

October 29, 2014

Celeste Phillips Planning Inc.  
Suite 500  
85 Bayfield Street  
Barrie, Ontario  
L4M 3A7

Attention: Celeste Phillips  
[celeste@cplan.ca](mailto:celeste@cplan.ca)

**Re: Road and Rail Traffic Noise Assessment  
Proposed Residential Development  
196 Burton Avenue - Parkshore Village  
City of Barrie  
VCL File: 114-220**

**VIA E-MAIL**

Dear Ms. Phillips:

## **1.0 INTRODUCTION**

Valcoustics Canada Ltd. (VCL) was retained to prepare a Road and Rail Traffic Noise Assessment in support of the Draft Plan Approval submission for the proposed residential development at 196 Burton Avenue in the City of Barrie. The proposed development consists of 16 blocks of townhouses and one block of commercial development along the northeastern property line fronting onto Burton Avenue.

This letter is based on the Lot Grading Plan, prepared by Gerrits Engineering Limited, received in an email dated July 18, 2014. Figure 1 shows the Lot Grading Plan in reduced form.

The potential sound exposures due to the nearby road and rail traffic sources have been predicted on site and compared to the applicable Ministry of the Environment (MOE) noise guideline limits. The limits of MOE Publication NPC-300 "*Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning*" have been applied. Where sound level excesses above these guideline limits occur, noise mitigation measures have been recommended.

## **2.0 NOISE SOURCE DATA**

The main transportation noise sources with potential for noise impact on the proposed development will be road traffic on Burton Avenue and Lakeshore Drive, and rail traffic on the Metrolinx Barrie line.

Existing turning movement count data for Burton Avenue, applicable to the year 2013, was obtained from the City of Barrie. It was assumed that the traffic volumes would approximately follow the typical ITE distribution model. Thus, the count data obtained from the City is 56% of the 24-hour total. The full 24-hour Annual Average Daily Traffic (AADT) was then calculated based on this percentage. The Institute of Transportation Engineers (ITE) day/night split of 91%/9% was used. A growth rate of 1%, compounded annually, as specified by the City, was applied to obtain future (year 2024) traffic volumes. Truck percentages were obtained from the turning movement counts. The ratio of medium trucks to heavy trucks was assumed to be 60%/40%.

Existing 24-hour hourly road traffic volumes for Lakeshore Drive (year 2013) were obtained from the City of Barrie. A growth rate of 2.7%, compounded annually, as specified by the City, was applied to obtain future (year 2024) traffic volumes.

The Metrolinx Barrie line is classified as a Principal Main Line. Future GO rail traffic data applicable to the year 2024 was obtained from Metrolinx.

Road and rail traffic data is summarized in Tables 1A and 1B and included in Appendix A.

### **3.0 SOUND EXPOSURE PREDICTIONS**

The highest unmitigated daytime/nighttime sound exposures of 60 dBA/53 dBA are predicted to occur at the blocks backing toward Burton Avenue (Blocks 11 and 12) on the northeast facades of the dwellings. The highest unmitigated daytime OLA (Outdoor Living Area) sound exposure would occur at the same dwellings and is predicted to be 57 dBA.

Table 2 summarizes the predicted sound energy exposures outdoors at specific locations due to the transportation noise sources.

Appendix B contains a sample sound exposure calculation.

### **4.0 NOISE ABATEMENT REQUIREMENTS**

#### **4.1 INDOORS**

##### **4.1.1 Architectural Requirements**

The indoor sound exposure guidelines can be achieved by using appropriate construction for exterior walls, windows and doors. In determining the worst-case architectural requirements, wall and window areas were *assumed* to be 80% and 30% of the associated floor area, respectively, on the facades exposed directly or at an angle to the road traffic noise source for both living/dining areas and sleeping quarters.

Based on the assumed areas, exterior wall construction meeting a minimum Sound Transmission Class (STC) of 37 and windows meeting a minimum STC of 27 will be sufficient to achieve the indoor noise guideline criteria of the MOE.

For walls, a typical exterior facade construction which meets the minimum non-acoustical requirements of the Ontario Building Code (OBC) would be expected to achieve the requirement of STC 37. For windows, double-glazing configurations meeting the minimum non-acoustical requirements of the OBC will be adequate to meet the above sound isolation requirements. Note, the window frames themselves must also be designed to ensure that the overall sound isolation performance for the entire window unit meets the sound isolation requirement. This will need to be confirmed by the window manufacturer.

Note, since the analysis is based upon assumed wall and window areas, the requirements should be reviewed once building floor plans become available. This is usually done as part of the building permit application.

#### **4.1.2 Ventilation Requirements**

For daytime sound exposures at the exterior face of a window between 56 dBA and 65 dBA inclusive (or nighttime sound exposures between 51 dBA and 60 dBA inclusive), dwellings require the provision for adding air conditioning by the occupant at a later date. Thus, the dwellings on Blocks 1 and 10 to 13 require the provision for adding air conditioning. This typically takes the form of a ducted, forced air heating system, suitably sized to accommodate air conditioning.

#### **4.2 OUTDOORS**

Unmitigated sound exposures in the rear yard of Blocks 1 and 10 to 13 are predicted to be below 60 dBA but above the 55 dBA design objective. This is within the maximum permitted by the MOE noise guideline. As indicated in NPC-300, if sound barriers are not provided, prospective purchasers or tenants should be informed of potential noise problems by a warning clause registered on the title.

#### **4.3 WARNING CLAUSES**

Where the noise guideline limits are exceeded, appropriate MOE warning clauses should be registered on title and make future occupants aware of the potential noise situation. Locations requiring warning clauses and the appropriate wording are given in Table 3 and in the notes to Table 3, respectively.

#### **5.0 CONCLUSIONS**

To meet the applicable transportation noise source guideline limits:

- The proposed dwellings at Blocks 1 and 10 to 13 require the provision for adding air conditioning at a later date.
- The applicable indoor noise guidelines at all buildings are predicted to be met without any special wall and window upgrades beyond the minimum non-acoustical requirements stated in the OBC.

With incorporation of the recommendations above, the MOE noise guideline requirements are expected to be met and a suitable acoustical environment provided for the future residents.

The approvals and administrative procedures are available to ensure that the acoustical requirements are implemented.

If you have any questions, please let us know.

**Yours truly,**

**VALCOUSTICS CANADA LTD.**

Per:   
Seema Nagaraj, Ph.D., EIT

Per:   
John Emeljanow, B.Eng., P.Eng.



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Enclosures

**TABLE 1A**

**196 Burton Avenue**

**ROAD TRAFFIC DATA**

Roadway	Year	AADT <sup>(1)</sup>	% Trucks		Speed Limit (kph)	% Day/ Night Split
			Medium	Heavy		
Burton Avenue	2013	10 376 <sup>(2)</sup>	3	2	50	91/9
Lakeshore Drive	2013	22 262 <sup>(3)</sup>	12	8	50	94/6

Notes:

- (1) AADT - Annual Average Daily Traffic.
- (2) Obtained from the City of Barrie. Traffic volumes shown were escalated to the year 2024 using a growth rate of 1%, as recommended by the City of Barrie.
- (3) Obtained from the City of Barrie. Traffic volumes shown were escalated to the year 2024 using a growth rate of 2.7%, as recommended by the City of Barrie.

**TABLE 1B**

**196 Burton Avenue**

**RAIL TRAFFIC DATA - GO TRANSIT BARRIE LINE**

Period	Train Type	Average # of Trains	Maximum # of Cars/Train	Average # of Locos/Train	Maximum Speed (kph)
Daytime (0700 to 2300)	Go Commuter	12	12	1	48
Nighttime (2300 to 0700)	Go Commuter	4	12	1	48

Notes:

- (1) Future rail data applicable to the year 2024 was obtained from Metrolinx.

**TABLE 2****196 Burton Avenue****UNMITIGATED SOUND EXPOSURES AT BUILDING FACADE**

<b>Location<sup>(1)</sup></b>	<b>Source</b>	<b>Distance (m)<sup>(2)</sup></b>	<b>L<sub>eq</sub> Day (dBA)</b>	<b>L<sub>eq</sub> Night (dBA)</b>
Block 10 (North Face)	Burton Avenue	45	58	51
	Lakeshore Drive	219	53	44
	GO Transit	183	43	41
	<b>TOTAL</b>	–	<b>59</b>	<b>52</b>
Block 11 (North Face)	Burton Avenue	47	59	52
	Lakeshore Drive	227	52	43
	GO Transit	191	42	40
	<b>TOTAL</b>	–	<b>60</b>	<b>53</b>
Block 13 (North Face)	Burton Avenue	62	58	51
	Lakeshore Drive	269	50	41
	GO Transit	233	40	39
	<b>TOTAL</b>	–	<b>58</b>	<b>51</b>
Block 12 (OLA)	Burton Avenue	45	57	–
	Lakeshore Drive	233	49	–
	GO Transit	197	39	–
	<b>TOTAL</b>	–	<b>57</b>	–
Block 13 (OLA)	Burton Avenue	65	55	–
	Lakeshore Drive	277	44	–
	GO Transit	241	34	–
	<b>TOTAL</b>	–	<b>56</b>	–

Notes:

- (1) See Figure 1.  
(2) Distance indicated is from centreline of road traffic source to receptor point.

**TABLE 3**  
**196 Burton Avenue**  
**MINIMUM NOISE ABATEMENT MEASURES**

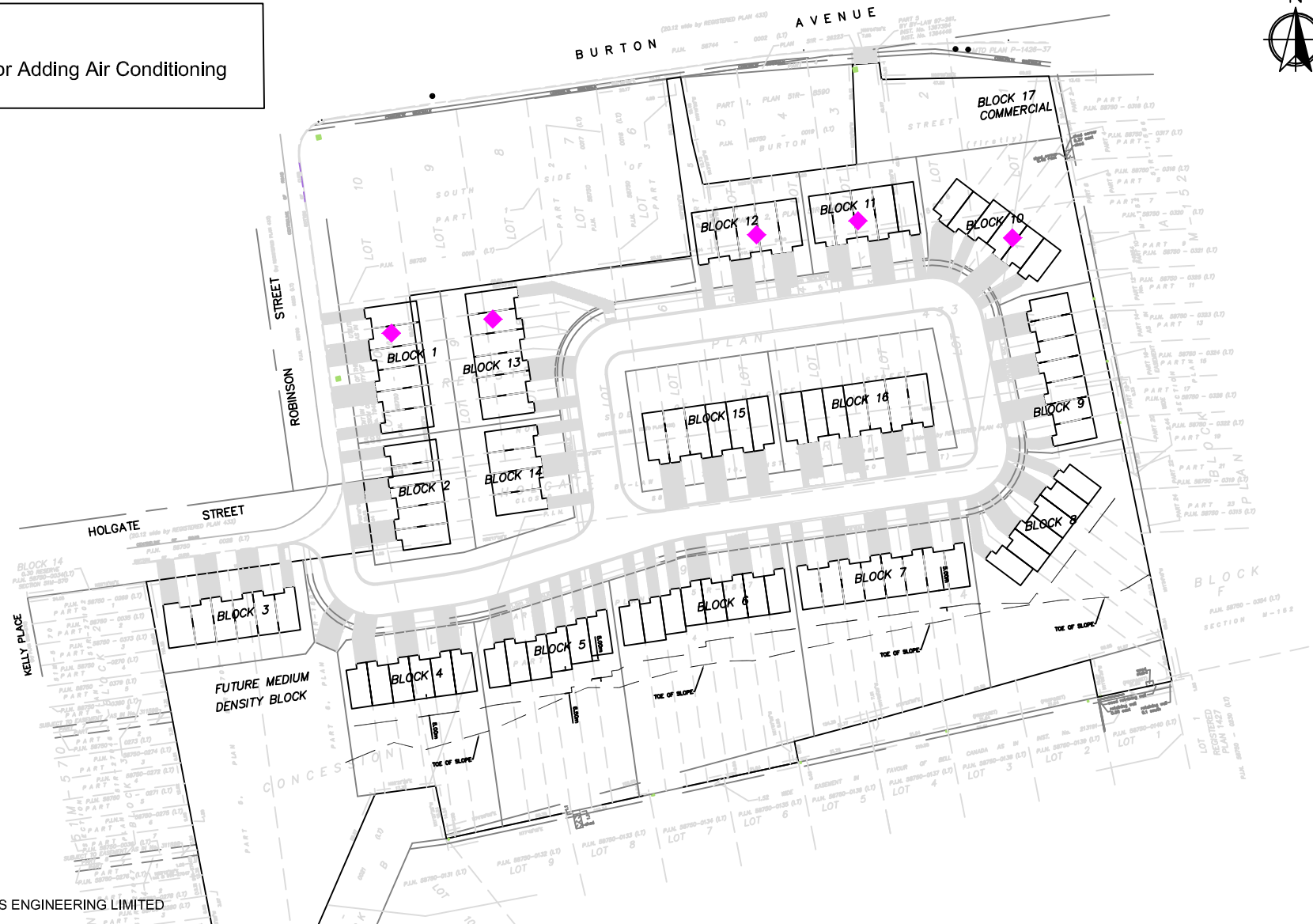
Location	Air Conditioning <sup>(1)</sup>	Exterior Wall <sup>(2)</sup>	Exterior Window <sup>(3)</sup>	Warning Clauses <sup>(5)</sup>
Blocks 1 and 10 to 13	Provision for adding	STC 37	STC 27	A + B + C
All other dwellings	No special acoustical requirements			C

Notes:

- (1) Provision for adding air conditioning typically takes the form of a ducted ventilation system suitably sized to permit the addition of central air conditioning by the occupant.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413). Values shown are based on assumed areas. Requirements should be checked once building plans become available. Other wall and window construction configurations may be possible to achieve the MOE indoor noise guidelines.
- (3) STC - Sound Transmission Class Rating (Reference ASTM-E413). A sliding glass walkout door should be considered as a window and be included in the percentage of glazing.
- (4) Warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated lots:
  - A. "Purchasers 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 level exceed the sound level limits of the Municipality and the Ministry of the Environment."
  - B. "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."
  - C. "Purchasers/tenants are advised that due to the proximity of the existing and future commercial development, sound levels from these facilities may at times be audible."
- (5) Conventional ventilated attic roof construction meeting OBC requirements is satisfactory.
- (6) All exterior doors shall be fully weatherstripped.

**LEGEND**

◆ Provision for Adding Air Conditioning



BASE DRAWING BY GERRITS ENGINEERING LIMITED



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 Phone: (905) 764-5223  
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**Title**  
 Lot Grading Plan

**Project Name**  
 196 Burton Avenue

**Project No.**  
 114-220

**Date**  
 Sept.18, 2014

**Scale**  
 N.T.S.

**Figure**  
 1

No.	Revision/Issue	Date

# **APPENDIX A**

## **Road Traffic Data**

# Accu-Traffic Inc

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00  
**To:** 9:00:00

### One Hour Peak

**From:** 7:45:00  
**To:** 8:45:00

**Municipality:** Barrie  
**Site #:** 1308600102  
**Intersection:** Burton Ave & Bayview Dr  
**TFR File #:** 1  
**Count date:** 8-Oct-13

### Weather conditions:

### Person(s) who counted:

### \*\* Signalized Intersection \*\*

**Major Road:** Burton Ave runs W/E

North Leg Total: 116  
North Entering: 48  
North Peds: 2  
Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	0	1	1	2
Cars	3	41	2	46
<b>Totals</b>	<b>3</b>	<b>42</b>	<b>3</b>	



Cyclists 1  
Trucks 3  
Cars 64  
Totals 68

East Leg Total: 526  
East Entering: 310  
East Peds: 0  
Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	19	296	315

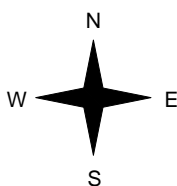
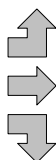


Bayview Dr



Burton Ave

Cyclists	Trucks	Cars	Totals
0	0	2	2
1	17	176	194
0	4	57	61
1	21	235	



Cars	Trucks	Cyclists	Totals
2	0	0	2
267	16	0	283
24	1	0	25
293	17	0	

Burton Ave



Peds Cross:  $\times$   
West Peds: 26  
West Entering: 257  
West Leg Total: 572

Cars	122
Trucks	6
Cyclists	0
<b>Totals</b>	<b>128</b>



Cars	26	60	15	101
Trucks	3	3	4	10
Cyclists	0	1	0	1
<b>Totals</b>	<b>29</b>	<b>64</b>	<b>19</b>	

Peds Cross:  $\times$   
South Peds: 3  
South Entering: 112  
South Leg Total: 240

## Comments

# Accu-Traffic Inc

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00

**To:** 14:00:00

### One Hour Peak

**From:** 12:15:00

**To:** 13:15:00

**Municipality:** Barrie  
**Site #:** 1308600102  
**Intersection:** Burton Ave & Bayview Dr  
**TFR File #:** 1  
**Count date:** 8-Oct-13

### Weather conditions:

### Person(s) who counted:

### \*\* Signalized Intersection \*\*

**Major Road:** Burton Ave runs W/E

North Leg Total: 121

North Entering: 51

North Peds: 5

Peds Cross:  $\times$

Cyclists	1	1	0	2
Trucks	0	1	1	2
Cars	3	36	8	47
<b>Totals</b>	<b>4</b>	<b>38</b>	<b>9</b>	



Cyclists 1

Trucks 0

Cars 69

**Totals 70**

East Leg Total: 687

East Entering: 349

East Peds: 4

Peds Cross:  $\times$

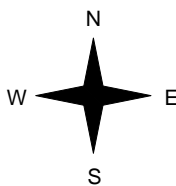
Cyclists	Trucks	Cars	Totals
1	21	340	362



Bayview Dr



Burton Ave



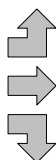
Cars	Trucks	Cyclists	Totals
6	0	0	6
299	16	0	315
25	3	0	28
<b>330</b>	<b>19</b>	<b>0</b>	



Burton Ave



Cyclists	Trucks	Cars	Totals
0	0	2	2
2	15	265	282
1	5	36	42
<b>3</b>	<b>20</b>	<b>303</b>	



Bayview Dr



Cars	Trucks	Cyclists	Totals
320	16	2	338

Peds Cross:  $\times$

West Peds: 13

West Entering: 326

West Leg Total: 688

Cars	97
Trucks	9
Cyclists	2
<b>Totals</b>	<b>108</b>



Cars	38	61	47	146
Trucks	5	0	0	5
Cyclists	0	1	0	1
<b>Totals</b>	<b>43</b>	<b>62</b>	<b>47</b>	

Peds Cross:  $\times$

South Peds: 1

South Entering: 152

South Leg Total: 260

## Comments

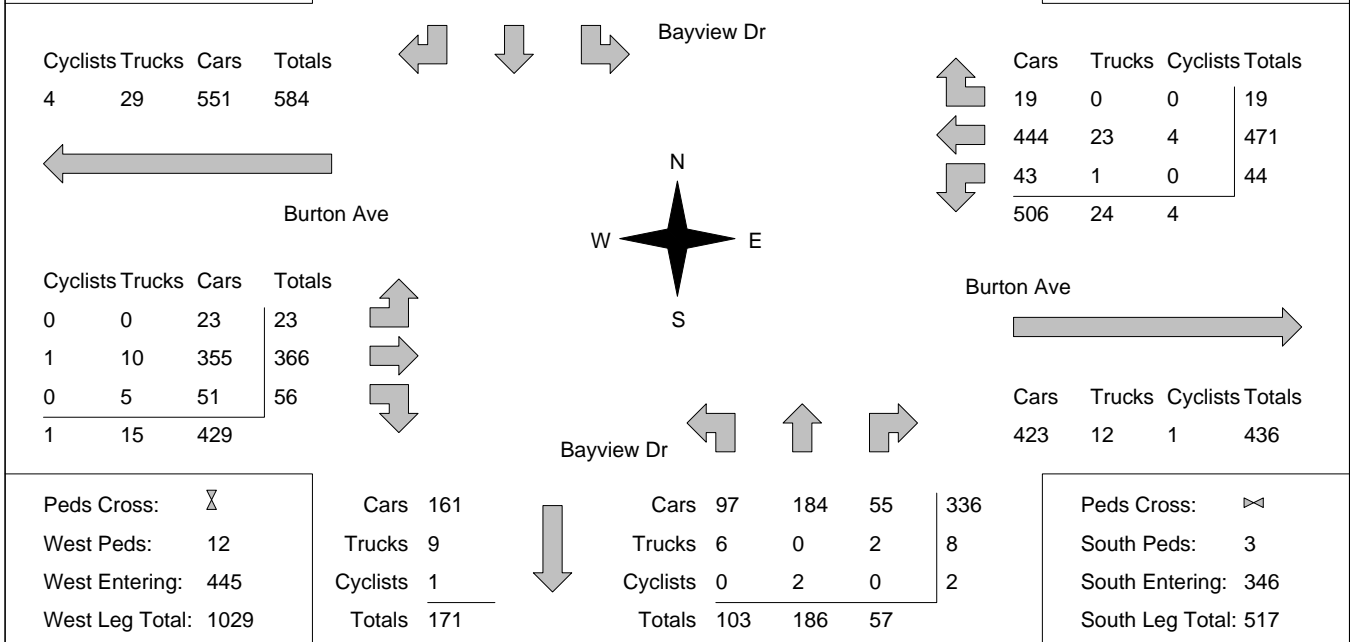
# Accu-Traffic Inc

<b>Afternoon Peak Diagram</b>	<b>Specified Period</b> <b>From:</b> 15:00:00 <b>To:</b> 18:00:00	<b>One Hour Peak</b> <b>From:</b> 16:30:00 <b>To:</b> 17:30:00
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<b>Municipality:</b> Barrie <b>Site #:</b> 1308600102 <b>Intersection:</b> Burton Ave & Bayview Dr <b>TFR File #:</b> 1 <b>Count date:</b> 8-Oct-13	<b>Weather conditions:</b>  <b>Person(s) who counted:</b>
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<b>** Signalized Intersection **</b>	<b>Major Road:</b> Burton Ave runs W/E
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North Leg Total: 322 North Entering: 94 North Peds: 9 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Cyclists</td><td>0</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>0</td><td>3</td></tr> <tr><td>Cars</td><td>10</td><td>67</td><td>13</td><td>90</td></tr> <tr><td>Totals</td><td>10</td><td>71</td><td>13</td><td></td></tr> </table>	Cyclists	0	1	0	1	Trucks	0	3	0	3	Cars	10	67	13	90	Totals	10	71	13		↑	<table style="border-collapse: collapse;"> <tr><td>Cyclists</td><td>2</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>226</td></tr> <tr><td>Totals</td><td>228</td></tr> </table>	Cyclists	2	Trucks	0	Cars	226	Totals	228	East Leg Total: 970 East Entering: 534 East Peds: 4 Peds Cross: ☒
Cyclists	0	1	0	1																												
Trucks	0	3	0	3																												
Cars	10	67	13	90																												
Totals	10	71	13																													
Cyclists	2																															
Trucks	0																															
Cars	226																															
Totals	228																															



## Comments

# Accu-Traffic Inc

## Total Count Diagram

**Municipality:** Barrie  
**Site #:** 1308600102  
**Intersection:** Burton Ave & Bayview Dr  
**TFR File #:** 1  
**Count date:** 8-Oct-13

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Burton Ave runs W/E

North Leg Total: 1423  
North Entering: 470  
North Peds: 31  
Peds Cross:  $\times$

Cyclists	1	6	1	8
Trucks	0	9	2	11
Cars	40	341	70	451
Totals	41	356	73	



Cyclists	15
Trucks	10
Cars	928
Totals	953

East Leg Total: 5534  
East Entering: 3022  
East Peds: 18  
Peds Cross:  $\times$

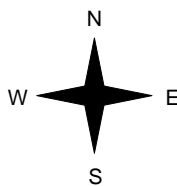
Cyclists	Trucks	Cars	Totals
10	169	3068	3247



Bayview Dr



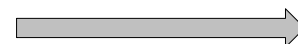
Burton Ave



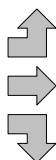
Cars	Trucks	Cyclists	Totals
51	1	0	52
2596	130	9	2735
226	9	0	235
2873	140	9	



Burton Ave



Cyclists	Trucks	Cars	Totals
2	0	47	49
12	101	2007	2120
3	29	408	440
17	130	2462	



Bayview Dr



Cars	Trucks	Cyclists	Totals
2382	115	15	2512

Peds Cross:  $\times$   
West Peds: 100  
West Entering: 2609  
West Leg Total: 5856

Cars	975
Trucks	47
Cyclists	9
Totals	1031



Cars	432	830	305	1567
Trucks	39	9	12	60
Cyclists	0	13	2	15
Totals	471	852	319	

Peds Cross:  $\times$   
South Peds: 23  
South Entering: 1642  
South Leg Total: 2673

### Comments

# Accu-Traffic Inc Traffic Count Summary

Intersection					Count Date			Municipality				
Burton Ave & Bayview Dr					8-Oct-13			Barrie				
North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	2	7:00:00	0	0	2	2	0
8:00:00	1	48	3	52	0	140	8:00:00	26	46	16	88	3
9:00:00	4	38	3	45	2	167	9:00:00	33	67	22	122	3
11:00:00	0	1	0	1	0	7	11:00:00	2	3	1	6	0
12:00:00	5	42	6	53	3	175	12:00:00	34	58	30	122	4
13:00:00	7	39	6	52	2	206	13:00:00	39	67	48	154	4
14:00:00	12	38	4	54	3	203	14:00:00	44	70	35	149	4
15:00:00	0	1	0	1	0	12	15:00:00	4	6	1	11	0
16:00:00	13	39	5	57	5	371	16:00:00	90	168	56	314	2
17:00:00	16	50	8	74	6	497	17:00:00	122	220	81	423	3
18:00:00	15	60	6	81	10	332	18:00:00	77	147	27	251	0
<b>Totals:</b>	<b>73</b>	<b>356</b>	<b>41</b>	<b>470</b>	<b>31</b>	<b>2112</b>		<b>471</b>	<b>852</b>	<b>319</b>	<b>1642</b>	<b>23</b>
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	17	247	5	269	1	467	8:00:00	1	143	54	198	4
9:00:00	29	278	2	309	0	558	9:00:00	1	196	52	249	26
11:00:00	0	3	0	3	0	6	11:00:00	0	2	1	3	3
12:00:00	27	305	2	334	4	672	12:00:00	4	277	57	338	5
13:00:00	27	295	5	327	6	664	13:00:00	2	294	41	337	12
14:00:00	34	323	7	364	1	650	14:00:00	4	228	54	286	6
15:00:00	0	8	1	9	0	19	15:00:00	0	9	1	10	0
16:00:00	30	404	5	439	0	788	16:00:00	6	283	60	349	21
17:00:00	36	463	12	511	2	888	17:00:00	20	303	54	377	14
18:00:00	35	405	13	453	4	912	18:00:00	11	382	66	459	9
<b>Totals:</b>	<b>235</b>	<b>2731</b>	<b>52</b>	<b>3018</b>	<b>18</b>	<b>5624</b>		<b>49</b>	<b>2117</b>	<b>440</b>	<b>2606</b>	<b>100</b>
<b>Calculated Values for Traffic Crossing Major Street</b>												
Hours Ending:	8:00	9:00	12:00	13:00			14:00	16:00	17:00	18:00		
Crossing Values:	80	130	106	131			133	292	374	252		

# Accu-Traffic Inc

Count Date: 8-Oct-13 Site #: 1308600102

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians		
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross		
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	1	19	8	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	30	11	3	1	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0
8:00:00	1	0	46	16	3	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
8:15:00	2	1	57	11	3	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
8:30:00	3	1	64	7	3	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1
8:45:00	3	0	71	7	6	3	1	1	2	1	0	0	0	0	1	0	0	0	0	2	1
9:00:00	4	1	82	11	6	0	1	0	3	1	0	0	0	0	1	0	0	0	0	2	0
9:15:00	4	0	82	0	6	0	1	0	3	0	0	0	0	0	1	0	0	0	0	2	0
11:00:00	4	0	83	1	6	0	1	0	3	0	0	0	0	0	1	0	0	0	0	2	0
11:15:00	4	0	96	13	8	2	1	0	3	0	0	0	0	0	1	0	0	0	0	3	1
11:30:00	6	2	104	8	8	0	1	0	3	0	0	0	0	0	1	0	0	0	0	4	1
11:45:00	8	2	114	10	11	3	1	0	3	0	0	0	0	0	1	0	0	0	0	4	0
12:00:00	9	1	124	10	12	1	1	0	3	0	0	0	0	0	2	1	0	0	0	5	1
12:15:00	11	2	135	11	14	2	1	0	3	0	0	0	0	0	2	0	0	0	0	5	0
12:30:00	14	3	144	9	15	1	1	0	3	0	0	0	0	0	3	1	1	1	1	5	0
12:45:00	15	1	154	10	17	2	2	1	3	0	0	0	0	0	3	0	1	0	0	6	1
13:00:00	15	0	161	7	17	0	2	0	4	1	0	0	0	0	3	0	1	0	0	7	1
13:15:00	19	4	171	10	17	0	2	0	4	0	0	0	0	0	3	0	1	0	0	10	3
13:30:00	23	4	179	8	19	2	2	0	4	0	0	0	0	0	3	0	1	0	0	10	0
13:45:00	27	4	190	11	20	1	2	0	5	1	0	0	0	0	3	0	1	0	0	10	0
14:00:00	27	0	197	7	21	1	2	0	5	0	0	0	0	0	4	1	1	0	0	10	0
14:15:00	27	0	198	1	21	0	2	0	5	0	0	0	0	0	4	0	1	0	0	10	0
15:00:00	27	0	198	0	21	0	2	0	5	0	0	0	0	0	4	0	1	0	0	10	0
15:15:00	29	2	208	10	22	1	2	0	5	0	0	0	0	0	4	0	1	0	0	10	0
15:30:00	32	3	219	11	23	1	2	0	6	1	0	0	0	0	4	0	1	0	0	13	3
15:45:00	38	6	227	8	25	2	2	0	6	0	0	0	0	0	4	0	1	0	0	15	2
16:00:00	40	2	236	9	26	1	2	0	6	0	0	0	0	0	4	0	1	0	0	15	0
16:15:00	46	6	245	9	28	2	2	0	6	0	0	0	0	0	4	0	1	0	0	17	2
16:30:00	50	4	256	11	29	1	2	0	6	0	0	0	1	1	4	0	1	0	0	20	3
16:45:00	53	3	265	9	31	2	2	0	7	1	0	0	1	0	4	0	1	0	0	20	0
17:00:00	55	2	284	19	34	3	2	0	8	1	0	0	1	0	4	0	1	0	0	21	1
17:15:00	61	6	304	20	35	1	2	0	9	1	0	0	1	0	5	1	1	0	0	27	6
17:30:00	63	2	323	19	39	4	2	0	9	0	0	0	1	0	5	0	1	0	0	29	2
17:45:00	68	5	334	11	39	0	2	0	9	0	0	0	1	0	5	0	1	0	0	30	1
18:00:00	70	2	341	7	40	1	2	0	9	0	0	0	1	0	6	1	1	0	0	31	1
18:15:00	70	0	341	0	40	0	2	0	9	0	0	0	1	0	6	0	1	0	0	31	0
18:15:15	70	0	341	0	40	0	2	0	9	0	0	0	1	0	6	0	1	0	0	31	0

# Accu-Traffic Inc

Count Date: 8-Oct-13 Site #: 1308600102

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	44	44	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
7:30:00	2	2	90	46	3	3	0	0	8	4	0	0	0	0	1	1	0	0	1	1
7:45:00	13	11	153	63	4	1	0	0	11	3	0	0	0	0	1	0	0	0	1	0
8:00:00	17	4	232	79	5	1	0	0	14	3	0	0	0	0	1	0	0	0	1	0
8:15:00	23	6	292	60	5	0	0	0	19	5	0	0	0	0	1	0	0	0	1	0
8:30:00	29	6	354	62	6	1	1	1	22	3	0	0	0	0	1	0	0	0	1	0
8:45:00	37	8	420	66	6	0	1	0	27	5	0	0	0	0	1	0	0	0	1	0
9:00:00	45	8	492	72	7	1	1	0	32	5	0	0	0	0	1	0	0	0	1	0
9:15:00	45	0	492	0	7	0	1	0	32	0	0	0	0	0	1	0	0	0	1	0
11:00:00	45	0	494	2	7	0	1	0	33	1	0	0	0	0	1	0	0	0	1	0
11:15:00	52	7	563	69	8	1	1	0	36	3	0	0	0	0	2	1	0	0	2	1
11:30:00	61	9	631	68	9	1	2	1	39	3	0	0	0	0	2	0	0	0	3	1
11:45:00	66	5	707	76	9	0	2	0	47	8	0	0	0	0	2	0	0	0	4	1
12:00:00	71	5	781	74	9	0	2	0	49	2	0	0	0	0	3	1	0	0	5	1
12:15:00	77	6	837	56	9	0	2	0	50	1	0	0	0	0	3	0	0	0	7	2
12:30:00	82	5	897	60	11	2	2	0	54	4	0	0	0	0	3	0	0	0	7	0
12:45:00	90	8	982	85	13	2	3	1	59	5	0	0	0	0	3	0	0	0	10	3
13:00:00	95	5	1059	77	14	1	5	2	66	7	0	0	0	0	3	0	0	0	11	1
13:15:00	102	7	1136	77	15	1	5	0	66	0	0	0	0	0	3	0	0	0	11	0
13:30:00	111	9	1215	79	16	1	6	1	69	3	0	0	0	0	3	0	0	0	12	1
13:45:00	120	9	1284	69	17	1	6	0	72	3	1	1	0	0	3	0	0	0	12	0
14:00:00	128	8	1372	88	20	3	6	0	75	3	1	0	0	0	4	1	0	0	12	0
14:15:00	128	0	1376	4	21	1	6	0	75	0	1	0	0	0	4	0	0	0	12	0
15:00:00	128	0	1379	3	21	0	6	0	76	1	1	0	0	0	4	0	0	0	12	0
15:15:00	141	13	1472	93	21	0	6	0	80	4	1	0	0	0	5	1	0	0	12	0
15:30:00	143	2	1575	103	22	1	6	0	83	3	1	0	0	0	5	0	0	0	12	0
15:45:00	147	4	1666	91	24	2	6	0	88	5	1	0	0	0	5	0	0	0	12	0
16:00:00	158	11	1768	102	26	2	6	0	90	2	1	0	0	0	5	0	0	0	12	0
16:15:00	164	6	1877	109	28	2	7	1	99	9	1	0	0	0	5	0	0	0	14	2
16:30:00	169	5	1974	97	28	0	7	0	103	4	1	0	0	0	5	0	0	0	14	0
16:45:00	185	16	2093	119	35	7	7	0	108	5	1	0	0	0	6	1	0	0	14	0
17:00:00	193	8	2204	111	38	3	7	0	115	7	1	0	0	0	7	1	0	0	14	0
17:15:00	202	9	2314	110	41	3	8	1	122	7	1	0	0	0	7	0	0	0	18	4
17:30:00	212	10	2418	104	47	6	8	0	126	4	1	0	0	0	9	2	0	0	18	0
17:45:00	220	8	2510	92	50	3	9	1	128	2	1	0	0	0	9	0	0	0	18	0
18:00:00	226	6	2592	82	51	1	9	0	130	2	1	0	0	0	9	0	0	0	18	0
18:15:00	226	0	2596	4	51	0	9	0	130	0	1	0	0	0	9	0	0	0	18	0
18:15:15	226	0	2596	0	51	0	9	0	130	0	1	0	0	0	9	0	0	0	18	0

# Accu-Traffic Inc

Count Date: 8-Oct-13 Site #: 1308600102

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians		
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross		
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	
7:00:00	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	7	7	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	10	5	11	4	10	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	14	4	24	13	13	3	2	1	1	1	0	0	0	0	0	0	0	0	0	3	3
8:00:00	23	9	45	21	17	4	3	1	1	0	1	1	0	0	0	0	0	0	0	3	0
8:15:00	27	4	62	17	20	3	3	0	1	0	2	1	0	0	0	0	0	0	0	3	0
8:30:00	31	4	70	8	26	6	5	2	3	2	4	2	0	0	1	1	0	0	0	5	2
8:45:00	40	9	84	14	28	2	5	0	4	1	4	0	0	0	1	0	0	0	0	6	1
9:00:00	51	11	108	24	36	8	8	3	4	0	4	0	0	0	1	0	0	0	0	6	0
9:15:00	51	0	109	1	37	1	8	0	4	0	4	0	0	0	1	0	0	0	0	6	0
11:00:00	53	2	111	2	37	0	8	0	4	0	4	0	0	0	1	0	0	0	0	6	0
11:15:00	59	6	121	10	41	4	10	2	4	0	5	1	0	0	1	0	0	0	0	8	2
11:30:00	70	11	136	15	45	4	10	0	4	0	8	3	0	0	2	1	0	0	0	9	1
11:45:00	77	7	151	15	53	8	11	1	5	1	9	1	0	0	3	1	0	0	0	9	0
12:00:00	84	7	166	15	62	9	11	0	5	0	9	0	0	0	3	0	0	0	0	10	1
12:15:00	95	11	186	20	73	11	11	0	5	0	9	0	0	0	3	0	0	0	0	13	3
12:30:00	102	7	201	15	90	17	13	2	5	0	9	0	0	0	4	1	0	0	0	14	1
12:45:00	112	10	216	15	102	12	14	1	5	0	9	0	0	0	4	0	0	0	0	14	0
13:00:00	119	7	232	16	110	8	15	1	5	0	9	0	0	0	4	0	0	0	0	14	0
13:15:00	133	14	247	15	120	10	16	1	5	0	9	0	0	0	4	0	0	0	0	14	0
13:30:00	144	11	264	17	133	13	17	1	5	0	9	0	0	0	4	0	0	0	0	15	1
13:45:00	149	5	283	19	143	10	19	2	5	0	9	0	0	0	4	0	0	0	0	16	1
14:00:00	158	9	301	18	145	2	20	1	5	0	9	0	0	0	5	1	0	0	0	18	2
14:15:00	159	1	303	2	146	1	20	0	5	0	9	0	0	0	5	0	0	0	0	18	0
15:00:00	162	3	306	3	146	0	20	0	6	1	9	0	0	0	5	0	0	0	0	18	0
15:15:00	182	20	325	19	156	10	21	1	6	0	9	0	0	0	6	1	0	0	0	18	0
15:30:00	202	20	366	41	170	14	23	2	6	0	9	0	0	0	7	1	1	1	1	18	0
15:45:00	217	15	417	51	186	16	26	3	6	0	9	0	0	0	8	1	1	0	0	19	1
16:00:00	245	28	471	54	201	15	27	1	6	0	9	0	0	0	8	0	1	0	0	20	1
16:15:00	275	30	524	53	222	21	30	3	6	0	10	1	0	0	8	0	2	1	1	20	0
16:30:00	312	37	584	60	241	19	32	2	9	3	10	0	0	0	10	2	2	0	0	20	0
16:45:00	337	25	636	52	265	24	33	1	9	0	11	1	0	0	10	0	2	0	0	23	3
17:00:00	359	22	685	49	278	13	35	2	9	0	12	1	0	0	11	1	2	0	0	23	0
17:15:00	389	30	736	51	286	8	36	1	9	0	12	0	0	0	11	0	2	0	0	23	0
17:30:00	409	20	768	32	296	10	38	2	9	0	12	0	0	0	12	1	2	0	0	23	0
17:45:00	420	11	807	39	302	6	38	0	9	0	12	0	0	0	13	1	2	0	0	23	0
18:00:00	432	12	830	23	305	3	39	1	9	0	12	0	0	0	13	0	2	0	0	23	0
18:15:00	432	0	830	0	305	0	39	0	9	0	12	0	0	0	13	0	2	0	0	23	0
18:15:15	432	0	830	0	305	0	39	0	9	0	12	0	0	0	13	0	2	0	0	23	0

# Accu-Traffic Inc

Count Date: 8-Oct-13 Site #: 1308600102

Interval Time	Passenger Cars - West Approach				Trucks - West Approach				Cyclists - West Approach				Pedestrians							
	Left		Thru		Right		Left		Thru		Right		West Cross							
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr						
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15:00	0	0	16	16	7	7	0	0	4	4	1	1	0	0	0	0	0	0	1	1
7:30:00	0	0	45	29	20	13	0	0	5	1	1	0	0	0	0	0	0	0	1	0
7:45:00	0	0	89	44	34	14	0	0	7	2	2	1	0	0	1	1	0	0	3	2
8:00:00	1	1	129	40	52	18	0	0	12	5	2	0	0	0	2	1	0	0	4	1
8:15:00	1	0	170	41	65	13	0	0	17	5	4	2	0	0	2	0	0	0	8	4
8:30:00	1	0	216	46	82	17	0	0	19	2	4	0	0	0	2	0	0	0	14	6
8:45:00	2	1	265	49	91	9	0	0	24	5	6	2	0	0	2	0	0	0	29	15
9:00:00	2	0	311	46	100	9	0	0	26	2	6	0	0	0	2	0	0	0	30	1
9:15:00	2	0	311	0	100	0	0	0	26	0	6	0	0	0	2	0	0	0	33	3
11:00:00	2	0	313	2	101	1	0	0	26	0	6	0	0	0	2	0	0	0	33	0
11:15:00	2	0	374	61	113	12	0	0	32	6	7	1	0	0	2	0	0	0	34	1
11:30:00	3	1	451	77	128	15	0	0	32	0	7	0	0	0	3	1	0	0	35	1
11:45:00	4	1	522	71	136	8	0	0	36	4	7	0	1	1	3	0	1	1	35	0
12:00:00	5	1	576	54	155	19	0	0	39	3	8	1	1	0	3	0	1	0	38	3
12:15:00	5	0	643	67	161	6	0	0	44	5	9	1	1	0	3	0	1	0	39	1
12:30:00	6	1	713	70	172	11	0	0	46	2	11	2	1	0	4	1	1	0	45	6
12:45:00	7	1	783	70	183	11	0	0	50	4	12	1	1	0	5	1	2	1	48	3
13:00:00	7	0	853	70	189	6	0	0	54	4	14	2	1	0	5	0	2	0	50	2
13:15:00	7	0	908	55	197	8	0	0	59	5	14	0	1	0	5	0	2	0	52	2
13:30:00	8	1	950	42	212	15	0	0	63	4	15	1	1	0	5	0	2	0	53	1
13:45:00	9	1	998	48	223	11	0	0	68	5	18	3	1	0	5	0	2	0	56	3
14:00:00	11	2	1064	66	237	14	0	0	71	3	20	2	1	0	5	0	2	0	56	0
14:15:00	11	0	1071	7	238	1	0	0	71	0	20	0	1	0	5	0	2	0	56	0
15:00:00	11	0	1073	2	238	0	0	0	71	0	20	0	1	0	5	0	2	0	56	0
15:15:00	11	0	1148	75	253	15	0	0	74	3	21	1	1	0	7	2	3	1	65	9
15:30:00	11	0	1216	68	270	17	0	0	76	2	21	0	2	1	7	0	3	0	67	2
15:45:00	14	3	1274	58	285	15	0	0	79	3	22	1	2	0	8	1	3	0	72	5
16:00:00	16	2	1342	68	295	10	0	0	82	3	22	0	2	0	8	0	3	0	77	5
16:15:00	21	5	1408	66	308	13	0	0	83	1	23	1	2	0	8	0	3	0	78	1
16:30:00	23	2	1479	71	321	13	0	0	85	2	24	1	2	0	10	2	3	0	84	6
16:45:00	29	6	1553	74	329	8	0	0	87	2	28	4	2	0	11	1	3	0	86	2
17:00:00	36	7	1635	82	343	14	0	0	89	2	28	0	2	0	11	0	3	0	91	5
17:15:00	42	6	1730	95	359	16	0	0	94	5	28	0	2	0	11	0	3	0	93	2
17:30:00	46	4	1834	104	372	13	0	0	95	1	29	1	2	0	11	0	3	0	96	3
17:45:00	47	1	1928	94	390	18	0	0	98	3	29	0	2	0	11	0	3	0	98	2
18:00:00	47	0	2004	76	408	18	0	0	101	3	29	0	2	0	12	1	3	0	100	2
18:15:00	47	0	2007	3	408	0	0	0	101	0	29	0	2	0	12	0	3	0	100	0
18:15:15	47	0	2007	0	408	0	0	0	101	0	29	0	2	0	12	0	3	0	100	0

## Seema Nagaraj

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**From:** Adam Snow <Adam.Snow@gotransit.com>  
**Sent:** July-16-14 2:05 PM  
**To:** Seema Nagaraj  
**Subject:** RE: Rail data request (VCL File: 114-220)

Hello Seema – Further to your July 3, 2014 request (attached below) the preliminary midterm (2024 +/-) weekday commuter train volume forecast for the GO Transit Barrie principal main line at this location is in the order of 16 trains (12 day, 4 night). Trains will be comprised of a single locomotive and up to 12 passenger cars.

I note that this information is subject to change and may be influenced by service planning priorities, funding availability and passenger demand.

The maximum passenger train speed in this area is 48 kph (30 mph).

There are no road crossings in the immediate area. Train bells will be utilized on arrival to and departure from the nearby Allandale GO Station.

Best regards,

Adam

Adam Snow  
Third Party Projects Officer  
GO Transit - Rail Corridor Management Office  
335 Judson Street | Toronto | Ontario | M8Z 1B2  
T: 416-354-7746  
C: 416-528-4864  
F: 416-354-7731  
E-mail: [Adam.Snow@gotransit.com](mailto:Adam.Snow@gotransit.com)  
[www.gotransit.com](http://www.gotransit.com)

---

**From:** Seema Nagaraj [<mailto:seema@valcoustics.com>]  
**Sent:** Thursday, July 03, 2014 4:16 PM  
**To:** Adam Snow  
**Subject:** Rail data request (VCL File: 114-220)

Hi Adam,

We are currently preparing a noise report for a proposed development at 196 Burton Avenue in Barrie, ON.

Please provide GO rail traffic volumes for the Barrie line south of Lakeshore Drive, west of Minets Point Road (see attached image for location).

Specifically I require:

Future Day/Night train volumes  
Number of locomotives per train  
Number of cars per train

Speed

Whistle blowing locations (at grade crossings)

Thank you, and please feel free to contact me should you have any additional questions.

Regards,

Seema Nagaraj, Ph.D., EIT  
Technician



30 Wertheim Court, Unit 25  
Richmond Hill, Ontario  
Canada L4B 1B9  
Tel: 905-764-5223 ext. 243  
Fax: 905-764-6813  
[solutions@valcoustics.com](mailto:solutions@valcoustics.com)

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## Seema Nagaraj

---

**From:** Justin MacDonald <Justin.MacDonald@barrie.ca>  
**Sent:** July-08-14 1:14 PM  
**To:** 'seema@valcoustics.com'  
**Subject:** RE: Road traffic data request (VCL File: 114-220)

Good afternoon Seema,

I have the following ADT/TMC for the requested locations:

- Burton Avenue, between Bayview Drive and Garden Drive – TMC Burton Ave and Bayview Dr. Oct 8, 2013 (cost \$54.06+HST = \$61.09)
- Lakeshore Drive, west of Minets Point Road – ADT count June 13, 2013 (cost \$21.42+HST= \$24.20)
- Ultimate AADT or Projected Traffic Volumes (or current counts, if projections are unavailable)
  - Burton Avenue, between Bayview Drive and Garden Drive – 1% per year growth rate;
  - Lakeshore Drive, west of Minets Point Road – 2.7% per year growth rate.
- Number of Lanes 4
- Planned ROW – 30 metres
- Posted speed – 50kph
- Day/Night split (%) – Calculate from ADT/TMC
- Percent trucks (medium/heavy) – Calculate from ADT/TMC

The total cost to obtain the counts is \$85.29 rounded to nearest tenth would be \$85.30. We accept either cash or cheque as we do not have the means to process via credit card. We do require payment before we can release any data. Please advise if you have any questions regarding the required fees or data provided. Once I have received payment I will provide the counts via email to ensure a timely response.

**Thanks,**

**Justin MacDonald, C.E.T.**

Transportation Technologist  
The City of Barrie  
*Central Ontario's Premier Waterfront Community*

Roads Park and Fleet  
165 Ferndale Drive  
P.O. Box 400, Barrie ON, L4N 9V9  
Tel: 705-739-4220 ext. 5178  
Fax: 705-739-4235

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Tel: 1- 416-910-0171 Fax: 1-888-711-3125

E-mail: [solutions@accu-traffic.ca](mailto:solutions@accu-traffic.ca)URL: <http://www.accu-traffic.ca>

Site Code: 42

Station ID: A-04

Lakeshore Dr

btw Tiffin St and Minet's Point Rd

Latitude: 0' 0.000 Undefined

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/13/13	1	50	10	0	1	0	0	0	0	0	0	0	0	62
01:00	1	29	7	0	0	0	0	0	0	0	0	0	0	37
02:00	0	21	8	0	1	0	0	0	0	0	0	0	0	30
03:00	0	17	8	0	0	0	0	0	0	0	0	0	0	25
04:00	1	27	8	0	1	0	0	0	0	0	0	0	0	37
05:00	1	55	22	0	2	0	0	0	0	0	0	0	0	80
06:00	1	169	69	0	0	4	0	2	0	0	0	0	0	245
07:00	0	339	<b>159</b>	0	<b>9</b>	4	0	2	<b>1</b>	0	0	0	0	514
08:00	<b>3</b>	444	144	<b>1</b>	5	<b>8</b>	0	0	1	0	0	0	0	606
09:00	2	384	145	0	5	6	0	1	0	0	0	0	0	543
10:00	0	418	124	0	7	6	0	0	0	0	0	0	0	555
11:00	2	<b>471</b>	144	0	3	5	0	<b>3</b>	1	0	0	0	0	<b>629</b>
12 PM	2	538	176	0	<b>6</b>	5	0	1	0	0	0	0	0	728
13:00	2	549	157	0	5	7	0	0	0	0	0	0	0	720
14:00	7	625	165	0	6	<b>8</b>	0	5	0	0	0	0	0	816
15:00	8	688	188	0	3	7	<b>1</b>	3	0	0	0	0	0	898
16:00	3	<b>787</b>	<b>199</b>	0	0	3	0	<b>6</b>	0	0	0	0	0	<b>998</b>
17:00	2	769	182	0	2	2	0	1	0	0	<b>1</b>	0	0	959
18:00	3	539	126	0	2	1	0	1	0	0	0	0	0	672
19:00	<b>13</b>	504	128	0	0	0	0	1	0	0	0	0	0	646
20:00	7	558	142	0	2	0	0	2	0	0	0	0	0	711
21:00	5	453	108	0	0	0	0	1	0	0	0	0	0	567
22:00	1	268	45	0	0	0	0	1	0	0	0	0	0	315
23:00	0	137	29	0	1	0	0	1	0	0	0	0	0	168
Total	65	8839	2493	1	61	66	1	31	3	0	1	0	0	11561
Percent	0.6%	76.5%	21.6%	0.0%	0.5%	0.6%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	07:00	08:00	07:00	08:00		11:00	07:00					11:00
Vol.	3	471	159	1	9	8		3	1					629
PM Peak	19:00	16:00	16:00		12:00	14:00	15:00	16:00			17:00			16:00
Vol.	13	787	199		6	8	1	6			1			998
Grand Total	65	8839	2493	1	61	66	1	31	3	0	1	0	0	11561
Percent	0.6%	76.5%	21.6%	0.0%	0.5%	0.6%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	

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URL: <http://www.accu-traffic.ca>

Site Code: 42  
 Station ID: A-04  
 Lakeshore Dr  
 btw Tiffin St and Minet's Point Rd  
 Latitude: 0' 0.000 Undefined

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/13/13	1	39	5	0	0	0	0	0	0	0	0	0	0	45
01:00	0	34	1	0	0	0	0	0	0	0	0	0	0	35
02:00	0	13	0	0	0	0	0	0	0	0	0	0	0	13
03:00	0	11	2	0	0	0	0	0	0	0	0	0	0	13
04:00	0	24	4	0	0	0	0	0	0	0	0	0	0	28
05:00	0	89	25	0	0	0	0	0	0	0	0	0	0	114
06:00	3	237	54	0	1	2	0	0	0	0	0	0	0	297
07:00	4	607	124	0	2	4	0	5	0	0	0	0	0	746
08:00	4	<b>842</b>	<b>135</b>	0	3	3	0	4	<b>1</b>	<b>1</b>	0	0	0	<b>993</b>
09:00	1	579	92	0	<b>6</b>	3	0	<b>8</b>	0	0	0	0	0	689
10:00	<b>5</b>	458	97	<b>1</b>	3	4	0	4	1	0	0	0	0	573
11:00	0	488	87	1	2	2	0	5	0	0	0	0	0	585
12 PM	1	501	112	<b>1</b>	1	6	0	0	1	0	0	0	0	623
13:00	2	552	100	0	1	2	0	5	0	0	0	0	0	662
14:00	4	540	106	0	<b>3</b>	5	0	<b>8</b>	0	0	0	0	0	666
15:00	3	612	112	1	2	<b>7</b>	0	6	0	0	0	0	0	743
16:00	2	631	<b>127</b>	0	0	3	0	5	<b>2</b>	0	0	0	0	770
17:00	4	<b>670</b>	120	0	2	1	<b>1</b>	3	0	0	0	0	0	<b>801</b>
18:00	2	665	95	0	0	0	0	2	0	0	0	0	0	764
19:00	<b>7</b>	479	57	0	2	0	0	0	0	0	0	0	0	545
20:00	6	436	68	0	1	0	0	0	0	0	0	0	0	511
21:00	2	260	33	0	1	0	0	0	0	0	0	0	0	296
22:00	2	177	19	0	0	0	0	0	0	0	0	0	0	198
23:00	0	104	5	0	0	0	0	0	0	0	0	0	0	109
Total	53	9048	1580	4	30	42	1	55	5	1	0	0	0	10819
Percent	0.5%	83.6%	14.6%	0.0%	0.3%	0.4%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	08:00	08:00	10:00	09:00	07:00		09:00	08:00	08:00				08:00
Vol.	5	842	135	1	6	4		8	1	1				993
PM Peak	19:00	17:00	16:00	12:00	14:00	15:00	17:00	14:00	16:00					17:00
Vol.	7	670	127	1	3	7	1	8	2					801
Grand Total	53	9048	1580	4	30	42	1	55	5	1	0	0	0	10819
Percent	0.5%	83.6%	14.6%	0.0%	0.3%	0.4%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	

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URL: <http://www.accu-traffic.ca>

Site Code: 42  
 Station ID: A-04  
 Lakeshore Dr  
 btw Tiffin St and Minet's Point Rd  
 Latitude: 0' 0.000 Undefined

EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/13/13	2	89	15	0	1	0	0	0	0	0	0	0	0	107
01:00	1	63	8	0	0	0	0	0	0	0	0	0	0	72
02:00	0	34	8	0	1	0	0	0	0	0	0	0	0	43
03:00	0	28	10	0	0	0	0	0	0	0	0	0	0	38
04:00	1	51	12	0	1	0	0	0	0	0	0	0	0	65
05:00	1	144	47	0	2	0	0	0	0	0	0	0	0	194
06:00	4	406	123	0	1	6	0	2	0	0	0	0	0	542
07:00	4	946	<b>283</b>	0	<b>11</b>	8	0	7	1	0	0	0	0	1260
08:00	<b>7</b>	<b>1286</b>	279	<b>1</b>	8	<b>11</b>	0	4	<b>2</b>	<b>1</b>	0	0	0	<b>1599</b>
09:00	3	963	237	0	11	9	0	<b>9</b>	0	0	0	0	0	1232
10:00	5	876	221	1	10	10	0	4	1	0	0	0	0	1128
11:00	2	959	231	1	5	7	0	8	1	0	0	0	0	1214
12 PM	3	1039	288	<b>1</b>	7	11	0	1	1	0	0	0	0	1351
13:00	4	1101	257	0	6	9	0	5	0	0	0	0	0	1382
14:00	11	1165	271	0	<b>9</b>	13	0	<b>13</b>	0	0	0	0	0	1482
15:00	11	1300	300	1	5	<b>14</b>	<b>1</b>	9	0	0	0	0	0	1641
16:00	5	1418	<b>326</b>	0	0	6	0	11	<b>2</b>	0	0	0	0	<b>1768</b>
17:00	6	<b>1439</b>	302	0	4	3	1	4	0	0	<b>1</b>	0	0	1760
18:00	5	1204	221	0	2	1	0	3	0	0	0	0	0	1436
19:00	<b>20</b>	983	185	0	2	0	0	1	0	0	0	0	0	1191
20:00	13	994	210	0	3	0	0	2	0	0	0	0	0	1222
21:00	7	713	141	0	1	0	0	1	0	0	0	0	0	863
22:00	3	445	64	0	0	0	0	1	0	0	0	0	0	513
23:00	0	241	34	0	1	0	0	1	0	0	0	0	0	277
Total	118	17887	4073	5	91	108	2	86	8	1	1	0	0	22380
Percent	0.5%	79.9%	18.2%	0.0%	0.4%	0.5%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	07:00	08:00	07:00	08:00		09:00	08:00	08:00				08:00
Vol.	7	1286	283	1	11	11		9	2	1				1599
PM Peak	19:00	17:00	16:00	12:00	14:00	15:00	15:00	14:00	16:00		17:00			16:00
Vol.	20	1439	326	1	9	14	1	13	2		1			1768
Grand Total	118	17887	4073	5	91	108	2	86	8	1	1	0	0	22380
Percent	0.5%	79.9%	18.2%	0.0%	0.4%	0.5%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	

# **APPENDIX B**

## **Sample Calculation**

B-1

Filename: b11\_nf.te                      Time Period: Day/Night 16/8 hours  
 Description: Block 11 - North Face

Rail data, segment # 1: GO Barrie (day/night)

Train Type	! Trains !	! Speed ! (km/h)	!# loc !/Train!	!# Cars !/Train!	! Eng ! type	!Cont !weld
1. Commuter	! 12.0/4.0	! 48.0	! 1.0	! 12.0	!Diesel!	! Yes

Data for Segment # 1: GO Barrie (day/night)

Angle1 Angle2 : -70.00 deg -35.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 1 / 1  
 House density : 80 %  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 191.00 / 191.00 m  
 Receiver height : 4.50 / 4.50 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 No Whistle  
 Reference angle : 0.00

Rail data, segment # 2: GO Barrie (day/night)

Train Type	! Trains !	! Speed ! (km/h)	!# loc !/Train!	!# Cars !/Train!	! Eng ! type	!Cont !weld
1. Commuter	! 12.0/4.0	! 48.0	! 1.0	! 12.0	!Diesel!	! Yes

Data for Segment # 2: GO Barrie (day/night)

Angle1 Angle2 : -35.00 deg 60.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 191.00 / 191.00 m  
 Receiver height : 4.50 / 4.50 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 No Whistle  
 Reference angle : 0.00

Results segment # 1: GO Barrie (day)

LOCOMOTIVE (0.00 + 31.06 + 0.00) = 31.06 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-35	0.50	61.25	-16.52	-8.24	0.00	-5.42	0.00	31.06

WHEEL (0.00 + 21.61 + 0.00) = 21.61 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-35	0.60	53.19	-17.68	-8.48	0.00	-5.42	0.00	21.61

Segment Leq : 31.53 dBA

Results segment # 2: GO Barrie (day)

LOCOMOTIVE (0.00 + 41.64 + 0.00) = 41.64 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	60	0.50	61.25	-16.52	-3.09	0.00	0.00	0.00	41.64

WHEEL (0.00 + 32.35 + 0.00) = 32.35 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	60	0.60	53.19	-17.68	-3.16	0.00	0.00	0.00	32.35

Segment Leq : 42.12 dBA

Total Leq All Segments: 42.48 dBA

Results segment # 1: GO Barrie (night)

LOCOMOTIVE (0.00 + 29.30 + 0.00) = 29.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-35	0.50	59.49	-16.52	-8.24	0.00	-5.42	0.00	29.30

WHEEL (0.00 + 19.85 + 0.00) = 19.85 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-35	0.60	51.43	-17.68	-8.48	0.00	-5.42	0.00	19.85

Segment Leq : 29.77 dBA

Results segment # 2: GO Barrie (night)

LOCOMOTIVE (0.00 + 39.88 + 0.00) = 39.88 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	60	0.50	59.49	-16.52	-3.09	0.00	0.00	0.00	39.88

WHEEL (0.00 + 30.59 + 0.00) = 30.59 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	60	0.60	51.43	-17.68	-3.16	0.00	0.00	0.00	30.59

Segment Leq : 40.36 dBA

Total Leq All Segments: 40.72 dBA

Road data, segment # 1: Burton Ave (day/night)

Car traffic volume : 10008/990 veh/TimePeriod \*  
Medium truck volume : 316/31 veh/TimePeriod \*

**VALCOUSTICS**

Canada Ltd.

Consulting Acoustical Engineers

Heavy truck volume : 211/21 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): 10376  
Percentage of Annual Growth : 1.00  
Number of Years of Growth : 11.00  
Medium Truck % of Total Volume : 3.00  
Heavy Truck % of Total Volume : 2.00  
Day (16 hrs) % of Total Volume : 91.00

Data for Segment # 1: Burton Ave (day/night)

-----  
Angle1 Angle2 : -90.00 deg 75.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 47.00 / 47.00 m  
Receiver height : 4.50 / 4.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Road data, segment # 2: Lakeshore Dr (day/night)

-----  
Car traffic volume : 22442/1432 veh/TimePeriod \*  
Medium truck volume : 3366/215 veh/TimePeriod \*  
Heavy truck volume : 2244/143 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): 22262  
Percentage of Annual Growth : 2.70  
Number of Years of Growth : 11.00  
Medium Truck % of Total Volume : 12.00  
Heavy Truck % of Total Volume : 8.00  
Day (16 hrs) % of Total Volume : 94.00

Data for Segment # 2: Lakeshore Dr (day/night)

-----  
Angle1 Angle2 : -70.00 deg -35.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 1 / 1  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 227.00 / 227.00 m  
Receiver height : 4.50 / 4.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Road data, segment # 3: Lakeshore Dr (day/night)

-----  
Car traffic volume : 22442/1432 veh/TimePeriod \*  
Medium truck volume : 3366/215 veh/TimePeriod \*  
Heavy truck volume : 2244/143 veh/TimePeriod \*  
Posted speed limit : 50 km/h

  
**VALCOUSTICS**

Canada Ltd.

Consulting Acoustical Engineers

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): 22262  
 Percentage of Annual Growth : 2.70  
 Number of Years of Growth : 11.00  
 Medium Truck % of Total Volume : 12.00  
 Heavy Truck % of Total Volume : 8.00  
 Day (16 hrs) % of Total Volume : 94.00

Data for Segment # 3: Lakeshore Dr (day/night)

Angle1 Angle2 : -35.00 deg 60.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 227.00 / 227.00 m  
 Receiver height : 4.50 / 4.50 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Results segment # 1: Burton Ave (day)

Source height = 1.19 m

ROAD (0.00 + 59.17 + 0.00) = 59.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	75	0.00	64.51	0.00	-4.96	-0.38	0.00	0.00	0.00	59.17

Segment Leq : 59.17 dBA

Results segment # 2: Lakeshore Dr (day)

Source height = 1.68 m

ROAD (0.00 + 41.14 + 0.00) = 41.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-35	0.56	73.33	0.00	-18.46	-8.40	0.00	-5.33	0.00	41.14

Segment Leq : 41.14 dBA

Results segment # 3: Lakeshore Dr (day)

Source height = 1.68 m

ROAD (0.00 + 51.73 + 0.00) = 51.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	60	0.56	73.33	0.00	-18.46	-3.14	0.00	0.00	0.00	51.73

Segment Leq : 51.73 dBA

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Total Leq All Segments: 59.95 dBA

Results segment # 1: Burton Ave (night)

Source height = 1.19 m

ROAD (0.00 + 52.14 + 0.00) = 52.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	75	0.00	57.48	0.00	-4.96	-0.38	0.00	0.00	0.00	52.14

Segment Leq : 52.14 dBA

Results segment # 2: Lakeshore Dr (night)

Source height = 1.68 m

ROAD (0.00 + 32.19 + 0.00) = 32.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	-35	0.56	64.39	0.00	-18.46	-8.40	0.00	-5.33	0.00	32.19

Segment Leq : 32.19 dBA

Results segment # 3: Lakeshore Dr (night)

Source height = 1.68 m

ROAD (0.00 + 42.79 + 0.00) = 42.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	60	0.56	64.39	0.00	-18.46	-3.14	0.00	0.00	0.00	42.79

Segment Leq : 42.79 dBA

Total Leq All Segments: 52.66 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.02  
(NIGHT): 52.93

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