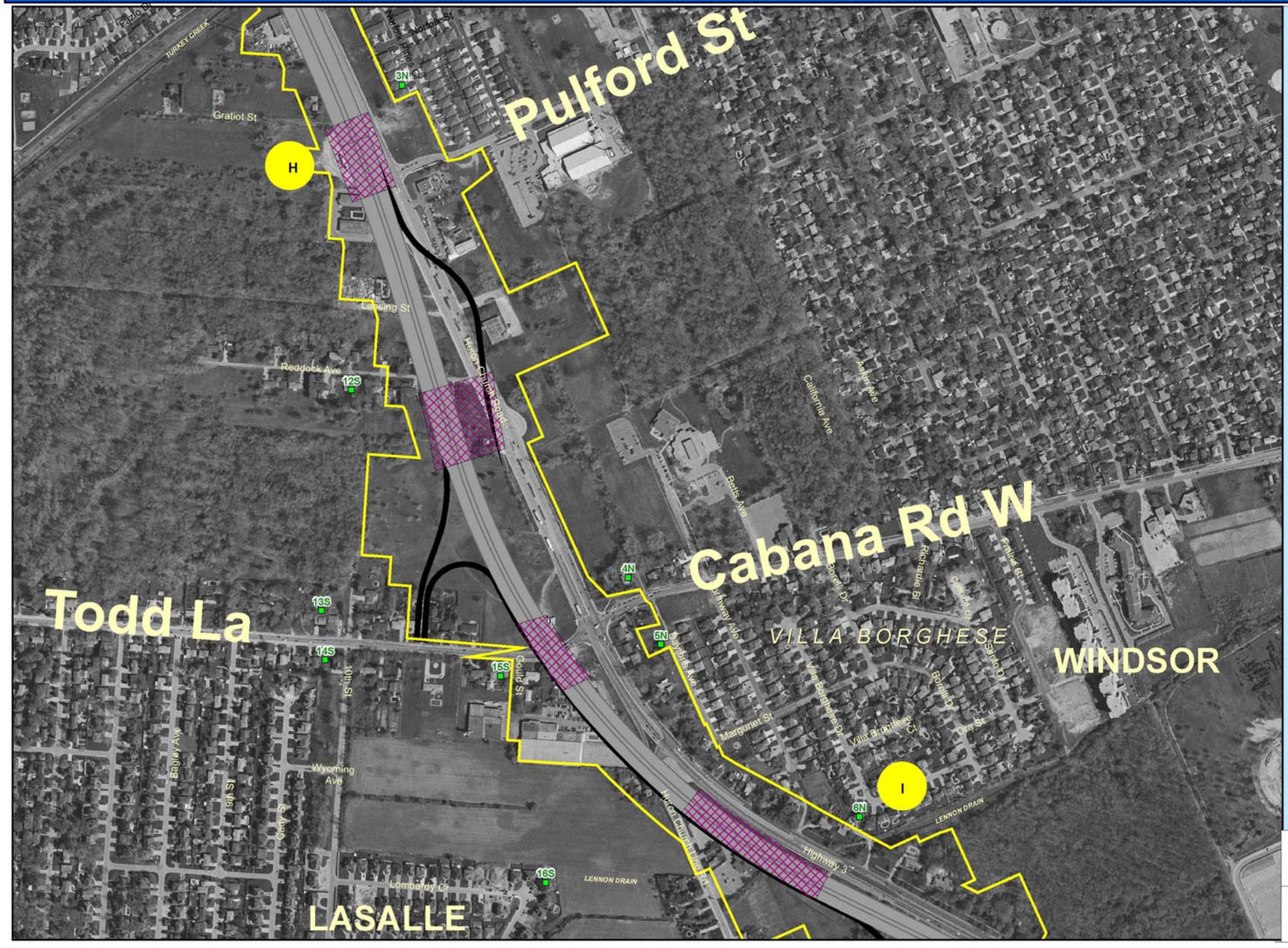
v. The CADNA_A model can be used to model the road network of interest in the Sandwich Towne community, in the Ojibway Parkway to Malden Road area, the plazas and the crossings, simultaneously. This allows for a direct comparison of changes (or no changes) in the receptor sound levels.

6) Identified Noise Mitigation Measures - Identified potential noise mitigation requirements. As per the protocol established for this project, as a starting point noise mitigation was considered, where feasible, whenever the project sound levels exceed the receptor future "No-Build"/baseline sound levels by greater than 5 dB. Further to this, noise mitigation was considered for communities that expressed concerns about existing ineffective noise barriers in neighbourhoods adjacent to The Windsor-Essex Parkway as was developed through the public consultation process for this project. A maximum 5 m high noise barrier was used as the mitigating approach on The Windsor-Essex Parkway in instances where receptor sound levels due to the project exceed the predicted future "No-Build" receptor sound levels by > 5dB.

Receptor Locations- Technically and Environmentally Preferred Alternative - Segment G to H



Receptor Locations- Technically and Environmentally Preferred Alternative - Segment H to I



Legend

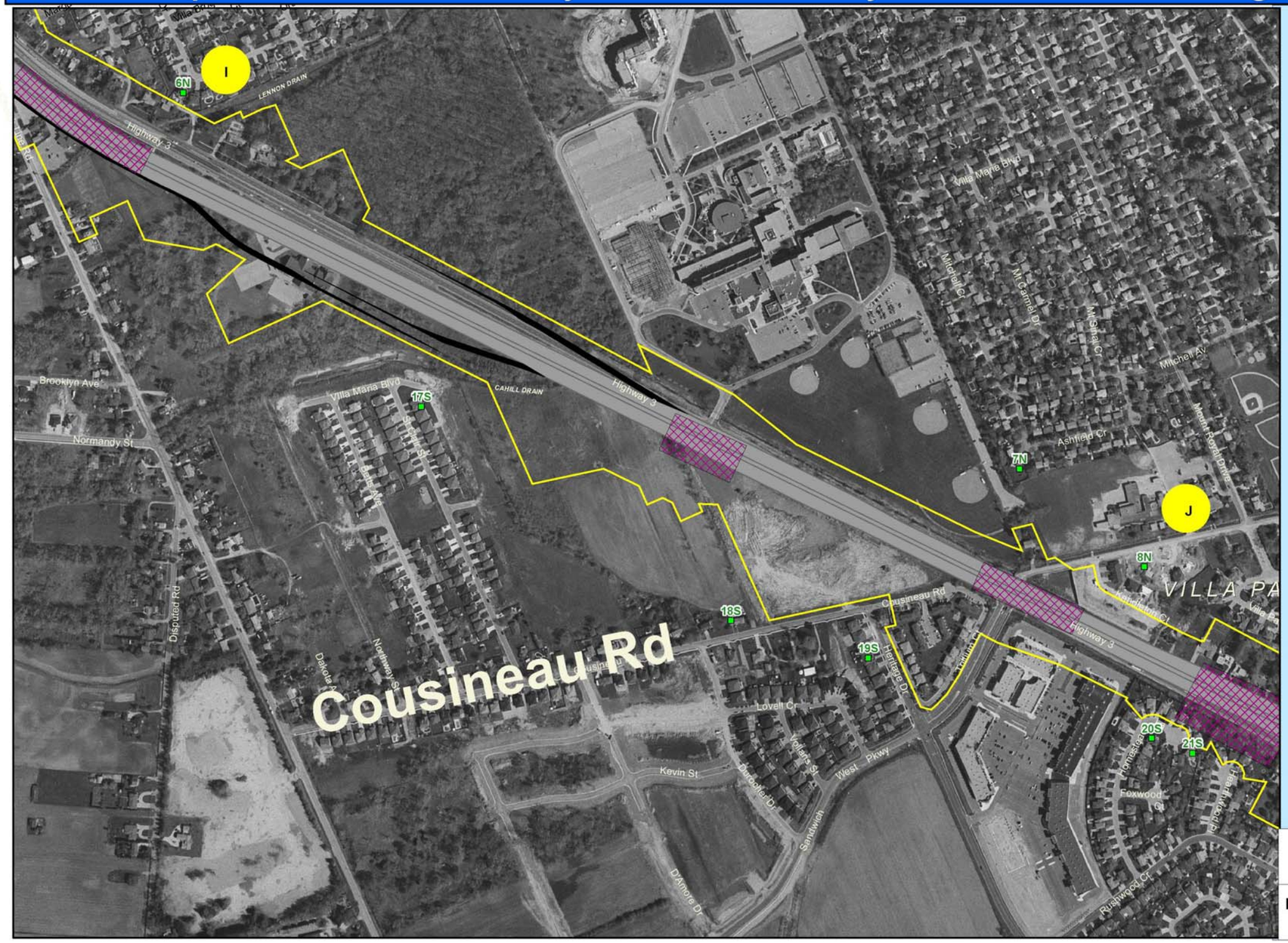
- Receptor Location
- TEPA Analysis Envelope
- New Freeway Ramps
- New Freeway Outline
- Windsor Essex Parkway Tunnel

0 0.05 0.1 0.2 km

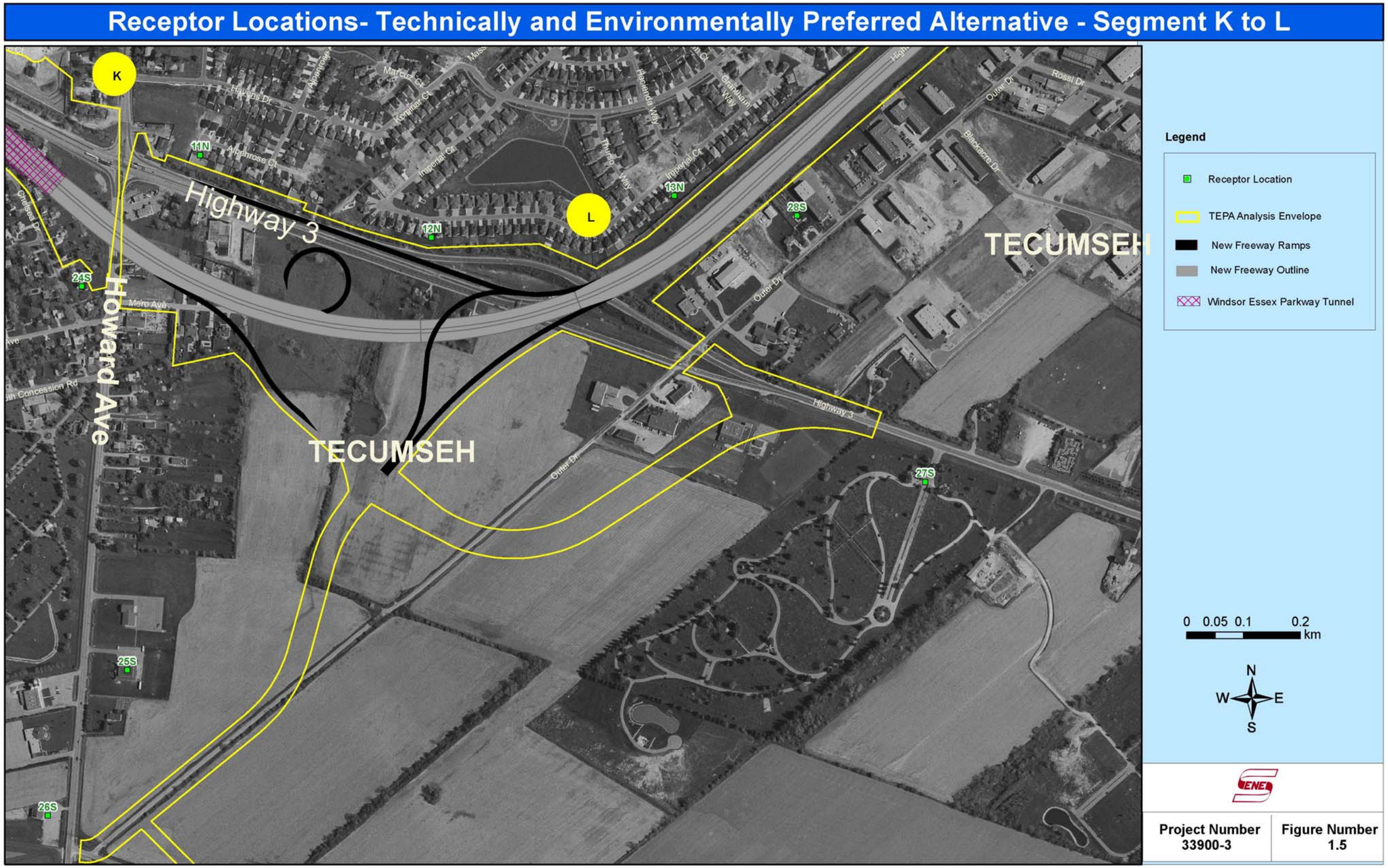
N W E S

Project Number	Figure Number
33900-3	1.2

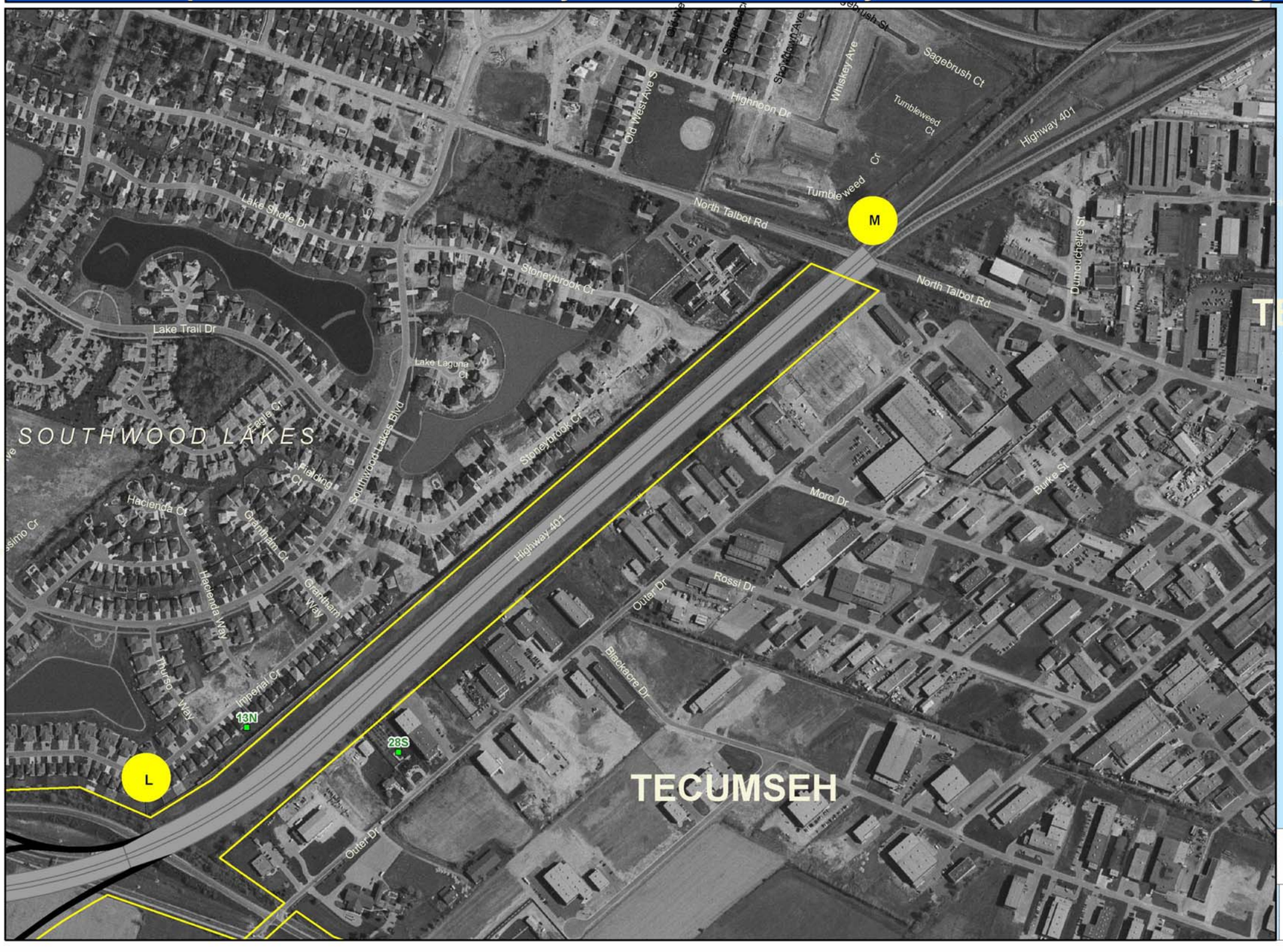
Receptor Locations- Technically and Environmentally Preferred Alternative - Segment I to J



Receptor Locations- Technically and Environmentally Preferred Alternative - Segment J to K


Receptor Locations- Technically and Environmentally Preferred Alternative - Segment K to L
K
L
11N
12N
13N
24S
25S
26S
27S
28S
Highway 3
Howard Ave
TECUMSEH
Outer Dr
Legend
Receptor Location
TEPA Analysis Envelope
New Freeway Ramps
New Freeway Outline
Windsor Essex Parkway Tunnel
0 0.05 0.1 0.2
km
N
W
E
S
Project Number
33900-3
Figure Number
1.5

Receptor Locations- Technically and Environmentally Preferred Alternative - Segment L to M



Legend

- Receptor Location
- TEPA Analysis Envelope
- New Freeway Ramps
- New Freeway Outline
- Windsor Essex Parkway Tunnel

0 0.05 0.1 0.2 km

N
W E
S

Project Number	Figure Number
33900-3	1.6

1.2.2 Vibration Assessment Methodology

The vibration assessment includes both field measurements to establish baseline vibration levels and an assessment of vibration impacts associated with the proposed practical routes.

The methodology for estimating vibration impacts consisted of the following key steps:

- Through consultations with other disciplines, locations potentially vulnerable to ground borne vibration were identified.
- Receptors within the potentially vulnerable areas were identified for vibration monitoring.
- Ground vibration levels were measured at two locations (side by side) at each of eight representative receptors (see Figure 1.7). The traffic at each location was monitored over a period of 30 minutes. The monitoring was conducted over two different days to identify any differences in the vibration patterns. (Note: Under busy traffic conditions, truck speeds are reduced considerably, thereby reducing vibration levels).

Vibration Monitoring Locations

1.2.3 Traffic Noise Modelling Parameters for the TEPA

STAMSON Model

The key inputs to the STAMSON noise model are noise source height, receptor height, source to receptor distance, road pavement (e.g., asphalt), surrounding ground conditions (e.g., reflective surface), and traffic parameters such as Annual Average Daily Traffic (AADT), percentage of heavy and medium trucks of total AADT volume, percentage of daytime (07:00 – 23:00) traffic volume, and posted speed limit. The model outputs the daytime and nighttime (23:00 – 07:00) sound levels in 16-hour L_{eq} and 8-hr L_{eq}, respectively. This definition of daytime and nighttime applies to all tables provided in this report.

The key traffic parameters used for modelling receptor noise levels for The Windsor-Essex Parkway for the three scenario years are provided in Appendix A.

1.2.4 Traffic Noise Modelling Assumptions

The following key modelling assumptions were used in the prediction of noise levels for the TEPA:

- All source-to-receptor distances less than 15 m were assumed to be 15 m due to the limitations of the STAMSON model. This only occurred in a few instances.
- The posted speed limit on The Windsor-Essex Parkway will vary from 100 km/hr to 90 km/hr, then to 80 km/hr as vehicles transition from highway speed to slower speed as they approach the plaza area.
- A daytime receptor height of 1.5 m was used for all receptors. A nighttime receptor height of 1.5 m was used for bungalows and 4.5 m for two-storey dwellings (second-storey window).
- All roads for which traffic data were available and that intersect or run parallel to The Windsor-Essex Parkway in the immediate vicinity of receptor locations, were considered in the traffic noise modelling.
- The outdoor living area (OLA) as defined in LU-131 was used for determining the daytime source-to-receptor distances. In all cases, the OLA was assumed to be located in the backyard of residences, 3 m from the building façade. To estimate nighttime sound levels, the receptor was assumed to be located at the main floor and a second-storey window of the house for single-storey homes and two-storey houses, respectively.
- Existing backyard fences at receptor locations, that were identified by aerial photographs and confirmed by on-site surveillance, were included in the noise modelling as having a noise attenuating effect. However, the actual acoustic quality of these existing fences was not verified.

- The intermediate ground surface (i.e., the surface between the road and receptor) was considered absorptive in cases where the OLA is situated on deep grass-covered lots and/or when more than 50% of the surface between the road and receptor location is grass-covered.

1.2.5 Noise Assessment Methodology for Plaza and Crossing using CADNA_A

As was noted earlier, the CADNA_A noise model was used to estimate receptor noise levels for the TEPA. This model is capable of incorporating source and receptor elevations, ground topography, ground adsorption, reflection order, as well as calculating cumulative impact from multiple noise sources.

For the purposes of this study, the following approaches were taken for modelling the plaza and the crossing:

- Geo-referenced AutoCAD drawings of the proposed Plaza B1 and corresponding Crossing B were used in the noise modelling.
- Dominant noise sources associated with Plaza B1 consist of idling cars, idling trucks and accelerating trucks. The change in sound power levels between an idling car and a car gradually accelerating was considered to be negligible.
- To estimate conservatively high noise levels for the “build” alternative, the maximum hourly vehicle traffic to and from the plaza was considered in the assessment.
- The maximum numbers of cars entering the plaza from the U.S., and the maximum number of vehicles that can be processed through the inspection booths were used to estimate traffic queuing at Plaza B1.
- A logical network of roadways within the plaza were considered for the vehicle queuing. Where required, the queued traffic extended onto the crossing to accommodate calculated maximum number of vehicles in the queue.
- Queued traffic was modelled as stationary point sources, considering a continuous in-flow of vehicles to the plaza, at the maximum hourly rate.
- For trucks leaving the inspection booths (i.e., entering Canada), two noise sources were modelled: one to represent idling conditions; and the other to represent truck acceleration noise.
- Crossing B was modelled based on the 24-hour traffic split (day/night) for vehicles leaving the inspection plaza and those entering the inspection plaza.
- The height of the crossing was incorporated into the noise modelling (i.e., elevated noise source). The elevations were based on the conceptual designs of the bridges, with the maximum elevation being at the mid-point of the Detroit River, at a height of 50m above the ground/water surface.
- For the crossing, a posted speed of 60 km/h was applied for both cars and trucks.
- The road surface of the crossing was assumed to be concrete.

- To ensure that the ambient future "No-Build" sound levels were accurately predicted for comparison with the project sound levels, only traffic volumes from roads in the immediate vicinity of the receptors were used in the modelling. On this basis, two main groups of receptors were selected, 21 in Sandwich Towne and up to 13 in the Ojibway Parkway to Malden Road area.
- Sound levels were predicted at the selected receptors, by incorporating traffic parameters for relevant local roads along with those for the crossing and plaza.
- The CADNA_A modelling yields conservatively high receptor noise levels for the plaza/crossing combination as it does not include the potential noise attenuation provided by existing buildings between the plaza/crossing and the closest receptors.

1.3 Predicted Sound Levels

The sound levels predicted using the MOE STAMSON model are presented in this section. The noise impact of the TEPA is discussed in Section 2.3.

1.3.1 Baseline Noise Level in Year 2006

Table 1.3 shows the predicted base year (2006) and future "No-Build"/baseline sound levels for the three scenario years of 2015, 2025 and 2035. The results show that the sound levels predicted at the receptors for the base year are generally high, most are > 55 dBA, during both daytime and nighttime hours. In fact, the model predicted daytime sound levels of 55 dBA, or higher, at most of the 33 receptors. The daytime sound levels are predicted to range from a low of approximately 56 dBA to a high of approximately 79 dBA. The nighttime sound levels are predicted to range from a low of approximately 52 dBA to a high of approximately 72 dBA. These sound levels reflect the predicted high traffic volume on the major roads within the study area and the relatively high percentage of truck traffic on a number of these roads.

Overall, sound levels for the base year and future baseline years are predicted to be lowest during the daytime at receptor 9-N and lowest at receptor 25-S at nighttime. Receptor 9-N is located on the north side of the route segment, extending along The Windsor-Essex Parkway from Cousineau Road to Howard Avenue (on Rodfam Drive). Receptor 25-S is located between Howard Avenue and existing Highway 401. The corresponding highest sound levels are predicted for receptor 3-N on the north side of the route segment, extending along The Windsor-Essex Parkway from Malden Road to Pulford Street and for 11-N and 12-N, in the area of Highway 3 near Howard Avenue. Receptors 3-N, 11-N and 12-N are close to The Windsor-Essex Parkway while 9-N and 25-S are well removed from it.

The STAMSON modelling files for baseline noise conditions are provided in Appendix B. Due to its large size, this appendix is provided under separate cover, and the DRIC study team will make it available for review on request.

TABLE 1.3 PREDICTED BASELINE SOUND LEVELS (dBA) AND FUTURE "NO-BUILD" FOR ALL THREE SCENARIO YEARS

Route Segment	Receptor No.	Map ID	2006		2015		2025		2035	
			Day	Night	Day	Night	Day	Night	Day	Night
Receptors on the South Side of the Proposed Access Road										
GH	R1	1-S	63.7	56.2	64.9	57.6	65.5	58.4	67.5	60.5
GH	R2	2-S	59.4	52.4	60.2	53.4	60.8	54.0	61.8	55.1
GH	R3	3-S	58.1	51.1	59.0	52.2	59.5	52.8	60.7	54.0
GH	R4	4-S	57.9	50.8	59.0	52.1	59.6	52.7	61.3	54.5
GH	R5	5-S	57.6	53.1	58.5	54.4	59.1	55.2	59.6	55.9
GH	R6	6-S	56.9	52.3	57.9	53.7	58.5	54.6	59.1	55.3
GH	R7	7-S	58.4	54.0	59.2	55.5	59.8	56.4	60.5	57.2
GH	R8	8-S	60.1	55.9	61.3	57.5	63.5	58.5	64.2	59.3
GH	R9	9-S	58.8	56.1	60.2	57.7	61.1	58.7	61.9	59.6
GH	R10	10-S	58.7	55.8	60.2	57.5	61.1	58.5	61.9	59.4
GH	R11	11-S	61.6	59.1	62.9	60.6	63.7	61.5	64.4	62.4
H-I	R12	12-S	59.4	56.7	60.7	58.2	61.5	59.1	62.2	59.9
H-I	R13	13-S	59.1	54.9	60.0	56.0	60.5	56.7	61.0	57.3
H-I	R14	14-S	56.5	52.5	57.5	53.8	58.1	54.5	58.6	55.1
H-I	R15	15-S	59.9	56.1	61.2	57.7	61.9	58.4	62.5	59.1
H-I	R16	16-S	56.9	54.4	58.5	56.5	59.5	57.6	60.3	58.7
I-J	R17	17-S	60.4	57.7	62.0	59.7	62.9	60.8	63.7	61.9
I-J	R18	18-S	61.2	57.7	62.4	59.4	63.1	60.4	63.6	61.3
J-K	R19	19-S	69.9	65.8	71.4	67.8	72.3	68.8	73.0	69.9
J-K	R20	20-S	64.8	61.6	66.5	63.6	67.4	64.7	68.1	65.7
J-K	R21	21-S	65.2	61.9	66.8	63.9	67.7	65.0	68.5	66.0
J-K	R22	22-S	69.4	65.1	71.0	67.1	71.9	68.2	72.7	69.2
J-K	R23	23-S	61.3	58.6	62.9	60.7	63.9	61.8	64.6	62.8
J-K	R24	24-S	59.5	54.3	60.5	55.9	61.2	56.8	61.9	57.7
K-L	R25	25-S	No Laurier exit in 2006		57.4	49.2	57.8	49.7	58.3	50.1
K-L	R26	26-S	No Laurier exit in 2006		59.4	51.0	59.8	51.5	60.3	52.0
L-M	R27	27-S	60.6	55.8	61.7	57.1	62.0	57.7	62.7	58.5
L-M	R28	28-S	62.5	62.1	63.3	63.1	64.4	63.9	65.0	64.6

TABLE 1.3 (CONT'D) PREDICTED BASELINE SOUND LEVELS (dBA) AND FUTURE "NO-BUILD" FOR ALL THREE SCENARIO YEARS

Route Segment	Receptor No.	Map ID	2006		2015		2025		2035	
			Day	Night	Day	Night	Day	Night	Day	Night
Receptors on the North Side of the Proposed Access Road										
GH	R1	1-N	55.5	63.4	57.0	65.0	57.9	66.1	58.7	67.0
GH	R2	2-N	55.5	60.7	57.0	64.4	57.9	65.4	58.6	66.3
GH	R3	3-N	72.8	68.8	74.1	70.2	74.9	71.1	75.5	72.0
H-I	R4	4-N	66.4	63.4	67.5	64.9	68.3	65.7	68.9	66.5
H-I	R5	5-N	70.9	66.6	72.4	68.2	73.1	69.0	73.8	69.7
H-I	R6	6-N	71.9	68.0	73.5	70.0	74.4	71.2	75.2	72.2
I-J	R7	7-N	60.5	57.6	62.2	59.8	63.1	61.0	64.0	62.1
J-K	R8	8-N	70.7	66.5	72.2	68.5	73.1	69.6	73.8	70.6
J-K	R9	9-N	54.8	52.7	56.4	54.8	57.3	55.9	58.0	56.8
J-K	R10	10-N	60.7	58.9	62.2	60.7	63.1	61.8	63.8	62.7
K-L	R11	11-N	72.9	68.5	73.7	69.7	74.5	70.6	75.1	71.4
K-L	R12	12-N	72.0	67.8	72.9	69.0	73.7	70.0	74.3	70.7
L-M	R13	13-N	66.1	65.6	66.9	66.5	68.0	67.3	68.5	68.0

1.3.2 TEPA Sound Levels

Table 1.4 shows the predicted receptor sound levels associated with The Windsor-Essex Parkway for the three scenario years. The data in the table show that when compared to the future "No-Build" alternative, the TEPA unmitigated, is predicted to result in increased sound levels at most receptor locations. The impact of these increases range from marginal to high as defined in Table 1.1. Some of the key causes for this predicted increase include the proximity of the receptors to The Windsor-Essex Parkway, the alignment of The Windsor-Essex Parkway, in particular elevated portions in the Spring Garden area and increases in traffic volumes. The sound levels are predicted to be highest in horizon year 2035, as the traffic volumes for this year are highest. Overall, daytime sound levels are predicted to be higher than nighttime sound levels. The lowest TEPA sound levels were predicted for the area on the south side of The Windsor-Essex Parkway generally between Howard Avenue eastward to North Talbot Road. The highest sound levels are predicted for homes adjacent to the non-tunneled portions of The Windsor-Essex Parkway eastward from Sansotta Court to Pulford Street.

TABLE 1.4 PREDICTED SOUND LEVELS (dBA) FOR THE TEPA

Route Segment	Map ID	Stamson ID	2015		2025		2035	
			Day	Night	Day	Night	Day	Night
Receptors on the South Side of the Proposed Access Road								
GH	1-S	1S	66.3	60.5	67.3	62.3	67.9	63.2
GH	2-S	2S	62.3	57.6	63.6	60.0	64.3	61.0
GH	3-S	3S	62.7	58.5	64.3	61.2	65.1	62.3
GH	4-S	4S	60.4	55.4	61.6	57.6	62.2	58.6
GH	5-S	5S	61.5	58.3	63.4	61.2	64.2	62.3
GH	6-S	6S	63.6	60.4	65.6	63.4	66.4	64.6
GH	7-S	7S	67.9	65.0	70.0	68.0	70.9	69.2
GH	8-S	8S	67.4	63.9	69.2	66.8	70.0	67.9
GH	9-S	9S	67.6	64.9	69.8	68.0	70.7	69.6
GH	10-S	10S	65.3	62.3	67.3	65.3	68.1	66.4
GH	11-S	11S	74.5	70.3	75.4	71.7	76.2	72.5
H-I	12-S	12S	69.3	65.8	70.6	67.5	71.4	68.1
H-I	13-S	13S	63.5	60.3	64.6	61.7	65.4	62.4
H-I	14-S	14S	62.1	59.2	63.4	60.7	64.1	61.4
H-I	15-S	15S	71.9	64.8	73.2	66.3	74.0	70.7
H-I	16-S	16S	63.3	60.3	64.3	61.8	65.1	62.5
I-J	17-S	17S	67.4	64.5	68.7	66.0	68.9	66.0
I-J	18-S	18S	65.2	62.8	66.4	64.1	67.3	64.7
J-K	19-S	19S	66.8	64.1	68.0	65.4	68.9	66.0
J-K	20-S	20S	69.9	66.9	71.1	68.2	71.9	68.8
J-K	21-S	21S	69.9	67.0	71.1	68.2	72.0	68.8
J-K	22-S	22S	70.0	67.0	71.2	68.3	72.0	68.9
J-K	23-S	23S	71.6	68.5	72.8	69.8	73.6	70.4
J-K	24-S	24S	71.9	67.7	72.8	68.8	73.3	69.4
K-L	25-S	25S	60.1	52.4	60.5	52.9	60.9	53.3
K-L	26-S	26S	63.0	54.6	63.4	55.1	63.8	55.5
L-M	27-S	27S	61.4	56.3	62.0	57.2	62.6	58.1
L-M	28-S	28S	67.6	64.5	68.8	65.8	69.8	66.9

TABLE 1.4 (CONT'D) PREDICTED SOUND LEVELS (dBA) FOR THE TEPA

Route Segment	Map ID	Stamson ID	2015		2025		2035	
			Day	Night	Day	Night	Day	Night
Receptors on the North Side of the Proposed Access Road								
GH	1-N	1N	67.6	65.6	70.1	69.1	71.0	70.2
GH	2-N	2N	72.5	69.0	74.9	72.4	75.9	73.6
GH	3-N	3N	75.6	71.3	76.5	72.6	77.2	73.5
H-I	4-N	4N	65.8	62.8	67.1	64.4	67.8	65.1
H-I	5-N	5N	71.8	67.8	73.2	69.4	73.9	70.1
H-I	6-N	6N	67.2	63.9	68.6	65.7	69.3	66.3
I-J	7-N	7N	66.1	63.5	67.3	64.9	68.2	65.5
J-K	8-N	8N	69.3	66.6	70.5	67.9	71.3	68.2
J-K	9-N	9N	63.7	61.8	65.0	63.2	65.9	64.0
J-K	10-N	10N	70.6	67.5	71.6	68.7	72.0	69.3
K-L	11-N	11N	66.8	63.0	67.9	64.3	68.8	65.3
K-L	12-N	12N	66.7	63.0	68.1	64.4	69.1	65.8
L-M	13-N	13N	69.8	66.7	71.2	67.9	72.1	69.0

As noted above, when compared to the predicted future "No-Build" sound levels, the results show that for the most part, The Windsor-Essex Parkway is likely to increase receptor sound levels during both daytime and nighttime hours. Table 1.5 shows the daytime and nighttime exceedances for each scenario year. As sound level increases of 5 dB or greater above the future "No-Build" are predicted for the closest receptors in most route segments, except for the area between Howard Avenue and North Talbot Road, and the tunnelled areas, noise mitigation measures are to be considered. These mitigation measures are discussed in Section 2.

TABLE 1.5 RESULTING SOUND LEVELS (dBA) ABOVE THE FUTURE "NO-BUILD" SCENARIO – THE WINDSOR-ESSEX PARKWAY (WITHOUT MITIGATION)

Route Segment	Map ID	Stamson ID	2015		2025		2035	
			Day	Night	Day	Night	Day	Night
Receptors on the South Side of the Proposed Access Road								
GH	1-S	1S	1.4	2.8	1.8	3.9	0.4	2.7
GH	2-S	2S	2.1	4.1	2.9	5.9	2.5	5.8
GH	3-S	3S	3.7	6.4	4.7	8.4	4.4	8.3
GH	4-S	4S	1.4	3.3	2.0	4.9	1.0	4.1
GH	5-S	5S	3.0	4.0	4.3	6.1	4.6	6.4
GH	6-S	6S	5.7	6.7	7.1	8.8	7.3	9.2
GH	7-S	7S	8.7	9.6	10.1	11.7	10.5	12.0
GH	8-S	8S	6.1	6.4	5.7	8.3	5.8	8.6
GH	9-S	9S	7.4	7.2	8.6	9.3	8.8	10.1
GH	10-S	10S	5.1	4.8	6.2	6.7	6.2	7.0
GH	11-S	11S	11.6	9.7	11.7	10.2	11.8	10.2
H-I	12-S	12S	8.6	7.6	9.1	8.4	9.2	8.2
H-I	13-S	13S	3.5	4.3	4.1	5.0	4.4	5.1
H-I	14-S	14S	4.6	5.4	5.3	6.2	5.5	6.3
H-I	15-S	15S	10.7	7.1	11.4	7.8	11.6	11.6
H-I	16-S	16S	4.8	3.8	4.8	4.2	4.8	3.8
I-J	17-S	17S	5.4	4.8	5.8	5.2	5.2	4.1
I-J	18-S	18S	2.8	3.4	3.3	3.7	3.7	3.4
J-K	19-S	19S	-4.6	-3.6	-4.3	-3.4	-4.1	-3.8
J-K	20-S	20S	3.4	3.3	3.7	3.5	3.8	3.1
J-K	21-S	21S	3.1	3.1	3.4	3.2	3.5	2.8
J-K	22-S	22S	-1.0	-0.1	-0.7	0.1	-0.7	-0.3
J-K	23-S	23S	8.6	7.8	8.9	8.0	9.0	7.7
J-K	24-S	24S	11.4	11.9	11.6	12.1	11.4	11.8
K-L	25-S	25S	2.7	3.2	2.7	3.2	2.6	3.2
K-L	26-S	26S	3.6	3.6	3.6	3.6	3.5	3.5
L-M	27-S	27S	-0.3	-0.8	0.0	-0.5	-0.1	-0.4
L-M	28-S	28S	4.3	1.4	4.4	1.9	4.8	2.3
Receptors on the North Side of the Proposed Access Road								
GH	1-N	1N	10.6	0.6	12.2	3.0	12.3	3.2
GH	2-N	2N	15.5	4.6	17.0	7.0	17.3	7.3
GH	3-N	3N	1.5	1.1	1.6	1.5	1.7	1.5
H-I	4-N	4N	-1.7	-2.1	-1.2	-1.3	-1.1	-1.4
H-I	5-N	5N	-0.6	-0.4	0.0	0.4	0.1	0.4
H-I	6-N	6N	-6.3	-6.1	-5.8	-5.5	-5.9	-5.9
I-J	7-N	7N	3.9	3.7	4.2	3.9	4.2	3.4
J-K	8-N	8N	-2.9	-2.0	-2.6	-1.7	-2.4	-2.3
J-K	9-N	9N	7.3	7.0	7.7	7.3	7.9	7.2
J-K	10-N	10N	8.4	6.8	8.5	6.9	8.2	6.6
K-L	11-N	11N	-6.9	-6.7	-6.5	-6.3	-6.4	-6.1
K-L	12-N	12N	-6.2	-6.0	-5.7	-5.3	-5.2	-4.9
L-M	13-N	13N	2.9	0.1	3.2	0.6	3.6	1.0

Table 1.6 below shows the extent of the noise exceedance, both daytime and nighttime, at all the receptor locations.

TABLE 1.6 PREDICTED RECEPTOR NOISE IMPACT OF THE WINDSOR-ESSEX PARKWAY - NUMBER OF EXCEEDANCE OCCURRENCES (WITHOUT MITIGATION)

Scenario Year	No. of Exceedances <0 dB		No. of Exceedances 0-3 dB		No. of Exceedances 4-5 dB		No. of Exceedances 6-10 dB		No. of Exceedances > 10 dB	
	Day time	Night time	Day time	Night time	Day time	Night time	Day time	Night time	Day time	Night time
2015	8	9	8	5	10	14	10	12	5	1
2025	6	7	8	6	11	9	10	16	6	3
2035	6	8	8	6	11	9	10	14	6	4

As discussed later in Section 2, the proposed mitigation measures are found to effectively reduce sound levels in most instances to within 5 dB above the future "No-Build" sound levels.

The STAMSON modelling files for the TEPA with no mitigation is provided under separate cover as Appendix C, due to the large size of this appendix. These files will be made available by the DRIC study team upon request.

1.4 Noise Assessment for Plaza B1 and Crossing B

Noise modelling was undertaken for the Plaza B1/Crossing B combination based on traffic volumes projected for the years 2015, 2025, and 2035. The modelling exercise was performed in two stages.

1. First, the future "No-Build" noise levels were established for receptors in Sandwich Towne and in the Ojibway Parkway to Malden Road area for each of the years 2015, 2025, and 2035 using the CADNA_A noise model. These runs provided the future "No-Build" sound levels to which the project noise levels were compared.
2. Once the future "No-Build" levels were established, the traffic sources associated with the plaza and crossing were added to the model.
3. In cases where the project sound levels were found to exceed the future "No-Build" sound levels by greater than 5 dB, a 5 m high acoustic barrier was modelled on relevant segments of The Windsor-Essex Parkway. Mitigation measures are discussed in Section 2 of this report.

The Plaza B1/Crossing B combination was assessed for two groups of receptors, 21 in Sandwich Towne and 13 in the area between Ojibway Parkway and Malden Road.

Table 1.7 summarizes the predicted noise levels of Plaza B1 Crossing B on receptors in Sandwich Towne and in the area between Ojibway Parkway and Malden Road for the worst-year noise scenario, 2035. The receptor locations are shown on figures 1.8 and 1.9. The results indicate that this plaza/crossing combination is expected to have little to no noise impact on Sandwich Towne receptors (R1 to R21) even with no mitigation in place on Crossing B. On the other hand, the results indicate a high noise impact for most receptors between R22 and R34 along the approach roadway to Plaza B1, in the area between Ojibway Parkway and Malden Road. The data indicates that for most receptor locations the project noise levels exceed the future "No-Build" noise levels by > 5dB, to a maximum of approximately 15 dB. In such cases, mitigation measures are to be considered. These results are shown graphically on Figures 1.10 to 1.17. These mitigation measures are discussed in Section 2 of this report.

TABLE 1.7 RECEPTOR SOUND LEVELS FOR PLAZA B1 CROSSING B

ID	2035 Baseline		2035 with NO Barrier on Crossing or Approach		Difference with Baseline	
	Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)
R1	58.5	53.3	59.1	54.4	0.6	1.1
R2	59.3	55.4	60.3	56.7	1.0	1.3
R3	59.4	61.4	60.2	61.9	0.8	0.5
R4	57.8	53.4	58.5	54.4	0.7	1.0
R5	54.5	49.0	55.4	50.6	0.9	1.6
R6	60.6	63.9	61.0	64.3	0.4	0.4
R7	54.7	49.4	55.3	50.6	0.6	1.2
R8	59.0	53.5	59.6	54.4	0.6	0.9
R9	61.1	56.2	61.7	57.0	0.6	0.8
R10	56.4	54.2	57.0	54.8	0.6	0.6
R11	59.5	59.9	60.0	60.6	0.5	0.7
R12	61.4	59.9	61.7	60.6	0.3	0.7
R13	63.3	54.7	63.8	55.4	0.5	0.7
R14	60.9	63.0	61.3	63.3	0.4	0.3
R15	60.3	62.1	60.8	62.9	0.5	0.8
R16	61.2	54.7	61.6	55.4	0.4	0.7
R17	60.8	55.5	61.2	56.1	0.4	0.6
R18	61.2	62.8	61.7	62.9	0.5	0.1
R19	60.2	60.0	60.6	60.8	0.4	0.8
R20	68.1	62.8	68.7	63.1	0.6	0.3
R21	58.4	62.2	58.7	63.0	0.3	0.8
R22	56.4	50.1	67.0	64.9	10.6	14.8
R23	59.9	53.7	62.8	59.3	2.9	5.6
R24	57.5	51.5	60.4	57.2	2.9	5.7
R25	45.5	41.4	Disp.	Disp.	Disp.	Disp.
R26	61.0	54.7	Disp.	Disp.	Disp.	Disp.
R27	55.4	49.2	67	61.7	11.6	12.5
R28	59.8	53.6	65.2	62.7	5.4	9.1
R29	60.2	54.5	64.6	61.8	4.4	7.3
R30	63.4	59.4	65.8	64.1	2.4	4.7
R31	58.7	53.3	63.4	61.2	4.7	7.9
R32	57.5	51.6	Disp.	Disp.	Disp.	Disp.
R33	61.3	55.3	Disp.	Disp.	Disp.	Disp.
R34	61.2	55.4	Disp.	Disp.	Disp.	Disp.

Disp: Receptor was displaced by this Plaza/Crossing Option.

FIGURE 1.8 NOISE RECEPTORS SELECTED FOR MODELLING IN SANDWICH TOWNE

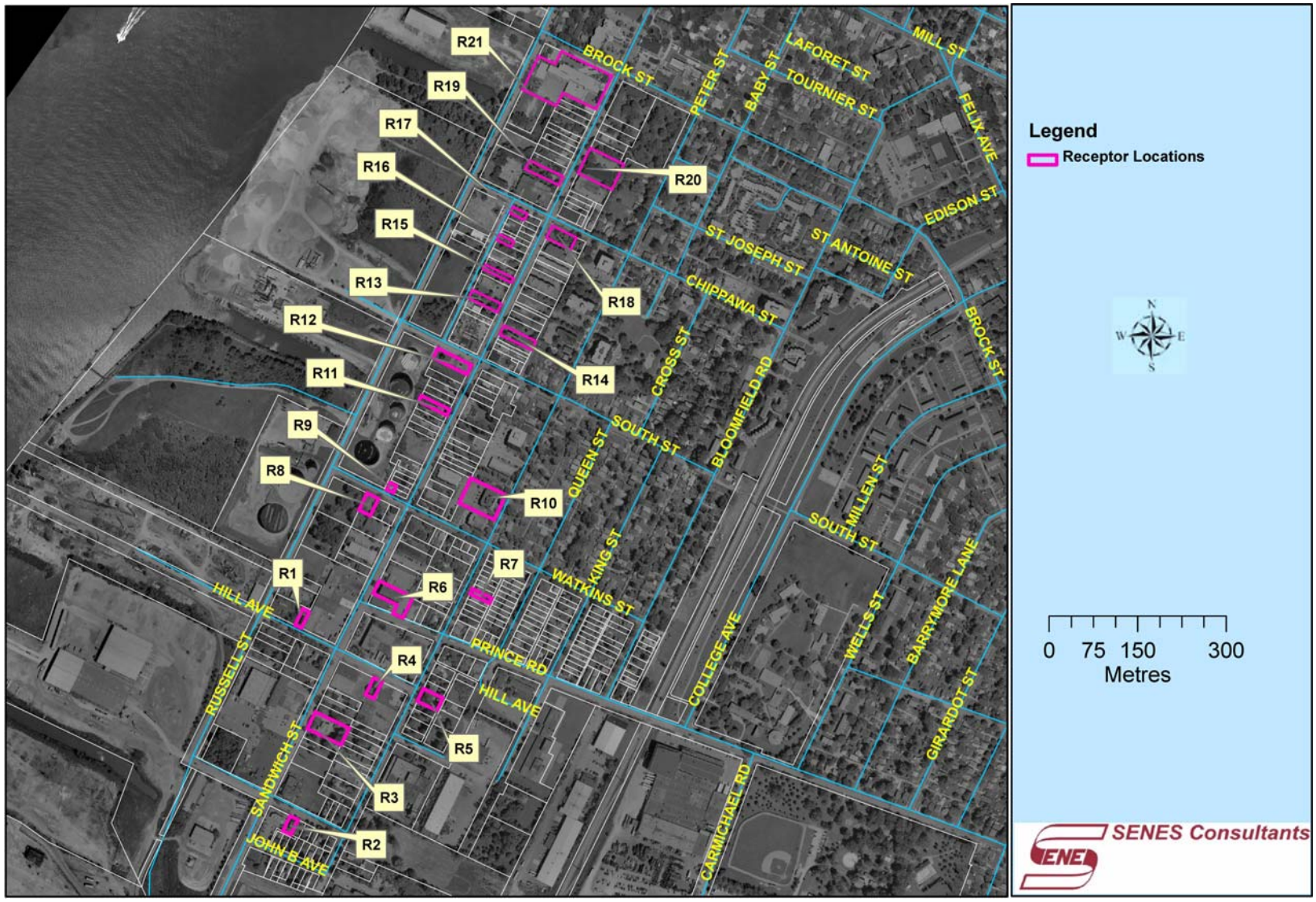


FIGURE 1.9 NOISE RECEPTORS SELECTED FOR MODELLING IN OJIBWAY PARKWAY TO MALDEN ROAD AREA

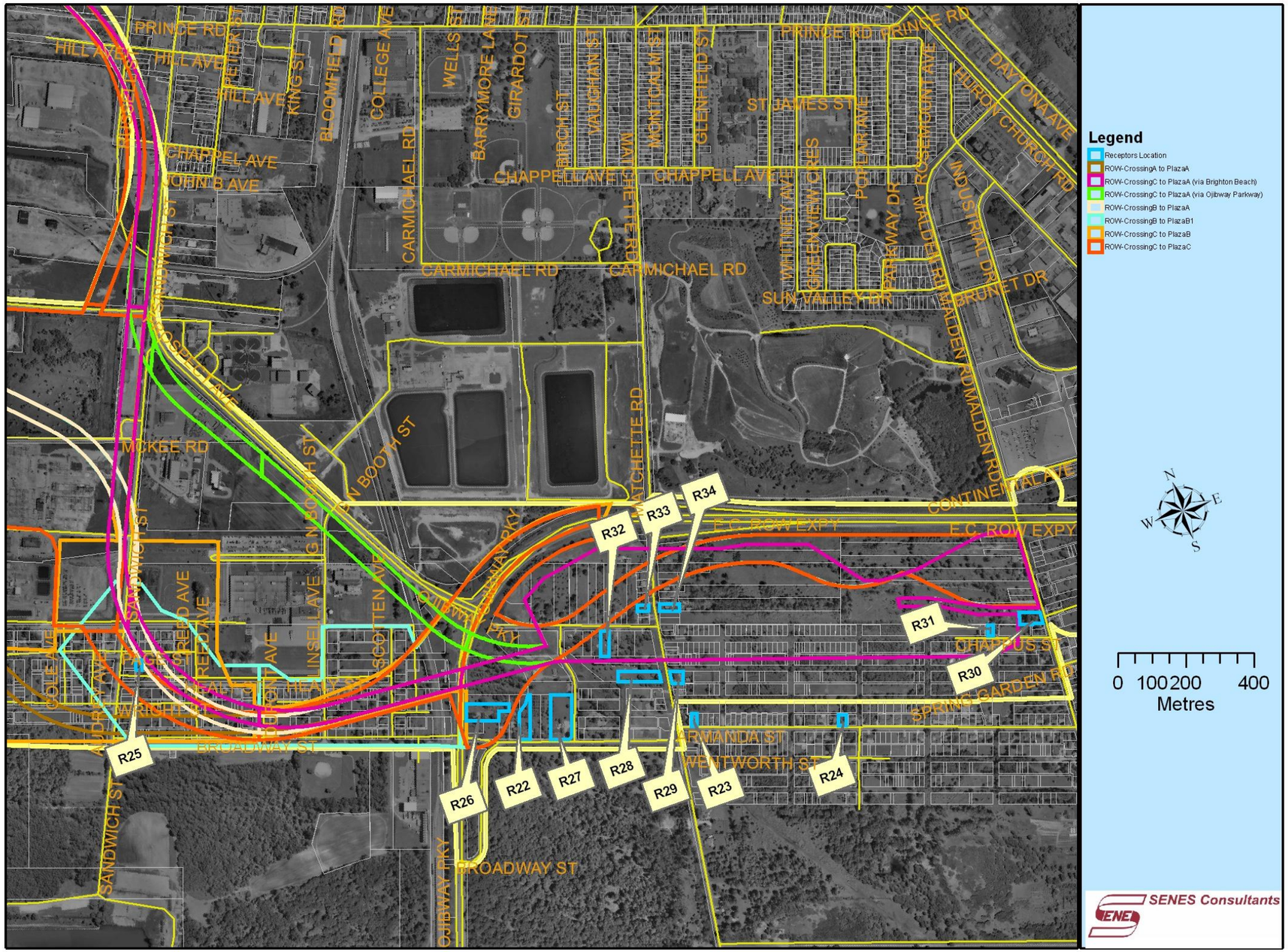


FIGURE 1.10 FUTURE "NO-BUILD" SCENARIO – SANDWICH TOWNE – DAYTIME 2035

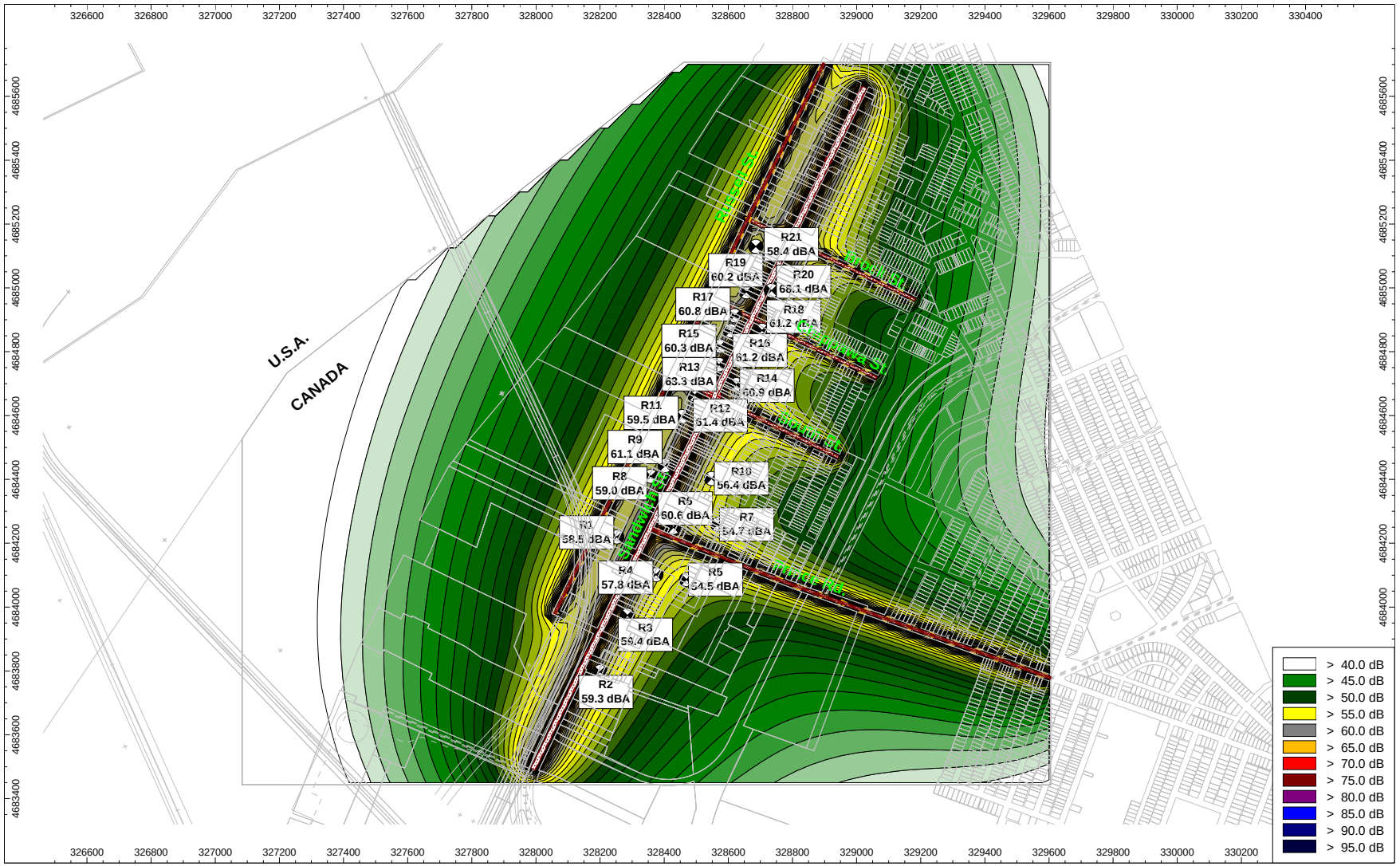


FIGURE 1.11 FUTURE "NO-BUILD" SCENARIO – SANDWICH TOWNE– NIGHTTIME 2035

FIGURE 1.12 FUTURE "NO-BUILD" SCENARIO – OJIBWAY PARKWAY TO MALDEN ROAD AREA – DAYTIME 2035

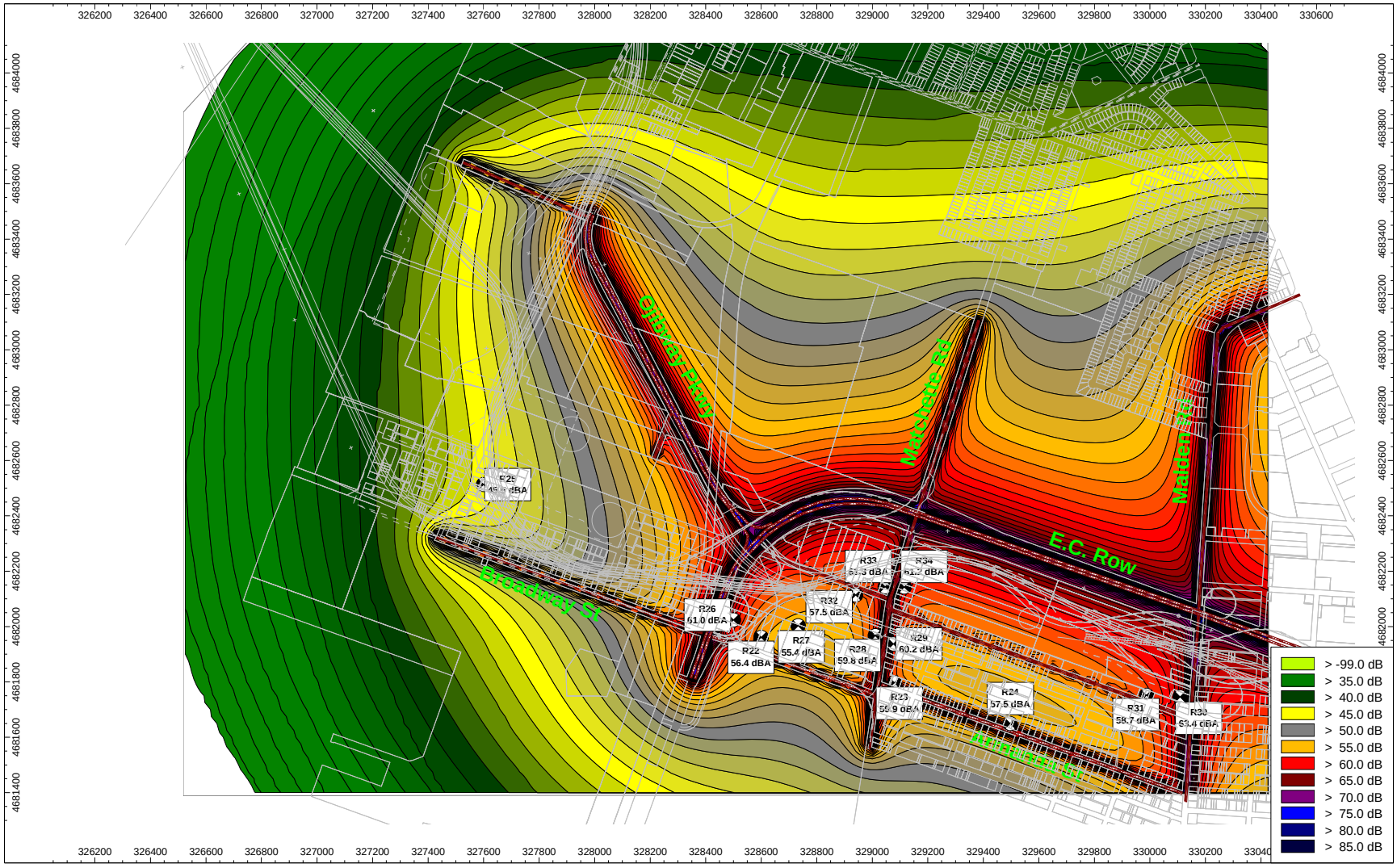


FIGURE 1.13 FUTURE "NO-BUILD" SCENARIO – OJIBWAY PARKWAY TO MALDEN ROAD AREA – NIGHTTIME 2035

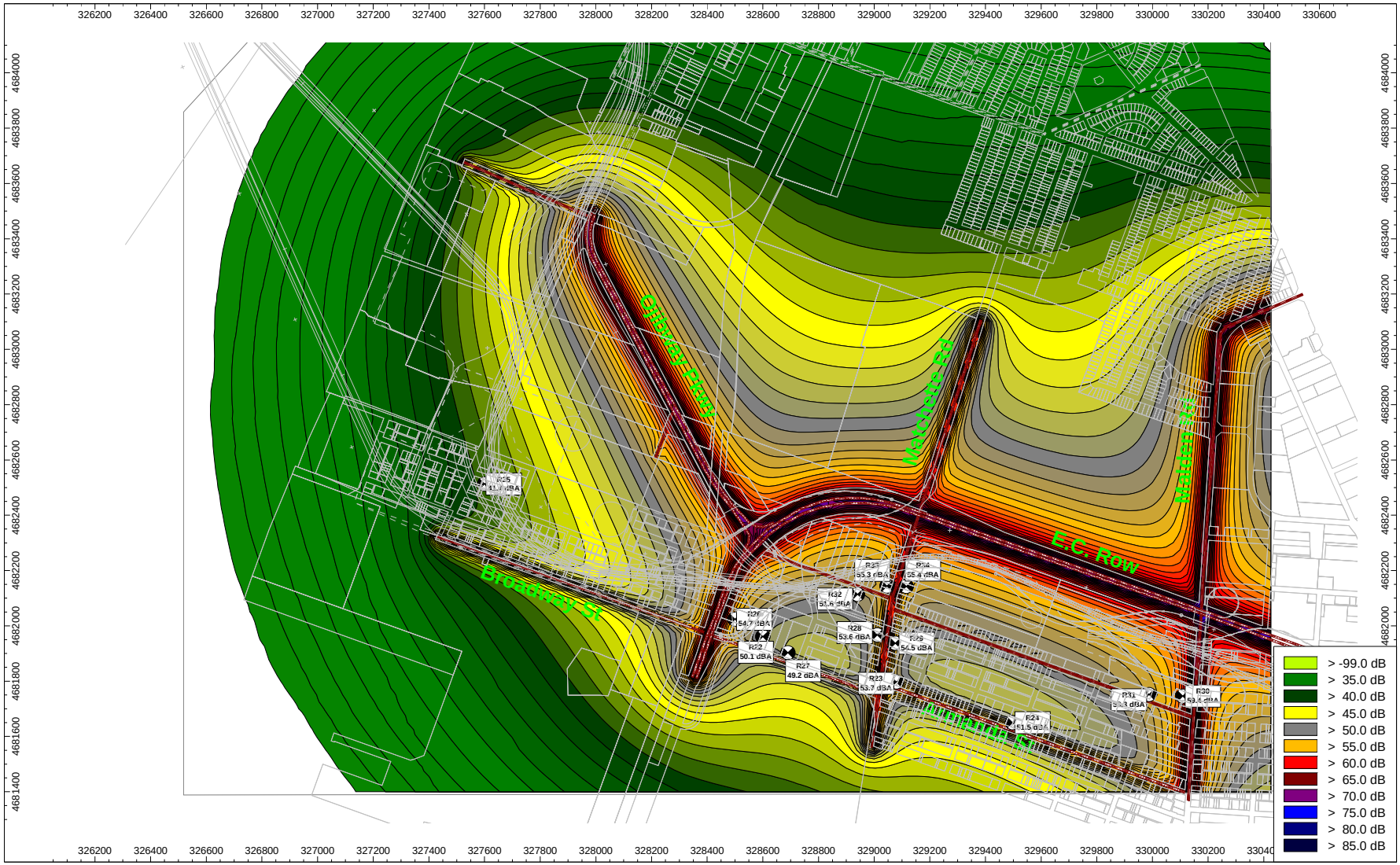


FIGURE 1.14 PLAZA B1 CROSSING B – SANDWICH TOWNE – DAYTIME 2035 – NO BARRIERS ON APPROACH OR CROSSING

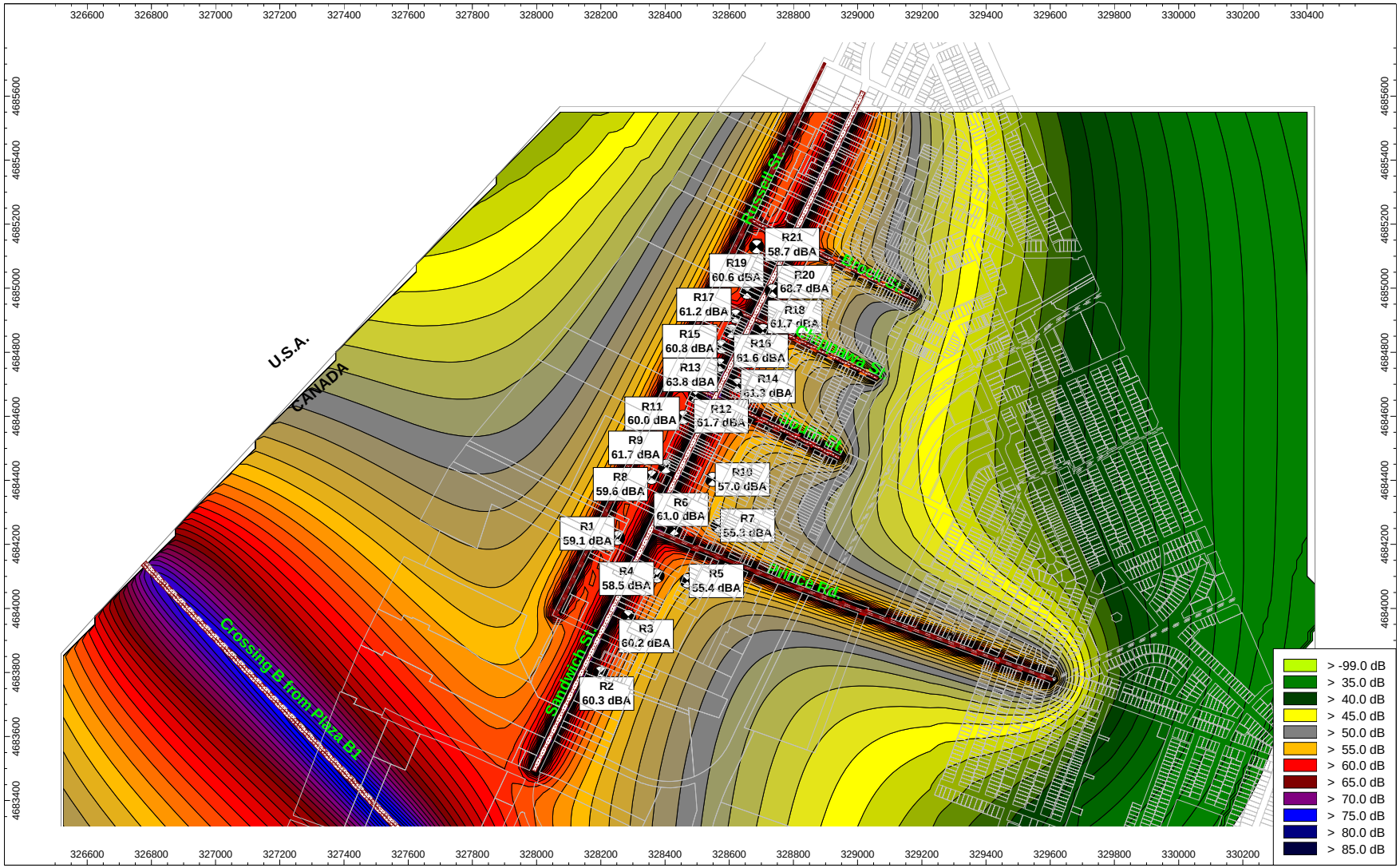


FIGURE 1.15 PLAZA B1 CROSSING B – SANDWICH TOWNE– NIGHTTIME 2035 – NO BARRIERS ON APPROACH OR CROSSING

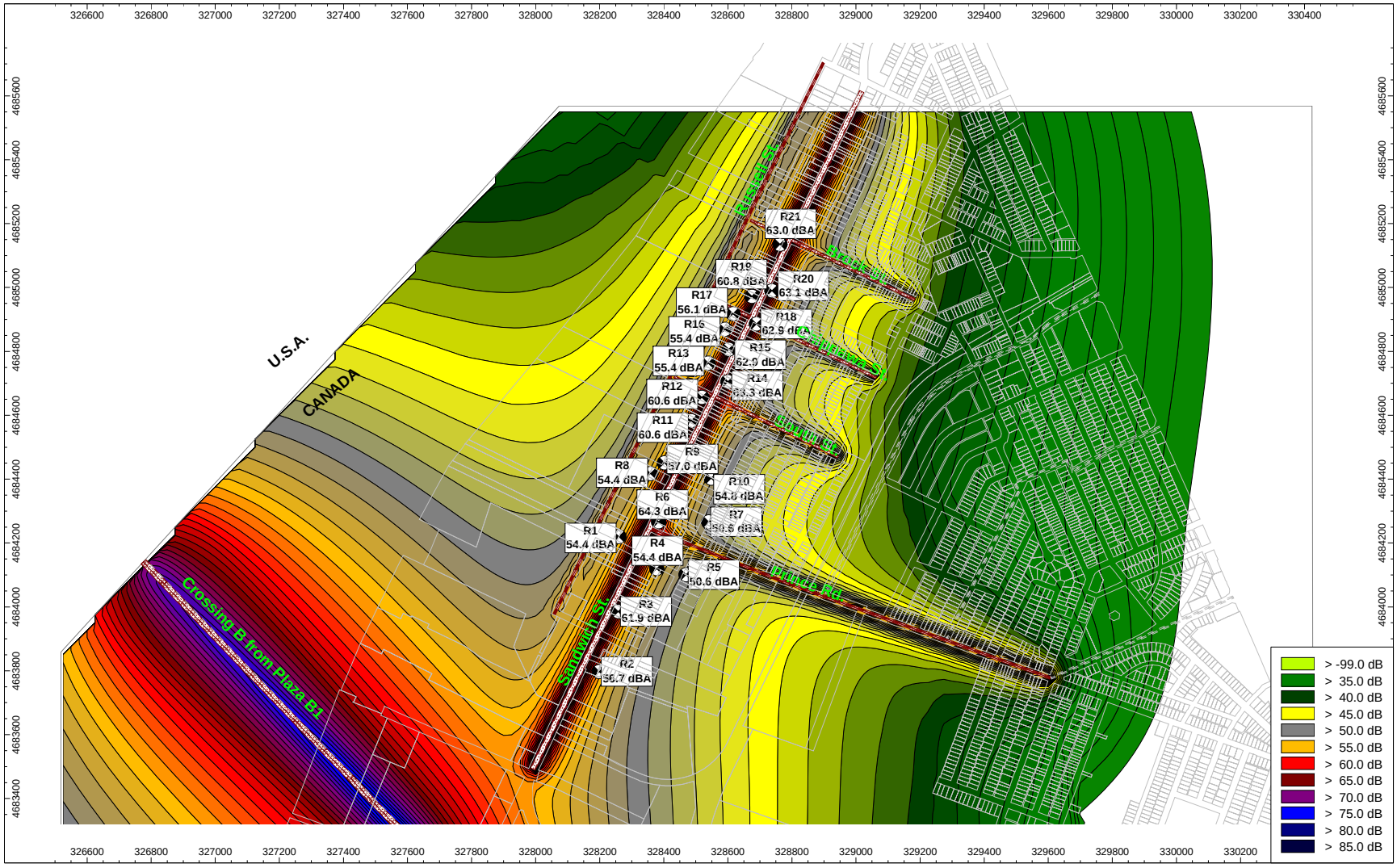


FIGURE 1.16 PLAZA B1 CROSSING B – OJIBWAY PARKWAY TO MALDEN ROAD – DAYTIME 2035 – NO BARRIERS ON APPROACH OR CROSSING

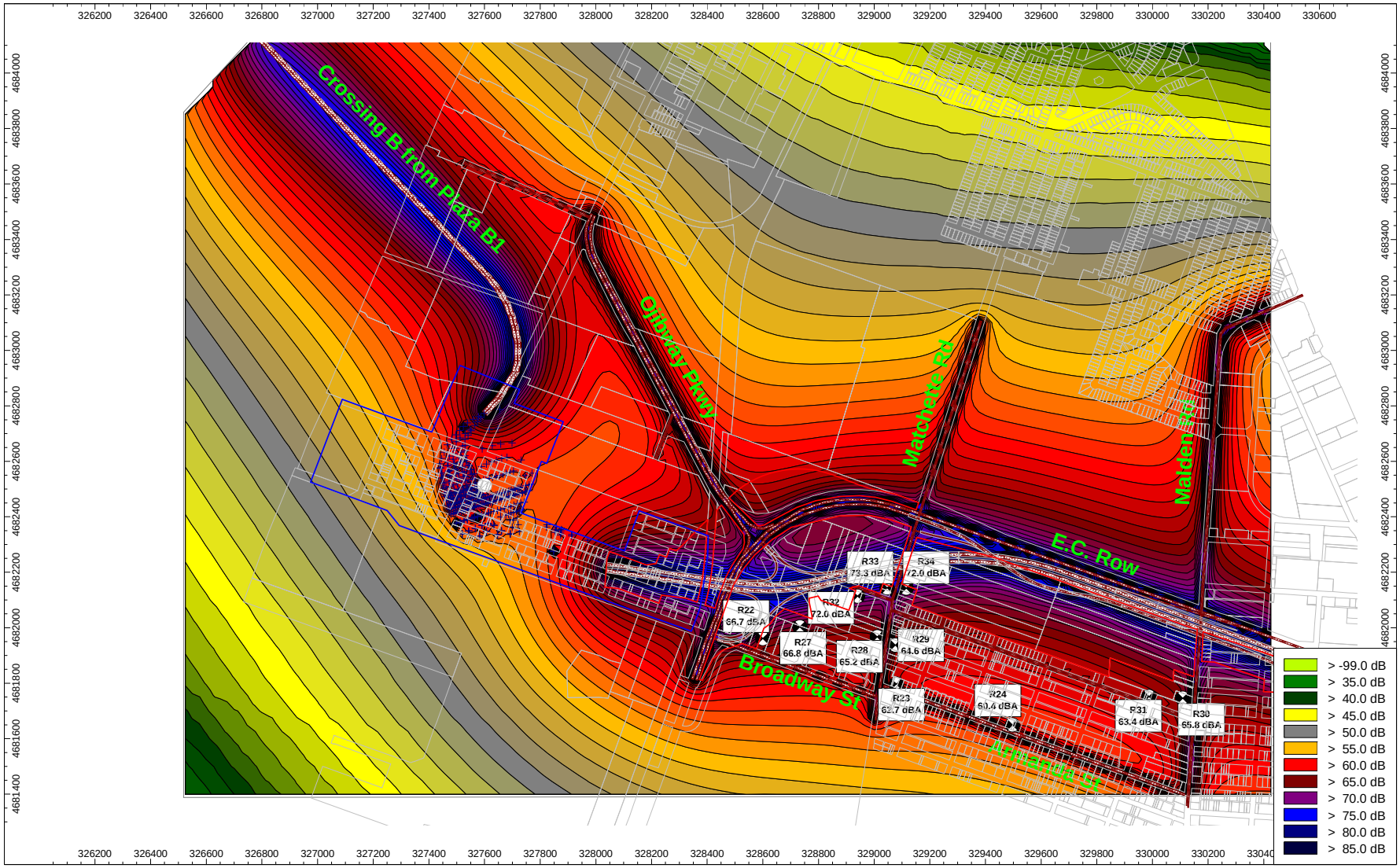
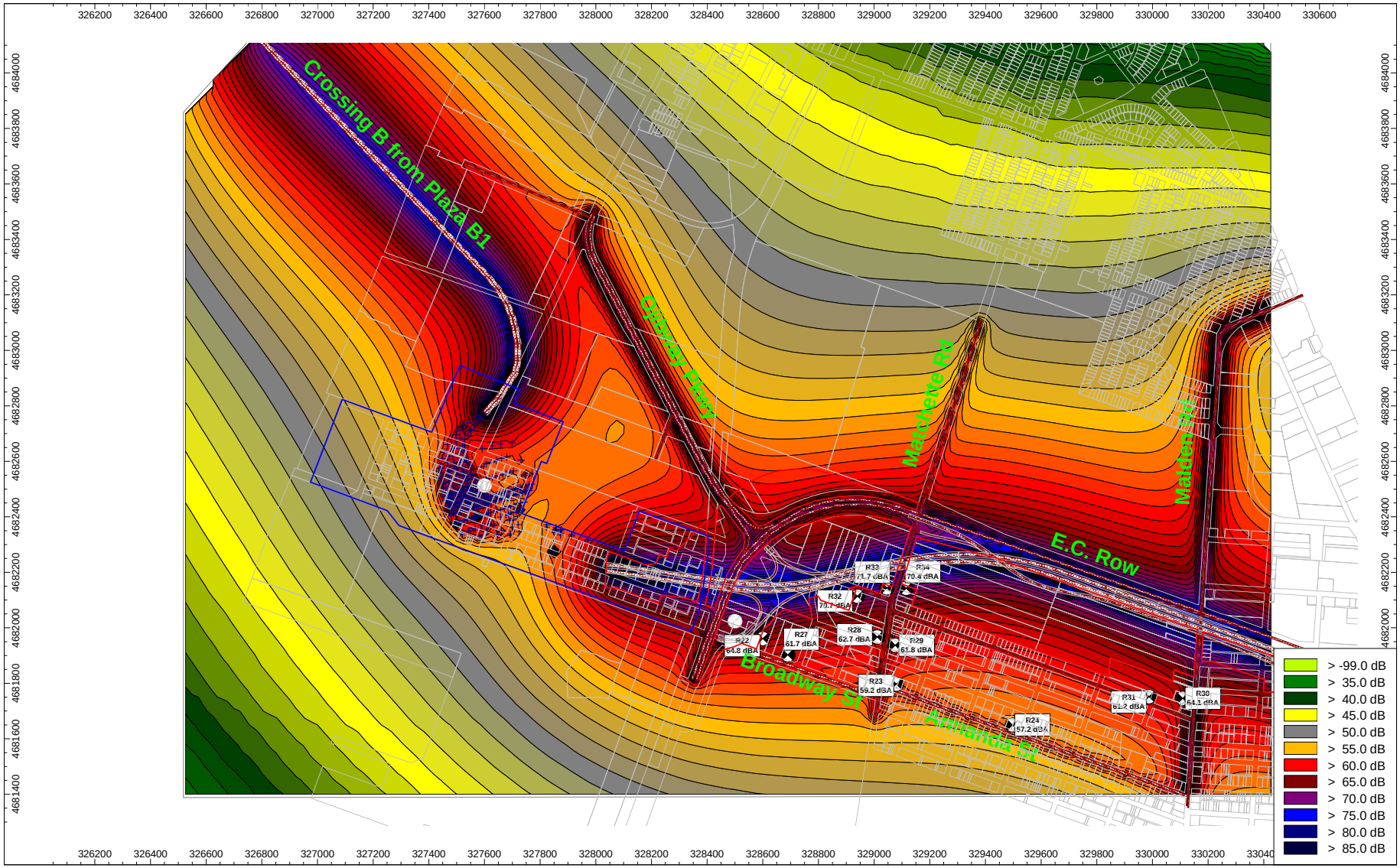


FIGURE 1.17 PLAZA B1 CROSSING B – OJIBWAY PARKWAY TO MALDEN ROAD – NIGHTTIME 2035 – NO BARRIERS ON APPROACH OR CROSSING



1.5 Vibration Impact Assessment

1.5.1 Baseline Vibration Monitoring

Existing (2006) ground vibration levels were measured at two locations (side by side) in each of the eight receptor sites (see Figure 1.7). Receptors for vibration monitoring were selected to reflect areas of potentially elevated vibration levels such as locations in close proximity to heavy travelled roads, near overpasses, bridges, curved roads, with accelerating traffic, as well as locations where free flowing traffic travel at higher speeds. The two measurement locations were separated by a distance of 6 inches. Two stakes were driven to a depth of 12 inches into the ground and the transducers were attached through a magnet to the stakes. The vibration levels are reported in terms of velocity in mm/sec from 5 Hz to 200 Hz in one-third octave band intervals. The vibration level is the rms (root mean square) maximum level in each frequency band measured during the traffic pass-by. The traffic was traveling at varying speeds during each event.

The vibration measurements were taken using two Bruel & Kjaer (B&K) 4370 accelerometers which were the main transducers. One of the transducers was connected to a Hewlett-Packard two-channel real time analyzer through a B & K 2635 charge amplifier. The second transducer was connected to a B & K type 2306 chart recorder through a B & K vibration meter to measure the time history plot. Both the meters were set to read vibration velocity from 1 Hz to 1 KHz.

The traffic events at each location were monitored over a period of 30 minutes. About 15 minutes were recorded by the chart recorder. Two twelve minute periods were measured by the analyzer to produce two spectrum plots. The traffic events are identified in Table 1.8 below. The events were monitored on two different days to identify any differences in the vibration patterns. (Note: If traffic is busy, the truck speed reduces considerably, thereby reducing the vibration signal).

TABLE 1.8 TRAFFIC DESCRIPTION

Location	Date & Time	
	2006/06/28	2006/06/29
Location 1	8 am to 8.30 am	11.25 to 11.55 am
Location 2	9.15 am to 10 am	1.45 to 2.15 pm
Location 3	10.15 am to 10.45 am	2.30 to 3 pm
Location 4	11.15 am to 11.45 am	10.45 to 11.15 am
Location 5	12 to 12.30 pm	9.45 to 10.15 am
Location 6	1.15 to 1.45 pm	9 to 9.30 am
Location 7	2 to 2.30 pm	8 to 8.30 am
Location 8	2.30 to 3 pm	7.15 to 7.45 am

Receptor Locations

Eight Receptor Locations were chosen to measure pre-modification vibration levels. The eight locations are:

1) The grassy area adjacent to the roadway at the house, between 1140 and 1202 Talbot Street.
2) Adjacent to the West sidewalk opposite to the church (at the foundation block of the Ambassador Bridge – the 5th Block south of Riverside Avenue).
3) Adjacent to the sidewalk of the cul-de-sac at the end of Mill Street.
4) The grassy area adjacent to the roadway (east side of Huron Church Road) outside the Heritage Park Alliance Church.
5) In the park near the cul-de-sac at the end of Northway Avenue.
6) Just south of the Railway tracks at the intersection of Ojibway Parkway and Broadway).
7) Just north of the EC Row Expressway (west side) at 4340 Malden Road.
8) Near the sidewalk of the turn-around-loop on Huron Church Road – opposite to 3495 Huron Church Road.

1.5.2 Key Results

The Windsor-Essex Parkway was reviewed to identify residences, hospitals and other potentially vulnerable receptors, within 25 m from the edge of the roadway. The vibration measurements were conducted within 5 m of the edge of the roadway and for the most part, the levels measured were within the threshold of perception limit of 0.14 mm/sec for all locations tested in the area of continued analysis (ACA). The monitoring results are illustrated graphically and are provided in Appendix D in graphical format. These levels decay slowly with distance at close proximities to the road edges and should the roadway contain an expansion joint, etc., these levels may increase to the threshold level of perception. Hence, as a precautionary measure, receptors within 25 m from the edge of The Windsor-Essex Parkway and 50 m from Plaza B1, Crossing B were counted as potential locations where vibration levels could potentially reach the threshold value of 0.14 mm/sec. The number of houses that might potentially experience vibration level exceeding 0.14 mm/sec vibration frequency is presented in Tables 1.9 for the Plaza B1/Crossing B combination and in Table 1.10 for The Windsor-Essex Parkway.

There are several route segments with receptors within 25 m from the edge of the roadway. As noted above, at this distance, there is a potential for receptors along The Windsor-Essex Parkway to experience vibration levels near the threshold value of 0.14 mm/sec. The area along The Windsor-Essex Parkway from Highway 3 to North Talbot Road potentially has the highest number of receptors within 25 m from the edge of the roadway. The area along The Windsor-Essex Parkway from north of Lennon Drain to Cousineau Road potentially has the least number of receptors 25 m from the edge of the roadway.

Overall, The Windsor-Essex Parkway is not expected to cause vibrations in the 50 mm/sec range for all locations tested in the ACA; therefore, no structural damage is anticipated from vehicular traffic.

TABLE 1.9 NUMBER OF HOUSES WITH POTENTIAL TO EXPERIENCE VIBRATION EXCEEDING 0.14 mm/sec NEAR THE PROPOSED PLAZA B1 AND CROSSING B

Segment	No. of Houses
Plaza B1	
Crossing B to Ojibway Parkway	3
Ojibway Parkway to Malden Road	2

TABLE 1.10 NUMBER OF HOUSES WITH POTENTIAL TO EXPERIENCE VIBRATION EXCEEDING 0.14 MM/SEC NEAR THE WINDSOR-ESSEX PARKWAY

	Ojibway Parkway to Malden Road	Malden Road to Pulford	Pulford North of Lennon Drain	North of Lennon Drain to Cousineau Road	Cousineau Road to Howard Avenue	Howard Avenue to Highway 401	Highway 3 to North Talbot Road
	F-G	G-H	H-I	I-J	J-K	K-L	L-M
South side of the Proposed Hwy 401	2	15	17	3	23	2	0
North side of the Proposed Hwy 401	0	46	5	2	6	17	0

2. Noise Mitigation Assessment

This assessment considers noise mitigation measures for both construction and operating phases of the DRIC project as both phases of the project could potentially increase receptor noise levels above future "No-Build" noise conditions.

2.1 Noise Mitigation – Construction Phase

As was discussed earlier in Section 1, a quantitative assessment of construction noise was not completed as the method and duration of construction is yet to be confirmed. However, based on our knowledge of the types of activities associated with major road construction, the following noise mitigation measures are proposed for the DRIC project:

- Ensure that all construction equipment used are in good repair, fitted with functioning mufflers and comply with the noise emission standards outlined in MOE guidelines.
- To the greatest extent possible, limit the most noisy construction activities to daytime hours.
- Where sequencing of construction permits, permanent noise barriers and/or berms may be built in the early phases of construction in order to reduce construction noise levels at receptor locations.
- Maximize the separation distance between the construction staging areas and nearby receptors to the greatest extent possible.
- Maintain construction haul roads to prevent pot holes and ruts to avoid the loud noises caused by construction vehicles travelling over uneven road surfaces.
- Develop a process for receiving, investigating and addressing construction noise complaints received from the public.

These foregoing construction mitigation measures should effectively limit the impact of construction noise at the receptor locations.

2.2 Noise Mitigation Results – The Windsor-Essex Parkway

Noise mitigation measures for the operation of The Windsor-Essex Parkway were investigated and additional assessments were undertaken for the following circumstances:

(1) for cases where the predicted project noise levels at the closest receptor exceeded the future "No-Build" scenario by > 5 dB;

(2) in communities that expressed concerns about existing ineffective noise barriers adjacent to The Windsor-Essex Parkway as was revealed through the public consultation process for this project; and

(3) where consultations with the MTO and the project design engineering team determined that additional noise reduction could be achieved and would be beneficial, even in cases where the noise modelling predicted exceedances of < 5 dB above the future "No-Build" scenario.

Using this approach, noise mitigation, in the form of a 5 m high acoustic barrier or barrier/berm combination, was considered for several sections of The Windsor-Essex Parkway, with the main exception being tunnelled areas (See figures 2.1a to 2.1f). A 5m high acoustic barrier was also modelled on the approach roadway between Plaza B1 and Crossing B. As was discussed in Section 1, the modelling results indicated that traffic on Crossing B is predicted to have little to no noise impact on Sandwich Towne residents. In any case, a 4 m high acoustic barrier was modelled for Crossing B (see Figure 2.2) to determine whether significant additional noise attenuation (> 5 dB) could be achieved for these receptors.

It should be noted that noise mitigation shown on figures 2.1a to 2.1f and Figure 2.2 are conceptual. Precise locations, as well as aesthetic characteristics and other details will be reviewed in subsequent design phases to ensure they provide optimum sound level reduction and are suited to the location as determined through consultation with the neighbouring areas. The intent of any future refinements will be to further enhance the effectiveness and integration of the conceptual noise mitigation presented in this report.

Table 2.1 shows the reduction in sound levels from the future "No-Build" scenario at receptors along The Windsor-Essex Parkway for the years 2015 and 2035. As was stated in Section 1, there were many receptors, such as in the Spring Garden and Sansotta Court areas where The Windsor-Essex Parkway noise levels are expected to exceed the future "No-Build" sound levels by > 5 dB.

The results in Table 2.1 show that for the worst-case noise year (2035), all receptors, except for receptor 3S, in the Spring Garden area, the 5 m high acoustic barrier along The Windsor-Essex Parkway will reduce receptors sound levels to within 5 dB of the predicted future "No-Build" sound levels. In fact, in many cases, especially for receptors on the north side of The Windsor-Essex Parkway, the 5 m barrier is predicted to reduce receptors sound levels to well below the future "No-Build" sound levels. The negative values in the table indicate the project sound levels are predicted to be lower than those without the proposed project. The resultant positive benefit in noise level can be attributed to the 5 m high barrier and tunnels.

It should be noted that at the aforementioned receptor (3S), the predicted exceedance above the future "No-Build" sound levels is at maximum 6dB and at both locations, the exceedance is predicted to occur only at nighttime.

The current mitigation approach does not propose a 5 m high barrier for receptors 13S, 14S and 16S (between Pulford Road and Lennon Drain including receptors) and segments K-L to L-M (between Howard Avenue eastward to Talbot Road including receptors 25S, 26S, 27S and 28S). The STAMSON model predicts sound level exceedances > 5 dB over the future "No-Build" for certain receptors in segment H-I without the 5 m high acoustic barrier. The results on Table 2.1 shows that if installed, the acoustic barrier will reduce The Windsor-Essex Parkway noise levels to lower than the future "No-Build" noise levels for some receptors in this area. Therefore, it is recommended that an acoustic barrier or berm be considered on The Windsor-Essex Parkway in this road segment subject to further detailed assessment to determine effective locations. On the other hand, the results in Table 2.1 indicate that an acoustic barrier/berm is not required for segments K-L to L-M (particularly in the area of receptors 25S to 28S).

STAMSON modelling files for the mitigation measures are provided as Appendix E, under separate cover. This is due to the large size of the file. These files will be made available by the DRIC study team upon request.

TABLE 2.1

PREDICTED INCREMENTAL SOUND LEVELS (dB) FOR THE WINDSOR-ESSEX PARKWAY HORIZON YEARS 2015 AND 2035 -WITH 5 M HIGH BARRIER MITIGATION

Route Segment	Map ID	Stamson ID	2015 Baseline Sound Level (dBA)		2015 TEPA Sound Level with Mitigation (dBA)		Incremental Sound Level (dB) - Year 2015 The Windsor-Essex Parkway		2035 Baseline Sound Level (dBA)		2035 TEPA Sound Level with Mitigation (dBA)		Incremental Sound Level (dB) - Year 2035 The Windsor-Essex Parkway	
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Receptors on the South Side														
GH	1-S	1S	64.9	57.6	66.0	59.6	1.1	1.9	67.5	60.5	67.4	61.9	-0.2	1.4
GH	2-S	2S	60.2	53.4	61.5	56.3	1.3	2.8	61.8	55.1	63.3	59.4	1.5	4.2
GH	3-S	3S	59.0	52.2	61.3	56.4	2.3	4.2	60.7	54.0	63.4	59.9	2.7	5.9
GH	4-S	4S	59.0	52.1	59.8	54.3	0.9	2.3	61.3	54.5	61.5	57.4	0.2	2.8
GH	5-S	5S	58.5	54.4	58.2	53.9	-0.3	-0.5	59.6	55.9	60.3	57.4	0.6	1.5
GH	6-S	6S	57.9	53.7	59.3	54.8	1.4	1.1	59.1	55.3	61.4	58.5	2.3	3.2
GH	7-S	7S	59.2	55.5	58.1	53.3	-1.1	-2.2	60.5	57.2	59.8	56.3	-0.6	-0.9
GH	8-S	8S	61.3	57.5	62.1	55.4	0.8	-2.1	64.2	59.3	63.3	57.4	-0.9	-1.9
GH	10-S	10S	60.2	57.5	61.1	57.8	0.9	0.3	61.9	59.4	63.2	61.5	1.3	2.1
GH	11-S	11S	62.9	60.6	63.1	59.6	0.2	-0.9	64.4	62.4	64.1	61.1	-0.4	-1.2
H-I	12-S	12S	60.7	58.2	56.6	52.8	-4.1	-5.4	62.2	59.9	58.6	55.1	-3.6	-4.8
H-I	13-S	13S	60.0	56.0	58.7	53.5	-1.3	-2.5	61.0	57.3	60.0	55.0	-1.0	-2.3
H-I	14-S	14S	57.5	53.8	55.9	50.8	-1.6	-3.0	58.6	55.1	57.3	52.5	-1.3	-2.6
H-I	16-S	16S	58.5	56.5	53.3	49.3	-5.2	-7.2	60.3	58.7	54.9	51.3	-5.4	-7.4
I-J	17-S	17S	62.0	59.7	58.5	56.4	-3.5	-3.3	63.7	61.9	59.9	57.9	-3.8	-4.0
J-K	19-S	19S	71.4	67.8	59.7	57.6	-11.7	-10.2	73.0	69.9	61.6	59.5	-11.4	-10.3
J-K	20-S	20S	66.5	63.6	61.8	60.4	-4.6	-3.2	68.1	65.7	63.6	62.3	-4.5	-3.4
J-K	21-S	21S	66.8	63.9	62.0	60.7	-4.8	-3.2	68.5	66.0	63.7	62.6	-4.8	-3.4
J-K	22-S	22S	71.0	67.1	62.0	61.2	-9.0	-5.9	72.7	69.2	63.8	63.0	-8.9	-6.2
J-K	23-S	23S	62.9	60.7	58.0	54.9	-5.0	-5.7	64.6	62.8	59.9	56.8	-4.8	-6.0
J-K	24-S	24S	60.5	55.9	63.2	57.1	2.7	1.2	61.9	57.7	64.3	58.7	2.5	1.1

TABLE 2.1 (CONT'D)

PREDICTED INCREMENTAL SOUND LEVELS (dB) FOR THE WINDSOR-ESSEX PARKWAY HORIZON YEARS 2015 AND 2035 -WITH 5 M HIGH BARRIER MITIGATION

Route Segment	Map ID	Stamson ID	2015 Baseline Sound Level (dBA)		2015 TEPA Sound Level with Mitigation (dBA)		Incremental Sound Level (dB) - Year 2015 The Windsor-Essex Parkway		2035 Baseline Sound Level (dBA)		2035 TEPA Sound Level with Mitigation (dBA)		Incremental Sound Level (dB) - Year 2035 The Windsor-Essex Parkway	
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
K-L	25-S	25S	57.4	49.2	60.1	52.4	2.7	3.2	58.3	50.1	60.9	53.3	2.6	3.2
K-L	26-S	26S	59.4	51.0	63.0	54.6	3.6	3.6	60.3	52.0	63.8	55.5	3.5	3.5
L-M	27-S	27S	61.7	57.1	61.4	56.3	-0.3	-0.8	62.7	58.5	62.6	58.1	-0.1	-0.4
L-M	28-S	28S	63.3	63.1	67.6	64.5	4.3	1.4	65.0	64.6	69.8	66.9	4.8	2.3
Receptors on the North Side														
GH	1-N	1N	57.0	65.0	57.4	60.8	0.4	-4.2	58.7	67.0	60.7	65.2	2.0	-1.8
GH	2-N	2N	57.0	64.4	57.6	62.1	0.5	-2.3	58.6	66.3	60.5	66.2	1.9	-0.1
GH	3-N	3N	74.1	70.2	66.2	63.8	-7.9	-6.4	75.5	72.0	67.6	66.0	-7.9	-6.1
H-I	4-N	4N	67.5	64.9	58.2	52.1	-9.3	-12.8	68.9	66.5	59.4	62.4	-9.5	-4.1
H-I	5-N	5N	72.4	68.2	61.3	61.2	-11.1	-7.0	73.8	69.7	63.0	61.9	-10.8	-7.8
H-I	6-N	6N	73.5	70.0	59.3	60.2	-14.2	-9.9	75.2	72.2	61.2	62.6	-14.0	-9.6
I-J	7-N	7N	62.2	59.8	53.5	50.6	-8.7	-9.2	64.0	62.1	55.4	52.5	-8.6	-9.6
J-K	8-N	8N	72.2	68.5	60.2	56.8	-11.9	-11.7	73.8	70.6	61.5	58.5	-12.2	-12.1
J-K	9-N	9N	56.4	54.8	57.3	55.4	0.9	0.6	58.0	56.8	59.4	57.6	1.4	0.8
J-K	10-N	10N	62.2	60.7	62.1	54.2	-0.1	-6.5	63.8	62.7	63.4	64.2	-0.4	1.5
K-L	11-N	11N	73.7	69.7	61.9	60.8	-11.8	-8.8	75.1	71.4	63.1	62.9	-12.0	-8.5
K-L	12-N	12N	72.9	69.0	62.8	61.2	-10.1	-7.8	74.3	70.7	64.8	63.8	-9.6	-6.9
L-M	13-N	13N	66.9	66.5	59.7	63.4	-7.2	-3.1	68.5	68.0	62.0	65.68	-6.5	-2.3

Note: Receptors shielded by the tunnel are not included as tunnels are part of the original alignment design and not a mitigation measure.

2.3 Noise Mitigation Results for Plaza B1/Crossing B

As was discussed earlier in Section 1, noise levels from the approach roadway to Plaza B1 are predicted to cause a high noise impact in the area between Ojibway Parkway and Malden Road. Therefore, noise mitigation measures are to be considered.

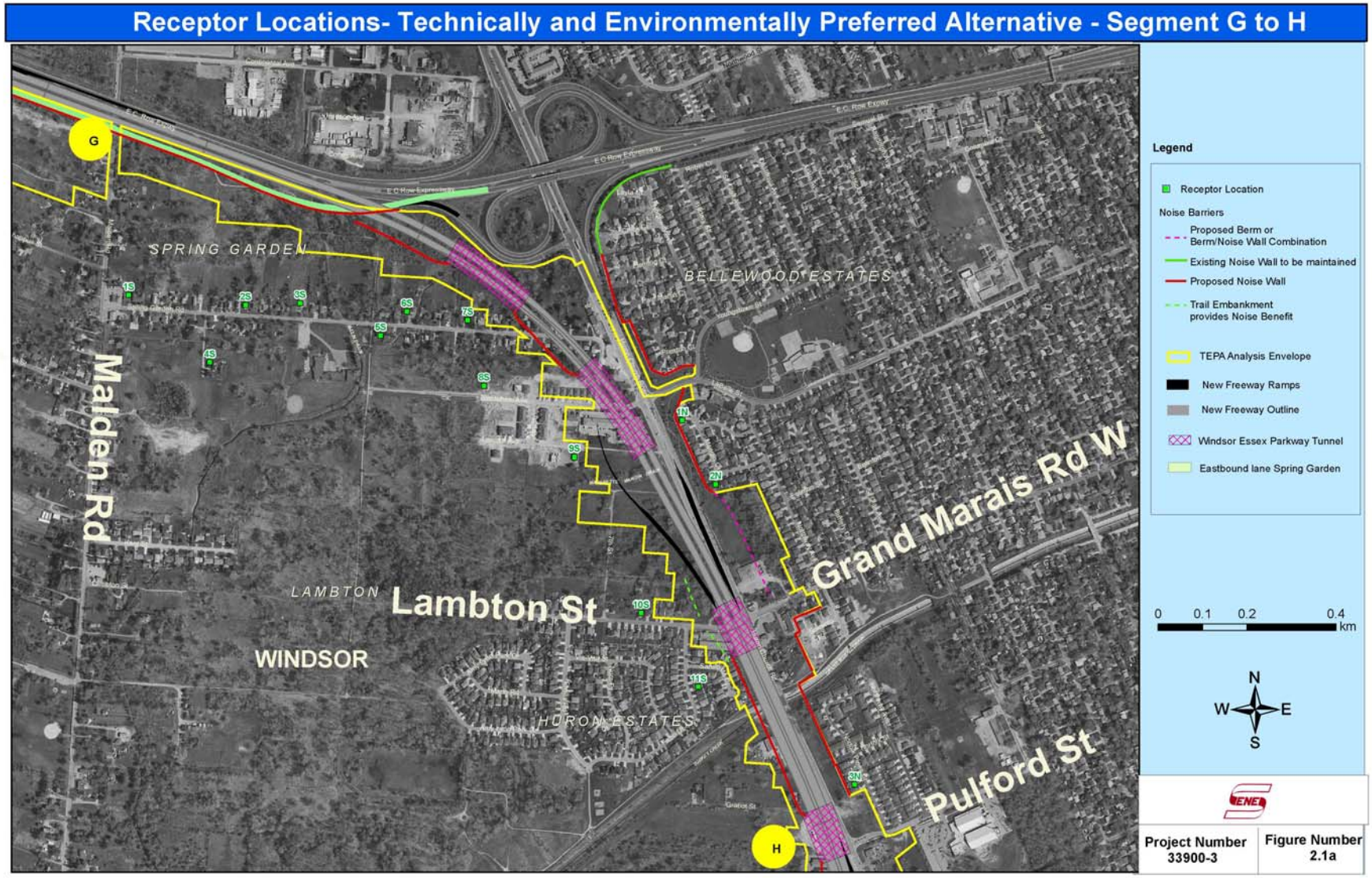
Table 2.2 shows the results of installing a 5m high acoustic barrier on the approach roadway to Plaza B1 for the worst-year noise scenario (2035). The results in the table show that the installation of the 5 m high acoustic barrier is predicted to reduce sound levels to within 5 dB of the predicted future "No-Build" sound levels at all receptors (R22 to R34). Therefore, no additional mitigation measures are deemed necessary for this roadway. The corresponding noise contour depiction is shown as figures 2.3 and 2.4.

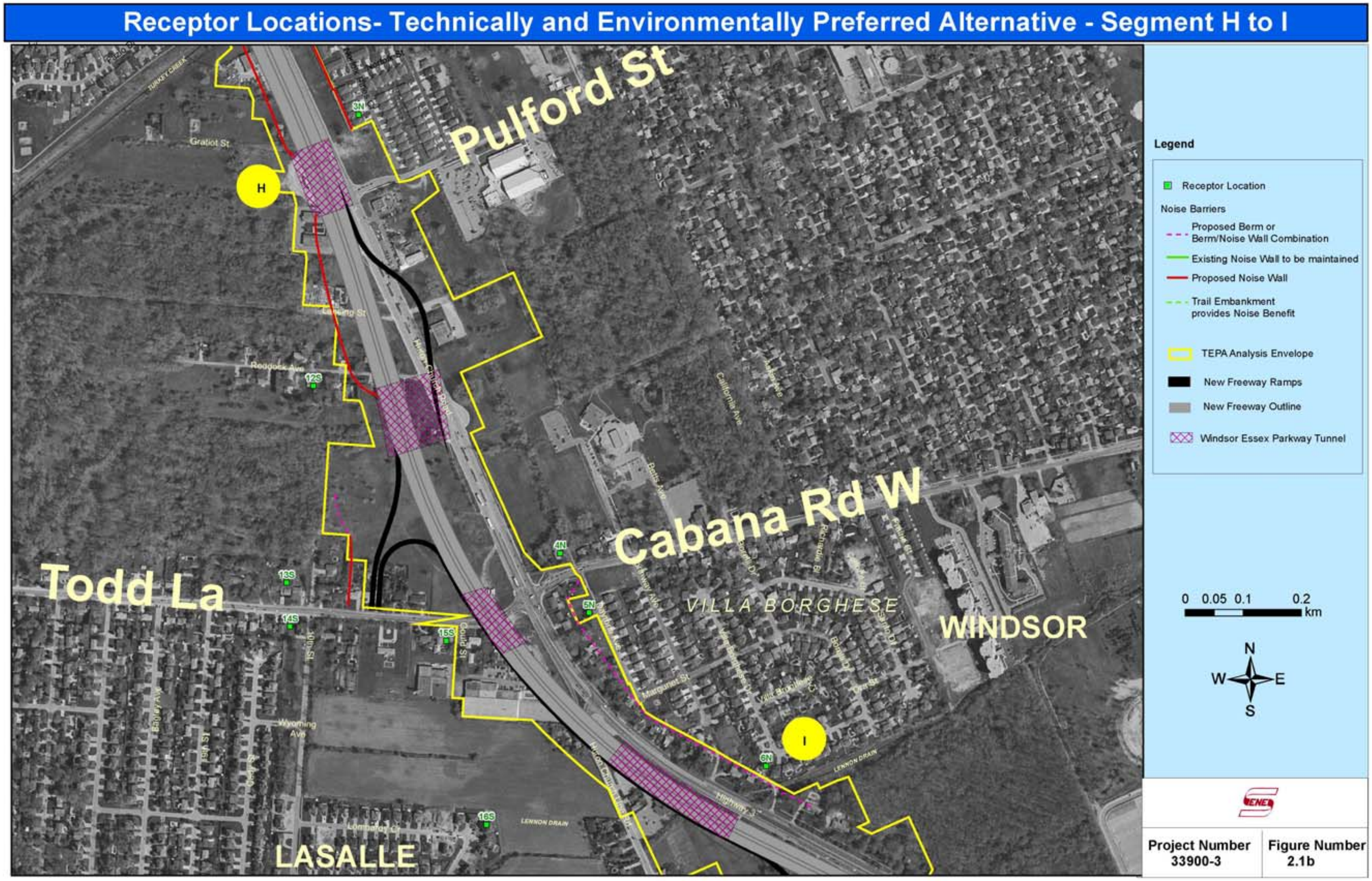
Crossing B is well removed from receptors in Sandwich Towne and the modelling results for all receptors in Sandwich Towne (R1 to R21) indicate that the noise from the crossing is predicted to be within 5 dB of the future "No-Build" sound levels. However, as an additional measure, a 4 m high acoustic barrier was modelled for Crossing B to determine if there was further noise reduction for receptors in Sandwich Towne. These results are also shown on Table 2.2 and they indicate that a barrier on the crossing is not predicted to provide any significant improvement in noise levels to Sandwich Towne receptors. The maximum additional noise reduction is predicted to be less than 2 dB at all receptor locations. Based on these results, it is concluded that an acoustic barrier is not warranted on Crossing B. Corresponding noise contour depictions are shown as figures 2.5 and 2.6.

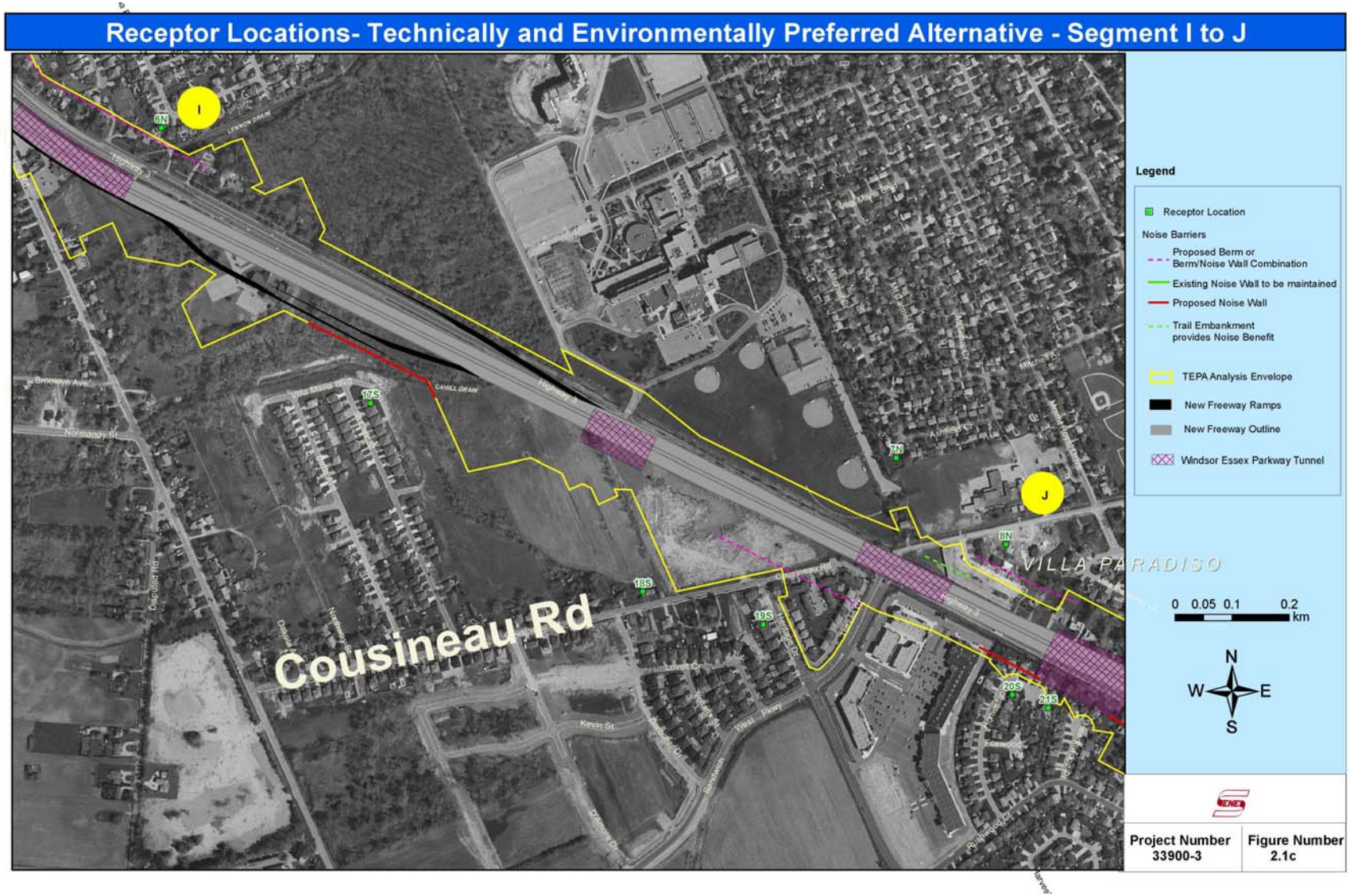
TABLE 2.2 RECEPTOR SOUND LEVELS FOR PLAZA B1 CROSSING B OPTION – 4 M BARRIER ON CROSSING, 5 M BARRIER ON APPROACH AND RAMPS HORIZON YEAR 2035

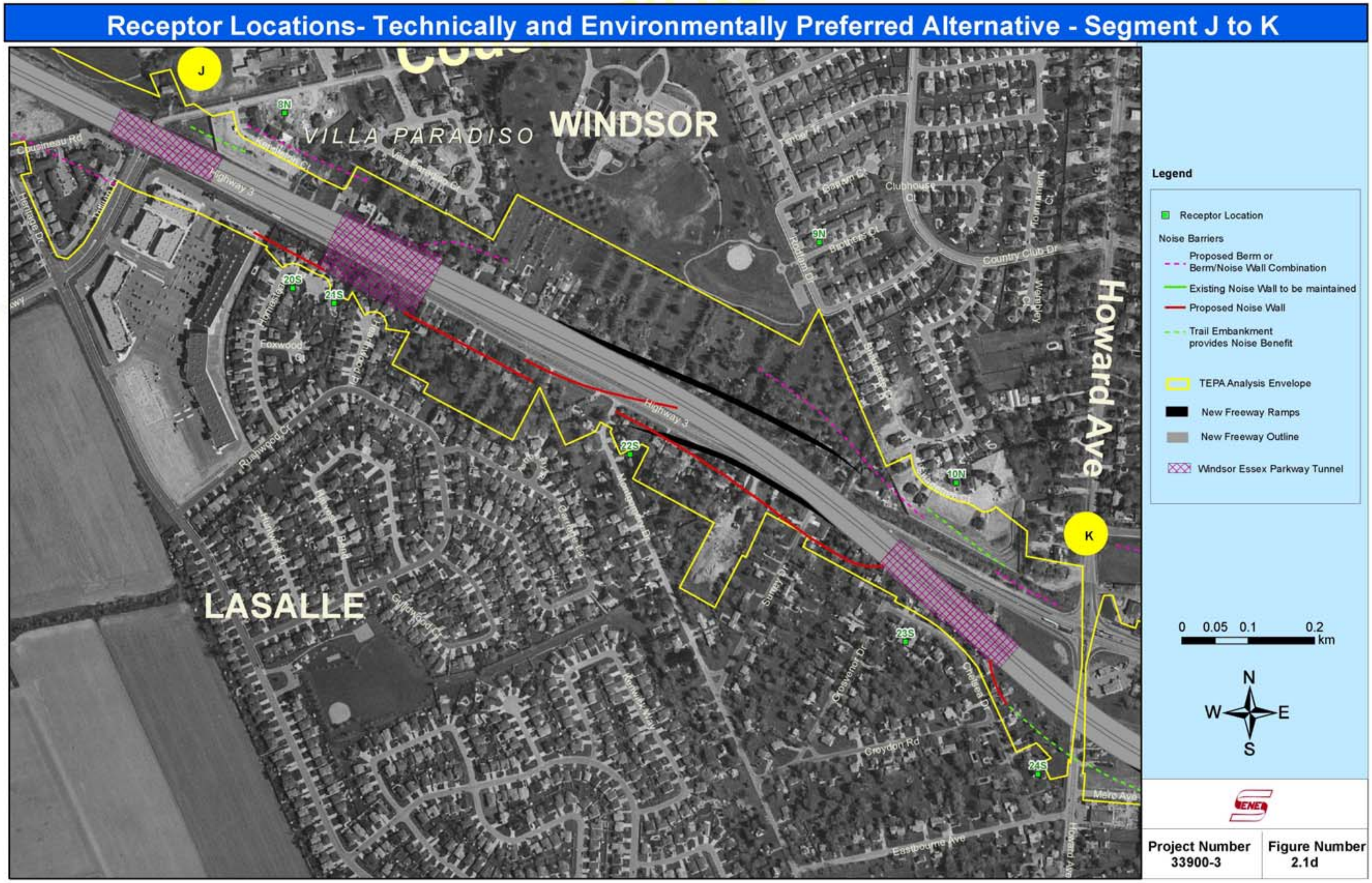
ID	2035 Baseline		2035 w/ 4m Barrier on Crossing and 5 m Barrier on Approach		Difference w Baseline	
	Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)
R1	58.5	53.3	58.9	54.0	0.4	0.7
R2	59.3	55.4	60.0	56.2	0.7	0.8
R3	59.4	61.4	60.0	61.8	0.6	0.4
R4	57.8	53.4	58.3	54.1	0.5	0.7
R5	54.5	49.0	55.1	49.9	0.6	0.9
R6	60.6	63.9	61.0	64.3	0.4	0.4
R7	54.7	49.4	55.1	50.1	0.4	0.7
R8	59.0	53.5	59.5	54.2	0.5	0.7
R9	61.1	56.2	61.6	56.9	0.5	0.7
R10	56.4	54.2	56.9	54.7	0.5	0.5
R11	59.5	59.9	60.0	60.6	0.5	0.7
R12	61.4	59.9	61.7	60.5	0.3	0.6
R13	63.3	54.7	63.8	55.3	0.5	0.6
R14	60.9	63.0	61.3	63.2	0.4	0.2
R15	60.3	62.1	60.8	62.9	0.5	0.8
R16	61.2	54.7	61.6	55.3	0.4	0.6
R17	60.8	55.5	61.2	56.0	0.4	0.5
R18	61.2	62.8	61.7	63.0	0.5	0.2
R19	60.2	60.0	60.6	60.8	0.4	0.8
R20	68.1	62.8	68.7	63.1	0.6	0.3
R21	58.4	62.2	58.7	63.0	0.3	0.8
R22	56.4	50.1	56.4	54.9	0.0	4.8
R23	59.8	53.7	60.3	54.9	0.5	1.2
R24	57.5	51.5	58.2	53.7	0.7	2.2
R25	45.5	41.4	Disp.	Disp.	Disp.	Disp.
R26	61.0	54.7	Disp.	Disp.	Disp.	Disp.
R27	55.4	49.2	56.7	53.6	1.3	4.4
R28	59.8	53.6	60.4	55.5	0.6	1.9
R29	60.2	54.4	60.8	55.7	0.6	1.3
R30	63.2	59.4	63.5	61.6	0.3	2.2
R31	58.5	53.2	59.6	56.6	1.1	3.4
R32	57.5	51.5	Disp.	Disp.	Disp.	Disp.
R33	61.3	55.3	Disp.	Disp.	Disp.	Disp.
R34	61.2	55.4	Disp.	Disp.	Disp.	Disp.

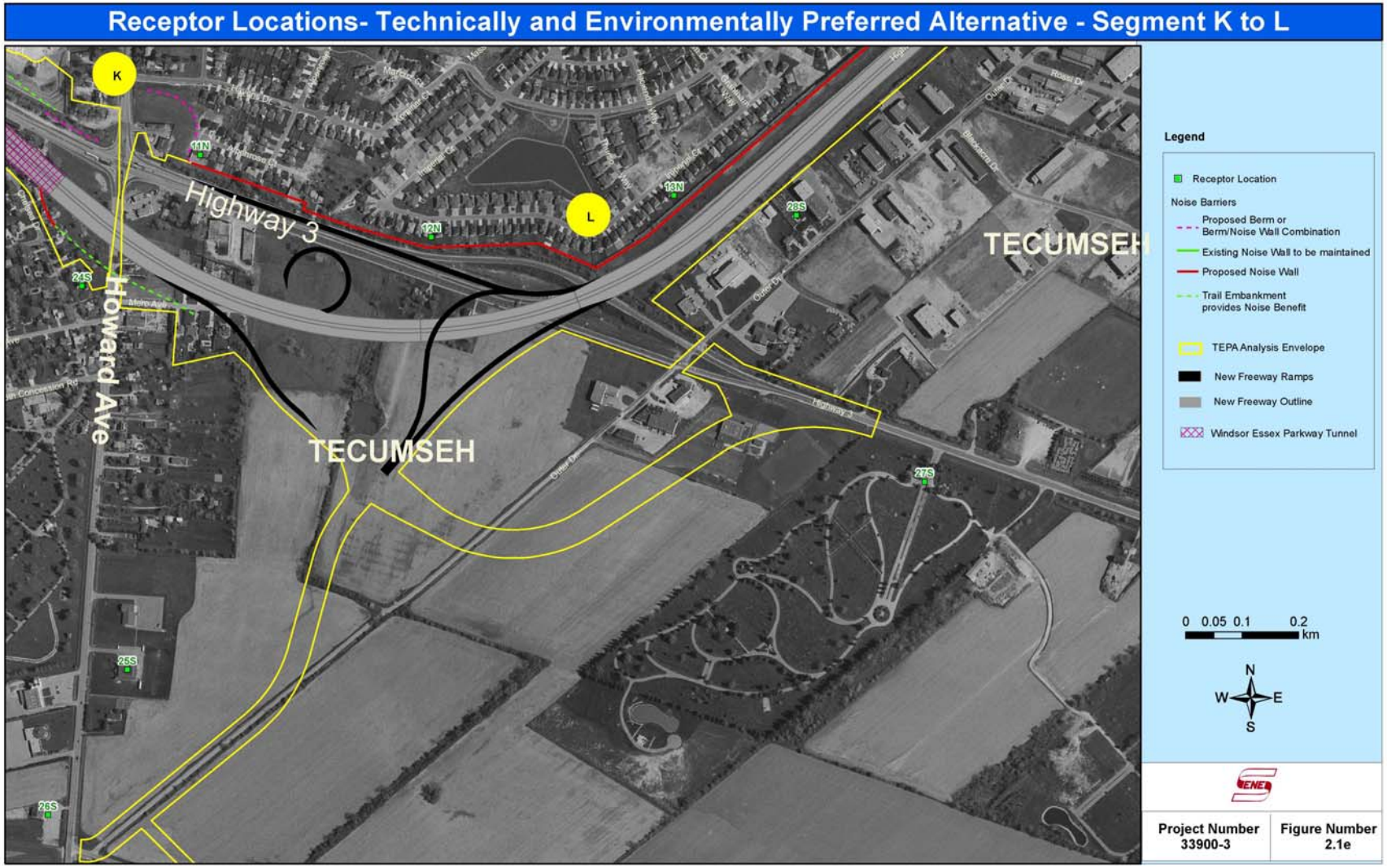
Disp: Receptor was displaced by this Plaza/Crossing Option.


Receptor Locations- Technically and Environmentally Preferred Alternative - Segment G to H
G
H
SPRING GARDEN
BELLEWOOD ESTATES
LAMBTON
WINDSOR
HURON ESTATES
Malden Rd
Lambton St
Grand Marais Rd W
Pulford St
1S
2S
3S
4S
5S
6S
7S
8S
9S
10S
11S
1N
2N
3N
Legend
Receptor Location
Noise Barriers
Proposed Berm or Berm/Noise Wall Combination
Existing Noise Wall to be maintained
Proposed Noise Wall
Trail Embankment provides Noise Benefit
TEPA Analysis Envelope
New Freeway Ramps
New Freeway Outline
Windsor Essex Parkway Tunnel
Eastbound lane Spring Garden
0 0.1 0.2 0.4 km
N
W
E
S
Project Number 33900-3
Figure Number 2.1a


Receptor Locations- Technically and Environmentally Preferred Alternative - Segment H to I
Pulford St
Cabana Rd W
Todd La
VILLA BORGHESE
WINDSOR
LASALLE
H
I
3N
4N
5N
6N
12S
13S
14S
15S
16S
Legend
Receptor Location
Noise Barriers
Proposed Berm or Berm/Noise Wall Combination
Existing Noise Wall to be maintained
Proposed Noise Wall
Trail Embankment provides Noise Benefit
TEPA Analysis Envelope
New Freeway Ramps
New Freeway Outline
Windsor Essex Parkway Tunnel
0 0.05 0.1 0.2 km
N
W
E
S
Project Number 33900-3
Figure Number 2.1b


Receptor Locations- Technically and Environmentally Preferred Alternative - Segment I to J
Cousineau Rd
VILLA PARADISO
Legend
Receptor Location
Noise Barriers
Proposed Berm or Berm/Noise Wall Combination
Existing Noise Wall to be maintained
Proposed Noise Wall
Trail Embankment provides Noise Benefit
TEPA Analysis Envelope
New Freeway Ramps
New Freeway Outline
Windsor Essex Parkway Tunnel
0 0.05 0.1 0.2 km
N
W
E
S
Project Number 33900-3
Figure Number 2.1c


Receptor Locations- Technically and Environmentally Preferred Alternative - Segment J to K
J
K
WINDSOR
VILLA PARADISO
LASALLE
Howard Ave
Highway 3
8N
9N
10N
20S
21S
22S
23S
24S
Legend
Receptor Location
Noise Barriers
Proposed Berm or Berm/Noise Wall Combination
Existing Noise Wall to be maintained
Proposed Noise Wall
Trail Embankment provides Noise Benefit
TEPA Analysis Envelope
New Freeway Ramps
New Freeway Outline
Windsor Essex Parkway Tunnel
0 0.05 0.1 0.2 km
N
W
E
S
Project Number 33900-3
Figure Number 2.1d


Receptor Locations- Technically and Environmentally Preferred Alternative - Segment K to L
K
L
11N
12N
18N
23S
24S
25S
26S
27S
Highway 3
Howard Ave
TECUMSEH
TECUMSEH
Legend
Receptor Location
Noise Barriers
Proposed Berm or Berm/Noise Wall Combination
Existing Noise Wall to be maintained
Proposed Noise Wall
Trail Embankment provides Noise Benefit
TEPA Analysis Envelope
New Freeway Ramps
New Freeway Outline
Windsor Essex Parkway Tunnel
0 0.05 0.1 0.2 km
N
W
E
S
Project Number 33900-3
Figure Number 2.1e

Receptor Locations- Technically and Environmentally Preferred Alternative - Segment L to M

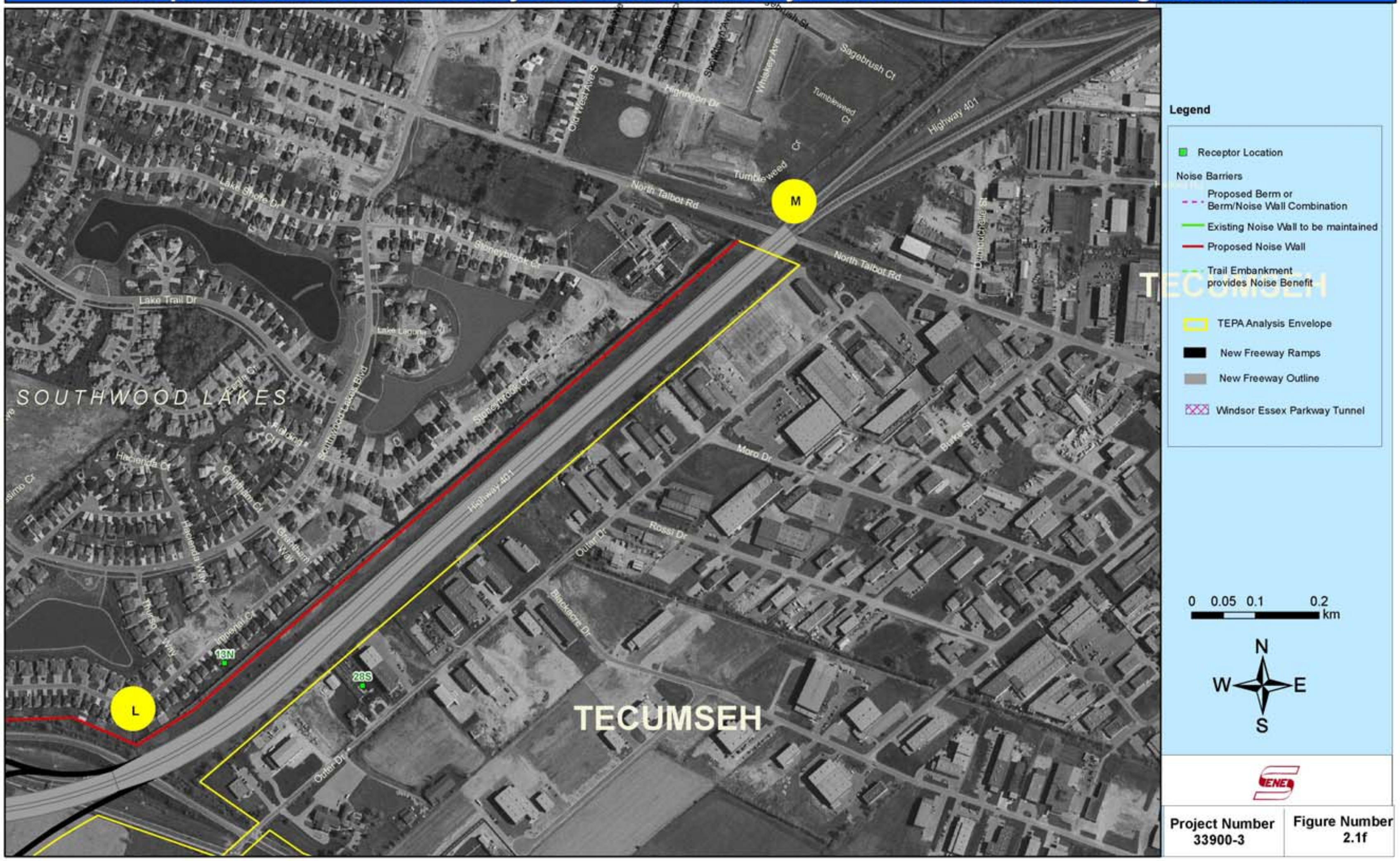


FIGURE 2.2 NOISE MITIGATION FOR PLAZA B1 CROSSING B

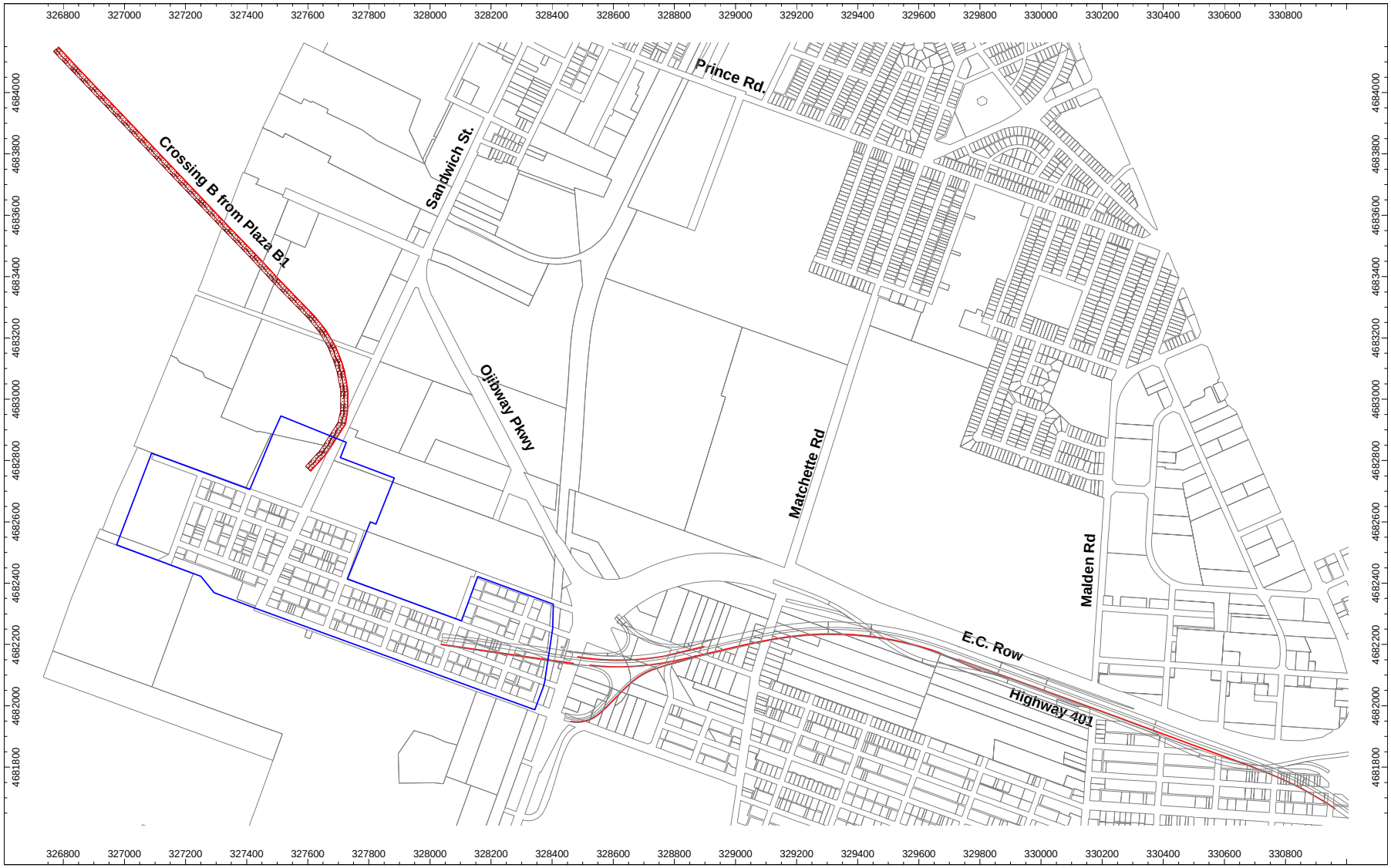


FIGURE 2.3 PLAZA B1 CROSSING B – OJIBWAY PARKWAY TO MALDEN ROAD – DAYTIME 2035 – 5 M BARRIER ON APPROACH AND 4 M BARRIER ON CROSSING

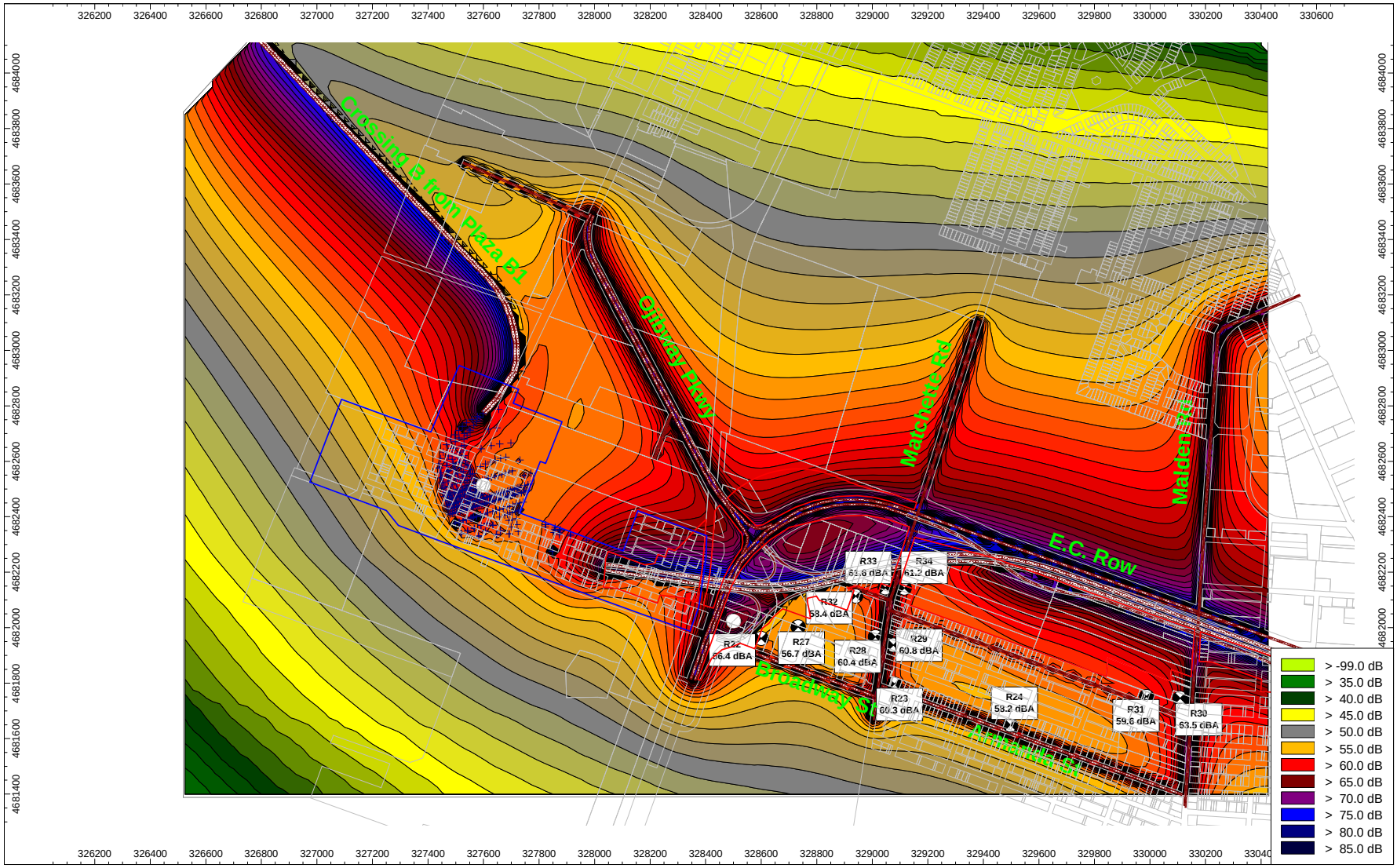


FIGURE 2.4 PLAZA B1 CROSSING B – OJIBWAY PARKWAY TO MALDEN ROAD – NIGHTTIME 2035 – 5 M BARRIER ON APPROACH AND 4 M BARRIER ON CROSSING

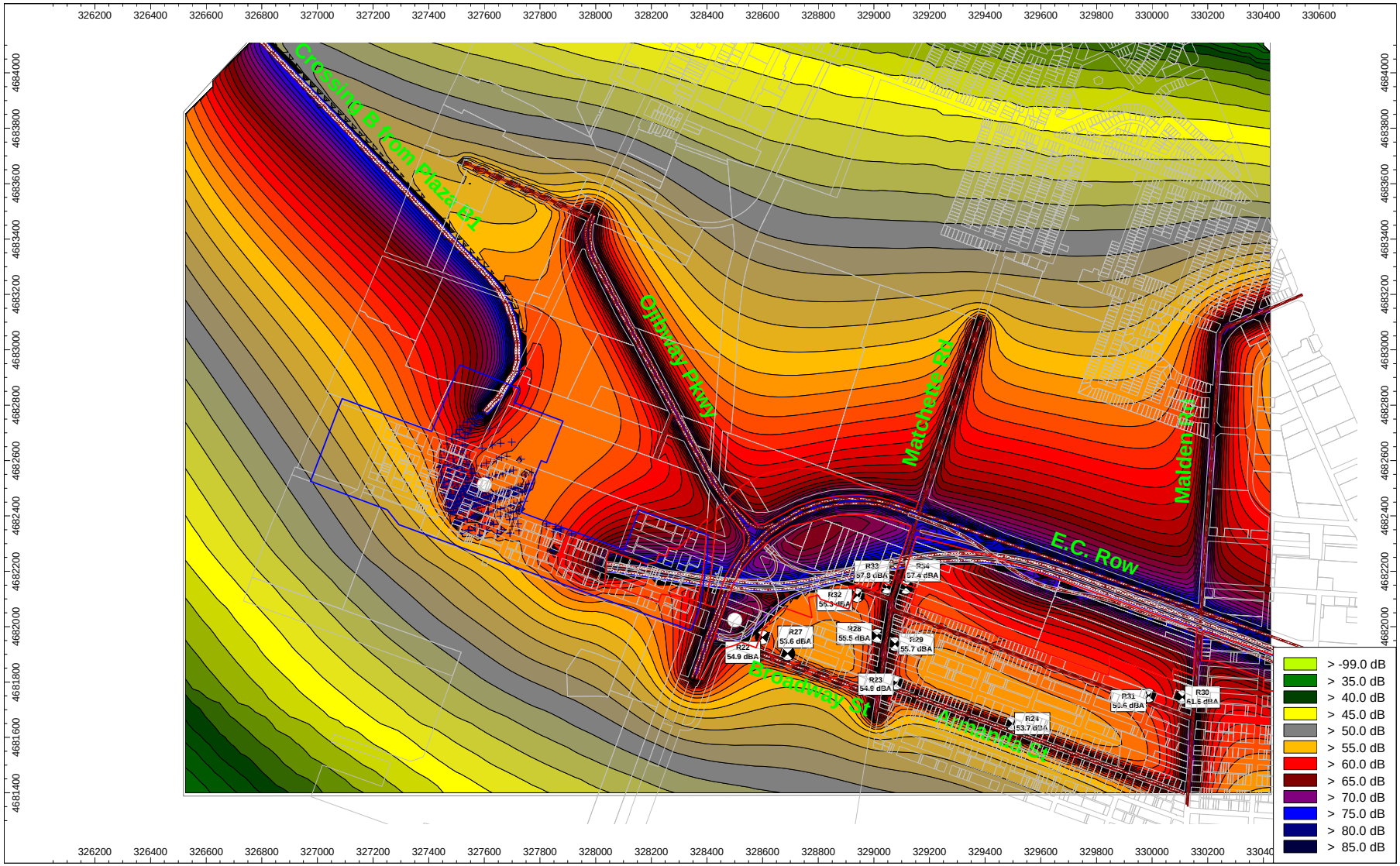


FIGURE 2.5 PLAZA B1 CROSSING B – SANDWICH TOWNE – DAYTIME 2035 – 5 M BARRIER ON APPROACH AND 4 M BARRIER ON CROSSING

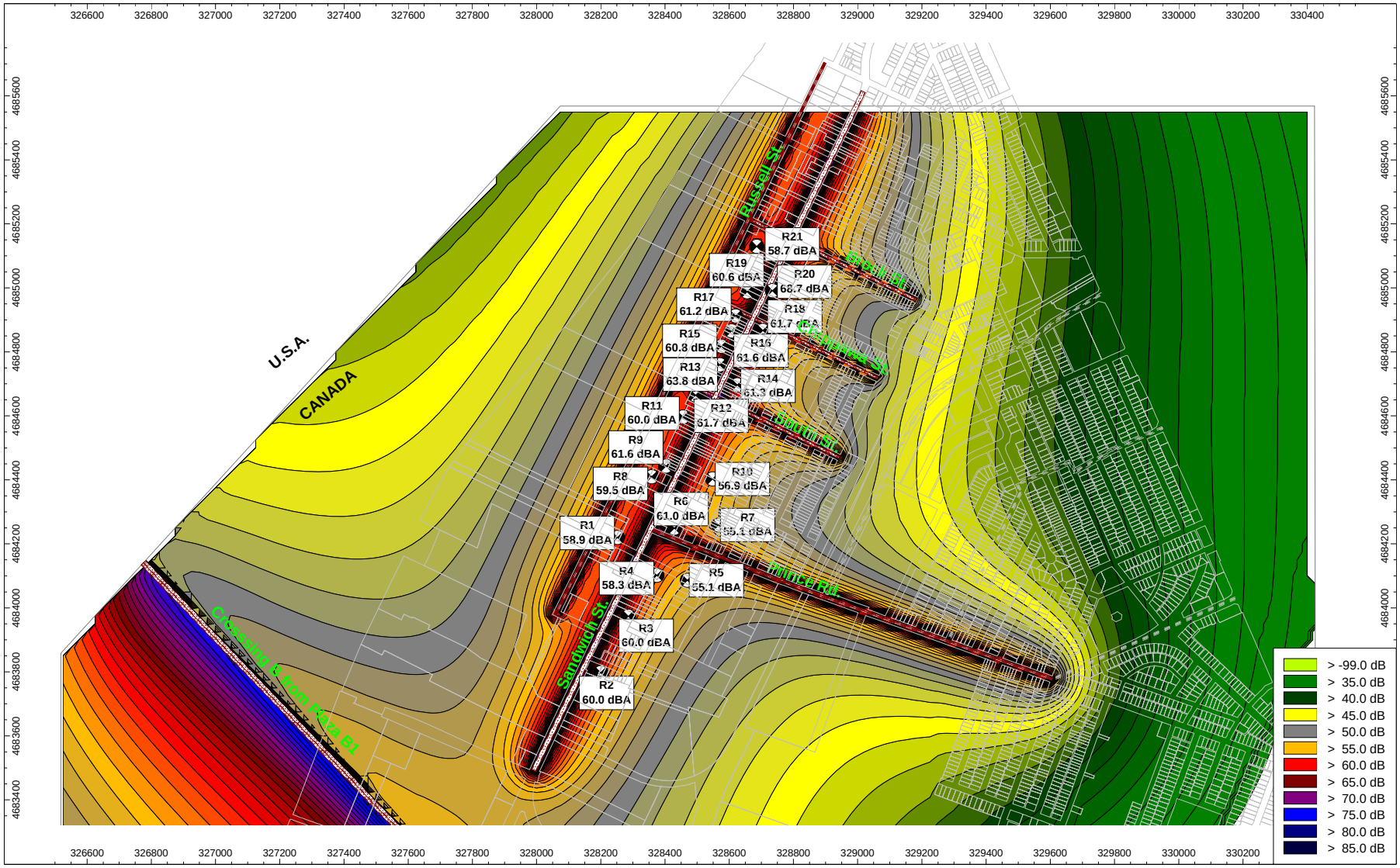
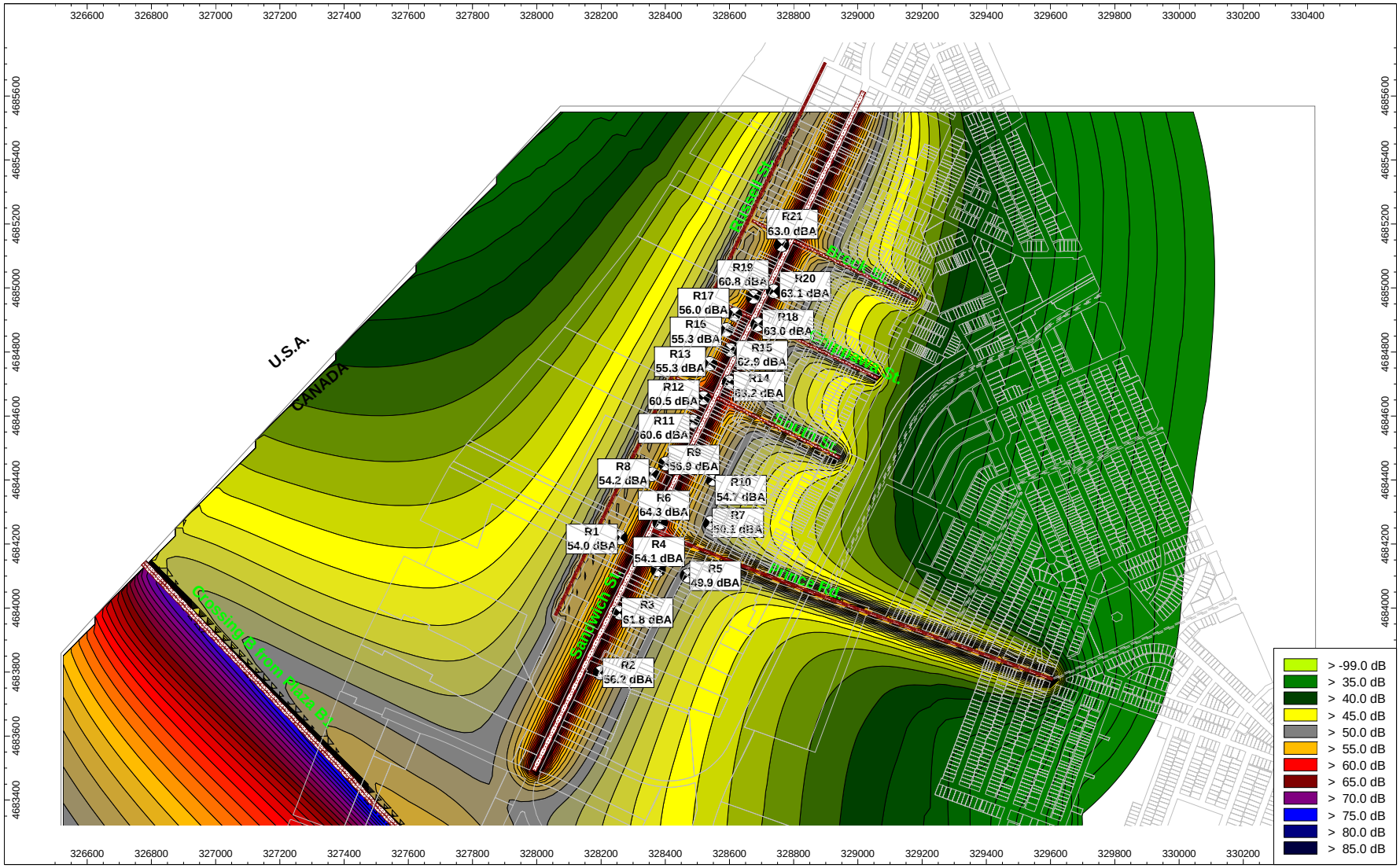


FIGURE 2.6 PLAZA B1 CROSSING B – SANDWICH TOWNE – NIGHTTIME 2035 – 5 M BARRIER ON APPROACH AND 4 M BARRIER ON CROSSING



2.4 Vibration Mitigation Measures

Based on the field monitoring results, it is expected that the vibration levels caused by the proposed project are unlikely to result in structural damage. For this reason, no measures are being proposed to mitigate vibration levels.

3. Follow up and Monitoring

Follow up and monitoring is recommended for noise and vibration during both the construction and operation of the DRIC Project. Follow-up and monitoring during construction is recommended to ensure that:

- all construction equipment used in the DRIC project are in good repair and fitted with functioning mufflers;
- to the greatest extent possible, the most noisy construction activities are limited to daytime hours; and
- construction haul roads are well maintained to prevent potholes and ruts that can cause excessive noise and vibration from vehicles travelling over uneven road surfaces.

In addition, it is recommended that during construction, the DRIC Project develop a process for receiving, investigating and addressing noise and vibration complaints received from the public. As required, noise and vibration monitoring should be performed to develop appropriate mitigation measures.

During the operating phase of the project, at least in the initial year of operation, it is recommended that a similar process be instituted for receiving, investigating and addressing noise and vibration complaints received from the general public. This process will help the MTO to track and determine the effectiveness of noise barrier/berms and other mitigation measures. As required, additional measures and/or improvements to existing measures, may be implemented.

4. Conclusions

This document provides an overview of the noise and vibration impact analyses completed for the TEPA as part of the DRIC Environmental Assessment.

A total of 41 receptors were selected along The Windsor-Essex Parkway for analysis. Baseline future ("No-Build") and project noise levels were estimated at each of the receptors, using the MOE's STAMSON traffic noise model. This was performed for 2015, 2025, and 2035. The impact of the plaza/crossing was assessed based on two groups of receptors: a total of 21 and 13 receptors were identified in Sandwich Towne and areas between Ojibway Parkway to Malden Road, respectively. The CADNA-A noise model was used to estimate receptor noise levels for the plaza and crossing.

Through consultations with other disciplines, and the public, receptors within potentially vulnerable areas were identified for vibration monitoring. Ground vibration levels were measured in 2006 at two locations (side by side) at each of eight receptors.

Based on the noise and vibration analyses completed, the following key conclusions can be drawn:

1. Without mitigation, there is a potential for noise impacts from the TEPA.
2. With a 5 m high barrier in place, the proposed project is predicted to result in no to marginal noise impact for The Windsor-Essex Parkway, except for one receptor located in Spring Garden. The highest exceedance after mitigation is 6 dB (night time) above the future "No-Build" sound levels in the worst-case year 2035. It should also be noted that for many receptors, especially along the north side of the Windsor-Essex Parkway, a decrease in noise levels compared to future "No-Build" noise levels was predicted.
3. For Plaza B1, a potential noise impact was identified for receptors in the Ojibway Parkway to Malden Road areas that are in the vicinity of the proposed approach roadway. However, the receptor sound levels can be reduced to within 5 dB above the future "No-Build" sound levels with a 5 m high acoustic barrier installed on the proposed approach roadway. Due to the relatively large distance between Crossing B and the closest receptors in Sandwich Towne, no noise mitigation measures are proposed for the Crossing.
4. The Windsor-Essex Parkway is not expected to cause vibrations in the 50 mm/sec range; therefore, no structural damage is anticipated from vehicular traffic.
5. There are several route segments with receptors within 25 m from the edge of the roadway. As noted above, at this distance, there is a potential for receptors along the route to experience vibration levels near the threshold value of 0.14 mm/sec. The area with the highest number of receptors within 25 m is between Malden Road and Pulford Street. The area with the least number of receptors within 25 m is between Highway 3 and North Talbot Road.

Consultations with communities will continue during the design and construction phases of the DRIC Project, to provide additional opportunities for input on noise mitigation measures during both the construction and operation stages.

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Appendix A – Traffic Modelling Parameters

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)

LOCATION	SECTION		2015				24 Hour AADT								16 Hour AADT								8 Hour AADT							
							Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks	
			AM PEAK HOUR		PM PEAK HOUR																									
	FROM	TO	NB	SB	NB	SB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
HC Road	Riverside	University					6735	5369	173	84	3	1	0	3	6296	5020	158	80	3	1	0	3	440	349	15	4	0	0	0	0
	University	Wyandotte					3090	3626	91	118	58	242	20	3	2901	3376	84	113	42	232	19	3	188	251	7	5	16	10	1	0
	Wyandotte	AMB Off Ramp					2285	3005	0	0	37	172	0	0	2126	2782	0	0	25	166	0	0	158	223	0	0	12	7	0	0
	AMB Off Ramp	College					8617	6228	229	94	6211	1	2391	0	7338	5097	181	83	5852	1	1761	0	1279	1131	47	12	359	0	630	0
	College St	Girardot St	1791	824	1486	1710	18255	16675	543	487	6361	4419	205	2512	14775	13863	497	381	5148	4097	193	1802	3480	2811	94	106	1213	322	12	709
	Girardot St	Tecumseh Rd	1719	789	1325	1545	17763	17139	636	571	5615	3744	182	2347	14279	14199	589	456	4553	3507	172	1671	3484	2940	119	115	1062	238	10	676
	Tecumseh Rd	Dorchester St	1788	1072	1668	1709	21118	21024	778	716	5388	3342	186	2185	17295	17118	712	562	4327	3090	175	1538	3823	3906	134	154	1061	251	11	647
	Dorchester St	Prince Rd/Totten St	1891	1128	1608	1770	21714	22815	693	656	4945	3065	159	1997	17615	18537	643	521	3904	2844	150	1427	4099	4278	133	135	1041	221	9	569
	Prince Rd/Totten St	Malden Rd	2033	1334	1827	1951	24278	26074	777	757	4852	3020	180	1940	19786	21062	718	597	3767	2782	170	1424	4492	5011	144	160	1085	238	10	516
	Malden Rd	Industrial Rd	1668	1133	1473	1575	19251	21200	577	580	4904	3155	7	1837	15700	16998	525	441	3916	2902	6	1346	3551	4202	94	138	988	253	0	490
	Industrial Rd	EC Row N. Ramp Terminal	1821	1192	1607	1726	21772	23501	662	652	4735	2918	0	1845	17671	18969	604	500	3788	2683	0	1378	4102	4532	112	152	948	235	0	468
	EC Row N. Ramp Terminal	EC Row S. Ramp Terminal	1342	1491	1172	2010	15712	30308	416	646	4099	2573	0	1516	12725	24361	377	503	3250	2372	0	1121	2987	5947	65	144	849	201	0	394
	S. of EC Row S. Ramp Terminal		1715	1187	1523	1463	20448	22743	527	383	3766	2187	0	1265	16584	18130	475	293	3046	2002	0	975	3864	4612	81	90	721	185	0	291
S Service Rd	N. of Bethlehem Ave		n/a	1187	n/a	1501	0	19685	0	343	0	2215	0	1249	0	18258	0	315	0	2028	0	959	0	1427	0	28	0	187	0	290
	Bethlehem Ave	Grand Marais Rd	n/a	294	n/a	304	0	4783	0	124	0	313	0	0	0	4423	0	112	0	281	0	0	0	360	0	12	0	32	0	0
N Service Rd	N. of Labelle St		1715	n/a	1531	n/a	21702	0	443	0	3356	0	0	0	20039	0	432	0	2682	0	0	0	1663	0	28	0	674	0	0	0
	Labelle St	Grand Marais Rd Ramp	1449	n/a	1436	n/a	21787	0	235	0	1276	0	0	0	20131	0	224	0	1000	0	0	0	1656	0	7	0	276	0	0	0
HC Road	Grand Marais Rd	Pulford St	459	325	295	158	5739	4053	9	25	428	187	0	0	5389	3693	9	22	351	173	0	0	350	360	0	2	77	15	0	0
	Pulford St	Todd Ln/Cabana Rd	438	255	255	227	5800	4210	13	34	0	0	0	0	5448	3897	12	32	0	0	0	0	353	313	1	2	0	0	0	0
	Todd Ln/Cabana Rd	Huron Church Line	1034	450	939	646	15077	9175	174	86	630	294	0	0	13922	8519	174	81	454	279	0	0	1155	656	17	5	176	16	0	0
Talbot Road	Huron Church Line	St Clair College	559	557	762	546	11058	9634	49	57	0	0	0	0	10407	8945	48	54	0	0	0	0	651	690	3	3	0	0	0	0
	St Clair College	Cousineau Dr	816	354	376	592	8007	6624	77	89	1145	1166	0	133	7403	6231	75	82	862	1090	0	73	603	393	4	7	283	76	0	60
	Cousineau Dr	Howard Ave	650	102	417	206	8064	2343	130	45	527	229	0	79	7594	2166	126	41	413	210	0	43	471	178	7	4	115	19	0	35
	Howard Ave	Laurier Extension	690	661	698	721	11366	11161	241	224	0	0	0	0	10631	10262	235	204	0	0	0	0	735	899	15	20	0	0	0	0
	S. of Laurier Extension		583	690	855	756	11771	11680	250	234	0	0	0	0	11010	10739	243	214	0	0	0	0	761	941	15	21	0	0	0	0
Ojibway Pwy	EC Row Expressway	GN Booth Dr	665	409	570	790	9926	9978	137	137	27	14	91	427	9101	9415	135	129	26	12	85	237	825	564	11	8	1	3	5	190
			217	0	503	0	5788	0	80	0	16	0	53	0	5306	0	78	0	15	0	50	0	481	0	6	0	1	0	3	0
			81	0	84	0	1328	0	18	0	4	0	12	0	1218	0	18	0	3	0	11	0	110	0	1	0	0	0	1	0
	GN Booth Dr	Sandwich St	650	420	576	763	9861	9845	136	135	27	15	91	438	9051	9275	134	127	26	12	86	243	810	570	10	8	1	3	5	195
	Sandwich St	Prospect Ave	615	390	540	729	9354	9613	75	78	50	37	0	0	8592	9042	74	74	37	35	0	0	762	571	6	5	13	2	0	0
	N. of Prospect Ave		608	379	539	715	9292	9397	75	77	49	36	0	0	8537	8840	74	72	36	34	0	0	754	556	6	4	13	2	0	0

CROSSING ROADS			WB	EB	WB	EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
Wyandotte	W of HuronChurch						4808	4435	0	0	359	435	0	0	4376	4208	0	0	270	408	0	0	433	226	0	0	90	26	0	0
	E of HuronChurch						2813	4048	21	135	722	937	18	0	2556	3856	19	125	582	893	17	0	256	192	2	11	140	44	1	0
University	W of HuronChurch						1254	1192	0	0	0	0	0	0	1165	1138	0	0	0	0	0	0	89	54	0	0	0	0	0	0
	E of HuronChurch						1947	1986	118	91	70	21	3	20	1828	1903	113	84	66	18	3	19	119	84	5	7	4	3	0	1
Riverside	W of HuronChurch						3390	3487	0	0	0	0	0	0	3124	3285	0	0	0	0	0	0	266	201	0	0	0	0	0	0
	E of HuronChurch						6598	5633	0	0	173	37	0	0	6103	5281	0	0	166	25	0	0	495	353	0	0	7	12	0	0
AMB Off Ramp	E of HuronChurch						0	931	0	43	0	7710	0	3781	0	838	0	35	0	7319	0	2979	0	93	0	8	0	391	0	802
AMB On Ramp	E of HuronChurch						309	0	11	0	5792	0	174	0	180	0	7	0	4630	0	164	0	129	0	5	0	1161	0	10	0
Patricia	AMB	Wyandotte					552	1458	21	57	3367	3412	171	267	364	1335	14	48	3152	2833	139	251	187	123	7	9	215	580	32	16
College St	E. of HC Road		300	349	479	384	6343	5558	168	124	3	535	0	144	5938	5122	166	114	3	503	0	135	405	436	14	10	0	32	0	9
	W. of HC Road		79	38	141	62	1670	752	0	0	197	54	0	0	1559	709	0	0	190	40	0	0	110	43	0	0	8	15	0	0
Girardot St	E. of HC Road		51	86	87	45	1017	1029	0	0	116	130	0	0	957	934	0	0	98	111	0	0	60	96	0	0	17	19	0	0
	W. of HC Road		81	153	191	126	2258	2216	41	25	48	33	0	0	2135	2032	37	24	45	24	0	0	123	185	2	1	3	8	0	0
Tecumseh Rd	E. of HC Road		312	324	394	462	5489	6174	139	148	201	359	0	156	5103	5747	137	139	172	334	0	146	386	426	11	9	29	25	0	9
	W. of HC Road		242	468	524	390	6420	6866	0	0	184	127	0	0	6055	6300	0	0	175	98	0	0	365	567	0	0	9	29	0	0
Dorchester St	E. of HC Road		75	84	131	93	1520	1350	0	0	173	183	0	0	1431	1249	0	0	147	163	0	0	89	101	0	0	25	21	0	0
	W. of HC Road		76	46	86	52	1370	786	26	10	24	11	0	0	1270	728	22	10	22	8	0	0	99	58	2	0	2	3	0	0
Prince Rd/Totten St	E. of HC Road		139	130	115	205	1998	2777	0	0	77	130	0	0	1830	2599	0	0	67	116	0	0	167	177	0	0	10	14	0	0
	W. of HC Road		233	288	315	340	4701	5101	0	0	81	76	0	0	4381	4733	0	0	76	58	0	0	320	367	0	0	5	18	0	0
Malden Rd	E. of HC Road		84	55	85	76	1172	923	0	0	205	203	0	0	1079	861	0	0	182	177	0	0	93	61	0	0	23	26	0	0
	W. of HC Road		429	534	464	470	6798	7406	386	398	553	38	154	576	6318	6820	330	370	444	35	145	287	480	586	29	28	108	2	9	289
Industrial Rd	E. of HC Road		248	145	197	251	3425	3181	49	57	139	172	6	16	3135	2984	49	53	117	157	6	9	290	197	4	4	22	15	0	7
	W. of HC Road		290	93	167	275	3914	2791	158	192	0	0	0	183	3562	2660	143	173	0	0	0	173	352	131	9	19	0	0	0	10
EC Row N. Ramp Terminal	E. of HC Road (E-N/S Off Ramp & S-W On Ramp)		924	110	872	123	13014	1881	270	0	1050	162	0	0	12027	1748	264	0	808	134	0	0	987	132	17	0	242	27	0	0
	W. of HC Road (N-W On Ramp)		36	n/a	30	n/a	420	0	14	0	51	0	122	0	382	0	11	0	42	0	115	0	38	0	1	0	9	0	7	0
EC Row S. Ramp Terminal	E. of HC Road (S-E On Ramp)		n/a	450	n/a	447	0	7341	0	66	0	0	0	0	0	6768	0	61	0	0	0	0	0	573	0	5	0	0	0	0
	W. of HC Road (N-E On Ramp & W-N/S Off Ramp)		364	137	630	208	7642	2447	263	81	451	376	280	0	7167	2274	230	78	432	353	162	0	475	172	18	3	19	23	118	0

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)																															
LOCATION	SECTION	2015				24 Hour AADT								16 Hour AADT								8 Hour AADT									
		AM PEAK HOUR		PM PEAK HOUR		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks			
		WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB																		
Labelle St/Bethlehem Ave	E. of N. Service Rd	248	132	125	120	2670	2014	0	0	234	190	0	0	2416	1848	0	0	175	169	0	0	254	166	0	0	59	20	0	0		
	between N. and S. Service Rd	70	220	90	170	1403	3105	0	0	0	97	0	0	1306	2835	0	0	0	90	0	0	96	270	0	0	0	7	0	0		
	W. of S. Service Rd	100	250	105	150	1803	3251	0	0	2	4	0	0	1669	2949	0	0	2	3	0	0	133	302	0	0	0	1	0	0		
Grand Marais Rd/Lambton Rd	E. of HC Rd	295	200	200	175	3730	3026	0	0	251	244	0	0	3414	2778	0	0	206	224	0	0	317	248	0	0	45	20	0	0		
	W. of HC Rd	45	170	155	75	1647	1912	29	17	38	32	0	0	1570	1718	27	16	36	22	0	0	77	194	1	1	2	9	0	0		
Pulford St	E. of HC Rd	159	98	158	100	2147	1567	0	0	261	195	0	0	1922	1414	0	0	192	165	0	0	225	153	0	0	68	30	0	0		
Todd Ln/Cabana Rd	E. of HC Rd	555	354	544	486	8220	6607	0	0	547	613	0	0	7614	6138	0	0	402	578	0	0	607	469	0	0	144	35	0	0		
	between HC Rd and Hwy 401 Off-ramp	496	577	571	918	9350	11160	0	0	0	1389	0	0	8712	10315	0	0	0	1319	0	0	638	845	0	0	0	70	0	0		
	W. of Hwy 401 Off-ramp	494	413	645	828	9940	10406	0	0	13	10	0	0	9286	9786	0	0	12	8	0	0	654	621	0	0	1	2	0	0		
Huron Church Line	W. of HC Rd	283	525	587	340	7022	6398	93	98	341	345	0	0	6638	5840	89	88	325	244	0	0	383	558	4	10	16	100	0	0		
St Clair College	E. of Talbot Rd	140	763	223	267	2914	9043	0	0	95	277	0	0	2738	8056	0	0	77	231	0	0	177	987	0	0	18	46	0	0		
Cousineau Dr	E. of Talbot Rd	254	280	501	382	5201	4740	0	0	1120	1037	0	0	4805	4452	0	0	1043	852	0	0	396	288	0	0	77	185	0	0		
	W. of Talbot Rd	261	397	559	314	7099	5807	0	0	0	0	0	0	6718	5288	0	0	0	0	0	0	381	519	0	0	0	0	0	0		
Howard Ave	E. of Talbot Rd	390	418	490	552	7585	7941	133	148	0	3	0	0	7062	7406	111	139	0	2	0	0	523	536	11	9	0	0	0	0		
	W. of Talbot Rd	292	472	539	442	6746	7837	152	183	13	17	0	0	6278	7258	150	172	10	16	0	0	468	579	12	11	3	1	0	0		
Laurier Extension	W. of Talbot Rd/Hwy 3	282	398	519	346	6500	6380	146	149	13	14	0	0	6048	5909	144	140	10	13	0	0	451	471	11	9	3	1	0	0		
EC Row Expressway	W. of Ojibway Pwy	855	948	1293	796	17338	14583	417	718	24	0	80	0	16081	13592	406	651	23	0	75	0	1256	991	24	66	1	0	5	0		
	W. of Broadway St	838	1973	1430	1367	15754	26844	206	611	3768	0	100	0	14909	24608	197	566	3042	0	94	0	845	2235	8	45	727	0	6	0		
	E. of Huron Church Rd	2138	2124	2209	2834	31755	37865	679	775	2215	3256	393	1170	29416	35184	661	714	1709	3044	309	858	2339	2681	41	62	506	213	84	312		
	At Malden Rd	1383	1447	1525	1965	21294	24508	456	539	1332	3374	556	1040	19749	22735	444	496	1032	3143	456	808	1545	1773	26	44	300	231	100	232		
	W. of Matchette	766	412	916	520	12762	7790	356	383	20	0	68	0	12280	7261	350	348	19	0	64	0	623	529	21	35	1	0	4	0		
GN Booth Dr	W. of Ojibway Pwy	27	10	13	44	346	448	7	8	4	5	0	0	313	430	6	7	4	4	0	0	32	18	1	0	0	1	0	0		
Sandwich St	W. of Ojibway Pwy	74	69	101	97	1361	1261	148	91	24	35	0	0	1275	1174	120	86	19	34	0	0	86	88	14	5	5	2	0	0		
Prospect Ave	W. of Ojibway Pwy	29	33	9	21	331	426	7	4	4	7	0	0	298	387	5	4	3	5	0	0	34	39	1	0	0	2	0	0		

HIGHWAY 401 Mainline	2015																													
	NB	SB	NB	SB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
S. of Hwy 3 merge/split	1110	930	1260	1520	11418	10688	322	249	3100	3035	5113	7557	10076	8806	267	198	2696	2774	3519	6033	1342	1882	41	51	404	261	1595	1525		
N. of Howard Ave	718	1172	996	1450	7630	11262	237	275	2666	3633	3682	7704	6803	9061	196	217	2236	3334	2490	6107	827	2201	32	58	430	299	1191	1598		
At Grand Marais Rd	1217	1450	1252	2163	12387	17304	301	374	3344	5005	3589	8013	10869	14159	251	300	2744	4620	2441	6314	1518	3144	46	74	600	385	1148	1699		
E. of Malden Rd	458	557	402	1001	1927	3275	57	90	1615	3230	3992	7937	1687	2684	47	73	1362	2986	2768	6159	240	591	11	17	253	244	1224	1778		
To/From Canadian Plaza	790	450	440	1570	0	3	2	4	4203	8626	5784	9346	0	3	2	3	3381	8024	4080	7297	0	0	1	1	823	602	1704	2049		

HIGHWAY 401 Ramps	2015																													
	AM PEAK HOUR		PM PEAK HOUR																											
Hwy 3 merge/split					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp (prior to Highway 3 / Laurier split)	880		874		11849	0	255	0	1529	0	603	0	10368	0	213	0	1454	0	462	0	1481	0	46	0	75	0	141	0		
401 NB On Ramp	488		610		8557	0	165	0	0	0	0	0	7537	0	138	0	0	0	0	0	1020	0	31	0	0	0	0	0		
401 SB Off Ramp		519		569	0	8492	0	168	0	0	0	0	0	6848	0	143	0	0	0	0	0	1644	0	25	0	0	0	0		
401 SB On Ramp		344		340	0	4321	0	111	0	986	0	238	0	3618	0	94	0	794	0	153	0	703	0	17	0	192	0	84		
At Howard Ave					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB																		
401 NB On Ramp	47		47		731	0	14	0	0	0	0	0	644	0	12	0	0	0	0	0	87	0	3	0	0	0	0	0		
401 SB On Ramp		189		357	0	3454	0	89	0	788	0	190	0	2892	0	76	0	635	0	122	0	562	0	14	0	153	0	67		
At St. Clair College					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp	185		429		4535	0	17	0	0	0	0	0	3819	0	15	0	0	0	0	0	716	0	5	0	0	0	0	0		
401 SB Off Ramp (direct ramp to Hwy 3)		307		371	0	4632	0	59	0	615	0	0	0	3774	0	51	0	581	0	0	0	859	0	8	0	33	0	0		
401 SB On Ramp		169		101	0	2144	0	11	0	0	0	0	0	1738	0	9	0	0	0	0	0	406	0	1	0	0	0	0		
At Todd Ln / Cabana Rd					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB On Ramp	684		639		7872	0	108	0	970	0	0	0	6453	0	92	0	679	0	0	0	1419	0	34	0	291	0	0	0		
401 SB Off Ramp (direct ramp to Todd lane)		321		683	0	6858	0	88	0	910	0	0	0	5587	0	76	0	861	0	0	0	1271	0	12	0	49	0	0		
401 SB On Ramp (loop)		181		240	0	3328	0	16	0	0	0	0	0	2697	0	14	0	0	0	0	0	630	0	2	0	0	0	0		
At Huron Church Rd					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp	759		850		10055	0	235	0	1824	0	0	0	8804	0	196	0	1470	0	0	0	1250	0	35	0	354	0	0	0		
401 SB On Ramp		893		1162	0	13008	0	267	0	2012	0	1276	0	10650	0	214	0	1846	0	997	0	2358	0	53	0	166	0	279		
Hwy 401 to EC Row Expressway					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 SB Off Ramp		625		1070	0	9455	0	227	0	2861	0	820	0	7787	0	181	0	2685	0	661	0	1668	0	46	0	176	0	159		
EC Row Expressway to Hwy 401					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB On Ramp	226		108		0	0	0	0	1367	0	808	0	0	0	0	0	1036	0	420	0	0	0	0	0	331	0	107	0		
Ojibway Pkwy IC					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp	125		98		1609	0	171	0	0	0	0	0	1365	0	75	0	0	0	0	0	233	0	21	0	0	0	0	0		
401 NB On Ramp	228		80		0	0	0	0	1568	0	352	0	0	0	0	0	545	0	173	0	0	0	0	0	233	0	157	0		
401 SB Off Ramp		70		211	0	236	0	19	0	1792	0	0	0	225	0	19	0	1660	0	0	0	11	0	1	0	132	0	0		
401 SB On Ramp		802		712	0	11704	0	340	0	0	0	0	0	9499	0	269	0	0	0	0	0	2204	0	70	0	0	0	0		

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)																															
LOCATION	SECTION		2015				24 Hour AADT								16 Hour AADT								8 Hour AADT								
			AM PEAK HOUR		PM PEAK HOUR		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		
	FROM	TO	NB	SB	NB	SB																									
Highway 401 Mainline Vol	S. of Hwy 3 merge/split	Hwy 3/ 401 NB Off Ramp	1110		1260		11418	0	322	0	3100	0	5113	0	10076	0	267	0	2696	0	3519	0	1342	0	41	0	404	0	1595	0
	Hwy 3/ 401 NB Off Ramp	Hwy 3/401 NB On Ramp	230		386		1664	0	67	0	1318	0	2289	0	1475	0	55	0	1130	0	1529	0	189	0	9	0	188	0	760	0
	Hwy 3/401 NB On Ramp	Howard NB On Ramp	718		996		7630	0	237	0	2666	0	3682	0	6803	0	196	0	2236	0	2490	0	827	0	32	0	430	0	1191	0
	Howard NB On Ramp	St. Clair/401 NB Off Ramp	765		1042		8048	0	250	0	2812	0	3883	0	7175	0	207	0	2358	0	2627	0	873	0	34	0	454	0	1257	0
	St. Clair/401 NB Off Ramp	Pulford/401 NB On Ramp	533		613		4828	0	194	0	2123	0	2713	0	4377	0	160	0	1839	0	1953	0	450	0	21	0	283	0	760	0
	Pulford/401 NB On Ramp	HC Rd/401 NB Off Ramp	1217		1252		11387	0	371	0	4163	0	4864	0	10243	0	306	0	3571	0	3496	0	1144	0	41	0	592	0	1368	0
	HC Rd/401 NB Off Ramp	EC ROW to 401 NB On Ramp	458		402		1693	0	49	0	1165	0	4044	0	1486	0	41	0	956	0	2751	0	208	0	7	0	209	0	1293	0
	EC ROW to 401 NB On Ramp	Ojibway Pkway/401 NB Off Ramp	**684**		**510**		**2351**	**0**	**68**	**0**	**2075**	**0**	**5614**	**0**	**2063**	**0**	**57**	**0**	**1702**	**0**	**3819**	**0**	**288**	**0**	**10**	**0**	**372**	**0**	**1654**	**0**
	Ojibway Pkway/401 NB Off Ramp	Ojibway Pkway/401 NB OnRamp	**560**		**412**		**0**	**0**	**0**	**0**	**3266**	**0**	**4519**	**0**	**0**	**0**	**0**	**0**	**2051**	**0**	**3158**	**0**	**0**	**0**	**0**	**0**	**485**	**0**	**1467**	**0**
	Ojibway Pkway/401 NB OnRamp	Canadian Plaza	790		440		0	0	0	0	4203	0	5784	0	0	0	0	0	3381	0	4080	0	0	0	0	0	823	0	1704	0
	Canadian Plaza	Ojibway/401 SB Off Ramp		450		1570	0	3	0	4	0	8626	0	9346	0	3	0	3	0	8024	0	7297	0	0	0	1	0	602	0	2049
	Ojibway/401 SB Off Ramp	Ojibway/401 SB On Ramp		380		1359	0	3	0	4	0	7411	0	8107	0	3	0	3	0	6886	0	6299	0	0	0	1	0	525	0	1808
	Ojibway/401 SB On Ramp	401 to EC ROW SB Off Ramp		1182		2071	0	13915	0	496	0	5881	0	7056	0	11348	0	403	0	5480	0	5577	0	2567	0	93	0	401	0	1479
	401 to EC ROW SB Off Ramp	HC Rd/401 SB On Ramp		557		1001	0	3857	0	273	0	3121	0	7082	0	3146	0	225	0	2875	0	5400	0	711	0	48	0	246	0	1682
	HC Rd/401 SB On Ramp	Pulford/401 SB Off Ramp		1450		2163	0	17304	0	374	0	5005	0	8013	0	14159	0	300	0	4620	0	6314	0	3144	0	74	0	385	0	1699
	Pulford/401 SB Off Ramp	Todd/401 SB On Ramp		1129		1480	0	12495	0	270	0	3614	0	5787	0	10225	0	217	0	3336	0	4560	0	2271	0	53	0	278	0	1227
	Todd/401 SB On Ramp	St Clair 401 SB Off Ramp		1309		1719	0	15211	0	318	0	3701	0	5787	0	12238	0	251	0	3397	0	4587	0	2973	0	67	0	305	0	1200
	St Clair/401 SB Off Ramp	St Clair/401 SB On Ramp		1002		1348	0	9794	0	257	0	3604	0	5596	0	8037	0	202	0	3310	0	4399	0	1757	0	55	0	294	0	1198
	St Clair/401 SB On Ramp	Howard SB On Ramp		1172		1450	0	11262	0	275	0	3633	0	7704	0	9061	0	217	0	3334	0	6107	0	2201	0	58	0	299	0	1598
	Howard SB On Ramp	Hwy 3/401 SB Off Ramp		1361		1807	0	13822	0	322	0	3925	0	9773	0	11388	0	256	0	3588	0	7801	0	2434	0	66	0	337	0	1972
	Hwy 3/401 SB Off Ramp	Hwy 3/401 SB On Ramp		842		1238	0	8530	0	204	0	3073	0	6197	0	7118	0	167	0	2859	0	5136	0	1412	0	37	0	215	0	1060
	Hwy 3/401 SB On Ramp	S. of Hwy 3 merge/split		930		1520	0	10688	0	249	0	3035	0	7557	0	8806	0	198	0	2774	0	6033	0	1882	0	51	0	261	0	1525
Malden	Chappus	401 S. Ramp	585	589	540	738	7966	10186	345	490	655	804	0	0	7361	9444	341	461	501	748	0	0	605	742	29	29	154	56	0	0
	401 S. Ramp	401 N. Ramp	625	389	620	528	8856	7008	383	341	718	567	0	0	8202	6512	378	321	553	529	0	0	654	496	31	20	165	38	0	0
	N. of 401 N. Ramp		425	429	470	568	6410	7630	276	370	510	613	0	0	5957	7085	272	348	397	571	0	0	453	545	21	22	113	42	0	0
Matchette	Chappus	EC Row S. Ramp	522	380	441	567	8363	7730	0	0	149	203	0	0	7702	7211	0	0	123	195	0	0	661	519	0	0	27	8	0	0
	EC Row S. Ramp	EC Row N. Ramp	167	436	129	630	2477	8734	0	0	144	182	0	0	2277	8141	0	0	117	175	0	0	199	593	0	0	27	7	0	0
	EC Row N. Ramp	Carmichael	287	136	264	255	4744	3150	0	0	117	153	0	0	4381	2957	0	0	96	147	0	0	364	194	0	0	21	6	0	0

Hwy 3 merge/split					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB Off Ramp (to Highway 3)	604		474		7283		157		940		371		6373	0	131	0	894	0	284	0	911	0	28	0	46	0	87	0
401 NB Off Ramp (to Laurier split)	276		400		4566		98		589		232		3995	0	82	0	560	0	178	0	571	0	18	0	29	0	54	0

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)

LOCATION	SECTION		2025				24 Hour AADT								16 Hour AADT								8 Hour AADT							
							Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks	
			AM PEAK HOUR		PM PEAK HOUR																									
	FROM	TO	NB	SB	NB	SB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
HC Road	Riverside	University					6800	5480	184	89	3	1	0	41	6338	5128	167	85	3	1	0	39	462	351	17	4	0	0	0	2
	University	Wyandotte					3052	3697	91	121	67	233	23	41	2852	3445	83	116	51	223	22	39	200	253	8	5	16	10	1	2
	Wyandotte	AMB Off Ramp					2234	3061	0	0	46	163	0	0	2075	2838	0	0	32	157	0	0	159	223	0	0	13	6	0	0
	AMB Off Ramp	College					8494	6347	234	100	6673	1	2947	0	7169	5212	184	88	6300	1	2307	0	1325	1134	51	12	373	0	640	0
	College St	Girardot St	1809	849	1561	1778	18669	16795	572	497	6714	4695	263	2978	15170	13870	520	383	5459	4368	248	2271	3500	2925	92	114	1255	327	15	708
	Girardot St	Tecumseh Rd	1722	825	1407	1627	18255	17710	683	597	5954	4048	237	2803	14773	14613	626	472	4857	3802	223	2120	3482	3098	120	125	1097	246	13	682
	Tecumseh Rd	Dorchester St	1758	1093	1767	1786	21600	21412	834	741	5636	3507	240	2539	17825	17387	757	578	4559	3257	226	1907	3775	4025	134	164	1076	250	14	632
	Dorchester St	Prince Rd/Totten St	1843	1151	1716	1845	22280	23208	743	678	5128	3231	207	2353	18234	18808	682	534	4091	3010	195	1793	4046	4401	130	144	1037	220	12	560
	Prince Rd/Totten St	Malden Rd	2011	1397	1932	2050	24902	27007	831	798	5032	3187	233	2165	20423	21724	761	623	3939	2947	220	1737	4479	5283	143	175	1093	239	13	428
	Malden Rd	Industrial Rd	1664	1154	1479	1716	19169	22115	608	631	4976	3389	8	2120	15647	17724	549	478	3976	3139	8	1711	3521	4391	94	153	1000	250	0	409
	Industrial Rd	EC Row N. Ramp Terminal	1844	1183	1677	1885	22450	24431	704	687	4868	3056	0	2066	18287	19795	639	525	3897	2831	0	1689	4164	4636	113	162	971	225	0	376
	EC Row N. Ramp Terminal	EC Row S. Ramp Terminal	1354	1579	1196	2235	15806	32888	438	713	4242	2742	0	1746	12880	26465	394	553	3331	2544	0	1417	2926	6423	65	160	912	198	0	330
	S. of EC Row S. Ramp Terminal		1931	1217	1711	1658	22750	24601	614	422	4375	2255	0	1423	18537	19716	552	325	3489	2080	0	1227	4213	4885	90	97	886	175	0	196
S Service Rd	N. of Bethlehem Ave		n/a	1217	n/a	1665	0	21124	0	380	0	2245	0	1374	0	19613	0	349	0	2070	0	1181	0	1510	0	30	0	176	0	193
	Bethlehem Ave	Grand Marais Rd	n/a	323	n/a	319	0	5139	0	137	0	333	0	0	0	4745	0	124	0	300	0	0	0	394	0	13	0	33	0	0
N Service Rd	N. of Labelle St		1901	n/a	1720	n/a	23981	0	514	0	3821	0	0	0	22179	0	502	0	3016	0	0	0	1802	0	33	0	806	0	0	0
	Labelle St	Grand Marais Rd Ramp	1616	n/a	1616	n/a	24437	0	282	0	1408	0	0	0	22585	0	270	0	1107	0	0	0	1852	0	10	0	301	0	0	0
HC Road	Grand Marais Rd	Pulford St	504	358	307	180	6190	4554	9	15	431	173	0	0	5804	4156	9	14	348	159	0	0	386	399	0	1	83	14	0	0
	Pulford St	Todd Ln/Cabana Rd	479	315	286	237	6394	4857	13	23	11	0	0	0	6009	4475	12	22	11	0	0	0	385	382	1	1	0	0	0	0
	Todd Ln/Cabana Rd	Huron Church Line	1109	495	997	735	15998	10256	195	93	722	358	0	0	14773	9530	195	88	519	339	0	0	1225	725	20	5	204	19	0	0
Talbot Road	Huron Church Line	St Clair College	614	601	812	580	11896	10307	86	67	0	0	0	0	11185	9565	84	63	0	0	0	0	711	742	5	4	0	0	0	0
	St Clair College	Cousineau Dr	839	396	384	609	8149	6995	85	93	1214	1262	0	190	7533	6568	83	86	918	1175	0	105	616	428	5	7	296	87	0	85
	Cousineau Dr	Howard Ave	648	103	431	206	8086	2324	130	42	595	243	0	100	7627	2147	125	39	466	222	0	55	459	176	6	4	129	21	0	45
	Howard Ave	Laurier Extension	706	739	778	752	12176	12019	253	237	0	0	0	0	11418	11026	246	216	0	0	0	0	758	994	15	21	0	0	0	0
	S. of Laurier Extension		596	771	953	788	12710	12577	264	248	0	0	0	0	11918	11538	257	226	0	0	0	0	791	1040	15	22	0	0	0	0
Ojibway Pwy	EC Row Expressway	GN Booth Dr	700	440	620	820	10615	10438	140	134	26	21	114	534	9742	9843	138	126	25	17	107	297	873	595	11	8	1	4	6	238
			229	0	547	0	6237	0	82	0	16	0	67	0	5724	0	81	0	15	0	63	0	513	0	6	0	1	0	4	0
			86	0	91	0	1422	0	19	0	4	0	15	0	1305	0	18	0	3	0	14	0	117	0	1	0	0	0	1	0
	GN Booth Dr	Sandwich St	685	443	626	793	10549	10237	139	132	27	21	115	538	9692	9645	137	124	25	17	108	299	857	593	11	8	1	4	7	239
	Sandwich St	Prospect Ave	646	405	582	753	9965	9953	74	74	48	42	0	0	9161	9360	73	70	36	39	0	0	804	593	6	4	12	3	0	0
	N. of Prospect Ave		639	394	581	740	9903	9744	74	73	48	41	0	0	9106	9166	73	69	36	38	0	0	797	578	6	4	12	3	0	0
CROSSING ROADS			**WB**	**EB**	**WB**	**EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**
Wyandotte	W of HuronChurch						4729	4420	0	0	370	438	0	0	4296	4194	0	0	278	411	0	0	432	227	0	0	92	27	0	0
	E of HuronChurch						2772	4133	18	142	750	926	22	0	2519	3933	17	131	605	882	20	0	253	200	1	12	145	44	1	0
University	W of HuronChurch						1365	1272	0	0	0	0	0	0	1269	1214	0	0	0	0	0	0	97	57	0	0	0	0	0	0
	E of HuronChurch						2079	2079	121	91	70	21	41	23	1950	1981	116	83	66	18	39	22	129	98	5	8	4	3	2	1
Riverside	W of HuronChurch						3552	3655	0	0	0	0	0	0	3279	3439	0	0	0	0	0	0	274	215	0	0	0	0	0	0
	E of HuronChurch						6817	5737	0	0	164	46	0	0	6314	5369	0	0	157	32	0	0	503	367	0	0	6	13	0	0
AMB Off Ramp	E of HuronChurch						0	931	0	43	0	7710	0	3781	0	838	0	35	0	7319	0	2979	0	93	0	8	0	391	0	802
AMB On Ramp	E of HuronChurch						246	0	6	0	6082	0	223	0	144	0	4	0	4886	0	210	0	102	0	3	0	1197	0	13	0
Patricia	AMB	Wyandotte					435	1328	13	54	3485	3362	216	305	287	1211	9	45	3262	2783	174	287	148	117	4	9	224	579	43	18
College St	E. of HC Road		307	353	483	399	6437	5640	163	127	3	568	0	191	6024	5199	162	117	3	534	0	180	413	441	14	10	0	33	0	11
	W. of HC Road		84	52	165	66	1677	904	0	0	391	51	0	0	1562	844	0	0	376	39	0	0	115	60	0	0	15	12	0	0
Girardot St	E. of HC Road		54	84	87	46	1032	1014	0	0	122	135	0	0	969	920	0	0	104	116	0	0	63	93	0	0	18	19	0	0
	W. of HC Road		82	149	184	121	2208	2148	42	25	47	30	0	0	2085	1968	38	24	44	22	0	0	123	180	2	1	3	7	0	0
Tecumseh Rd	E. of HC Road		317	319	385	468	5448	6099	137	145	201	389	0	212	5059	5678	135	137	171	363	0	199	388	421	11	8	30	26	0	13
	W. of HC Road		245	487	508	387	6271	6983	0	0	217	132	0	0	5906	6397	0	0	207	102	0	0	365	586	0	0	10	30	0	0
Dorchester St	E. of HC Road		76	85	134	95	1544	1361	0	0	182	196	0	0	1453	1259	0	0	156	174	0	0	90	102	0	0	26	22	0	0
	W. of HC Road		76	46	86	52	1369	787	26	10	24	10	0	0	1270	729	23	10	22	8	0	0	99	58	2	0	2	2	0	0
Prince Rd/Totten St	E. of HC Road		148	126	123	143	2133	2247	0	0	80	106	0	0	1955	2085	0	0	69	92	0	0	178	162	0	0	11	13	0	0
	W. of HC Road		237	314	398	359	5414	5466	0	0	101	79	0	0	5075	5067	0	0	95	62	0	0	339	399	0	0	6	18	0	0
Malden Rd	E. of HC Road		102	63	99	96	1355	1081	0	0	276	277	0	0	1246	1012	0	0	245	243	0	0	110	69	0	0	31	34	0	0
	W. of HC Road		442	557	488	496	7049	7669	401	393	570	46	203	766	6555	7073	341	366	458	44	191	382	495	596	31	28	112	3	12	384
Industrial Rd	E. of HC Road		270	152	213	272	3722	3440	48	57	148	156	8	21	3406	3232	47	53	124	141	7	12	316	208	4	4	24	15	0	9
	W. of HC Road		296	104	183	298	4094	3044	168	204	0	0	0	211	3732	2899	153	183	0	0	0	199	362	145	9	20	0	0	0	12
EC Row N. Ramp Terminal	E. of HC Road (E-N/S Off Ramp & S-W On Ramp)		1029	111	987	125	14906	1894	311	0	1028	174	0	0	13759	1761	303	0	818	145	0	0	1146	133	19	0	211	29	0	0
	W. of HC Road (N-W On Ramp)		32	n/a	31	n/a	380	0	11	0	46	0	146	0	345	0	9	0	38	0	137	0	34	0	1	0	8	0	9	0
EC Row S. Ramp Terminal	E. of HC Road (S-E On Ramp)		n/a	668	n/a	612	0	10444	0	103	0	0	0	0	0	9604	0	94	0	0	0	0	0	840	0	9	0	0	0	0
	W. of HC Road (N-E On Ramp & W-N/S Off Ramp)		425	154	661	214	8237	2636	296	85	550	362	383	0	7702	2445	255	81	527	338	219	0	535	191	22	4	23	24	164	0

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)

LOCATION	SECTION	2025				24 Hour AADT								16 Hour AADT								8 Hour AADT							
		AM PEAK HOUR		PM PEAK HOUR		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks	
		WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB																
Labelle St/Bethlehem Ave	E. of N. Service Rd	262	142	137	137	2867	2223	0	0	246	216	0	0	2597	2043	0	0	184	193	0	0	270	180	0	0	62	23	0	0
	between N. and S. Service Rd	44	242	98	192	1232	3459	0	0	0	106	0	0	1164	3161	0	0	0	99	0	0	68	298	0	0	0	7	0	0
	W. of S. Service Rd	77	375	115	165	1676	4354	0	0	2	6	0	0	1567	3912	0	0	2	4	0	0	109	443	0	0	0	2	0	0
Grand Marais Rd/Lambton Rd	E. of HC Rd	324	220	220	192	4139	3339	0	0	233	256	0	0	3789	3066	0	0	187	235	0	0	350	273	0	0	47	21	0	0
	W. of HC Rd	49	192	170	82	1801	2141	34	20	42	33	0	0	1717	1922	31	19	40	23	0	0	84	219	2	1	2	9	0	0
Pulford St	E. of HC Rd	173	107	174	109	2341	1707	0	0	293	221	0	0	2097	1540	0	0	217	187	0	0	244	167	0	0	77	34	0	0
Todd Ln/Cabana Rd	E. of HC Rd	569	358	607	520	8902	6838	0	0	538	689	0	0	8265	6359	0	0	398	651	0	0	637	478	0	0	140	37	0	0
	between HC Rd and Hwy 401 Off-ramp	498	632	628	1193	9855	13496	0	0	0	1928	0	0	9206	12537	0	0	0	1836	0	0	649	959	0	0	0	92	0	0
	W. of Hwy 401 Off-ramp	603	459	758	948	11893	11806	0	0	15	11	0	0	11099	11111	0	0	14	9	0	0	794	695	0	0	1	2	0	0
Huron Church Line	W. of HC Rd	312	577	654	368	7791	6936	103	114	379	400	0	0	7368	6331	98	102	361	282	0	0	423	605	4	12	18	118	0	0
St Clair College	E. of Talbot Rd	146	785	244	278	3141	9319	0	0	99	288	0	0	2955	8303	0	0	81	241	0	0	186	1017	0	0	19	47	0	0
Cousineau Dr	E. of Talbot Rd	253	294	482	343	5024	4456	0	0	1110	1124	0	0	4636	4170	0	0	1033	917	0	0	388	285	0	0	78	206	0	0
	W. of Talbot Rd	234	407	658	384	7697	6486	0	10	0	0	0	0	7328	5941	0	9	0	0	0	0	369	545	0	1	0	0	0	0
Howard Ave	E. of Talbot Rd	449	447	528	667	8436	9135	144	178	0	3	0	0	7840	8550	120	168	0	3	0	0	596	585	12	10	0	0	0	0
	W. of Talbot Rd	329	550	584	492	7410	8945	158	204	16	22	0	0	6887	8274	156	191	12	21	0	0	523	672	13	13	4	2	0	0
Laurier Extension	W. of Talbot Rd/Hwy 3	318	463	562	385	7139	7288	153	166	16	18	0	0	6635	6741	151	156	12	17	0	0	504	547	12	11	4	1	0	0
EC Row Expressway	W. of Ojibway Pwy	1223	1036	1618	888	22543	15642	542	747	303	300	202	129	20802	14564	529	679	291	288	191	121	1740	1077	35	69	12	12	11	8
	W. of Broadway St	1144	2128	1676	1544	19199	29556	245	662	5195	0	129	0	18112	27136	238	614	4173	0	121	0	1086	2420	9	48	1022	0	8	0
	E. of Huron Church Rd	2722	2564	2647	3299	38796	44381	827	929	2908	4048	571	1646	35878	41191	805	853	2227	3780	444	1190	2918	3190	50	76	681	268	127	456
	At Malden Rd	1868	1655	1859	2240	26434	27562	563	614	2097	4070	801	1404	24475	25557	548	565	1574	3789	649	1081	1959	2005	34	50	524	281	152	323
	W. of Matchette	1059	450	1139	580	17396	8373	462	400	259	160	173	69	16500	7797	456	363	249	154	163	65	1108	577	28	37	10	6	10	4
GN Booth Dr	W. of Ojibway Pwy	27	10	13	44	346	448	7	8	4	5	0	0	313	430	6	7	4	4	0	0	32	18	1	0	0	1	0	0
Sandwich St	W. of Ojibway Pwy	79	79	107	103	1455	1387	151	97	24	34	0	0	1362	1287	122	91	19	33	0	0	92	99	14	6	5	2	0	0
Prospect Ave	W. of Ojibway Pwy	29	33	9	21	331	426	7	5	4	6	0	0	298	388	5	4	3	5	0	0	34	39	1	0	0	2	0	0

HIGHWAY 401 Mainline	2025				24 Hour AADT								16 Hour AADT								8 Hour AADT							
	NB	SB	NB	SB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
S. of Hwy 3 merge/split	1360	1180	1560	1910	14332	13309	407	303	3472	3444	6446	10385	12690	10911	336	238	2994	3153	4413	8274	1643	2397	50	64	477	290	2033	2111
N. of Howard Ave	953	1135	1231	1856	9295	11967	298	292	3296	4017	5250	10226	8286	9647	247	229	2723	3701	3485	8153	1009	2320	40	63	572	316	1765	2074
At Grand Marais Rd	1542	1728	1745	2521	15945	19589	397	420	4405	5665	5399	10914	14003	15873	331	334	3563	5233	3605	8560	1942	3716	61	86	842	432	1795	2353
E. of Malden Rd	648	768	449	1219	2158	3690	63	94	1905	3959	5535	11305	1868	2971	53	75	1573	3648	3698	8504	290	719	13	18	332	311	1838	2801
To/From Canadian Plaza	1050	560	520	1800	1	5	3	4	5116	9409	7501	12024	0	4	2	3	4044	8764	5233	9290	0	0	1	1	1072	646	2267	2734

HIGHWAY 401 Ramps	2025				24 Hour AADT								16 Hour AADT								8 Hour AADT							
	AM PEAK HOUR		PM PEAK HOUR		NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
Hwy 3 merge/split					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB Off Ramp (prior to Highway 3 / Laurier split)	931		950		12538	0	271	0	1832	0	823	0	11026	0	226	0	1744	0	634	0	1512	0	47	0	88	0	188	0
401 NB On Ramp	524		621		8883	0	168	0	0	0	0	0	7798	0	141	0	0	0	0	0	1085	0	33	0	0	0	0	0
401 SB Off Ramp		538		610	0	8965	0	171	0	0	0	0	0	7207	0	144	0	0	0	0	0	1758	0	27	0	0	0	0
401 SB On Ramp		416		323	0	4518	0	114	0	1204	0	331	0	3747	0	96	0	967	0	209	0	771	0	18	0	238	0	122
At Howard Ave					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB																
401 NB On Ramp	50		48		761	0	14	0	0	0	0	0	668	0	12	0	0	0	0	0	93	0	3	0	0	0	0	0
401 SB On Ramp		229		341	0	3485	0	88	0	929	0	255	0	2891	0	74	0	746	0	161	0	595	0	14	0	184	0	94
At St. Clair College					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB Off Ramp	186		487		5003	0	29	0	0	0	0	0	4238	0	24	0	0	0	0	0	766	0	6	0	0	0	0	0
401 SB Off Ramp (direct ramp to Hwy 3)		429		371	0	5537	0	67	0	667	0	0	0	4384	0	57	0	628	0	0	0	1152	0	10	0	38	0	0
401 SB On Ramp		170		116	0	2266	0	13	0	0	0	0	0	1857	0	11	0	0	0	0	0	409	0	2	0	0	0	0
At Todd Ln / Cabana Rd					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB On Ramp	775		953		10597	0	153	0	1276	0	0	0	8878	0	130	0	900	0	0	0	1719	0	46	0	376	0	0	0
401 SB Off Ramp (direct ramp to Todd lane)		516		684	0	8305	0	100	0	1000	0	0	0	6577	0	85	0	942	0	0	0	1729	0	15	0	58	0	0
401 SB On Ramp (loop)		182		274	0	3607	0	20	0	0	0	0	0	2957	0	18	0	0	0	0	0	650	0	3	0	0	0	0
At Huron Church Rd					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB Off Ramp	895		1297		13661	0	332	0	2518	0	0	0	12019	0	276	0	2005	0	0	0	1642	0	48	0	513	0	0	0
401 SB On Ramp		960		1302	0	14479	0	298	0	1997	0	1420	0	11812	0	238	0	1840	0	1227	0	2667	0	60	0	157	0	193
Hwy 401 to EC Row Expressway					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 SB Off Ramp		795		1200	0	10963	0	274	0	3445	0	1100	0	8910	0	216	0	3224	0	863	0	2053	0	59	0	222	0	237
EC Row Expressway to Hwy 401					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB On Ramp	278		126		0	0	0	0	1622	0	1009	0	0	0	0	0	1236	0	547	0	0	0	0	0	386	0	116	0
Ojibway Pkwy IC					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB Off Ramp	140		107		1825	0	166	0	0	0	0	0	1515	0	75	0	0	0	0	0	261	0	22	0	0	0	0	0
401 NB On Ramp	262		80		0	0	0	0	1705	0	437	0	0	0	0	0	586	0	217	0	0	0	0	0	251	0	197	0
401 SB Off Ramp		70		228	0	289	0	26	0	1792	0	0	0	231	0	22	0	1695	0	0	0	58	0	4	0	96	0	0
401 SB On Ramp		1073		846	0	14829	0	438	0	0	0	0	0	11911	0	343	0	0	0	0	0	2919	0	95	0	0	0	0

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)

LOCATION	SECTION		2025				24 Hour AADT								16 Hour AADT								8 Hour AADT							
							Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks	
			AM PEAK HOUR		PM PEAK HOUR																									
	FROM	TO	NB	SB	NB	SB																								
Highway 401 Mainline Vol	S. of Hwy 3 merge/split	Hwy 3/ 401 NB Off Ramp	1360		1560		14332	0	407	0	3472	0	6446	0	12690	0	336	0	2994	0	4413	0	1643	0	50	0	477	0	2033	0
	Hwy 3/ 401 NB Off Ramp	Hwy 3/401 NB On Ramp	429		610		2919	0	119	0	1978	0	3963	0	2597	0	98	0	1665	0	2591	0	322	0	16	0	313	0	1372	0
	Hwy 3/401 NB On Ramp	Howard NB On Ramp	953		1231		9295	0	298	0	3296	0	5250	0	8286	0	247	0	2723	0	3485	0	1009	0	40	0	572	0	1765	0
	Howard NB On Ramp	St. Clair/401 NB Off Ramp	1003		1279		9713	0	311	0	3444	0	5486	0	8658	0	258	0	2846	0	3642	0	1055	0	41	0	598	0	1845	0
	St. Clair/401 NB Off Ramp	Pulford/401 NB On Ramp	767		792		6051	0	250	0	2769	0	4198	0	5453	0	207	0	2342	0	2905	0	598	0	29	0	426	0	1293	0
	Pulford/401 NB On Ramp	HC Rd/401 NB Off Ramp	1542		1745		15945	0	397	0	4405	0	5399	0	14003	0	331	0	3563	0	3605	0	1942	0	61	0	842	0	1795	0
	HC Rd/401 NB Off Ramp	EC ROW to 401 NB On Ramp	648		449		2158	0	63	0	1905	0	5535	0	1868	0	53	0	1573	0	3698	0	290	0	13	0	332	0	1838	0
	EC ROW to 401 NB On Ramp	Ojibway Pkway/401 NB Off Ramp	**926**		**574**		**2953**	**0**	**86**	**0**	**2606**	**0**	**7166**	**0**	**2555**	**0**	**72**	**0**	**2153**	**0**	**4787**	**0**	**397**	**0**	**18**	**0**	**454**	**0**	**2166**	**0**
	Ojibway Pkway/401 NB Off Ramp	Ojibway Pkway/401 NB OnRamp	**786**		**467**		**0**	**0**	**0**	**0**	**3839**	**0**	**6236**	**0**	**0**	**0**	**0**	**0**	**2434**	**0**	**4212**	**0**	**0**	**0**	**0**	**0**	**610**	**0**	**2056**	**0**
	Ojibway Pkway/401 NB OnRamp	Canadian Plaza	1050		520		0	0	0	0	5116	0	7501	0	0	0	0	0	4044	0	5233	0	0	0	0	0	1072	0	2267	0
	Canadian Plaza	Ojibway/401 SB Off Ramp		560		1800	0	5	0	4	0	9409	0	12024	0	4	0	3	0	8764	0	9290	0	0	0	1	0	646	0	2734
	Ojibway/401 SB Off Ramp	Ojibway/401 SB On Ramp		490		1573	0	4	0	3	0	8199	0	10600	0	4	0	3	0	7627	0	8144	0	0	0	1	0	572	0	2456
	Ojibway/401 SB On Ramp	401 to EC ROW SB Off Ramp		1563		2419	0	15852	0	555	0	7212	0	10561	0	12754	0	445	0	6703	0	8137	0	3098	0	110	0	510	0	2424
	401 to EC ROW SB Off Ramp	HC Rd/401 SB On Ramp		768		1219	0	4509	0	274	0	3830	0	10064	0	3625	0	225	0	3528	0	7539	0	884	0	50	0	302	0	2524
	HC Rd/401 SB On Ramp	Pulford/401 SB Off Ramp		1728		2521	0	19589	0	420	0	5665	0	10914	0	15873	0	334	0	5233	0	8560	0	3716	0	86	0	432	0	2353
	Pulford/401 SB Off Ramp	Todd/401 SB On Ramp		1212		1837	0	14056	0	301	0	4065	0	7831	0	11390	0	240	0	3755	0	6143	0	2666	0	62	0	310	0	1689
	Todd/401 SB On Ramp	St Clair 401 SB Off Ramp		1394		2111	0	17098	0	342	0	4171	0	7831	0	13783	0	269	0	3843	0	6243	0	3314	0	73	0	329	0	1588
	St Clair/401 SB Off Ramp	St Clair/401 SB On Ramp		965		1740	0	10461	0	277	0	4018	0	7648	0	8544	0	216	0	3700	0	6025	0	1917	0	61	0	318	0	1624
	St Clair/401 SB On Ramp	Howard SB On Ramp		1135		1856	0	11967	0	292	0	4017	0	10226	0	9647	0	229	0	3701	0	8153	0	2320	0	63	0	316	0	2074
	Howard SB On Ramp	Hwy 3/401 SB Off Ramp		1365		2197	0	15339	0	349	0	3969	0	11969	0	12576	0	275	0	3634	0	9536	0	2763	0	74	0	335	0	2432
	Hwy 3/401 SB Off Ramp	Hwy 3/401 SB On Ramp		826		1587	0	9196	0	218	0	3452	0	8347	0	7678	0	177	0	3219	0	6942	0	1518	0	40	0	233	0	1404
	Hwy 3/401 SB On Ramp	S. of Hwy 3 merge/split		1180		1910	0	13309	0	303	0	3444	0	10385	0	10911	0	238	0	3153	0	8274	0	2397	0	64	0	290	0	2111
Malden	Chappus	401 S. Ramp	650	632	510	695	7948	10336	341	449	795	742	0	0	7318	9549	338	422	588	688	0	0	630	787	30	27	207	54	0	0
	401 S. Ramp	401 N. Ramp	695	402	600	425	8938	6456	381	279	874	457	0	0	8255	5957	377	262	651	423	0	0	683	498	33	17	223	34	0	0
	N. of 401 N. Ramp		465	447	420	480	6129	7230	261	313	593	515	0	0	5669	6675	258	294	443	477	0	0	460	555	22	19	149	38	0	0
Matchette	Chappus	EC Row S. Ramp	522	468	530	640	9114	8967	0	0	147	301	0	0	8436	8339	0	0	123	290	0	0	678	628	0	0	25	11	0	0
	EC Row S. Ramp	EC Row N. Ramp	167	523	129	699	2499	9937	0	0	121	270	0	0	2297	9238	0	0	99	260	0	0	202	700	0	0	22	10	0	0
	EC Row N. Ramp	Carmichael	316	136	267	239	5032	2977	0	0	120	192	0	0	4635	2787	0	0	99	185	0	0	397	190	0	0	21	7	0	0

Hwy 3 merge/split					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB Off Ramp (to Highway 3)	639		515		7695		166		1124		505		6767	0	139	0	1070	0	389	0	928	0	29	0	54	0	116	0
401 NB Off Ramp (to Laurier split)	292		435		4843		105		708		318		4259	0	87	0	674	0	245	0	584	0	18	0	34	0	73	0

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)

LOCATION	SECTION		2035				24 Hour AADT								16 Hour AADT								8 Hour AADT							
			AM PEAK HOUR		PM PEAK HOUR		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks	
	FROM	TO	NB	SB	NB	SB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
HC Road	Riverside	University					6718	5664	203	94	3	1	0	81	6247	5308	185	90	3	1	0	76	471	356	18	4	0	0	0	5
	University	Wyandotte					2886	3812	92	124	68	237	62	81	2682	3555	84	119	51	227	59	76	204	257	8	5	17	10	4	5
	Wyandotte	AMB Off Ramp					2085	3201	0	0	46	169	0	0	1926	2973	0	0	33	162	0	0	159	228	0	0	14	7	0	0
	AMB Off Ramp	College					7999	6549	244	106	7545	1	3755	0	6678	5402	190	93	7166	1	2966	0	1321	1148	54	12	379	0	789	0
	College St	Girardot St	1846	887	1546	1845	18469	16494	574	523	6880	5152	303	3764	14978	13471	522	401	5573	4842	286	2888	3492	3023	93	122	1308	310	17	876
	Girardot St	Tecumseh Rd	1743	853	1449	1695	18403	17853	712	625	6238	4516	284	3530	14941	14661	650	493	5085	4278	268	2693	3462	3192	120	133	1153	239	16	837
	Tecumseh Rd	Dorchester St	1782	1143	1806	1846	21703	21695	867	781	5937	3720	289	3103	17950	17504	785	606	4802	3494	273	2327	3753	4191	136	175	1136	226	16	775
	Dorchester St	Prince Rd/Totten St	1904	1184	1737	1903	22442	23399	768	705	5418	3417	247	2837	18349	18888	704	552	4311	3218	233	2156	4093	4511	133	153	1106	199	14	680
	Prince Rd/Totten St	Malden Rd	2068	1458	1974	2175	25203	27845	865	847	5387	3091	281	2646	20678	22340	789	659	4222	2888	265	2126	4525	5505	146	189	1165	202	16	519
	Malden Rd	Industrial Rd	1728	1194	1509	1841	19460	23370	645	683	5267	3219	10	2695	15886	18752	581	517	4192	3016	10	2193	3575	4618	97	166	1075	203	1	503
	Industrial Rd	EC Row N. Ramp Terminal	1915	1277	1704	2060	22816	26119	734	752	5107	3366	0	2631	18580	21071	665	572	4063	3165	0	2157	4236	5048	116	180	1045	201	0	473
	EC Row N. Ramp Terminal	EC Row S. Ramp Terminal	1450	1725	1225	2448	16270	35653	459	783	4568	3017	0	2217	13268	28593	413	606	3532	2840	0	1803	3003	7059	69	177	1036	177	0	414
	S. of EC Row S. Ramp Terminal		2046	1344	1876	1837	24465	27343	684	474	4856	2621	0	1717	20106	21810	612	364	3836	2462	0	1475	4359	5532	97	110	1020	159	0	243
S Service Rd	N. of Bethlehem Ave		n/a	1344	n/a	1837	0	23078	0	420	0	2547	0	1629	0	21396	0	386	0	2391	0	1394	0	1682	0	34	0	157	0	235
	Bethlehem Ave	Grand Marais Rd	n/a	352	n/a	355	0	5636	0	161	0	377	0	0	0	5208	0	145	0	338	0	0	0	428	0	16	0	38	0	0
N Service Rd	N. of Labelle St		2046	n/a	1876	n/a	25730	0	569	0	4241	0	0	0	23832	0	555	0	3313	0	0	0	1898	0	36	0	928	0	0	0
	Labelle St	Grand Marais Rd Ramp	1744	n/a	1762	n/a	26402	0	326	0	1568	0	0	0	24419	0	314	0	1221	0	0	0	1983	0	14	0	348	0	0	0
HC Road	Grand Marais Rd	Pulford St	551	390	320	220	6637	5163	10	19	456	192	0	0	6215	4726	9	18	365	176	0	0	422	437	1	1	91	15	0	0
	Pulford St	Todd Ln/Cabana Rd	522	350	320	290	7060	5617	14	27	0	0	0	0	6640	5189	13	26	0	0	0	0	420	428	1	1	0	0	0	0
	Todd Ln/Cabana Rd	Huron Church Line	1200	**540**	1030	**855**	16787	11573	212	103	839	441	0	0	15483	10773	213	98	600	417	0	0	1303	800	22	5	239	24	0	0
Talbot Road	Huron Church Line	St Clair College	670	640	843	614	12538	10948	154	75	0	0	0	0	11770	10159	148	70	0	0	0	0	768	790	7	4	0	0	0	0
	St Clair College	Cousineau Dr	860	424	406	665	8458	7440	82	94	1253	1464	0	252	7829	6989	80	86	946	1363	0	139	628	451	5	7	307	101	0	113
	Cousineau Dr	Howard Ave	706	105	446	220	8606	2391	120	41	640	288	0	126	8108	2212	116	38	495	264	0	70	498	179	6	4	144	24	0	57
	Howard Ave	Laurier Extension	770	795	800	820	12869	13019	268	264	0	0	0	0	12047	11948	261	241	0	0	0	0	822	1071	16	23	0	0	0	0
	S. of Laurier Extension		650	830	980	860	13361	13624	278	277	0	0	0	0	12507	12503	271	252	0	0	0	0	853	1121	17	25	0	0	0	0
Ojibway Pwy	EC Row Expressway	GN Booth Dr	735	470	680	860	11383	10973	146	131	26	19	142	654	10461	10346	144	123	24	16	134	363	922	626	11	8	1	4	8	291
	OJB SB Channelized RT		240		600		6757	0	87	0	15	0	84	0	6210	0	86	0	14	0	80	0	547	0	6	0	1	0	5	0
	EC ROW WB Channelized RT		90		100		1528	0	20	0	3	0	19	0	1405	0	19	0	3	0	18	0	124	0	1	0	0	0	1	0
	GN Booth Dr	Sandwich St	720	473	686	833	11317	10772	146	129	26	19	143	658	10411	10147	143	121	25	16	135	365	906	624	11	8	1	4	8	293
	Sandwich St	Prospect Ave	679	425	633	793	10661	10469	76	73	52	47	0	0	9811	9846	75	68	38	44	0	0	850	623	6	4	13	3	0	0
	N. of Prospect Ave		672	415	632	780	10599	10270	75	71	51	46	0	0	9757	9661	74	67	38	44	0	0	842	609	6	4	13	3	0	0
CROSSING ROADS			**WB**	**EB**	**WB**	**EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**	**NB / WB**	**SB / EB**
Wyandotte	W of HuronChurch						4627	4439	0	0	381	446	0	0	4195	4216	0	0	286	419	0	0	432	223	0	0	95	27	0	0
	E of HuronChurch						2803	4299	17	157	770	942	58	0	2546	4094	16	145	621	897	54	0	257	205	1	13	149	45	3	0
University	W of HuronChurch						1511	1306	0	0	0	0	0	0	1405	1247	0	0	0	0	0	0	106	59	0	0	0	0	0	0
	E of HuronChurch						2207	2097	124	92	68	22	81	62	2069	1993	119	84	64	18	76	59	138	104	5	8	4	3	5	4
Riverside	W of HuronChurch						3642	3993	0	0	0	0	0	0	3359	3758	0	0	0	0	0	0	283	236	0	0	0	0	0	0
	E of HuronChurch						7055	5911	0	0	170	46	0	0	6538	5524	0	0	163	33	0	0	517	387	0	0	7	14	0	0
AMB Off Ramp	E of HuronChurch						0	931	0	43	0	7710	0	3781	0	838	0	35	0	7319	0	2979	0	93	0	8	0	391	0	802
AMB On Ramp	E of HuronChurch						222	0	6	0	6416	0	273	0	130	0	3	0	5162	0	257	0	92	0	2	0	1255	0	15	0
Patricia	AMB	Wyandotte					389	969	12	42	3571	3469	234	394	257	873	8	34	3340	2870	197	364	132	95	4	8	231	598	37	30
College St	E. of HC Road		319	351	490	406	6583	5598	172	130	4	579	0	273	6156	5160	170	120	3	545	0	257	427	438	15	10	0	34	0	16
	W. of HC Road		90	52	187	79	1730	1027	0	0	542	48	0	0	1608	963	0	0	521	38	0	0	122	65	0	0	21	10	0	0
Girardot St	E. of HC Road		59	83	84	48	1037	1025	0	0	125	130	0	0	971	932	0	0	105	113	0	0	66	93	0	0	20	18	0	0
	W. of HC Road		85	146	180	120	2202	2109	42	26	47	33	0	0	2076	1933	38	25	44	24	0	0	125	176	2	1	3	8	0	0
Tecumseh Rd	E. of HC Road		332	329	420	509	5868	6315	140	146	202	468	0	366	5457	5880	138	138	172	439	0	344	411	435	11	8	30	29	0	22
	W. of HC Road		252	505	527	395	6321	7251	0	0	357	104	0	0	5949	6634	0	0	342	87	0	0	373	617	0	0	16	18	0	0
Dorchester St	E. of HC Road		78	86	135	96	1561	1382	0	0	187	191	0	0	1469	1279	0	0	159	171	0	0	92	104	0	0	27	20	0	0
	W. of HC Road		76	46	86	52	1368	785	26	11	24	11	0	0	1269	727	23	10	23	9	0	0	99	58	2	0	2	3	0	0
Prince Rd/Totten St	E. of HC Road		154	126	129	207	2228	2764	0	0	83	125	0	0	2043	2591	0	0	72	111	0	0	186	173	0	0	11	14	0	0
	W. of HC Road		241	329	338	365	4985	5626	0	0	68	85	0	0	4652	5210	0	0	63	65	0	0	333	416	0	0	5	19	0	0
Malden Rd	E. of HC Road		117	71	113	111	1545	990	0	0	313	519	0	0	1421	918	0	0	275	469	0	0	124	72	0	0	38	50	0	0
	W. of HC Road		469	573	506	527	7378	7922	405	408	599	52	251	932	6853	7320	344	381	482	49	236	464	525	602	31	28	118	3	15	467
Industrial Rd	E. of HC Road		305	161	225	285	3613	3596	45	56	697	185	7	27	3270	3377	44	52	648	167	7	15	343	218	4	4	49	18	0	12
	W. of HC Road		307	114	198	303	4310	3115	179	210	0	0	0	269	3934	2959	164	189	0	0	0	254	377	155	10	22	0	0	0	15
EC Row N. Ramp Terminal	E. of HC Road (E-N/S Off Ramp & S-W On Ramp)		1060	113	1020	140	15527	1966	327	6	998	242	0	0	14320	1836	318	5	815	199	0	0	1207	129	19	1	183	43	0	0
	W. of HC Road (N-W On Ramp)		34	n/a	33	n/a	389	0	11	0	48	0	176	0	353	0	9	0	40	0	166	0	36	0	1	0	8	0	11	0
EC Row S. Ramp Terminal	E. of HC Road (S-E On Ramp)		n/a	700	n/a	756	0	11928	0	124	0	0	0	0	0	11028	0	113	0	0	0	0	0	900	0	10	0	0	0	0
	W. of HC Road (N-E On Ramp & W-N/S Off Ramp)		446	169	698	228	8650	2901	325	91	465	322	607	0	8094	2692	279	87	445	299	395	0	555	210	24	4	20	23	212	0

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)																															
LOCATION	SECTION	2035				24 Hour AADT								16 Hour AADT								8 Hour AADT									
		AM PEAK HOUR		PM PEAK HOUR		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks			
		WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB																		
Labelle St/Bethlehem Ave	**E. of N. Service Rd**	277	167	150	144	3077	2391	0	0	259	226	0	0	2791	2191	0	0	194	201	0	0	286	200	0	0	65	24	0	0		
	between N. and S. Service Rd	72	276	108	204	1573	3822	0	0	0	112	0	0	1471	3485	0	0	0	104	0	0	102	337	0	0	0	8	0	0		
	W. of S. Service Rd	108	220	126	180	2053	3279	0	0	2	4	0	0	1907	3004	0	0	2	3	0	0	146	275	0	0	0	1	0	0		
Grand Marais Rd/Lambton Rd	**E. of HC Rd**	354	240	240	210	4753	3657	0	0	257	272	0	0	4353	3358	0	0	201	249	0	0	400	299	0	0	56	23	0	0		
	W. of HC Rd	54	214	186	90	1973	2362	37	25	46	41	0	0	1881	2120	34	23	44	29	0	0	92	242	2	2	2	12	0	0		
Pulford St	**E. of HC Rd**	190	117	190	120	2549	1878	0	0	327	230	0	0	2283	1694	0	0	241	196	0	0	266	183	0	0	86	34	0	0		
Todd Ln/Cabana Rd	**E. of HC Rd**	620	410	700	590	10025	7623	0	0	561	872	0	0	9321	7082	0	0	418	827	0	0	704	541	0	0	143	45	0	0		
	between HC Rd and Hwy 401 Off-ramp	**540**	**750**	**705**	**1325**	10871	17389	0	0	14	16	0	0	10156	16333	0	0	13	12	0	0	715	1056	0	0	1	3	0	0		
	W. of Hwy 401 Off-ramp	680	550	890	1060	13709	13492	0	0	18	12	0	0	12808	12673	0	0	17	10	0	0	902	820	0	0	1	2	0	0		
Huron Church Line	**W. of HC Rd**	340	630	716	386	8500	7407	120	122	422	455	0	0	8038	6753	115	109	401	319	0	0	461	654	5	13	20	135	0	0		
St Clair College	**E. of Talbot Rd**	151	807	261	286	3328	9597	0	0	100	286	0	0	3134	8550	0	0	82	239	0	0	195	1046	0	0	18	46	0	0		
Cousineau Dr	**E. of Talbot Rd**	258	312	515	340	5252	4495	0	0	1218	1230	0	0	4853	4201	0	0	1134	1002	0	0	400	294	0	0	84	228	0	0		
	W. of Talbot Rd	284	465	737	439	8816	7416	0	8	0	0	0	0	8379	6793	0	7	0	0	0	0	437	623	0	1	0	0	0	0		
Howard Ave	**E. of Talbot Rd**	493	482	559	708	9089	9762	157	187	0	4	0	0	8438	9133	131	176	0	3	0	0	651	629	13	10	0	0	0	0		
	W. of Talbot Rd	362	605	624	549	7987	9906	172	224	20	27	0	0	7417	9166	169	210	15	26	0	0	571	740	14	14	5	2	0	0		
Laurier Extension	**W. of Talbot Rd/Hwy 3**	350	510	600	430	7715	8091	165	183	0	0	0	0	7164	7487	163	171	0	0	0	0	551	605	13	12	0	0	0	0		
EC Row Expressway	**W. of Ojibway Pwy**	*1585*	*1105*	*1910*	*980*	23810	16814	324	374	6487	0	163	0	21913	15681	317	341	6234	0	154	0	1896	1134	22	34	253	0	9	0		
	W. of Broadway St	*1445*	*2235*	*1910*	*1720*	22856	31895	311	710	6227	0	156	0	21499	29342	292	658	4988	0	147	0	1357	2553	15	52	1239	0	9	0		
	E. of Huron Church Rd	3239	2837	2955	3666	44205	48832	932	1039	3586	4703	738	2009	40813	45329	909	954	2718	4392	575	1405	3393	3503	58	86	868	311	164	604		
	At Malden Rd	2366	1860	2158	2450	30617	30207	642	678	2860	4783	1049	1550	28306	27986	627	623	2096	4454	850	1120	2311	2221	41	56	764	330	199	429		
	W. of Matchette	**1365**	480	**1340**	640	21281	9262	565	404	190	100	160	25	20066	8637	558	368	183	96	151	23	1506	624	37	37	7	4	9	1		
GN Booth Dr	**W. of Ojibway Pwy**	*27*	*10*	*13*	*44*	345	448	7	8	5	5	0	0	313	430	5	7	4	4	0	0	32	18	1	0	0	1	0	0		
Sandwich St	**W. of Ojibway Pwy**	*82*	*89*	*121*	*107*	1598	1499	156	102	21	29	0	0	1500	1388	128	96	16	28	0	0	99	111	14	6	4	1	0	0		
Prospect Ave	**W. of Ojibway Pwy**	*29*	*33*	*9*	*21*	331	425	7	5	4	7	0	0	297	386	5	5	3	5	0	0	34	39	1	0	0	2	0	0		

HIGHWAY 401 Mainline	2035																													
	NB	SB	NB	SB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
S. of Hwy 3 merge/split	1502	1360	1904	2243	16565	14965	699	801	3761	3747	7841	12804	14681	12212	578	628	3220	3438	5315	10264	1884	2753	84	173	541	309	2526	2540		
N. of Howard Ave	1064	1210	1484	2073	10293	11792	149	690	4139	4840	6853	12127	9242	9500	123	540	3418	4469	4554	9722	1051	2292	18	150	721	371	2299	2405		
At Grand Marais Rd	1739	1872	1909	2805	17265	20616	439	434	4872	6262	6601	13294	15206	16692	365	345	3914	5802	4355	10501	2059	3924	66	89	958	461	2245	2793		
E. of Malden Rd	779	960	477	1365	2232	3767	66	93	2087	4513	6818	14505	1933	3013	56	74	1718	4091	4483	10818	299	754	14	19	370	423	2335	3687		
To/From Canadian Plaza	1260	650	580	1970	1	5	3	4	5779	10031	8965	14092	0	5	3	3	4519	9311	6200	10924	0	0	1	1	1260	720	2765	3168		

HIGHWAY 401 Ramps	2035																													
	AM PEAK HOUR		PM PEAK HOUR																											
Hwy 3 merge/split					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp (prior to Highway 3 / Laurier split)	958		1070		13245		284		2150		1107		11659	0	237	0	2047	0	840	0	1586	0	49	0	102	0	268	0		
401 NB On Ramp	520		650		9120		178		0		0		8033	0	149	0	0	0	0	0	1088	0	33	0	0	0	0	0		
401 SB Off Ramp		540		630		9131		178		0		0	0	7379	0	150	0	0	0	0	0	1752	0	28	0	0	0	0		
401 SB On Ramp		445		390		4978		125		1462		431	0	4156	0	106	0	1174	0	272	0	822	0	19	0	288	0	159		
At Howard Ave					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB																		
401 NB On Ramp	50		50		780		15		0		0		687	0	13	0	0	0	0	0	93	0	3	0	0	0	0	0		
401 SB On Ramp		245		410		3905		98		1146		338	0	3260	0	83	0	921	0	213	0	645	0	15	0	226	0	125		
At St. Clair College					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp	190		513		5247		49		0		0		4464	0	41	0	0	0	0	0	783	0	7	0	0	0	0	0		
401 SB Off Ramp (direct ramp to Hwy 3)		550		400		6480		76		875		0	0	5162	0	65	0	827	0	0	0	1318	0	11	0	48	0	0		
401 SB On Ramp		**183**		**120**		**2397**		**14**		**0**		**0**	**0**	**1959**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**438**	**0**	**2**	**0**	**0**	**0**	**0**		
At Todd Ln / Cabana Rd					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB On Ramp	865		888		10385		163		1381		0		8592	0	139	0	963	0	0	0	1792	0	51	0	418	0	0	0		
401 SB Off Ramp (direct ramp to Todd lane)		490		736		8362		98		1130		0	0	6661	0	84	0	1067	0	0	0	1701	0	15	0	62	0	0		
401 SB On Ramp (loop)		**195**		**284**		**3789**		**23**		**0**		**0**	**0**	**3096**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**693**	**0**	**3**	**0**	**0**	**0**	**0**		
At Huron Church Rd					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp	960		1432		14877		369		2793		0		13141	0	306	0	2205	0	0	0	1736	0	52	0	589	0	0	0		
401 SB On Ramp		912		1440	0	14711	0	296	0	2235	0	1603	0	12131	0	239	0	2107	0	1396	0	2579	0	57	0	127	0	207		
Hwy 401 to EC Row Expressway					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 SB Off Ramp		970		1325	0	12269	0	312	0	4261	0	1337	0	9855	0	243	0	3978	0	983	0	2414	0	69	0	282	0	354		
EC Row Expressway to Hwy 401					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB On Ramp	351		143		0	0	0	0	1865	0	1164	0	0	0	0	0	1400	0	651	0	0	0	0	0	465	0	128	0		
Ojibway Pkwy IC					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB		
401 NB Off Ramp	155		120		5218	0	503	0	0	0	0	0	4547	0	222	0	0	0	0	0	778	0	68	0	0	0	0	0		
401 NB On Ramp	285		80		0		0		1779		494		0	0	0	0	634	0	249	0	0	0	0	0	278	0	226	0		
401 SB Off Ramp		70		260	0	4140	0	558	0	2049	0	0	0	3653	0	506	0	1933	0	0	0	487	0	52	0	116	0	0		
401 SB On Ramp		1350		980	0	22242	0	664	0	0	0	0	0	17734	0	517	0	0	0	0	0	4508	0	147	0	0	0	0		

Proposed TEPA Refinement - Plaza B / C (revised October 1, 2008)																															
LOCATION	SECTION		2035				24 Hour AADT								16 Hour AADT								8 Hour AADT								
			AM PEAK HOUR		PM PEAK HOUR		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		Local Cars		Local Trucks		International Cars		International Trucks		
	FROM	TO	NB	SB	NB	SB																									
Highway 401 Mainline Vol	S. of Hwy 3 merge/split	Hwy 3/ 401 NB Off Ramp	1502		1904		16461		491		3865		8049		14589	0	406	0	3309	0	5456	0	1872	0	59	0	556	0	2593	0
	Hwy 3/ 401 NB Off Ramp	Hwy 3/401 NB On Ramp	544		834		3912		173		2508		5478		3516	0	143	0	2114	0	3605	0	396	0	20	0	395	0	1873	0
	Hwy 3/401 NB On Ramp	Howard NB On Ramp	1064		1484		10618		360		3814		6642		9534	0	298	0	3150	0	4414	0	1084	0	43	0	664	0	2228	0
	Howard NB On Ramp	St. Clair/401 NB Off Ramp	1114		1534		11398		375		3814		6642		10336	0	310	0	3219	0	4588	0	1062	0	41	0	594	0	2054	0
	St. Clair/401 NB Off Ramp	Pulford/401 NB On Ramp	874		1021		8027		275		3088		4600		7221	0	227	0	2595	0	3209	0	805	0	29	0	493	0	1391	0
	Pulford/401 NB On Ramp	HC Rd/401 NB Off Ramp	1739		1909		17265		439		4872		6601		15206	0	365	0	3914	0	4355	0	2059	0	66	0	958	0	2245	0
	HC Rd/401 NB Off Ramp	EC ROW to 401 NB On Ramp	779		477		2232		66		2087		6818		1933	0	56	0	1718	0	4483	0	299	0	14	0	370	0	2335	0
	EC ROW to 401 NB On Ramp	Ojibway Pkway/401 NB Off Ramp	**1130**		**620**		**3109**		**93**		**2908**		**8526**		**2693**	**0**	**78**	**0**	**2394**	**0**	**5607**	**0**	**416**	**0**	**19**	**0**	**515**	**0**	**2630**	**0**
	Ojibway Pkway/401 NB Off Ramp	Ojibway Pkway/401 NB OnRamp	**975**		**500**		**0**		**0**		**4337**		**8011**		**0**	**0**	**0**	**0**	**2666**	**0**	**5034**	**0**	**0**	**0**	**0**	**0**	**702**	**0**	**2613**	**0**
	Ojibway Pkway/401 NB OnRamp	Canadian Plaza	1260		580		0		0		5779		8965		0	0	0	0	4519	0	6200	0	0	0	0	0	1260	0	2765	0
	Canadian Plaza	Ojibway/401 SB Off Ramp		650		1970		5		4		10031		14092	0	5	0	3	0	9311	0	10924	0	0	0	1	0	720	0	3168
	Ojibway/401 SB Off Ramp	Ojibway/401 SB On Ramp		580		1710		5		3		8739		12434	0	4	0	3	0	8100	0	9575	0	0	0	1	0	640	0	2859
	Ojibway/401 SB On Ramp	401 to EC ROW SB Off Ramp		1930		2690		17129		591		8546		14145	0	13648	0	470	0	7876	0	10750	0	3482	0	122	0	670	0	3395
	401 to EC ROW SB Off Ramp	HC Rd/401 SB On Ramp		960		1365		4737		272		4399		12962	0	3791	0	221	0	3995	0	9673	0	946	0	51	0	405	0	3289
	HC Rd/401 SB On Ramp	Pulford/401 SB Off Ramp		1872		2805		20616		434		6262		13294	0	16692	0	345	0	5802	0	10501	0	3924	0	89	0	461	0	2793
	Pulford/401 SB Off Ramp	Todd/401 SB On Ramp		1382		2069		15212		320		4621		9809	0	12316	0	254	0	4281	0	7748	0	2895	0	66	0	340	0	2061
	Todd/401 SB On Ramp	St Clair 401 SB Off Ramp		1577		2353		18655		365		4752		9809	0	15104	0	290	0	4403	0	7748	0	3551	0	75	0	349	0	2061
	St Clair/401 SB Off Ramp	St Clair/401 SB On Ramp		1027		1953		10680		286		3877		9554	0	8699	0	223	0	3578	0	7572	0	1981	0	64	0	299	0	1982
	St Clair/401 SB On Ramp	Howard SB On Ramp		1210		2073		12283		303		4349		12514	0	9934	0	237	0	4023	0	10095	0	2350	0	66	0	326	0	2420
	Howard SB On Ramp	Hwy 3/401 SB Off Ramp		1455		2483		16236		381		4216		12853	0	13081	0	299	0	3892	0	10304	0	3156	0	83	0	323	0	2548
	Hwy 3/401 SB Off Ramp	Hwy 3/401 SB On Ramp		915		1853		9881		237		2963		10660	0	8209	0	191	0	2764	0	8864	0	1672	0	45	0	199	0	1796
	Hwy 3/401 SB On Ramp	S. of Hwy 3 merge/split		1360		2243		14855		349		3857		13256	0	12122	0	274	0	3539	0	10627	0	2733	0	75	0	318	0	2630
Malden	Chappus	401 S. Ramp	666	679	540	725	8232	10979	365	456	851	772	0	0	7589	10134	362	428	631	716	0	0	642	845	33	28	220	56	0	0
	401 S. Ramp	401 N. Ramp	716	429	640	425	9326	6705	410	275	941	460	0	0	8626	6177	407	258	704	425	0	0	701	529	35	17	237	34	0	0
	N. of 401 N. Ramp		465	479	440	485	6252	7560	274	311	622	522	0	0	5793	6968	271	292	468	483	0	0	459	592	23	19	154	39	0	0
Matchette	Chappus	EC Row S. Ramp	522	551	564	705	9486	10131	0	0	56	359	0	0	8790	9401	0	0	53	345	0	0	696	730	0	0	3	14	0	0
	EC Row S. Ramp	EC Row N. Ramp	167	606	136	764	2641	10945	0	0	34	507	0	0	2427	10146	0	0	31	488	0	0	214	799	0	0	2	19	0	0
	EC Row N. Ramp	Carmichael	347	136	301	254	5681	2975	0	0	39	343	0	0	5231	2785	0	0	36	330	0	0	449	190	0	0	3	13	0	0

Hwy 3 merge/split					NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB	NB / WB	SB / EB
401 NB Off Ramp (to Highway 3)	658		580		8086		174		1312		676		7117	0	145	0	1250	0	513	0	968	0	30	0	63	0	163	0
401 NB Off Ramp (to Laurier split)	300		490		5160		111		837		431		4542	0	92	0	797	0	327	0	618	0	19	0	40	0	104	0

Appendix B – STAMSON Data Files – Baseline Noise Condition

Note: Due to its size, this appendix is maintained under separate cover.

Appendix C – STAMSON Data Files – TEPA with No Mitigation

Note: Due to its size, this appendix is maintained under separate cover.

Appendix D – Baseline Vibration Monitoring Results (2006)

Figure 1. Vibration Levels from Road Traffic Pass-Bys
House Between 1140 and 1202 Talbot Street

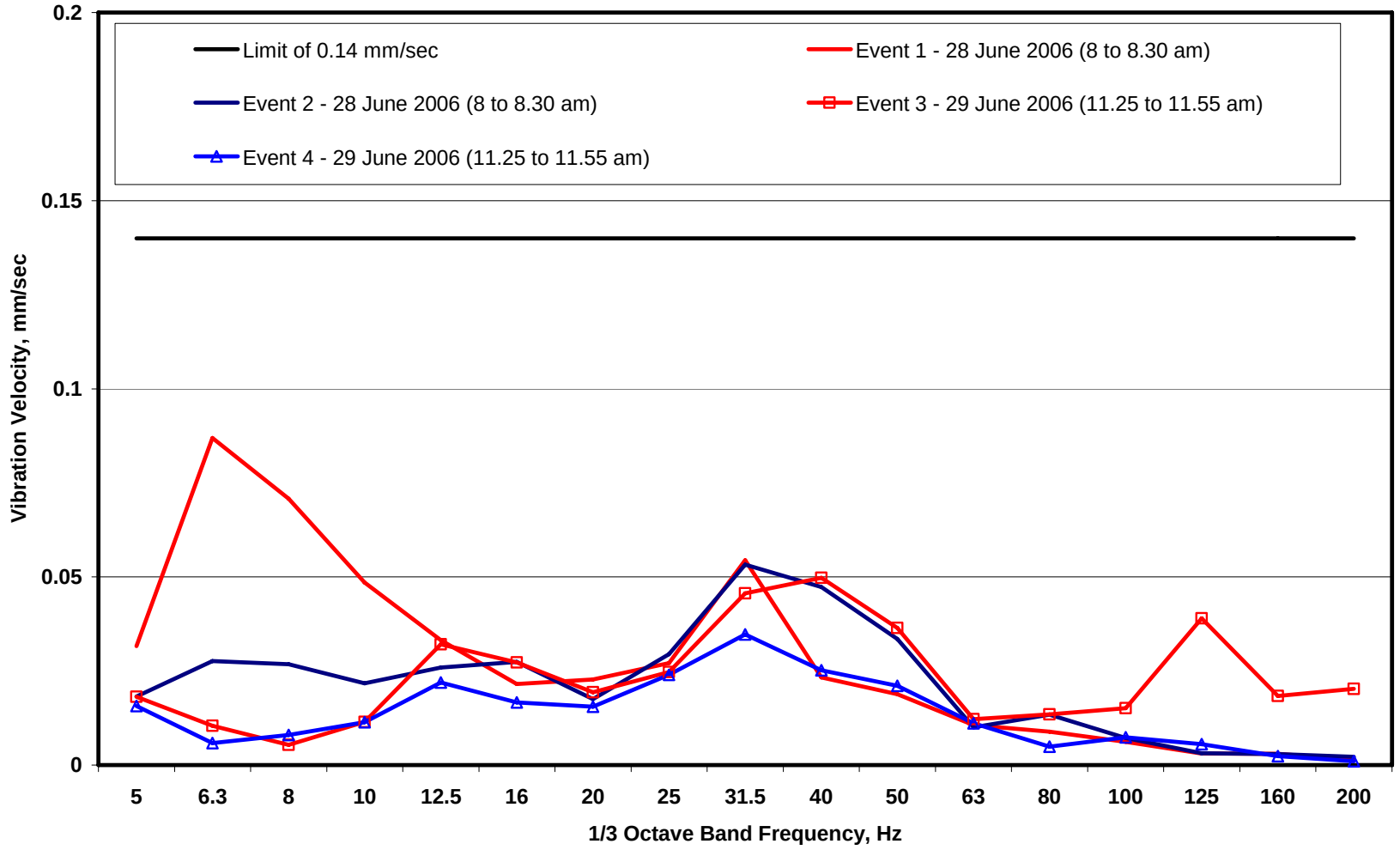


Figure 2. Vibration Levels from Road Traffic Pass-Bys
Sidewalk near the 5th Block South of Riverside Avenue

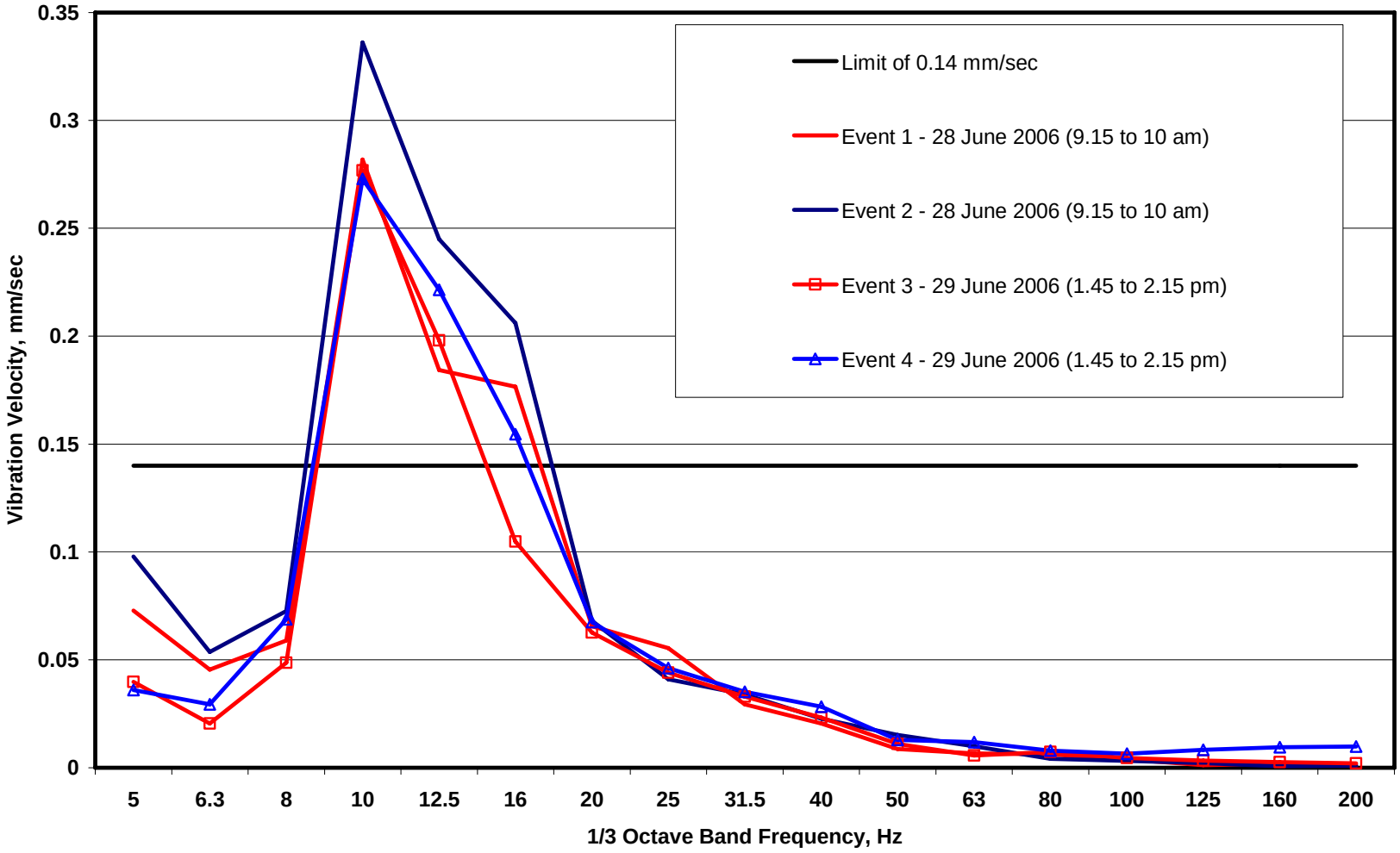


Figure 3. Vibration Levels from Road Traffic Pass-Bys
End of Mill Road

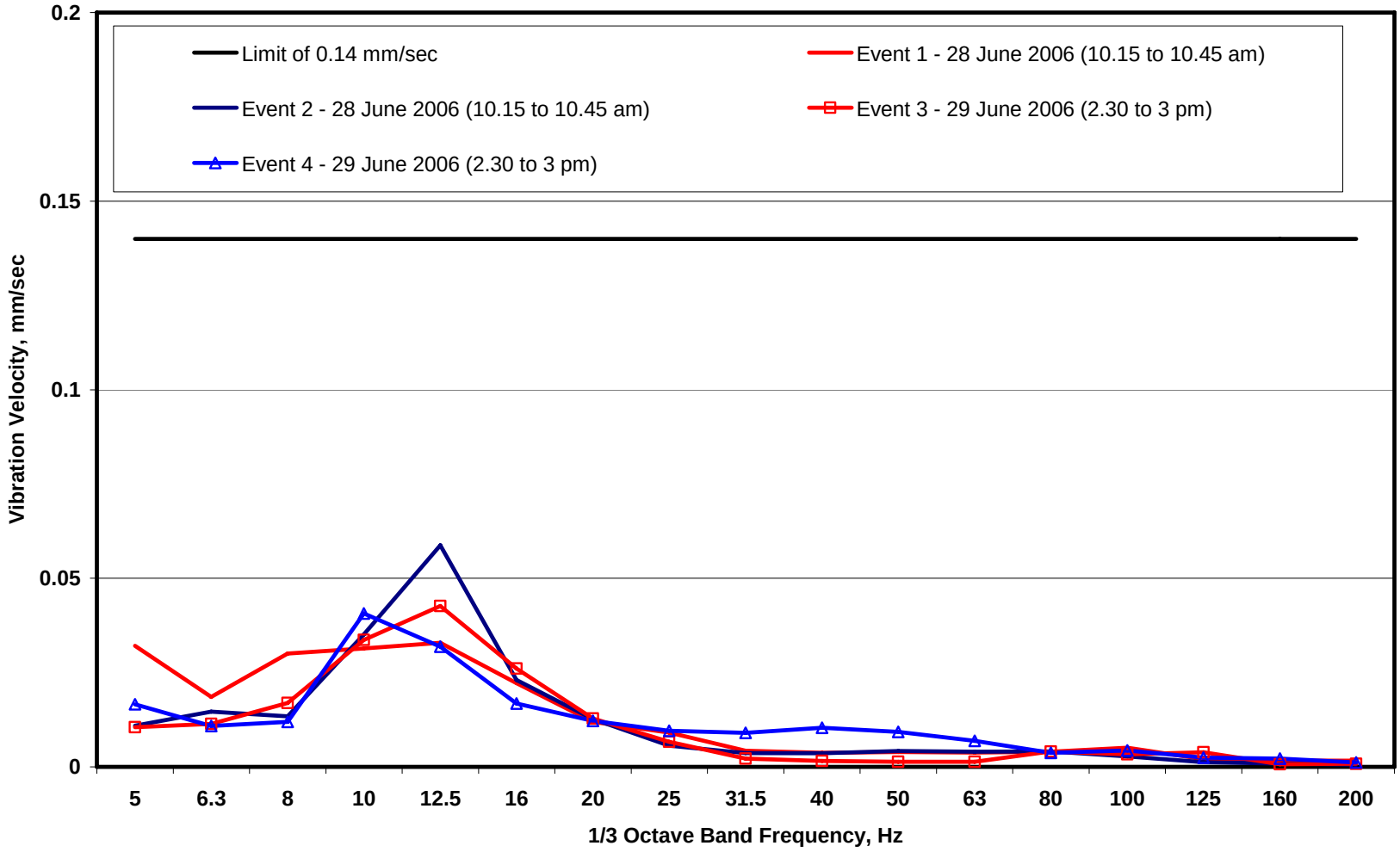


Figure 4. Vibration Levels from Road Traffic Pass-Bys
Heritage Park Alliance Church

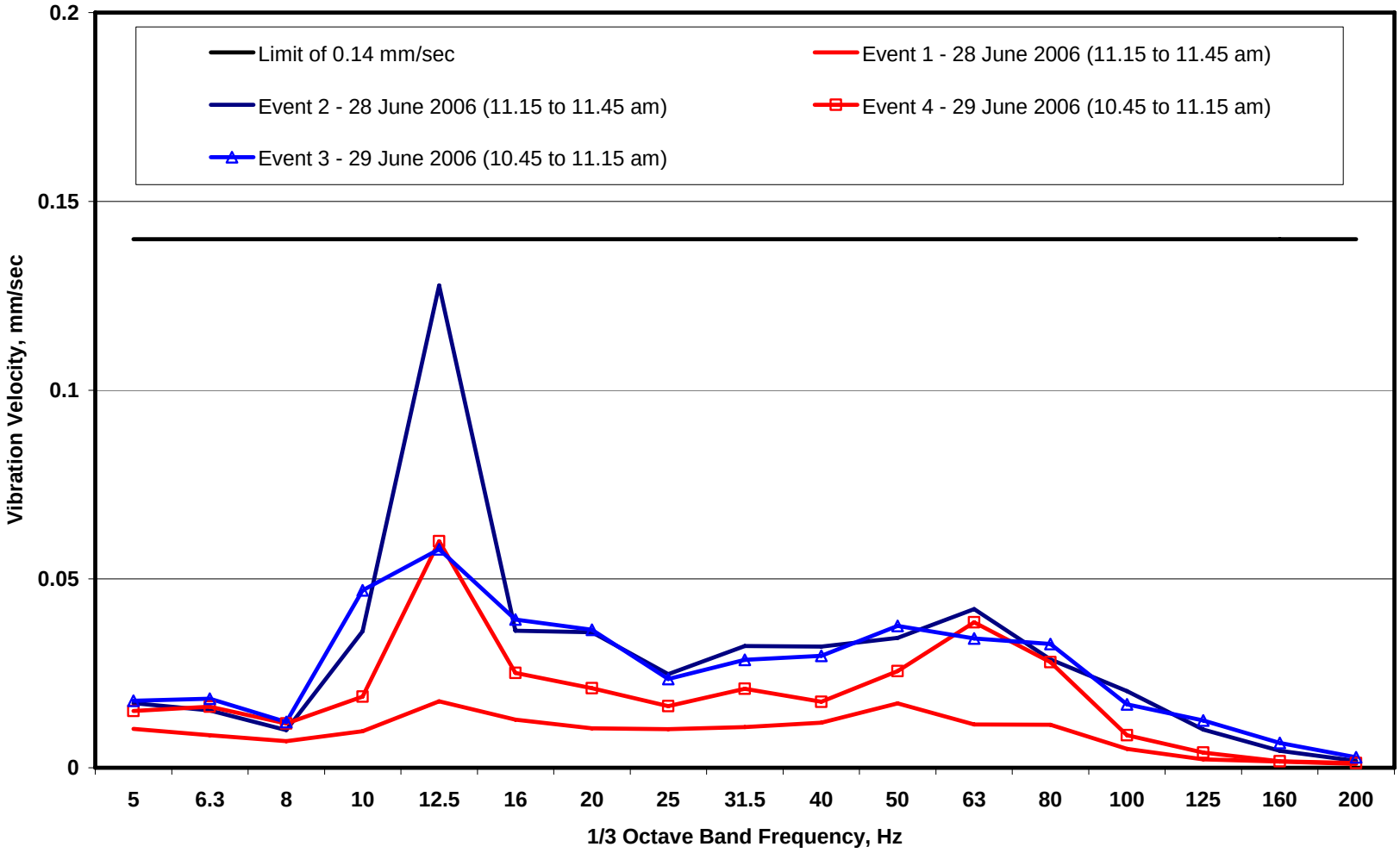


Figure 5. Vibration Levels from Road Traffic Pass-Bys
Park near 2370 Northway

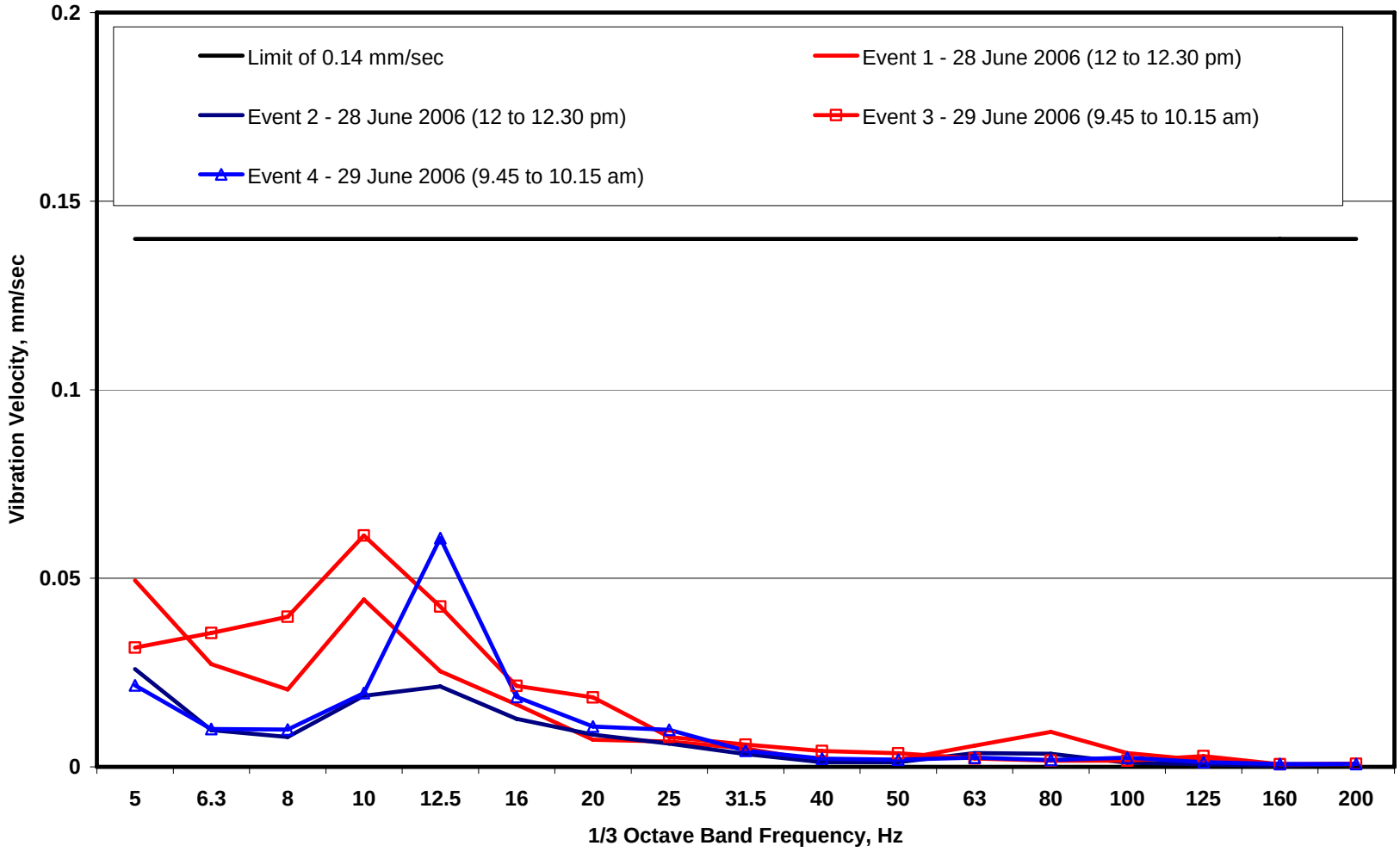


Figure 6. Vibration Levels from Road Traffic Pass-Bys
Dainty Rice (Ojibway and Broadway)

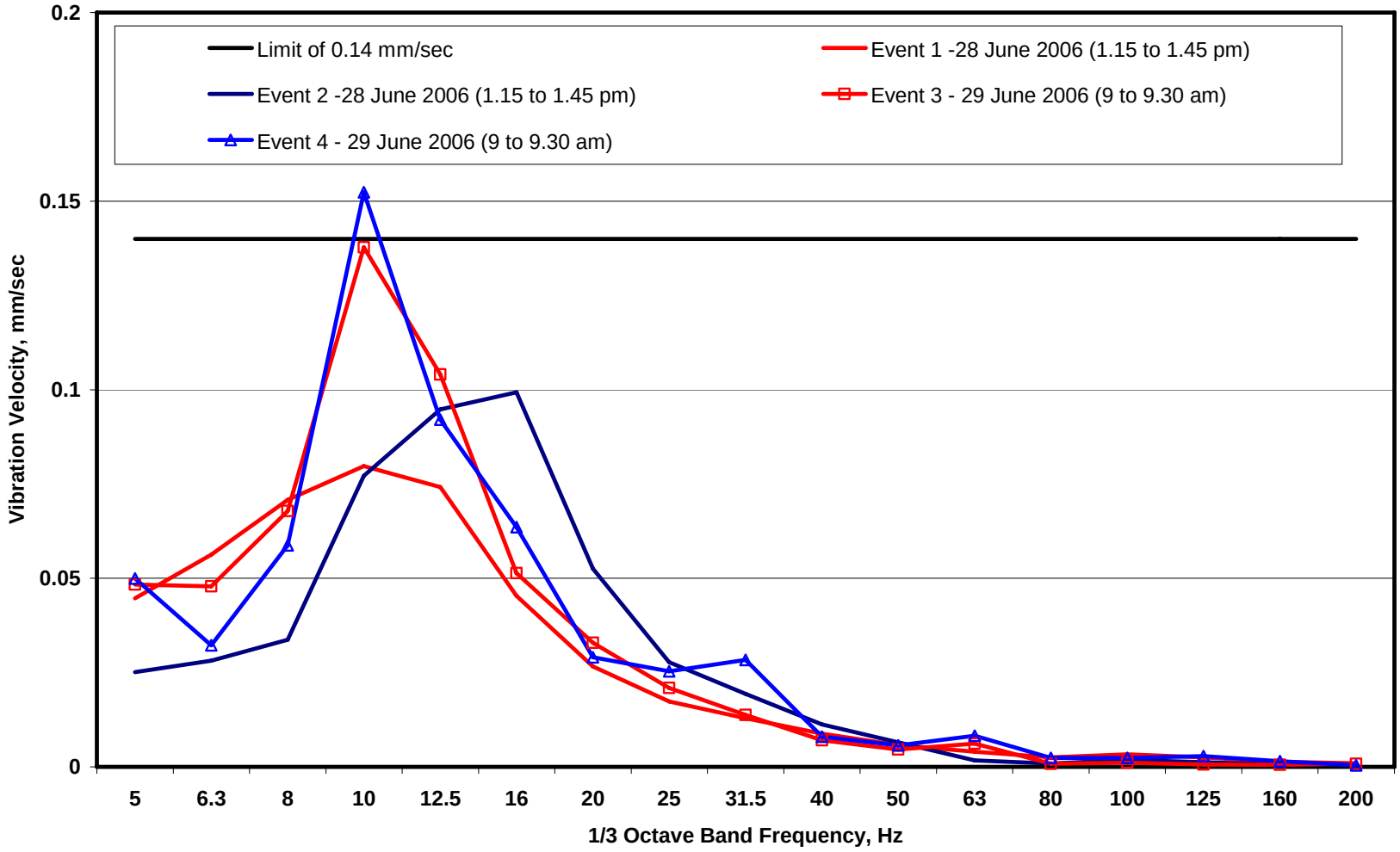


Figure 7. Vibration Levels from Road Traffic Pass-Bys Near 4340 Malden

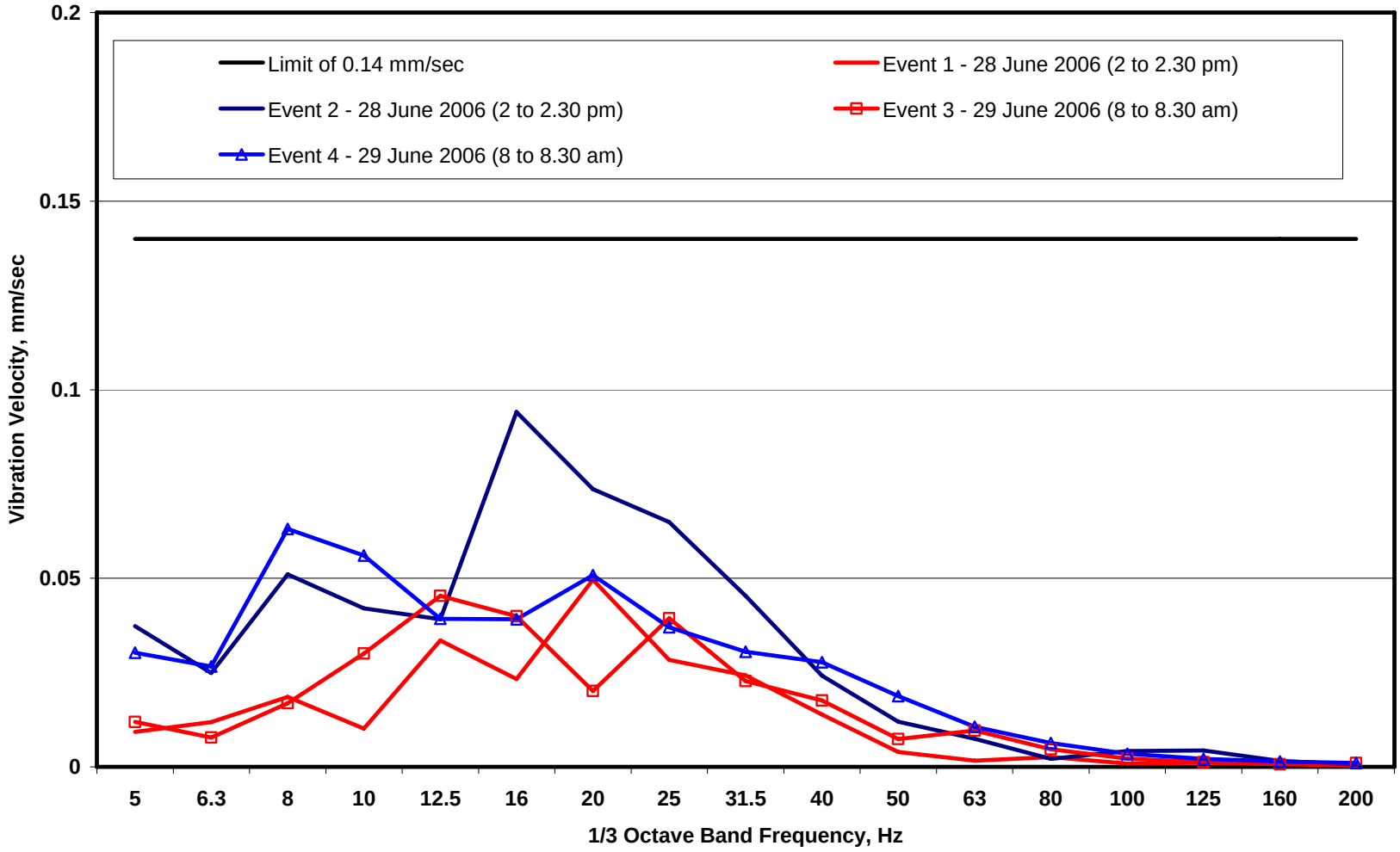


Figure 8. Vibration Levels from Road Traffic Pass-Bys
East side of Huron Church - Opposite to 3495 - Turning Loop

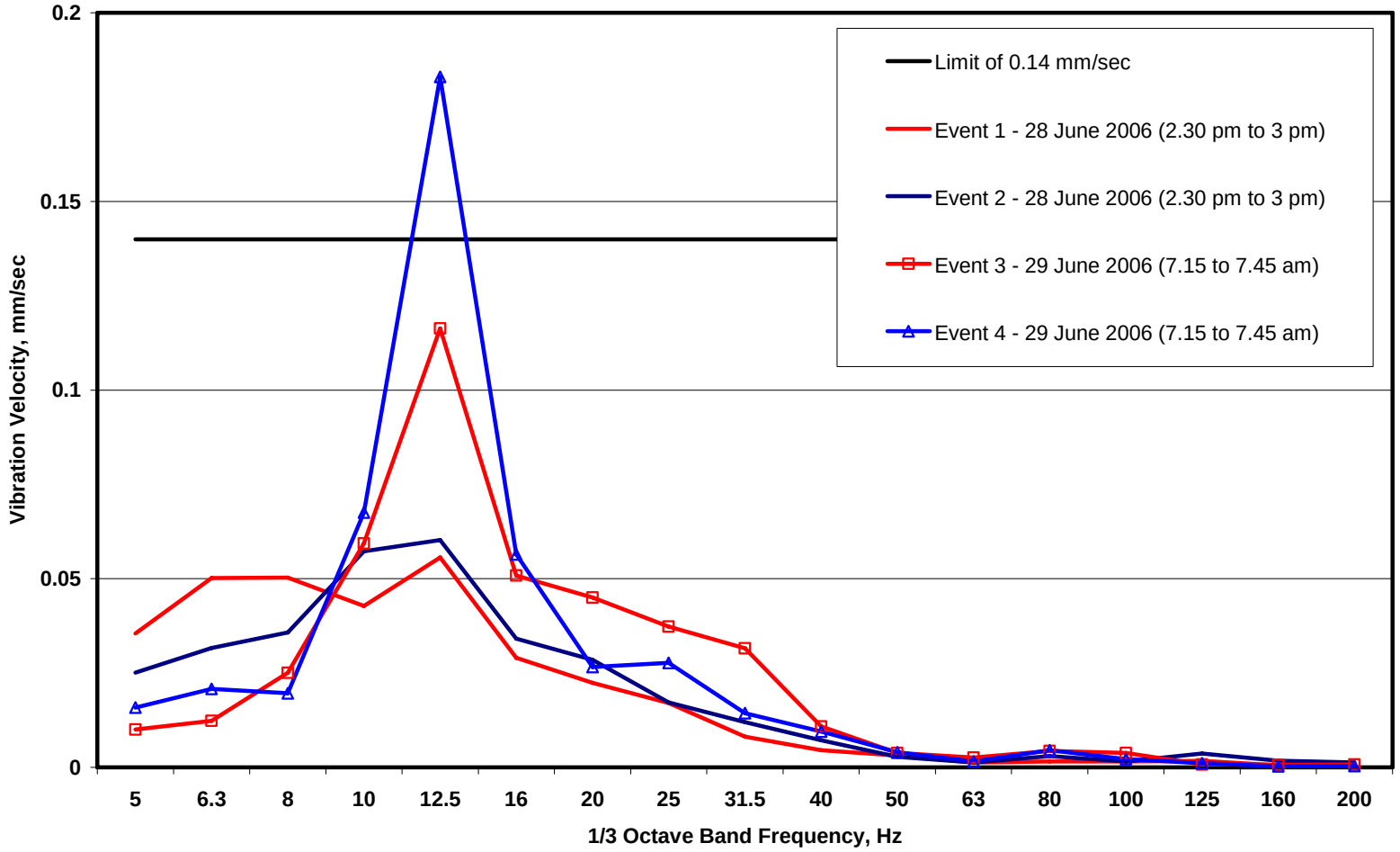
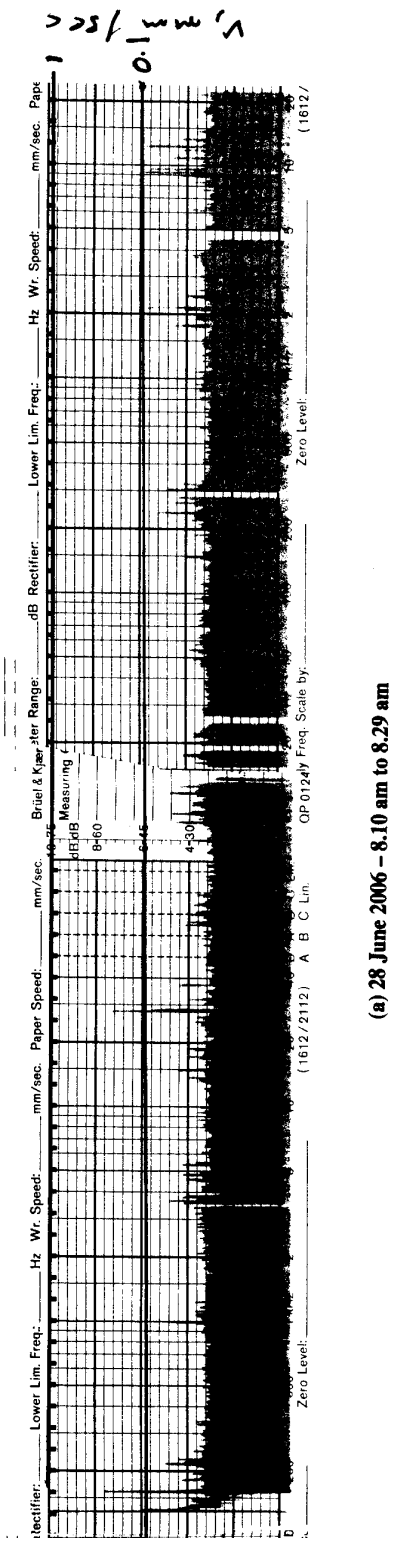
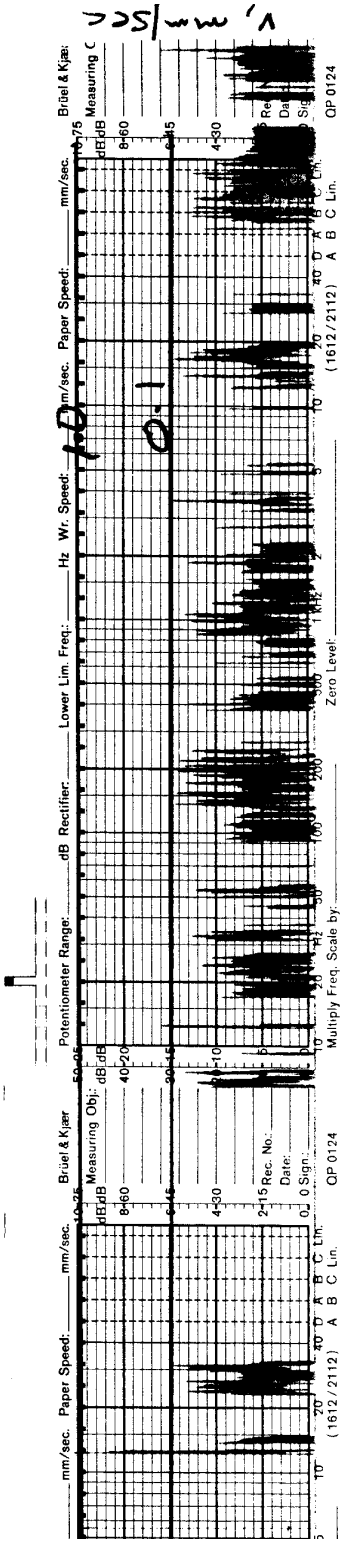


FIGURE 9. VIBRATION TIME HISTORY FOR LOCATION 1

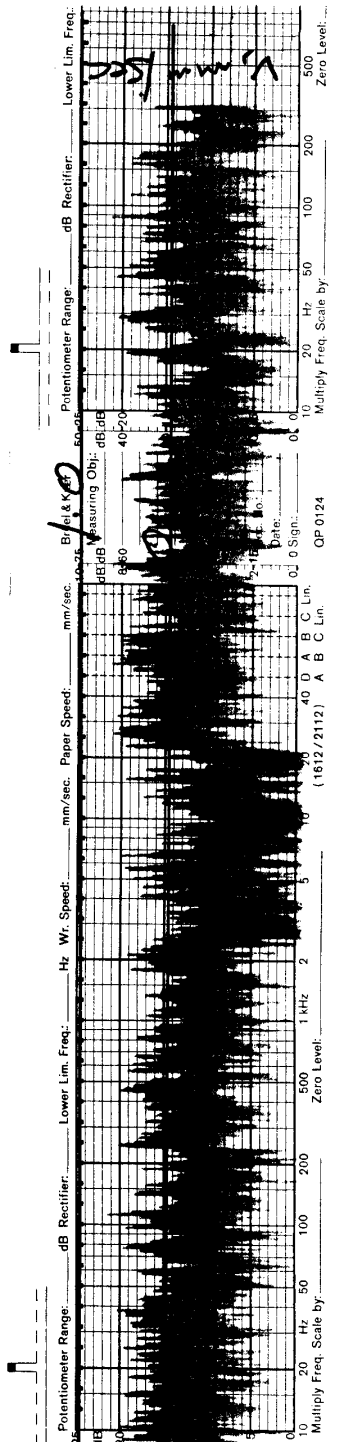


(a) 28 June 2006 – 8.10 am to 8.29 am

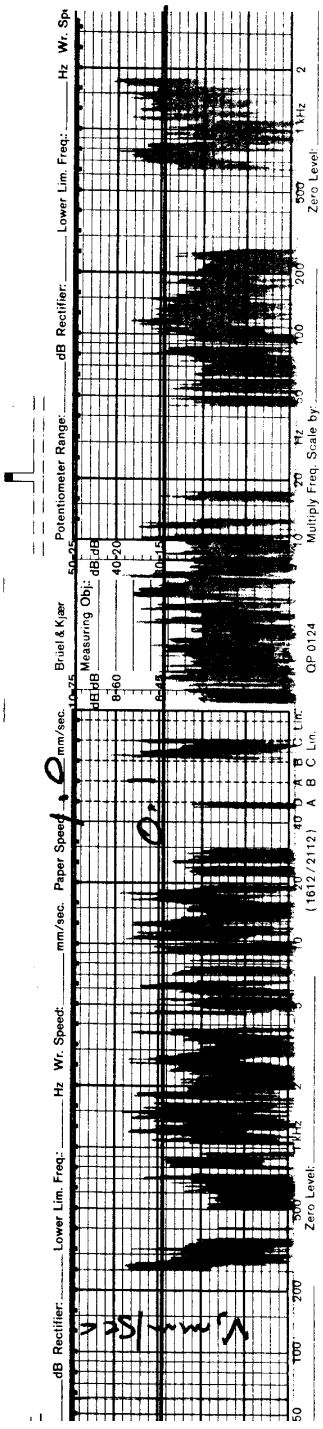


(b) 29 June 2006 – 11.32 am to 11.49 am

FIGURE 10. VIBRATION TIME HISTORY FOR LOCATION 2

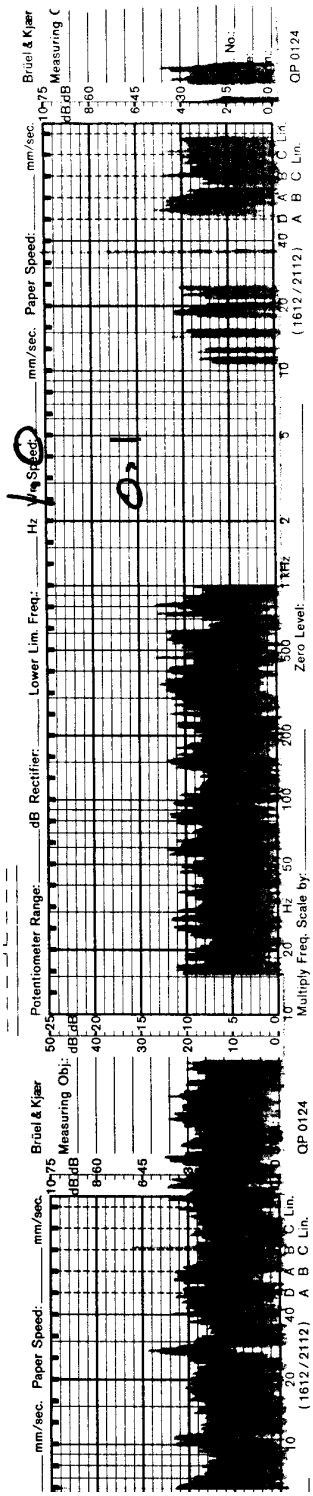


(a) 28 June 2006 – 9.27 am to 9.47 am

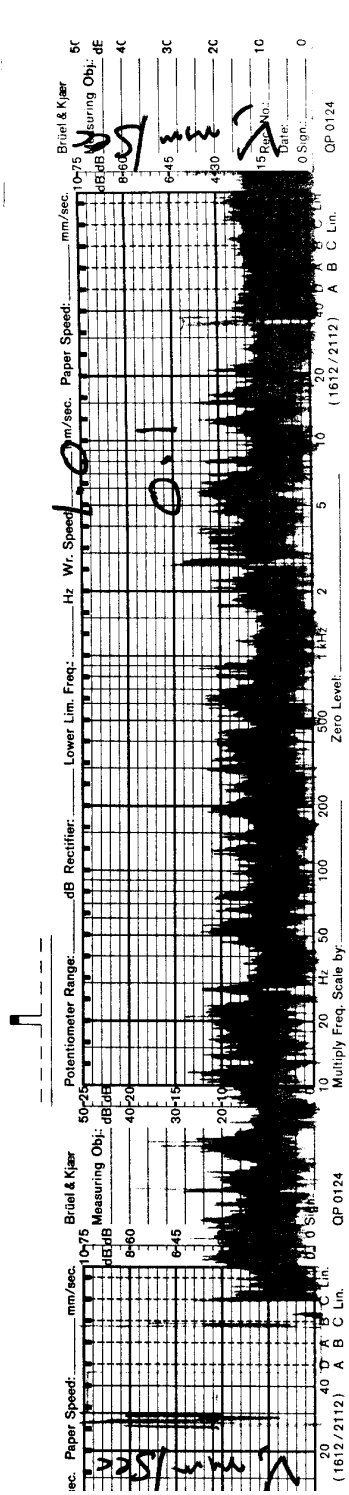


(b) 29 June 2006 – 1.56 pm to 2.10 pm

FIGURE 11. VIBRATION TIME HISTORY FOR LOCATION 3

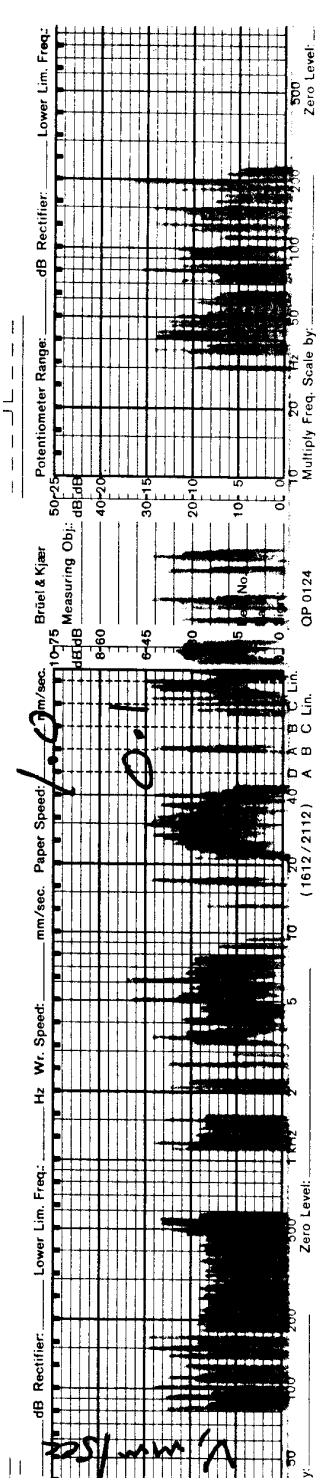


(a) 28 June 2006 – 10.22 am to 10.41 am

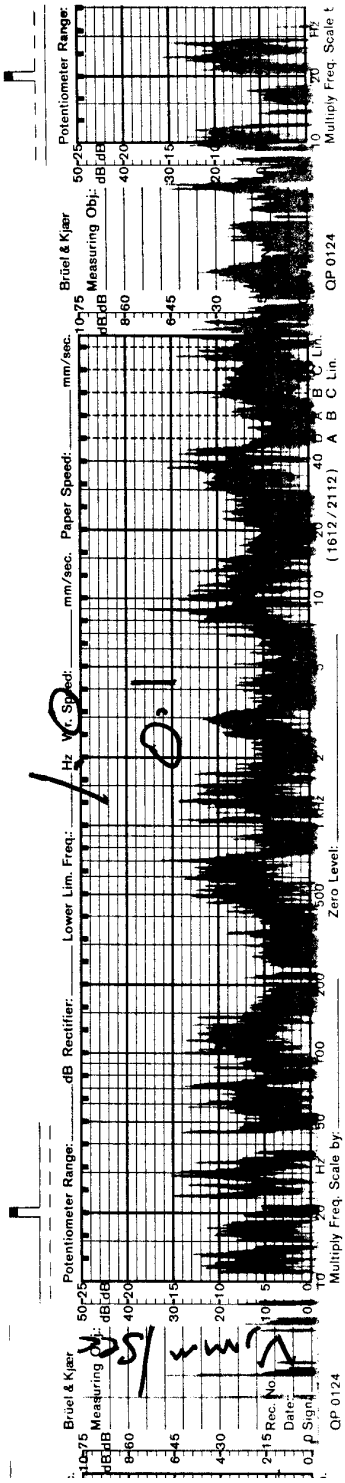


(b) 29 June 2006 – 2.34 pm to 2.49 pm

FIGURE 12. VIBRATION TIME HISTORY FOR LOCATION 4

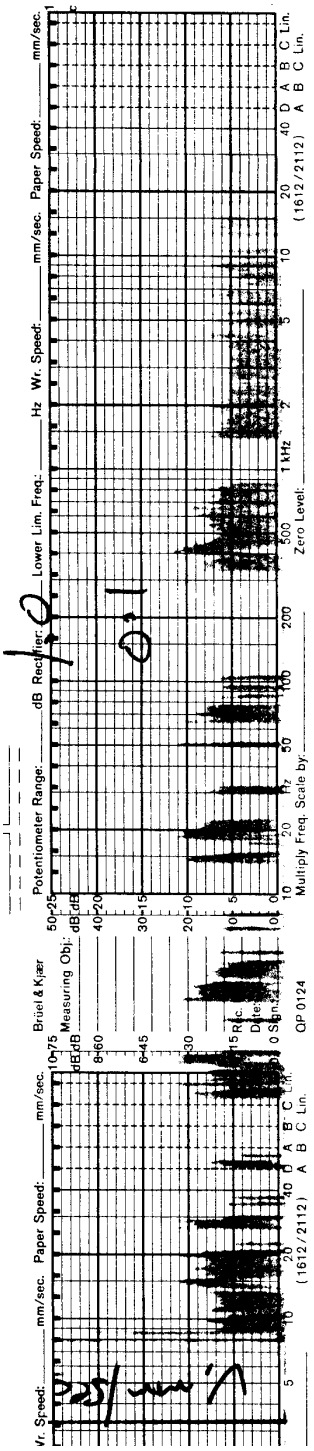


(a) 28 June 2006 – 11.13 am to 11.31 am

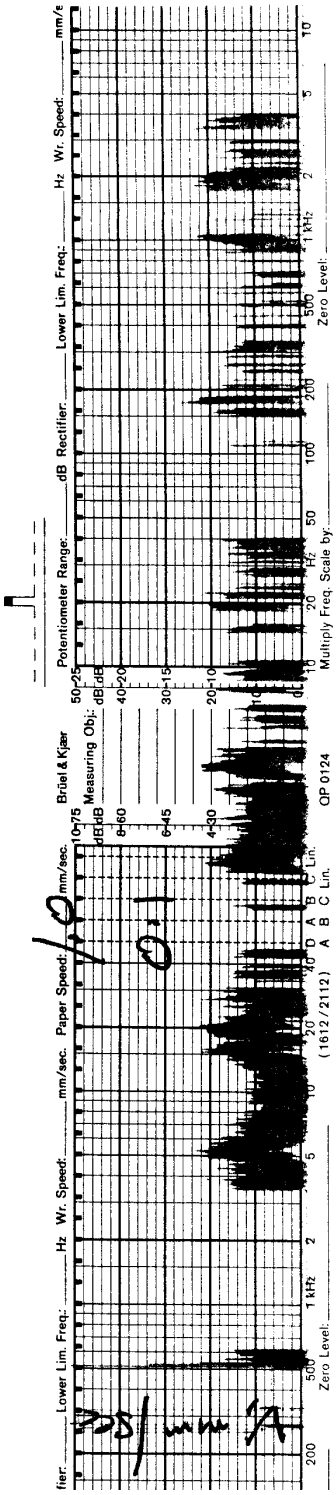


(b) 29 June 2006 – 10.50 am to 11.05 am

FIGURE 13. VIBRATION TIME HISTORY FOR LOCATION 5

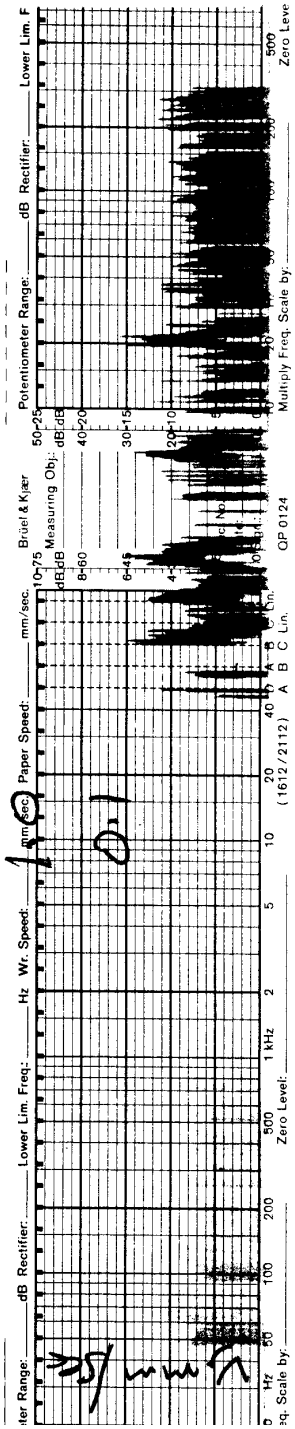


(a) 28 June 2006 – 12.09 pm to 12.27 pm

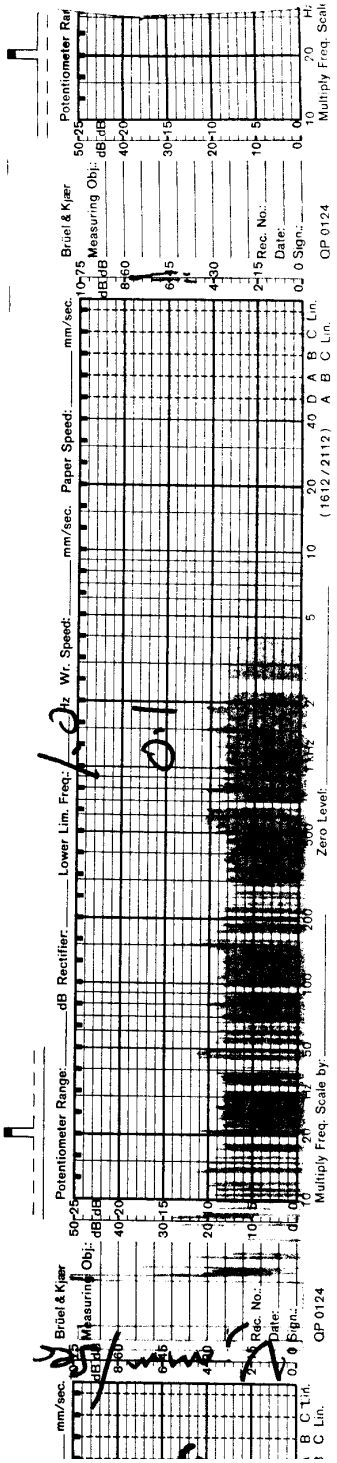


(b) 29 June 2006 – 11.32 am to 11.49 am

FIGURE 14. VIBRATION TIME HISTORY FOR LOCATION 6

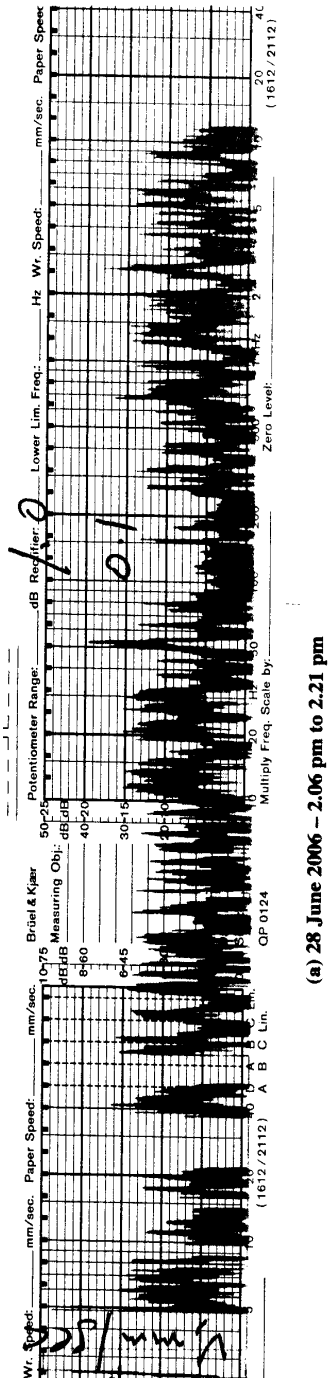


(a) 28 June 2006 – 1.18 pm to 1.36 pm

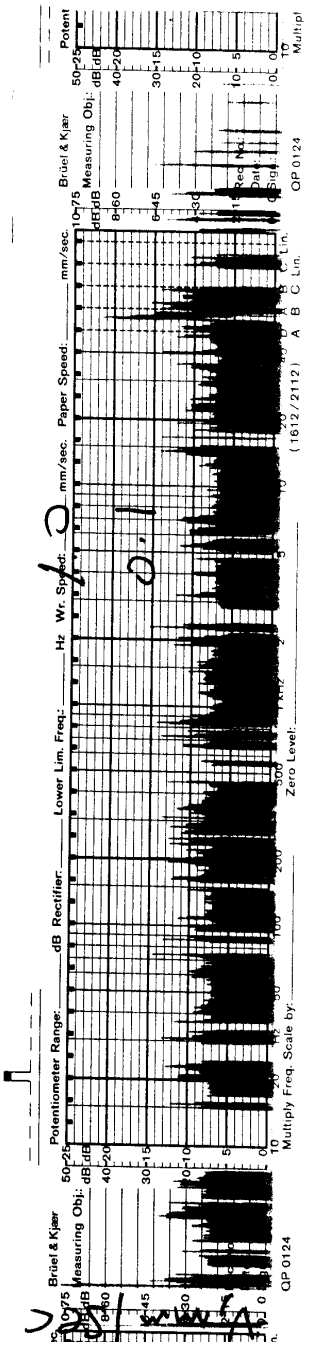


(b) 29 June 2006 – 9.14 am to 9.28 am

FIGURE 15. VIBRATION TIME HISTORY FOR LOCATION 7

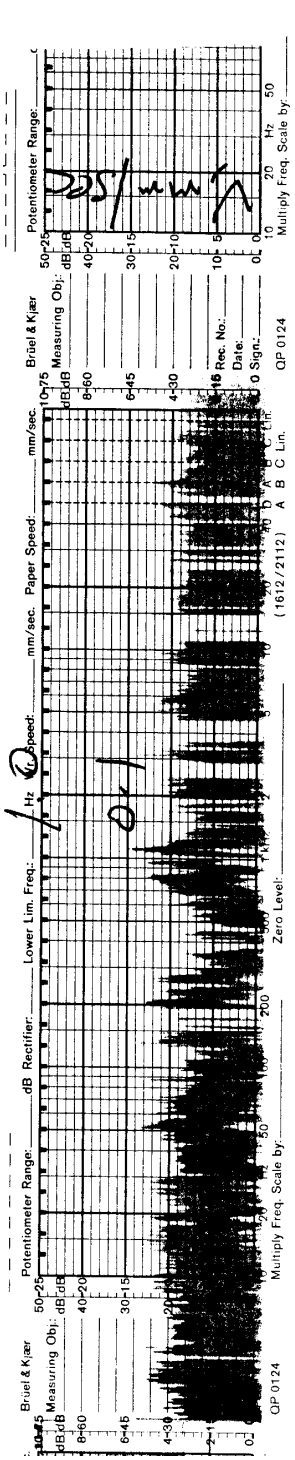


(a) 28 June 2006 – 2.06 pm to 2.21 pm

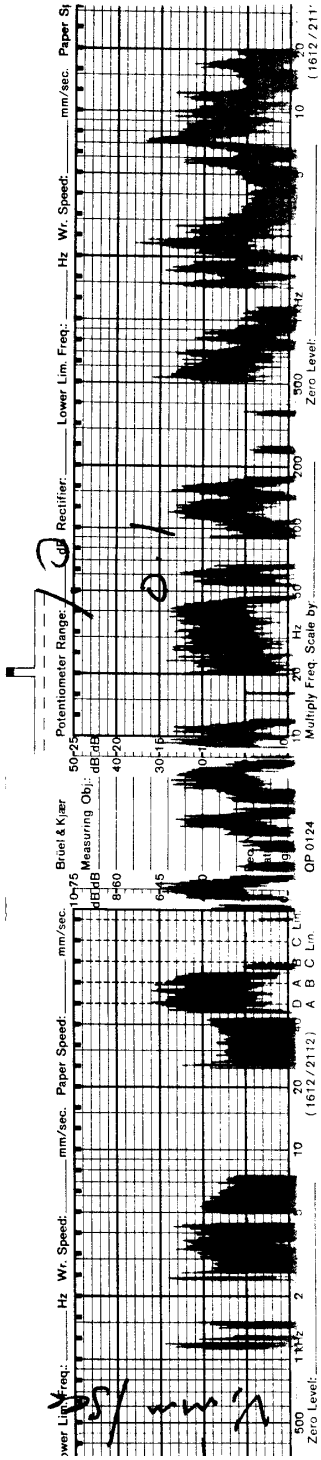


(b) 29 June 2006 – 8.04 am to 8.20 am

FIGURE 16. VIBRATION TIME HISTORY FOR LOCATION 8



(a) 28 June 2006 – 2.49 pm to 3.04 pm



(b) 29 June 2006 – 7.22 am to 7.39 am

Appendix E – STAMSON Data Files – TEPA with Mitigation

Note: Due to its size, this appendix is maintained under separate cover.