



ACOUSTICAL REPORT

AVANI WALKER RD DEVELOPMENT

**2426 RICHMOND ST
WINDSOR
ONTARIO**

PROJECT NO. 22-070

DATED: MAY 12, 2026

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1. INTRODUCTION

Baird AE has been retained to conduct an acoustical study to examine the impacts of noise created by transportation sources on the proposed residential development in the City of Windsor. This report will recommend mitigation measures based on criteria set by the Ministry of Environment and Climate Change (MOECC).

The subject land is approximately 2.12 hectares (5.25 ac) in size and bounded by Richmond Street to the North, St. Luke Road to the east, existing industrial building to the south, and several existing industrial buildings to the west. The location of the property is illustrated in Figure 1.

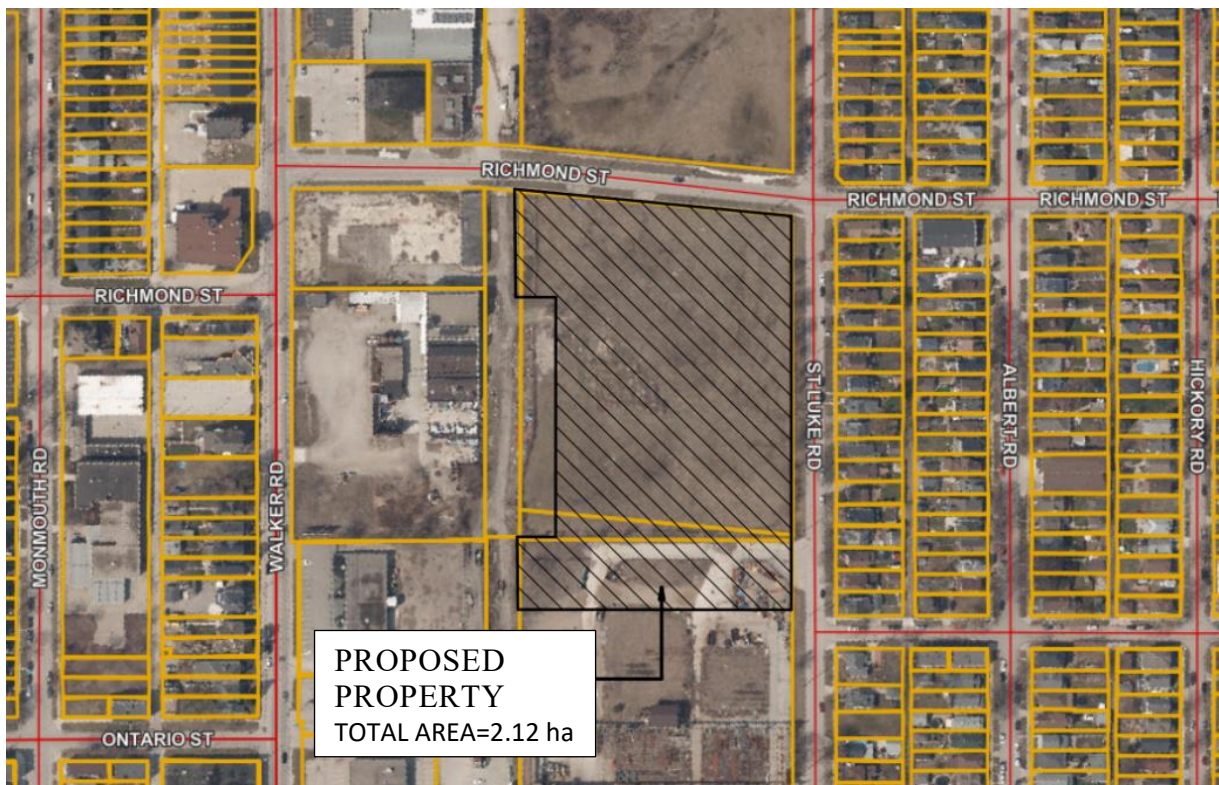


Figure 1: Development location

1.1 Nature of Subject Lands

The subject property is one section. As illustrated in Figure 1

The development will consist 12 (2 unit) Semi-detached housing, 1 (3 unit) townhome and 12 larger (4 unit) townhomes. The total height of the homes will be approximately 7m to 14m high.

The development's access will be from Richmond Street and St. Luke Road. The site plan and architectural drawings of the propose development are provided in Appendix A.

2. NOISE CRITERIA

The MOECC publication NPC-300 "Environmental Noise Guideline Stationery and Transportation Sources – Approval and Planning" was used in this noise study. Based on the initial investigation, the primary noise affecting the development is from nearby roadway. Air traffic noise was not considered, as the development is located outside the zone of influence of local airports.

Due to the acoustical environment typical of an urban setting, it is therefore assumed that the development is located in a "Class 1" area defined by MOECC. The "Class 1" MOECC criteria for noise levels resulting from traffic sources for this development are summarized in Table 1, and Table 2. Whereas, Table 3 summarized MOECC criteria for stationary sources.

Table 1 – MOECC Noise Level Criteria – Road (Ventilation and Warning Clauses)

Location	Time Period	Noise Levels Requirement
Outdoor - Living Areas	07:00 - 23:00	<55dBA – No Control
		55 to 60dBA – Physical Control or Type A Clause
		> 60dBA – Physical Control and Type B Clause
Indoor - Living/dining Plane of Window	07:00 - 23:00	<55dBA – No Control
		55 to 65dBA – Forced Air and Type C Clause
		> 65dBA – Air Conditioner, Type D Clause and Building Components
Indoor - Living/dining Plane of Window	23:00 to 07:00	<50dBA – No Control
		50 to 60dBA – Forced Air and Type C Clause
		> 60dBA – Air Conditioner, Type D Clause and Building Components

MOECC Guidelines NPC-300 Section C7.1.1 and C7.1.2 – August 2013

The outdoor living areas in residential buildings are usually backyards, and the indoor living areas are usually bedrooms and living rooms. The limitations on indoor and outdoor sound levels from road traffic are summarized in Table 1.

Where the noise level exceeds sound level limits, mitigation measures such as architectural design, noise barrier and building components are required. Where building components are required, the noise level limits for indoor spaces with windows and doors closed are taken into consideration as shown in Table 2.

Table 2 – MOECC Noise Level Criteria – Road

Type of Space	Times of Day	Plane of Window
Living/Dining Room	0700 – 1900 1900 - 2300	50 dBA
Sleeping Quarters	2300 - 0700	45 dBA

Source: MOECC publication NPC-300 "Sound level limits for Stationary and Transportation Sources", in Class 1 Area, Tables B-2; August 2013.

Table 3 describe NPC-300 stationary source noise requirements re-summarized below for steady sound sources for outdoor and plan-of-window receptor locations.

Table 3 – MOECC Noise Level Criteria – Stationary

Type of Space	Times of Day	Plane of Window
Outdoor	0700 – 1900 1900 – 2300 2300 – 0700	50 dBA 50 dBA -
Plane of Window	0700 – 1900 1900 – 2300 2300 – 0700	50 dBA 50 dBA 45 dBA

Source: MOECC publication NPC-300 "Sound level limits for Stationary and Transportation Sources", in Class 1 Area, Tables C-6; August 2013.

3. NOISE ENVIRONMENT

The following sources have been investigated for potential for impact the development.

1. Transportation noise impacts from surrounding roadways; and
2. Stationary noise from the surrounding commercial sources.

3.1 Transportation Source

The major roadways impacting the proposed development is Walker Road and Richmond Street.

Traffic counts at the intersection of Walker Road and Richmond Street were obtained from City of Windsor on April 21, 2024. The received data consist of peak hour traffic which then converted to daily traffic by applying Peak Hour Factor (PHF) of 0.15. Traffic counts and other relevant data are included in Appendix A.

Sound level prediction software STAMSON 5.04, based on MOECC ORNAMENT (Ontario Road Noise Analysis Method for Environmental and Transportation, 1989) was used for estimating noise levels from roadway traffic. Further, MOECC requires that all traffic data be projected ten (10) years into the future from the date of construction such that the proposed mitigation will be relevant for future volumes. Traffic volumes along with other relevant traffic data utilized by STAMSON are summarized in Table 4.

Table 4 – 2023 Background Traffic Volumes

Item	Walker Road	Richmond Street
Annual Average Daily Traffic	20,200 (pm peak 3,030)	5,640 (pm peak 846)
% Medium Trucks	2.0%	2.0%
% Heavy Trucks	2.0%	2.0%
Road Grade	< 2.0%	<2.0%
Speed Limit	60 km/h	50 km/h
Day/Night Percent Split	90% / 10%	90% / 10%

3.1.1 Projected Sound Level

Road traffic sound level was predicted using INoise software. The roadway was modelled as line of source of sound and its effect on façade of building. The emission rates at building facades were calculated using the STAMSON 5.04 which uses MOECC ORNAMENT algorithm model utilizing existing traffic data. The emission rates were also compared with the monitoring noise. Table 5 has both predicted Stamson Noise level at receiver location and monitored noise level.

Table 5 – Projected and Monitored Noise Levels

Receiver Location	Height Above Grade (m)	Stamson Results	Monitor Results
Monitor A	1.5m	58.39 dBA	58.10 dBA
Monitor B	1.5m	47.45 dBA	58.00 dBA
Monitor C	1.5m	47.47 dBA	52.40 dBA
Monitor D	1.5m	51.41 dBA	48.30 dBA

Based on results above, the monitored noise levels were use as line of sources of sound in INoise Software. The output results are provided in table 7 and 8 and predicted STMASON and INoise output results, as well as traffic data, are provided in Appendix A and Appendix B.

3.2 Stationary Source

A review of surrounding stationary commercial and industrial noise sources was conducted. Based on the aerial image, site is surrounded by residential to the east, industrial and commercial to the west and south. The potential noise produced by these facilities are loading and unloading, idling cars and trucks, ventilation fan and rooftop HVAC units. For the purpose of study, it is assumed that all equipment and idling operate on 75% duty cycle during daytime and evening hours, and 25% duty cycle during night-time hours.

The following are the significant stationary point sources which are included in the analysis.

- Valco Manufacturing Inc. (Valiant TMS) - 1235 St Luke Rd: The facility provides metal fabrication services. The operation of business is from 7:00am to 5pm. The noise emitted from this facility includes, 3 generic HVAC sound, car idling and truck traffic. It is assumed that around 3 trucks arrive every hour. Most other noise from the facility cannot be heard. A generic idling car sound power was used with the sound specifications are provided in Appendix. Based on aerial photography.
- MAC Coatings - 1106 Walker Rd: The facility provides concrete and flooring sealing services. The operation of business is from 8:00am to 5pm. 2 generic HVAC and one heavy generator sound power was used with the sound specifications are provided in Appendix. Based on aerial photography.
- Nizam Produce - 1030 Walker Rd: The facility is a food product supplier. The operation of businesses is from 8:am to 7pm. It is anticipated that northern section of building will not

cause noise impacts on the development. It is assumed that there are 4 HVAC units on the rooftop as well as one loading zone. Based on aerial photography.

- The Beer Store - 1050 Walker Rd: The facility is a beer store. The hours of operation are 10:00am to 8pm. The noise sources include one rooftop HVAC units. Based on aerial photography.
- CBSA - 1250 Walker Rd: Government facility. The hours of operation are 8:00am to 4pm. The noise sources include 3 HVAC units on the roof within audible range. Based on aerial photography.
- Lasalle Millwork & Cabinets Limited, California Closets – 1160 Walker Rd: The facility is a Closet and Cabinet distributor. The hours of operation are 8:00am to 5pm.
- Motorgate Auto – 1190 Walker Rd: The facility is an auto repair shop. The hours of operation are 8:00am to 6pm.

Following assumption are also considered in the analysis.

- During the daytime and evening period (7:00 – 23:00), the rooftop mechanical unit (RTU) and idling will be in 75-90% operation.
- During the nighttime period (23:00 – 07:00), the rooftop equipment and idling cars will be in 10-25% operation.

3.3 Receiver Locations

Four receiver locations (A - ACTUAL to D - ACTUAL) were identified and are located at the worst-case locations (most exposed) for both day and nighttime noise. The receiver locations are shown in Appendix A, Sheet 1.

The term “outdoor living area” (OLA) is used in reference for an outdoor patio, a backyard, a terrace, balconies or any other area where passive recreation is expected to occur. For indoor living areas, the plane of window (POW) will be used to represent the worst-case for both daytime and nighttime receivers.

Table 6 identifies the various receiver heights chosen as the “worst-case” locations within the proposed development.

Table 6 – Receiver Locations

Receiver Location	Height Above Grade (m)	Type	Represents
Ground Level	1.5m	Bedroom POW	East, South, West Façade
Level 1	6.5m	Bedroom POW	

Overall unattenuated daytime and nighttime sound levels at the receiver locations are shown in Sheet 1 (Appendix A). INoise output results are described in Table 7 and detailed output results are provided in Appendix B.

3.4 Projected Sound Levels

The roadway sound emission rates and truck route were in INoise Model as a line source of sound. These predictions are validated and equivalent to those monitored noise level. Monitored noise results are provided in Appendix C.

The noise propagation analysis was completed using the noise modelling program “iNoise”, produced by DGMR Software. The iNoise program follows International Standards Organization (ISO) standards 9613 parts 1 and 2. The model is capable of incorporating various site features such as elevations, berms, absorptive grounds and barriers. This will enable it to accurately predict noise levels at specific receptors pertaining to noise emissions from sources. The model is considered conservative since it represents the atmospheric conditions that promote the propagation of sound from the source to the receiver.

The following assumptions were used in the modelling:

Reflections: A building reflection of 0.8 was assumed to represent the brick façade present in the surrounding buildings, including the proposed building.

Ground Absorption & Topography: A ground absorption coefficient of 0 was used to represent the most reflective (i.e., paved surface) surface. The area surrounding the monitoring location is characterized as generally flat. As such, topography was not incorporated into the noise modelling.

Transportation and stationary post-development daytime and nighttime sound levels are described in tables 7 and 8. And, graphical results are provided in Appendix B.

Table 7 – Post Development Predicted Noise Levels - Transportation

Location	Modelling Results (dBA)				MOECC Limits (dBA)
	Rec A	Rec B	Rec C	Rec D	Road
Ground					
Daytime	58.39	47.45	47.47	51.41	50
Nighttime	52.19	42.08	42.08	45.83	45
Level 1					
Daytime	58.73	49.11	49.11	52.89	50
Nighttime	52.34	42.75	42.75	46.43	45

For indoor living areas, noise levels are above 45dBA daytime and 40dBA nighttime at the receiver's location. Hence, mitigation measures such as warning clause and central air conditioning are required. Whereas sound levels at the Receiver locations B and C due to road traffic is less than 50 dBA during the daytime and 45dBA during the nighttime, therefore requirement of glazing is not necessary to meet indoor sound level requirements as outlined in Table 1. However, for Receiver A the noise level is higher than 55dBA during daytime and 50dBA during nighttime, hence mitigation measure such as glazing is required to meet MOECC criteria. Also, The OLA Noise level at all receiver locations are less than 60dBA hence no physical mitigation measures such as a noise wall or berm are required.

The stationary noise modelling results for the building facades levels are shown graphically in figures for daytime and nighttime are provided in Appendix B and are tabulated below:

Table 8 – Post Development Predicted Noise Levels - Stationary

Location	Modelling Results (dBA)				MOECC Limits (dBA)
	Rec A	Rec B	Rec C	Rec D	Stationary
Ground					
Daytime	58	46	47	52	50
Nighttime	52	39	40	48	45
Level 1					
Daytime	58	49	47	51	50
Nighttime	52	43	41	47	45

For indoor living areas, noise levels are above 45dBA daytime and 40dBA nighttime at the receiver's location B, C and D at all levels. Hence, mitigation measures such as special building components, a warning clause and central air conditioning are required. The mitigation measures are discussed in Section 4 of the report.

4. MITIGATION MEASURES REQUIREMENTS

Based on predicted transportation sound levels, warning clauses are required in all purchase agreements and rental agreements.

A Type C warning clause is required for all affected units with façade sound levels from road traffic are between 40 to 50dBA during the nighttime.

This affect east and west facades of buildings. The **Type C** warning clause is below:

Warning Clauses

The MOECC warning clauses be included in the property sale and rental agreement. The following are the suggesting wording as per MOECC:

Type C Warning Clause

"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

Building Components and Ventilation Requirements

Road Traffic

Based on road traffic sound levels at receiver locations A,B,C and D, the STC requirements for wall, doors and windows due to traffic noise is shown in Table 10. It is noted that at Receiver locations A and D, the worst-case scenario from traffic and stationary sources is taken into consideration in designing building component.

Stationary Sources

Based on predicted stationary sound levels, the indoor level is above noise criteria at all receiver locations. Hence, mitigation measures such as building components are required to mitigate noise. The building components are discussed below and shown in Table 10. It is noted that at Receiver locations A and D, the worst-case scenario from traffic and stationary sources is taken into consideration in designing building component.

Glazing Requirements

The appropriate building components were selected based on the Acoustic Insulation Factor (AIF) which is related to the difference in indoor and outdoor noise levels. The AIF is calculated as follows:

$$\text{AIF} = \text{Leq (outdoor façade)} - \text{Leq (indoor)} + 10 \log C + 2$$

C = number of building components forming the room envelope

To calculate the required building components, the dimensions of the rooms and their wall/window sizes must be known. Currently, the room dimensions and floor height are unknown. Assuming 25% window-door/floor ratios, the required components were estimated from the building facades.

The following table provides AIF requirements for sound levels for both daytime and nighttime noises.

Table 9 – Typical AIF Values for Building Component

Daytime Noise (dBA)	Night time Noise (dBA)	AIF Noise Limit	Living/Dining Window/Door Treatment	Bedroom Window Treatment
55 or less	50 or less	17 or less	None (OBC)	None (OBC)
56 - 65	51 - 60	18 - 27	None (OBC)	STC 23 - 32
66 - 68	61 - 63	28 – 30	None (OBC)	STC 33 - 34
69 - 70	64 - 65	31 – 32	STC 31 - 32	STC 36 - 37
71 - 72	66 - 67	33 – 34	STC 33 - 34	STC 38 - 39
73 - 78	68 - 73	35 – 40	STC 35 - 40	STC 40 - 45
79	74	41	STC 41	STC 46

Source: "Road Noise: Effects on Housing", NHA 5156 81/10, 1981

Based on the assumed 25% window-door/floor ratio, the windows and door component requirements were estimated from the attenuated noise level shown in Table 10 for both daytime and nighttime. Using this assumption, the façades of the building's window and door components should have a Sound Transmission Class (STC):

Table 10 – Typical AIF Values for Worst Case for Dwellings

Façade	Stationary	Transportation	Type of Warning Clause	Glazing ¹
West (A BACK)	STC 32	STC 32	C	See Appendix A – Glazing as per OBC
North (RECEIVER B)	STC 32	OBC	C	
East (RECEIVER C)	OBC	OBC	C	
South (D BACK)	OBC	OBC	C	

Note 1: Glazing construction meeting the maximum requirement of the Ontario Building Code.

Note 2: See Appendix A for Noise Information Plan displaying receiver/monitor locations as well as sources.

All adjoining walls between dwellings shall have an STC rating no lower than 50.

It is also recommended that an acoustic consultant review the building components to ensure that noise levels satisfy the requirements.

A typical glazing configuration is provided in Appendix A.

The Ontario Building Code (OBC) section 5.8.1 specifies the minimum required sound insulation characteristics for partitions in terms of STC values. For acoustic privacy in a multi-tenant building between suites, the inter-unit wall should meet or exceed STC-50. In addition, it is recommended that the separation of suites from any amenities or commercial spaces for building components (floor/ceiling) also meet or exceed STC-55.

5. RECOMMENDATIONS

As demonstrated in this report, mitigation measures are required to bring residential units within the development into compliance with MOECC criteria. With the inclusion of these measures, the MOECC noise criteria will be satisfied.

Recommendation #1

Due to the exceedance of the MOECC criteria for daytime and nighttime acoustic levels from nearby roadway and air traffic, the dwellings shall include warning clause Type C as discussed in Section 4.

Recommendation #2 (Building Components)

Due to exposure to stationary and road noises, some units require special building components for areas of sensitive use (i.e., bedroom, living room, dining room, kitchen, etc.) and the following is required:

Window requirements:

All windows leading to sensitive living areas must have a minimum sound transmission class (STC) as per Section 4 in order to meet the MOECC indoor noise level criteria.

Wall requirements:

All walls leading to sensitive living areas are to have a minimum sound transmission class (STC) as per Section 4. Also, acoustic privacy between units in a multi-tenant building, the inter-unit wall, should meet or exceed STC-50. Wall separation between noisy spaces, such as refuse chutes or elevator shafts, and suites should meet or exceed STC-55.

Recommendation #3

Prior to the issuance of building permits, it is recommended that an acoustic consultant review the sound transmission class (STC) for the proposed development's walls, windows and doors to ensure they conform to the recommendations outlined in this report.

6. SUMMARY

We conclude that this development with the implementation of the above-described mitigation measures will be designed to address impacts from the surrounding noise sources.

If you have any questions or wish to discuss our findings, please advise us accordingly.

Yours truly,

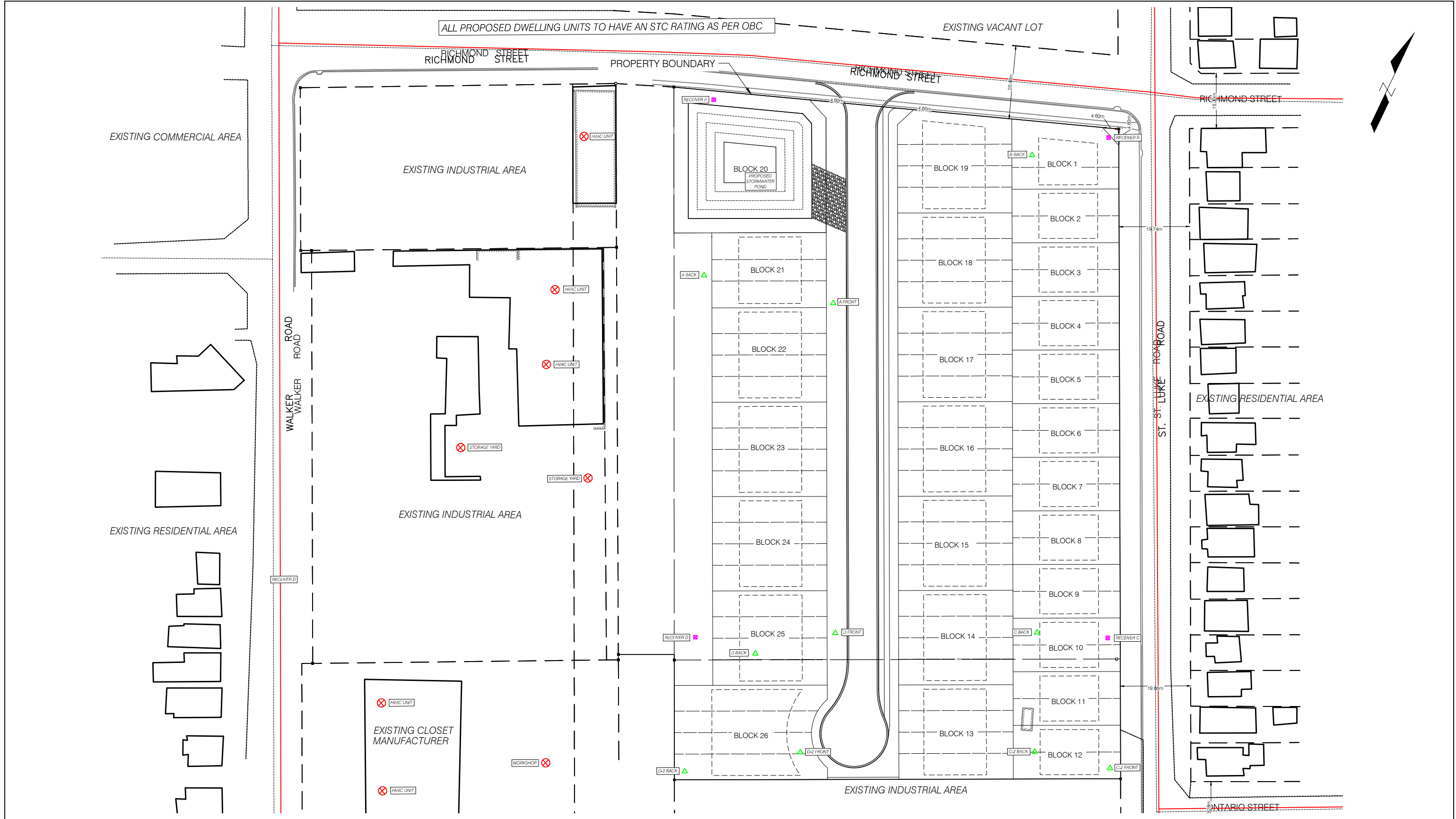
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Senior Project Manager
Baird AE



Appendix A

NOISE INFORMATION PLAN TRAFFIC DATA AND BACKGROUND INFORMATION



LEGEND

- RECEIVER LOCATION
- PROPOSED BUILDING
- INOISE MONITORS
- TRANSPORTATION NOISE
- STATIONARY HVAC

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Local 519-326 6161 LEAMINGTON, ONTARIO WINDSOR, ONTARIO
Toll Free 1-844-842-9188 N8H 2X8 N8W 5W1

PROJECT TITLE:
AVANI WALKER RD DEVELOPEMENT
2426 RICHMOND ST, CITY OF WINDSOR
WINDSOR, ON

SHEET TITLE:
NOISE INFORMATION PLAN

DRAWN BY: M.Y.	SCALE: 1:1000	DATE: MAY 06 2026
CHCK'D BY:	SHEET No. : 1 OF 1	PROJECT No. : 22-070



ZONING PROVISION				
	LAND USE			
	SEMI-DETACHED UNIT (RD 2.5)	SEMI-DETACHED UNIT (PROVIDED)	TOWNHOUSE UNIT (RD 2.5)	TOWNHOUSE UNIT (PROVIDED)
LOT AREA MIN.	450-630 m²	534.27 m²	190 m²	192 m²
LOT WIDTH	15.0 m (MIN) /18.0 m (MAX)	15.8 m	20.0 m (MIN)	26.40 m
FRONT YARD DEPTH MIN.	6.0 m/7.0 m	6.0 m	6.0 m/7.0 m	7.0 m
INTERIOR SIDE YARD WIDTH MIN.	1.2 m	1.2 m	1.2 m	1.2 m
REAR YARD DEPTH MIN.	7.5 m	7.5 m	7.5 m	7.5 m
LOT COVERAGE MAX.	50%	50%	50%	50%
LANDSCAPED OPEN SPACE MIN.	N/A	N/A	N/A	N/A

[illegible]

DATE:	AUG 01, 2025	
TIME:	1:500	
DRAWN BY: J.H.	☒	PRELIMINARY
CHECKED BY: B.P.	☐	CONSTRUCTION
APPROVED BY: B.P.	☐	RECORD

RICHMOND & ST. LUKE SUBDIVISION

SHEET TITLE
CONCEPT PLAN OF SUBDIVISION

NUMBER **22-070**

02

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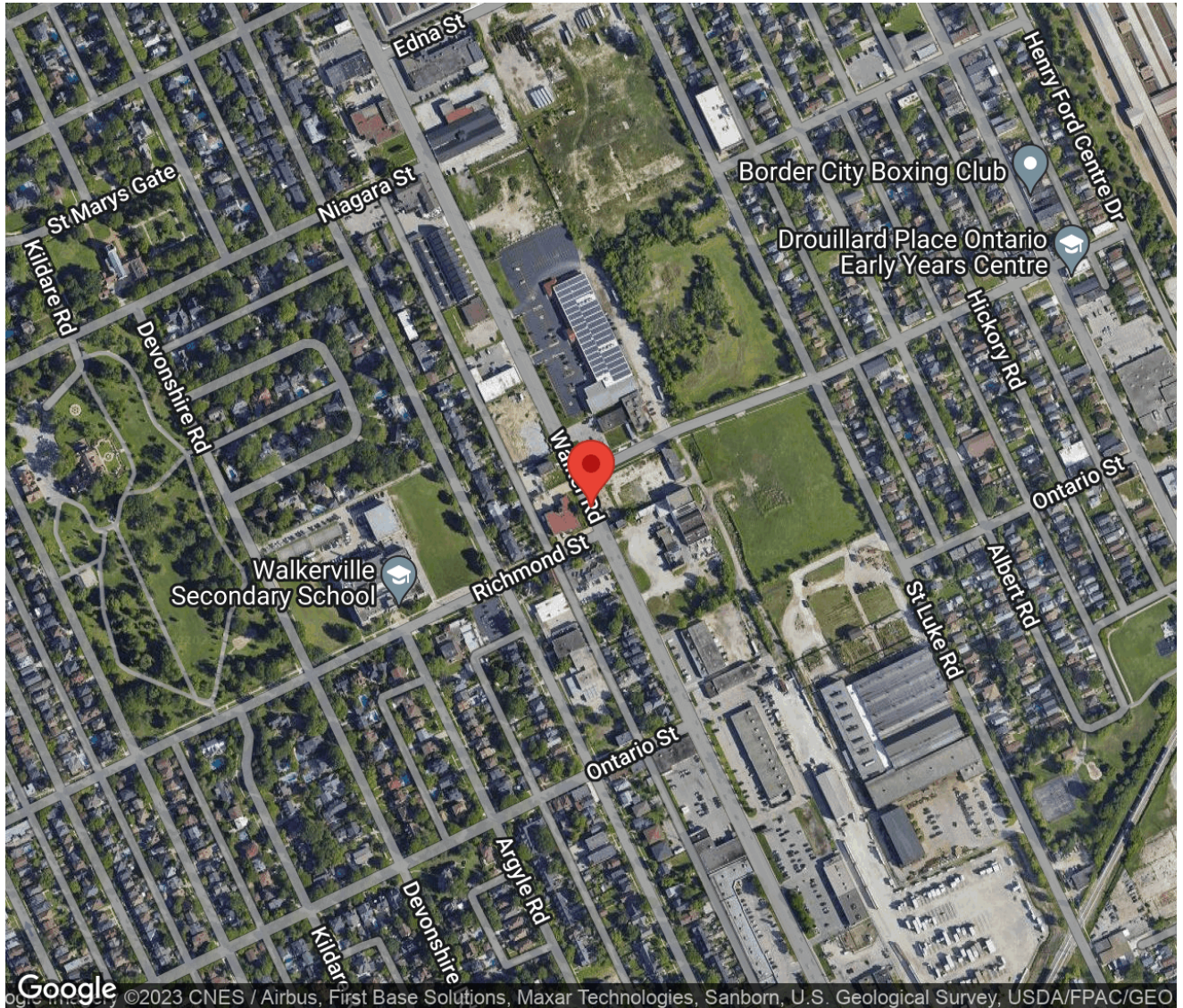
Project #23-048 - City of Windsor

Intersection Count Report

Intersection: RICHMOND ST & WALKER RD
Municipality: Windsor
Count Date: Thursday, Mar 23, 2023
Site Code: 2304800067
Count Categories: Cars, Medium Trucks, Heavy Trucks, Peds, Bicycles
Count Period: 07:00-10:00, 11:00-14:00, 15:00-18:00
Weather: Clear
Comments:

Traffic Count Map

Intersection:	RICHMOND ST & WALKER RD
Site Code:	2304800067
Municipality:	Windsor
Count Date:	Mar 23, 2023



Peak Hour Diagram

Specified Period

From: 07:00:00
To: 10:00:00

One Hour Peak

From: 08:15:00
To: 09:15:00

Intersection: RICHMOND ST & WALKER RD
Site Code: 2304800067
Count Date: Mar 23, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: WALKER RD runs N/S

North Approach

	Out	In	Total
493	427	920	
MT 7	17	24	
HT 16	21	37	
0	0	0	
Totals	516	465	981

WALKER RD

	0	0	0	0
HT	1	13	2	0
MT	0	7	0	0
	73	403	17	0
Totals	74	423	19	0

East Approach

	Out	In	Total
172	100	272	
MT 4	3	7	
HT 8	9	17	
0	0	0	
Totals	184	112	296

RICHMOND ST

	HT	MT		Totals
	0	0	0	0
HT	0	2	45	47
MT	0	6	35	41
	0	4	3	75
Totals	0	47	41	82

Peds: 14

Peds: 0



Peds: 3

Peds: 0

RICHMOND ST

Totals		MT	HT	
0	0	0	0	0
43	41	1	1	0
56	51	0	5	0
85	80	3	2	0

West Approach

	Out	In	Total
155	179	334	
MT 3	0	3	
HT 12	6	18	
0	0	0	
Totals	170	185	355

	55	375	52	0
	55	341	48	0
MT	0	16	3	0
HT	0	18	1	0
	0	0	0	0
Totals	55	375	52	0

WALKER RD

South Approach

	Out	In	Total
444	558	1002	
MT 19	13	32	
HT 19	19	38	
0	0	0	
Totals	482	590	1072

- Cars

MT - Medium Trucks

HT - Heavy Trucks

- Bicycles

Comments

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 13:00:00
To: 14:00:00

Intersection: RICHMOND ST & WALKER RD
Site Code: 2304800067
Count Date: Mar 23, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: WALKER RD runs N/S

North Approach

	Out	In	Total
	625	561	1186
MT	8	14	22
HT	14	10	24
	0	0	0
Totals	647	585	1232

WALKER RD

	0	0	0	0
HT	0	14	0	0
MT	1	7	0	0
	32	565	28	0
Totals	33	586	28	0






East Approach

	Out	In	Total
	125	152	277
MT	6	2	8
HT	5	9	14
	1	0	1
Totals	137	163	300

RICHMOND ST

	HT	MT		Totals
	0	0	0	0
	0	1	39	40
	7	0	23	30
	0	0	56	56






Peds: 8



Peds: 2

Peds: 2

Peds: 2

RICHMOND ST

Totals		MT	HT	
0	0	0	0	0
40	35	5	0	0
26	21	0	4	1
71	69	1	1	0






West Approach

	Out	In	Total
	118	86	204
MT	1	2	3
HT	7	4	11
	0	1	1
Totals	126	93	219

				
Totals	34	505	105	0
	33	487	101	0
MT	1	8	2	0
HT	0	10	2	0
	0	0	0	0

WALKER RD

South Approach

	Out	In	Total
	621	690	1311
MT	11	8	19
HT	12	15	27
	0	0	0
Totals	644	713	1357

 - Cars

MT - Medium Trucks

HT - Heavy Trucks

 - Bicycles

Comments

Peak Hour Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 15:00:00
To: 16:00:00

Intersection: RICHMOND ST & WALKER RD
Site Code: 2304800067
Count Date: Mar 23, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: WALKER RD runs N/S

North Approach

	Out	In	Total
654	722	1376	
MT 13	5	18	
HT 14	10	24	
0	0	0	
Totals	681	737	1418

WALKER RD

	0	0	0	0
HT	1	12	1	0
MT	1	12	0	0
	76	548	30	0
Totals	78	572	31	0

East Approach

	Out	In	Total
162	231	393	
MT 1	5	6	
HT 13	11	24	
0	0	0	
Totals	176	247	423

RICHMOND ST

	HT	MT		Totals
	0	0	0	0
HT	0	2	81	83
MT	0	8	46	54
	0	3	94	97

Peds: 14



Peds: 2

Peds: 15

Peds: 12

RICHMOND ST

Totals		MT	HT	
0	0	0	0	0
73	72	1	0	0
38	32	0	6	0
65	58	0	7	0

West Approach

	Out	In	Total
221	146	367	
MT 0	1	1	
HT 13	7	20	
0	0	0	
Totals	234	154	388

				
Totals	38	581	162	0
	38	569	155	0
MT	0	4	5	0
HT	0	8	2	0
	0	0	0	0

WALKER RD

South Approach

	Out	In	Total
762	700	1462	
MT 9	12	21	
HT 10	22	32	
0	0	0	
Totals	781	734	1515

- Cars

MT - Medium Trucks

HT - Heavy Trucks

- Bicycles

Comments

Richmond St @ St Luke Rd

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 8:00:00

To: 9:00:00

Municipality: Windsor

Site #: 0000000001

Intersection: Richmond St & St Luke Rd

TFR File #: 1

Count date: 16-Apr-2025

Weather conditions:

Clear/Dry

Person(s) who counted:

Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Richmond St runs W/E

North Leg Total: 40

North Entering: 24

North Peds: 8

Peds Cross: $\times$

	Heavys	Trucks	Cars	Totals
North	0	0	0	0
East	0	0	0	0
South	10	14	0	24
West	10	14	0	24



Heavys 0

Trucks 0

Cars 16

Totals 16

East Leg Total: 111

East Entering: 62

East Peds: 3

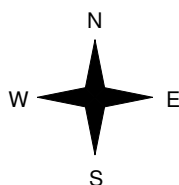
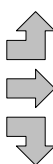
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
2	0	77	79



Richmond St

Heavys	Trucks	Cars	Totals
0	0	3	3
3	0	42	45
0	0	8	8
3	0	53	56



St Luke Rd

Cars	Trucks	Heavys	Totals
1	0	0	1
53	0	2	55
6	0	0	6
60	0	2	62



Richmond St



Cars	Trucks	Heavys	Totals
45	0	4	49

Peds Cross: $\times$

West Peds: 0

West Entering: 56

West Leg Total: 135

	Cars	Trucks	Heavys	Totals
West	28	0	0	28
East	14	0	0	14
South	12	0	0	12
North	3	0	1	4



Peds Cross: $\times$

South Peds: 9

South Entering: 30

South Leg Total: 58

Comments

Richmond St @ St Luke Rd

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 13:00:00

To: 14:00:00

Municipality: Windsor

Site #: 0000000001

Intersection: Richmond St & St Luke Rd

TFR File #: 1

Count date: 16-Apr-2025

Weather conditions:

Clear/Dry

Person(s) who counted:

Pyramid Traffic Inc

** Non-Signalized Intersection **

Major Road: Richmond St runs W/E

North Leg Total: 66

North Entering: 36

North Peds: 14

Peds Cross: $\times$

Heavys	0	1	0	1
Trucks	0	0	0	0
Cars	15	13	7	35
Totals	15	14	7	



Heavys 0

Trucks 2

Cars 28

Totals 30

East Leg Total: 140

East Entering: 66

East Peds: 4

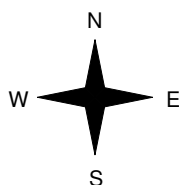
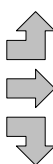
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
3	0	80	83



Richmond St

Heavys	Trucks	Cars	Totals
0	1	8	9
3	0	52	55
0	0	6	6
3	1	66	



St Luke Rd

St Luke Rd

Cars	Trucks	Heavys	Totals
2	0	0	2
58	0	2	60
4	0	0	4
64	0	2	

Richmond St



Cars	Trucks	Heavys	Totals
71	0	3	74

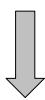
Peds Cross: $\times$

West Peds: 0

West Entering: 70

West Leg Total: 153

Cars	23
Trucks	0
Heavys	1
Totals	24



Cars	7	18	12	37
Trucks	0	1	0	1
Heavys	1	0	0	1
Totals	8	19	12	

Peds Cross: $\times$

South Peds: 8

South Entering: 39

South Leg Total: 63

Comments

Richmond St @ St Luke Rd

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 15:00:00

To: 16:00:00

Municipality: Windsor

Site #: 0000000001

Intersection: Richmond St & St Luke Rd

TFR File #: 1

Count date: 16-Apr-2025

Weather conditions:

Clear/Dry

Person(s) who counted:

Pyramid Traffic Inc

** Non-Signalized Intersection **

Major Road: Richmond St runs W/E

North Leg Total: 69

North Entering: 37

North Peds: 10

Peds Cross: $\times$

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	9	16	12	37
Totals	9	16	12	



Heavys 0

Trucks 0

Cars 32

Totals 32

East Leg Total: 203

East Entering: 89

East Peds: 4

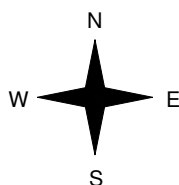
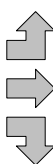
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
3	0	91	94



Richmond St

Heavys	Trucks	Cars	Totals
0	0	9	9
3	1	93	97
0	0	12	12
3	1	114	



St Luke Rd

St Luke Rd

Cars	Trucks	Heavys	Totals
4	0	0	4
74	0	3	77
8	0	0	8
86	0	3	



Richmond St



Cars	Trucks	Heavys	Totals
110	1	3	114

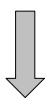
Peds Cross: $\times$

West Peds: 1

West Entering: 118

West Leg Total: 212

Cars	36
Trucks	0
Heavys	0
Totals	36



Cars	8	19	5	32
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	8	19	5	

Peds Cross: $\times$

South Peds: 19

South Entering: 32

South Leg Total: 68

Comments

Richmond St @ St Luke Rd

Total Count Diagram

Municipality: Windsor
Site #: 0000000001
Intersection: Richmond St & St Luke Rd
TFR File #: 1
Count date: 16-Apr-2025

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Richmond St runs W/E

North Leg Total: 441
 North Entering: 246
 North Peds: 56
 Peds Cross: $\bowtie$

Heavys	0	1	0	1
Trucks	0	1	0	1
Cars	92	114	38	244
Totals	92	116	38	

Heavys	1
Trucks	3
Cars	191
Totals	195

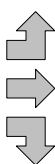
East Leg Total: 1109
 East Entering: 516
 East Peds: 40
 Peds Cross: $\bowtie$

Heavys	Trucks	Cars	Totals
22	0	599	621

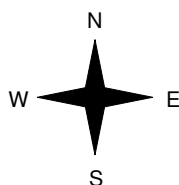


Richmond St

Heavys	Trucks	Cars	Totals
0	1	52	53
20	5	491	516
1	1	68	70
21	7	611	



St Luke Rd



Cars	Trucks	Heavys	Totals
24	0	0	24
434	0	20	454
38	0	0	38
496	0	20	



Richmond St



Cars	Trucks	Heavys	Totals
567	5	21	593

Peds Cross: $\bowtie$
 West Peds: 2
 West Entering: 639
 West Leg Total: 1260

Cars	220	Cars	73	115	38	226
Trucks	2	Trucks	0	2	0	2
Heavys	2	Heavys	2	1	1	4
Totals	224	Totals	75	118	39	



Peds Cross: $\bowtie$
 South Peds: 78
 South Entering: 232
 South Leg Total: 456

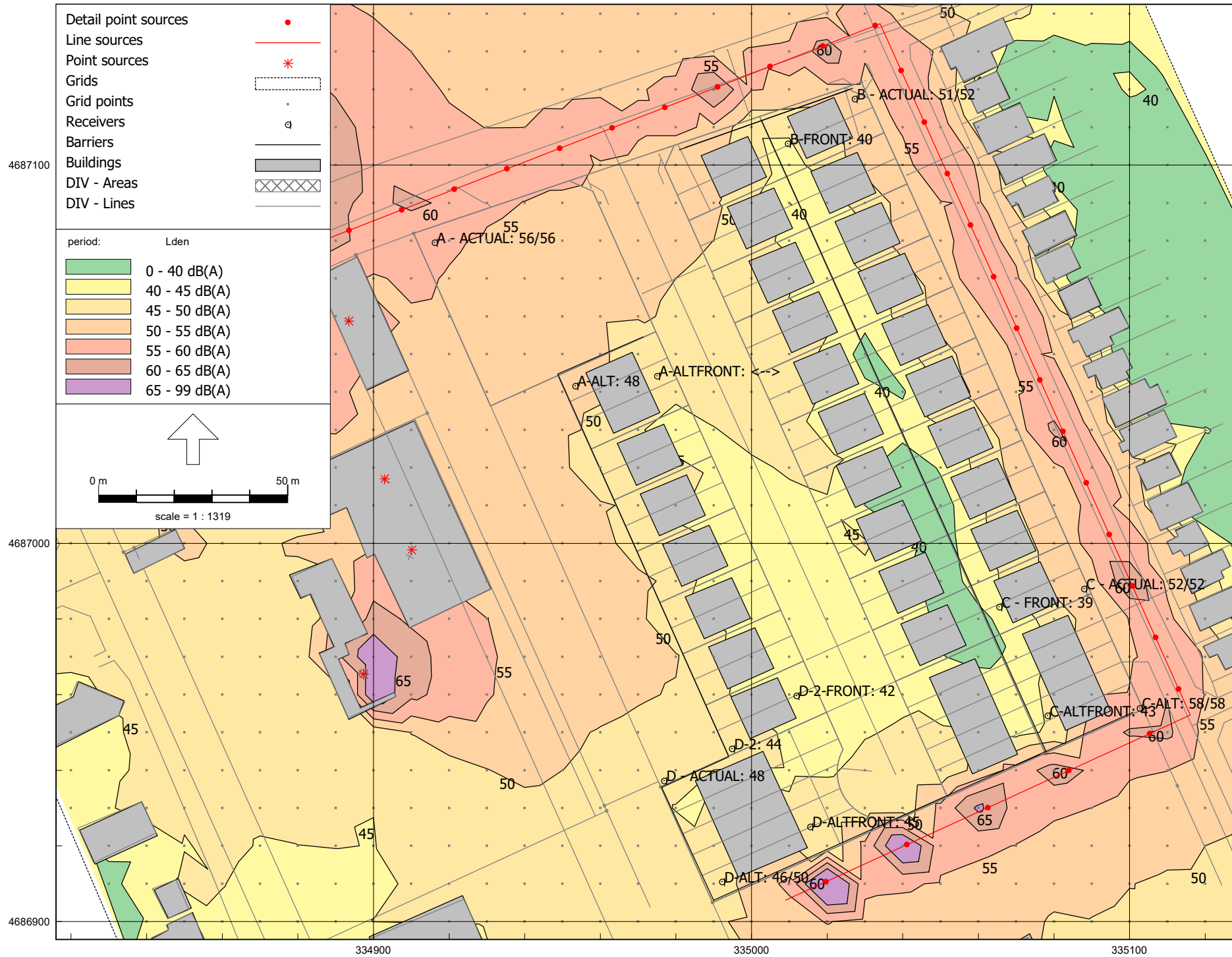
Comments

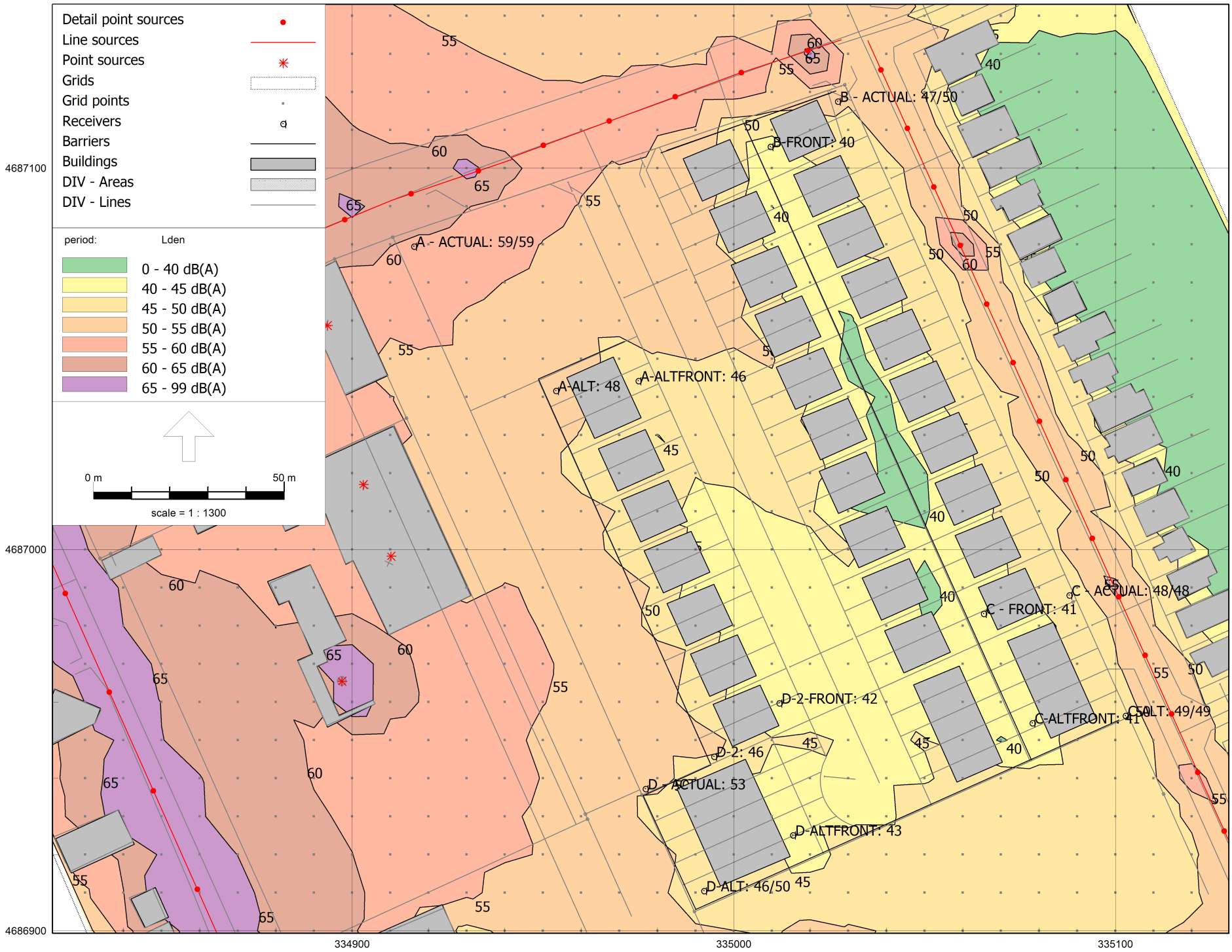
Table A – Typical Glazing as per STC

STC Requirement	Glazing Configuration (STC)
28-29	Double Glaze Unit
30-31	3(13)3
32-33	4(10)4
34	4(19)4
35-36	6(10)4, 5(16)4
37	6(13)6, 6(20)5, 5(25)6
38	6(25)5, 6L(13)6

Appendix B

INOISE OUTPUT

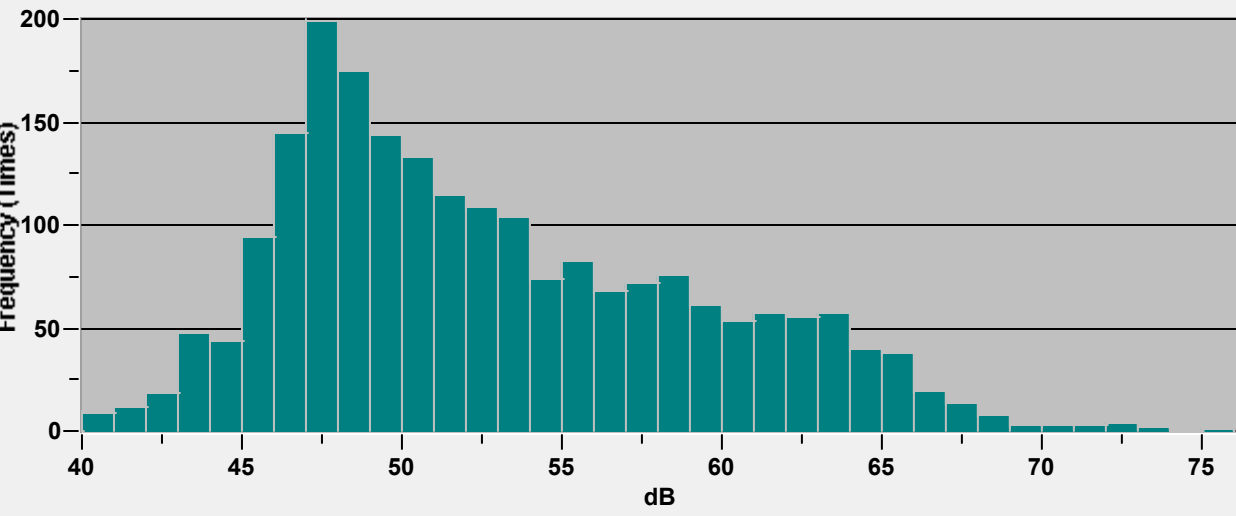




Appendix C

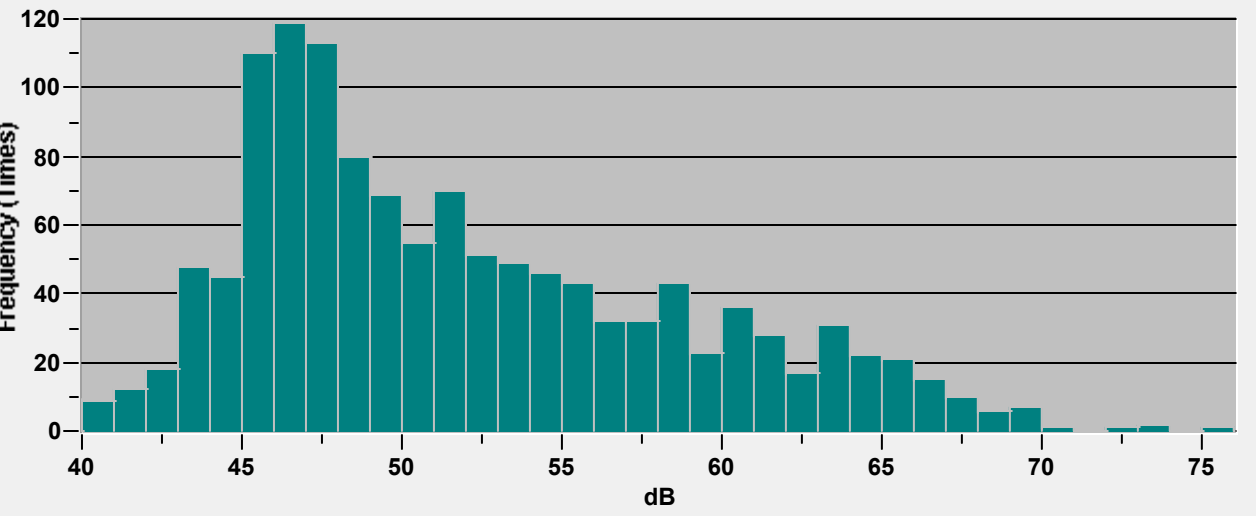
MONITORING AND STAMSON RESULTS

RECEIVER A RESULTS



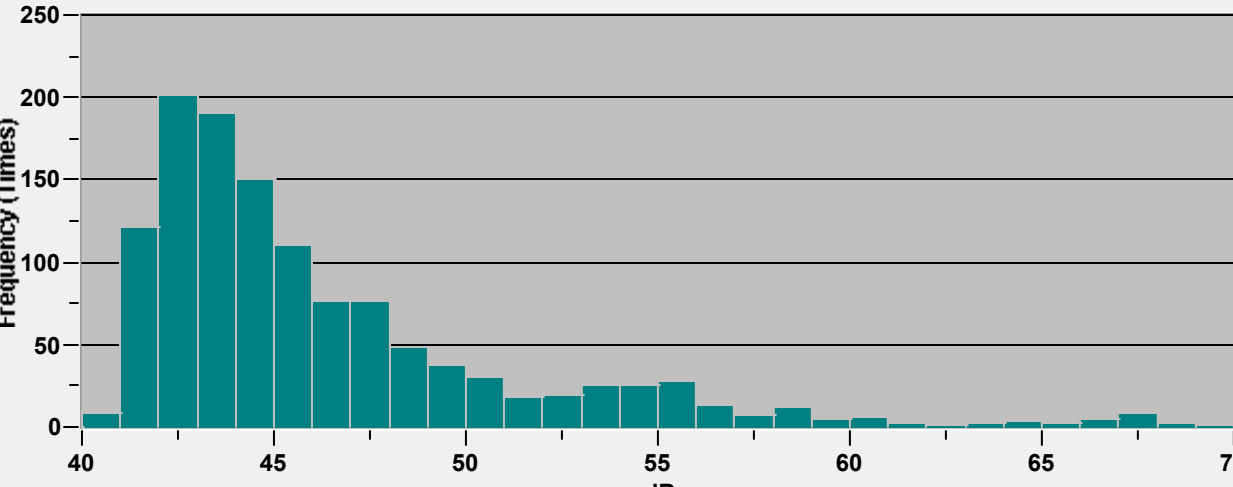
Ln	0	1	2	3	4	5	6	7	8	9
L(00)	72	67	66	65	65	64	64	63	63	62
L(10)	62	62	61	61	60	60	60	59	59	59
L(20)	58	58	58	57	57	57	57	56	56	56
L(30)	55	55	55	55	54	54	54	53	53	53
L(40)	53	53	52	52	52	52	52	51	51	51
L(50)	51	51	50	50	50	50	50	50	50	49
L(60)	49	49	49	49	49	48	48	48	48	48
L(70)	48	48	48	47	47	47	47	47	47	47
L(80)	47	47	47	46	46	46	46	46	46	46
L(90)	45	45	45	45	44	44	43	43	42	41

RECEIVER B RESULTS

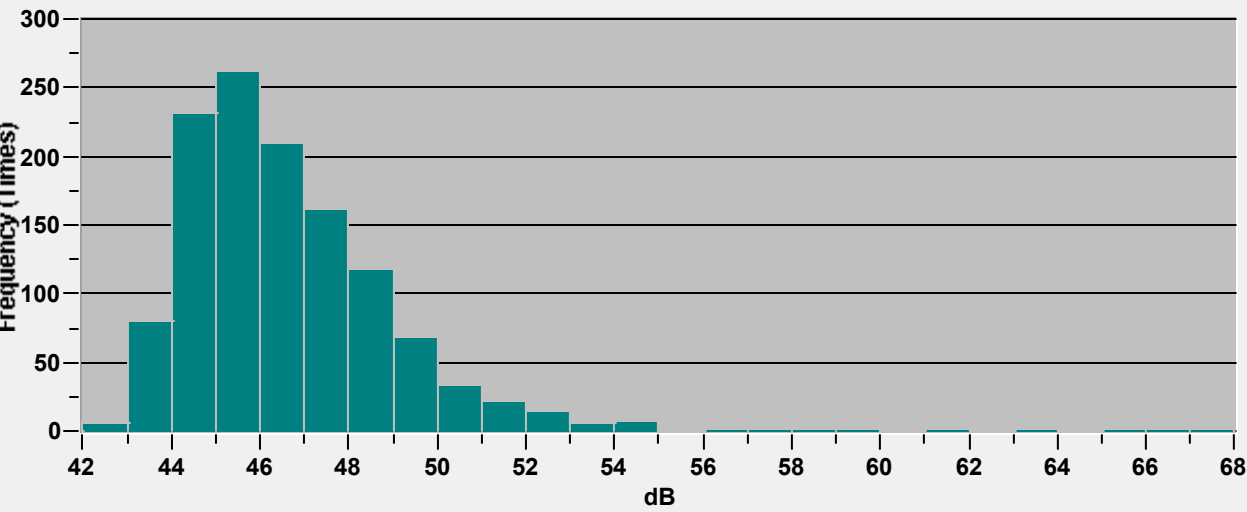


Ln	0	1	2	3	4	5	6	7	8	9
L(00)	70	68	66	66	65	64	64	63	63	62
L(10)	62	61	61	60	60	60	59	59	58	58
L(20)	58	57	57	57	56	56	55	55	55	54
L(30)	54	54	54	53	53	53	53	52	52	52
L(40)	52	51	51	51	51	51	50	50	50	50
L(50)	50	49	49	49	49	49	48	48	48	48
L(60)	48	48	48	47	47	47	47	47	47	47
L(70)	47	47	46	46	46	46	46	46	46	46
L(80)	46	45	45	45	45	45	45	45	45	45
L(90)	44	44	44	43	43	43	43	42	41	40

RECEIVER C RESULTS

[illegible]

RECEIVER D RESULTS



Ln	0	1	2	3	4	5	6	7	8	9
L(00)	65	54	52	51	51	50	50	50	49	49
L(10)	49	49	49	49	48	48	48	48	48	48
L(20)	48	48	48	47	47	47	47	47	47	47
L(30)	47	47	47	47	47	47	46	46	46	46
L(40)	46	46	46	46	46	46	46	46	46	46
L(50)	46	46	46	45	45	45	45	45	45	45
L(60)	45	45	45	45	45	45	45	45	45	45
L(70)	45	45	45	45	44	44	44	44	44	44
L(80)	44	44	44	44	44	44	44	44	44	44
L(90)	44	44	44	43	43	43	43	43	43	43

STAMSON A RESULTS

STAMSON 5.0 NORMAL REPORT Date: 14-07-2025 10:05:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: WALKER

Car traffic volume : 20654/2295 veh/TimePeriod *
Medium truck volume : 753/84 veh/TimePeriod *
Heavy truck volume : 753/84 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WALKER

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 121.00 / 121.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: RICHMOND

Car traffic volume : 5940/660 veh/TimePeriod *
Medium truck volume : 124/14 veh/TimePeriod *
Heavy truck volume : 124/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: RICHMOND

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

Results segment # 1: WALKER

Source height = 1.36 m

ROAD (0.00 + 51.07 + 0.00) = 51.07 dBA

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

-90	0	0.66	70.59	0.00	-15.05	-4.47	0.00	0.00	0.00
51.07									

Segment Leq : 51.07 dBA

Results segment # 2: RICHMOND

Source height = 1.19 m

ROAD (0.00 + 57.50 + 0.00) = 57.50 dBA

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

0	90	0.66	61.97	0.00	0.00	-4.47	0.00	0.00	0.00
57.50									

Segment Leq : 57.50 dBA

Total Leq All Segments: 58.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.39
(NIGHT): 52.19

STAMSON B RESULTS

STAMSON 5.0 NORMAL REPORT Date: 14-07-2025 10:07:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: WALKER

Car traffic volume : 20654/2295 veh/TimePeriod *
Medium truck volume : 753/84 veh/TimePeriod *
Heavy truck volume : 753/84 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WALKER

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 230.00 / 230.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: RICHMOND

Car traffic volume : 5940/660 veh/TimePeriod *
Medium truck volume : 124/14 veh/TimePeriod *
Heavy truck volume : 124/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: RICHMOND

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 154.00 / 154.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WALKER

Source height = 1.36 m

ROAD (0.00 + 46.44 + 0.00) = 46.44 dBA

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

SubLeq

-90	0	0.66	70.59	0.00	-19.68	-4.47	0.00	0.00	0.00
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46.44

Segment Leq : 46.44 dBA

Results segment # 2: RICHMOND

Source height = 1.19 m

ROAD (0.00 + 40.71 + 0.00) = 40.71 dBA

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

SubLeq

0	90	0.66	61.97	0.00	-16.79	-4.47	0.00	0.00	0.00
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40.71

Segment Leq : 40.71 dBA

Total Leq All Segments: 47.47 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 47.47

(NIGHT): 42.08

STAMSON C RESULTS

STAMSON 5.0 NORMAL REPORT Date: 14-07-2025 10:08:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: WALKER

Car traffic volume : 20654/2295 veh/TimePeriod *
Medium truck volume : 753/84 veh/TimePeriod *
Heavy truck volume : 753/84 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WALKER

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 230.00 / 230.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: RICHMOND

Car traffic volume : 5940/660 veh/TimePeriod *
Medium truck volume : 124/14 veh/TimePeriod *
Heavy truck volume : 124/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: RICHMOND

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 154.00 / 154.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WALKER

Source height = 1.36 m

ROAD (0.00 + 46.44 + 0.00) = 46.44 dBA

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

-90	0	0.66	70.59	0.00	-19.68	-4.47	0.00	0.00	0.00
46.44									

Segment Leq : 46.44 dBA

Results segment # 2: RICHMOND

Source height = 1.19 m

ROAD (0.00 + 40.71 + 0.00) = 40.71 dBA

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

0	90	0.66	61.97	0.00	-16.79	-4.47	0.00	0.00	0.00
40.71									

Segment Leq : 40.71 dBA

Total Leq All Segments: 47.47 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 47.47

(NIGHT): 42.08

STAMSON D RESULTS

STAMSON 5.0 NORMAL REPORT Date: 14-07-2025 10:08:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: WALKER

Car traffic volume : 20654/2295 veh/TimePeriod *
Medium truck volume : 753/84 veh/TimePeriod *
Heavy truck volume : 753/84 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WALKER

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 121.00 / 121.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: RICHMOND

Car traffic volume : 5940/660 veh/TimePeriod *
Medium truck volume : 124/14 veh/TimePeriod *
Heavy truck volume : 124/14 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: RICHMOND

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 165.00 / 165.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WALKER

Source height = 1.36 m

ROAD (0.00 + 51.07 + 0.00) = 51.07 dBA

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

-90	0	0.66	70.59	0.00	-15.05	-4.47	0.00	0.00	0.00
51.07									

Segment Leq : 51.07 dBA

Results segment # 2: RICHMOND

Source height = 1.19 m

ROAD (0.00 + 40.21 + 0.00) = 40.21 dBA

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

0	90	0.66	61.97	0.00	-17.29	-4.47	0.00	0.00	0.00
40.21									

Segment Leq : 40.21 dBA

Total Leq All Segments: 51.41 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.41

(NIGHT): 45.83