NOISE IMPACT STUDY
RESIDENTIAL DEVELOPMENT
159 CONFEDERATION PARKWAY
HALTON HILLS, ONTARIO

FOR

WESTON CONSULTING

PREPARED BY

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SEPTEMBER 24, 2024

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

1.0 INTRODUCTION

At the request of Weston Consulting, J.E. COULTER ASSOCIATES LIMITED has prepared a Noise Impact Study for the proposed residential development at 159 Confederation Street in the Town of Halton Hills (see Appendix A, Figure 1). The study's objectives include determining the required extent of noise control measures such as ventilation upgrades, warning clauses, noise barriers, and building façade component construction.

The analysis for the proposed development is based on the road traffic data provided by Nextrans in a report dated June 20, 2024. The medium/heavy truck percentage is taken from data provided by the Town of Halton Hills. The data used for the calculation is as follows:

Table 1: Road Traffic Volume Projections

Roadway	AADT	Truck %		# of Lanes	Speed Limit (km/hr)
		Medium	Heavy		
Confederation Street (2034)	1,711	2.8	1.9	2	50
Main Street (2034)	5,366	1.5	1.5	2	50

Note: The traffic volumes are based on the 7 day average. The traffic data is included in Appendix A. The traffic volumes have been projected to 2034 at a rate of 2.0% per annum.

2.0 SITE DESCRIPTION

The proposed 12.3-hectare site will consist of 81 townhouse units and one single-family detached house. The land is generally bounded by Tweedle Street to the north, Confederation Street to the south, and Bennett Place to the east. The western boundary is approximately 475 meters east of Bishop Court. Lot #1, a single-family home, is set back from Confederation Street by 58 meters, and Townhouse Blocks 1 and 2 are set back by 100 meters. Both areas are buffered by one and two rows of housing, respectively. See Appendix A, Figure #2.

This development is surrounded by low-density residential homes and there are no stationary noise sources defined by MECP in the vicinity that can affect this site. No further review of stationary noise sources is needed.

3.0 NOISE CRITERIA

3.1 Transportation Sources

The Ministry of the Environment, Conservation and Parks (MECP) has set indoor and outdoor sound level limits for residential uses due to road traffic noise. These sound level limits, contained in the Ministry's Publication *NPC-300* are summarized as follows:

Table 2: Sound Level Limits – Road and Rail

Type of Space	Time Period	L_{eq} (dBA)	
		Road	Rail
INDOOR LIMITS			
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00–23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except, schools or daycare centres)	23:00–07:00	45	40
Sleeping quarters	07:00–23:00	45	40
	23:00–07:00	40	35
OUTDOOR LIMITS			
Outdoor recreation areas[1]	07:00–23:00	55	55
Outside bedroom window	23:00–07:00	50	50
Outside living room window	07:00–23:00	55	55

[1] Up to 5 dB excess above criteria is allowed, provided a warning clause is given. Above 60 dB L_{eq}, exterior noise mitigation measures (i.e., noise barriers, intervening structures, additional set back from source) are required.

Note: An outdoor living area is defined as a private recreation area such as a rear yard, patio or terrace whose depth is at least 4m. At depths less than 4m, noise control measures are not considered.

Air conditioning is required for units where the nighttime sound level at bedroom windows is 60 dB L_{eq} or greater or the daytime levels are 65 dB L_{eq} or greater. The dwelling should be designed with the provision for future central air conditioning when nighttime outdoor sound levels are above 50 and below 60 dB L_{eq}, or daytime levels are greater than 55 dB but less than or equal to and 65 dB L_{eq}.

4.0 TRAFFIC DATA ANALYSIS AND SOUND LEVEL PREDICTIONS

The transportation-related sound levels have been calculated at the various locations throughout the development exposed to Confederation Street and to a lesser extent Main Street. There are no other transportation sources in the immediate area that will have an impact on the proposed development.

The sound level calculations have been completed using *STAMSON Version 5.04*. These sound levels are based on a minimum 10-year traffic projection to the year 2034. The traffic data was derived from the Transportation Impact Study, dated June 20, 2024 prepared by Nextrans. Sample calculations are provided in Appendix B. The results of these predictions are summarized for daytime and nighttime in Table 3, below.

Table 3: Projected Unmitigated Sound Levels

	Daytime Sound Level at Exterior Façade, dB L_{eq}			Nighttime Sound Level at Exterior Façade, dB L_{eq}		
Location	**Confederation Street**	**Main Street**	**Total**	**Confederation Street**	**Main Street**	**Total**
Block #1 – OLA	40	-	**40**	-	-	**-**
Block #1 – Façade	41	-	**41**	44	-	**44**
Block #5 – OLA	48	-	**48**	-	-	**-**
Block #5 – Façade	-	48	**48**	-	42	**42**
Block #14 – OLA	33	42	**43**	-	-	-
Block #14 – Façade	34	34	**37**	28	27	**31**
Lot #1 – OLA	44	-	**44**	-	-	-
Lot #1 – Facade	45	-	**45**	39	-	**39**

The sound levels generated by Confederation Street and Main Street will not generate significant noise impacts in those areas closest to the roadways. No ventilation upgrades, warning clauses or noise barriers are necessary as a result of the roadway noise.

5.0 NOISE CONTROL MEASURES

Based on the sound levels expected from the surrounding traffic, noise control measures are not required for this development. This is to be expected due to the distance to the nearest roadways.

5.1 Acoustic Barrier Requirements

Based on the sound levels expected from nearby roadways, which are below the applicable *NPC-300* outdoor living area criterion, no acoustic barriers are required for this project.

5.2 Ventilation and Warning Clause Requirements

Based on the sound levels expected from nearby roadways, which are below the applicable *NPC-300* criterion, no ventilation upgrades or warning clauses are required for this project.

5.3 Façade Components

Based on the sound levels expected from nearby roadways, which are below the applicable *NPC-300* criterion, no façade upgrades are necessary for any units in this development.

6.0 CONCLUSIONS

The analysis indicates that the combined effect of the nearby roadways does not create a noise impact on the site. Therefore, no noise control measures or warning clauses are required for this development.

7.0 RECOMMENDATIONS

1. As all MECP's *NPC-300* noise criteria have been met, there are no recommendations. This development can be constructed with standard OBC materials and ventilation systems.

/pt

APPENDIX A: FIGURES

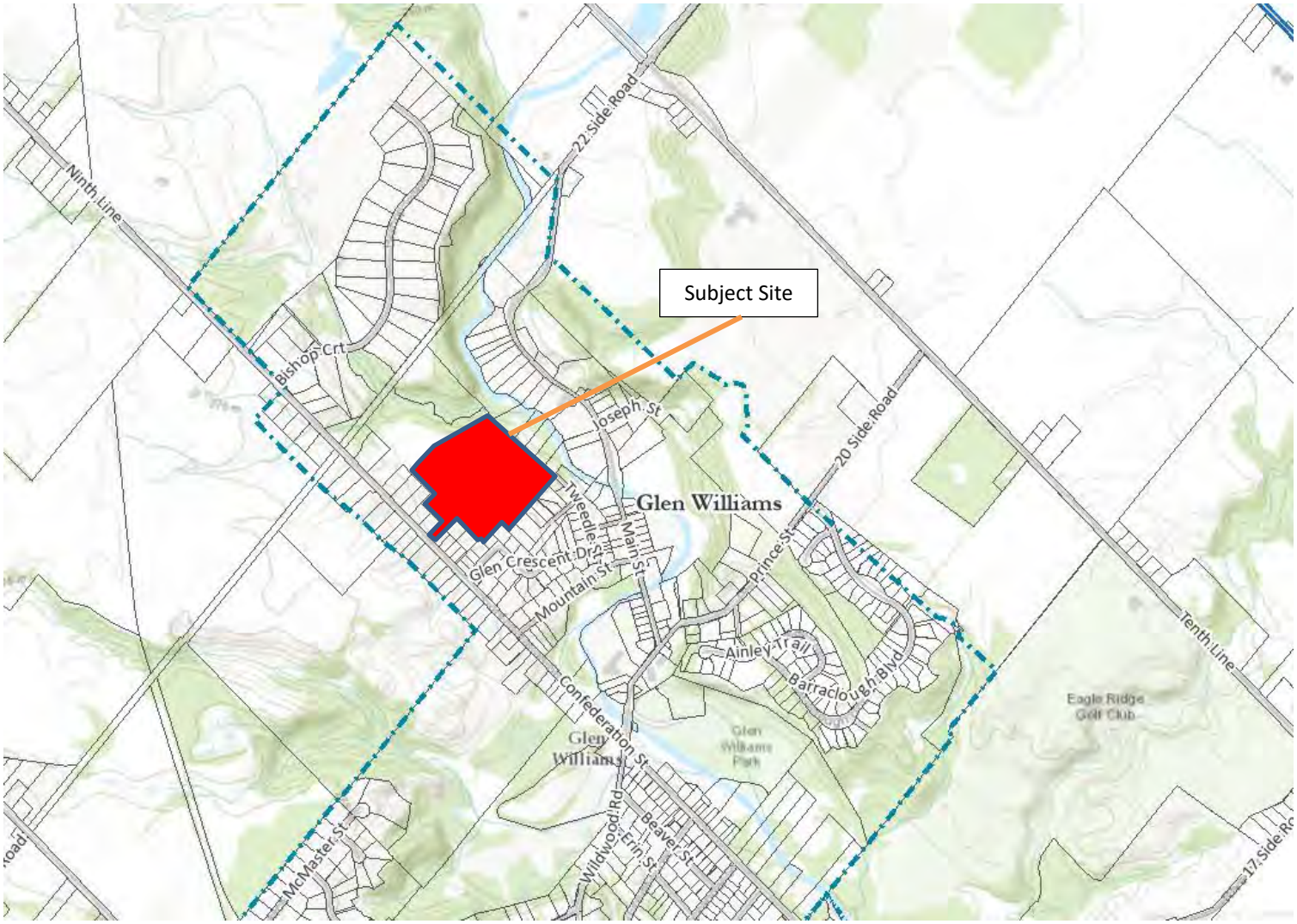


Figure #1
Key Plan

Figure #2
Site Plan

Figure #3
Site Plan

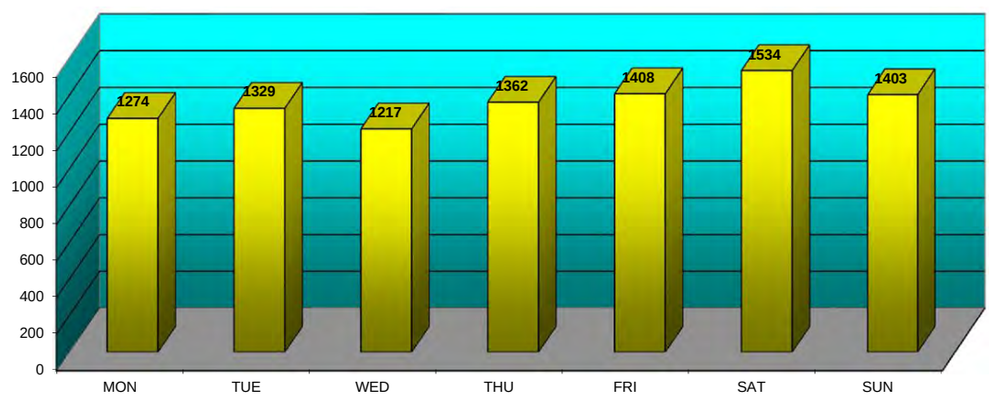
APPENDIX B: SOUND LEVEL CALCULATIONS

Town of Halton Hills
Traffic Engineering Section
WEEKLY SUMMARY FOR ROAD TOTAL
Starting:
June 4 - June 11, 2020

Site ID: ***User:*** Sebastian Biernat
Location: Confederation Street between Bishop Court and Glen Crescent ***Direction:*** ROAD TOTAL

TIME ENDING	MON	TUE	WED	THU	FRI	WEEKDAY AVERAGE	SAT	SUN	7 DAY AVERAGE	TOTAL
	8	*9*	*10*	*4*	*5*		*6*	*7*		
1:00	10	5	12	6	3	7	11	10	8	57
2:00	8	1	5	1	9	5	4	3	4	31
3:00	3	3	2	5	4	3	2	5	3	24
4:00	1	0	3	6	1	2	1	4	2	16
5:00	1	3	4	1	3	2	4	0	2	16
6:00	6	7	7	11	6	7	7	5	7	49
7:00	18	26	17	24	30	23	9	10	19	134
8:00	31	31	37	34	45	36	35	15	33	228
9:00	55	65	44	46	63	55	58	34	52	365
10:00	67	75	62	54	68	65	97	37	66	460
11:00	71	79	63	74	80	73	86	69	75	522
12:00	82	75	76	111	87	86	110	88	90	629
13:00	85	77	81	103	97	89	119	118	97	680
14:00	94	97	93	96	132	102	115	163	113	790
15:00	106	105	112	90	112	105	132	126	112	783
16:00	105	105	113	107	108	108	142	164	121	844
17:00	87	133	110	138	120	118	133	125	121	846
18:00	104	105	101	118	116	109	102	103	107	749
19:00	94	82	89	86	99	90	106	93	93	649
20:00	102	69	82	97	76	85	90	79	85	595
21:00	74	73	46	69	70	66	66	83	69	481
22:00	38	62	34	54	45	47	55	35	46	323
23:00	23	26	19	18	15	20	27	20	21	148
24:00:00	9	25	5	13	19	14	23	14	15	108
TOTALS	**1274**	**1329**	**1217**	**1362**	**1408**	***1318***	**1534**	**1403**	***1361***	**9527**
% AVG WKDY	96.7	100.8	92.3	103.3	106.8		116.4	106.4		
% AVG WEEK	93.6	97.6	89.4	100.1	103.5		112.7	103.1		
AM Times	12:00	11:00	12:00	12:00	12:00		12:00	12:00		
AM Peaks	82	79	76	111	87		110	88		
PM Times	15:00	17:00	16:00	17:00	14:00		16:00	16:00		
PM Peaks	106	133	113	138	132		142	164		nm

Weekly Volume Distribution



CLASSIFICATION

DAY	MON	TUE	WED	THU	FRI	WEEKDAY AVERAGE	SAT	SUN	7 DAY AVERAGE	TOTAL	AADT (%)	H.V. (%)
*** Unclassified**	5	9	13	8	10	9	17	9	10	71	0.75	
Class 1	642	648	585	673	699	649	829	749	598	4183	43.91	
Class 2	576	615	542	617	622	594	621	612	518	3629	38.09	
Class 3	33	33	43	40	48	39	41	28	33	233	2.45	2.45
Class 4	18	24	34	24	29	26	26	5	20	142	1.49	1.49
Total	**1274**	**1329**	**1217**	**1362**	**1408**	**1318**	**1534**	**1403**	**1361**	**9527**	**86.68**	**3.94**

Class 1 - Passenger Vehicles 0 m to 5.5 m
Class 2 - Vans and Pick-Ups 5.6 m to 7.3 m
Class 3 - Busses and Trucks 7.4 m to 11.0 m
Class 4 - Tractor Trailers 11.0 m to 25.0 m

SPEED **ROAD LIMIT - 50 KM/H**

DAY \ SPEED RANGE	MON	TUE	WED	THU	FRI	WEEKDAY AVERAGE	SAT	SUN	7 DAY AVERAGE	TOTAL	AADT (%)	Violators (%)
*** Unclassified**	5	9	13	-8685	10	-1730	17	9	-1232	-8622	-90.50	
< 30 km/h	11	15	17	108	14	33	13	15	28	193	2.03	
31 - 40 km/h	30	41	24	269	44	82	39	37	69	484	5.08	
41 - 50 km/h	166	175	174	1374	200	418	243	201	362	2533	26.59	
51 - 60 km/h	422	403	444	3411	443	1025	565	500	884	6188	64.95	64.95
61 - 70 km/h	443	492	415	3560	490	1080	492	468	909	6360	66.76	66.76
71 - 80 km/h	147	150	94	959	149	300	124	133	251	1756	18.43	18.43
81 - 90 km/h	37	29	26	247	40	76	25	28	62	432	4.53	4.53
91 - 100 km/h	10	11	5	76	9	22	9	8	18	128	1.34	1.34
101 km/h >	3	4	5	43	9	13	7	4	11	75	0.79	0.79
Total	**1274**	**1329**	**1217**	**1362**	**1408**	**1318**	**1534**	**1403**	**1361**	**9527**	**100.00**	**25.10**

85th Percentile = 70 km/h
Average Speed = 60 km/h

* Note: Unclassified Vehicles are those that the counter was unable to classify in either SPEED or Classification. Nevertheless they are all vehicles that are part of the total count.

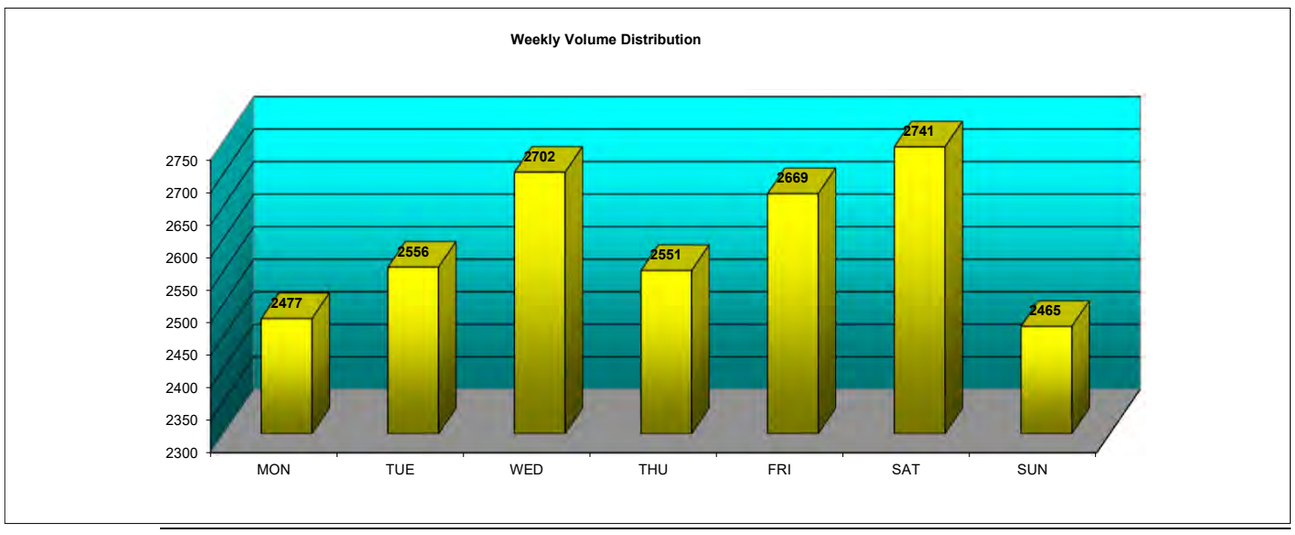
Town of Halton Hills
Traffic Engineering Section
WEEKLY SUMMARY FOR ROAD TOTAL
Starting: May 26 - June 1, 2022

Count Type **HOUSTON ARMADILLO** ***User:*** RK

Location: Main Street between Forster Street and Joseph Street ***Direction:*** ROAD TOTAL

VOLUME

TIME ENDING	MON	TUE	WED	THU	FRI	WEEKDAY	SAT	SUN	7 DAY	TOTAL
	30	*31*	*1*	*26*	*27*	AVERAGE	*28*	*29*	AVERAGE	
1:00	6	5	7	8	4	6	16	22	10	68
2:00	3	5	5	3	9	5	9	15	7	49
3:00	2	3	2	3	3	3	14	7	5	34
4:00	3	3	4	3	4	3	4	9	4	30
5:00	11	9	18	13	9	12	7	6	10	73
6:00	28	23	23	29	21	25	11	6	20	141
7:00	91	92	96	97	75	90	27	24	72	502
8:00	165	168	154	164	132	157	63	41	127	887
9:00	151	154	155	191	149	160	89	67	137	956
10:00	119	142	133	134	122	130	158	116	132	924
11:00	123	121	130	105	123	120	195	146	135	943
12:00	136	121	143	135	132	133	228	192	155	1087
13:00	127	149	146	144	164	146	225	196	164	1151
14:00	149	147	159	145	156	151	237	251	178	1244
15:00	167	175	187	186	226	188	249	268	208	1458
16:00	227	213	233	228	270	234	234	256	237	1661
17:00	253	268	285	278	290	275	237	192	258	1803
18:00	229	259	269	232	234	245	200	178	229	1601
19:00	141	157	203	166	170	167	151	150	163	1138
20:00	118	137	136	107	165	133	130	130	132	923
21:00	121	94	117	72	86	98	123	102	102	715
22:00	60	72	44	62	51	58	69	57	59	415
23:00	28	23	33	21	53	32	43	16	31	217
24:00:00	19	16	20	25	21	20	22	18	20	141
TOTALS	**2477**	**2556**	**2702**	**2551**	**2669**	***2591***	**2741**	**2465**	***2594***	**18161**
% AVG WKDY	95.6	98.6	104.3	98.5	103.0		105.8	95.1		
% AVG WEEK	95.5	98.5	104.1	98.3	102.9		105.6	95.0		
AM Times	8:00	8:00	9:00	9:00	9:00		12:00	12:00		
AM Peaks	165	168	155	191	149		228	192		
PM Times	17:00	17:00	17:00	17:00	17:00		15:00	15:00		
PM Peaks	253	268	285	278	290		249	268		nm



CLASSIFICATION

CLASS	Total Volume	Percent (%)
Class 1 (SMALL) - Motorcycles, Smart Cars 0 m - 3.9 m	273	**1.3**
Class 2 (MEDIUM) - Passenger Cars, Vans and Pick-Ups 4 m - 6 m	20336	**95.8**
Class 3 (LARGE) - Busses, Trucks, Tractor Trailers > 6 m	609	**2.9**

SPEED

Speed Limit	=	40	km/h
85th Percentile	=	57	km/h
Average Speed	=	49	km/h

nextrans
CONSULTING ENGINEERS

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Transportation Impact Study

PROPOSED RESIDENTIAL DEVELOPMENT

159 Confederation Street, Town of Halton Hills

June 20, 2024
Project No: NT-23-196

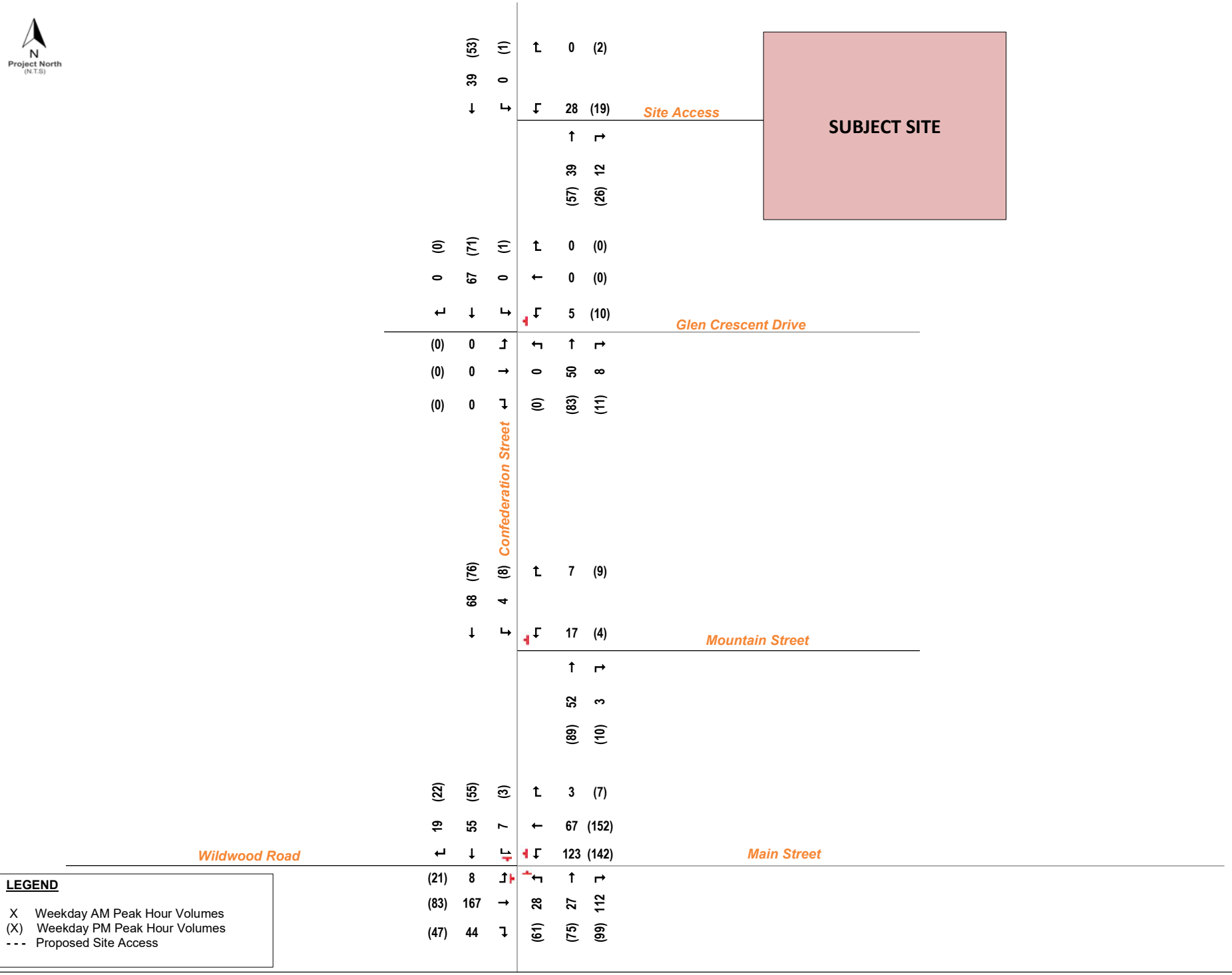

Figure 5-1 - 2029 Future Total Traffic Volumes

159 Confederation Street
Town of Halton Hills
Project No. NT-23-196
May 2024

STAMSON 5.0 NORMAL REPORT Date: 09-09-2024 09:37:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk1fac.te Time Period: Day/Night 16/8 hours
Description: Block 1 FAC

Note: The traffic volumes for Confederation Street have been increased by a factor of 10 as the volumes are too low for STAMSON. A -10dB correction is to be applied to the calculation results.

```
Road data, segment # 1: Confed ST (day/night)
----------------------------------------------
Car traffic volume  : 14678/1631  veh/TimePeriod  *
Medium truck volume :   431/48    veh/TimePeriod  *
Heavy truck volume  :   293/33    veh/TimePeriod  *
Posted speed limit  :    50 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):  15500
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   5.00
    Medium Truck % of Total Volume     :   2.80
    Heavy Truck  % of Total Volume     :   1.90
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Confed ST (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  : 113.00 / 113.00 m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Confed ST (day)
-----------------------------------
Source height = 1.17 m

ROAD (0.00 + 50.83 + 0.00) = 50.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  66.01   0.00 -13.85  -1.32   0.00   0.00   0.00  50.83
-------------------------------------------------------------------------------

Segment Leq : 50.83 dBA

Total Leq All Segments: 50.83 dBA
```

Results segment # 1: Confed ST (night)

Source height = 1.18 m

ROAD (0.00 + 44.33 + 0.00) = 44.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.51	0.00	-13.85	-1.32	0.00	0.00	0.00	44.33

Segment Leq : 44.33 dBA
Total Leq All Segments: 44.33 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.83
(NIGHT): 44.33

STAMSON 5.0 NORMAL REPORT Date: 09-09-2024 11:39:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk1ola.te Time Period: Day/Night 16/8 hours
Description: Block 1 OLA

Note: The traffic volumes for Confederation Street have been increased by a factor of 10 as the volumes are too low for STAMSON. A -10dB correction is to be applied to the calculation results.

```
Road data, segment # 1: Confed ST (day/night)
----------------------------------------------
Car traffic volume  : 15516/1724  veh/TimePeriod  *
Medium truck volume :   404/45    veh/TimePeriod  *
Heavy truck volume  :   242/27    veh/TimePeriod  *
Posted speed limit  :    50 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):  13610
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   2.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Confed ST (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  : 110.00 / 110.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Confed ST (day)
-------------------------------------

Source height = 1.11 m

ROAD (0.00 + 49.87 + 0.00) = 49.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  65.69   0.00 -14.36  -1.46   0.00   0.00   0.00  49.87
-------------------------------------------------------------------------------

Segment Leq : 49.87 dBA

Total Leq All Segments: 49.87 dBA
```

Results segment # 1: Confed ST (night)

Source height = 1.11 m

ROAD (0.00 + 44.16 + 0.00) = 44.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.17	0.00	-13.69	-1.32	0.00	0.00	0.00	44.16

Segment Leq : 44.16 dBA

Total Leq All Segments: 44.16 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 49.87
(NIGHT): 44.16

STAMSON 5.0 NORMAL REPORT Date: 09-09-2024 11:46:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: lotlfac.te Time Period: Day/Night 16/8 hours
Description: Lot #1 Facade

Note: The traffic volumes for Confederation Street have been increased by a factor of 10 as the volumes are too low for STAMSON. A -10dB correction is to be applied to the calculation results.

```
Road data, segment # 1: Confed ST (day/night)
----------------------------------------------
Car traffic volume  : 14678/1631  veh/TimePeriod  *
Medium truck volume :   431/48    veh/TimePeriod  *
Heavy truck volume  :   293/33    veh/TimePeriod  *
Posted speed limit  :    50 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):  15500
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   5.00
    Medium Truck % of Total Volume     :   2.80
    Heavy Truck  % of Total Volume     :   1.90
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Confed ST (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  :  61.00 / 61.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Confed ST (day)
-------------------------------------

Source height = 1.17 m

ROAD (0.00 + 55.06 + 0.00) = 55.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  66.01   0.00  -9.62  -1.32   0.00   0.00   0.00  55.06
-------------------------------------------------------------------------------
Segment Leq : 55.06 dBA
Total Leq All Segments: 55.06 dBA
```

Results segment # 1: Confed ST (night)

Source height = 1.18 m

ROAD (0.00 + 48.56 + 0.00) = 48.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	59.51	0.00	-9.62	-1.32	0.00	0.00	0.00	48.56

Segment Leq : 48.56 dBA

Total Leq All Segments: 48.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.06
(NIGHT): 48.56

STAMSON 5.0 NORMAL REPORT Date: 09-09-2024 12:10:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: lotlola.te Time Period: Day/Night 16/8 hours
Description: Lot #1 OLA

Note: The traffic volumes for Confederation Street have been increased by a factor of 10 as the volumes are too low for STAMSON. A -10dB correction is to be applied to the calculation results.

```
Road data, segment # 1: Confed ST (day/night)
----------------------------------------------
Car traffic volume  : 14678/1631  veh/TimePeriod  *
Medium truck volume :   431/48    veh/TimePeriod  *
Heavy truck volume  :   293/33    veh/TimePeriod  *
Posted speed limit  :    50 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):  15500
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   5.00
    Medium Truck % of Total Volume     :   2.80
    Heavy Truck  % of Total Volume     :   1.90
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Confed ST (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  64.00 / 64.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Confed ST (day)
-------------------------------------

Source height = 1.17 m

ROAD (0.00 + 53.86 + 0.00) = 53.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.58  66.01   0.00  -9.95  -2.19   0.00   0.00   0.00  53.86
-------------------------------------------------------------------------------
Segment Leq : 53.86 dBA
Total Leq All Segments: 53.86 dBA
```

Results segment # 1: Confed ST (night)

Source height = 1.18 m

ROAD (0.00 + 47.36 + 0.00) = 47.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.58	59.51	0.00	-9.95	-2.19	0.00	0.00	0.00	47.36

Segment Leq : 47.36 dBA

Total Leq All Segments: 47.36 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.86
(NIGHT): 47.36

STAMSON 5.0 NORMAL REPORT Date: 09-09-2024 09:25:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk5fac.te Time Period: Day/Night 16/8 hours
Description: Block 5 - Facade

Road data, segment # 1: Main ST (day/night)

Car traffic volume : 5118/569 veh/TimePeriod
Medium truck volume : 79/9 veh/TimePeriod
Heavy truck volume : 79/9 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Main ST (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 : 260.00 / 260.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main ST (day)

Source height = 1.11 m

ROAD (0.00 + 48.17 + 0.00) = 48.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.56	0.00	-12.39	0.00	0.00	0.00	0.00	48.17

Segment Leq : 48.17 dBA

Total Leq All Segments: 48.17 dBA

Results segment # 1: Main ST (night)

Source height = 1.11 m

ROAD (0.00 + 41.70 + 0.00) = 41.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.09	0.00	-12.39	0.00	0.00	0.00	0.00	41.70

Segment Leq : 41.70 dBA

Total Leq All Segments: 41.70 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 48.17
(NIGHT): 41.70

STAMSON 5.0 NORMAL REPORT Date: 09-09-2024 09:33:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk5ola.te Time Period: Day/Night 16/8 hours
Description: Block 5 - OLA

Road data, segment # 1: Main ST (day/night)

Car traffic volume : 4684/520 veh/TimePeriod *
Medium truck volume : 72/8 veh/TimePeriod *
Heavy truck volume : 72/8 veh/TimePeriod *
Posted speed limit : 50 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): 4860
Percentage of Annual Growth : 2.00
Number of Years of Growth : 5.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main ST (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 : 257.00 / 221.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main ST (day)

Source height = 1.11 m

ROAD (0.00 + 47.83 + 0.00) = 47.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.17	0.00	-12.34	0.00	0.00	0.00	0.00	47.83

Segment Leq : 47.83 dBA

Total Leq All Segments: 47.83 dBA

Results segment # 1: Main ST (night)

Source height = 1.11 m

ROAD (0.00 + 41.95 + 0.00) = 41.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	53.63	0.00	-11.68	0.00	0.00	0.00	0.00	41.95

Segment Leq : 41.95 dBA

Total Leq All Segments: 41.95 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 47.83
(NIGHT): 41.95

AMSON 5.0 NORMAL REPORT Date: 09-09-2024 09:34:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk14fac.te Time Period: Day/Night 16/8 hours
Description: Block 14 FACADE

Note: The traffic volumes for Confederation Street have been increased by a factor of 10 as the volumes are too low for STAMSON. A -10dB correction is to be applied to the calculation results.

```
Road data, segment # 1: Main ST (day/night)
-------------------------------------------
Car traffic volume  :  4684/520   veh/TimePeriod  *
Medium truck volume :    72/8     veh/TimePeriod  *
Heavy truck volume  :    72/8     veh/TimePeriod  *
Posted speed limit  :    50 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):   4860
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   5.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Main ST (day/night)
-----------------------------------------
Angle1   Angle2           : -45.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 276.00 / 276.00 m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Confed ST (day/night)
---------------------------------------------
Car traffic volume  : 14678/1631  veh/TimePeriod  *
Medium truck volume :   431/48    veh/TimePeriod  *
Heavy truck volume  :   293/33    veh/TimePeriod  *
Posted speed limit  :    50 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):  15500
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   5.00
    Medium Truck % of Total Volume     :   2.80
    Heavy Truck  % of Total Volume     :   1.90
    Day (16 hrs) % of Total Volume     :  90.00
```

Data for Segment # 2: Confed. ST (day/night)

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 : 197.00 / 197.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main ST (day)

Source height = 1.11 m

ROAD (0.00 + 33.87 + 0.00) = 33.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	0	0.58	60.17	0.00	-20.01	-6.29	0.00	0.00	0.00	33.87

Segment Leq : 33.87 dBA

Results segment # 2: Confed ST (day)

Source height = 1.17 m

ROAD (0.00 + 44.01 + 0.00) = 44.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.58	66.01	0.00	-17.67	-4.33	0.00	0.00	0.00	44.01

Segment Leq : 44.01 dBA

Total Leq All Segments: 44.41 dBA

Results segment # 1: Main ST (night)

Source height = 1.11 m

ROAD (0.00 + 27.33 + 0.00) = 27.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	0	0.58	53.63	0.00	-20.01	-6.29	0.00	0.00	0.00	27.33

Segment Leq : 27.33 dBA

Results segment # 2: Confed ST (night)

Source height = 1.18 m

ROAD (0.00 + 37.51 + 0.00) = 37.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.58	59.51	0.00	-17.67	-4.33	0.00	0.00	0.00	37.51

Segment Leq : 37.51 dBA

Total Leq All Segments: 37.91 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 44.41
(NIGHT): 37.91

STAMSON 5.0 NORMAL REPORT Date: 09-09-2024 09:35:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: bk14ola.te Time Period: Day/Night 16/8 hours
Description: Block 14 OLA

Note: The traffic volumes for Confederation Street have been increased by a factor of 10 as the volumes are too low for STAMSON. A -10dB correction is to be applied to the calculation results.

```
Road data, segment # 1: Main ST (day/night)
-------------------------------------------
Car traffic volume  :  4684/520   veh/TimePeriod  *
Medium truck volume :    72/8     veh/TimePeriod  *
Heavy truck volume  :    72/8     veh/TimePeriod  *
Posted speed limit  :    50 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):   4860
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   5.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Main ST (day/night)
-----------------------------------------
Angle1   Angle2           : -45.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 276.00 / 276.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Confed ST (day/night)
---------------------------------------------
Car traffic volume  : 14678/1631  veh/TimePeriod  *
Medium truck volume :   431/48    veh/TimePeriod  *
Heavy truck volume  :   293/33    veh/TimePeriod  *
Posted speed limit  :    50 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):  15500
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   5.00
    Medium Truck % of Total Volume     :   2.80
    Heavy Truck  % of Total Volume     :   1.90
    Day (16 hrs) % of Total Volume     :  90.00
```

Data for Segment # 2: Confed ST (day/night)

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 : 197.00 / 197.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Main ST (day)

Source height = 1.11 m

ROAD (0.00 + 41.50 + 0.00) = 41.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	0	0.00	60.17	0.00	-12.65	-6.02	0.00	0.00	0.00	41.50

Segment Leq : 41.50 dBA

Results segment # 2: Confed ST (day)

Source height = 1.17 m

ROAD (0.00 + 42.98 + 0.00) = 42.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.66	66.01	0.00	-18.57	-4.47	0.00	0.00	0.00	42.98

Segment Leq : 42.98 dBA

Total Leq All Segments: 45.31 dBA

Results segment # 1: Main ST (night)

Source height = 1.11 m

ROAD (0.00 + 34.96 + 0.00) = 34.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	0	0.00	53.63	0.00	-12.65	-6.02	0.00	0.00	0.00	34.96

Segment Leq : 34.96 dBA

Results segment # 2: Confed ST (night)

Source height = 1.18 m

ROAD (0.00 + 37.51 + 0.00) = 37.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.58	59.51	0.00	-17.67	-4.33	0.00	0.00	0.00	37.51

Segment Leq : 37.51 dBA

Total Leq All Segments: 39.43 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 45.31
(NIGHT): 39.43

APPENDIX C: WARNING CLAUSES

MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS WARNING CLAUSES

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 Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria."

TYPE B

"Purchasers are advised that despite the inclusion of noise control features in the development and/or within the building units, sound levels due to increasing road traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria."

TYPE C

"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MECP Publication *NPC-216*, Residential Air Conditioning Devices, and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)"

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 Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria."

APPENDIX E: REFERENCES

1. Ministry of the Environment's *STAMSON* Computer Programme (*Version 5.04*) for the IBM PC.

2. Ministry of the Environment, *ORNAMENT*, "Ontario Road Noise Analysis Method for Environment and Transportation," November 1988.

3. Ministry of the Environment, "Publication *NPC-300*, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning," August 2013.

4. Nextrans – "Transportation Impact Study – Proposed Residential Development – 159 Confederation Street, Town of Halton Hills," June 20, 2024