McCORMICK RANKIN
A member of MMM GROUP

2655 North Sheridan Way, Suite 300
Mississauga, ON Canada L5K 2P8
t: 905.823.8500
f: 905.823.8503
mrc@mrc.ca
www.mrc.ca

MEMO

RE:	Lauzon Parkway Class Environmental Assessment Study
FROM:	Cristina Lizarazo, E.I.T., MRC
DATE:	July 15, 2013
COPIES:	Katherine Jim, P.Eng., MRC
OUR FILE:	W.O. 3211012
SUBJECT:	Lauzon Parkway Class EA Study Noise Assessment

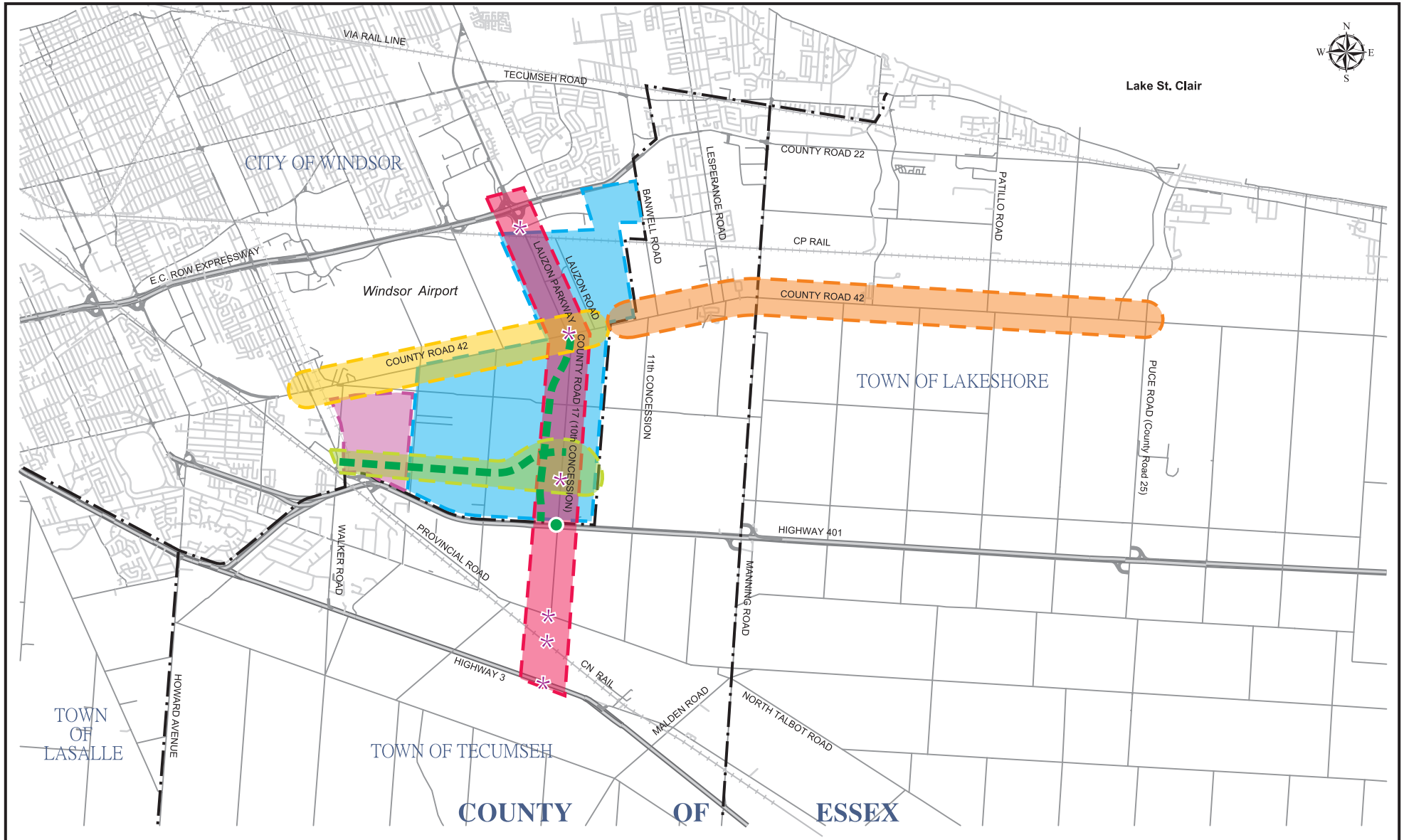
1. Introduction

On behalf of the Ontario Ministry of Transportation, the City of Windsor and the County of Essex, MRC is undertaking a Class Environmental Assessment Study to address the future requirements for Lauzon Parkway, County Road 42 and the E-W Arterial. The study includes the following main components:

- Lauzon Parkway from E.C. Row Expressway to County Road 42
- Lauzon Parkway's extension to Highway 3
- The environmental assessment study for Essex County Road 42 from Walker Road to Essex County Road 25
- The environmental assessment study for the E-W Arterial from Walker Road to Essex County Road 17
- Preparation and approval of a Secondary Plan for the remainder of the lands transferred to the City of Windsor in 2003 (lands are generally bounded by the CPR mainline north of the Windsor International Airport, Lauzon Parkway and the 8th Concession Road, and the City of Windsor boundary)

The preferred plan includes: widening Lauzon Parkway from E.C. Row Expressway to County Road 42 from two to six lanes and extend Lauzon Parkway from County Road 42 to Highway 3, where the section from County Road 42 to Highway 401 is proposed to operate with 6 lanes and the section from Highway 401 to Highway 3 with 4 lanes. In addition, it is proposed that County Road 42 be widened from two to four lanes from Walker Road to County Road 25 (Puce Road) and the E-W Arterial be two lanes from Walker Road to County Road 17.

The key plan for this study is illustrated in Figure 1.



Lauzon Parkway Planning and Preliminary Design
G.W.P. 3017-09-00 | P.O. 3009-E-0029

Figure 1: Key Plan

As part of the Class EA Study, a noise assessment was conducted to assess the potential increase in noise levels to Noise Sensitive Areas as a result of the proposed improvements to Lauzon Parkway and County Road 42, as well as the proposed construction of the Lauzon Parkway extension and the E-W Arterial. Existing land uses in the area are mainly rural residential.

This memorandum summarizes the findings of the noise assessment.

2. Methodology

Noise levels are predicted in decibels in the A-weighted dBA scale, which best approximates the human perception of sound over a specified time period. An increase of 2 to 3 decibels in noise levels is considered to be just perceivable to the average person. It should be noted that a 3 dBA increase in noise equates to a doubling of traffic volumes.

Ministry of the Environment Guidelines

Since roadway sound levels vary over time, the noise descriptor used in Ontario to assess noise is the equivalent sound level, L_{eq}. L_{eq} is identified as the continuous sound level, which has the same energy as a time varying sound level over a specified time period. For the purposes of assessing municipal roadway noise, L_{eq} is calculated on the basis of the 16 hour daytime period, 7:00 a.m. to 11:00 p.m.

Based on the Ontario Ministry of Transportation (MTO) / Ministry of the Environment (MOE) Noise Protocol, where an existing roadway is proposed to be modified / widened adjacent to a Noise Sensitive Area (NSA), MOE requires that the future noise levels without the proposed roadway improvements be compared to the future noise level with the proposed roadway improvements.

Change in Noise Level Above Ambient / Projected Noise Levels with Proposed Improvements	**Mitigation Effort Required**
0 to 5 dBA change	- None
> 5 dBA change	- Investigate noise control measures on right-of-way (ROW) - If project cost is not significantly affected, introduce noise control measure within ROW - Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row receivers - Mitigate to ambient, as administratively, economically, and feasible

The assessment is done at the outdoor living area (typically backyards) of each NSA. The provision of noise mitigation is to be investigated should the future noise level with the proposed roadway improvements result in a greater than 5 dBA increase over the future noise level without the proposed roadway improvements. If noise mitigation is provided, the objective is a minimum 5 dBA reduction. Mitigation will attempt to achieve levels as close to, or lower than, the objective level as is technically, economically and administratively feasible.

The STAMSON 5.0 computer modelling program, which is approved for use in Ontario by the MOE, was used to assess existing and future noise levels of NSA's adjacent to Lauzon Parkway, County Road 42 and the E-W Arterial. This program is used to predict noise levels generated from the road at the outdoor living areas (typically backyards) of NSA's.

3. Analysis

Two scenarios were calculated:

i) future noise levels without proposed roadway improvements (Year 2031)

ii) future noise levels with proposed roadway improvements (Year 2031)

In cases where residential homes selected to represent NSA's where there is no existing road (i.e. Lauzon Parkway south of County Road 42 and the E-W Arterial) and where there is no available traffic data for the road the home is located on, then a noise level of 45 dBA was utilized to represent future noise levels without the roadway improvements.

Traffic data for each road section was extracted from the traffic analysis carried out as part of the Lauzon Parkway Class EA Study. In addition, for the purpose of this analysis, future traffic volumes without the proposed roadway improvements were assumed to be the same as the existing conditions (2011) given that the roads are operating at or near capacity. The exception is Baseline Road, where the volumes are directly dependent on the proposed future widening's of County Road 42 and the Lauzon Parkway Extension. Without the proposed future roadway improvements, there will be a higher traffic demand for Baseline Road in the future. Therefore, future traffic volumes for Baseline Road without the proposed roadway improvements were estimated to be five percent greater than existing conditions. In addition, future traffic volumes on Baseline Road with the proposed roadway improvements were anticipated to be the same as existing conditions given that the proposed roadway improvements would relieve some of the demand off of Baseline Road.

The following table summarizes the main assumptions and factors used in the analysis.

Table 3-1 - Factors Used In Noise Analysis

Noise Descriptor	L_{eq} (16 hr)
Posted Speed	County Road 42 from Walker Road to Manning Road – 60 km/h County Road 42 east of Manning Road – 80 km/h Lauzon Parkway from north of County Road 42 to Highway 401 – 70 km/h Lauzon Parkway from Highway 401 to Highway 3 – 80 km/h E-W Arterial – 50 km/h 10th Concession Road – 80km/h County Road 46 – 80 km/h Sexton Sideroad – 80 km/h Highway 3 – 60 km/h Highway 401 – 100 km/h Baseline Road – 80 km/h
Traffic Volumes AADT	County Road 42 (west of Lauzon Parkway) - Existing (2011) – 14,000 - Future (2031) – 19,100 County Road 42 (Lauzon Parkway to Banwell Road) - Existing (2011) – 12,600 - Future (2031) – 19,100 County Road 42 (Banwell Road to Manning Road) - Existing (2011) – 12,600 - Future (2031) – 20,400 County Road 42 (east of Manning Road) - Existing (2011) – 8,500 - Future (2031) – 9,600 Lauzon Parkway (north of County Road 42) - Existing (2011) – 16,500 - Future (2031) – 40,700 Lauzon Parkway (County Road 42 to E-W Arterial) - Existing (2011) – N/A - Future (2031) – 41,300 Lauzon Parkway (E-W Arterial to Highway 401) - Existing (2011) – N/A - Future (2031) – 37,900 Lauzon Parkway (Highway 401 to Highway 3) - Existing (2011) – N/A - Future (2031) – 27,900 Future E-W Arterial - Existing (2011) – N/A - Future (2031) – 6,500 10th Concession Road - Existing (2011) – 3,000

	- Future (2031) – 3,000 County Road 46 - Existing (2011) – 7,000 - Future (2031) – 16,900 Sexton Sideroad[1] - Existing (2011) – 2,000 Highway 3 - Existing (2011) – 15,000 - Future (2031) – 33,000 Highway 401 - Existing (2011) – 28,000 - Future (2031) –39,000 Baseline Road - Existing (2011) – 5,670 - Future (2031) –5,400
Truck Percentages [2] (Medium / Heavy)	County Road 42 (west of Lauzon Parkway) - Medium Truck – 2.5 % - Heavy Truck – 4.5 % County Road 42 (Lauzon Parkway to Banwell Road) - Medium Truck – 3.8 % - Heavy Truck – 7.2 % County Road 42 (Banwell Road to Manning Road) - Medium Truck – 4.2 % - Heavy Truck – 7.8 % County Road 42 (east of Manning Road) - Medium Truck – 4.9 % - Heavy Truck – 9.1 % Lauzon Parkway (north of County Road 42) - Medium Truck – 3.5 % - Heavy Truck – 6.5 % Lauzon Parkway (County Road 42 to E-W Arterial) - Medium Truck – 3.5 % - Heavy Truck – 6.5 % Lauzon Parkway (E-W Arterial to Highway 401) - Medium Truck – 3.5 % - Heavy Truck – 6.5 % Lauzon Parkway (Highway 401 to Highway 3) - Medium Truck – 3.5 % - Heavy Truck – 6.5 % Future E-W Arterial - Medium Truck – 2.5 % - Heavy Truck – 4.5 %

	10th Concession Road - Medium Truck – 4.0 % - Heavy Truck – 1.0 % County Road 46 - Medium Truck – 5.0 % - Heavy Truck – 2.0 % Sexton Sideroad - Medium Truck – 4.0 % - Heavy Truck – 1.0 % Highway 3 - Medium Truck – 3.5 % - Heavy Truck – 6.5 % Highway 401 - Medium Truck – 4.2 % - Heavy Truck – 7.8 % Baseline Road - Medium Truck – 3.0 % - Heavy Truck – 2.0 %
Receptor Height	1.5 m above the ground

Note:
1. Since Sexton Sideroad will be replaced by the Lauzon Parkway extension, the future AADT corresponds to the AADT on Lauzon Parkway between Highway 401 and Highway 3.

2. Future truck percentages were assumed to be the same existing

4. Noise Sensitive Areas

There are several residential houses (i.e. NSA's) abutting County Road 42, Lauzon Parkway and the E-W Arterial within the study limits. The noise assessment was undertaken based on a selection of residential homes located adjacent to Lauzon Parkway, County Road 42 and the E-W Arterial, or which were observed to have the closest proximity to the identified roads for residential homes in more rural areas. As a result, there were 33 residential houses selected to be included in the noise calculations to represent the NSA's in the overall study area.

In addition, it should be noted that future development will have to carry out noise assessment as part of the development application process where planned improvements in the transportation network will have to be taken into consideration. Therefore, noise assessment for future development is not included as part of the noise analysis carried out for this Class EA Study.

The selected receiver locations are summarized in Table 4-1 and illustrated in Exhibit 1.

Table 4-1 – Receiver Locations

R1	637 Puce Road	County Road 42	Side Lot
R2	549 River Downs Avenue	County Road 42	Reverse Frontage
R3	747 County Road 42	County Road 42	Frontage
R4	552 County Road 42	County Road 42	Side Lot
R5	501 County Road 42	County Road 42	Frontage
R6	390 County Road 42	County Road 42	Side Lot
R7	249 County Road 42	County Road 42	Frontage
R8	230 County Road 42	County Road 42	Side Lot
R9	203 County Road 42	County Road 42	Frontage
R10	72 County Road 42	County Road 42	Frontage
R11	13175 County Road 42	County Road 42	Frontage
R12	2965 Strawberry Drive	County Road 42	Side Lot
R13	12733 County Road 42	County Road 42	Side Lot
R14	12050 County Road 42	County Road 42	Frontage
R15	12024 Cranbrook Cres.	County Road 42	Reverse Frontage
R16	12006 Cranbrook Cres.	County Road 42	Reverse Frontage
R17	11512 County Road 42	County Road 42	Frontage
R18	11205 County Road 42	County Road 42	Frontage
R19	3405 11th Concession Rd	County Road 42	Side Lot
R20	8667 County Road 42	County Road 42	Frontage
R21	Residence on County Road 42 immediately west of Lauzon Rd	County Road 42	Frontage
R22	6424 County Road 42	County Road 42	Frontage
R23	3555 County Road 42	County Road 42	Frontage
R24	7195 Country Road 42	Lauzon Parkway / County Road 42	Side Lot to Lauzon Parkway Frontage to County Road 42
R25	6690 Baseline Road	Lauzon Parkway / Baseline Road	Side Lot
R26	4535 County Road 17	Lauzon Parkway / County Road 17	Reverse Frontage
R27	4855 10th Concession Rd	Lauzon Parkway / County Road 17 / Highway 401	Reverse Frontage
R28	6484 County Road 46	Lauzon Parkway / County Road 46	Side Lot
R29	6703 County Road 46	Lauzon Parkway / County Road 46	Side Lot
R30	5550 Sexton Sideroad	Lauzon Parkway	Frontage
R31	5395 Highway 3	Lauzon Parkway / Highway 3	Frontage
R32	4774 8th Concession Rd	E-W Arterial	Side Lot
R33	4621 10th Concession Rd	E-W Arterial / County Road 17	Side Lot

5. Results

Noise levels were calculated at the selected receiver locations for the future with and without roadway improvements scenarios. Table 5-1 and Exhibit 1 summarize the predicted daytime noise levels at Receivers 1 to 33, the potential changes in future noise levels, and whether the consideration of noise mitigation is warranted per the MTO/MOE Noise Protocol (i.e. a change in noise level greater than 5dBA).

STAMSON output sheets for existing and future noise levels for Receivers 1 to 33 are on file with MRC.

Table 5-1: Lauzon Parkway Improvements Class EA – Summary of Calculated Noise Levels

Receiver Location (see key plan)	Distance from Receiver Location to Noise Source (EB/WB, NB/SB)		Projected Noise Level (Year 2031) dBA Leq (16 hr)			Consideration of Noise Mitigation Required Based on MTO/MOE Criteria (> 5 dBA change)
	Existing / Future without Improvements	Future with Improvements	Existing / Future Without Improvements	Future With Improvements	Change in Noise Level	
Receiver 1 637 Puce Road	County Road 42 - 43 m	County Road 42 – 33 m / 41 m	62.3	64.0	+ 1.7	No
Receiver 2 637 Puce Road	County Road 42 - 30 m	County Road 42 – 39 m / 31 m	64.7	64.3	- 0.4	No
Receiver 3 747 County Road 42	County Road 42 - 52 m	County Road 42 – 52 m / 59 m	60.9	60.9	No change	No
Receiver 4 552 County Road 42	County Road 42 - 45 m	County Road 42 – 47 m / 38 m	61.8	62.9	+ 1.1	No
Receiver 5 501 County Road 42	County Road 42 - 41 m	County Road 42 – 40 m / 48 m	62.5	62.6	+ 0.1	No
Receiver 6 390 County Road 42	County Road 42 - 31 m	County Road 42 – 31 m / 24 m	64.5	66.1	+ 1.6	No
Receiver 7 249 County Road 42	County Road 42 - 50 m	County Road 42 – 51 m / 59 m	61.1	61.0	- 0.1	No
Receiver 8 230 County Road 42	County Road 42 - 40 m	County Road 42 – 39 m / 31 m	62.7	64.3	+ 1.6	No
Receiver 9 203 County Road 42	County Road 42 - 38 m	County Road 42 – 38 m / 45 m	63.2	63.1	- 0.1	No
Receiver 10 72 County Road 42	County Road 42 - 50 m	County Road 42 – 49 m / 42 m	61.2	62.4	+ 1.2	No
Receiver 11 13175 County Road 42	County Road 42 - 47 m	County Road 42 – 42 m / 53 m	60.5	62.6	+2.1	No
Receiver 12 2965 Strawberry Drive	County Road 42 - 33 m	County Road 42 – 38 m / 27 m	63.0	65.6	+ 2.6	No

Receiver Location (see key plan)	Distance from Receiver Location to Noise Source (EB/WB, NB/SB)		Projected Noise Level (Year 2031) dBA Leq (16 hr)			Consideration of Noise Mitigation Required Based on MTO/MOE Criteria (> 5 dBA change)
	Existing / Future without Improvements	Future with Improvements	Existing / Future Without Improvements	Future With Improvements	Change in Noise Level	
Receiver 13 12733 County Road 42	County Road 42 - 33 m	County Road 42 – 27 m / 38 m	63.0	65.4	+ 2.4	No
Receiver 14 12050 County Road 42	County Road 42 - 36 m	County Road 42 – 42 m / 31 m	62.3	64.5	+ 2.2	No
Receiver 15 12024 Cranbrook Cres.	County Road 42 - 25 m	County Road 42 – 20 m / 31 m	62.5	67.4	+ 2.4	No
Receiver 16 12006 Cranbrook Cres.	County Road 42 - 26 m	County Road 42 – 20 m / 30 m	64.9	67.5	+ 2.6	No
Receiver 17 11512 County Road 42	County Road 42 - 32 m	County Road 42 – 38 m /27 m	63.2	65.5	+ 2.3	No
Receiver 18 11205 County Road 42	County Road 42 - 41 m	County Road 42 - 37 m / 48 m	61.4	63.4	+ 2.0	No
Receiver 19 3405 11th Concession Rd	County Road 42 - 36 m	County Road 42 - 32 m / 44 m	62.3	64.3	+ 2.0	No
Receiver 20 8667 County Road 42	County Road 42 - 57 m	County Road 42 - 47 m / 54 m	58.7	61.5	+ 2.8	No
Receiver 21 Residence on County Road 42 immediately west of Lauzon Road	County Road 42 - 54 m	County Road 42 - 50 m / 42 m	59.1	62.1	+ 3.0	No
Receiver 22 6424 County Road 42	County Road 42 - 52 m	County Road 42 - 54 m / 47 m	58.3	59.9	+ 1.6	No
Receiver 23 3555 County Road 42	County Road 42 - 47 m	County Road 42 - 42 m / 49 m	59.0	60.7	+ 1.7	No
Receiver 24 7195 Country Road 42	County Road 42 - 67 m	County Road 42 - 67 m / 78 m Lauzon Parkway - 45 m / 57 m	57.6	63.0	+ 5.4	**Yes**

Receiver Location (see key plan)	Distance from Receiver Location to Noise Source (EB/WB, NB/SB)		Projected Noise Level (Year 2031) dBA Leq (16 hr)			Consideration of Noise Mitigation Required Based on MTO/MOE Criteria (> 5 dBA change)
	Existing / Future without Improvements	Future with Improvements	Existing / Future Without Improvements	Future With Improvements	Change in Noise Level	
Receiver 25 6690 Baseline Road	Baseline Road – 60 m	Lauzon Parkway - 141 m / 122 m Baseline Road – 60 m	54.4	60.3	+ 5.9	**Yes**
Receiver 26 4535 County Road 17	10th Concession Road – 58 m	Lauzon Parkway - 538 m / 555 m[1] 10th Concession Road – 58 m	48.4	52.2	+ 3.8	No
Receiver 27 4855 10th Concession Rd	10th Concession Road – 45 m Highway 401 – 385 m / 370 m	Lauzon Parkway - 559 m / 573 m[1] 10th Concession Road – 45 m Highway 401 – 388 m / 367 m	54.9	56.9	+ 2.0	No
Receiver 28 6484 County Road 46	County Road 46 – 65 m	Lauzon Parkway - 82 m / 68 m County Road 46 – 65 m	55.2	62.3	+ 7.1	**Yes**
Receiver 29 6703 County Road 46	County Road 46 – 33 m	Lauzon Parkway - 45 m / 57 m County Road 46 – 33 m	60.1	65.4	+ 5.3	**Yes**
Receiver 30 5550 Sexton Sideroad	Sexton Side Road – 55 m	Lauzon Parkway - 72 m / 79 m	50.0	62.3	+ 12.3	**Yes[2]**
Receiver 31 5395 Highway 3	Highway 3 – 88 m Sexton Side Road – 195 m	Lauzon Parkway - 61 m Highway 3 – 85 m / 95 m	58.4	65.9	+ 7.5	**Yes[2]**
Receiver 32 4774 8th Concession Rd		E-W Arterial – 34 m	45.0	55.5	+ 10.5	**Yes**
Receiver 33 4621 10th Concession Rd	10th Concession Road – 60 m	E-W Arterial – 40 m 10th Concession Road – 60 m	48.1	56.2	+ 8.1	**Yes**

Note:

1. The maximum receiver-source distance that can be inputted into STAMSON is 500m, therefore, for roads located beyond 500m from the receiver location, a distance of 500m was used.
2. Receiver location experiences a noise level increase of greater than 5 dBA, however, since it is a frontage property noise mitigation is not considered.

6. Findings

As shown in Table 5-1, twenty five receiver locations are expected to experience noise level increases less than 5 dBA, therefore, the consideration of noise mitigation is not warranted based on MTO/MOE Noise Protocol. The remaining eight receiver locations are predicted to experience a greater than 5 dBA noise level increase with the proposed roadway improvements. However, it should be noted that since two of these receiver locations are frontage properties, noise mitigation is not considered. Therefore, noise mitigation was considered for the remaining six receiver locations based on the MTO/MOE Noise Protocol (namely R24, R25, R28, R29, R32, R33).

Detailed findings of the noise assessment are as follows:

County Road 42 (R1 – R23)

- The projected noise levels in Year 2031 without the proposed roadway improvements are calculated to range from 58.3 dBA to 64.9 dBA.
- The projected noise levels in Year 2031 with the proposed roadway improvements are calculated to range from 59.9 dBA to 67.5 dBA.
- The maximum increase in noise level was calculated to be 3.0 dBA. Therefore, the consideration of noise mitigation is not warranted based on MTO/MOE Noise Protocol.

Lauzon Parkway (R24 – R31)

- The projected noise levels in Year 2031 without the proposed roadway improvements are calculated to range from 48.4 dBA to 60.1 dBA.
- The projected noise levels in Year 2031 with the proposed roadway improvements are calculated to range from 52.2 dBA to 65.9 dBA.
- The increase in noise level at the receiver locations with noise level increases less than 5 dBA include R26 and R27.
- The increase in noise level at the receiver locations with noise level increases greater than 5 dBA includes R24, R25, R28, R29, R30 and R31.
- However, R30 and R31 are frontage properties, therefore, noise mitigation is not considered.
- Noise mitigation was considered at R24, R25, R28 and R29.

E-W Arterial (R32, R33)

- The projected noise levels in Year 2031 without the proposed roadway improvements at the two receiver locations, R32 and R33, are calculated to be at 45.0 dBA and 48.1 dBA, respectively.

- The projected noise levels in Year 2031 with the proposed roadway improvements at the two receiver locations, R32 and R33, are calculated to be at 55.5 dBA and 56.2 dBA, respectively.
- The increase in noise level at the two receiver locations was calculated to be 10.5 dBA and 8.1 dBA. Since the increase in noise level is projected to be greater than 5 dBA the consideration of noise mitigation is warranted based on MTO/MOE Noise Protocol.

7. Review of Noise Mitigation

Where a greater than 5 dBA noise level increase is predicted, the MTO/MOE Noise Protocol requires that noise control measures be investigated on the right-of-way. If noise mitigation is provided, noise control measures must be designed to achieve a level as close to, or lower than, the objective of 55 dBA as is technically, economically or administratively feasible. Noise control measures, where applied, should be cost-effective and achieve a minimum attenuation of 5 dBA.

Noise mitigation measures were reviewed at the six receiver locations that are predicted to experience a noise level increase of 5 dBA or greater as per the requirements of the MTO/MOE Noise Protocol. In particular, noise walls with a height of 3m were reviewed to assess the potential noise level reduction. A 3m noise wall is typically the maximum height considered for municipal roadways. Given that the MTO/MOE Noise Protocol requires that noise mitigation measures are to be reviewed within the right-of-way, the potential 3m noise walls were located along the Lauzon Parkway or E-W Arterial right-of way. For calculation purposes, the lengths of the walls were determined by applying a 2.5:1 ratio to distance between the noise barrier and the receiver location; therefore the overall length of the barrier is 5 times the distance between the barrier and the receiver. For example, a distance between the noise barrier and the receiver being 100m generally requires a 500m noise wall length.

Noise modelling was carried out to determine the potential noise level reduction with the potential noise wall locations. However, it should be noted that there were cases where the noise wall length was not able to extend 2.5 times the distance between the noise barriers. These cases include receiver locations situated near an intersection, which made it necessary to terminate the noise wall before reaching the desired length. Table 7-1 summarizes the results of the noise modelling and the preliminary cost estimate for each noise wall.

Table 7-1: Noise Levels with Potential Noise Mitigation

Receiver Location (see key plan)	Future Noise Levels with Improvements dBA Leq (16 hr)	With Proposed Improvements and 3 meter Noise Wall Along Right-of-Way			3 m Noise Wall	
		Distance between Noise Receiver and ROW Edge	Predicted Noise Levels dBA Leq (16hr)	Noise Reduction (dBA)	Length of Noise Wall Assumed for Analysis Purposes	Preliminary Cost Estimate of Noise Wall[1]
Receiver 24 7195 Country Road 42	66.6	30 m	62.0	- 1.0	375 m	$637,500
Receiver 25 6690 Baseline Road	60.3	110 m	58.7	- 1.6	400 m	$680,000
Receiver 28 6484 County Road 46	64.1	50 m	60.7	- 1.6	425 m	$722,500
Receiver 29 6703 County Road 46	67.6	18 m	64.9	- 0.5	390 m	$633,000
Receiver 32 4774 8th Concession Rd	56.6	15 m	55.2	- 0.3	100 m	$170,000
Receiver 33 4621 10th Concession Rd	56.2	25 m	52.4	- 3.8	125 m	$212,500

Note:
1. Cost estimate for a 3 meter noise wall is based on $1700 per linear meter

Overall, Table 7-1 shows that noise walls 3m in height along the roadway right-of-way would not achieve a 5 dBA reduction at all the receiver locations predicted to experience a noise level increase greater than 5 dBA. Moreover, it was determined that 3m noise walls are cost prohibited for the isolated residential houses within the study area. As such, noise walls are not recommended as they are not technically and/or economically feasible.

8. Conclusions

The conclusions of the noise assessment for the proposed improvements are as follows:

- The difference between the projected noise levels with and without the proposed improvements was determined to be less than 5 dBA at 25 of the 33 receiver locations; therefore, the consideration of noise mitigation is not warranted at these locations based on MTO/MOE Noise Protocol.
- The remaining eight receiver locations were predicted to have an increase in noise levels of greater than 5 dBA.
- Six of the eight receiver locations were reviewed for noise mitigation based on the MTO/MOE Noise Protocol.
- Two of the eight receiver locations are frontage properties, therefore noise mitigation is not considered to be technically feasible as a noise wall would cut off driveway access
- While a 3 m high noise wall is predicted to lower noise levels at the six receiver locations by 0.3 dBA to 3.8 dBA, the provision of a noise wall is not considered to be technically feasible as it would not achieve the minimum 5 dBA reduction per MTO/MOE Noise Protocol. Therefore, the provision of a noise wall is not recommended.
- The potential noise walls would require costs ranging from $170,000 to $722,500; therefore not considered to be cost effective for a single residential house.

CITY OF WINDSOR

Town of Lakeshore

Town of Tecumseh

COUNTY OF ESSEX

LAUZON PARKWAY EXTENSION

LAUZON PARKWAY EXTENSION

TECUMSEH HAMLET

Windsor International Airport

E.C. ROW EXPRESSWAY

CP RAIL

CP RAIL

LAUZON PARKWAY

LAUZON ROAD

SERVICE ROAD

BANWELL ROAD / COUNTY ROAD 43

LESPERANCE ROAD

MANNING ROAD

12TH CONCESSION RD.

PIKE CREEK

ELMSTEAD ROAD

PATILLO ROAD

WALLACE LINE ROAD

W. PUCE RIVER ROAD

PUCE ROAD

COUNTY ROAD 42

PUCE RIVER

LITTLE RIVER

BASELINE ROAD

8TH CONCESSION ROAD

9TH CONCESSION ROAD

COUNTY ROAD 43

11TH CONCESSION ROAD

COUNTY ROAD 17

10TH CONCESSION ROAD

SCOTT SIDEROAD

LAKESHORE ROAD 101

LAKESHORE ROAD 103

LAKESHORE ROAD 105

LAKESHORE ROAD 107

COUNTY ROAD 25

EAST PUCE ROAD

E-W ARTERIAL

HIGHWAY 401

PROVINCIAL ROAD/COUNTY ROAD 46

NORTH TALBOT ROAD

SOUTH TALBOT ROAD

SEXTON SIDEROAD

HIGHWAY 3

CN

CN RAIL

R1 - 624 Puce Road
62.3 dBA
64.0 dBA
+1.7 dBA

R2 - 549 River Downs Avenue
64.7 dBA
64.3 dBA
-0.4 dBA

R3 - 747 County Road 42
60.9 dBA
60.9 dBA
+0.0 dBA

R4 - 532 County Road 42
61.8 dBA
62.9 dBA
+1.1 dBA

R5 - 501 County Road 42
62.5 dBA
62.6 dBA
+0.1 dBA

R6 - 390 County Road 42
64.5 dBA
66.1 dBA
+1.5 dBA

R7 - 249 County Road 42
61.1 dBA
61.0 dBA
-0.1 dBA

R8 - 238 County Road 42
62.7 dBA
64.3 dBA
+1.6 dBA

R9 - 203 County Road 42
63.2 dBA
63.1 dBA
-0.1 dBA

R10 - 72 County Road 42
61.2 dBA
62.4 dBA
+1.2 dBA

R11 - 13173 County Road 42
60.5 dBA
62.6 dBA
+2.1 dBA

R12 - 2965 Strawberry Road
63.0 dBA
65.6 dBA
+2.6 dBA

R13 - 12733 County Road 42
63.0 dBA
65.4 dBA
+2.4 dBA

R14 - 12050 County Road 42
62.3 dBA
64.5 dBA
+2.2 dBA

R15 - 12024 Cranbrook Cres.
65.0 dBA
67.4 dBA
+2.4 dBA

R16 - 12006 Cranbrook Cres.
64.9 dBA
67.5 dBA
+2.6 dBA

R17 - 11312 County Road 42
63.2 dBA
65.5 dBA
+2.3 dBA

R18 - 11205 County Road 42
61.4 dBA
63.4 dBA
+2.0 dBA

R19 - 3405 11th Concession Road
62.3 dBA
64.3 dBA
+2.0 dBA

R20 - 8667 County Road 42
58.7 dBA
61.5 dBA
+2.8 dBA

R21 - NW Corner County Road 42/ Lauzon Road
59.1 dBA
62.1 dBA
+3.0 dBA

R22 - 6424 County Road 42
58.3 dBA
59.9 dBA
+1.6 dBA

R23 - 3553 County Road 42
59.0 dBA
60.7 dBA
+1.7 dBA

R24 - 7195 County Road 42
57.6 dBA
63.0 dBA
+5.4 dBA

R25 - 6690 Baseline Road
54.9 dBA
60.8 dBA
+5.9 dBA

R26 - 4535 County Road 17
48.4 dBA
52.2 dBA
+3.8 dBA

R27 - 4855 10th Concession Road
54.9 dBA
56.9 dBA
+2.0 dBA

R28 - 6484 County Road 46
55.2 dBA
62.3 dBA
+7.1 dBA

R29 - 6703 County Road 46
60.1 dBA
65.4 dBA
+5.3 dBA

R30 - 5550 Sexton Sideroad
50.0 dBA
62.3 dBA
+12.3 dBA

R31 - 5395 Highway 3
58.4 dBA
65.9 dBA
+7.5 dBA

R32 - 4744 8th Concession Road
45.0 dBA
55.5 dBA
+10.6 dBA

R33 - 4621 10th Concession Road
48.1 dBA
56.2 dBA
+8.1 dBA

Exhibit 1
NOISE ANALYSIS SUMMARY

Legend

Rx	Receiver Locations
xx.x dBA	Future Noise Levels without Improvements
xx.x dBA	Future Noise Levels with Improvements
+/- xx.x dBA	Change in Noise Levels