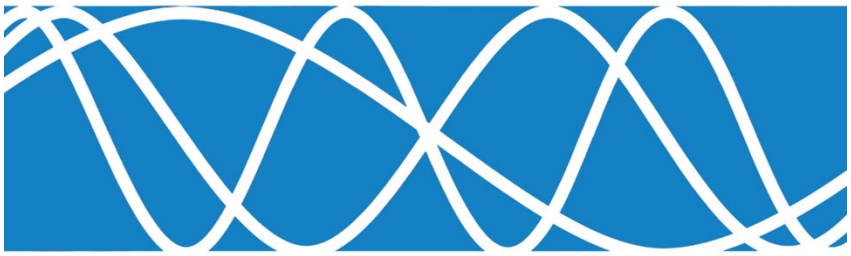
Noise Feasibility Study

Proposed Residential Development, Part of Lot 18, Concession 16

6581 Highway 6, Fergus, Ontario

March 5, 2025
HGC Project #: 02300434



Prepared for:

Polocorp Inc.
379 Queen Street South
Kitchener, Ontario
N2G 1W6

HGC
NOISE | VIBRATION | ACOUSTICS

HGC Noise Vibration Acoustics
2000 Argentia Road, Plaza One, Suite 203
Mississauga, Ontario, L5N 1P7
t: 905.826.4044

Version Control
Noise Feasibility Study, Proposed Residential Development, Part of Lot 18, Concession 16, 6581 Highway 6, Fergus, Ontario

Ver.	Date	Version Description	Prepared By
1.0	March 5, 2025	Noise Feasibility Study prepared to support the planning and approvals process	V. Garcia

Prepared by:

LICENSED PROFESSIONAL ENGINEER
V.R. GARCIA SALAZAR
100176152
PROVINCE OF ONTARIO

Victor Garcia, P.Eng

Howe Gastmeier Chapnik Limited

Reviewed by:

Sheeba Paul, MEng, P.Eng

Limitations

This document was prepared solely for the addressed party and titled project or named part thereof and should not be relied upon or used for any other project without obtaining prior written authorization from HGC Noise Vibration Acoustics (HGC). Further, the input of content from any document produced by HGC or related HGC intellectual property into any Artificial Intelligence tool is expressly prohibited. HGC accepts no responsibility or liability for any consequence of this document being used for a purpose other than for which it was commissioned. Any person or party using or relying on the document for such other purpose agrees and will by such use or reliance be taken to confirm their agreement to indemnify HGC for all loss or damage resulting therefrom. HGC accepts no responsibility or liability for this document to any person or party other than the party by whom it was commissioned.

Any conclusions and/or recommendations herein reflect the judgment of HGC based on information available at the time of preparation and were developed in good faith on information provided by others, as noted in the report, which has been assumed to be factual and accurate. Changed conditions or information occurring or becoming known after the date of this report could affect the results and conclusions presented.

Table of Contents

1 INTRODUCTION AND SUMMARY

HGC Noise Vibration Acoustics (HGC) was retained by Polocorp Inc. to conduct a noise feasibility study for a proposed residential development located at 6581 Highway 6, Part of Lot 18, Concession 16 in Fergus, Ontario. The study is required by the Municipality as part of the planning and approvals process.

The primary noise source of noise impacting the site was determined to be road traffic on Highway 6. Relevant road traffic data was obtained from the Ministry of Transportation (MTO) and was used to predict future traffic sound levels at the locations of the proposed residential dwellings. The predicted sound levels were compared to the guidelines of the Ministry of Environment, Conservation and Parks (MECP) and the Municipality.

The proposed development is feasible; sound level predictions indicate mitigation is required to ensure indoor sound level criteria is achieved within the proposed dwellings. Air conditioning is required for the dwellings flanking directly onto Hwy 6. The provision for the future installation of air conditioning at the occupant's discretion is required for dwellings with some exposure to Hwy 6. Upgraded building and glazing constructions are required for dwellings closest to Hwy 6. For the remaining dwellings, any exterior wall, and double-glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for all the dwelling units in this development. Warning clauses are required for

2 SITE DESCRIPTION AND NOISE SOURCES

The proposed residential development is located at 6581 Highway 6 in Fergus, Ontario. Figure 1 shows a key plan of the proposed site. A proposed conceptual subdivision plan prepared by Polocorp Inc. dated December 10, 2024 is included as Figure 2, also showing the sound level prediction locations. The development is proposed to include: single detached dwellings, street townhouses, along with associated roadways, medium density blocks, environmental feature, village green, and stormwater management facility.

HGC personnel visited the site in January 2024. The acoustical environment surrounding the site is semi-urban in nature. The primary source of sound impacting the site is vehicular traffic on Highway 6. The surrounding lands are primarily existing residential lands, and agricultural lands. There are no significant sources of stationary noise within 500 m of the subject site. A detailed noise study for the Medium Density Blocks should be conducted to determine barrier heights, ventilation requirements and the building constructions when lotting and detailed grading information is available.

3 ROAD TRAFFIC NOISE ASSESSMENT

3.1 Road Traffic Noise Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Part C release date October 21, 2013 and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A weighted decibels [dBA].

Table 1: Road Traffic Noise Criteria

Space	Daytime $L_{EQ(16\ hour)}$ Road	Nighttime $L_{EQ(8\ hour)}$ Road
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The MECP guidelines allow the daytime sound levels in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is recommended to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. If the sound level at the facade is greater than 55 dBA and less than or equal to 65 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses to notify future residents of possible excesses are also required when nighttime sound levels exceed 50 dBA at the plane of the bedroom window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the living/dining room window due to road traffic.

3.2 Traffic Sound Level Assessment

3.2.1 Road Traffic Data

Road traffic volumes for Highway 6 was obtained from the MTO in the form of summer average daily traffic (SADT) for the year 2021 and is included in Appendix A. The data was projected to the year 2035 using a 2.5%/year growth rate. A commercial vehicle percentage of 9.0% was provided by the MTO and split into 3.5% medium trucks and 5.5% heavy trucks. A day/night split of 85%/15% was assumed along with a posted speed limit of 60 km/h was used in the analysis. Table 2 summarizes the traffic volume data used in this study.

Table 2: Future Road Traffic Data

Roadway	AADT	Day / Night Split [%]	Trucks Percentage (%)		Speed Limit [km/h]
			Medium	Heavy	
Highway 6	15 401	85 / 15	3.5	5.5	60

3.2.2 Road Traffic Noise Predictions

To assess the levels of road traffic noise which will impact the site in the future, predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Future daytime sound levels were predicted at 1.5 m above ground level in outdoor living areas to determine whether noise barriers will be necessary. A 2 m front yard setback, a 6.5 m rear yard setback, a 2.4 m exterior side yard setback for lots flanking major roadways and a 1.5 m setback for interior side yards were used in the analysis. Sound levels were also predicted at the plane of the top storey bedroom/living/dining room windows during daytime and nighttime hours to investigate ventilation requirements.

Prediction locations were chosen around the development site, as shown in Figure 2, to obtain a good representation of the future sound levels at various blocks with exposure to the roadways. The results of these predictions are summarized in Table 3.

Table 3: Future Road Traffic Sound Levels, [dBA], Without Mitigation

Prediction Location	Description	Daytime in OLA $L_{EQ(16\ hour)}$	Daytime at Façade $L_{EQ(16\ hour)}$	Nighttime at Façade $L_{EQ(8\ hour)}$
[A]	Dwellings with flanking exposure to Hwy 6	60	66	61
[B]	Dwellings with some exposure to Hwy 6	58	58	53
[C]	Dwellings with some exposure to Hwy 6	55	55	51

3.3 Traffic Noise Recommendations

The predictions indicate that the future traffic sound levels will be within MECP guidelines at the proposed dwellings.

3.3.1 Outdoor Living Areas

The predicted sound level in the rear yards of the proposed dwellings with flanking exposure to Highway 6 (prediction locations [A] to [C]) will be up to 60 dBA, 5 dBA in excess of the MECP limit of 55 dBA. The 5 dBA sound level excess is acceptable to the MECP if it is acceptable to the municipality with the use of a noise warning clause. No further mitigation is recommended.

The predicted sound level in the rear yards of the remaining proposed dwellings will be less than 55 dBA. No further mitigation is required.

Medium Density Blocks

The siting information and details for the Medium Density Blocks are not known at this time. Any outdoor amenity areas for the units should be placed on the shielded side of the buildings to reduce the need for high noise barriers. When siting, lotting, and grading information is available, detailed noise studies should be conducted for the Urban Core lands to determine the specific barrier requirements, heights and extents, requirements for ventilation and building

envelope construction. The development of the Medium Density Blocks and requirements for noise mitigation will be reviewed in a future site plan approval application.

3.3.2 Indoor Living Areas

Air Conditioning

The predicted daytime sound levels are greater than 65 dBA and/or nighttime sound levels greater than 60 dBA at the dwellings flanking onto Hwy 6. Air conditioning will be required for the dwellings so that the windows can remain closed.

Provision for Future Installation of Air Conditioning

The predicted sound levels at the façades of the dwellings further from Hwy 6 will be between 56 and 65 dBA during daytime hours and between 51 to 60 dBA during nighttime hours. To address these excesses, the MECP guidelines recommend that these dwelling units be equipped with the provision for the future installation of air conditioning by the occupant.

Window or through-the-wall air conditioning units (similar to motel style) are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. This can be achieved if the heating and cooling within each unit is housed in its own closet with an access door for maintenance. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-216, within NPC-300, as applicable. Figure 3 shows the ventilation requirements for the proposed development.

3.3.3 Building Façade Constructions

Future sound levels at the facades of the dwellings adjacent to Highway 6 (prediction location [A]) will exceed 65 dBA during the day and 60 dBA during the nighttime hours. MECP guidelines recommend that the windows, walls and

doors be designed so that the indoor sound levels comply with MECP noise criteria.

The required building components are selected based on the Acoustical Insulation Factor (AIF) value for road traffic. To do so, calculations were performed to determine the acoustical insulation factors to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building facades, and the anticipated area ratios of the facade components (windows, walls and doors) and the floor area of the adjacent room.

Floor plans and building elevations were not available at the time of this study. Any well sealed thermopane unit having a Sound Transmission Class (STC) rating of 30, will provide sufficient noise insulation as long as the window to floor area ratio is less than 63% for living/dining rooms and bedrooms.

Any exterior wall construction meeting the Ontario Building Code (OBC) will be acceptable for the dwellings for the dwelling units adjacent to Highway 6, as long as the exterior wall to floor area ratio does not exceed 315% for living/dining rooms and bedrooms. Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation. If sliding patio doors are to be used in the dwellings, they must be included in the window area.

The remaining units within the development will have daytime and nighttime sound levels at the top storey façade that are less than 65 and 60 dBA respectively. For these units, any exterior wall, and double-glazed window construction meeting the minimum requirements of the OBC will provide adequate sound insulation for the dwelling units.

Further Analysis

When detailed floor plans and elevations are available for the future dwelling units (especially for dwellings with direct exposure to Highway 6, prediction

location [A]), a detailed noise study should be performed to specify wall and window requirements with sufficient acoustical insulation for the dwelling units based on actual window to floor area ratios.

Medum Density Blocks

Since the details of the siting, density and height of the buildings are not known, a detailed noise study will be required for the Medium Density Blocks to determine the acoustic requirements (acoustic barriers, ventilation and building façade construction) when siting, grading, building elevations and floor plans are available.

4 WARNING CLAUSES

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements for all the dwellings with anticipated traffic noise sound level excesses.

A suggested wording for future dwellings with sound level excesses of the MECP criteria but do not require physical mitigation measures is given below.

Type A:

> Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment.

Suitable wording for future dwellings requiring the provision for adding central air conditioning at the occupant's discretion is given below.

Type C:

> 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 limits of the Municipality and the Ministry of the Environment.

A suggested wording for future dwellings requiring central air conditioning systems is given below.

Type D:

> This dwelling unit has been supplied with a central air conditioning system which 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.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

5 SUMMARY AND RECOMMENDATIONS

Analysis indicates that the predicted sound level will be within MECP guidelines limits at the proposed building. The following recommendations are provided .

1. Air conditioning is required for dwellings closest to Highway 6. The provision for the future installation of air conditioning at the occupant's discretion is required for dwellings further from Highway 6.

2. Upgraded building constructions are required for dwellings closest to Highway 6. Any building constructions meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the remaining dwelling units.

3. Noise warning clauses are required for dwellings with sound level excesses and to notify future occupants or the road traffic noise.

4. A detailed noise study should be performed when grading and lotting information is available to refine the acoustic requirements and for the Medium Density Blocks.

The reader is referred to the previous sections of the report where these recommendations are discussed in more detail.

Table 4: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Description	Acoustic Barrier	*Ventilation Requirements	Type of Warning Clause	STC Requirements LR/BR
[A]	Dwellings with flanking exposure to Hwy 6	--	Air Conditioning	A, D	#STC-30
[B]	Dwellings with some exposure to Hwy 6	--	Provision for Future Installation of Air Conditioning	A, C	OBC
Remaining dwellings	Dwellings further from Hwy 6	--	--	--	OBC

Note:
-- no specific requirement
* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
# Based on assumed window to floor area ratios. When detailed floor plans and building elevations are available, the glazing requirements should be refined based on actual window to floor area ratios.

5.1 Implementation

To ensure that the noise control recommendations outlined above are properly implemented, it is recommended that:

1. A detailed noise study should be conducted when lotting and detailed grading information is available to determine barrier heights, ventilation requirements and the building construction for dwellings closest to Hwy 6 and the Medium Density Blocks.

Figure 1 - Key Plan

Figure 2 - Proposed Draft Plan Showing Prediction Locations

KEY MAP - N.T.S.

DRAFT PLAN OF SUBDIVISION

PT OF LOT 18, CONCESSION 16
IN THE FORMER GEOGRAPHIC TWP OF NICHOL
CENTRE WELLINGTON

POLOCORP INC.

20 0 20 40 60 80 100
SCALE = 1:1400 (metric)

LAND USE SCHEDULE

DESCRIPTION	LOTS/BLKS.	UNITS	AREA (ha.)
Sngle Detached	31-43	87-129	4.863
Sreet Townhouses	44-61	179-266	5.512
Medium Density	62, 63	93-125	2.065
Mixed Use	64	8-14	0.338
Existing House	65	0-1	0.172
Sormwater Management Facility	-	-	-
Tail	-	-	-
Parkland	66	-	0.892 (4.6%)
Psdestrian Walkway	67-69	-	0.115
Evironmental Featue & Buffer	-	-	-
MTO Allowance	70, 71	-	0.534
Roads	-	-	5.279
TOTAL		367-535	20.027

SALEABLE FRONTAGE	LENGTH	UNIT SMALL	UNIT LARGE
Sngle Detached	1,466.3m	36' (11.0m)	50' (15.2m)
Sreet Townhouses	1,773.2m	18' (5.5m)	27' (8.3m)
TOTAL	3,239.5m		

DENSITY	
Gross Area (ha)	20.027 ha (49.49 ac)
Developable Area (ha)	19.457 ha (48.08 ac)
Net Density (uph)	18.9 - 27.5 upha
Net People-Jobs (3.05 per unit)	57.7 - 83.9 P/J pha

INFORMATION REQUIRED

UNDER SECTION 51 (17) OF THE PLANNING ACT, R.S.O. 1990, c.P.13 AS AMENDED

INFORMATION REQUIRED BY CLAUSES a,b,c,d,e,f,g,] AND I ARE AS SHOWN ON THE DRAFT PLAN.

(f) Municipal Water Supply
(i. Sandy Loam
(k) Municipal Sanitary and Storm Sewers

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED ON T-IIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

. O.L.S.
Surveying Inc.

XX XX, 2024
DATE

OWNER'S CERTIFICATE

I HEREBY CONSENT TO THE FILING OF THIS PLAN BY POLOCORP INC., IN DRAFT FORM

MIKE PUOPOLO
Poloccrp Inc.

DATE

APPROVALS

FEGIONAL MUNICIPALITY OF
WATERLOO APPROVAL BLOCK

DRAFT
FOR DISCUSSION
PURPOSES ONLY

APPROVED: DATE:

REVISIONS

DATE	BY	DESCRIPTION

POLOCORP
379 Queen Street South, Kitchener | N2T 1W6 | 519-745-3249 | polocorpinc.com

DATE: December 10, 2024	SCALE 1:4000 (metric)
PROJECT: 1012 (Fergus)	DRAWN BY: GFE

Figure 3 - Proposed Draft Plan Showing Ventilation Requirements

Appendix A
Road Traffic Information

Year	Highway	Location Description	Dist (KM)	Pattern Type	AADT	SADT	SWADT	WADT	Truck AADT	Total Collisions	Total CR	Trucks Collisions	Truck CR
2016	6			IC	15,600	17,300	17,200	13,800	1,000	24	0.4	0	0.0
2017	6			IC	15,800	17,300	17,400	14,300	1,050	33	0.5	2	0.0
2018	6			IC	16,000	17,600	17,700	14,500	1,050	37	0.6	2	0.0
2019	6			IR	16,200	20,000	19,900	13,800	970	28	0.4	2	0.0
2021	6			IR	16,600	20,000	20,000	14,300	1,000	26	0.4	3	0.0
2021	6	FORMER FERGUS S LTS C1 2 START OF NA	3.0										
1988	6	FORMER FERGUS N LTS END OF NA	16.8	IC	5,400	6,250	6,100	4,750	540	35	1.1	1	0.0
1989	6			IR	5,700	7,350	6,350	4,650	570	27	0.8	2	0.1
1990	6			IR	6,100	7,750	6,750	5,000	610	34	0.9	4	0.1
1991	6			IR	6,000	7,550	6,650	5,000	600	30	0.8	3	0.1
1992	6			IR	5,500	6,750	6,050	4,700	550	26	0.8	1	0.0
1993	6			IR	5,700	7,000	5,900	4,650	570	25	0.7	4	0.1
1994	6			IR	6,150	7,600	6,750	5,150	620	28	0.7	6	0.2
1995	6			IR	6,150	7,550	6,800	5,250	620	25	0.7	1	0.0
1996	6			IR	6,450	8,000	7,200	5,500	580	34	0.9	3	0.1
1997	6			IR	6,600	8,250	7,400	5,600	590	26	0.6	1	0.0
1998	6			IR	6,800	8,450	7,600	5,700	610	24	0.6	4	0.1
1999	6			IR	6,900	8,550	7,650	5,800	690	24	0.6	1	0.0
2000	6			IR	6,950	8,500	7,700	5,850	700	26	0.6	3	0.1
2001	6			IR	7,100	8,750	7,850	6,000	710	31	0.7	3	0.1
2002	6			IR	7,450	9,200	8,250	6,350	740	31	0.7	2	0.0
2003	6			IR	7,600	9,200	8,350	6,450	760	36	0.8	5	0.1
2004	6			IR	7,550	9,350	8,350	6,400	910	30	0.6	1	0.0
2005	6			IR	7,500	9,050	8,200	6,400	680	37	0.8	2	0.0
2006	6			IR	7,400	8,950	8,100	6,300	670	27	0.6	1	0.0
2007	6			IR	7,800	9,450	9,400	6,600	700	44	0.9	6	0.1
2008	6			IR	7,900	9,550	9,400	6,750	710	23	0.5	2	0.0
2009	6			IR	8,000	9,600	8,700	6,800	720	26	0.5	3	0.1
2010	6			IR	7,950	9,450	8,650	6,750	800	17	0.3	3	0.1
2011	6			IR	7,950	9,500	9,300	6,800	800	30	0.6	4	0.1
2012	6			IC	7,600	8,400	8,150	6,750	720	23	0.5	3	0.1
2013	6			IC	7,600	8,400	8,350	6,750	720	24	0.5	2	0.0
2014	6			CTR	7,350	8,950	9,050	6,250	680	25	0.6	0	0.0
2015	6			CTR	7,400	9,050	9,100	6,300	690	26	0.6	5	0.1
2016	6			CTR	7,500	9,150	9,200	6,400	700	17	0.4	2	0.0
2017	6			CTR	8,050	10,800	10,700	6,550	750	21	0.4	1	0.0
2018	6			CTR	8,150	10,900	10,800	6,650	760	14	0.3	2	0.0
2019	6			CTR	8,200	10,900	10,900	6,650	740	21	0.4	4	0.1
2021	6			CTR	8,350	10,900	10,800	6,800	750	14	0.3	0	0.0
1988	6	WELLINGTON RD 109 ARTHUR S LTS	0.2	IR	7,450	9,700	8,200	5,950	740	0	0.0	0	0.0
1989	6			IR	7,700	9,950	8,550	6,300	770	0	0.0	0	0.0

Victor Garcia

From: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Sent: January 19, 2024 10:04 AM
To: Victor Garcia
Cc: Bee, Christopher (MTO)
Subject: RE: Commercial Vehicle % for Hwy 6 in Fergus, Ontario

To Victor Garcia, HGC Engineering

H6 and Fergus is near LHRS 13630/1.95
The % commercial includes all heavy vehicles, trucks, vans, …etc except for regular cars
This is official MTO data to yr 2019 (just before COVID lockdown)
Yrs 2014-2019 (6 years) , % commercial = steady at 9%

Thanks

Christopher Bee
MTO WR London Office
Operational Traffic Engineering Section

From: Victor Garcia <vgarcia@hgcengineering.com>
Sent: January 15, 2024 2:43 PM
To: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: Commercial Vehicle % for Hwy 6 in Fergus, Ontario

Hi Chris,

HGC Engineering is preparing a noise feasibility study for a proposed development located at 6581 Hwy 6 in Fergus, Ontario. A google link is included for your reference below:

https://maps.app.goo.gl/U8LDMvKhgjBSNM2H7

I am not sure if you are the correct person to request this from, but we are looking for commercial vehicle percentages in the vicinity of this site. Please let me know if you have this information available.

Regards,

Victor Garcia, P.Eng
Associate

HGC Engineering NOISE | VIBRATION | ACOUSTICS
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044 **e**: vgarcia@hgcengineering.com
Visit our website – www.hgcengineering.com **Follow Us** – LinkedIn | Twitter | YouTube

Appendix B
Sample STAMSON 5.04 Output

STAMSON 5.0 NORMAL REPORT Date: 05-03-2025 09:45:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Description: Dwellings with flanking exposure to Hwy 6

Road data, segment # 1: Hwy 6 (day/night)

Car traffic volume : 11913/2102 veh/TimePeriod *
Medium truck volume : 458/81 veh/TimePeriod *
Heavy truck volume : 720/127 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 10900
Percentage of Annual Growth : 2.50
Number of Years of Growth : 14.00
Medium Truck % of Total Volume : 3.50
Heavy Truck % of Total Volume : 5.50
Day (16 hrs) % of Total Volume : 85.00

Data for Segment # 1: Hwy 6 (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 37.70 / 37.70 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Hwy 6 (day)

Source height = 1.53 m

ROAD (0.00 + 65.56 + 0.00) = 65.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	69.56	0.00	-4.00	0.00	0.00	0.00	0.00	65.56

Segment Leq : 65.56 dBA

Total Leq All Segments: 65.56 dBA

Results segment # 1: Hwy 6 (night)

Source height = 1.53 m

ROAD (0.00 + 61.03 + 0.00) = 61.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.03	0.00	-4.00	0.00	0.00	0.00	0.00	61.03

Segment Leq : 61.03 dBA

Total Leq All Segments: 61.03 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.56 dBA
(NIGHT): 61.03 dBA

STAMSON 5.0 NORMAL REPORT Date: 05-03-2025 09:47:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: aola.te Time Period: 16 hours

Description: OLA of dwellings with flanking exposure to Hwy 6

Road data, segment # 1: Hwy 6

Car traffic volume : 11913 veh/TimePeriod *
Medium truck volume : 458 veh/TimePeriod *
Heavy truck volume : 720 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Hwy 6

Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.70 m
Receiver height : 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -45.00 deg
Barrier height : 7.00 m
Barrier receiver distance : 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: Hwy 6

Car traffic volume : 11913 veh/TimePeriod *
Medium truck volume : 458 veh/TimePeriod *
Heavy truck volume : 720 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Hwy 6

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.70 m
Receiver height : 1.50 m

```
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Hwy 6
--------------------------

Source height = 1.53 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.53 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 41.31 + 0.00) = 41.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -45   0.24  69.56   0.00  -5.37  -7.24   0.00   0.00 -15.63  41.31
-------------------------------------------------------------------------------

Segment Leq : 41.31 dBA

Results segment # 2: Hwy 6
--------------------------

Source height = 1.53 m

ROAD (0.00 + 60.08 + 0.00) = 60.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45     90   0.66  69.56   0.00  -7.19  -2.29   0.00   0.00   0.00  60.08
-------------------------------------------------------------------------------

Segment Leq : 60.08 dBA

Total Leq All Segments: 60.14 dBA

TOTAL Leq FROM ALL SOURCES: 60.14 dBA
```