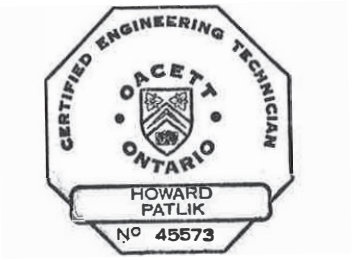
NOISE IMPACT FEASIBILITY STUDY
4375 MILLCROFT PARK DRIVE
BLOCK 133, REGISTERED PLAN 20M-811
CITY OF BURLINGTON

FOR

SALOTTO BUILDING GROUP INC.



PREPARED BY

Howard Patlik

HOWARD R. PATLIK, C.E.T.

CHECKED BY

J. E. Coulter

JOHN E. COULTER, B.A.Sc., P. ENG.



2021/10/20

J.E. COULTER ASSOCIATES LIMITED
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OCTOBER 20, 2021

TABLE OF CONTENTS

INTRODUCTION 1

TRANSPORTATION SOURCES 1

NOISE CRITERIA 2
Exterior Building Façade 2
Stationary Sources 3

PROJECTED SOUND LEVELS 3
Transportation Sources 3

NOISE CONTROL MEASURES (Transportation) 4

VENTILATION AND WARNING CLAUSE REQUIREMENTS 4

FAÇADE COMPONENTS 5

CONCLUSIONS 6

RECOMMENDATIONS 7

LIST OF TABLES

Table 1: Traffic Volume Projections 1

Table 2: Sound Level Limits – Road and Rail 2

Table 3: Projected L_{eq} Sound Level – No Barriers 4

Table 4: Acoustic Barrier Requirements 5

Table 5: Summary of Noise Control Measures (Transportation) 6

APPENDICES

APPENDIX A: FIGURES

APPENDIX B: SOUND LEVEL CALCULATIONS

APPENDIX C: WARNING CLAUSES

APPENDIX D: NOISE CRITERIA

APPENDIX E: REFERENCES

INTRODUCTION

J.E. COULTER ASSOCIATES LIMITED was commissioned by Salotto Building Group Inc. to complete a Noise Impact Feasibility Study for the proposed residential development at 4375 Millcroft Park Drive (Block 133, Registered Plan 20M-811) in the City of Burlington (see Appendix A, Figure 1). The proposed development is situated on the west side of Millcroft Park, approximately 5m south of Sarazen Drive. This study entailed predicting the sound levels from various transportation and stationary (commercial) sources on the development, and recommending mitigation measures to ensure the development meets the Ministry of the Environment, Conservation and Parks (MECP) noise policy (see Appendix C). References are provided in Appendix D.

The proposed development consists of 30 single-family dwellings (see Appendix A, Figure 2). To the north, east, and west of this site are existing residential developments. To the south is Charles R. Beaudoin Public School at 4313 Clubview Drive.

TRANSPORTATION SOURCES

The potential sources of transportation noise affecting this development are Millcroft Park Drive and, to a lesser extent, Dundas Street West. The centreline of Dundas Street West is located approximately 320m from the nearest dwelling (Lot 1). This site is shielded by 3 to 5 rows of dwellings from Dundas Street West.

Based on information provided by the City of Burlington and the Region of Halton, the following traffic volumes are expected (see Appendix B for details):

Table 1: Traffic Volume Projections

Roadway	Traffic Volume	Truck %		# of Lanes	Speed Limit (kph)	Day/Night Split (%)
		Medium	Heavy			
Millcroft Park Drive at Sarazen Dr. (City of Burlington)	4,150 (2017)	2.0%	2.0%	2	40	90/10
Millcroft Park Drive at Sarazen Dr. (City of Burlington)	5,476 (2031)	2.0%	2.0%	2	40	90/10
Millcroft Park Drive (Traffic Impact Study[3])	3,820 (2031)	2.0%	2.0%	2	40	90/10
Dundas Street West	55,000 (Ultimate)	2.4%	2.9%	4	60	90/10

Notes: 1. Millcroft Park Drive traffic data was based on the AM and PM peak hours volumes and converted to 24-hour AADT volumes. A growth rate of 2% (compounded) over 14 years was applied to Millcroft Park Drive.

2. The City of Burlington Traffic source data was used to calculate the future sound levels as the projection represented the highest value on Millcroft Park Drive.

3. Lea consulting Limited, Traffic Impact Study, Proposed Residential Subdivision, 4375 Millcroft Park Drive, City of Burlington, October 2021.

NOISE CRITERIA

The MECP's noise criterion for outdoor amenity areas is 55 dB L_{eq} daytime (at grade level) where road and rail traffic are concerned. Excesses of up to 5 dB (i.e., 60 dB L_{eq}) are permissible provided the *Agreement of Purchase and Sale* contains a warning clause indicating the excess above the noise criteria. Where the daytime sound levels in the private outdoor amenity areas are greater than 60 dB L_{eq}, then measures must be implemented to reduce the sound levels to 60 dB L_{eq} or less. This would include acoustic barriers (combination of fence and/or earth berming), shielding by other building structures, or relocating the dwelling unit further from the noise source.

The MECP's noise criteria from *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 setback from source) are required.

Exterior Building Façade

Where the sound levels at the exterior of the building façade exceed 55 dB L_{eq} daytime at the living room window or 50 dB L_{eq} nighttime at the bedroom window, the unit must be provided with forced air heating, with provision for future air conditioning by the owner. Excesses up to 10 dB are permissible, provided a warning clause is given. Where the sound levels exceed this limit (i.e., 65 dB L_{eq} daytime or 60 dB L_{eq} nighttime), central air conditioning must be incorporated into the building design prior to occupancy. Warning clauses are applicable as well.

Stationary Sources

A site review was undertaken to determine if there are any potential sources of stationary noise that may impact the proposed residential development. The Charles R. Beaudoin Public School is more than 200m from this development and is not considered to be a noise concern (i.e., rooftop mechanical systems). There were no stationary sources found that would impact this development from a noise perspective. No further review is needed.

PROJECTED SOUND LEVELS

Transportation Sources

The daytime L_{eq} sound level at grade level and day/nighttime L_{eq} sound level at second-storey due to road traffic was calculated using the MECP's *ORNAMENT STAMSON Version 5.04* noise prediction procedure.

The table below indicates the sound levels for various lots, with no acoustical barriers (except for shielding provided by the dwellings themselves), using the projected road traffic volumes.

Table 3: Projected L_{eq} Sound Level – No Barriers						
	Daytime (dB L_{eq})			Nighttime (dB L_{eq})		
Lot #	**Millcroft Park Drive**	**Dundas Street West**	**Total**	**Millcroft Park Drive**	**Dundas Street West**	**Total**
Lot 1 (Rear yard)	59	42	**59**	--	--	**--**
Lot 1 (East façade)	61	42	**61**	55	37	**55**
Lot 2 (Rear yard)	49	42	**50**	--	--	**--**
Lot 2 (North façade)	52	42	**52**	48	37	**49**
Lot 24 (Rear yard)	58	39	**58**	--	--	**--**
Lot 24 (East façade)	61	39	**61**	55	34	**55**
Lot 25 (Rear yard)	58	39	**58**	--	--	**--**
Lot 25 (East façade)	61	38	**61**	55	33	**55**

Note: The daytime sound levels for all areas are calculated for a receiver located 3m behind the rear façade. The nighttime sound levels are taken at the second-storey window, 4.5m above grade level, at the front or rear of the dwelling closest to the roadway. For Lots 1, 24 and 25, the ground cover between the lot and the roadway was considered to be acoustically hard.

From the above, the unmitigated sound levels generated by the combination of Millcroft Park Drive and Dundas Street West exceed MECP's noise criteria (55 dB L_{eq} daytime and/or 50 dB L_{eq} nighttime) in the outdoor amenity areas and the building façades. Dundas Street West is acoustically insignificant relative to Millcroft Park Drive at this proposed development. The noise impact is considered modest. Acoustical barriers to protect the outdoor living areas, as well as ventilation and warning clauses will be required for those lots directly exposed to Millcroft Park Drive, as noted below.

NOISE CONTROL MEASURES (Transportation)

The sound levels in the rear yards of Lots 1, 24 and 25 are 3 to 4 dB above the 55 dB L_{eq} noise criterion. It is recommended that an acoustic fence at a height of 1.8m be erected along the eastern boundary of the Lots 1, 24 and 25, as shown in Appendix A, Figure 2. This height of barrier will reduce the sound levels below 55 dB L_{eq} daytime, satisfying the MECP's noise criterion. The final top-of-barrier elevations will be determined once the final grading plans are available. The top-of-barrier elevation may change slightly (0.1–0.2m). The existing ground elevations are relatively equal to that of the centreline of Millcroft Park Drive.

The barrier requirements due to Millcroft Park Drive are summarized in Table 4 as follows:

Table 4: Acoustic Barrier Requirements		
Location	**Minimum Acoustic Fence Height (m)**	**Daytime Rear Yard Sound Level (dB)**
Lot 1	1.8	53
Lot 24	1.8	53
Lot 25	1.8	53

Note: Appendix A, Figure 3 illustrates the barrier configuration.

With the acoustic fence in place, the daytime sound levels in the rear yards of Lots 1, 24 and 25 will meet MECP's 55 dB L_{eq} noise criteria.

All acoustical barriers must be solid. Any gaps at the base of the acoustic fence must be minimized and localized so as not to significantly affect the acoustical performance of the fence. As required by the Ministry, the fence must have a minimum surface density of 20 kg/m² (4 lbs./ft.²).

All acoustic fencing is to be located within the homeowners' property line and maintained by the homeowner.

VENTILATION AND WARNING CLAUSE REQUIREMENTS

Where the nighttime and daytime sound levels exceed 60 and 65 dB L_{eq}, respectively, the MECP requires that each affected dwelling incorporate central air conditioning prior to occupancy. For this proposed residential development, the sound levels do not exceed this threshold. Lots 1, 24 and 25 will require a forced air heating system with ducting sized to accommodate the future installation of central air conditioning (an air-cooled condenser unit) at the homeowner's option, in addition to warning clauses. Warning clauses (Appendix C, Warning Clauses A and C) must be inserted into the *Agreement of Purchase and Sale* for the affected lots indicating that the sound levels will exceed the MECP's noise guidelines.

FAÇADE COMPONENTS

To meet the MECP's interior sound level criteria of 40 dB L_{eq} nighttime in the bedrooms and 45 dB L_{eq} daytime in the living/dining room areas, no special façade components are required for any dwelling in this development. Even where extraordinarily large window-area to floor-area ratios are used, the interior noise criteria can be met. Any OBC-compatible construction will be satisfactory.

CONCLUSIONS

The analysis shows the projected unmitigated sound levels generated by combined traffic on Millcroft Park Drive and Dundas Street West would create a modest noise impact at the residential development. Only those lots directly adjacent to Millcroft Park Drive are affected. The remaining lots meet all MECP's noise criteria. Acoustical barriers as well as ventilation and warning clauses are recommended for Lots 1, 24 and 25. Standard OBC-compatible construction is expected to meet the criteria for indoor noise. These measures are common for a residential development adjacent to an arterial road and are not considered an onerous requirement.

RECOMMENDATIONS

To satisfy the requirements of the Ministry of the Environment, Conservation and Parks, the following noise mitigation measures are proposed (a summary table follows).

1. It is recommended the outdoor living areas of Lots 1, 24 and 25 adjacent to Millcroft Park Drive incorporate a 1.8m high acoustic fence to meet 55 dB L_{eq} daytime or less as shown in Appendix A, Figure 3.

2. All acoustical barriers must be solid. Any gaps at the base of the acoustic fence must be minimized and localized so as not to significantly affect the acoustical performance of the fence. As required by the Ministry, the fence must have a minimum surface density of 20 kg/m² (4 lbs./ft.²).

3. The installation of forced air heating with provisions for future air conditioning is requested by the MECP where the road sound levels exceed 50 dB L_{eq} nighttime or 55 dB L_{eq} daytime. This is applicable to Lots 1, 24 and 25. These units will also require a warning clause notifying owners of the noise excess (see Appendix C, Warning Clauses A and C).

4. To meet the MECP's interior sound level criteria of 40 dB L_{eq} nighttime in the bedrooms and 45 dB L_{eq} daytime in the living/dining room areas, no special façade components are required for any dwelling in this development. Even where extraordinarily large window-area to floor-area ratios are used, the interior noise criteria can be met. Any OBC-compatible construction will be satisfactory.

5. A summary of the noise control measures required for the development are as follows:

Table 5: Summary Of Noise Control Measures (Transportation)

Lot	Barrier Requirement	Ventilation (A/C, FAH)	Façade Requirement	Warning Clause Requirement
Lot 1	1.8m High Acoustic Fence	FAH	OBC	A and C
Lot 24	1.8m High Acoustic Fence	FAH	OBC	A and C
Lot 25	1.8m High Acoustic Fence	FAH	OBC	A and C

Notes:
1. FAH denotes Forced Air Heating with a provision for the future installation of central air conditioning.
2. OBC is the minimum Ontario Building code requirement.

/hp/pt

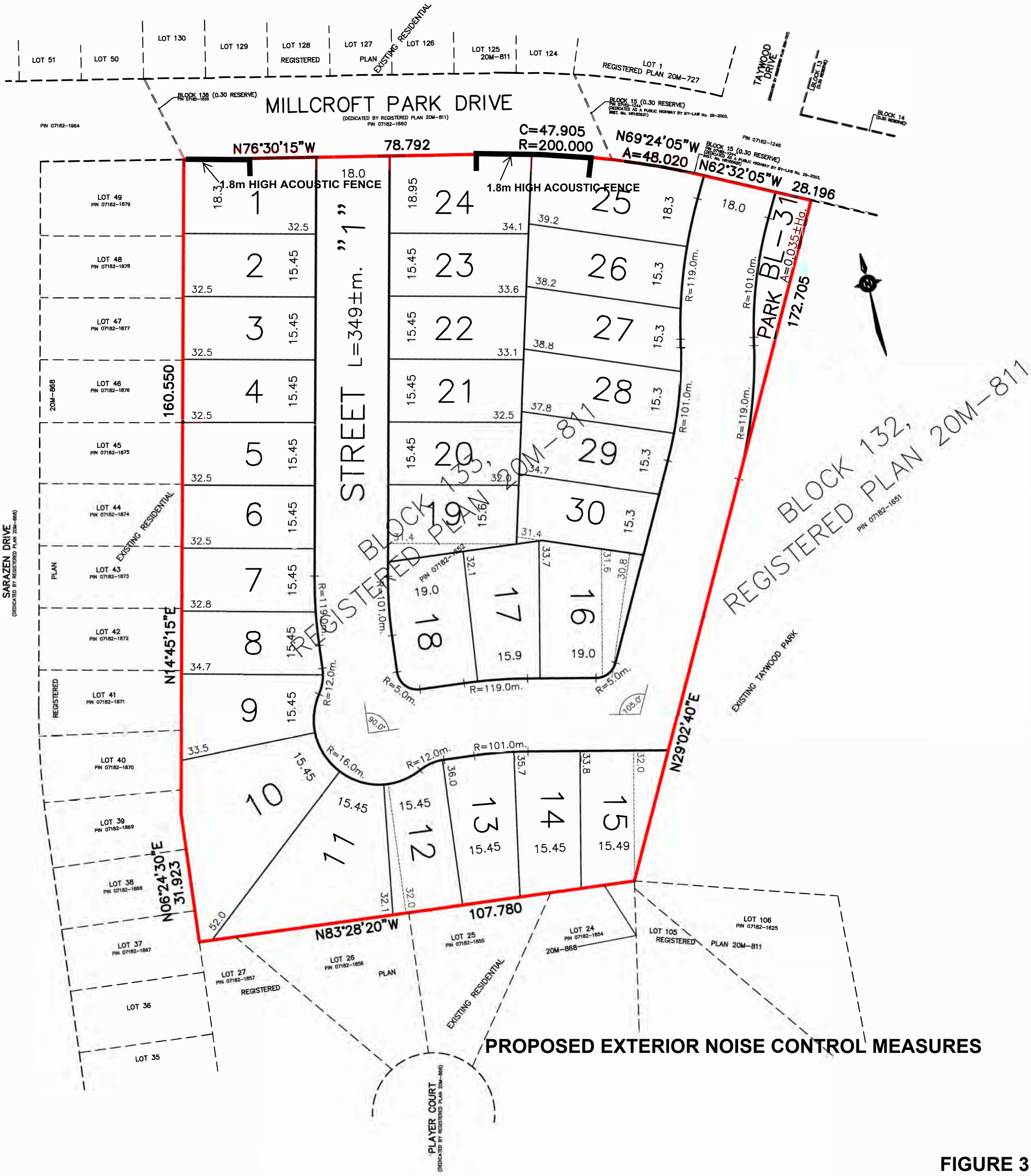
APPENDIX A: FIGURES


Cornerstone Dr
Nicklaus Ct
Taywood Dr
Millcroft Park Dr
PROPOSED SITE (4375 MILLCROFT PK DR)
Dundas St
Rawlins Common
Weslock Common
Couples Crescent
Sarazen Dr
Player Ct
Price Ct
Tiger Rd
Rosemead Ct
Clubview Dr
©2021 Europa Technologies
©2021 Google
Google Ear

FIGURE 1


LOT 51
LOT 50
LOT 130
LOT 129
LOT 128
REGISTERED
PLAN
LOT 127
EXISTING RESIDENTIAL
LOT 126
LOT 125
20M-811
LOT 124
LOT 1
REGISTERED PLAN 20M-727
TAYWOOD DRIVE
BLOCK 13 (0.30 RESERVE)
BLOCK 14 (0.30 RESERVE)
MILLCROFT PARK DRIVE
(DEDICATED BY REGISTERED PLAN 20M-811)
PIN 07182-1660
BLOCK 136 (0.30 RESERVE)
PIN 07182-1655
BLOCK 15 (0.30 RESERVE)
PIN 07182-1244
(DEDICATED AS A PUBLIC HIGHWAY BY BY-LAW No. 29-2003, INST. No. HR185621)
PIN 07182-1964
PIN 07182-1246
N76°30'15"W
78.792
C=47.905
R=200.000
A=48.020
N69°24'05"W
N62°32'05"W
28.196
LOT 49
PIN 07182-1879
LOT 48
PIN 07182-1878
LOT 47
PIN 07182-1877
LOT 46
PIN 07182-1876
20M-868
160.550
LOT 45
PIN 07182-1875
LOT 44
PIN 07182-1874
EXISTING RESIDENTIAL
PLAN
LOT 43
PIN 07182-1873
LOT 42
PIN 07182-1872
N14°45'15"E
REGISTERED
LOT 41
PIN 07182-1871
LOT 40
PIN 07182-1870
LOT 39
PIN 07182-1869
N06°24'30"E
31.923
LOT 38
PIN 07182-1868
LOT 37
PIN 07182-1867
LOT 36
LOT 35
SARAZEN DRIVE
(DEDICATED BY REGISTERED PLAN 20M-868)
L=349±m.
"1"
STREET
BLOCK 133, REGISTERED PLAN 20M-811
PIN 07182-1652
R=119.0m.
R=101.0m.
R=12.0m.
R=5.0m.
R=16.0m.
90.0°
105.0°
PARK BL-31
A=0.035±Ha.
172.705
R=101.0m.
R=119.0m.
BLOCK 132, REGISTERED PLAN 20M-811
PIN 07182-1651
N29°02'40"E
EXISTING TAYWOOD PARK
107.780
N83°28'20"W
LOT 27
PIN 07182-1857
REGISTERED
LOT 26
PIN 07182-1856
PLAN
LOT 25
PIN 07182-1855
EXISTING RESIDENTIAL
LOT 24
PIN 07182-1854
20M-868
LOT 105
REGISTERED
PLAN 20M-811
LOT 106
PIN 07182-1625
PLAYER COURT
(DEDICATED BY REGISTERED PLAN 20M-868)

FIGURE 2



PROPOSED EXTERIOR NOISE CONTROL MEASURES

FIGURE 3

APPENDIX B: SOUND LEVEL CALCULATIONS

Subject: RE: Request for Traffic - Dundas St. (Burlington)
From: "Krusto, Matt" <Matt.Krusto@halton.ca>
Date: 2021-08-19, 9:59 a.m.
To: "'Howard Patlik'" <hpatlik@jecoulterassoc.com>
CC: "Scattolon, Walter" <Walter.Scattolon@halton.ca>

Hi Howard,

Please use:

-Future ultimate volumes and lane assumptions for Dundas Street must be 55,000 AADT and 6 through lanes.

-For the truck percentages, existing percentages must be used. These can be requested from our Road Operations group at trafficdatarequests@halton.ca

Please note for all Noise Studies:
-In order to reduce the need for physical mitigation, land use layout / unit types should be planned such that out-door living areas do not require physical noise mitigation.
-If physical mitigation is required, the applicant may be required to demonstrate that there are no other feasible options.

Hope this helps.

Thanks,

Matt

Matt Krusto
Supervisor, Transportation Development Review
Infrastructure Planning & Policy
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866

-----Original Message-----
From: Howard Patlik <hpatlik@jecoulterassoc.com>
Sent: Wednesday, August 18, 2021 4:19 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: Re: Request for Traffic - Dundas St.

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

> Hi Matt,

I am preparing a Noise Report for a development in the vicinity (SW) of Dundas St and Millcroft Pk Dr. What is the ultimate AADT, trucks (med/hvy) and speed limit on Dundas?

Regards,

--
Howard R. Patlik, C.E.T.

J.E. Coulter Associates Limited
T: 416-502-8598 ext. 222
F: 416-502-3473
hpatlik@jecoulterassoc.com

Millcroft Park Dr @ Sarazen Dr

Morning Peak Diagram

Specified Period
From: 8:00:00
To: 10:00:00

One Hour Peak
From: 8:15:00
To: 9:15:00

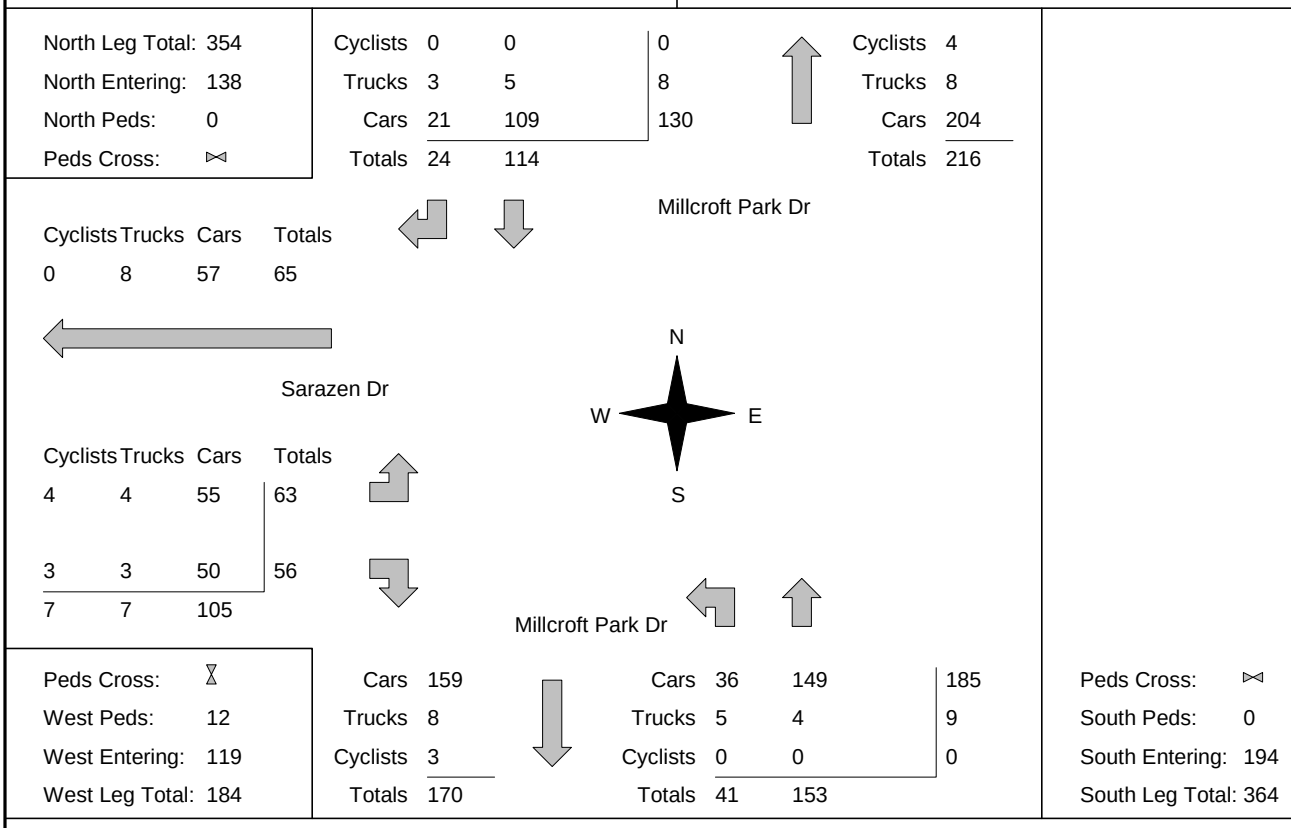
Municipality: Burlington
Site #: 0000202483
Intersection: Millcroft Park Dr & Sarazen Dr
TFR File #: 1
Count date: 29-Jun-2017

Weather conditions:
Sunny

Person(s) who counted:
Mark

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

Major Road: Millcroft Park Dr runs N/S



Comments

Millcroft Park Dr @ Sarazen Dr

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 19:00:00

One Hour Peak
From: 17:45:00
To: 18:45:00

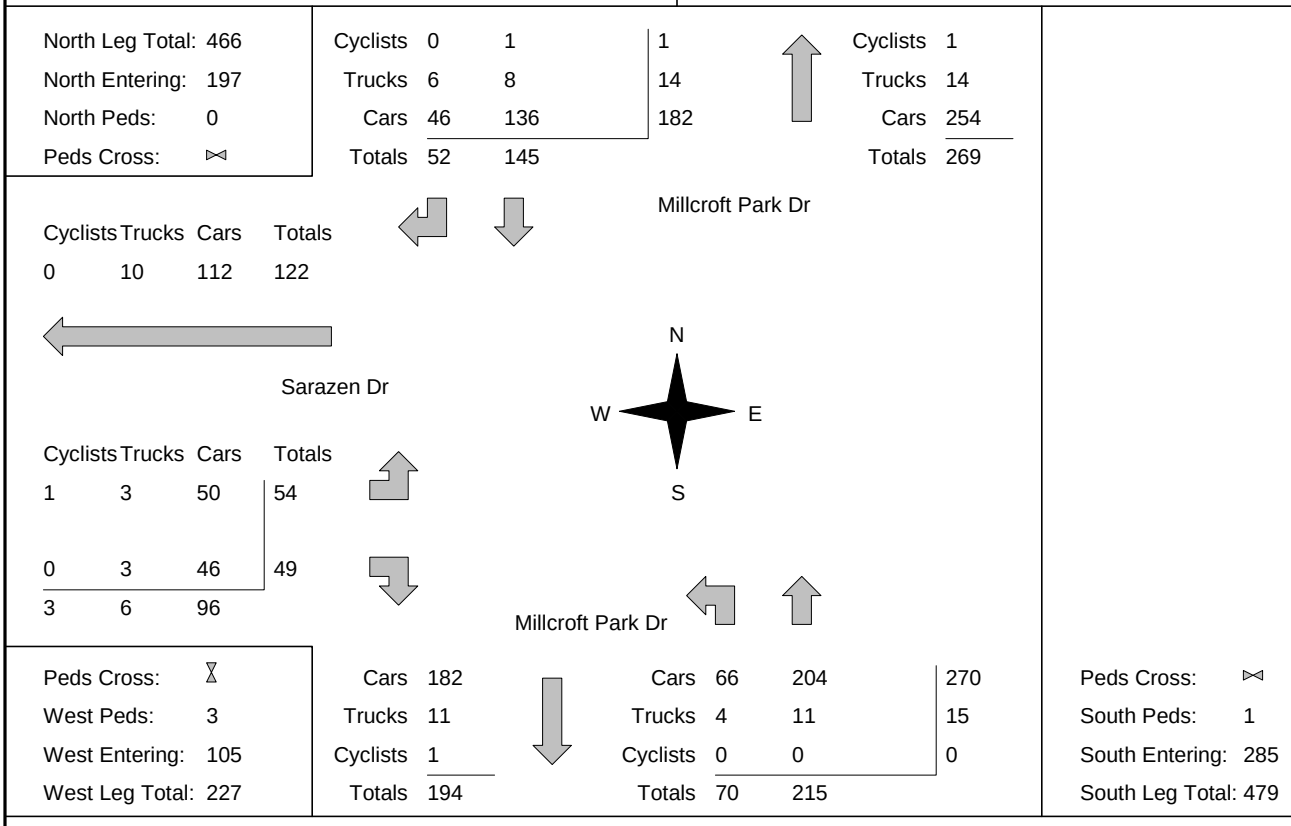
Municipality: Burlington
Site #: 0000202483
Intersection: Millcroft Park Dr & Sarazen Dr
TFR File #: 1
Count date: 29-Jun-2017

Weather conditions:
Sunny

Person(s) who counted:
Mark

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

Major Road: Millcroft Park Dr runs N/S



Comments

Millcroft Park Dr @ Sarazen Dr

Total Count Diagram

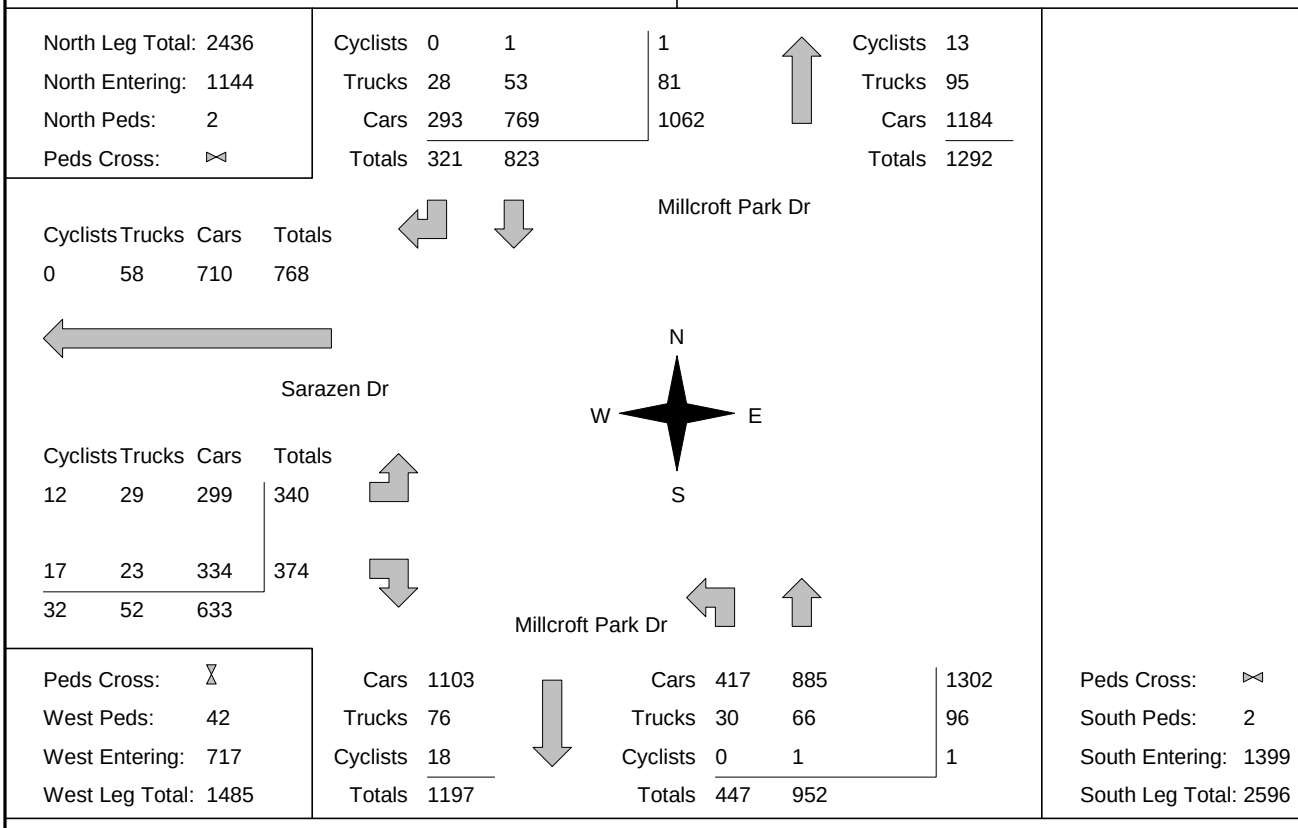
Municipality: Burlington
Site #: 0000202483
Intersection: Millcroft Park Dr & Sarazen Dr
TFR File #: 1
Count date: 29-Jun-2017

Weather conditions:
Sunny

Person(s) who counted:
Mark

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

Major Road: Millcroft Park Dr runs N/S



Comments

Millcroft Park Dr @ Sarazen Dr
Traffic Count Summary

Intersection: Millcroft Park Dr & Sarazen Dr | **Count Date:** 29-Jun-2017 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
8:00:00	0	0	0	0	0	0
9:00:00	0	103	20	123	0	293
10:00:00	0	76	20	96	0	236
12:00:00	0	0	0	0	0	0
13:00:00	0	72	21	93	0	218
14:00:00	0	66	23	89	0	206
15:00:00	0	0	0	0	0	0
16:00:00	0	107	44	151	0	322
17:00:00	0	119	78	197	1	366
18:00:00	0	138	64	202	1	450
19:00:00	0	142	51	193	0	452
Totals:	0	823	321	1144	2	2543

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
8:00:00	0	0	0	0	0
9:00:00	34	136	0	170	0
10:00:00	34	106	0	140	0
12:00:00	0	0	0	0	0
13:00:00	51	74	0	125	0
14:00:00	50	67	0	117	0
15:00:00	0	0	0	0	0
16:00:00	67	104	0	171	0
17:00:00	62	107	0	169	1
18:00:00	87	161	0	248	0
19:00:00	62	197	0	259	1
Totals:	447	952	0	1399	2

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
8:00:00	0	0	0	0	0	0
9:00:00	0	0	0	0	0	106
10:00:00	0	0	0	0	0	95
12:00:00	0	0	0	0	0	0
13:00:00	0	0	0	0	0	77
14:00:00	0	0	0	0	0	72
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	110
17:00:00	0	0	0	0	0	74
18:00:00	0	0	0	0	0	67
19:00:00	0	0	0	0	0	116
Totals:	0	0	0	0	0	717

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
8:00:00	0	0	0	0	0
9:00:00	66	0	40	106	10
10:00:00	45	0	50	95	5
12:00:00	0	0	0	0	0
13:00:00	30	0	47	77	3
14:00:00	35	0	37	72	3
15:00:00	0	0	0	0	0
16:00:00	40	0	70	110	11
17:00:00	39	0	35	74	4
18:00:00	26	0	41	67	3
19:00:00	59	3	54	116	3
Totals:	340	3	374	717	42

Calculated Values for Traffic Crossing Major Street

Hours Ending:	9:00	10:00	13:00	14:00	16:00	17:00	18:00	19:00
Crossing Values:	66	45	30	35	40	41	27	63

Traffic Intersection Calculator Version: 4.1
Project: **SalMil - 4375 Millcroft Pk Drive - 2031**

CARS

24HR AADT 5,080

TOTAL NORTH LEG

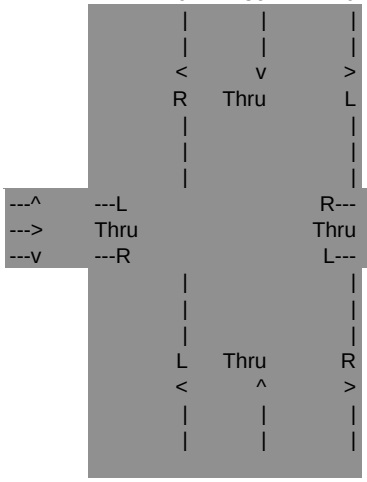
	AM	PM
AADT Conversion	-334	436

Avg AM-PM/**M**ax of AM/PM? **A**

(NB/SB): **13.2**

(EB/WB): **13.2**

AM	**21**	**109**	**0**
PM	**46**	**136**	**0**



	AM	PM					AM	PM
	55	**50**	---^	---L	R---	^---	**0**	**0**
	0	**0**	--->	Thru	Thru	<---	**0**	**0**
	50	**46**	---v	---R	L---	v---	**0**	**0**

TOTAL WEST LEG -162 208

0 0 TOTAL EAST LEG

24HR AADT 2,441

24HR AADT 0

AM	**36**	**149**	**0**
PM	**66**	**204**	**0**

	AM	PM
	-344	452

TOTAL SOUTH LEG

24HR AADT 5,252

20-Oct-21
05:33 PM

Traffic Intersection Calculator Version: 4.1
Project: SalMil - 4375 Millcroft Pk Drive - 2031

MEDIUM TRUCKS

Avg AM-PM/**M**ax of AM/PM? A
AADT Conversion
(NB/SB): 13.2
(EB/WB): 13.2

24HR AADT 132
TOTAL NORTH LEG

	AM	CARS
	-12	9

	R	Thru	L
AM	**2**	**3**	**0**
PM	**3**	**4**	**0**

AM	PM						AM	PM
2	**2**	---^	---L		R---	^---	**0**	**0**
0	**0**	--->	Thru		Thru	<---	**0**	**0**
2	**2**	---v	---R		L---	v---	**0**	**0**

TOTAL WEST LEG -7 6 0 0 TOTAL EAST LEG

24HR AADT 86 **24HR AADT** 0

	L	Thru	R
AM	**2**	**6**	**0**
PM	**0**	**0**	**0**

AM	PM
-12	6

TOTAL SOUTH LEG
24HR AADT 112

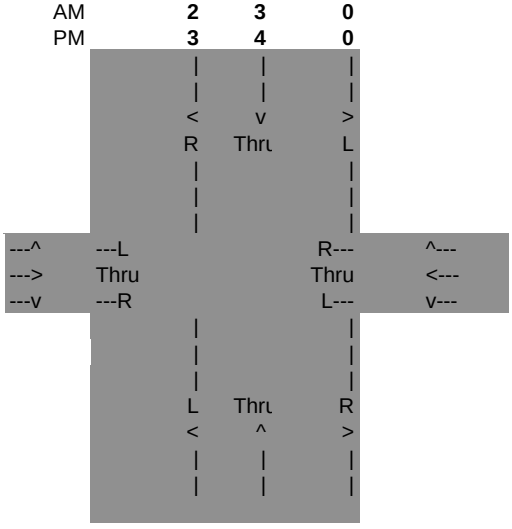
Traffic Intersection Calculator Version: 4.1
Project: SalMil - 4375 Millcroft Pk Drive - 2031

HEAVY TRUCKS

24HR AADT 132

TOTAL NORTH LEG

		AM	PM
Avg AM-PM/**M**ax of AM/PM?	A		
AADT Conversion		-12	9
(NB/SB):	13.2		
(EB/WB):	13.2		
When Max, use 0.5 value			



		AM	PM
TOTAL WEST LEG	-7	6	
24HR AADT	86		

		AM	PM
TOTAL EAST LEG		0	0
24HR AADT	0		

	AM	PM
	-12	6

TOTAL SOUTH LEG

24HR AADT 112

SUMMARY

SalMil - 4375 Millcroft Pk Drive - 2031

TOTAL NORTH LEG

	Vehicles	Breakdown
Cars	5,080	95.1%
Med. Trucks	132	2.5%
Heavy Trucks	132	2.5%
24hr AADT	**5,344**	**100.0%**

TOTAL EAST LEG

	Vehicles	Breakdown
Cars	0	ERR
Med. Trucks	0	ERR
Heavy Trucks	0	ERR
24hr AADT	**0**	**ERR**

TOTAL WEST LEG

	Vehicles	Breakdown
Cars	2,441	93.4%
Med. Trucks	86	3.3%
Heavy Trucks	86	3.3%
24hr AADT	**2,613**	**100.0%**

TOTAL SOUTH LEG

	Vehicles	Breakdown
Cars	5,252	95.9%
Med. Trucks	112	2.0%
Heavy Trucks	112	2.0%
24hr AADT	**5,476**	**100.0%**

Note: 24hr AADT is calculated on averaging AM & PM values and multiplying results by conversion factor 13

20-Oct-21
05:33 PM

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:37:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot1.te Time Period: Day/Night 16/8 hours
Description: Lot 1 - East Façade

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (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 : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 3 / 3
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 320.00 / 320.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

ROAD (0.00 + 60.99 + 0.00) = 60.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.99	0.00	0.00	0.00	0.00	0.00	0.00	60.99

Segment Leq : 60.99 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

ROAD (0.00 + 41.88 + 0.00) = 41.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-22.06	-1.46	0.00	-8.13	0.00	41.88

Segment Leq : 41.88 dBA

Total Leq All Segments: 61.04 dBA

Results segment # 1: Millcroft Pk (night)

Source height = 1.19 m

ROAD (0.00 + 54.46 + 0.00) = 54.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.46	0.00	0.00	0.00	0.00	0.00	0.00	54.46

Segment Leq : 54.46 dBA

Results segment # 2: Dundas St W (night)

Source height = 1.31 m

ROAD (0.00 + 36.62 + 0.00) = 36.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	67.01	0.00	-20.94	-1.31	0.00	-8.13	0.00	36.62

Segment Leq : 36.62 dBA

Total Leq All Segments: 54.53 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.04
(NIGHT): 54.53

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:37:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot1r.te Time Period: Day/Night 16/8 hours
Description: Lot 1 - Rear yard - No Barrier

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.15 / 19.15 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 3 / 3
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 320.00 / 320.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

ROAD (0.00 + 58.68 + 0.00) = 58.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.00	60.99	0.00	-1.06	-1.25	0.00	0.00	0.00	58.68

Segment Leq : 58.68 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

ROAD (0.00 + 41.88 + 0.00) = 41.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-22.06	-1.46	0.00	-8.13	0.00	41.88

Segment Leq : 41.88 dBA

Total Leq All Segments: 58.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.77

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:38:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot1r.te Time Period: Day/Night 16/8 hours
Description: Lot 1 - Rear yard - With 1.8m High Barrier

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.15 / 19.15 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 45.00 deg
Barrier height : 1.80 m
Barrier receiver distance : 9.15 / 9.15 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 3 / 3
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 320.00 / 320.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.80 m
Barrier receiver distance : 9.15 / 10.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.19	1.50	1.35	1.35

ROAD (0.00 + 52.94 + 0.00) = 52.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.00	60.99	0.00	-1.06	-1.25	0.00	0.00	-5.74	52.94

Segment Leq : 52.94 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.31	1.50	1.49	1.49

ROAD (0.00 + 41.88 + 0.00) = 41.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-22.06	-1.46	0.00	-8.13	0.00	41.88
-90	90	0.56	73.53	0.00	-20.70	-1.28	0.00	0.00	-5.17	46.37

Segment Leq : 41.88 dBA

Total Leq All Segments: 53.27 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.27

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:39:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot2.te Time Period: Day/Night 16/8 hours
Description: Lot 2 - North Façade

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 3 / 3
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 320.00 / 320.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

ROAD (0.00 + 54.97 + 0.00) = 54.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	60.99	0.00	-3.01	-3.01	0.00	0.00	0.00	54.97

Segment Leq : 54.97 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

ROAD (0.00 + 41.88 + 0.00) = 41.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-22.06	-1.46	0.00	-8.13	0.00	41.88

Segment Leq : 41.88 dBA

Total Leq All Segments: 55.18 dBA

Results segment # 1: Millcroft Pk (night)

Source height = 1.19 m

ROAD (0.00 + 48.44 + 0.00) = 48.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	54.46	0.00	-3.01	-3.01	0.00	0.00	0.00	48.44

Segment Leq : 48.44 dBA

Results segment # 2: Dundas St W (night)

Source height = 1.31 m

ROAD (0.00 + 36.62 + 0.00) = 36.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	67.01	0.00	-20.94	-1.31	0.00	-8.13	0.00	36.62

Segment Leq : 36.62 dBA

Total Leq All Segments: 48.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.18
(NIGHT): 48.72

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:39:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot2r.te Time Period: Day/Night 16/8 hours
Description: Lot 2 - Rear yard - No Barrier

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (day/night)

Angle1 Angle2 : -45.00 deg 10.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.88 / 26.88 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 3 / 3
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 320.00 / 320.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

ROAD (0.00 + 51.38 + 0.00) = 51.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	10	0.66	60.99	0.00	-4.21	-5.40	0.00	0.00	0.00	51.38

Segment Leq : 51.38 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

ROAD (0.00 + 41.88 + 0.00) = 41.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-22.06	-1.46	0.00	-8.13	0.00	41.88

Segment Leq : 41.88 dBA

Total Leq All Segments: 51.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.84

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:40:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot24.te Time Period: Day/Night 16/8 hours
Description: Lot 24 - East Façade

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (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 : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 4
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 375.00 / 375.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

ROAD (0.00 + 60.99 + 0.00) = 60.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.99	0.00	0.00	0.00	0.00	0.00	0.00	60.99

Segment Leq : 60.99 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

ROAD (0.00 + 39.35 + 0.00) = 39.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-23.21	-1.46	0.00	-9.52	0.00	39.35

Segment Leq : 39.35 dBA

Total Leq All Segments: 61.02 dBA

Results segment # 1: Millcroft Pk (night)

Source height = 1.19 m

ROAD (0.00 + 54.46 + 0.00) = 54.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.46	0.00	0.00	0.00	0.00	0.00	0.00	54.46

Segment Leq : 54.46 dBA

Results segment # 2: Dundas St W (night)

Source height = 1.31 m

ROAD (0.00 + 34.15 + 0.00) = 34.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	67.01	0.00	-22.03	-1.31	0.00	-9.52	0.00	34.15

Segment Leq : 34.15 dBA

Total Leq All Segments: 54.50 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.02
(NIGHT): 54.50

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:40:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot24r.te Time Period: Day/Night 16/8 hours
Description: Lots 24/25 - Rear yard - No Barrier

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (day/night)

Angle1 Angle2 : -45.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.48 / 19.48 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 3
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 375.00 / 375.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

ROAD (0.00 + 58.09 + 0.00) = 58.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	75	0.00	60.99	0.00	-1.13	-1.76	0.00	0.00	0.00	58.09

Segment Leq : 58.09 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

ROAD (0.00 + 39.35 + 0.00) = 39.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-23.21	-1.46	0.00	-9.52	0.00	39.35

Segment Leq : 39.35 dBA

Total Leq All Segments: 58.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.15

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:40:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot24r.te Time Period: Day/Night 16/8 hours
Description: Lots 24/25 - Rear yard - With 1.8m High Barrier

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (day/night)

Angle1 Angle2 : -45.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 19.48 / 19.48 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -45.00 deg Angle2 : 75.00 deg
Barrier height : 1.80 m
Barrier receiver distance : 9.15 / 9.15 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 4 / 3
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 375.00 / 375.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.80 m
Barrier receiver distance : 9.15 / 9.15 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.19	1.50	1.35	1.35

ROAD (0.00 + 52.29 + 0.00) = 52.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	75	0.00	60.99	0.00	-1.13	-1.76	0.00	0.00	-5.80	52.29

Segment Leq : 52.29 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.31	1.50	1.50	1.50

ROAD (0.00 + 39.35 + 0.00) = 39.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-23.21	-1.46	0.00	-9.52	0.00	39.35
-90	90	0.56	73.53	0.00	-21.78	-1.28	0.00	0.00	-5.17	45.30

Segment Leq : 39.35 dBA

Total Leq All Segments: 52.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.51

STAMSON 5.0 NORMAL REPORT Date: 24-08-2021 32:41:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot25.te Time Period: Day/Night 16/8 hours
Description: Lot 25 - East Façade

Road data, segment # 1: Millcroft Pk (day/night)

Car traffic volume : 4731/526 veh/TimePeriod *
Medium truck volume : 99/11 veh/TimePeriod *
Heavy truck volume : 99/11 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): 5476
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Millcroft Pk (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 : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Dundas St W (day/night)

Car traffic volume : 46877/5209 veh/TimePeriod *
Medium truck volume : 1188/132 veh/TimePeriod *
Heavy truck volume : 1436/160 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 10.00
Medium Truck % of Total Volume : 2.40
Heavy Truck % of Total Volume : 2.90
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 375.00 / 375.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Results segment # 1: Millcroft Pk (day)

Source height = 1.19 m

ROAD (0.00 + 60.99 + 0.00) = 60.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	60.99	0.00	0.00	0.00	0.00	0.00	0.00	60.99

Segment Leq : 60.99 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.31 m

ROAD (0.00 + 37.85 + 0.00) = 37.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	73.53	0.00	-23.21	-1.46	0.00	-11.02	0.00	37.85

Segment Leq : 37.85 dBA

Total Leq All Segments: 61.01 dBA

Results segment # 1: Millcroft Pk (night)

Source height = 1.19 m

ROAD (0.00 + 54.46 + 0.00) = 54.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.46	0.00	0.00	0.00	0.00	0.00	0.00	54.46

Segment Leq : 54.46 dBA

Results segment # 2: Dundas St W (night)

Source height = 1.31 m

ROAD (0.00 + 32.65 + 0.00) = 32.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	67.01	0.00	-22.03	-1.31	0.00	-11.02	0.00	32.65

Segment Leq : 32.65 dBA

Total Leq All Segments: 54.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.01
(NIGHT): 54.49

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/tenants are advised that despite the inclusion of noise control features in the development and 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 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, Conservation and Parks."

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 D: NOISE CRITERIA

NOISE CRITERIA

The noise study will be based on the following criteria for residential units, as required by the Ministry of The Environment, Conservation and Parks:

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 setback from source) are required.

All calculations are based on Block 133, M-Plan 20M-811.

L_{eq}

The L_{eq} is defined as the mean energy of the sound level averaged over the measurement period. It can be considered as the continuous steady sound level which would have the same acoustic energy as the real fluctuating noise measured over the same period of time.

APPENDIX E: REFERENCES

1. Ministry of the Environment Model Municipal Noise Control By-Law, Final Report, August 1978.

2. Ministry of the Environment, *STAMSON* Computer Programme *(STEAM, Version 5.04*) for the IBM PC.

3. Ministry of the Environment, *ORNAMENT*, “Ontario Road Noise Analysis Method for Environment and Transportation,” November 1988.