



CAPITAL PAVING INC.

Quality Construction by Quality People
P.O. Box 815 Guelph, Ontario N1H 6L8

Received April 9/2010
[Signature]

April 9, 2010

To: Jeremy Vink
Senior Planner
Township of Woolwich
24 Church Street West, Box 158
Elmira ON N3B 2Z6

RE: Capital Paving Inc. – Proposed Montrose Pit
Part lots 71, 74 & 75, Concession GCT
Township of Woolwich, Region of Waterloo
Montrose Pit – Noise Peer Review Response

Dear Mr. Vink,

Please find enclosed with this letter, a response letter to the Township's noise peer review by Capital's consultant Aercoustics Engineering Ltd. for the proposed Montrose Pit.

We trust the responses provided will satisfy the Township's peer review consultant, Valcoustics Canada Ltd.

Should you have any questions, please do not hesitate to call me at (519) 822 – 4511 or email at ntoth@capitalpaving.on.ca

Yours truly,

CAPITAL PAVING INC.

N. Toth

Nick Toth, CET
Land & Acquisition Manager



March 31, 2010

Acoustics
Noise
Vibration

Mr. Nicholas Toth, Land & Acquisition Manager
Capital Paving Inc.
P.O. Box 815 Guelph, Ontario
M1H 6L8

Dear Nick:

RE: Montrose Pit Noise Study – Peer Review

I have reviewed the peer review correspondence of January 18, 2010 from Mr. John Emeljanow, P.Eng. of Valcoustics Canada Ltd. to Mr. Jeremy Vink of the Township of Woolwich. Our responses to the issues raised by Mr. Emeljanow are as follows:

1. We agree that a suitable mechanism should be in place to ensure that the dwelling identified as receptor R2 is not occupied by anyone other than the current property owner. With regards to receptor R1, Aercoustics prepared a March 27, 2009 addendum to our noise study outlining the additional noise control measures that would be required if receptor R1 is considered noise sensitive. The recommended noise controls will ensure that the worst-case noise from the pit will comply with the Class 3 (Rural) sound level limits at receptor R1. The addendum is attached.
3. In order to comply with the Township of Woolwich By-Law No. 19-2002, A *By-Law to Control Noise in the Township of Woolwich*, it is recommended that there be no shipping in the Montrose Pit prior to 07:00. The site plans will be revised to indicate that there will be no operations in the pit outside the time period 19:00-07:00.
4. We agree that construction activities in the pit should be restricted to Monday-Friday 07:00-19:00 and that this requirement should be reflected on the Site Plans.
5. Our haul route noise impact assessment is based on the baseline traffic volumes from Region of Waterloo traffic counts (2007) as provided in the Stantec traffic study for the pit. The turning movement counts for the Regional Road 86 and Regional Road 23 (Katherine Street) are attached. The peak A.M. hour traffic (07:30-08:30) from the count for Katherine Street south of Regional Road 86 was 264 cars, 3 medium trucks and 7 heavy trucks. The total count (8 hours) yielded 1654 cars, 47 medium trucks and 45 heavy trucks. This yields an average hourly traffic for the count period of

207 cars, 6 medium trucks and 6 heavy trucks. The peak hour truck traffic from the site is estimated at 27 one-way trips in the traffic study. It has been conservatively estimated for the purposes of the haul route impact assessment that the site may generate a maximum of 40 one way trips (20 trucks) per hour. The predicted road traffic noise levels for Katherine Street with and without the Montrose Pit truck traffic are summarized in the table below. The traffic noise levels were predicted at a reference distance of 45 m from the road centerline. A Stanson road traffic noise prediction for the baseline average hour with 40 additional heavy trucks is attached.

Traffic Scenario	Road Traffic One Hour L _{EQ} (dBA) @ 45 m road centerline
baseline A.M. peak hour	56
baseline avg. hour	55
baseline A.M. peak hour + 60% trucks ¹ (16)	59
baseline avg. hour + 60% trucks ¹ (16)	59
baseline A.M. peak hour + 100% trucks ¹ (27)	60
baseline avg. hour + 100% trucks ¹ (27)	60
baseline A.M. peak hour + 60% trucks ² (24)	60
baseline avg. hour + 60% trucks ² (24)	60
baseline A.M. peak hour + 100% trucks ² (40)	61
baseline avg. hour + 100% trucks ² (40)	61

1. Stantec peak hour estimate. 2. Aercoustics peak hour estimate.

It can be seen as indicated in the noise study that there will be a 3-5 dBA increase in Katherine Street road traffic sound levels if the site generates 27 one-way trucks trips and a 4-6 dBA increase if the site were to generate 40 one-way truck trips. This analysis does not account for an increase in baseline traffic volumes as would be expected since the 2007 traffic count.

6. The front end loader reference sound emissions used in the study are indeed relatively low. These were based on our measurements of a 2007 Komatsu WA500 with Tier 3 emission controls. The measurements were conducted at the Capital Paving Wellington Pit #4 on February 7, 2008. A 5 minute dig/load cycle was measured. Capital Paving has indicated their intention to use this type of loader at the Montrose Pit.
7. The site plans are consistent with the acoustical recommendations regarding phasing of berm construction as outlined in Appendix A of the noise study (Note 4). The acoustical berm phasing requirements are specified in Phase A Note 6 and Phase B Note 2 on *Operational Plan Phase A, B and C* (Page 3 of 6).
8. The internal haul route within the license boundary will be constructed on the final pit floor at the outset of operations in the pit. The internal haul road will be excavated to the width required to accommodate the shipping trucks. The haul route (access road) outside the license boundary will be constructed at grade.

9. The local barrier shielding the processing equipment need not consist of berms. Alternative acoustical barriers (e.g. fences, stacked containers etc.) will be acceptable provided they are continuous, free of gaps and holes, and have a minimum surface density of 20 kg/m^2 (4 lb/ft^2). As we have indicated in Appendix A Note 8, alternative barrier configurations providing equivalent attenuation will be acceptable.
10. The penalty/adjustments are included to reflect the influence of additional factors such as stockpile shielding (-1 dBA) in the case of the shipping loader and time adjustments to deal with the time trucks spend on each haul route segment. This latter adjustment accounts for the number of truck passbys. As indicated above, we have used shipping traffic of 20 trucks (40 passbys) per hour as a conservative design case for the daytime hour.

The 7 segments used to assess the noise from shipping truck traffic on the access lane are indicated on the attached figure. Each segment is 50 metres in length. The trucks on each segment were treated as a point source located in the center of the segment. The adjustments reflect the time each truck will spend traversing each segment multiplied by the number of truck passbys per hour.

We normally use 2.5 m as the source height for trucks. A truck source height of 3.5 m was used conservatively for all but the first segment to ensure that the topographical shielding of the last 6 segments would not be overestimated.

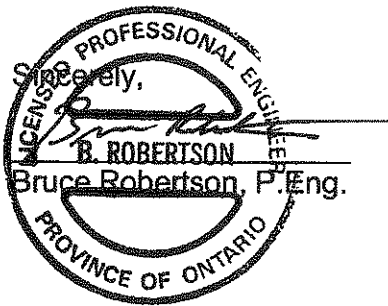
11. There is an error with the field of vision drawing shown on page 5 of 6 of the site plans. The site plans will be revised accordingly. The location of the central processing and stockpile area as shown on the operational plans is consistent with the 500 m setback from receptor R7 used in our analysis.
12. A 1.5 m receptor height has been used for the daytime period for all receptors. This is our standard practice as Mr. Emeljanow can verify. The MOE is reviewing their policy in this regard but to this date, we are not aware of any formal clarification of their position on this issue.
13. The school to the north of receptor R13 was not identified in the noise study. A conservative prediction (attached) indicates that the worst-case sound levels from the pit will be 48 dBA at the school. This is in compliance with the MOE daytime exclusion sound level limit of 50 dBA. Baseline average hour road traffic sound levels at the front-façade of the school (free-field) are in the order of 55 dBA.
14. A requirement for limited noise monitoring is not unreasonable. However, an annual acoustical audit should suffice in this regard. It is relatively rare in my experience that a biannual acoustic audit is required. It may not be feasible to measure all extraction and processing equipment to be used at the site prior to operation of that equipment at the site. Therefore, it would be reasonable to measure the equipment

once it begins operating at the site provided the measurements are completed in a timely fashion. A requirement that the initial annual acoustic audit be conducted within one month of commencement of extraction and processing operations in the pit would be appropriate. Each annual acoustic audit should include measurement of the reference sound levels of the extraction and processing equipment and also measurements at the worst-case receptor(s) for the current stage of the operation. The acoustical audit should also include a site review to ensure that all of the recommended noise controls have been incorporated.

There should be no requirement that all construction equipment operating at the site be measured. Construction is a short term activity and construction equipment in good operating order should have no difficulty complying with the equipment sound emission limits specified in NPC-115.

15. We agree that back up beepers are often a source of off-site noise complaints and we also encourage Capital Paving to investigate alternative technologies. Based on our experience, we would expect the relatively new "broadband" alarms to be superior to the traditional beeper alarms.

Should you have any questions, please give me a call.



c.c. Glenn Harrington, Harrington McAvan Ltd.
Mark Dorfman, R.P.P.

Established 1971

Marc Bracken
M.A.Sc., P.Eng.

Vince Gambino
B.A.Sc., P.Eng.

John O'Keefe
M.Sc., P.Eng., MIOA

Bob Rimrott
M.A.Sc., P.Eng.

50 Ronson Drive
Suite 165
Toronto, Ontario
Canada M9W 1B3
Phone (416) 249-3361
Fax (416) 249-3613

website: www.aercoustics.com

March 27, 2009

Mr. Nicholas Toth, Land & Acquisition Manager
Capital Paving Inc.
P.O. Box 815
Guelph, Ontario, M1H 6L8

Dear Nick:

RE: Montrose Pit – Noise Control Recommendations (Receptor R1)

The following notes outline the additional noise control recommendations that will be required if the adjacent receptor R1 to the south of the pit is considered noise-sensitive.

1. Berming along the south perimeter is required as indicated on the attached figure. The new berm segment west of Letson Drive shall be constructed prior to processing on site. Construction of the berm east of Letson Drive shall be phased to ensure that the Area 6-8 extraction operations are shielded when located within 250 metres of residence R1.
2. The crushing/screening equipment, the wash plant, and the associated genset(s) will require additional mitigation at residence R1. This mitigation should consist of a combination of local barriers and source treatments that meet the requirements outlined in the following table. The acoustical barriers required are specified in terms of the minimum barrier height and maximum distance from the acoustic center of the equipment to the barrier when measured in the direction of the residence. Alternative barriers configurations that provide equivalent barrier attenuation will be acceptable. The source noise reductions are specified relative to the allowable equipment reference sound levels specified in the noise study.

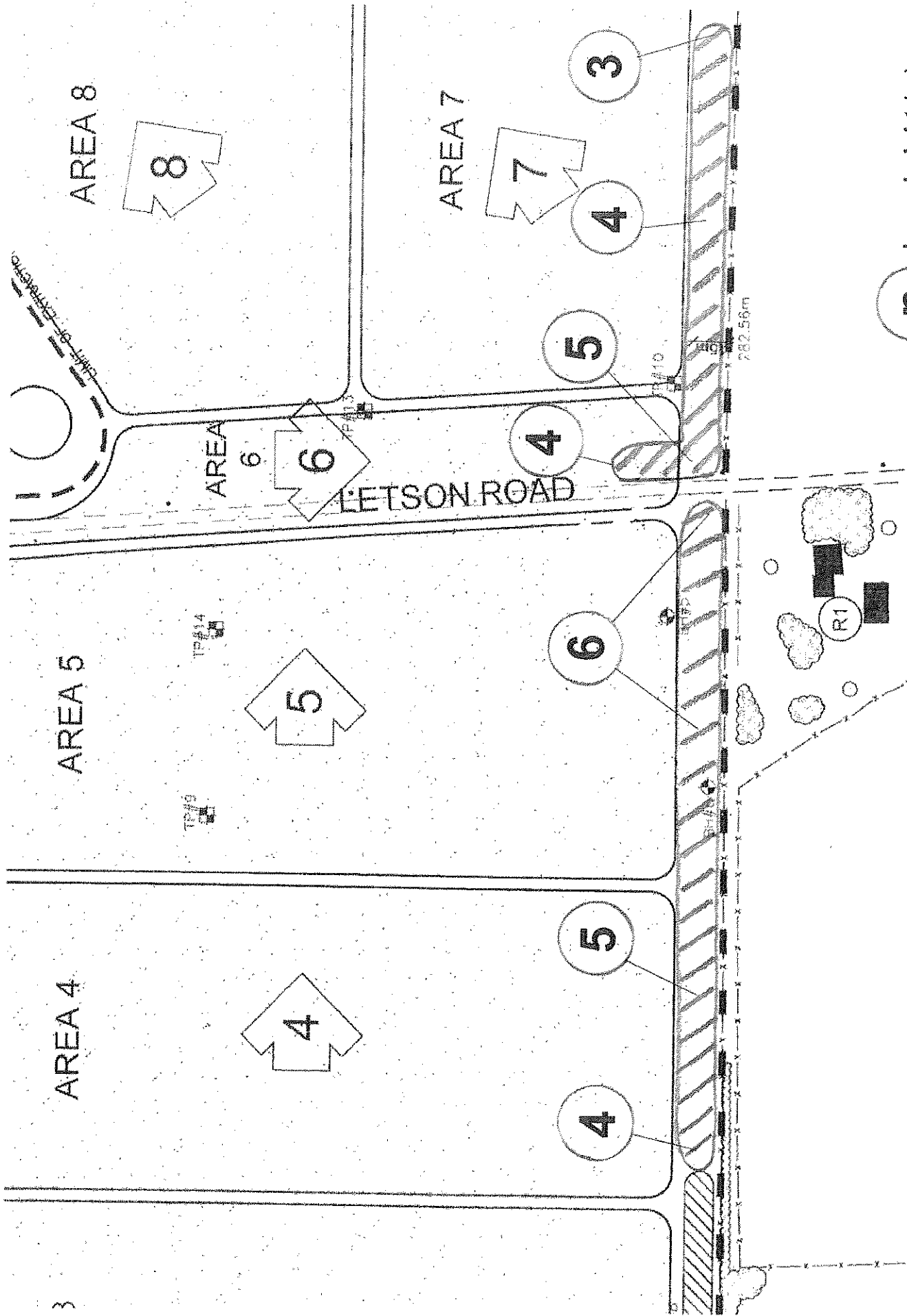
Crushing/screening plant(s)		Wash plant	
Barrier w/o source reduction	Barrier w/ 3 dBA source reduction	Barrier w/o source reduction	Barrier w/ 7 dBA source reduction
7.5 m @ 20 m	6 m @ 20 m	7.5 m @ 20 m	-

Should you have any questions, please give me a call.

Sincerely,


Bruce Robertson, P.Eng.

c.c. Glenn Harrington, Harrington & Hoyle Ltd.



n berm height (m)

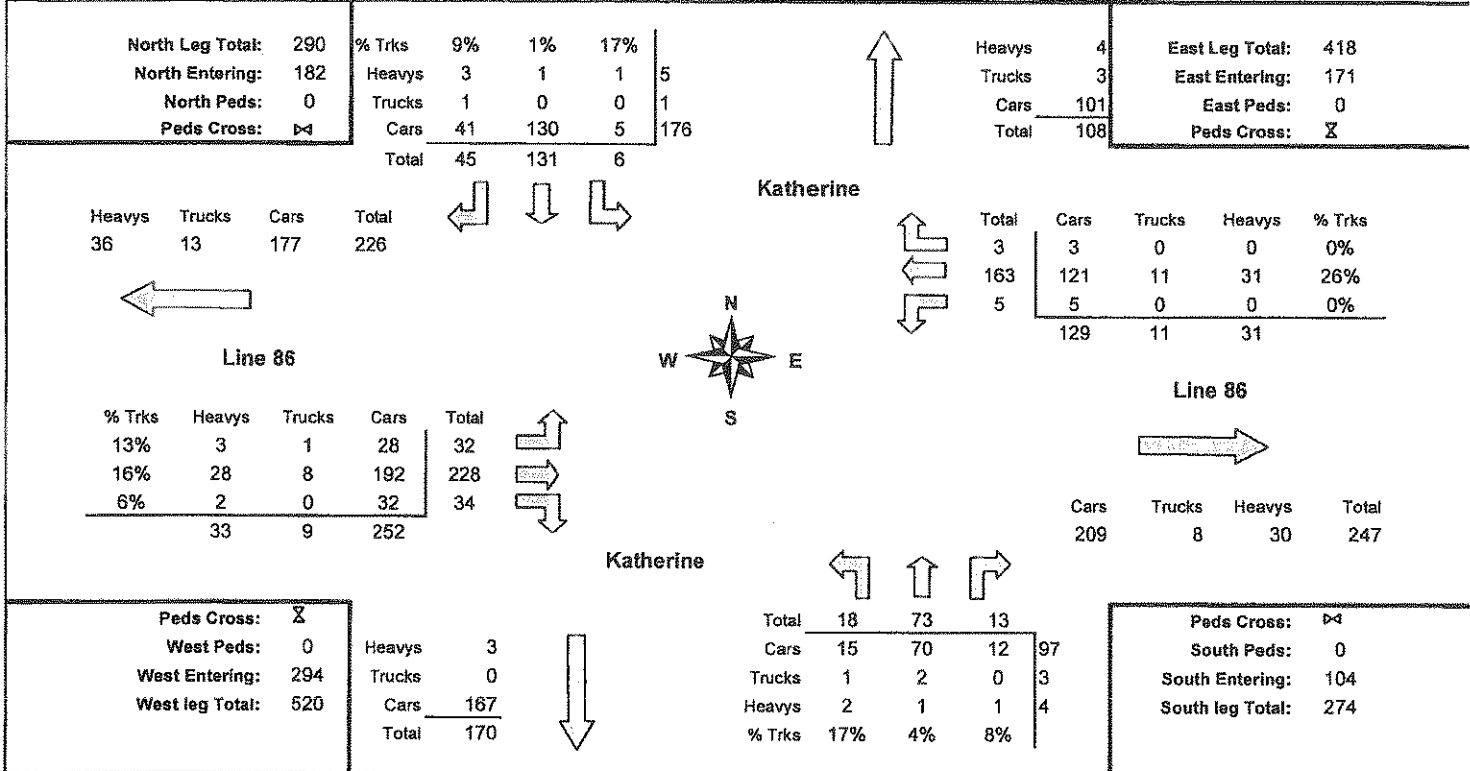
Acoustical Berming - Receptor R1

Scale 1:2000 (approx.)

REGIONAL MUNICIPALITY OF WATERLOO TURNING MOVEMENT COUNT



<h2>Morning Peak Diagram</h2>	Count Period From: 7:30 AM To: 10:30 AM	Peak Hour From: 7:30 AM To: 8:30 AM
Municipality: Woolwich Intersection: Katherine St @ Line 86 Control: Signalized Major Road: Line 86	Weather conditions: Overcast Person(s) who counted: Lisa	GeolD: 12327 Count Date: Tuesday, 03-Apr-07



Comments

To determine the total vehicles entering or exiting the intersection during the morning peak hour, add all leg totals entering or all leg totals exiting.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Therefore, total vehicles entering intersection = 751

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = 294

REGIONAL MUNICIPALITY OF WATERLOO TURNING MOVEMENT COUNT



Mid-day Peak Diagram

Count Period
From: 12:00 PM
To: 2:00 PM

Peak Hour
From: 12:30 PM
To: 1:30 PM

Municipality: Woolwich
Intersection: Katherine St @ Line 86
Control: Signalized
Major Road: Line 86

Weather conditions:
Overcast

Person(s) who counted:
Lisa

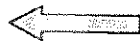
GeoID: 12327
Count Date: Tuesday, 03-Apr-07

North Leg Total: 159	% Trks	33%	4%	67%	
North Entering: 69	Heavys	1	0	2	3
North Peds: 0	Trucks	5	2	0	7
Peds Cross: 0	Cars	12	46	1	59
	Total	18	48	3	

Heavys	0
Trucks	10
Cars	80
Total	90

East Leg Total: 227
East Entering: 118
East Peds: 0
Peds Cross: X

Heavys	29
Trucks	13
Cars	94
Total	136

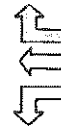


Line 86

% Trks	7%	Heavys	0	Trucks	2	Cars	25	Total	27
	38%		29		10		65		104
	19%		3		0		13		16
			32		12		103		



Katherine



Total	3	Cars	2	Trucks	1	Heavys	0	% Trks	33%
	107		73		7		27		32%
	8		7		1		0		13%
			82		9		27		

Line 86



Cars	67
Trucks	11
Heavys	31
Total	109

Katherine



Total	11	60	2		
Cars	9	53	1		63
Trucks	1	7	1		9
Heavys	1	0	0		1
% Trks	18%	12%	50%		

Peds Cross: X
West Peds: 0
West Entering: 147
West leg Total: 283

Heavys	3
Trucks	3
Cars	66
Total	72



Peds Cross: 0
South Peds: 0
South Entering: 73
South leg Total: 145

Comments

To determine the total vehicles entering or exiting the intersection during the mid-day peak hour, add all leg totals entering or all leg totals exiting.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Therefore, total vehicles entering intersection = 407

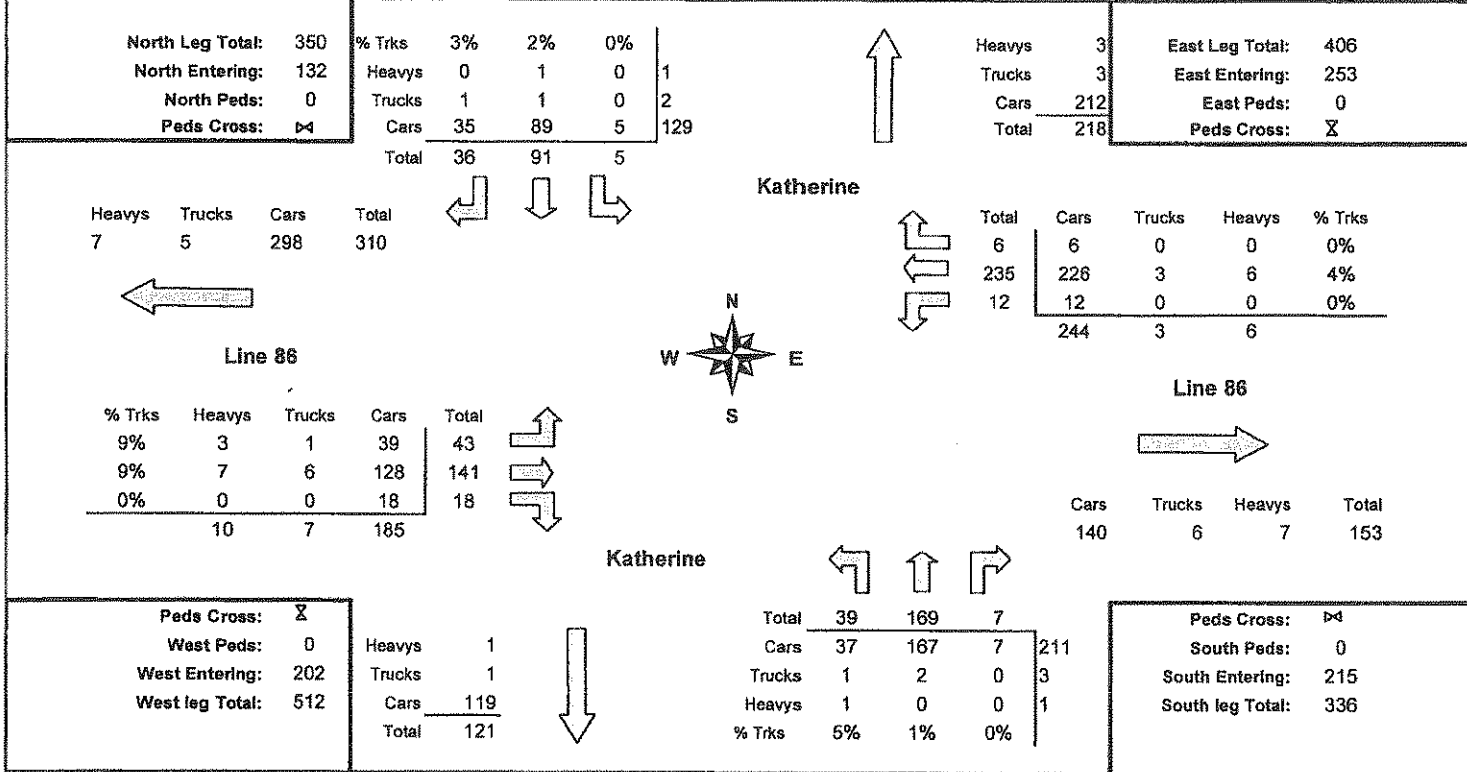
Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = 147

REGIONAL MUNICIPALITY OF WATERLOO TURNING MOVEMENT COUNT



<h2 style="margin: 0;">Afternoon Peak Diagram</h2>	Count Period From: 3:00 PM To: 6:00 PM	Peak Hour From: 5:00 PM To: 6:00 PM
Municipality: Woolwich Intersection: Katherine St @ Line 86 Control: Signalized Major Road: Line 86	Weather conditions: Overcast Person(s) who counted: Lisa	Geoid: 12327 Count Date: Tuesday, 03-Apr-07



Comments

To determine the total vehicles entering or exiting the intersection during the afternoon peak hour, add all leg totals entering or all leg totals exiting.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
 Therefore, total vehicles entering intersection = 802

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
 Therefore, vehicles entering from the west = 202

REGIONAL MUNICIPALITY OF WATERLOO TURNING MOVEMENT COUNT



Total Count Diagram

Municipality: Woolwich
Intersection: Katherine St @ Line 86
Control: Signalized
Major Road: Line 86

Weather conditions:
Overcast

Person(s) who counted:
Lisa

GeoID: 12327
Count Date: Tuesday, 03-Apr-07

North Leg Total: 1,788
North Entering: 910
North Peds: 0
Peds Cross: 0
Bicycles Entering: 5

	14%	3%	12%	
% Trks	14%	3%	12%	
Heavys	16	9	3	28
Trucks	16	12	1	29
Cars	193	631	29	853
Total	225	652	33	

Heavys 24
 Trucks 32
 Cars 822
 Total 878

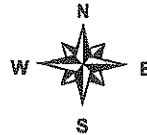
East Leg Total: 2,343
East Entering: 1,228
East Peds: 1
Peds Cross: 0
Bicycles Entering: 4

Heavys 191
 Trucks 75
 Cars 1,238
 Total 1,504



Line 86

% Trks	Heavys	Trucks	Cars	Total
13%	15	11	175	201
22%	167	53	794	1,014
8%	12	2	152	166
	194	66	1,121	



Katherine



Total	Cars	Trucks	Heavys	% Trks
43	38	3	2	12%
1,119	905	50	164	19%
66	59	4	3	11%
	1,002	57	169	

Line 86



Cars 886
 Trucks 56
 Heavys 173
 Total 1,115

Katherine



Total	160	634	68	
Cars	140	609	63	812
Trucks	9	18	2	29
Heavys	11	7	3	21
% Trks	13%	4%	7%	

Peds Cross: 0
West Peds: 0
West Entering: 1,381
West leg Total: 2,885
Bicycles Entering: 1

Heavys 24
 Trucks 18
 Cars 842
 Total 884



Peds Cross: 0
South Peds: 0
South Entering: 862
South leg Total: 1,746
Bicycles Entering: 4

Comments

To determine the total vehicles entering or exiting the intersection, add all leg totals entering or all leg totals exiting.

Example: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Therefore, total vehicles entering intersection = **4,381**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **1,381**

Filename: Bruce.te Time Period: 1 hours
 Description:

Road data, segment # 1: Katherine St

 Car traffic volume : 207 veh/TimePeriod
 Medium truck volume : 6 veh/TimePeriod
 Heavy truck volume : 46 veh/TimePeriod
 Posted speed limit : 80 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Katherine St

 Angle1 Angle2 : -90.00 deg 90.00 deg
 wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 45.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no
 barrier)
 Reference angle : 0.00

□
 Result summary

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Katherine st	2.05	61.13	61.13
Total			61.13 dBA

□

TOTAL Leq FROM ALL SOURCES: 61.13

□

Access Lane
Segments

