DILLON CONSULTING

J. RAUTI DEVELOPMENTS INC. AND 2601817 ONTARIO LIMITED

Noise Assessment

3694-3738 Howard Avenue, Windsor, Ontario

January 2026 – 24-8813

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1.0 Introduction

1.1 Purpose and Objectives

Dillon Consulting Limited (Dillon) was retained by J.Rauti Developments Inc. and 2601817 Ontario Limited to complete a noise assessment as requested by the City of Windsor for the proposed development located at 3694-3738 Howard Avenue in Windsor, Ontario. The proposed development consists of a 6-storey apartment building with 90 units.

This study has been completed in support of the zoning by-law amendment application and site plan control.

The noise assessment presented herein was prepared in accordance with the guidelines and requirements of the City of Windsor and the Ontario Ministry of Environment, Conservation and Parks (MECP) noise publication NPC-300. The assessment focuses on noise impacts from the surrounding environment on the proposed development.

1.2 The Project and Surrounding Areas

The proposed development is located on the northeast side of Howard Avenue at 3694-3738 Howard Avenue in Windsor, Ontario. The development lands are zoned Residential Districts 1 - RD1.4. The proposed development will consist of a 6-storey apartment building with 90 units.

There are residential dwellings to the north, south, east and west of proposed development.

The location of the Proposed Development and surrounding area is shown in **Figure 1** and the development site plan is provided in **Appendix A**.

2.0 Impacts from the Environment on the Proposed Development

A review of the site and surrounding area has been conducted to determine potential stationary noise sources associated with commercial and industrial properties in proximity of the proposed development as well as potential noise impacts from transportation sources (road and rail).

2.1 Stationary Noise

The MECP's land-use compatibility guidelines (D-series) are intended to prevent or minimize the encroachment of sensitive land uses upon industrial land uses and vice versa, as these two types of land uses may be incompatible due to possible adverse effects (noise) on sensitive land uses resulting from industrial operations.

This guideline was designed to protect sensitive land uses, as well as protect the ability of lawfully operating commercial and industrial properties to maintain compliance with MECP requirements and reduce potential complaints.

To minimize the potential for adverse effects (noise) on the proposed sensitive residential development, commercial and industrial properties within the specified area of influence and/or recommended minimum separation distance, as outlined in D-6 see (**Table 1**), should be considered.

Table 1: Guideline D-6 Potential Areas of Influence and Recommended Minimum Setbacks

Industrial Classification [1]	Area of Influence	Recommended Minimum Setback
Class I	70 m	20 m
Class II	300 m	70 m
Class III	1000 m	300 m

[1] Industrial Classifications are outlined in Guideline D-6, and presented in **Appendix D**.

The land use planning guide, *D-6 Compatibility between Industrial Facilities*, was utilized for the classification of the surrounding establishments (stationary noise sources) and the compatible proximities for the proposed sensitive land use.

A site visit was conducted on March 14, 2025 to the subject lands and surrounding area for the purpose of identifying industrial or commercial facilities in proximity to the Proposed Development. Based on observations from the site visit, a review of aerial photography, and a review of the current zoning and allowable uses in the area, there are no significant stationary sources of noise (commercial/industrial) which warrant a stationary noise assessment.

2.2 Transportation Noise Assessment

The transportation sources identified with the potential to impact the proposed development include vehicular traffic along Howard Avenue. Impacts from road traffic was predicted and compared against the applicable criteria in the MECP noise guideline publication, *NPC 300 – Environmental Noise Guideline – Stationary and Transportation Sources – Approvals and Planning* (2013). NPC-300 outlines noise level criteria for sensitive land uses, which assist in determining requirements for façade construction, ventilation requirements, warning clauses, and potential noise barriers for the proposed development.

2.2.1 Noise Criteria

The applicable transportation noise criteria, as outlined in Part C of NPC-300, is summarized below, and presented in **Table 2** through to **Table 5**.

Table 2 summarizes the indoor sound level limits based on the type of space assessed, time of day, and the maximum allowable equivalent sound levels from roadways. The indoor noise levels are based on the assumption of closed windows and doors.

Table 2: Indoor Sound/Level Limits for Road

Type of Space	Time Period	Equivalent Sound Level - L_{eq}
		Road
Living/dining areas of residences, hospitals, nursing homes, schools, daycares, etc.	Daytime 07:00 - 23:00	45 dBA
Living/dining areas of residences, hospitals, nursing homes, etc. (except schools and daycares).	Night-time 23:00 - 07:00	45 dBA
Sleeping quarters of residences.	Daytime 07:00 - 23:00	45 dBA
	Night-time 23:00 - 07:00	40 dBA

Table 3 outlines the maximum equivalent sound levels, from roadway sources, where if exceeded a detailed building component design assessment is required to ensure the indoor sound level limits (see **Table 2**) are achieved.

Table 3: Requirements for Building Component Assessment

Assessment Location	Time Period	Equivalent Sound Level - L_{eq}
		Road
Plane of window for living area or sleeping quarters	Daytime (07:00 - 23:00)	65 dBA
	Night-time (23:00 - 07:00)	60 dBA

Table 4 summarizes potential noise warning clauses and ventilation requirements that should be used to warn of potential annoyance due to existing noise sources related to transportation.

Table 4: Ventilation and Warning Clause Requirement

Assessment Location	Time Period	Equivalent Sound Level - L_{eq} Road	Ventilation and Warning Clause Requirements
Plane of window for living area or sleeping quarters	Daytime (07:00 - 23:00)	≤ 55 dBA	No requirement
		> 55 dBA and ≤ 65 dBA	Provision for the installation of central air conditioning with a Type C warning clause
		> 65 dBA	Installation of central air conditioning with a Type D warning clause
Plane of window for living area or sleeping quarters	Night-time (23:00 - 07:00)	≤ 50 dBA	No requirement
		> 50 dBA and ≤ 60 dBA	Provision for the installation of central air conditioning with a Type C warning clause
		> 60 dBA	Installation of central air conditioning with a Type D warning clause

The applicable noise criteria for Outdoor Living Areas (OLAs) specific to surface transportation are presented in **Table 5**. If the 16-Hour Equivalent Sound Level, Leq 16h, at an OLA is greater than 55 dBA and less than or equal to 60 dBA, noise control measures may be applied to reduce the sound level to 55 dBA. Otherwise, prospective purchasers or tenants should be informed of potential elevated noise levels by way of warning clause Type A. For a Leq 16h of greater than 60 dBA, noise mitigation measures are required to reduce the noise levels to 55 dBA or less.

Table 5: OLA Level Limits for Road

Assessment Location	Equivalent Sound Level - L_{eq} 16h Road	Noise Control Measures and Warning Clause Requirements
Outdoor Living Areas	≤ 55 dBA	No Requirement
	> 55 dBA and ≤ 60 dBA	Installation of noise control measures **OR** a Type A warning clause
	> 60 dBA	Installation of noise control measures to reduce noise level to < 55 dBA **OR** Installation of noise control measures to reduce noise level to > 55 dBA and ≤ 60 dBA with a Type B warning clause

2.2.2 Transportation Sources

In assessing potential transportation noise impacts on the proposed development, the following transportation corridors were considered:

- Howard Avenue – Located directly southwest of the proposed development.

All traffic data used in modelling is included in **Appendix B**.

2.2.2.1 Road Noise Sources

The development area is located directly northeast of the Howard Avenue. Average annual daily traffic (AADT) for Howard Avenue was determined through peak hour turning movement counts (TMC) gathered in 2024 by Dillon at the intersection of Howard Avenue and Lilymac Boulevard. A peak hour TMC to AADT factor of 11 was applied to determine the associated AADT for Howard Avenue.

The maximum AADT was selected to represent the roadway. A 90% and 10% split for daytime and nighttime traffic volumes, respectively, were used in the analysis. The future traffic volumes were assumed to have a 1.5% annual compound growth rate. The percentage of heavy and medium trucks was taken from the peak hour turning movement counts. The forecasted future (2036) road traffic data is presented in **Table 6**.

Table 6: Future (2036) Road Traffic Data

Roadway	2036 AADT	Hourly Daytime Traffic (07:00 - 23:00)	Hourly Nighttime Traffic (23:00 -07:00)	Medium Trucks (%)	Heavy Trucks (%)	Speed (km/hr)
Howard Avenue	14,204	799	178	0.37	0.37	50

2.2.3 Predicted Sound Level

The noise analysis was completed using Cadna/A noise propagation software. The Cadna/A software includes the implementation of the Transportation Noise Model (TNM) roadway algorithms. The model is capable of incorporating various site specific features, such as elevation, berms, absorptive grounds, and barriers to accurately predict noise levels at specific receptors, pertaining to noise emissions from a particular noise source. The model accounts for reduction in sound level due to increased distance and geometrical spreading, air absorption, ground attenuation, and acoustical shielding by intervening structures and topography. The model is considered conservative as it represents atmospheric conditions that promote propagation of sound from source to receptor.

2.2.3.1 Roadway Analysis

The model inputs used for the TNM algorithm are outlined in **Section 2.2.2.1**.

In order to confirm the modelling results using the TNM protocol implemented through Cadna/A, a comparative analysis was completed for road traffic noise modelling, in which the results from TNM in Cadna/A were compared against that of ORNAMENT implemented through STAMSON Version 5.04. This comparative analysis is discussed in **Section 2.2.5**.

2.2.3.2 Sensitive Receptor Locations

For the purposes of this study, the Building Evaluation feature was used in Cadna/A to assess the worst-case façade impacts throughout the Proposed Development. Based on the preliminary site plan for the Proposed Development, no Outdoor Living Areas (OLAs) have been identified that require assessment of impact due to transportation noise. The private balconies of the Proposed Development are assumed to be less than 4 m in depth and therefore are not considered OLAs per MECP NPC-300.

2.2.3.3 Transportation Noise Impacts – Plane of Window

Table 7 summarizes the predicted building façade noise levels from transportation noise sources at the representative sensitive receptors within the proposed development.

Table 7: Transportation Noise Prediction Summary Table - Façade Impacts

Receptor Location	Equivalent Sound Level - Leq (dBA)	
	Daytime (L_{eq} 16-hr)	Night-time (L_{eq} 8-hr)
Northwest Façade	54	47
Northeast Façade	35	28
Southeast Façade	54	47
Southwest Façade	**58**	**51**

[1] L_{eq} represents maximum predicted impacts along façade.

[2] Predicted noise levels that exceed the applicable limits are presented in **bold**.

The worst-case predicted transportation sound levels at the proposed development are presented in **Figure 2** and **Figure 3**, for daytime and nighttime impacts, respectively.

2.2.4 Noise Control Measures

2.2.4.1 Façade Construction Recommendations

Based on the predicted façade sound levels shown in **Table 7**, and the threshold criteria outlined in **Table 3** detailed building component design analysis is not required for the proposed development.

Upgraded glazing is not anticipated to be required at any location within the proposed development to meet the indoor sound level requirements (outlined in **Table 2**). Windows conforming to the Ontario Building Code (OBC) are anticipated to be sufficient. Windows which meet the structural and energy saving requirements of the OBC typically have an STC rating of STC-29 to STC-30.

Once the building orientations, elevation contours, detailed floor plans, and detailed building plans for the proposed development are finalized this assessment should be reviewed by an Acoustic Consultant.

2.2.4.2 Ventilation Requirements and Warning Clauses

Based on the predicted sound levels shown in **Table 7** and the threshold criteria outlined in **Table 4**, the Proposed Development will require the provision for the installation of central air conditioning with a Type C warning clause, as outlined below.

> *"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."*

The warning clause should be included in agreements that are registered on Title for all Offers of Purchase and Sale, lease/rental agreements, and condominium declarations.

2.2.5 TNM Protocol Confirmation

In order to demonstrate appropriate implementation of Transportation Noise Model (TNM) through Cadna/A, noise modelling results obtained through the TNM protocol were compared against traffic noise modelling using MECP's ORNAMENT implemented through STAMSON version 5.04. The most impacted receptor location (i.e., 6th floor southwest façade) was used for this comparative analysis. The comparison results are presented in **Table 8.**

Table 8: TNM Protocol in Cadna/A and ORNAMENT Comparison

Assessment Location	TNM Cadna/A	ORNAMENT STAMSON	TNM Cadna/A Modelling Parameters	ORNAMENT STAMSON Modelling Parameters
Southwest Façade, 6th floor	58 dBA	59 dBA	Ground Absorption = 1.0	Absorptive Ground Surface

The results indicate that the predicted noise impacts obtained through TNM protocol in Cadna/A are acceptable. The comparison shows the results are approximately the same (within 1 dB).

The STAMSON model output is provided in **Appendix C.**

3.0 Conclusions

Dillon Consulting Limited (Dillon) was retained by J.Rauti Developments Inc. and 2601817 Ontario Limited to complete a noise assessment as requested by the City of Windsor for the proposed development located at 3694-3738 Howard Avenue in Windsor, Ontario.

This study has been completed in support of the zoning by-law amendment application and site plan control.

The noise assessment presented herein focuses on the noise impacts of nearby transportation corridors on the proposed development. There are no commercial/industrial sources in the area that warrant a stationary noise assessment.

The noise assessment was prepared in accordance with the requirements of the City of Windsor and that of the Ontario Ministry of Environment, Conservation and Parks (MECP) noise publication NPC-300. Based on the results of the completed study, the following conclusions have been reached:

As outlined in **Section 2.2.4**, transportation noise impacts on the proposed development can be sufficiently controlled by:

- Provision for the Installation of central air conditioning with a Type C warning clause for the Proposed Development.

As the design of the development progresses and building orientations, elevation contours, detailed floor plans, and detailed building plans for the proposed development are finalized this assessment should be reviewed by an Acoustic Consultant.

4.0 Closure

This noise assessment has been prepared based on the information provided and/or approved by J.Rauti Developments Inc. and 2601817 Ontario Limited. This report is intended to provide a reasonable review of available information within an agreed work scope, schedule, and budget. This report was prepared by Dillon for the sole benefit of J.Rauti Developments Inc. and 2601817 Ontario Limited. The material in the report reflects Dillon's judgement in light of the information available to Dillon at the time of this report preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust that the report is to your satisfaction. Please do not hesitate to contact the undersigned if you have any further questions on this report.

Respectfully Submitted:

DILLON CONSULTING LIMITED

Lucas Arnold, P.Eng
Associate

Aimen Siraj, EIT

Figures

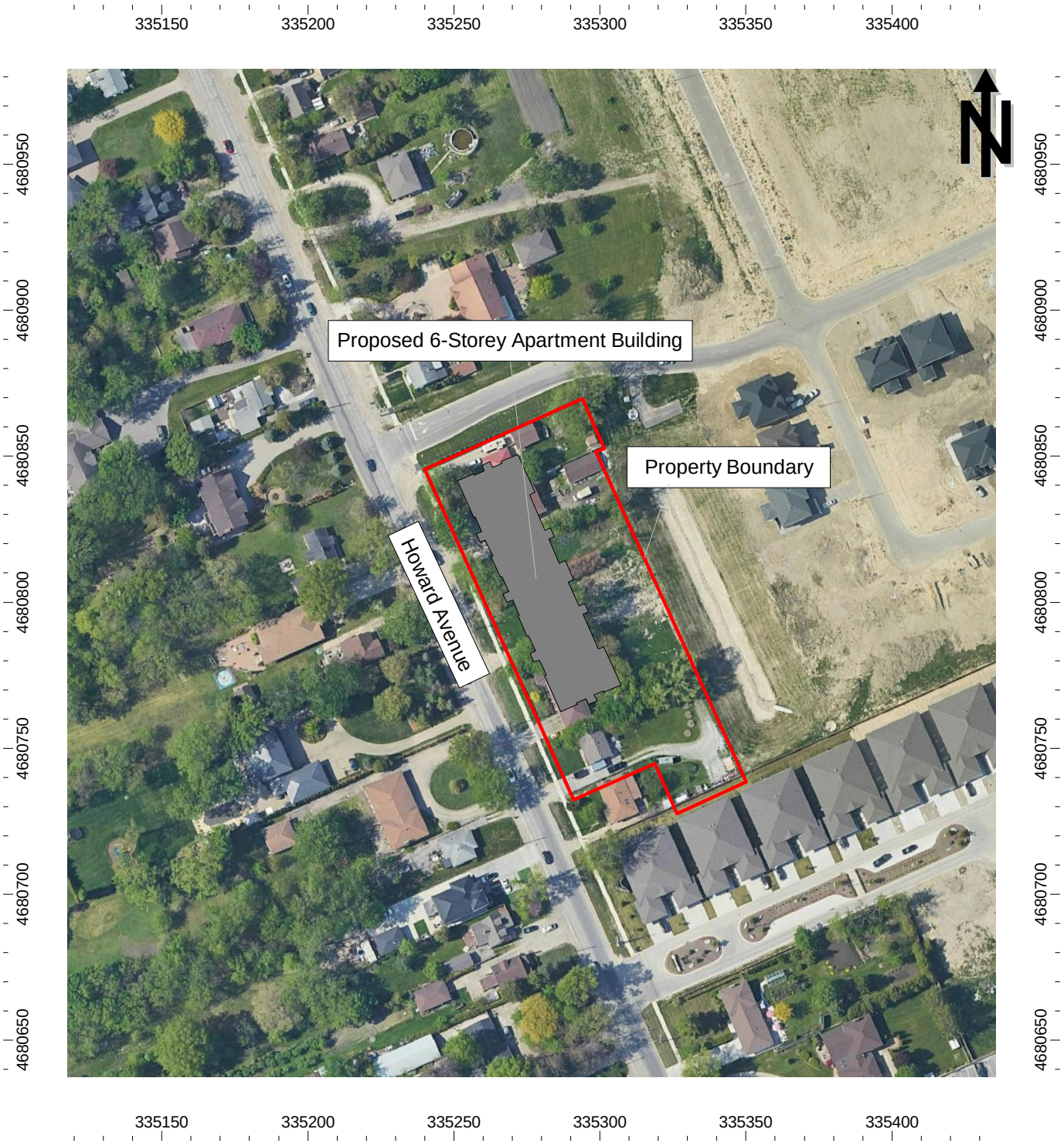

Figure 1

Project # 24-8813

January 2026

Subject Site and Surrounding Area

3694-3738 Howard Avenue, Windsor, Ontario

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Figure 2

Road Noise Impacts - Daytime

Project # 24-8813

January 2026

3694-3738 Howard Avenue, Windsor, Ontario

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Figure 3

Road Noise Impacts - Nighttime

Project # 24-8813

January 2026

3694-3738 Howard Avenue, Windsor, Ontario

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Appendix A

Development Site Plan

SITE DATA : ZONED HRD1.1 (BYLAW 8600) (STATS BASED OFF RD3.2)

		REQUIRED	PROPOSED	VARIANCE
a.	LOT AREA	MIN. 4,629.0 m^2	7,413.7 m^2	–
b.	LOT FRONTAGE (CORNER LOT)	MIN. 30.0 m	59.4 m	–
c.	BUILDING AREA	–	1,838.4 m^2	–
d.	BUILDING LOT COVERAGE	MAX. 35.0 %	24.7 %	–
e.	BUILDING GROSS FLOOR AREA (G.F.A.)	–	11,030.4 m^2	–
f.	BUILDING HEIGHT (CORNER LOT)	MAX. 24.0 m	20.0 m	–
g.	BUILDING SETBACKS			
	FRONT – NORTH	–	6.3 m	–
	REAR – SOUTH	–	27.4 m	–
	SIDE EXTERIOR – WEST	–	6.9 m	–
	SIDE INTERIOR – EAST	–	25.2 m	–
h.	NO. OF PARKING SPACES (INCLUDES ACCESSIBLE SPACES) 1.25 SPACES PER UNIT	112 SPACES	112 SPACES	–
i	NO. OF ACCESSIBLE PARKING SPACES			
	101 TO 200 SPACES			
	TYPE 'A'	2 SPACES	2 SPACES	–
	TYPE 'B'	2 SPACES	3 SPACES	–
j.	NO. OF LOADING SPACE			
	G.F.A. 7,500m^2 TO 15,000m^2 SIZE = 3.0mX7.5mX3.5m	2 SPACE	2 SPACE	–
k.	NO. OF REQUIRED BICYCLE PARKING SPACES 20 OR MORE	7 SPACES	10 SPACES	–
l.	PAVED AREA		2,980.9 m^2	
	COVERAGE	–	40.2 %	–
m.	LANDSCAPED OPEN SPACE			
	HARD		798.3 m^2	
	SOFT		1,796.1 m^2	
	TOTAL		2,594.4 m^2	
	COVERAGE	MIN. 35.0 %	35.0 %	–
n.	LINEAR CONCRETE CURB	–	425.3 m	–
o.	SITE DENSITY (CORNER LOT) 188 UNITS PER HECTARE	MAX. 140 UNITS	90 UNITS	–

LEGEND

WALKWAY

LANDSCAPED AREA

RESIDENT PATIO

PAINTED ASPHALT

UNIT COUNTS

1ST FLOOR (14 UNITS) – 4(1A) 1-BED (830 ft^2)
– 6(2A) 2-BED (1,135 ft^2)
– 4(2B) 2-BED (1,135 ft^2)

2ND FLOOR (16 UNITS) – 4(1A) 1-BED (830 ft^2)
– 6(2A) 2-BED (1,135 ft^2)
– 4(2B) 2-BED (1,135 ft^2)
– 2(2C) 2-BED (1,055 ft^2)

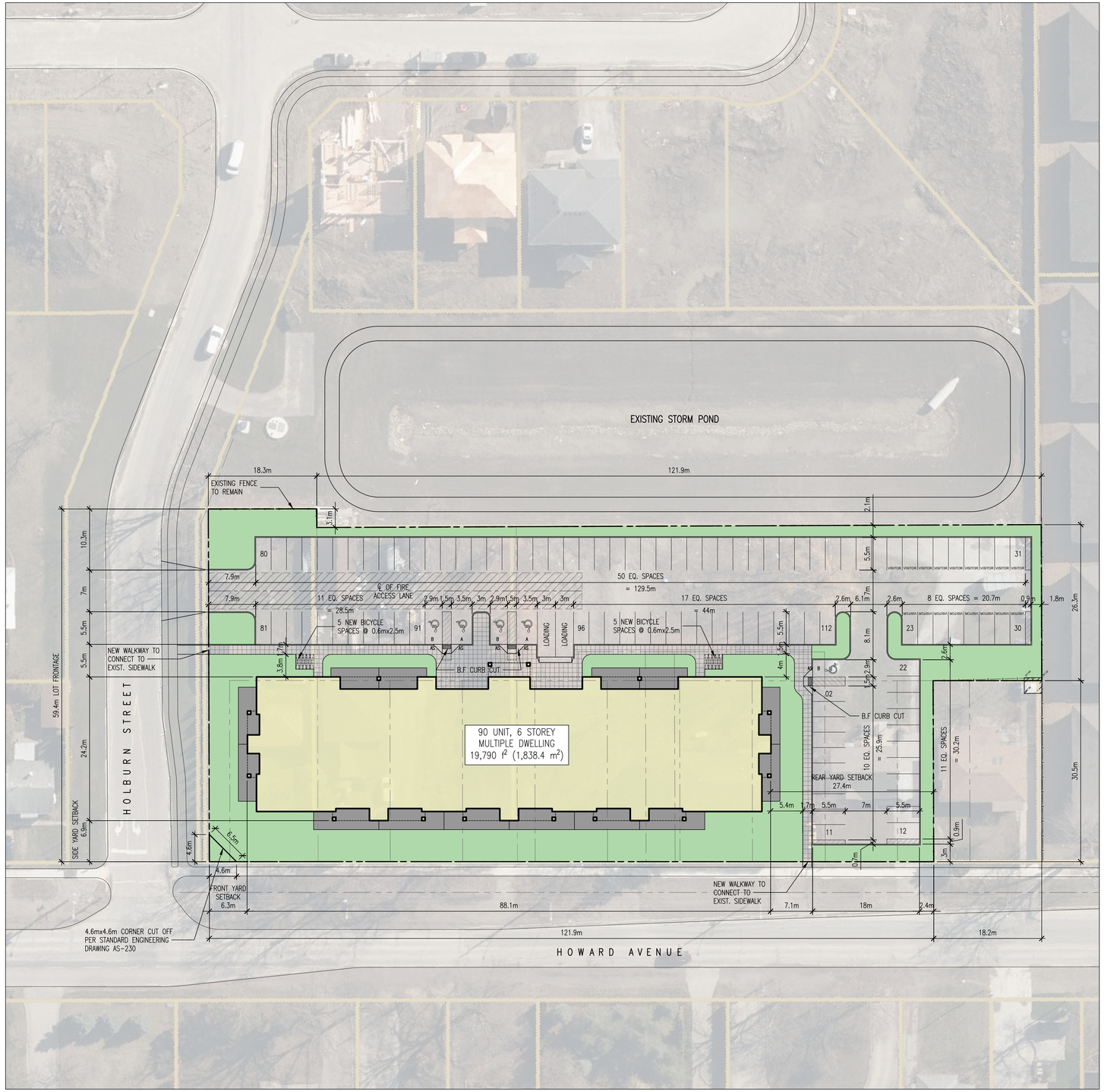
3RD FLOOR (16 UNITS) – 4(1A) 1-BED (830 ft^2)
– 6(2A) 2-BED (1,135 ft^2)
– 4(2B) 2-BED (1,135 ft^2)
– 2(2C) 2-BED (1,055 ft^2)

4TH FLOOR (16 UNITS) – 4(1A) 1-BED (830 ft^2)
– 6(2A) 2-BED (1,135 ft^2)
– 4(2B) 2-BED (1,135 ft^2)
– 2(2C) 2-BED (1,055 ft^2)

5TH FLOOR (14 UNITS) – 6(2A) 2-BED (1,135 ft^2)
– 4(2B) 2-BED (1,135 ft^2)
– 2(2C) 2-BED (1,055 ft^2)
– 2(3A) 3-BED (1,660 ft^2)

6TH FLOOR (14 UNITS) – 6(2A) 2-BED (1,135 ft^2)
– 4(2B) 2-BED (1,135 ft^2)
– 2(2C) 2-BED (1,055 ft^2)
– 2(3A) 3-BED (1,660 ft^2)

TOTAL – 16 1-BEDROOM
– 70 2-BEDROOM
– 4 3-BEDROOM
= 90 UNITS



SITE PLAN

SCALE : 1" = 30'–0"

0 15 30 45 90 FEET

2026/01/05	REVISED PARKING
2025/11/05	REVISED PARKING
2025/09/30	SPC STAGE 2 REVISION
2025/08/25	SPC STAGE 2 REVISION
2025/03/13	OWNER REVIEW
date (yyyy/mm/dd):	issued for:

general notes:

1. THIS PRINT IS AN INSTRUMENT OF SERVICE ONLY AND IS THE PROPERTY OF THE ARCHITECT.
2. DRAWINGS SHALL NOT BE SCALED.
3. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THIS OFFICE MUST BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN BY THESE DRAWINGS.
4. ATTENTION IS DIRECTED TO PROVISIONS IN THE GENERAL CONDITIONS REGARDING CONTRACTOR'S RESPONSIBILITIES IN REGARD TO SUBMISSION OF SHOP DRAWINGS.
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7. THE ARCHITECT IS NOT RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS AND OR TECHNIQUES IN THE CONSTRUCTION OF THIS FACILITY.

stamp:

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windsor ontario canada n8x 3p7
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email - info@ada-architect.ca www.ada-architect.ca

project:
PROPOSED RESIDENTIAL DEVELOPMENT
3694-3738 HOWARD AVENUE
WINDSOR, ON

client:
RAUTI

title:
SITE PLAN

scale: AS SHOWN
drawn by: JT, DM
checked by: JBK
date: APRIL, 2024
comm. no.: 2024-072
sheet no.:

A1.0

Appendix B

Traffic Data

Horizon Data Services Ltd

(416) 840-6619

Your Traffic Count Specialist

File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10

Groups Printed- Cars - Trucks - Heavies - Cyclists

	Howard Ave From North					Lilymac Boulevard From East					Howard Ave From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	39	0	0	39	0	0	0	0	0	0	55	0	0	55	0	0	0	0	0	94
07:15 AM	0	33	0	0	33	0	0	0	0	0	0	40	0	0	40	0	0	0	0	0	73
07:30 AM	0	51	1	0	52	1	0	2	5	8	1	82	0	0	83	0	0	0	0	0	143
07:45 AM	0	75	1	0	76	1	0	1	2	4	0	80	0	0	80	0	0	0	0	0	160
Total	0	198	2	0	200	2	0	3	7	12	1	257	0	0	258	0	0	0	0	0	470
08:00 AM	0	84	0	0	84	1	0	1	3	5	0	97	0	0	97	0	0	0	0	0	186
08:15 AM	0	61	0	0	61	0	0	3	1	4	1	123	0	0	124	0	0	0	0	0	189
08:30 AM	0	55	1	1	57	0	0	1	1	2	0	111	0	0	111	0	0	0	0	0	170
08:45 AM	0	77	1	1	79	2	0	2	1	5	1	85	0	0	86	0	0	0	0	0	170
Total	0	277	2	2	281	3	0	7	6	16	2	416	0	0	418	0	0	0	0	0	715
04:00 PM	0	163	1	0	164	0	0	0	0	0	1	113	0	0	114	0	0	0	0	0	278
04:15 PM	0	151	1	0	152	2	0	1	1	4	1	111	0	0	112	0	0	0	0	0	268
04:30 PM	0	160	1	1	162	0	0	1	1	2	0	117	0	0	117	0	0	0	0	0	281
04:45 PM	0	125	0	0	125	0	0	0	1	1	2	111	0	0	113	0	0	0	0	0	239
Total	0	599	3	1	603	2	0	2	3	7	4	452	0	0	456	0	0	0	0	0	1066
05:00 PM	0	180	0	0	180	1	0	1	4	6	2	105	0	0	107	0	0	0	0	0	293
05:15 PM	0	165	0	0	165	1	0	0	1	2	3	109	0	0	112	0	0	0	0	0	279
05:30 PM	0	110	0	0	110	1	0	1	0	2	0	107	0	0	107	0	0	0	0	0	219
05:45 PM	0	107	1	0	108	1	0	1	2	4	0	115	0	0	115	0	0	0	0	0	227
Total	0	562	1	0	563	4	0	3	7	14	5	436	0	0	441	0	0	0	0	0	1018
Grand Total	0	1636	8	3	1647	11	0	15	23	49	12	1561	0	0	1573	0	0	0	0	0	3269
Apprch %	0	99.3	0.5	0.2		22.4	0	30.6	46.9		0.8	99.2	0	0		0	0	0	0		
Total %	0	50	0.2	0.1	50.4	0.3	0	0.5	0.7	1.5	0.4	47.8	0	0	48.1	0	0	0	0	0	
Cars	0	1608	8	3	1619	11	0	15	23	49	12	1538	0	0	1550	0	0	0	0	0	3218
% Cars	0	98.3	100	100	98.3	100	0	100	100	100	100	98.5	0	0	98.5	0	0	0	0	0	98.4
Trucks	0	9	0	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	15
% Trucks	0	0.6	0	0	0.5	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.5
Heavies	0	18	0	0	18	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	35
% Heavies	0	1.1	0	0	1.1	0	0	0	0	0	0	1.1	0	0	1.1	0	0	0	0	0	1.1
Cyclists	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Cyclists	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

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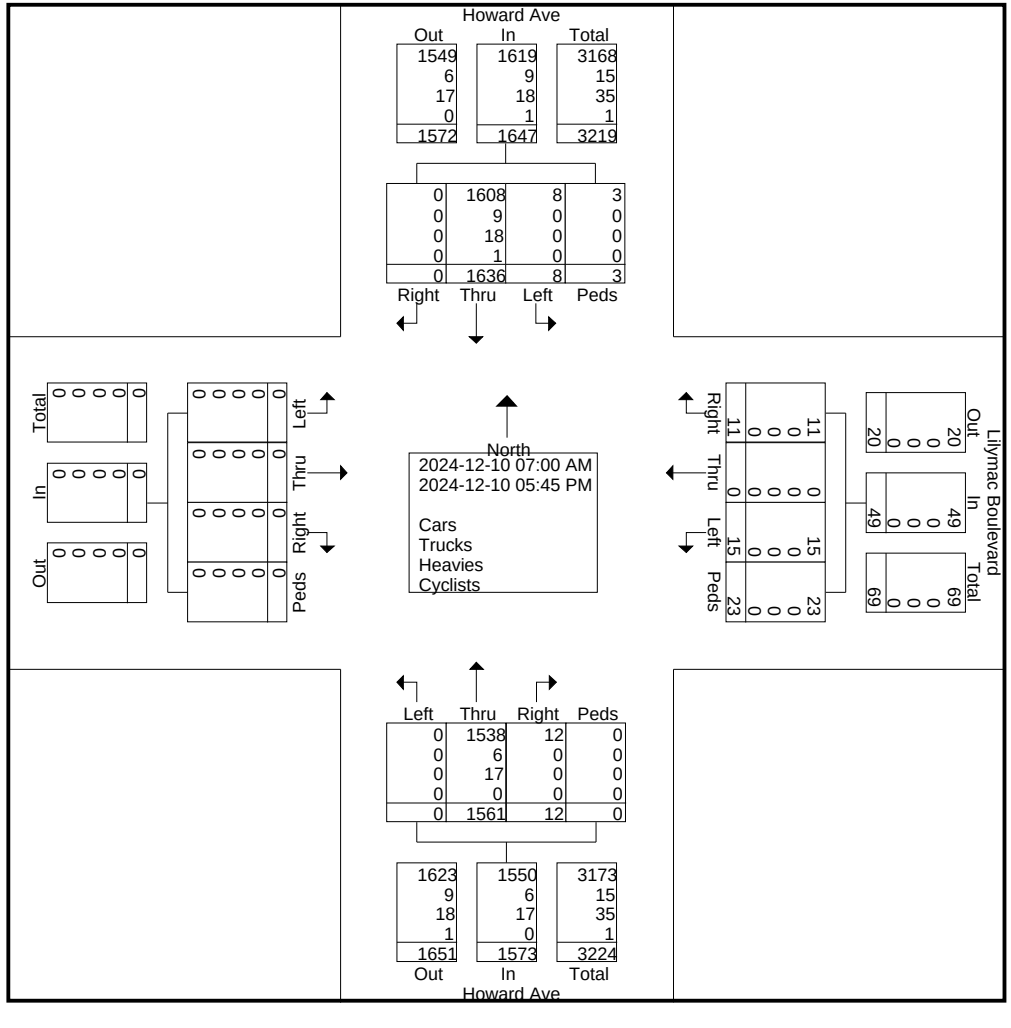
Your Traffic Count Specialist

File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10
Page No : 2



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Your Traffic Count Specialist

File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10
Page No : 3

	Howard Ave From North					Lilymac Boulevard From East					Howard Ave From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	**84**	0	0	**84**	1	0	1	**3**	**5**	0	97	0	0	97	0	0	0	0	0	186
08:15 AM	0	61	0	0	61	0	0	**3**	1	4	**1**	**123**	0	0	**124**	0	0	0	0	0	**189**
08:30 AM	0	55	**1**	**1**	57	0	0	1	1	2	0	111	0	0	111	0	0	0	0	0	170
08:45 AM	0	77	1	1	79	**2**	0	2	1	5	1	85	0	0	86	0	0	0	0	0	170
Total Volume	0	277	2	2	281	3	0	7	6	16	2	416	0	0	418	0	0	0	0	0	715
% App. Total	0	98.6	0.7	0.7		18.8	0	43.8	37.5		0.5	99.5	0	0		0	0	0	0		
PHF	.000	.824	.500	.500	.836	.375	.000	.583	.500	.800	.500	.846	.000	.000	.843	.000	.000	.000	.000	.000	.946
Cars	0	267	2	2	271	3	0	7	6	16	2	411	0	0	413	0	0	0	0	0	700
% Cars	0	96.4	100	100	96.4	100	0	100	100	100	100	98.8	0	0	98.8	0	0	0	0	0	97.9
Trucks	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
% Trucks	0	1.4	0	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6
Heavies	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	11
% Heavies	0	2.2	0	0	2.1	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	1.5
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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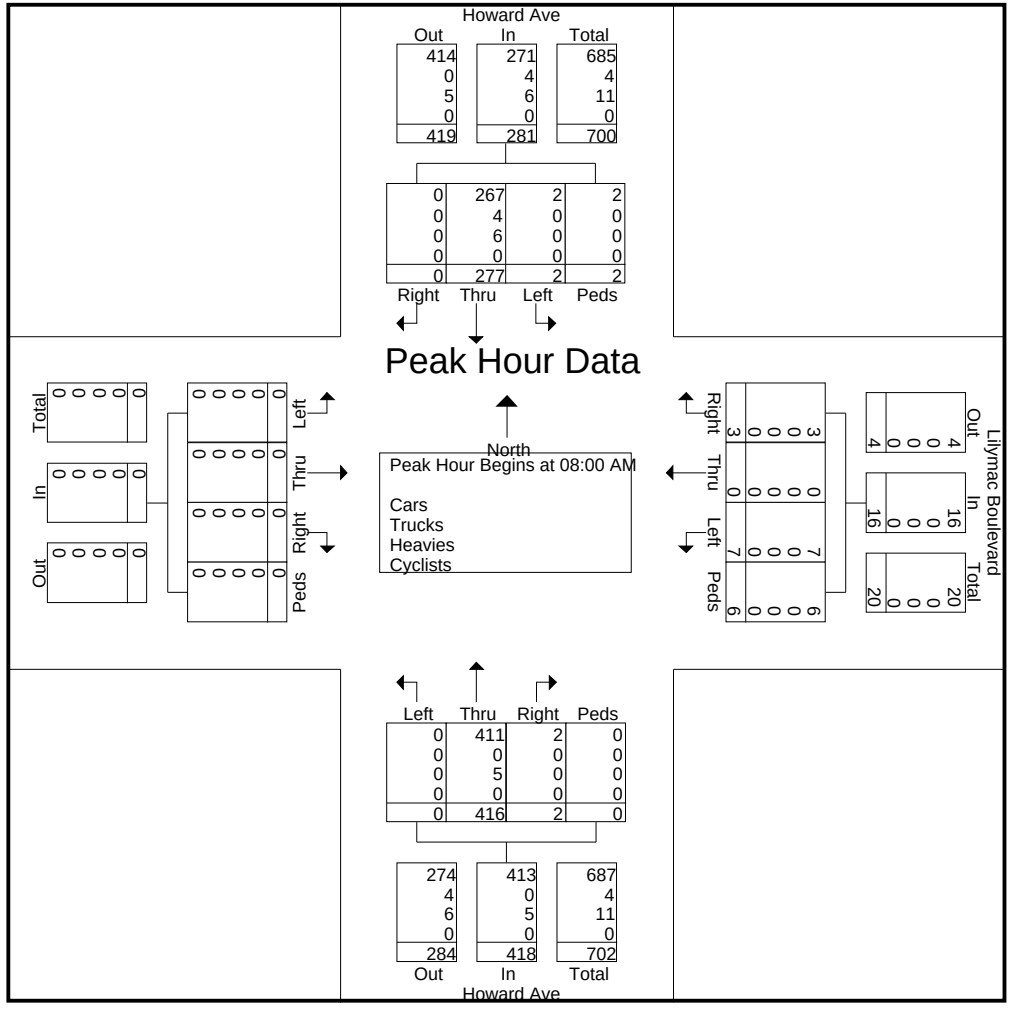
Your Traffic Count Specialist

File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10
Page No : 4



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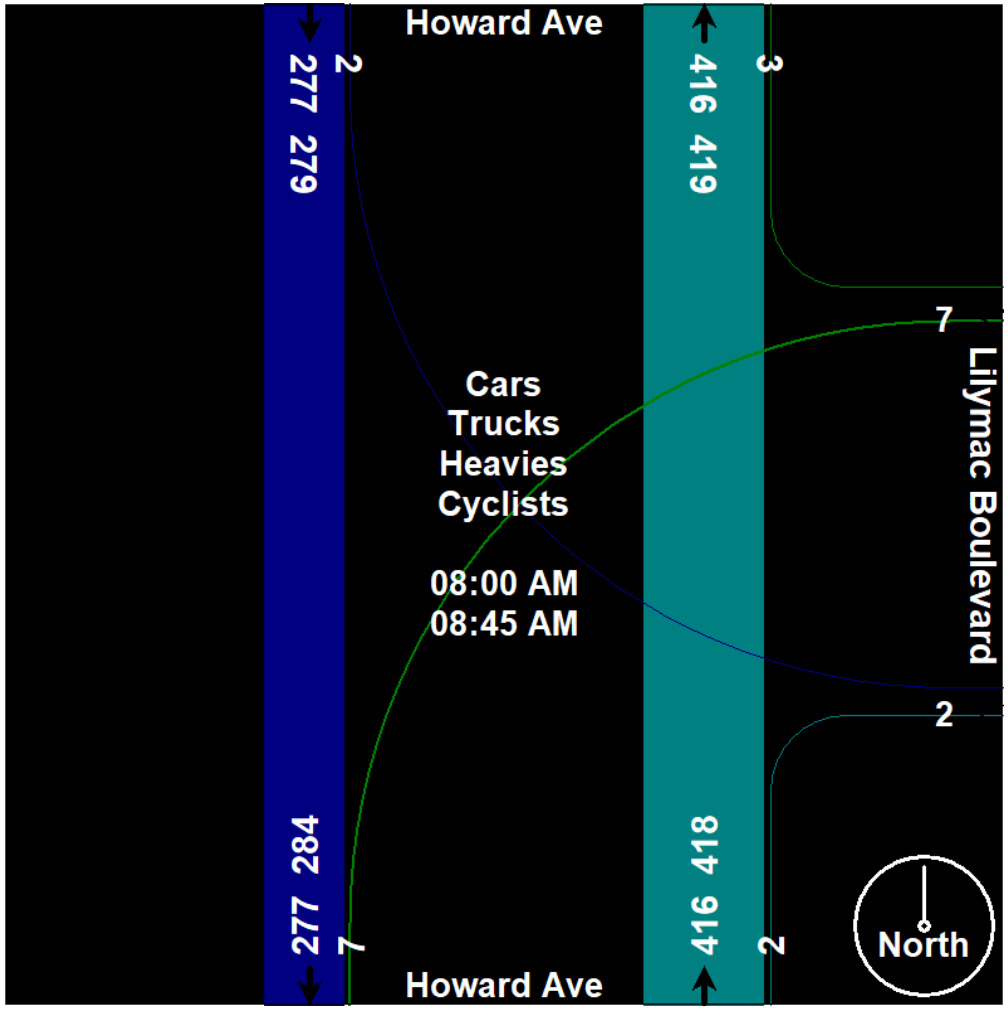
Your Traffic Count Specialist

File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10
Page No : 5



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Your Traffic Count Specialist

File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10
Page No : 6

	Howard Ave From North					Lilymac Boulevard From East					Howard Ave From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	160	**1**	**1**	162	0	0	**1**	1	2	0	**117**	0	0	**117**	0	0	0	0	0	281
04:45 PM	0	125	0	0	125	0	0	0	1	1	2	111	0	0	113	0	0	0	0	0	239
05:00 PM	0	**180**	0	0	**180**	**1**	0	1	**4**	**6**	2	105	0	0	107	0	0	0	0	0	**293**
05:15 PM	0	165	0	0	165	1	0	0	1	2	**3**	109	0	0	112	0	0	0	0	0	279
Total Volume	0	630	1	1	632	2	0	2	7	11	7	442	0	0	449	0	0	0	0	0	1092
% App. Total	0	99.7	0.2	0.2		18.2	0	18.2	63.6		1.6	98.4	0	0		0	0	0	0		
PHF	.000	.875	.250	.250	.878	.500	.000	.500	.438	.458	.583	.944	.000	.000	.959	.000	.000	.000	.000	.000	.932
Cars	0	626	1	1	628	2	0	2	7	11	7	437	0	0	444	0	0	0	0	0	1083
% Cars	0	99.4	100	100	99.4	100	0	100	100	100	100	98.9	0	0	98.9	0	0	0	0	0	99.2
Trucks	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
% Trucks	0	0.2	0	0	0.2	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0	0	0	0.4
Heavies	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
% Heavies	0	0.3	0	0	0.3	0	0	0	0	0	0	0.5	0	0	0.4	0	0	0	0	0	0.4
Cyclists	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Cyclists	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1

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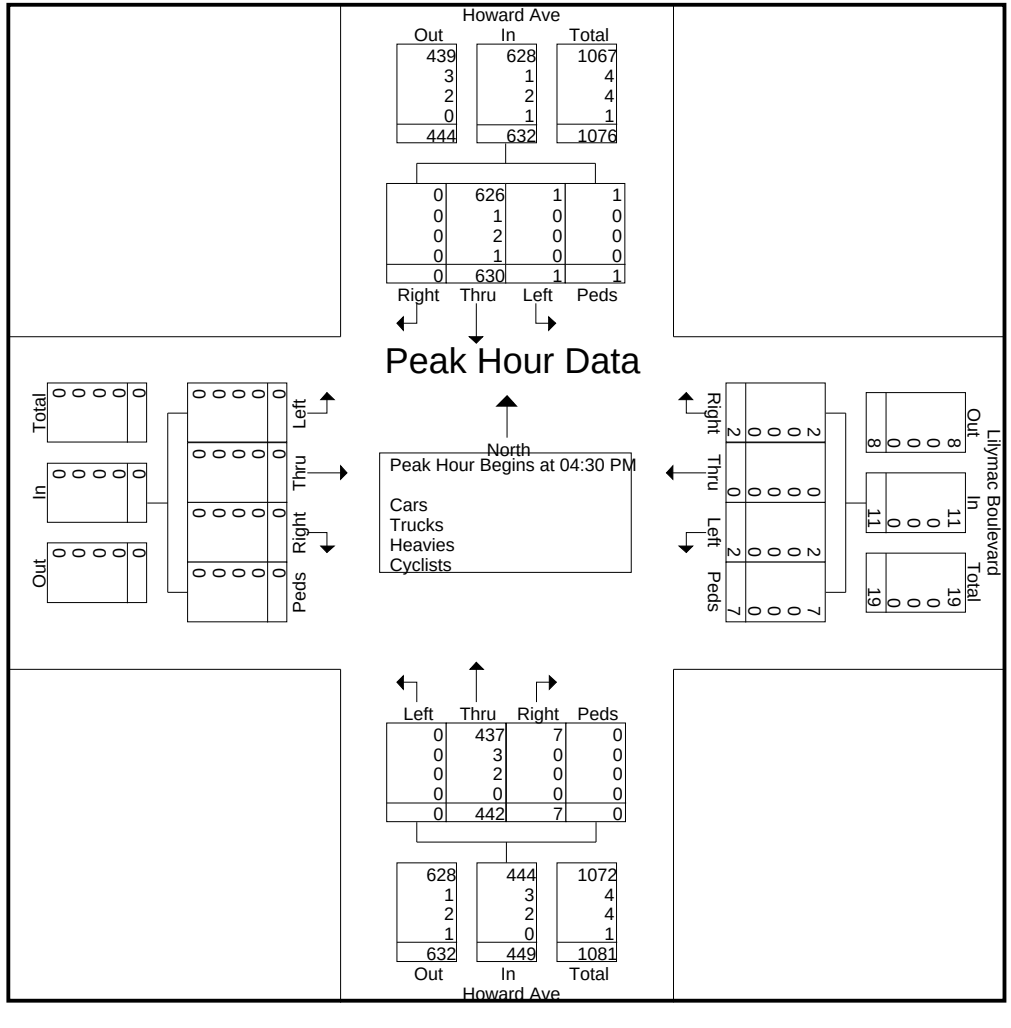
File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10
Page No : 7



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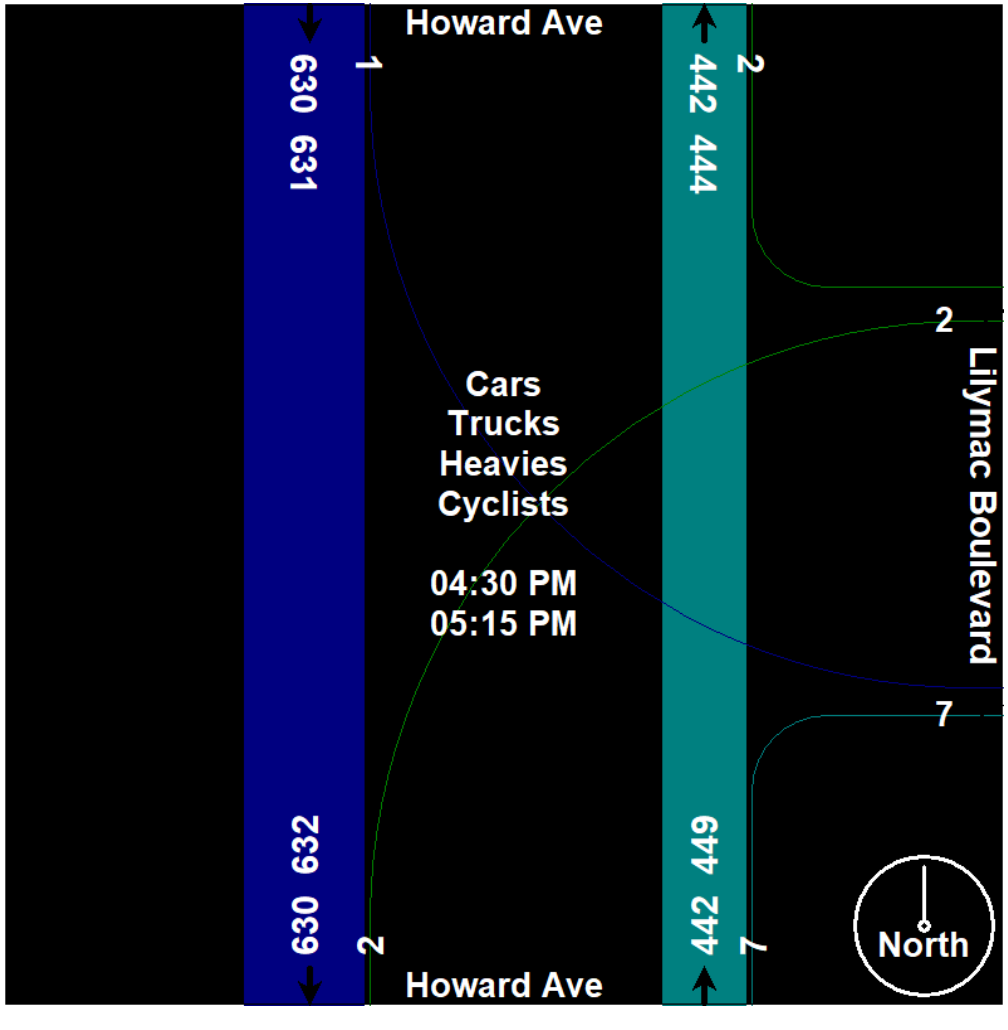
Your Traffic Count Specialist

File Name : Howard Avenue at Lilymac Boulevard
Site Code : Loc 1
Start Date : 2024-12-10
Page No : 8



Appendix C

STAMSON Output

STAMSON 5.0 NORMAL REPORT Date: 14-01-2026 15:12:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: Howard blvd (day/night) ----------

Car traffic volume : 12689/1410 veh/TimePeriod
Medium truck volume : 48/5 veh/TimePeriod
Heavy truck volume : 47/5 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Howard blvd (day/night) ----------

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 23.00 /
23.00 m Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Results segment # 1: Howard blvd (day)

Source height = 0.78 m

ROAD (0.00 + 59.29 + 0.00) = 59.29 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -------
--- -90 90
0.23 62.19 0.00 -2.29 -0.61 0.00 0.00 0.00 59.29 ----------

Segment Leq : 59.29 dBA

Total Leq All Segments: 59.29 dBA

Results segment # 1: Howard blvd (night) ----------

Source height = 0.77 m

ROAD (0.00 + 52.71 + 0.00) = 52.71 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -------
--- -90 90
0.23 55.61 0.00 -2.29 -0.61 0.00 0.00 0.00 52.71 ----------

Segment Leq : 52.71 dBA

Total Leq All Segments: 52.71 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.29
 (NIGHT): 52.71

Appendix D

Guideline D-6

Category	Outputs	Scale	Process	Operations/Intensity	Possible Examples
Class I	• Noise: Sound not audible off property • Dust and/or Odour: Infrequent and not intense • Vibration: No ground borne vibration on plant property	• No outside storage • Small scale plant or scale is irrelevant in relation to all other criteria for this Class	• Self-contained plant or building which produces/stores a packaged product. Low probability of fugitive emissions	• Daytime operations only • Infrequent movement of products and/or heavy trucks	• Electronics manufacturing and repair • Furniture repair and refinishing • Beverages bottling • Auto parts supply • Packaging and crafting services • Distribution of dairy products • Laundry and linen supply
Class II	• Noise: Sound occasionally audible off property • Dust and/or Odour: Frequent and occasionally intense • Vibration: Possible groundborne vibration, but cannot be perceived off property	• Outside storage permitted • Medium level of production allowed	• Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions	• Shift operations permitted • Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours	• Magazine printing • Paint spray booths • Metal command • Electrical production manufacturing • Manufacturing of dairy products • Dry cleaning services • Feed packing plant
Class III	• Noise: sound frequently audible off property • Dust and/or Odour: Persistent and/or intense • Vibration: Ground-borne vibration can frequently be perceived off property	• Outside storage of raw and finished products • Large production levels	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions	• Continuous movement of products and employees • Daily shift operations permitted	• Manufacturing of paint and varnish • Organic chemicals manufacturing • Breweries • Solvent recovery plants • Soaps and detergent manufacturing • Manufacturing of resins and costing • Metal manufacturing

References

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