

**Ministry of Transportation
Highway Standards Branch Report**



**Highway Infrastructure Innovation
Funding Program 2007**
Measuring Work Zone Capacity
Part II

HSB-002

**Publication
Title**

MEASURING WORK ZONE CAPACITY

Technical Report

Author(s)

Carolyn Hicks, University of Toronto
Imtiaz Shaikh, University of Waterloo
Brenda McCabe, University of Toronto
Susan Tighe, University of Waterloo

Originating Office

Engineering Standards Branch, Ontario Ministry of Transportation

Publication Date

February 2009

Ministry Contact

Saidina Bagha, Ontario Ministry of Transportation Traffic Office

Table of Contents

DOCUMENT PURPOSE AND OVERVIEW	5
1 2007-2253, HWY 401 E.....	7
1.1 SITE VISIT 1 – AUGUST 27, 2007.....	7
1.2 VISIT 2 - AUGUST 29, 2007.....	10
2 2007-2130, HWY 401 E.....	13
2.1 SITE VISIT 1 – SEPTEMBER 26, 2007	13
3 2005-2014, HWY 401 E, W	15
3.1 SITE VISIT 1 – SEPTEMBER 27, 2007	15
3.2 SITE VISIT 2 – OCTOBER 9, 2007	19
3.3 SITE VISIT 3 – OCTOBER 12, 2007	22
3.4 SITE VISIT 4 – JULY 10, 2008.....	26
3.5 SITE VISIT 5 – JULY 13, 2008 - DAY	30
3.6 SITE VISIT 6 – JULY 13, 2008 - NIGHT	34
4 2007-2030, HWY 400 N	38
4.1 SITE VISIT 1 – OCTOBER 22, 2007	38
4.2 SITE VISIT 2 – OCTOBER 23, 2007	41
5 2006-2024, HWY 400 N, S	44
5.1 SITE VISIT 1 – NOVEMBER 2, 2007	44
5.2 SITE VISIT 2 – NOVEMBER 3, 2007 - NB.....	48
5.3 SITE VISIT 3 – NOVEMBER 4, 2007	51
5.4 SITE VISIT 4 – NOVEMBER 3, 2007 - SB.....	55
6 2007-2252, QEW S, N	57
6.1 SITE VISIT 1 – SEPTEMBER 20, 2007 - EB	57
6.2 SITE VISIT 2 – SEPTEMBER 21, 2007	60
6.3 SITE VISIT 3 – SEPTEMBER 22, 2007	63
6.4 SITE VISIT 4 – SEPTEMBER 23, 2007	68
7 2007-2027, QEW E, W	72
7.1 SITE VISIT 1 – OCTOBER 2, 2007 - EB	72
7.2 SITE VISIT 2 – OCTOBER 2, 2007 - WB.....	74
7.3 SITE VISIT 3 – MARCH 13, 2008 - WB	78
8 2007-2031, QEW W.....	81
8.1 SITE VISIT 1 – OCTOBER 10, 2007	81
8.2 SITE VISIT 2 – OCTOBER 11, 2007.....	85
9 2007-2125, QEW E	89
9.1 SITE VISIT 1 – NOVEMBER 13, 2007	89
9.2 SITE VISIT 2 – NOVEMBER 14, 2007	92
9.3 SITE VISIT 3 – JUNE 26, 2008.....	94
9.4 SITE VISIT 4 – JULY 2, 2008.....	96
9.5 SITE VISIT 5 – JULY 7, 2008.....	98
10 2008-2003, QEW, E/HWY 427, N.....	101
10.1 SITE VISIT 1 – JUNE 26, 2008	101
10.2 SITE VISIT 2 – JULY 2, 2008.....	106
11 2007-2028, HWY 427 S.....	109
11.1 SITE VISIT 1 – SEPTEMBER 20, 2007	109

11.2	SITE VISIT 2 – SEPTEMBER 21, 2007	114
11.3	SITE VISIT 3 – SEPTEMBER 24, 2007	119
12	2006-3099, HWY 7&8 E,W.....	123
12.1	SITE VISIT 1 – SEPTEMBER 18, 2007	123
12.2	SITE VISIT 2 – SEPTEMBER 19, 2007 - EB	127
12.3	SITE VISIT 3 – SEPTEMBER 19, 2007 - WB	130
12.4	SITE VISIT 4 – SEPTEMBER 20, 2007	133
13	2005-3045, HWY 8, S, N	136
13.1	SITE VISIT 1 – SEPTEMBER 26, 2007	136
13.2	SITE VISIT 2 - SEPTEMBER 28, 2007	139
14	2007-2263, HWY 12, E,W	142
14.1	SITE VISIT 1 – JULY 4, 2008	142
15	2007-2128, HWY 12 S, N	147
15.1	SITE VISIT 1 – SEPTEMBER 13, 2007	147
15.2	SITE VISIT 2 – SEPTEMBER 17, 2007 – SOUTH SECTION	151
15.3	SITE VISIT 3 – SEPTEMBER 17, 2007 – NORTH SECTION.....	156
16	2007-2127, HWY 26 N, S, E.....	161
16.1	SITE VISIT 1 – OCTOBER 3, 2007	161

Document Purpose and Overview

This document (Part-II) is the continuation of the report entitled “Measuring Workzone Capacity” project. The document is organized in such a manner that all the information of one site is placed as one annexure in a sequence.

There are sixteen sites in total visited for this project. A summary of this data can be found in Section 5 of Part I of this report.

Contract No.	Highway	Direction	Nearest Intersection/Interchange	Type of Work	Visit Dates	Data (Hours)
2007-2253	Hwy 401	EB	Guelph Line (Campbellville)	Selective resurfacing	27-Aug-07 29-Aug-07	0 0
2007-2130	Hwy 401	EB	Meadowvale (Ajax)	Road resurfacing	26-Sep-07	0
2005-2014	Hwy 401	EB &WB	Stephenson to Park Rd. (Oshawa)	Road resurfacing and construction of interchange	27-Sep-07 9-Oct-07 12-Oct-07 10-Jul-08 13-Jul-08	3.5 1.25 1 1.75 3.25
2007-2030	Hwy 400	NB	Horseshoe Valley Rd (North of Barrie)	Widening of the structure	22-Oct-07 23-Oct-07	0 0
2006-2024	Hwy 400	NB SB	Hwy 89 (South of Barrie)	Catch basin repairs in the median	2-Nov-07 3-Nov-07 2-Nov-07 3-Nov-07	2.5 3.5 0 0
2007-2252	QEW	SB	Thorold Stone Rd. (Niagara Falls)	Shave and pave	20-Sep-07 21-Sep-07 22-Sep-07 23-Sep-07	0 2 6 2.75
2007-2027	QEW	WB EB	Ontario to Lake St. (St. Catharines)	Road surfacing and widening	2-Oct-07 2-Oct-07 13-Mar-08	0 2 1.25
2007-2031	QEW	WB	Hurontario (Mississauga)	Selective resurfacing	10-Oct-07 11-Oct-07	1.25 1.5
2007-2125	QEW	EB WB WB WB WB	Trafalgar Road (Oakville)	Road widening for HOV lane	13-Nov-07 14-Nov-07 26-Jun-08 2-Jul-08 7-Jul-08	0 0 0 0 1
2008-2003	Hwy 427	EB to NB	EB QEW ramp onto NB Hwy 427 (Etobicoke)	Rehabilitation of ramp	26-Jun-08 2-Jul-08	5 0
2007-2028	Hwy 427	SB to EB	SB Hwy 427 ramp onto EB Gardiner (Etobicoke)	Rehabilitation of ramp	20-Sep-07 21-Sep-07 24-Sep-07	3.75 6 4.5
2006-3099	Hwy 7/8	EB	Waterloo Rd.1 to Waterloo Rd.5 (New Hamburg)	Structure Rehabilitation, paving and New Traffic Signals	18-Sep-07 19-Sep-07 20-Sep-07	0 0 0
2005-	Hwy 8	SB	Grand River to Fergus Ave.	Selective resurfacing	26-Sep-07	0

Contract No.	Highway	Direction	Nearest Intersection/Interchange	Type of Work	Visit Dates	Data (Hours)
3045			(Kitchener)		28-Sep-07	0
2007-2263	Hwy 12	EB & WB	East of Lower Big Chute Rd. (West of Orillia)	Flagging Site: Road resurfacing and drainage	4-Jul-08	3
2007-2128	Hwy 48/12	NB & SB	Glenarm Rd. (Beaverton)	Flagging Site: Road resurfacing	13-Sep-07 17-Sep-07	3 5
2007-2127	Hwy 26	NB & SB	Horseshoe Valley Rd (Minesing)	Flagging Site: Road resurfacing	3-Oct-07	5

Table 1 – List of All Sites Visited

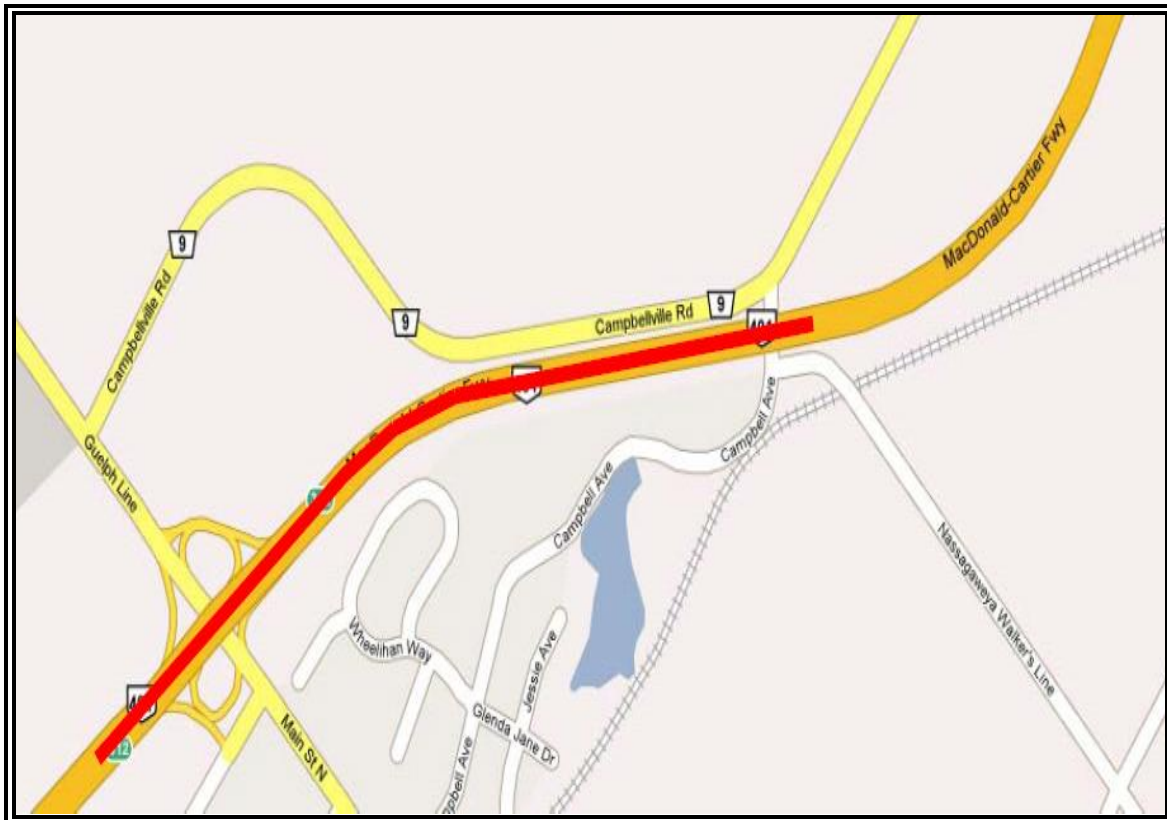
1 2007-2253, Hwy 401 E

1.1 SITE VISIT 1 – AUGUST 27, 2007

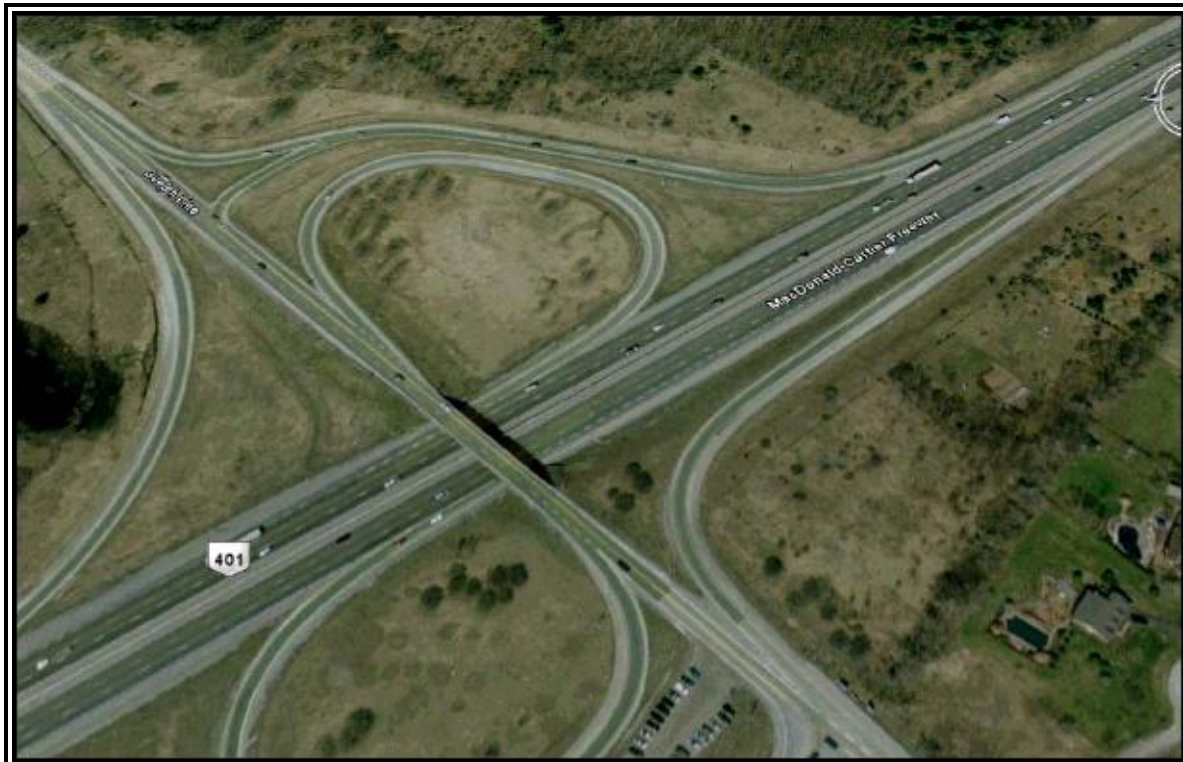
1.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2253

Date	27-Aug, 2007
Hwy No:	401 EB
Location	3 to 4.1 km East of Guelph Line
Weather	Clear
Starting Time	22:00
End Time	02:30 (August 28, 2007)
Day of Week	Monday-Tuesday (Weekday)
Time of Day	Night
Assigned Lane	1 & 2
Lane Width (m)	3.75
Direction of Traffic	E/B
Shoulder Type	Fully Paved
Lane Closure	Multilane (2 left lanes)
OPP Presence	No
Facility Type	Six lane divided freeway
Driver Population	Off-peak
% Heavy Vehicles	Data not collected
Grade of Road	Flat
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	1.1 Km
Duration of Closure	22:00 - 06:00
Interchange	None within work zone
Type of Traffic Control	TL-38
Pavement Condition	Paving
Distractions	None
List of Photos Taken	3 Photos taken
Other Comments	No forced flow condition - Data not collected

1.1.2 MAP OF LOCATION OF SITE 2007-2253



1.1.3 AERIAL VIEW OF SITE 2007-2253



1.1.4 DATA COLLECTED

This site visit yielded no data.

1.1.5 PHOTOS TAKEN OF 2007-2253 ON AUGUST 27, 2007



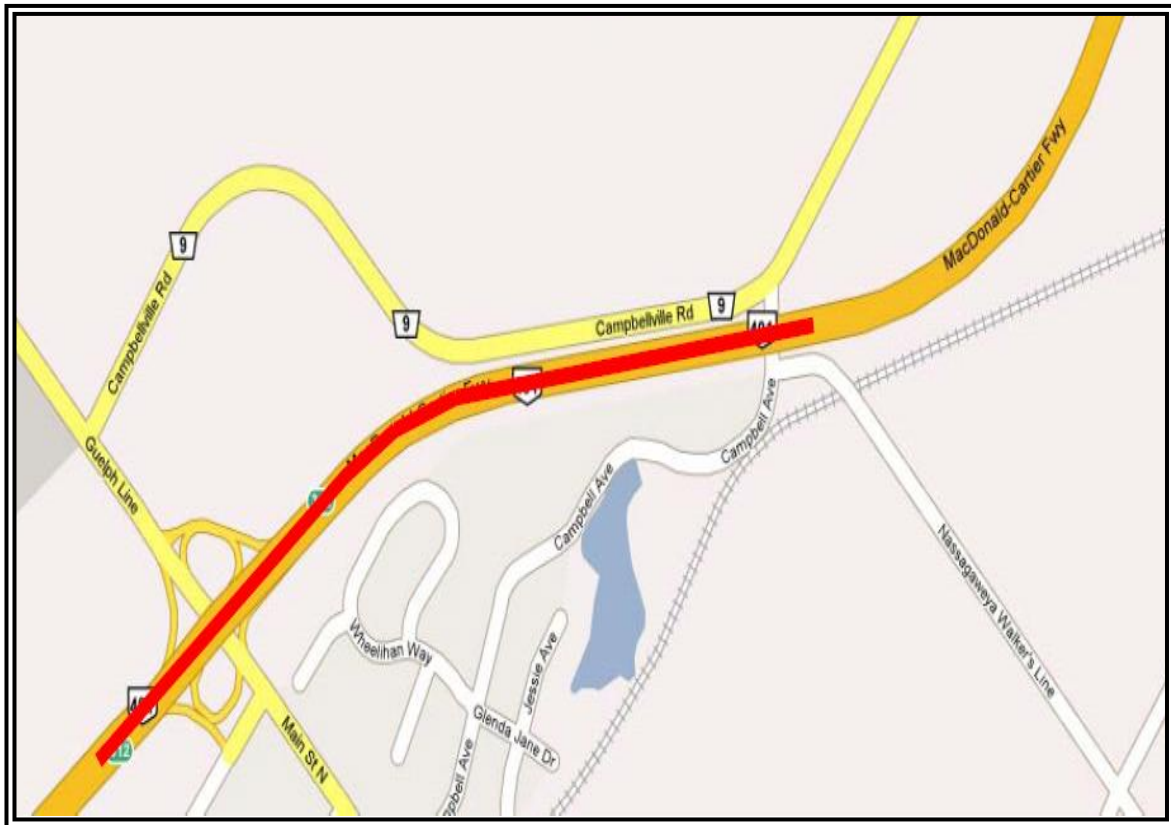


1.2 VISIT 2 - AUGUST 29, 2007

1.2.1 SITE CHARACTERISTICS FORM

Date	29-Aug
Hwy No.	401 EB
Location	3 to 4.1 km East of Guelph Line
Weather	Clear
Starting Time	04:00
End Time	06:00
Day of Week	Wednesday (Weekday)
Time of Day	Night
Assigned Lane	1 & 2
Lane Width (m)	3.75
Direction of Traffic	E/B
Shoulder Type	Fully Paved
Lane Closure	Multilane (2 left lanes)
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Six lane divided freeway
Driver Population	Off-peak
% Heavy Vehicles	Data not collected
Grade of Road	Flat
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	1.1 Km
Duration of Closure	22:00 - 06:00
Interchange	None within work zone
Type of Traffic Control	TL-38
Pavement Condition	Paving
Distractions	
List of Photos Taken	1 Photo Taken
Other Comments	

1.2.2 MAP OF LOCATION (SAME AS ABOVE)



1.2.3 AERIAL VIEW OF SITE 2007-2253 (SAME AS ABOVE)



1.2.4 DATA COLLECTED

This site visit yielded no data.

1.2.5 PHOTOS TAKEN OF 2007-2253 ON AUGUST 29, 2007



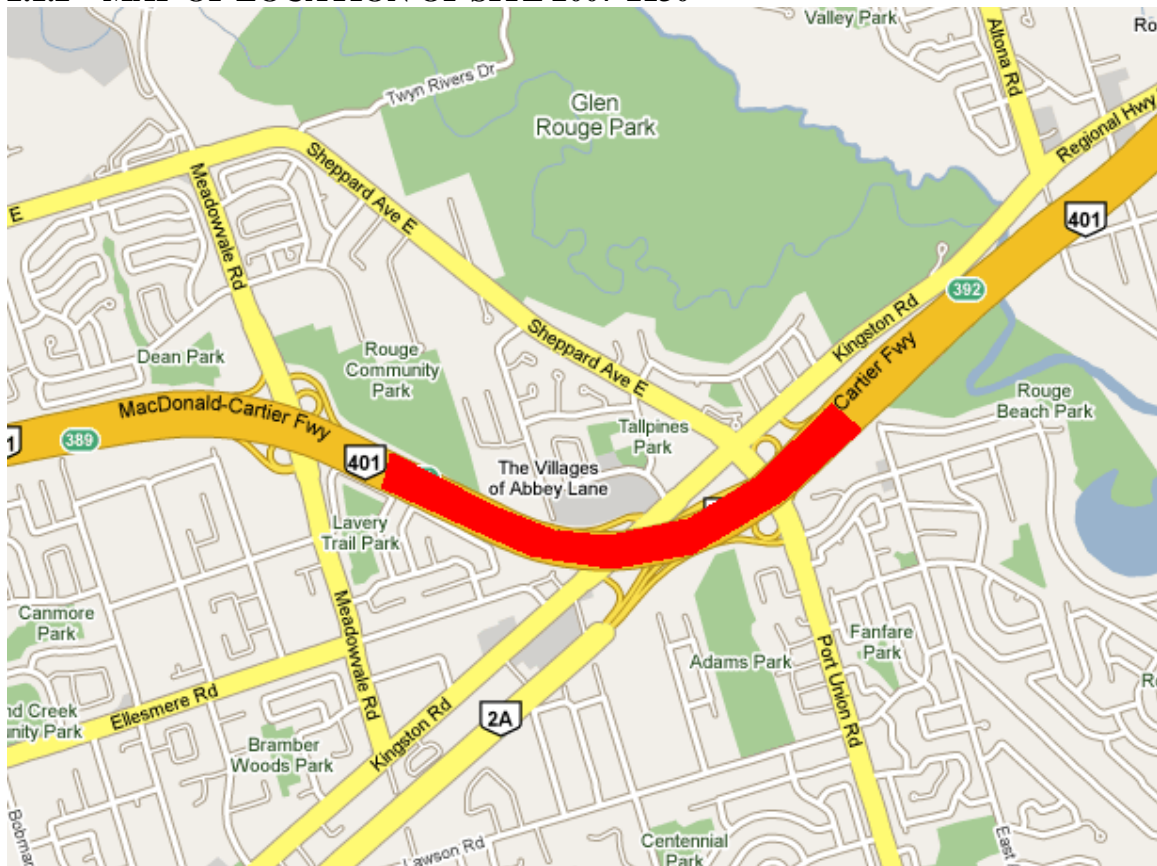
2 2007-2130, Hwy 401 E

2.1 SITE VISIT 1 – SEPTEMBER 26, 2007

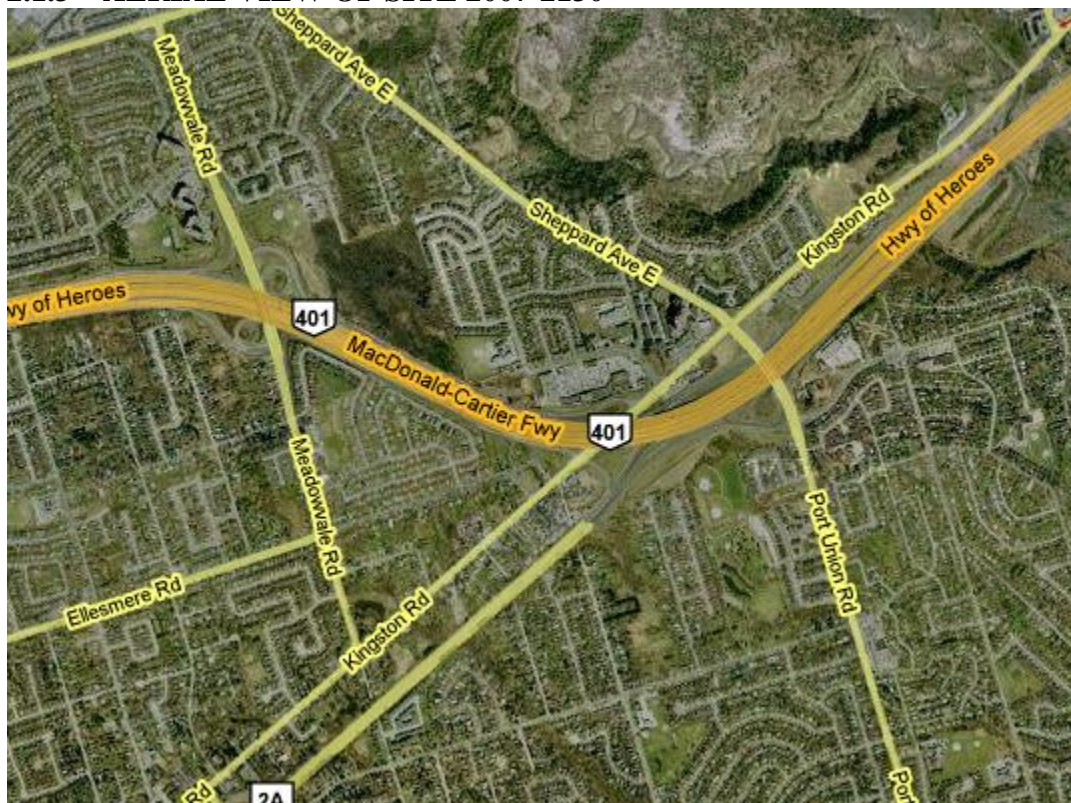
2.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2130

Date	26-Sep
Name of the Site	Hwy 401
Location	Hwy 401 East of Meadowvale
Weather	Clear
Starting Time	22:00
End Time	22:45
Day of Week	Wednesday
Time of Day	Night
Assigned Lane	EB
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	2 Right lanes
OPP Presence	No
Time of OPP Presence	
Facility Type	Shave and Pave
Driver Population	8 lane, divided highway
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	No
Length of Work Zone	
Duration of Closure	Evening only
Intersections	
Type of Traffic Control	Barrel separated
Pavement Condition	Paved
Distractions	Some work in CZ - Shave and pave
List of Photos Taken	
Other Comments	No forced flow conditions

2.1.2 MAP OF LOCATION OF SITE 2007-2130



2.1.3 AERIAL VIEW OF SITE 2007-2130



2.1.4 DATA COLLECTED FROM SITE 2007-2130 ON SEPTEMBER 26, 2007

This site visit yielded no data.

2.1.5 PHOTOS TAKEN OF SITE 2007-2130 ON SEPTEMBER 26, 2007

No photos were taken on this site visit.

3 2005-2014, Hwy 401 E, W

3.1 SITE VISIT 1 – SEPTEMBER 27, 2007

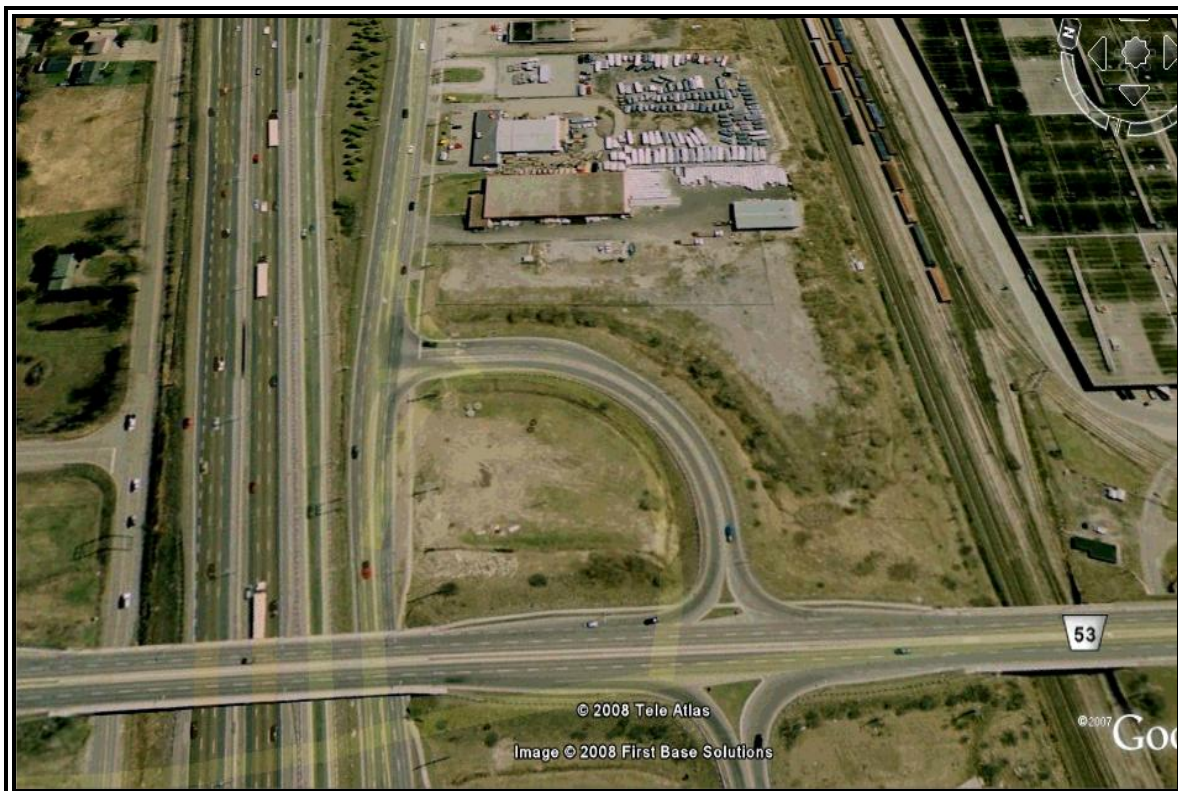
3.1.1 SITE CHARACTERISTICS FORM FOR SITE 2005-2014

Date	27-Sep
Name of the Site	Hwy 401 EB
Location	Oshawa
Weather	Warm, approx. 18°C. Partly cloudy.
Starting Time	20:20
End Time	1:15
Day of Week	Thursday
Time of Day	Night
Assigned Lane	Traffic in North lane; two south lanes closed; see map
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Partially Paved
Lane Closure	2 Right Lane
OPP Presence	No
Time of OPP Presence	
Facility Type	6 lane, divided highway
Driver Population	Mostly trucks, some commuter vehicles, become more heavily trucks
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	1.4km
Duration of Closure	Evening only. Closed at 7pm Closure begins shortly after Stevenson. Thickson onramp closest access. Park egret closed. Closest egret is Simcoe Rd.
Intersections	
Type of Traffic Control	Overhead signage. Lane arrow lighted signs. Barrel Separated.
Pavement Condition	Good
Distractions	Night time. Workers present – patch paving
List of Photos Taken	2 Photos Taken
Other Comments	CZ was after a hill, therefore only part of the queue could be seen from data collection point. Up to 1.8km could be seen.

3.1.2 MAP OF LOCATION OF SITE 2005-2014



3.1.3 AERIAL VIEW OF SITE 2005-2014

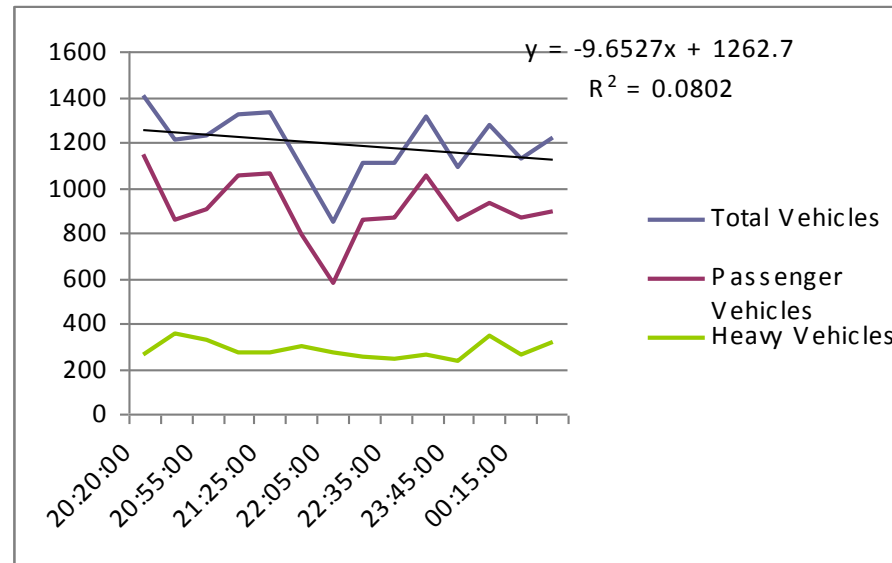


3.1.4 DATA COLLECTED FROM SITE 2005-2014 ON SEPTEMBER 27, 2007

Road Hwy 401 EB
 Location Hwy 401 in Oshawa; near Thickson Road
 Evaluation Days September 27, October 9, 12

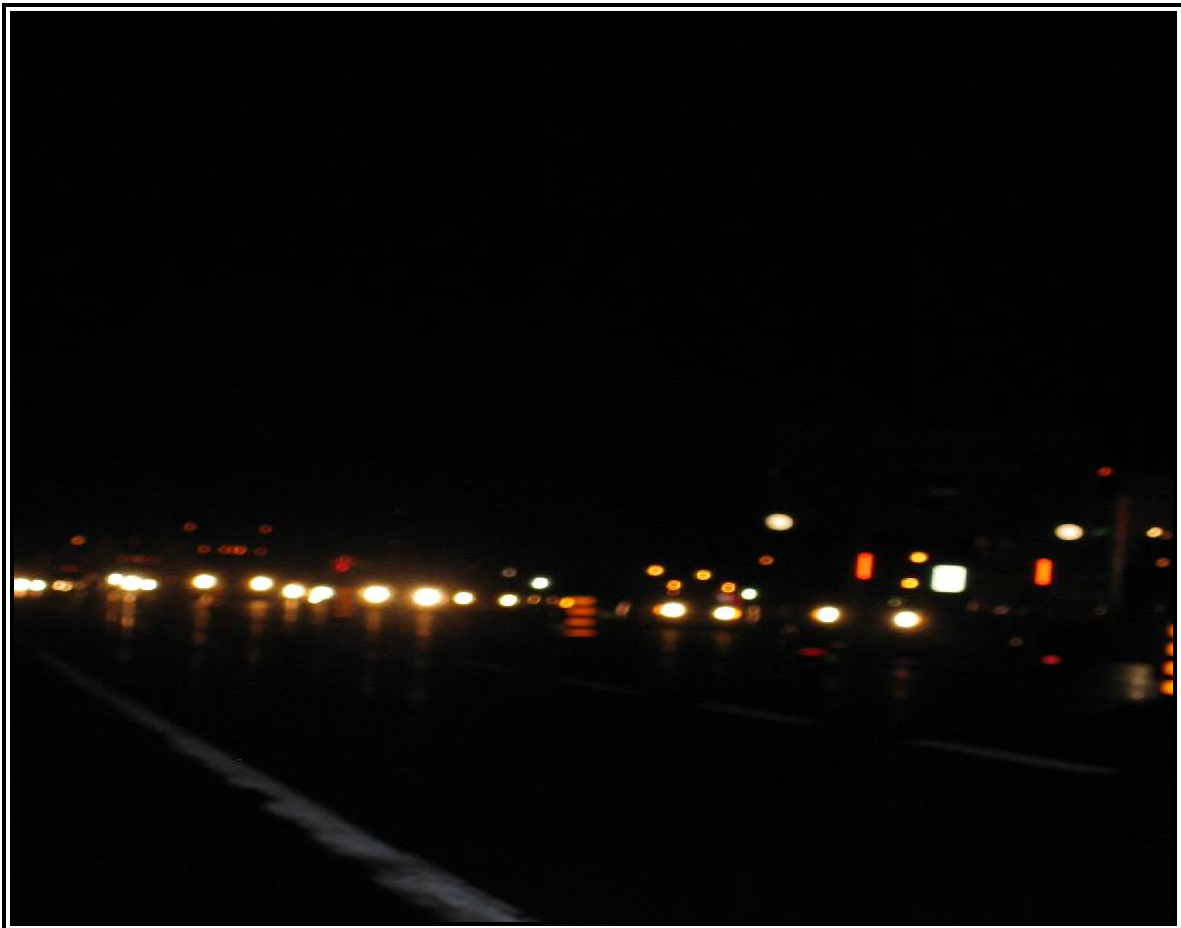
Date: Thursday, September 27, 2007

Average Total Flow (ATF) 1190
SD - ATF 143
Average PV Flow (APVF) 908
SD - APVF 141
Average HV Flow (AHVF) 282
SD - AHVF 40



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
20:20:00	20:35:00	00:15:00	287	64	0	15	0	0.2500	1148	256	1404
20:40:00	20:55:00	00:15:00	214	89	0	15	0	0.2500	856	356	1212
20:55:00	21:10:00	00:15:00	225	82	0	15	0	0.2500	900	328	1228
21:10:00	21:25:00	00:15:00	263	68	0	15	0	0.2500	1052	272	1324
21:25:00	21:40:00	00:15:00	266	67	0	15	0	0.2500	1064	268	1332
21:40:00	21:55:00	00:15:00	197	75	0	15	0	0.2500	788	300	1088
22:05:00	22:20:00	00:15:00	144	67	0	15	0	0.2500	576	268	844
22:20:00	22:35:00	00:15:00	214	63	0	15	0	0.2500	856	252	1108
22:35:00	22:50:00	00:15:00	217	60	0	15	0	0.2500	868	240	1108
23:30:00	23:45:00	00:15:00	263	64	0	15	0	0.2500	1052	256	1308
23:45:00	00:00:00	00:15:00	215	58	0	15	0	0.2500	860	232	1092
00:00:00	00:15:00	00:15:00	232	86	0	15	0	0.2500	928	344	1272
00:15:00	00:30:00	00:15:00	217	65	0	15	0	0.2500	868	260	1128
00:30:00	00:45:00	00:15:00	224	80	0	15	0	0.2500	896	320	1216

3.1.5 PHOTOS TAKEN OF SITE 2005-2014 ON SEPTEMBER 27, 2007



3.2 SITE VISIT 2 – OCTOBER 9, 2007

3.2.1 SITE CHARACTERISTICS FORM FOR SITE 2005-2014

Date	09-Oct
Name of the Site	Hwy 401 EB
Location	Oshawa
Weather	Clear
Starting Time	21:15
End Time	22:30
Day of Week	Tuesday
Time of Day	Night
Assigned Lane	Traffic in South lane; two north lanes closed; see map
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Partially Paved
Lane Closure	2 Left lane
OPP Presence	No
Time of OPP Presence	
Facility Type	6 lane, divided highway
Driver Population	Mostly trucks, some commuter vehicles, become more heavily trucks
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	Approx 1.0km
Duration of Closure	Evening only. Closed at 8pm
Intersections	Closure begins shortly 500m West of Park road.
Type of Traffic Control	Overhead signage. Lane arrow lighted signs. Barrel Separated.
Pavement Condition	Good
Distractions	Night time. Workers present – patch paving
List of Photos Taken	
Other Comments	CZ was after a hill, therefore only part of the queue could be seen from data collection point. Counted both 401 and exiting traffic since all flowed through CZ. See map for details.

3.2.2 MAP OF LOCATION OF SITE 2005-2014



3.2.3 AERIAL VIEW OF SITE 2005-2014

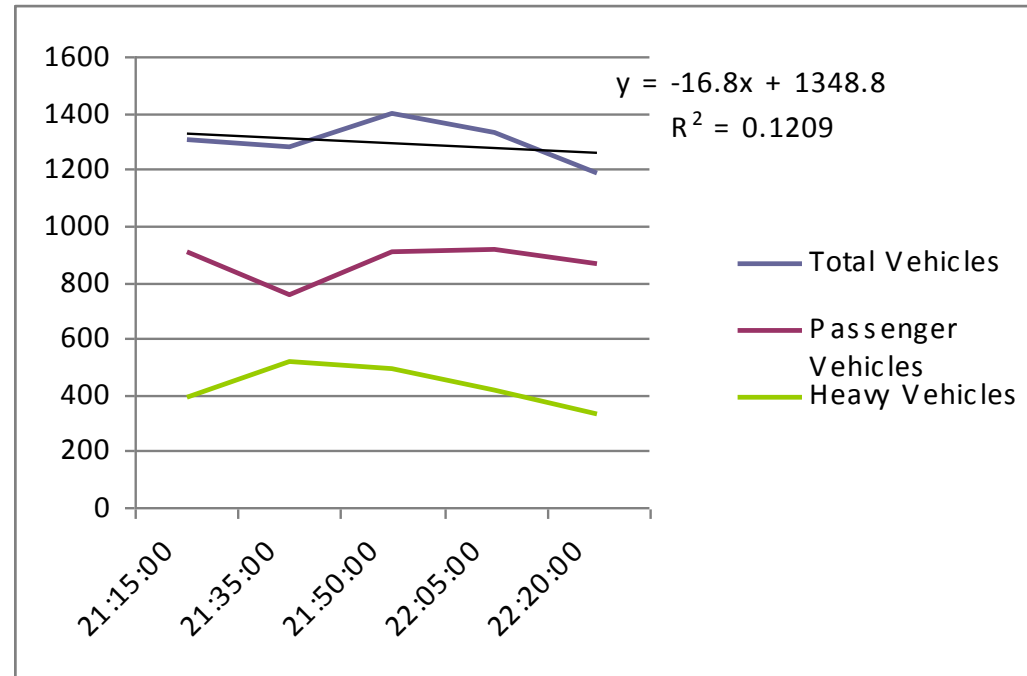


3.2.4 DATA COLLECTED FROM SITE 2005-2014 ON OCTOBER 9, 2007

Road Hwy 401 EB
 Location Hwy 401 in Oshawa;
 near Park Road
 Evaluation Days September 27, October 9, 12

Date: Tuesday, October 9, 2007

Average Total Flow (ATF) 1298
SD - ATF 76
Average PV Flow (APVF) 870
SD - APVF 67
Average HV Flow (AHVF) 429
SD - AHVF 77



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
21:15:00	21:30:00	00:15:00	227	98	0	15	0	0.2500	908	392	1300
21:35:00	21:50:00	00:15:00	189	130	0	15	0	0.2500	756	520	1276
21:50:00	22:05:00	00:15:00	227	122	0	15	0	0.2500	908	488	1396
22:05:00	22:20:00	00:15:00	229	104	0	15	0	0.2500	916	416	1332
22:20:00	22:35:00	00:15:00	215	82	0	15	0	0.2500	860	328	1188

3.2.5 PHOTOS TAKEN OF SITE 2005-2014 ON OCTOBER 9, 2007

No photos were taken on this site visit.

3.3 SITE VISIT 3 – OCTOBER 12, 2007

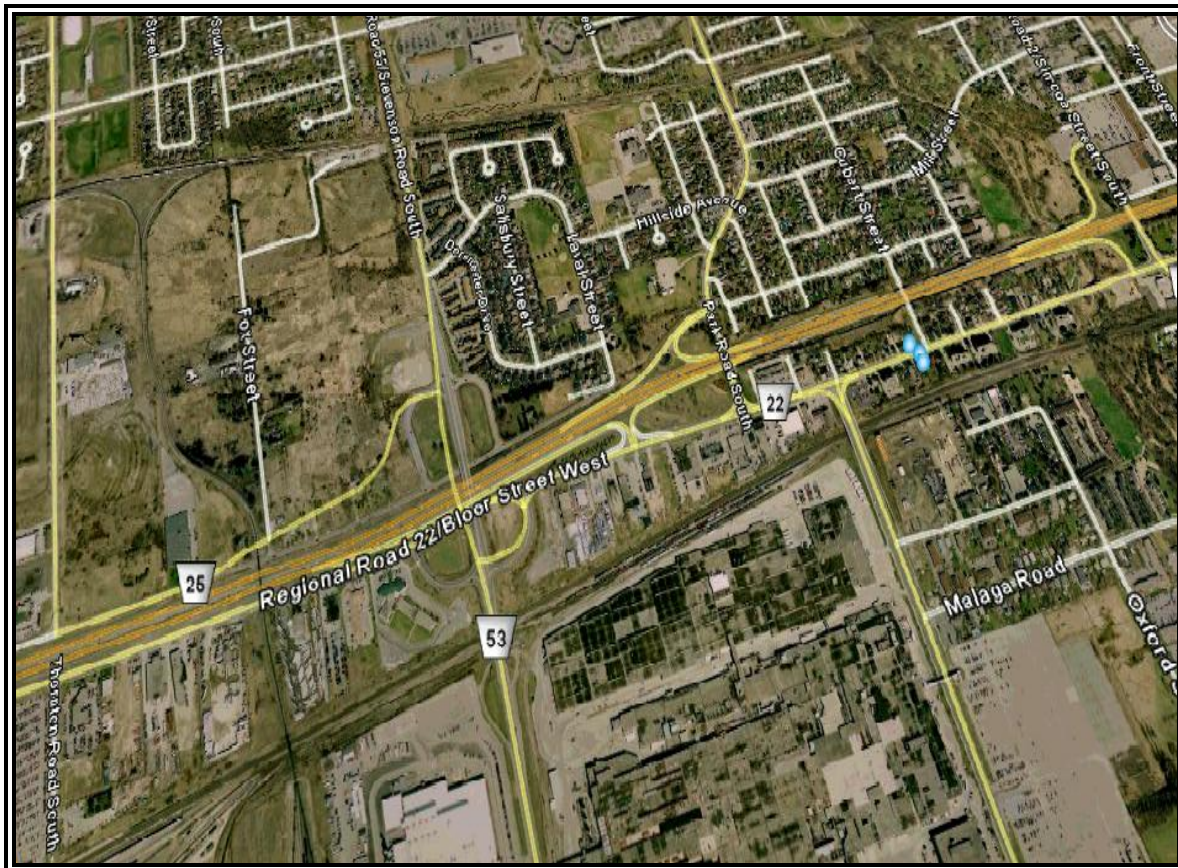
3.3.1 SITE CHARACTERISTICS FORM FOR SITE 2005-2014

Date	12-Oct
Name of the Site	Hwy 410 WB
Location	Oshawa
Weather	Clear
Starting Time	22:15
End Time	0:10
Day of Week	Friday
Time of Day	Night
Assigned Lane	Traffic in South lane; two north lanes closed; see map
Lane Width (m)	
Direction of Traffic	WB
Shoulder Type	Partially Paved
Lane Closure	2 Right Lane
OPP Presence	Yes
Time of OPP Presence	Approx 22:45. OPP could only be seen after entering CZ, but were not there to help traffic flow. Mostly likely were there to reduce speed and increase safety
Facility Type	6 lane, divided highway
Driver Population	Mostly trucks, some commuter vehicles, become more heavily trucks
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	2.7km
Duration of Closure	Evening only. Closed at 10pm
Intersections	Closure begins 50m West of Simcoe Rd.
Type of Traffic Control	Lane arrow lighted signs. Barrel Separated.
Pavement Condition	Good
Distractions	Night time. Workers present – placing and moving abutments
List of Photos Taken	2 Photos Taken
Other Comments	Queue length estimated throughout. See map for details.

3.3.2 MAP OF LOCATION OF SITE 2005-2014



3.3.3 AERIAL VIEW OF SITE 2005-2014

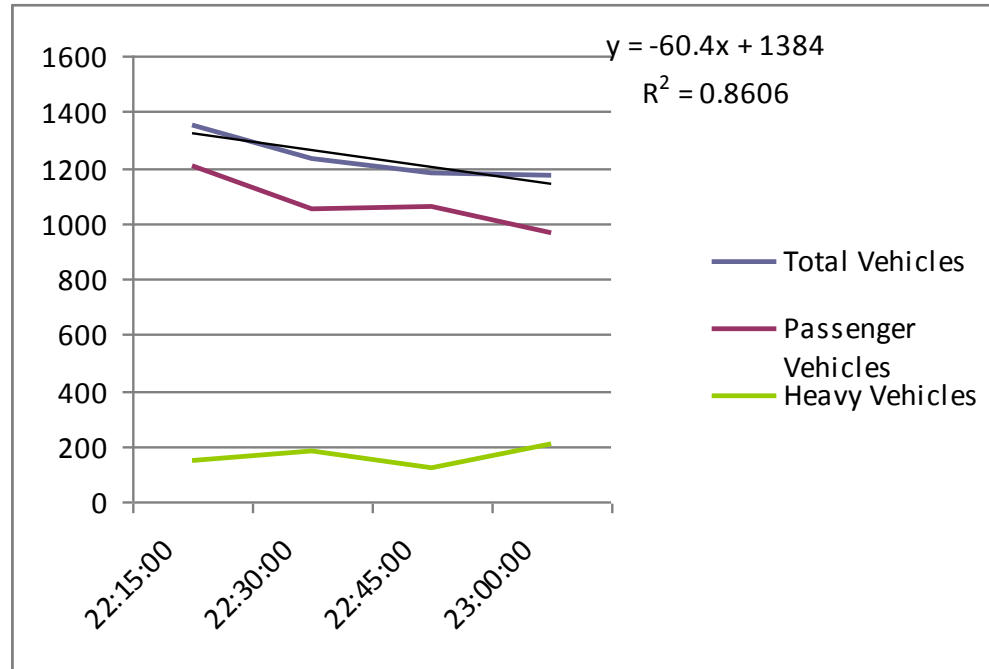


3.3.4 DATA COLLECTED FROM SITE 2005-2014 ON OCTOBER 12, 2007

Road Hwy 401 WB
 Location Hwy 401 in Oshawa;
 near Simcoe Road
 Evaluation Days September 27, October 9, 12

Date: Friday, October 12, 2007

Average Total Flow (ATF) 1209
SD - ATF 91
Average PV Flow (APVF) 1035
SD - APVF 113
Average HV Flow (AHVF) 174
SD - AHVF 37



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
22:15:00	22:30:00	00:15:00	301	37	0	15	0	0.2500	1204	148	1352
22:30:00	22:45:00	00:15:00	262	46	0	15	0	0.2500	1048	184	1232
22:45:00	23:00:00	00:15:00	264	31	0	15	0	0.2500	1056	124	1180
23:00:00	23:15:00	00:15:00	241	51	0	15	0	0.2500	964	204	1168

3.3.5 PHOTOS TAKEN OF SITE 2005-2014 ON OCTOBER 12, 2007

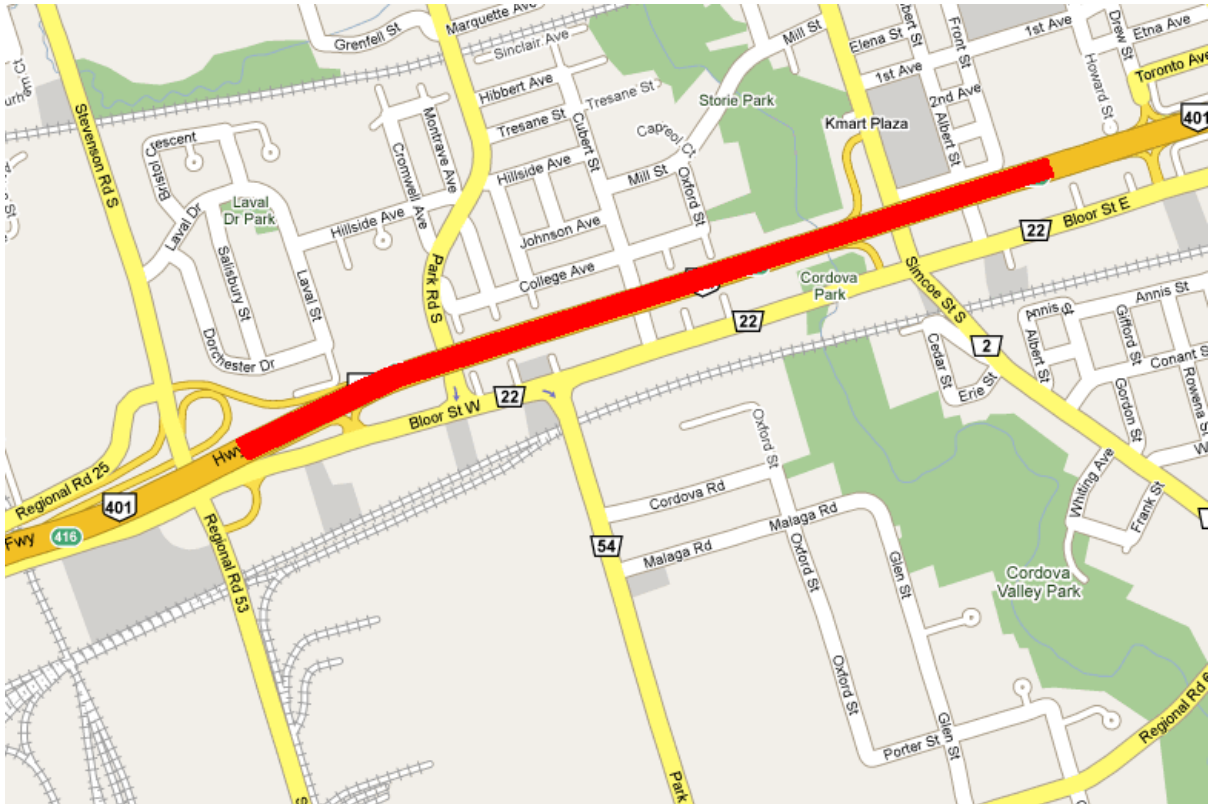


3.4 SITE VISIT 4 – JULY 10, 2008

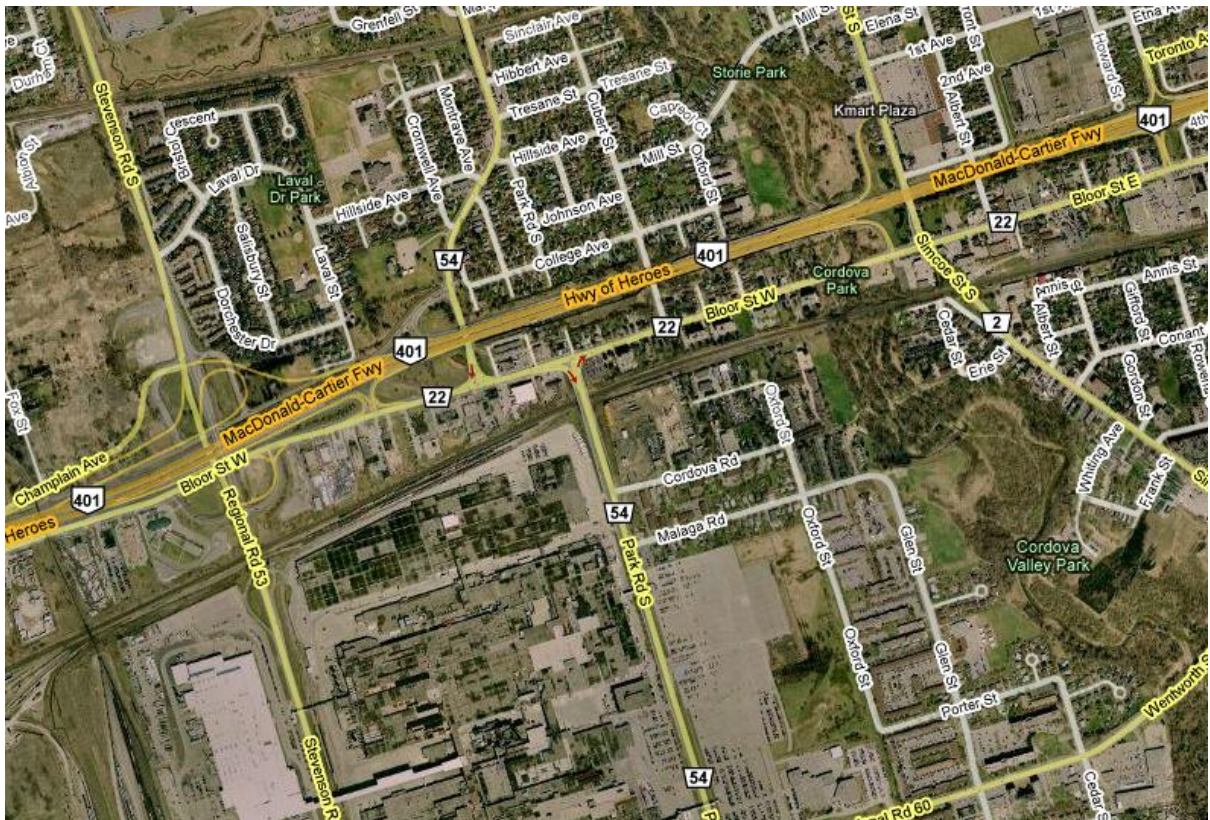
3.4.1 SITE CHARACTERISTICS FORM FOR SITE 2005-2014

Date	10-Jul
Name of the Site	2005-2014
Location	Oshawa - Hwy 401 EB
Weather	Warm and Clear
Starting Time	22:10
End Time	0:10
Day of Week	Thursday
Time of Day	Night
Assigned Lane	Traffic in North lane; two south lanes closed; see map
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	2 Right Lane
OPP Presence	No
Time of OPP Presence	
Facility Type	6 lane, divided highway
Driver Population	Mostly trucks, some commuter vehicles, become more heavily trucks
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	1.5km
Duration of Closure	Evening only. One lane closed at 9pm, second lane closed at 10pm
Intersections	Closure ends 500m West of Simcoe. Park onramp closed.
Type of Traffic Control	Lane arrow lighted signs. Barrel Separated.
Pavement Condition	Good
Distractions	Night time. Workers present - patch paving
List of Photos Taken	(1) WB (2) EB
Other Comments	

3.4.2 MAP OF LOCATION OF SITE 2005-2014



3.4.3 AERIAL VIEW OF SITE 2005-2014

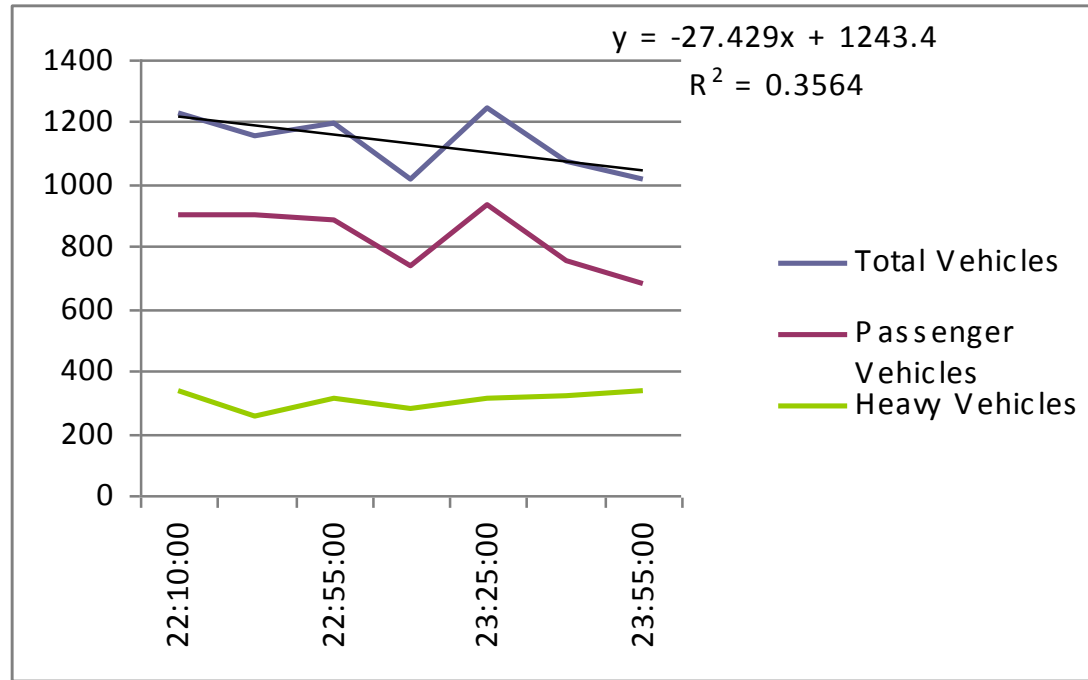


3.4.4 DATA COLLECTED FROM SITE 2005-2014 ON JUL 10, 2008

Road Hwy 401 EB
 Location Hwy 401 in Oshawa;
 2.9km closure after
 Park Rd.
 Evaluation Days July 10, 13th, 2008

Date: Thursday, July 10th, 2008

Average Total Flow (ATF) 1134
SD - ATF 99
Average PV Flow (APVF) 828
SD - APVF 101
Average HV Flow (AHVF) 306
SD - AHVF 29



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	vphpl
22:10:00	22:25:00	00:15:00	225	83	0	15	0	0.2500	900	332	1232
22:25:00	22:40:00	00:15:00	226	63	0	15	0	0.2500	904	252	1156
22:55:00	23:10:00	00:15:00	221	78	0	15	0	0.2500	884	312	1196
23:10:00	23:25:00	00:15:00	184	70	0	15	0	0.2500	736	280	1016
23:25:00	23:40:00	00:15:00	234	78	0	15	0	0.2500	936	312	1248
23:40:00	23:55:00	00:15:00	189	80	0	15	0	0.2500	756	320	1076
23:55:00	00:10:00	00:15:00	170	83	0	15	0	0.2500	680	332	1012

3.4.5 PHOTOS TAKEN OF SITE 2005-2014 ON JULY 10, 2008

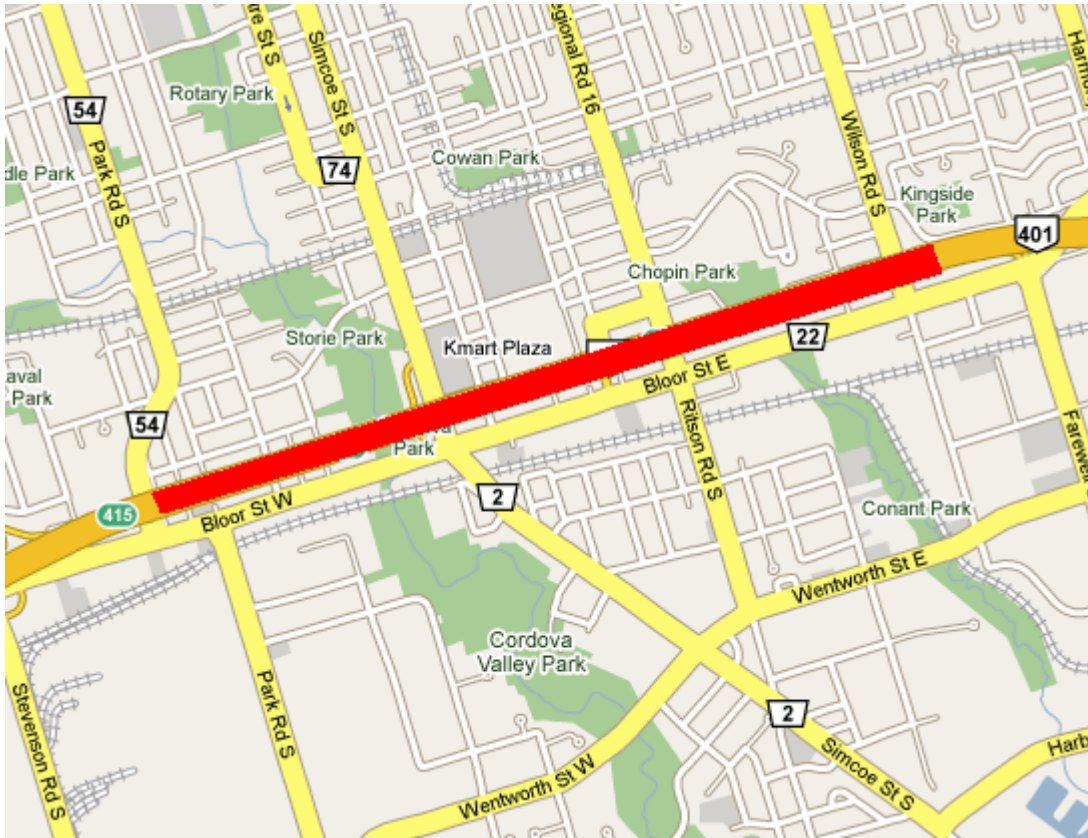


3.5 SITE VISIT 5 – JULY 13, 2008 - DAY

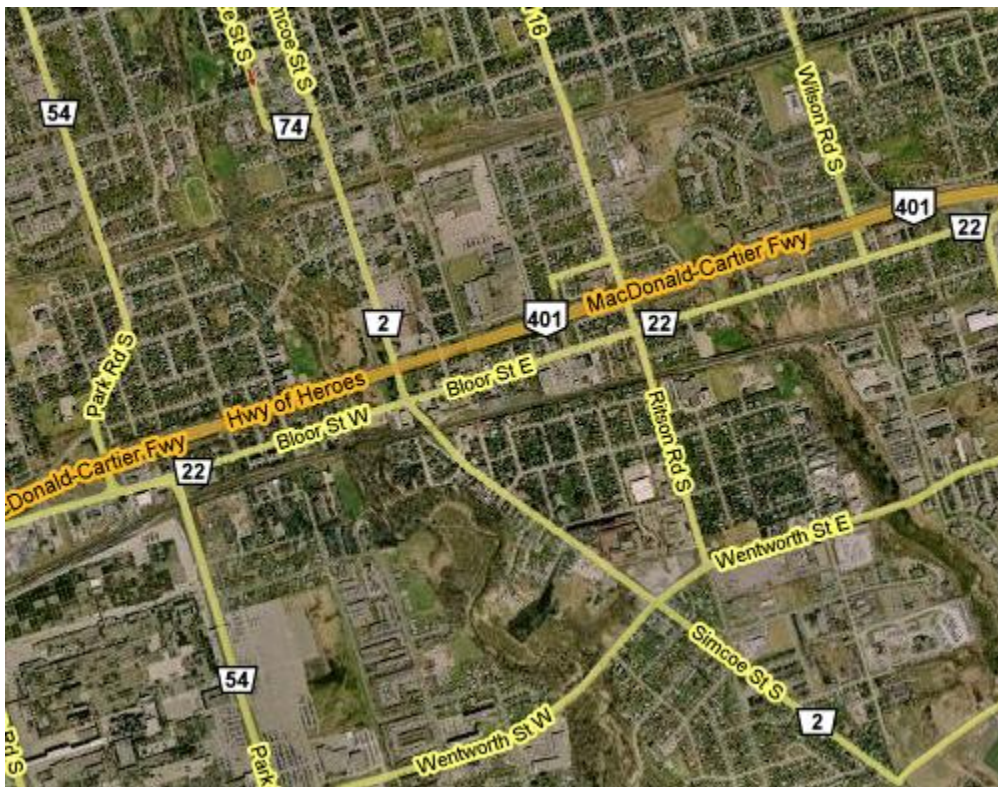
3.5.1 SITE CHARACTERISTICS FORM FOR SITE 2005-2014

Date	13-Jul
Name of the Site	2005-2014
Location	Oshawa - Hwy 401 EB
Weather	Warm and Clear
Starting Time	18:20
End Time	21:20
Day of Week	Sunday
Time of Day	Day
Assigned Lane	Traffic in South lane; two north lanes closed; see map
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	2 Left Lanes
OPP Presence	No
Time of OPP Presence	
Facility Type	6 lane, divided highway
Driver Population	Starting as mostly commuter vehicles, becoming more HV as time passes
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	2.9km
Duration of Closure	One lane closed at 5pm (and saw no queuing), second lane at 6pm (queuing began). Closure runs all night until 7am
Intersections	Closure starts just East of Park onramp. All access and egress open
Type of Traffic Control	Lane arrow lighted signs. Barrel Separated.
Pavement Condition	Good
Distractions	Day time - workers present - bridgework
List of Photos Taken	(1) EB (2) WB
Other Comments	

3.5.2 MAP OF LOCATION OF SITE 2005-2014



3.5.3 AERIAL VIEW OF SITE 2005-2014

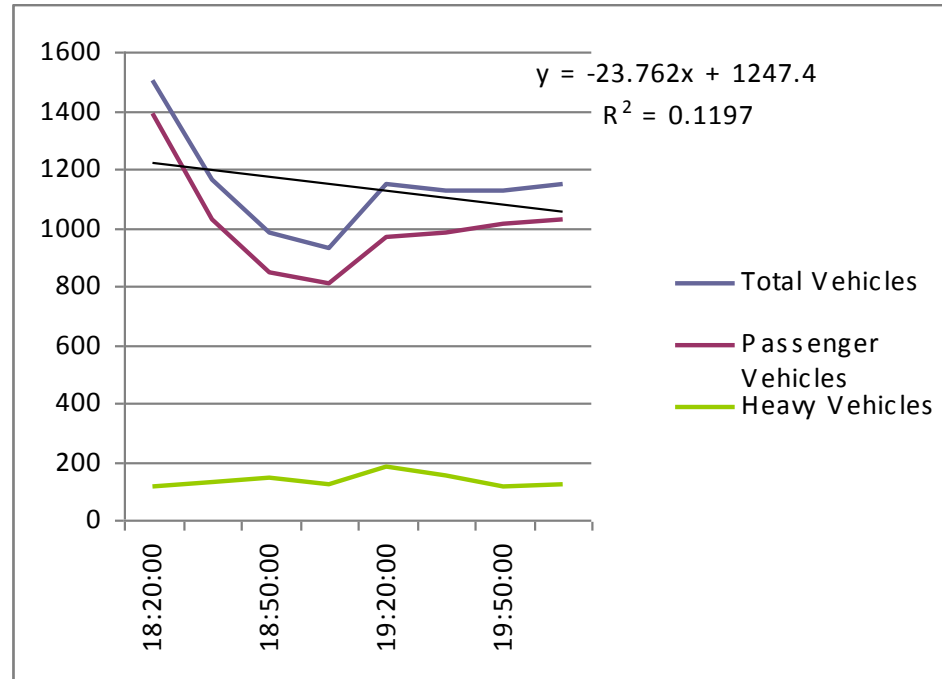


3.5.4 DATA COLLECTED FROM SITE 2005-2014 ON JUL 13, 2008 – DAY

Road Hwy 401 EB
 Location Hwy 401 in Oshawa;
 2.9km closure after Park Rd.
 Evaluation Days July 10, 13th, 2008

Date: Sunday, July 13th, 2008

Average Total Flow (ATF) 1141
SD - ATF 168
Average PV Flow (APVF) 1006
SD - APVF 175
Average HV Flow (AHVF) 135
SD - AHVF 23



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	vphpl
18:20:00	18:35:00	00:15:00	347	28	0	15	0	0.2500	1388	112	1500
18:35:00	18:50:00	00:15:00	257	33	0	15	0	0.2500	1028	132	1160
18:50:00	19:05:00	00:15:00	211	35	0	15	0	0.2500	844	140	984
19:05:00	19:20:00	00:15:00	202	31	0	15	0	0.2500	808	124	932
19:20:00	19:35:00	00:15:00	241	46	0	15	0	0.2500	964	184	1148
19:35:00	19:50:00	00:15:00	245	37	0	15	0	0.2500	980	148	1128
19:50:00	20:05:00	00:15:00	252	29	0	15	0	0.2500	1008	116	1124
20:10:00	20:25:00	00:15:00	257	30	0	15	0	0.2500	1028	120	1148

3.5.5 PHOTOS TAKEN OF SITE 2005-2014 ON JUL 13, 2008 - DAY

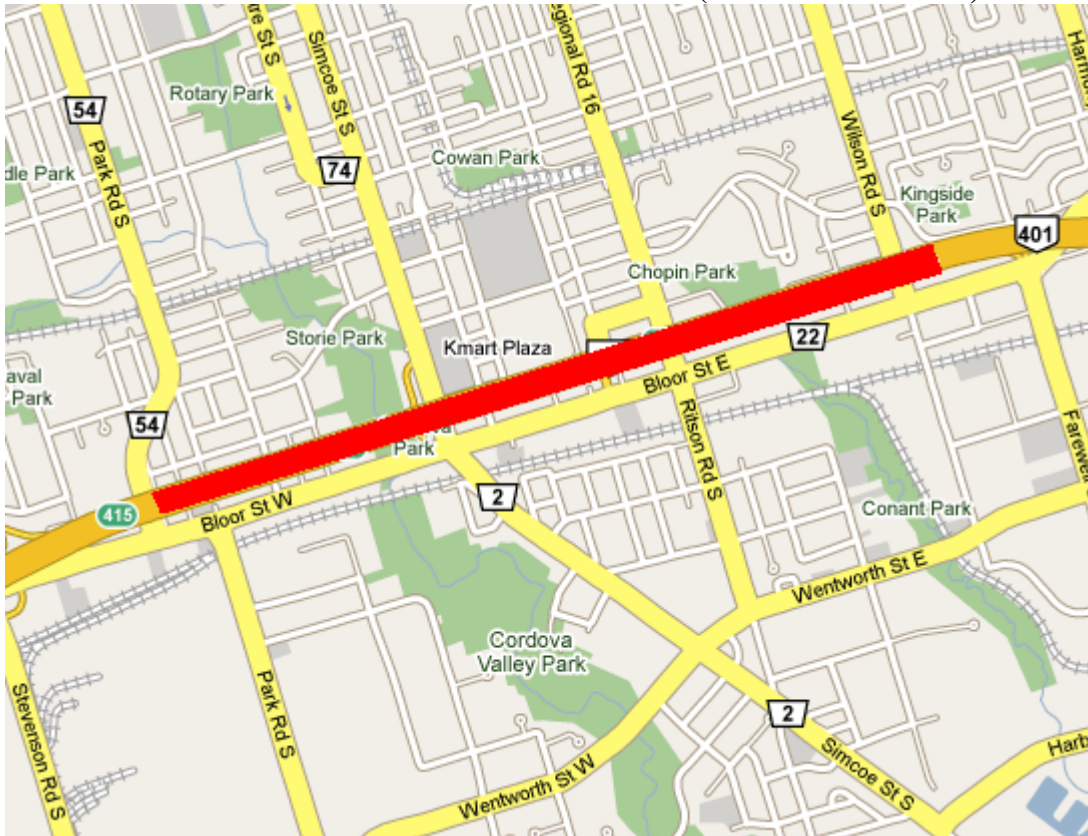


3.6 SITE VISIT 6 – JULY 13, 2008 - NIGHT

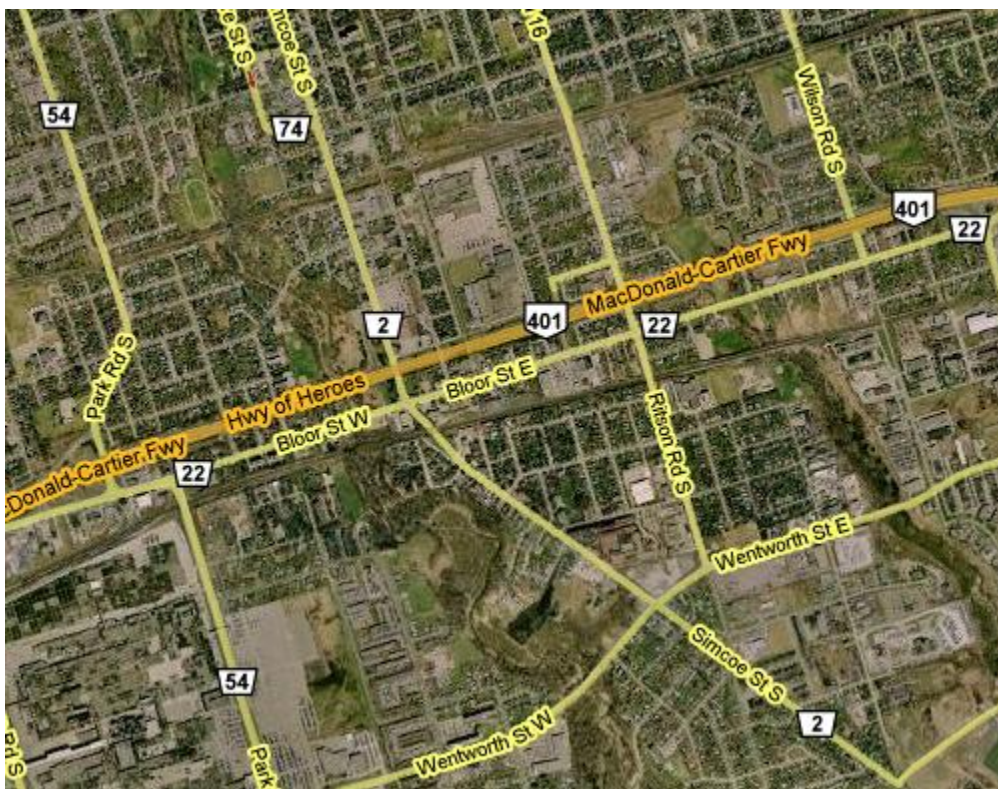
3.6.1 SITE CHARACTERISTICS FORM FOR SITE 2005-2014

Date	13-Jul
Name of the Site	2005-2014
Location	Oshawa - Hwy 401 EB
Weather	Warm and Clear
Starting Time	21:25
End Time	22:45
Day of Week	Sunday
Time of Day	Night
Assigned Lane	Traffic in South lane; two north lanes closed; see map
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	2 Left Lanes
OPP Presence	No
Time of OPP Presence	
Facility Type	6 lane, divided highway
Driver Population	Starting as mostly commuter vehicles, becoming more HV as time passes
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	2.9km
Duration of Closure	One lane closed at 5pm (and saw no queuing), second lane at 6pm (queuing began). Closure runs all night until 7am
Intersections	Closure starts just East of Park onramp. All access and egress open
Type of Traffic Control	Lane arrow lighted signs. Barrel Separated.
Pavement Condition	Good
Distractions	Day time - workers present - bridgework
List of Photos Taken	(1) EB (2) WB
Other Comments	

3.6.2 MAP OF LOCATION OF SITE 2005-2014 (SAME AS ABOVE)



3.6.3 AERIAL VIEW OF SITE 2005-2014 (SAME AS ABOVE)



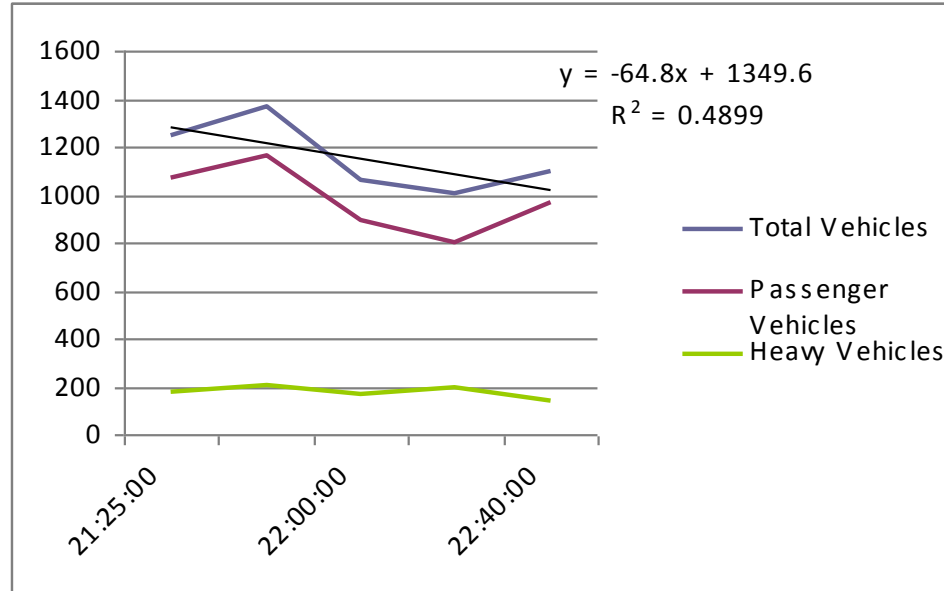
3.6.4 DATA COLLECTED FROM SITE 2005-2014 ON JUL 13, 2008 – NIGHT

Road Hwy 401 EB
 Location Hwy 401 in Oshawa; 2.9km closure after Park Rd.

Evaluation Days July 10, 13th, 2008

Date: Sunday, July 13th, 2008

Average Total Flow (ATF) 1155
SD - ATF 146
Average PV Flow (APVF) 978
SD - APVF 141
Average HV Flow (AHVF) 178
SD - AHVF 27



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	vphpl
21:25:00	21:40:00	00:15:00	267	44	0	15	0	0.2500	1068	176	1244
21:40:00	21:55:00	00:15:00	290	51	0	15	0	0.2500	1160	204	1364
22:00:00	22:15:00	00:15:00	223	43	0	15	0	0.2500	892	172	1064
22:20:00	22:35:00	00:15:00	201	50	0	15	0	0.2500	804	200	1004
22:40:00	22:55:00	00:15:00	241	34	0	15	0	0.2500	964	136	1100

3.6.5 PHOTOS TAKEN OF SITE 2005-2014 ON JUL 13, 2008 - NIGHT



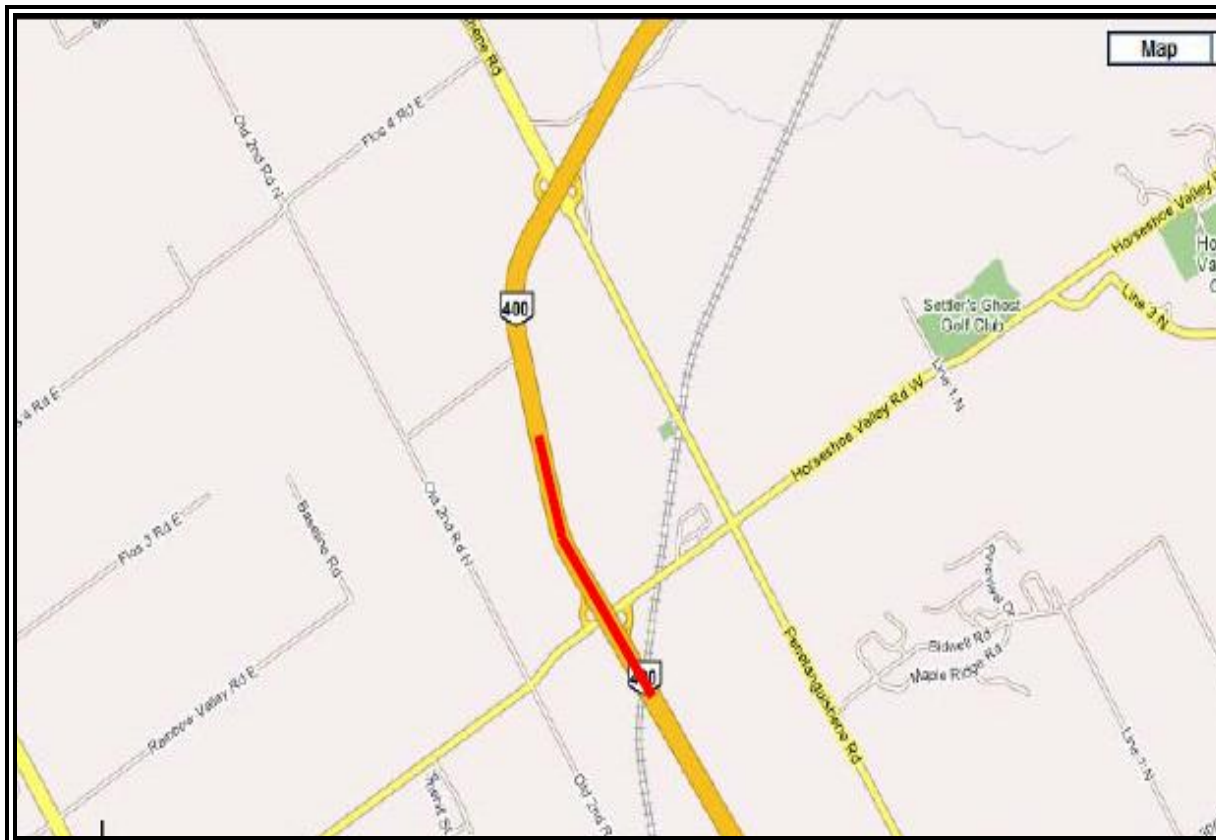
4 2007-2030, Hwy 400 N

4.1 SITE VISIT 1 – OCTOBER 22, 2007

4.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2030

Date	22-Oct
Hwy No.	400 NB
Location	Hwy 400 CPR Overpass, North of Barrie
Weather	Clear
Starting Time	15:00
End Time	16:30
Day of Week	Monday
Time of Day	Afternoon
Assigned Lane	2
Lane Width (m)	3.75
Direction of Traffic	NB
Shoulder Type	Fully paved (0.5 m)
Lane Closure	One left (Median lane closed)
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	4 lane freeway
Driver Population	Peak
% Heavy Vehicles	Data not collected (No forced flow)
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Not within Workzone
Length of Work Zone	3.4 Km
Duration of Closure	0600-16:00
Interchange	Horseshoe valley Road
Type of Traffic	TL-29
Pavement Condition	Average
Distractions	Nil
List of Photos Taken	3 Photos Taken
Other Comments	Low traffic volume, Average speed of vehicle 100 km/h

4.1.2 MAP OF LOCATION OF SITE 2007-2030



4.1.3 AERIAL VIEW OF SITE 2007-2030



4.1.4 DATA COLLECTED FROM SITE 2007-2030 ON OCTOBER 22, 2007

This site visit yielded no data.

4.1.5 PHOTOS TAKEN OF SITE 2007-2030 ON OCTOBER 22, 2007



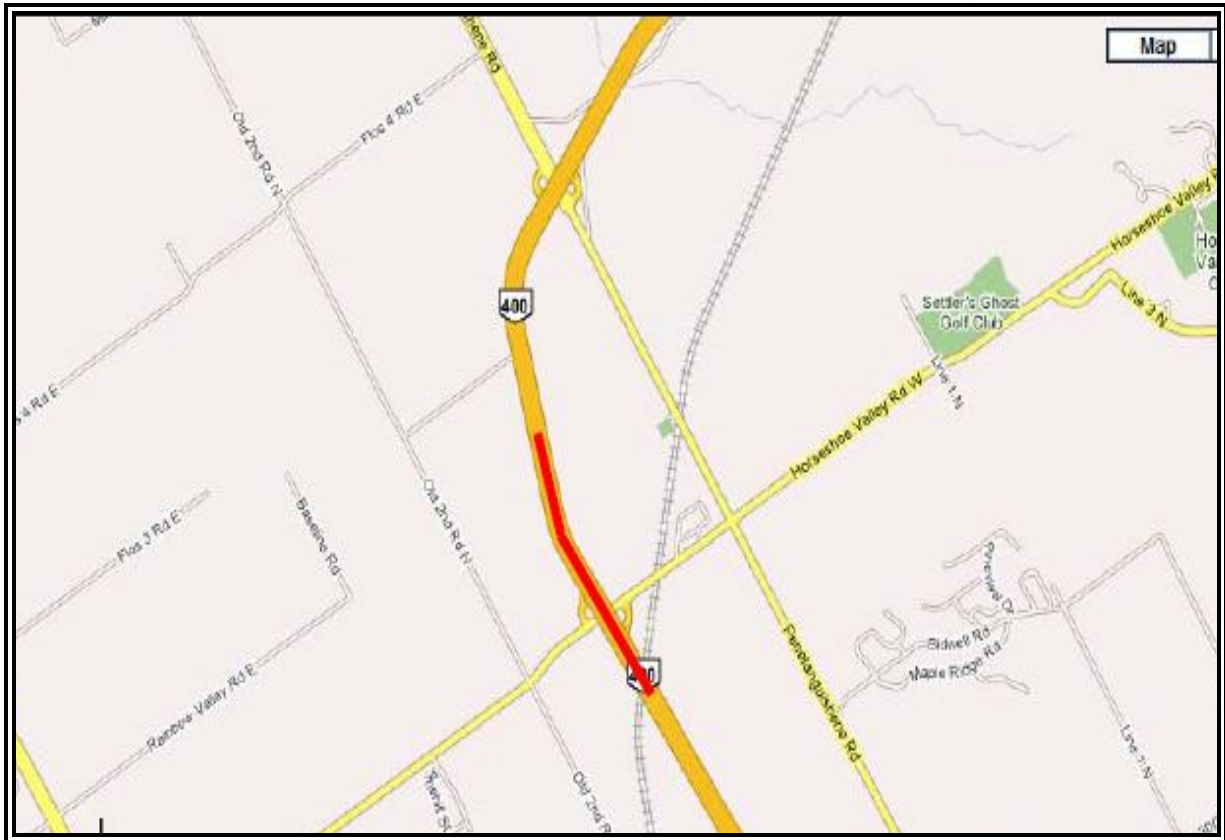


4.2 SITE VISIT 2 – OCTOBER 23, 2007

4.2.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2030

Date	23-Oct
Hwy No.	400 NB
Location	CPR Overpass, North of Barrie
Weather	Light rain
Starting Time	15:00
End Time	16:30
Day of Week	Tuesday
Time of Day	Afternoon
Assigned Lane	2
Lane Width (m)	3.75
Direction of Traffic	NB
Shoulder Type	Fully paved (0.5 m)
Lane Closure	One left (Median lane closed)
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	4 lane freeway
Driver Population	Off-peak
% Heavy Vehicles	Data not collected (No forced flow)
Grade of Road	< 3%
Speed Limit (km/hr)	100
Curve of Road	Not within the Workzone
Length of Work Zone	3.4 Km
Duration of Closure	0600-16:00
Interchange	Horseshoe valley Road
Type of Traffic	TL-29
Pavement Condition	Average
Distractions	Nil
List of Photos Taken	1 Photo Taken
Other Comments	Very low traffic volume

4.2.2 MAP OF LOCATION OF SITE 2007-2030 (SAME AS ABOVE)



4.2.3 AERIAL VIEW OF SITE 2007-2030 (SAME AS ABOVE)



4.2.4 DATA COLLECTED FROM SITE 2007-2030 ON OCTOBER 22, 2007

This site visit yielded no data.

4.2.5 PHOTOS TAKEN OF SITE 2007-2030 ON OCTOBER 23, 2007



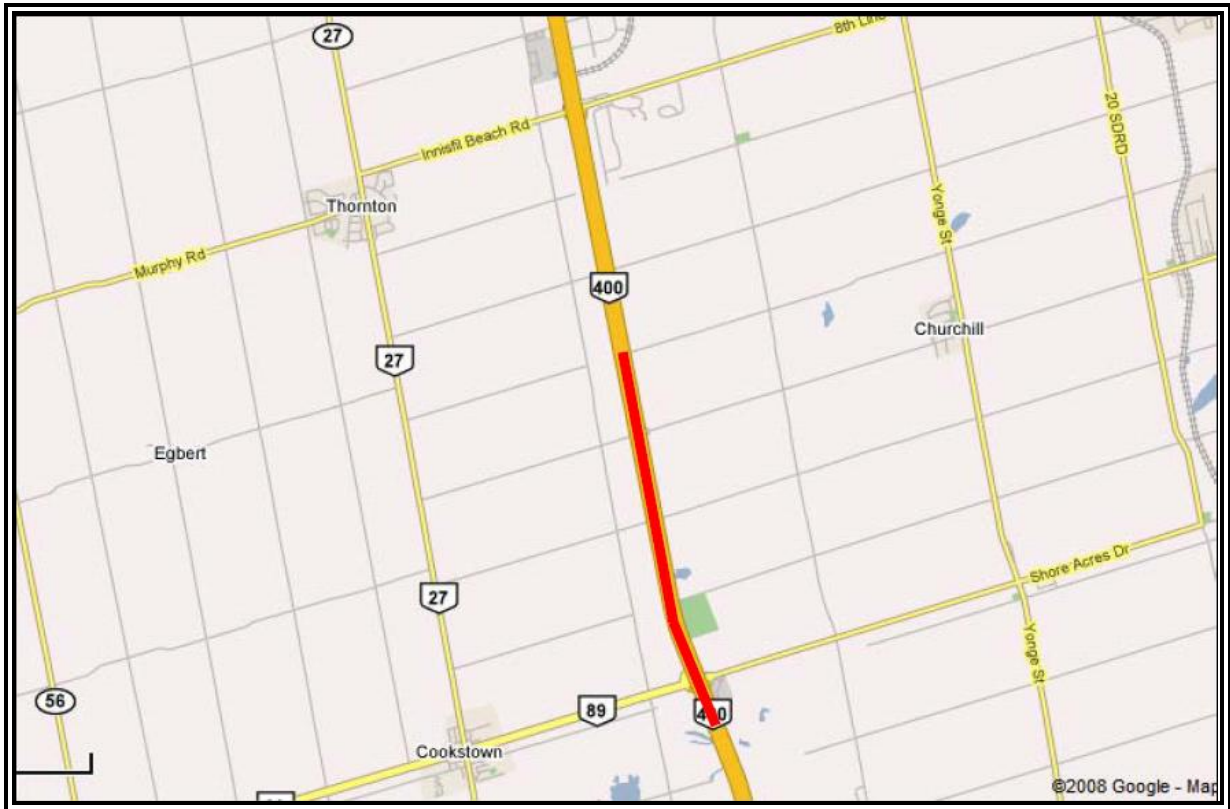
5 2006-2024, Hwy 400 N, S

5.1 SITE VISIT 1 – NOVEMBER 2, 2007

5.1.1 SITE CHARACTERISTICS FORM FOR SITE 2006-2024

Date	02-Nov
Hwy No.	400 N/B
Location	North of Hwy 89 on Hwy 400
Weather	Clear 1° C
Starting Time	21:00
End Time	01:15
Day of Week	Friday-Saturday
Time of Day	Night
Assigned Lane	1 & 2 (Median lanes)
Lane Width (m)	3.75
Direction of Traffic	NB
Shoulder Type	Fully Paved
Lane Closure	lane 1 closed at 2130, lane 2 at 2230
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Six lane divided freeway
Driver Population	Peak and off-peak
% Heavy Vehicles	
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	24/7 from Friday 2100 till Monday 0130
Interchange	Hwy 89
Type of Traffic	Barrel separated
Pavement Condition	Average-Median repair
Distractions	Bad light
List of Photos Taken	3 Photos Taken
Other Comments	Queue length 200 m from Data collection point

5.1.2 MAP OF LOCATION OF SITE 2006-2024



5.1.3 AERIAL VIEW OF SITE 2006-2024

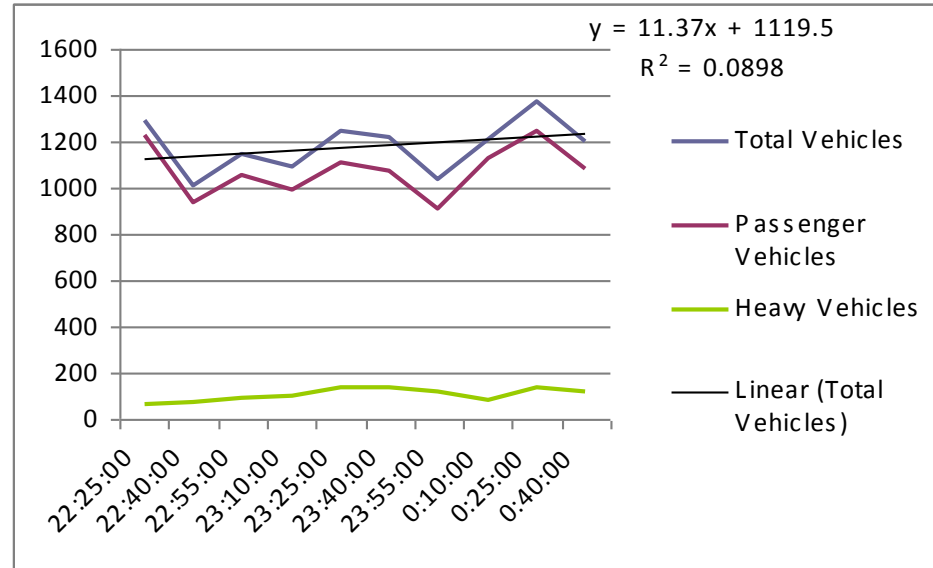


5.1.4 DATA COLLECTED FROM SITE 2006-2024 ON NOVEMBER 2, 2007

Road Hwy 400
 Location North of Hwy 89 on Hwy 400, South of Barrie
 Evaluation Days November 2, 3

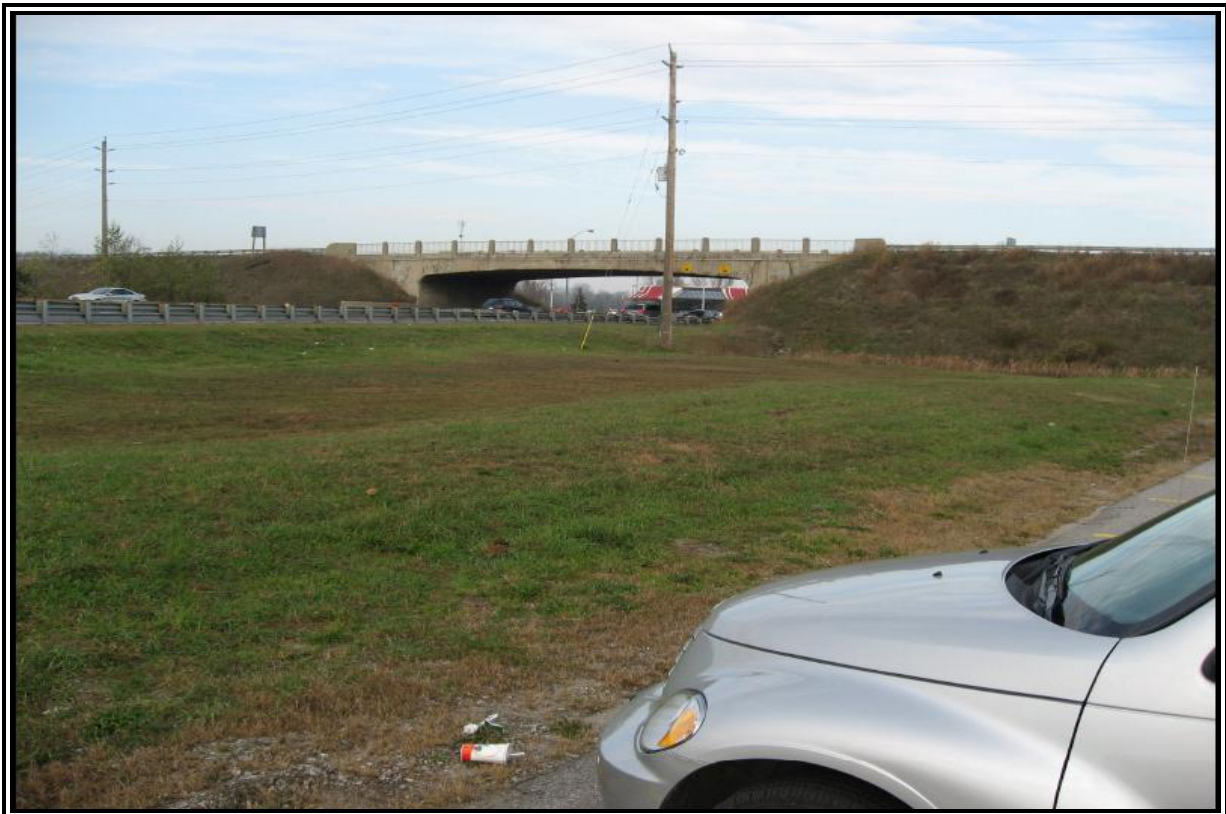
Date: Friday, November 2, 2007

Average Total Flow (ATF) 1167
SD - ATF 106
Average PV Flow (APVF) 1064
SD - APVF 102
Average HV Flow (AHVF) 103
SD - AHVF 32



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
22:25:00	22:40:00	00:15:00	307	16	0	15	0	0.2500	1228	64	1292
22:40:00	22:55:00	0:15:00	233	19	0	15	0	0.2500	932	76	1008
22:55:00	23:10:00	0:15:00	263	23	0	15	0	0.2500	1052	92	1144
23:10:00	23:25:00	0:15:00	247	26	0	15	0	0.2500	988	104	1092
23:25:00	23:40:00	0:15:00	277	35	0	15	0	0.2500	1108	140	1248
23:40:00	23:55:00	0:15:00	269	35	0	15	0	0.2500	1076	140	1216
23:55:00	0:10:00	0:15:00	228	30	0	15	0	0.2500	912	120	1032
0:10:00	0:25:00	0:15:00	282	21	0	15	0	0.2500	1128	84	1212
0:25:00	0:40:00	0:15:00	311	33	0	15	0	0.2500	1244	132	1376
0:40:00	0:55:00	0:15:00	271	29	0	15	0	0.2500	1084	116	1200

5.1.5 PHOTOS TAKEN OF SITE 2006-2024 ON NOVEMBER 2, 2007



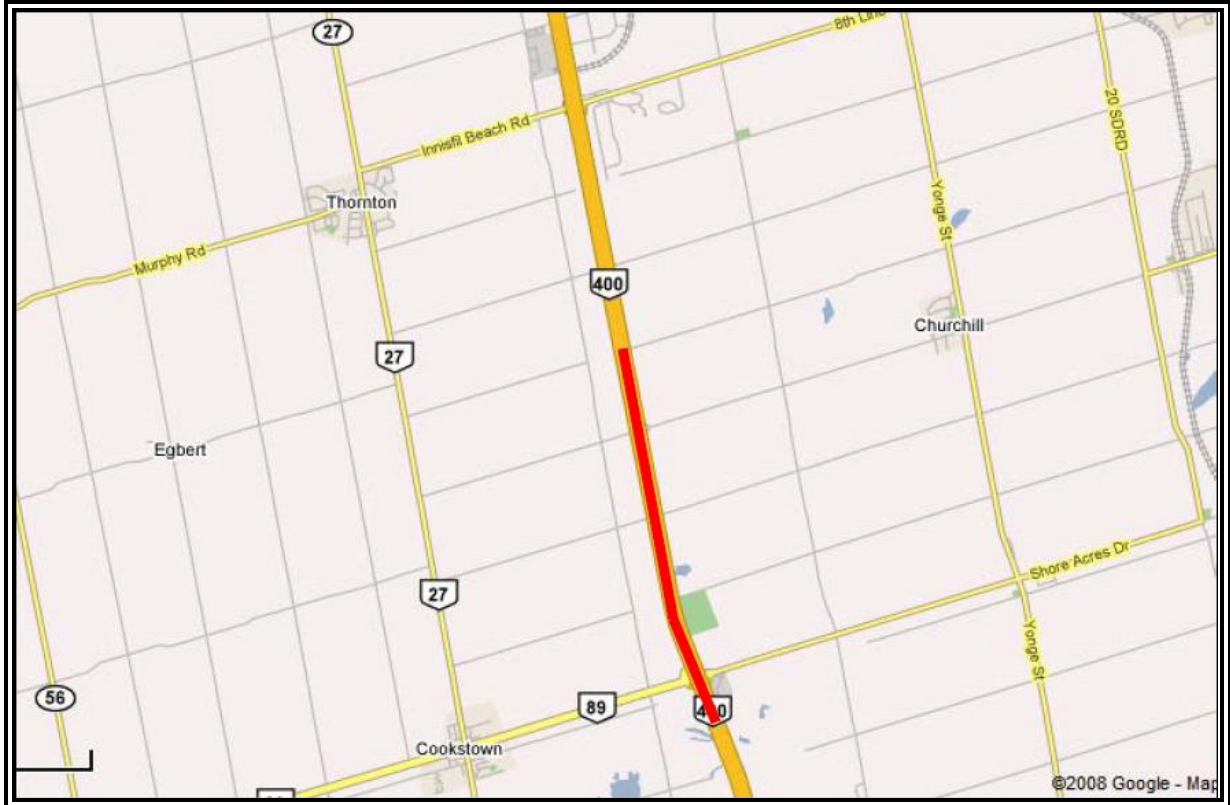


5.2 SITE VISIT 2 – NOVEMBER 3, 2007 - NB

5.2.1 SITE CHARACTERISTICS FORM FOR SITE 2006-2024

Date	03-Nov
Hwy No.	400 N/B
Location	North of Hwy 89 on Hwy 400
Weather	Clear 7° C
Starting Time	10:00
End Time	12:00
Day of Week	Saturday
Time of Day	Morning
Assigned Lane	1 & 2 (Median lanes)
Lane Width (m)	3.75
Direction of Traffic	NB
Shoulder Type	Fully Paved
Lane Closure	lane 1 & 2 closed
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Six lane divided freeway
Driver Population	Off-peak. About 10% with towing (bikes, boats etc)
% Heavy Vehicles	No forced flow
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	24/7 from Friday 2100 till Monday 0130
Interchange	Hwy 89
Type of Traffic Control	Barrel separated
Pavement Condition	Average-Median repair
Distractions	Recreation vehicles
List of Photos Taken	1 Photo Taken
Other Comments	Free flow data- Av. Speed 60 Km/h

5.2.2 MAP OF LOCATION OF SITE 2006-2024 (SAME AS ABOVE)



5.2.3 AERIAL VIEW OF SITE 2006-2024 (SAME AS ABOVE)

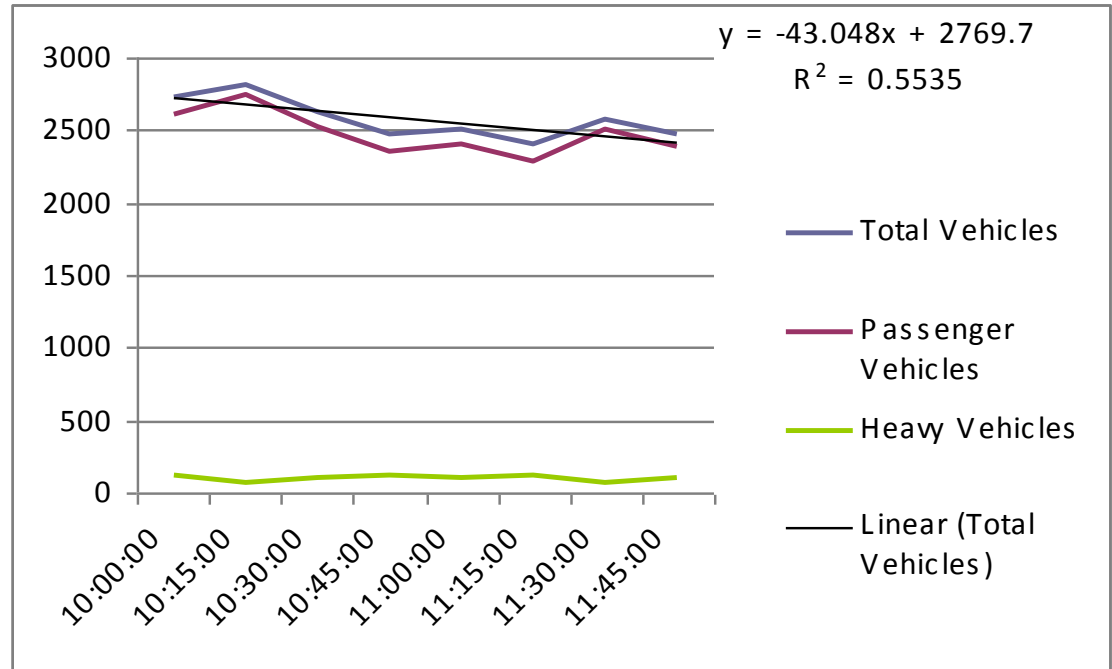


5.2.4 DATA COLLECTED FROM SITE 2006-2024 ON NOVEMBER 3, 2007 - NB

Road Hwy 400
 Location North of Hwy 89 on Hwy 400, South of Barrie
 Evaluation Days November 2, 3

Date: Saturday, November 3, 2007

Average Total Flow (ATF) 2590
SD - ATF 147
Average PV Flow (APVF) 2489
SD - APVF 157
Average HV Flow (AHVF) 101
SD - AHVF 21



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
10:00:00	10:15:00	0:15:00	651	31	0	15	0	0.2500	2604	124	2728
10:15:00	10:30:00	0:15:00	686	18	0	15	0	0.2500	2744	72	2816
10:30:00	10:45:00	0:15:00	632	26	0	15	0	0.2500	2528	104	2632
10:45:00	11:00:00	0:15:00	590	29	0	15	0	0.2500	2360	116	2476
11:00:00	11:15:00	0:15:00	601	24	0	15	0	0.2500	2404	96	2500
11:15:00	11:30:00	0:15:00	570	30	0	15	0	0.2500	2280	120	2400
11:30:00	11:45:00	0:15:00	626	19	0	15	0	0.2500	2504	76	2580
11:45:00	12:00:00	0:15:00	595	24	0	15	0	0.2500	2380	96	2476

5.2.5 PHOTOS TAKEN OF SITE 2006-2024 ON NOVEMBER 3, 2007

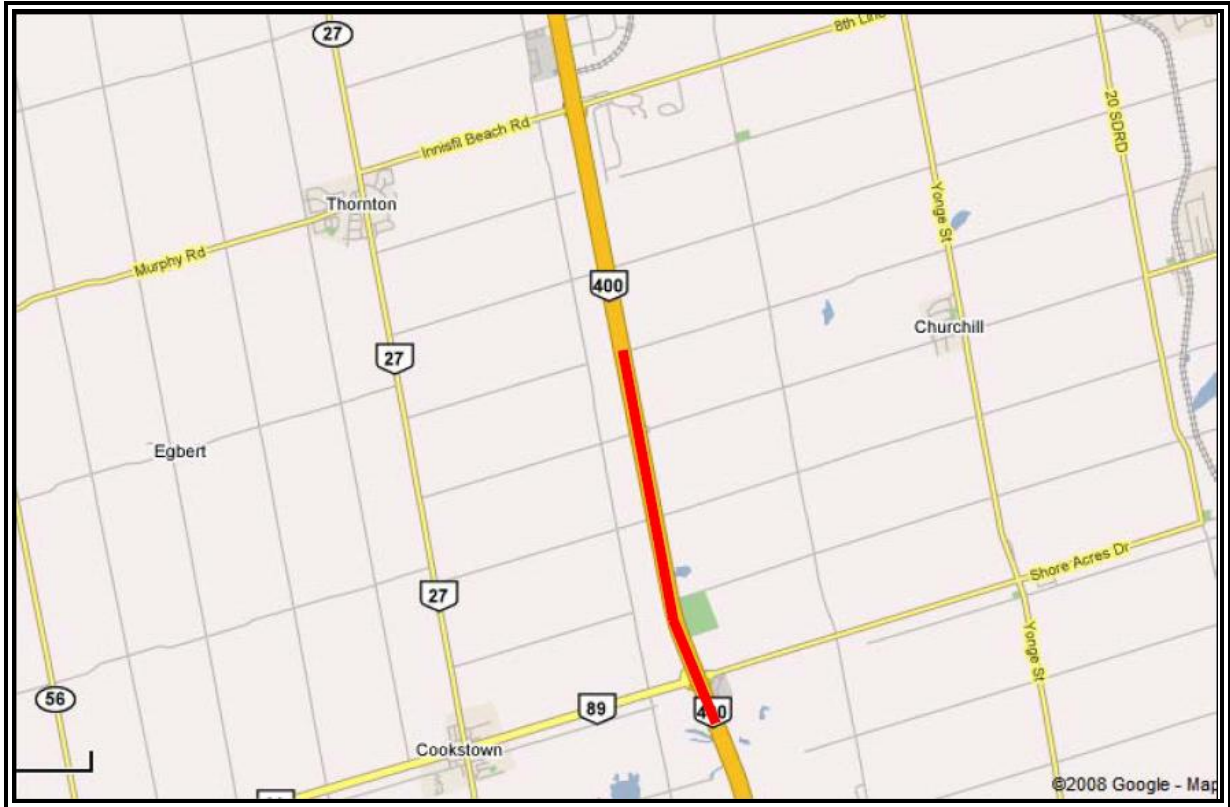


5.3 SITE VISIT 3 – NOVEMBER 4, 2007

5.3.1 SITE CHARACTERISTICS FORM FOR SITE 2006-2024

Date	3-4 Nov
Hwy No.	400 N/B
Location	North of Hwy 89 on Hwy 400
Weather	Clear 5° C
Starting Time	20:00
End Time	01:30
Day of Week	Saturday-Sunday
Time of Day	Mid-night
Assigned Lane	1 & 2 (Median lanes)
Lane Width (m)	3.75
Direction of Traffic	NB
Shoulder Type	Fully Paved
Lane Closure	lane 1 & 2 closed
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Six lane divided freeway
Driver Population	Off-peak
% Heavy Vehicles	No forced flow condition
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	24/7 from Friday 2100 till Sunday 0130
Interchange	Hwy 89
Type of Traffic Control	Barrel separated
Pavement Condition	Average-Median repair
Distractions	Speed drops to about 40 when crossing construction vehicles
List of Photos Taken	1 Photo Taken
Other Comments	Speed 2km ahead of WZ 120 km/h. Dark night-Work finished at 23:30, lanes opened at 2430-Fr.F

5.3.2 MAP OF LOCATION OF SITE 2006-2024 (SAME AS ABOVE)



5.3.3 AERIAL VIEW OF SITE 2006-2024 (SAME AS ABOVE)

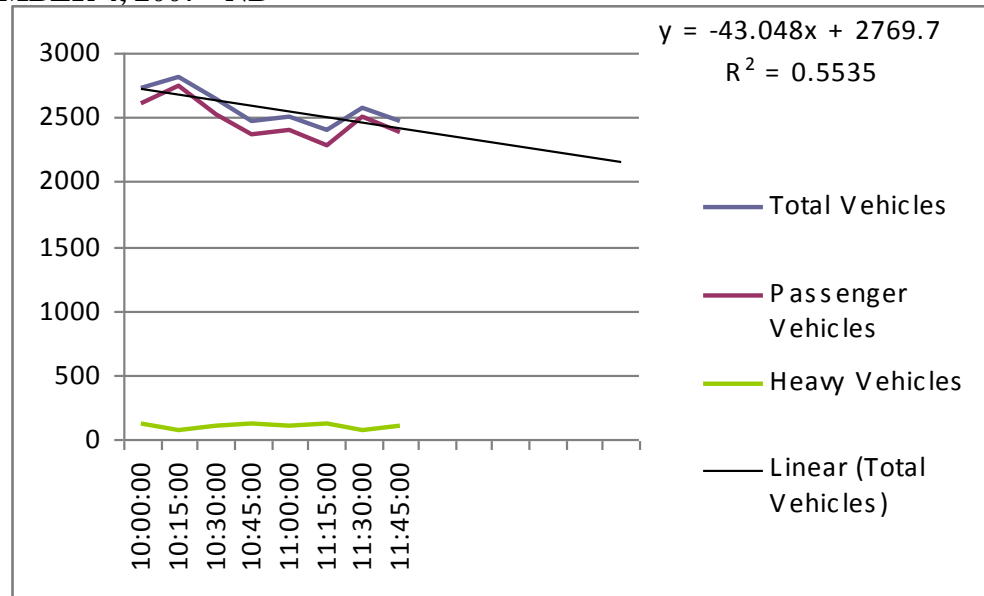


5.3.4 DATA COLLECTED FROM SITE 2006-2024 ON NOVEMBER 4, 2007 - NB

Road Hwy 400
 Location North of Hwy 89 on Hwy 400, South of Barrie
 Evaluation Days November 2, 3

Date: Saturday, November 3, 2007

Average Total Flow (ATF) 1134
SD - ATF 83
Average PV Flow (APVF) 1114
SD - APVF 82
Average HV Flow (AHVF) 21
SD - AHVF 6



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
21:00:00	21:15:00	0:15:00	311	7	0	15	0	0.2500	1244	28	1272
21:15:00	21:30:00	0:15:00	264	6	0	15	0	0.2500	1056	24	1080
21:30:00	21:45:00	0:15:00	276	4	0	15	0	0.2500	1104	16	1120
21:45:00	22:00:00	0:15:00	298	3	0	15	0	0.2500	1192	12	1204
22:00:00	22:15:00	0:15:00	281	7	0	15	0	0.2500	1124	28	1152
22:15:00	22:30:00	0:15:00	267	4	0	15	0	0.2500	1068	16	1084
22:30:00	22:45:00	0:15:00	252	5	0	15	0	0.2500	1008	20	1028
22:45:00	23:00:00	0:15:00	246	7	0	15	0	0.2500	984	28	1012
23:00:00	23:15:00	0:15:00	261	3	0	15	0	0.2500	1044	12	1056
23:15:00	23:30:00	0:15:00	252	6	0	15	0	0.2500	1008	24	1032
23:30:00	23:45:00	0:15:00	228	12	0	15	0	0.2500	912	48	960
23:45:00	0:00:00	0:15:00	195	5	0	15	0	0.2500	780	20	800

0:00:00	0:15:00	0:15:00	191	2	0	15	0	0.2500	764	8	772
0:15:00	0:30:00	0:15:00	142	2	0	15	0	0.2500	568	8	576

5.3.5 PHOTOS TAKEN OF SITE 2006-2024 ON NOVEMBER 4, 2007

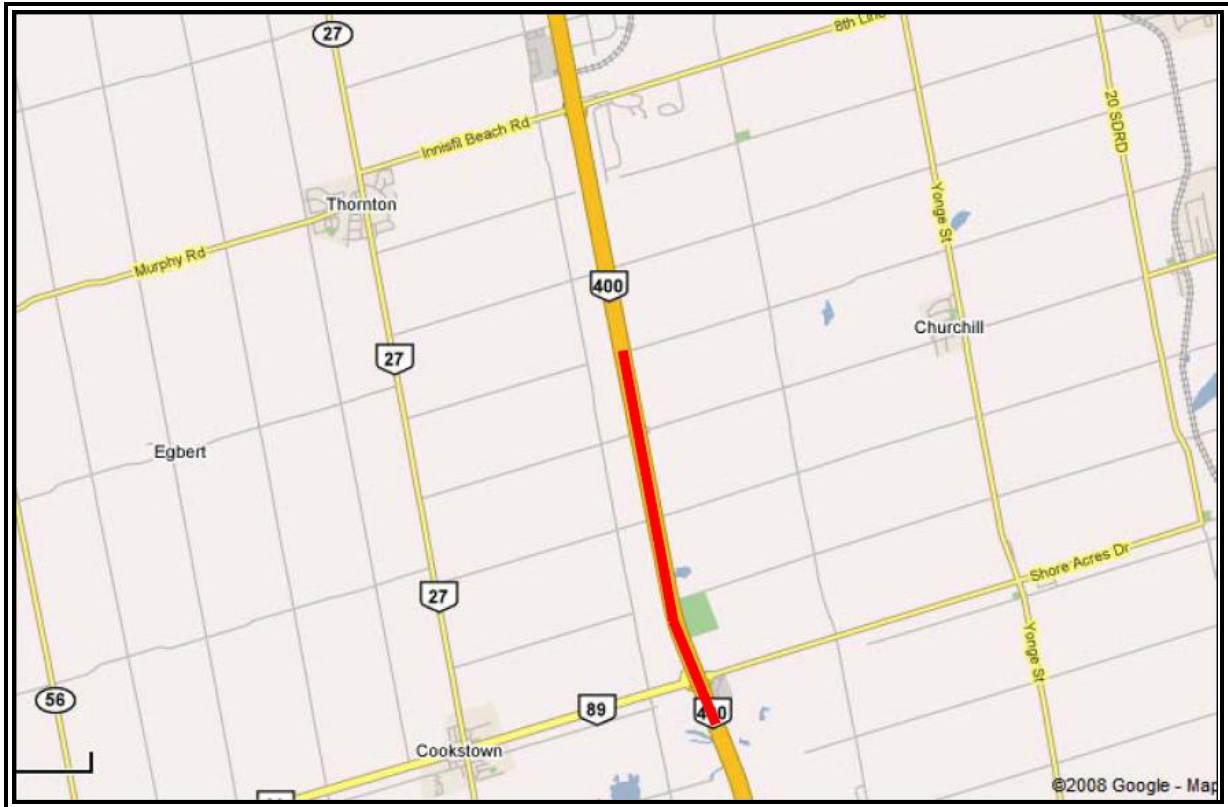


5.4 SITE VISIT 4 – NOVEMBER 3, 2007 - SB

5.4.1 SITE CHARACTERISTICS FORM FOR SITE 2006-2024

Date	03-Nov
Name of the Site	Hwy 400 SB
Location	Hwy 400, North of Hwy 89
Weather	Clear
Starting Time	10:55
End Time	12:30
Day of Week	Saturday
Time of Day	SB
Assigned Lane	1 & 2 (Median lanes)
Lane Width (m)	3.75
Direction of Traffic	SB
Shoulder Type	Paved
Lane Closure	2 left lanes
OPP Presence	No
Time of OPP Presence	
Facility Type	6 lane, divided freeway
Driver Population	Off-peak
% Heavy Vehicles	
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	Constant from Friday 21:00 to Sunday AM
Intersections	North of Hwy 89
Type of Traffic Control	Barrel separated
Pavement Condition	Semi-paved
Distractions	Some work in Construction Zone – median work
List of Photos Taken	
Other Comments	No forced flow conditions – 20 Min. of FF data recorded

5.4.2 MAP OF LOCATION OF SITE 2006-2024 (SAME AS ABOVE)



5.4.3 AERIAL VIEW OF SITE 2006-2024 (SAME AS ABOVE)



5.4.4 DATA COLLECTED FROM SITE 2006-2024 ON NOVEMBER 3, 2007 - SB
This site visit yielded no data.

5.4.5 PHOTOS TAKEN OF SITE 2006-2024 ON NOVEMBER 3, 2007 - SB
No photos were taken on this site visit.

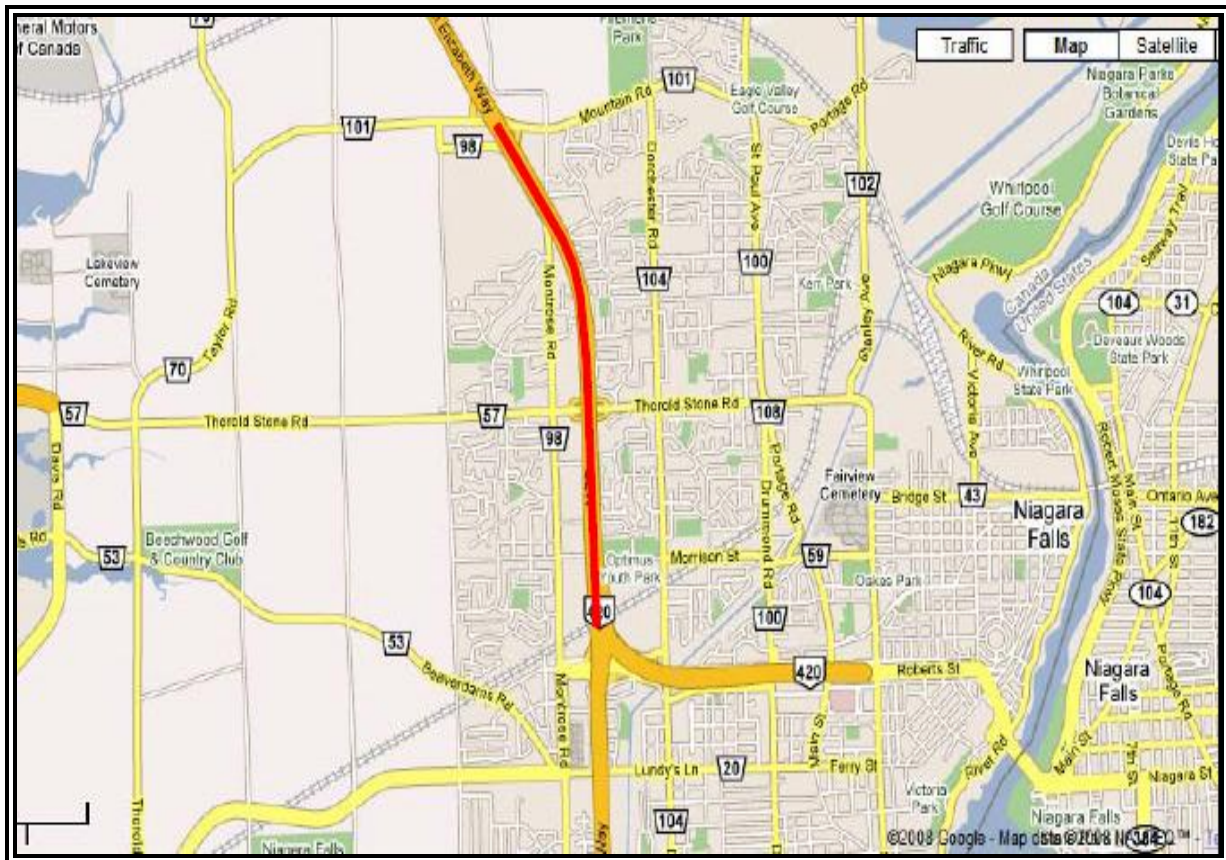
6 2007-2252, QEW S, N

6.1 SITE VISIT 1 – SEPTEMBER 20, 2007 - EB

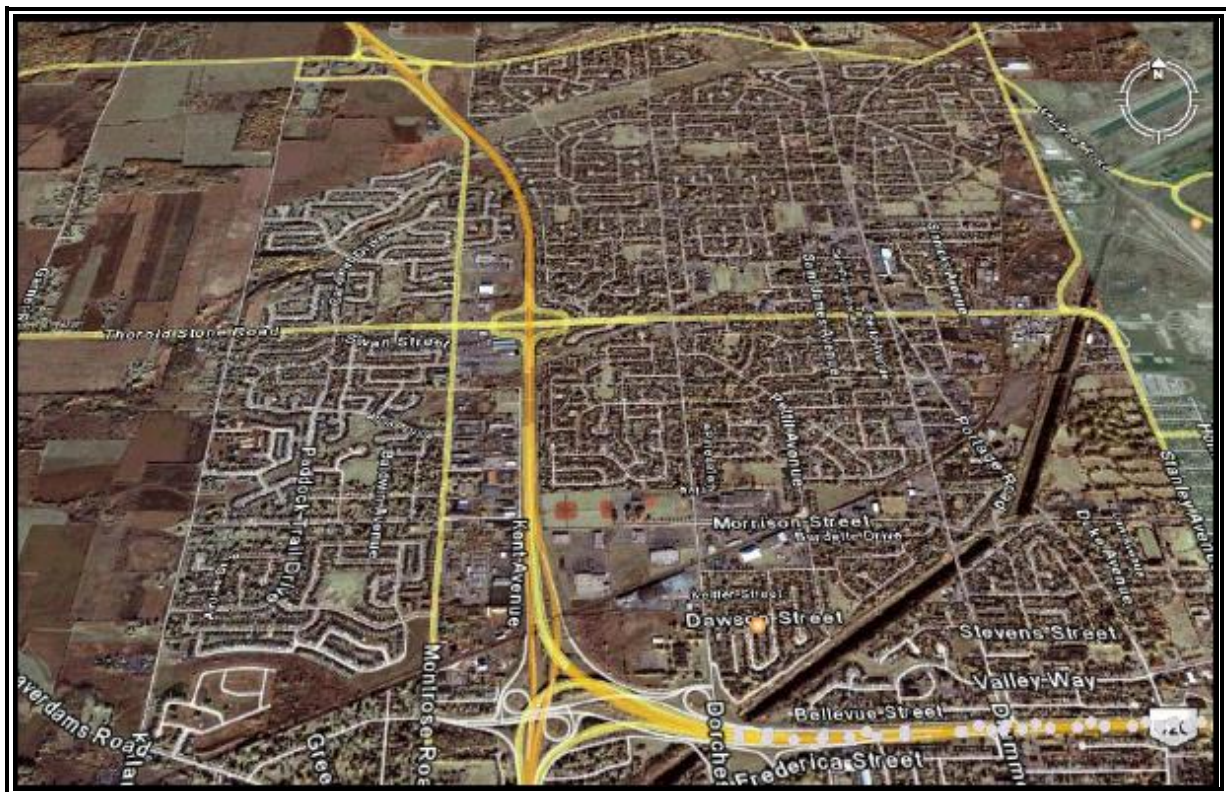
6.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2252

Date	20-Sep
Hwy No.	QEW SB
Location	Mountain Road to Hwy 420
Weather	Clear
Starting Time	20:00
End Time	0:00
Day of Week	Thursday
Time of Day	Weekday
Assigned Lane	2 & 3
Lane Width (m)	3.75
Direction of Traffic	S/B
Shoulder Type	Fully paved
Lane Closure	2 Right lanes closed
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Six lane divided freeway
Driver Population	Off peak
% Heavy Vehicles	N/A
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	1150 m
Duration of Closure	20:00- 06:00
Interchange	QEW and Mountain Road
Type of Traffic Control	Barrel separated
Pavement Condition	Paved (Painting)
Distractions	
List of Photos Taken	3 Photos Taken
Other Comments	No forced flow condition-Data not collected

6.1.2 MAP OF LOCATION OF SITE 2007-2252



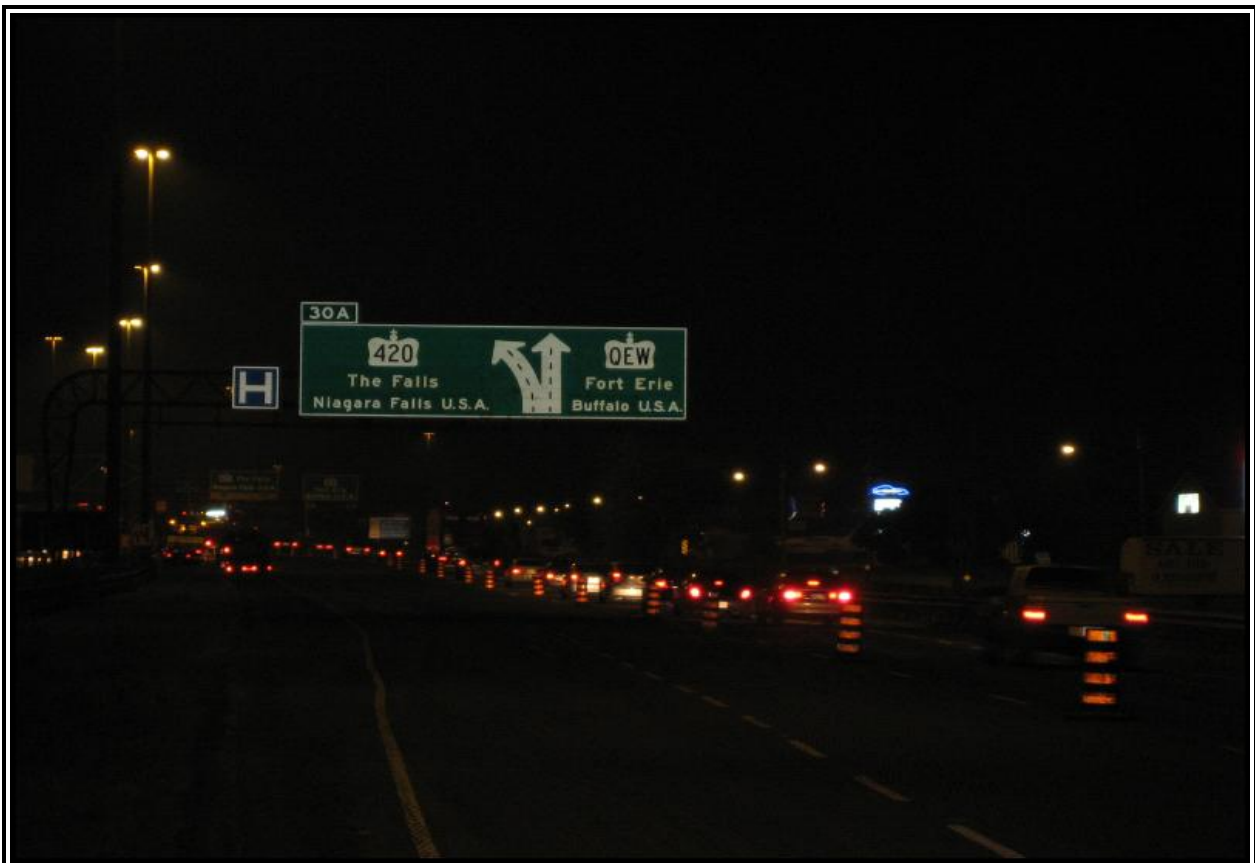
6.1.3 AERIAL VIEW OF SITE 2007-2252



6.1.4 DATA COLLECTED FROM SITE 2007-2252 ON SEPT 20, 2007

This site visit yielded no data.

6.1.5 PHOTOS TAKEN OF 2007-2252 ON SEPTEMBER 20, 2007



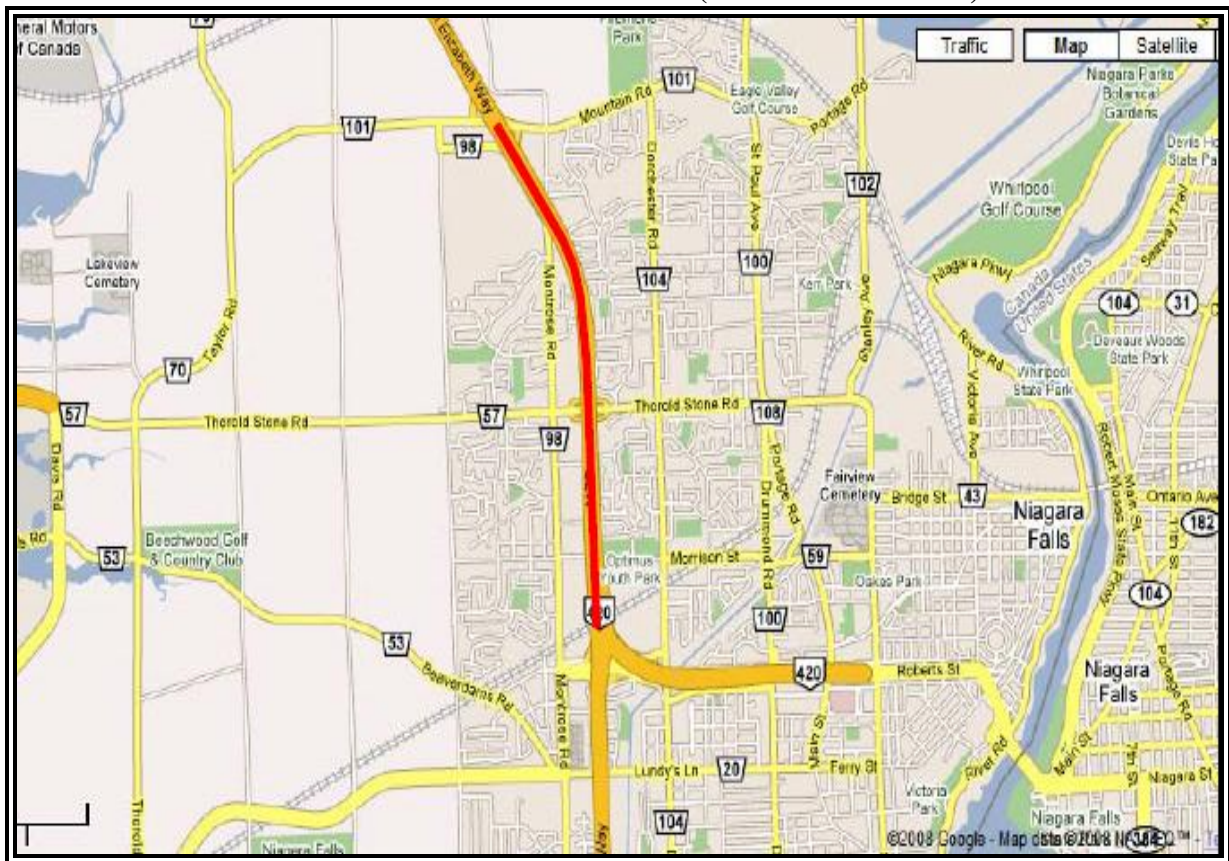


6.2 SITE VISIT 2 – SEPTEMBER 21, 2007

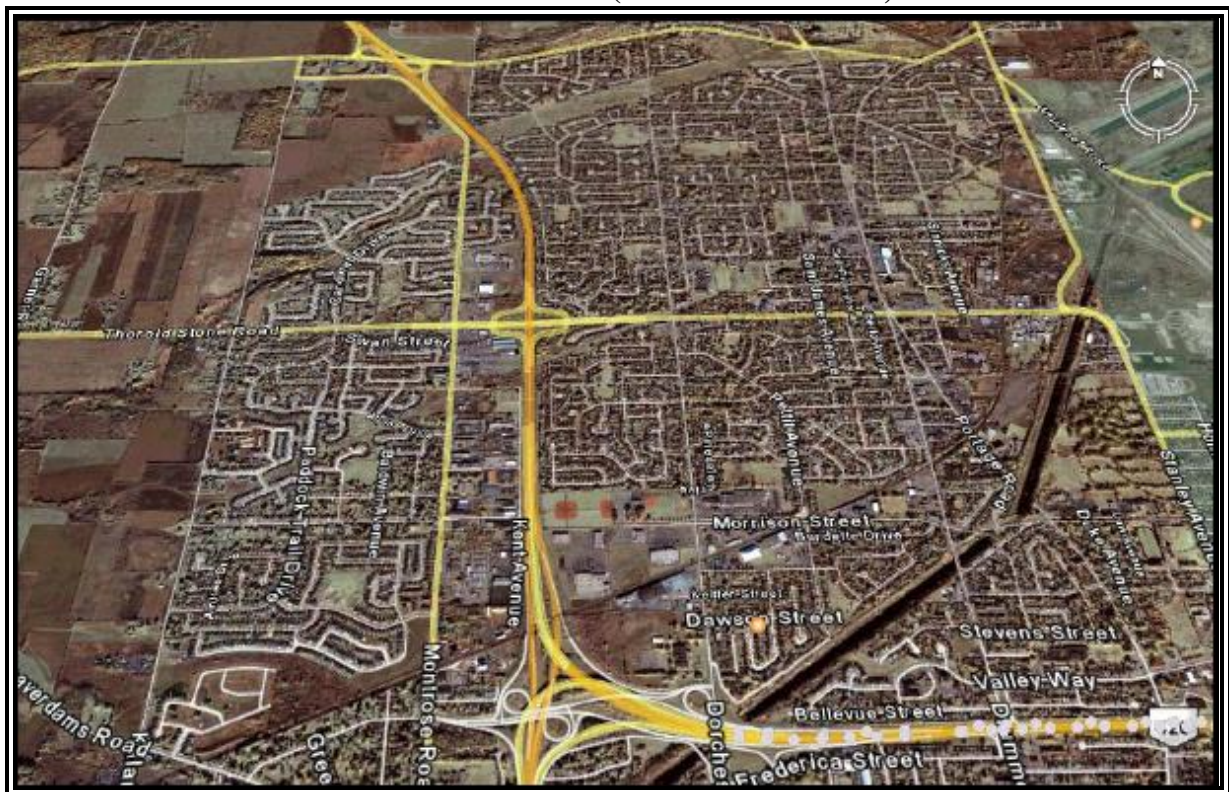
6.2.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2252

Date	21-Sep
Hwy No.	QEW Fort Erie bound SB
Location	Thorold Stone Road to Hwy 420
Weather	Clear
Starting Time	22:00
End Time	01:00
Day of Week	Friday
Time of Day	
Assigned Lane	1 & 2
Lane Width (m)	3.75
Direction of Traffic	S/B
Shoulder Type	Fully paved (2.2)
Lane Closure	2 Left lanes (Multi lane)
OPP Presence	Yes
Time of OPP Presence	22:30
Facility Type	Six lane divided freeway
Driver Population	Off peak
% Heavy Vehicles	2.93
Grade of Road	Level at taper end, +ve slope after Lyndey's lane
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	22:00-06:00
Interchange	
Type of Traffic Control	
Pavement Condition	Milling
Distractions	
List of Photos Taken	1 Photo Taken
Other Comments	

6.2.2 MAP OF LOCATION OF SITE 2007-2252 (SAME AS ABOVE)



6.2.3 AERIAL VIEW OF SITE 2007-2252 (SAME AS ABOVE)

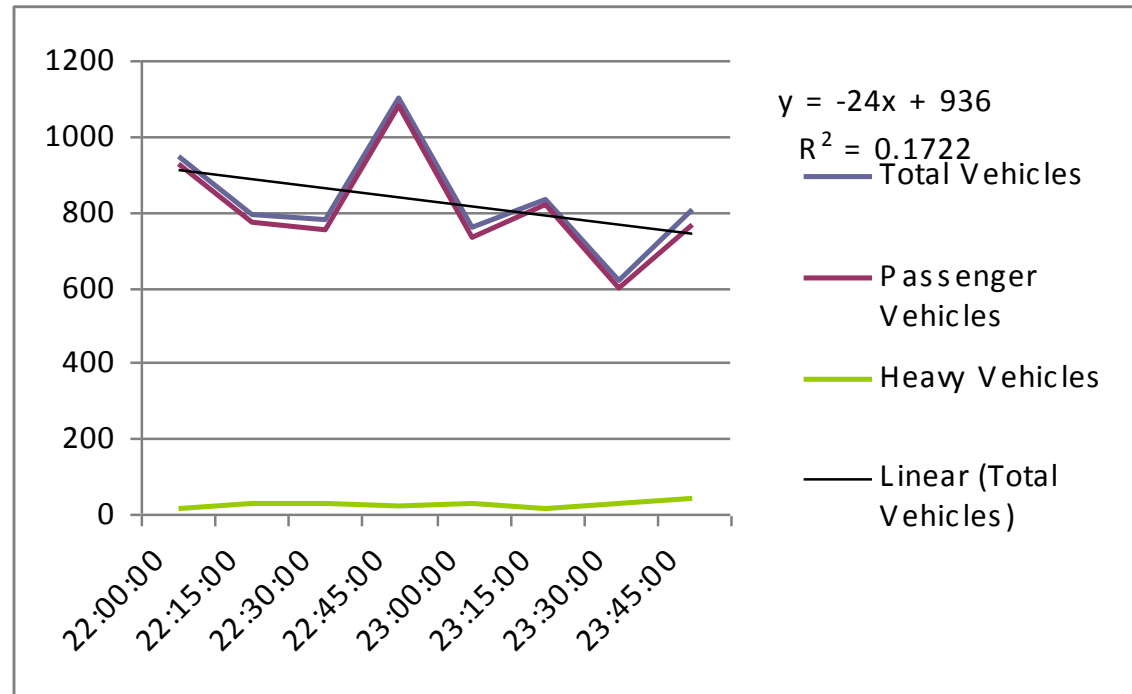


6.2.4 DATA COLLECTED FROM SITE 2007-2252 ON SEPT 21, 2007

Road QEW
 Location QEW Fort Erie bound
 from Thorold Stone
 Road to Hwy 420
 Evaluation Days September 21, 22, 23

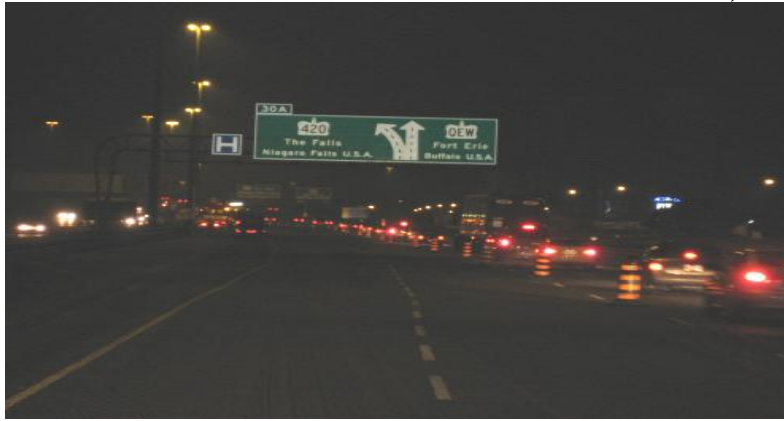
Date: Friday, September 21, 2007

Average Total Flow (ATF) 867
SD - ATF 132
Average PV Flow (APVF) 846
SD - APVF 135
Average HV Flow (AHVF) 21
SD - AHVF 6



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
22:00:00	22:15:00	0:15:00	232	4	0	15	0	0.2500	928	16	944
22:15:00	22:30:00	0:15:00	192	6	0	15	0	0.2500	768	24	792
22:30:00	22:45:00	0:15:00	187	7	0	15	0	0.2500	748	28	776
22:45:00	23:00:00	0:15:00	270	5	0	15	0	0.2500	1080	20	1100
23:00:00	23:15:00	0:15:00	183	6	0	15	0	0.2500	732	24	756
23:15:00	23:30:00	0:15:00	205	3	0	15	0	0.2500	820	12	832
23:30:00	23:45:00	0:15:00	149	6	0	15	0	0.2500	596	24	620
23:45:00	0:00:00	0:15:00	191	10	0	15	0	0.2500	764	40	804

6.2.5 PHOTOS TAKEN OF SITE 2007-2252 ON SEPTEMBER 21, 2007

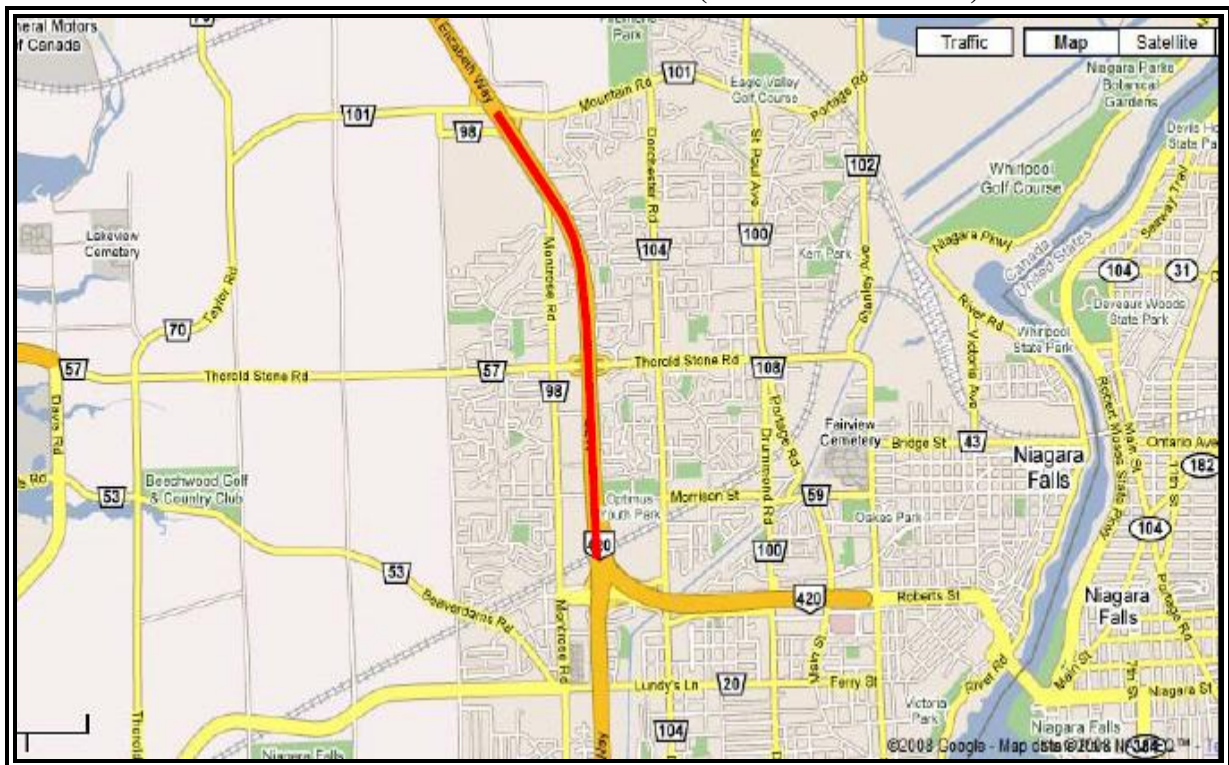


6.3 SITE VISIT 3 – SEPTEMBER 22, 2007

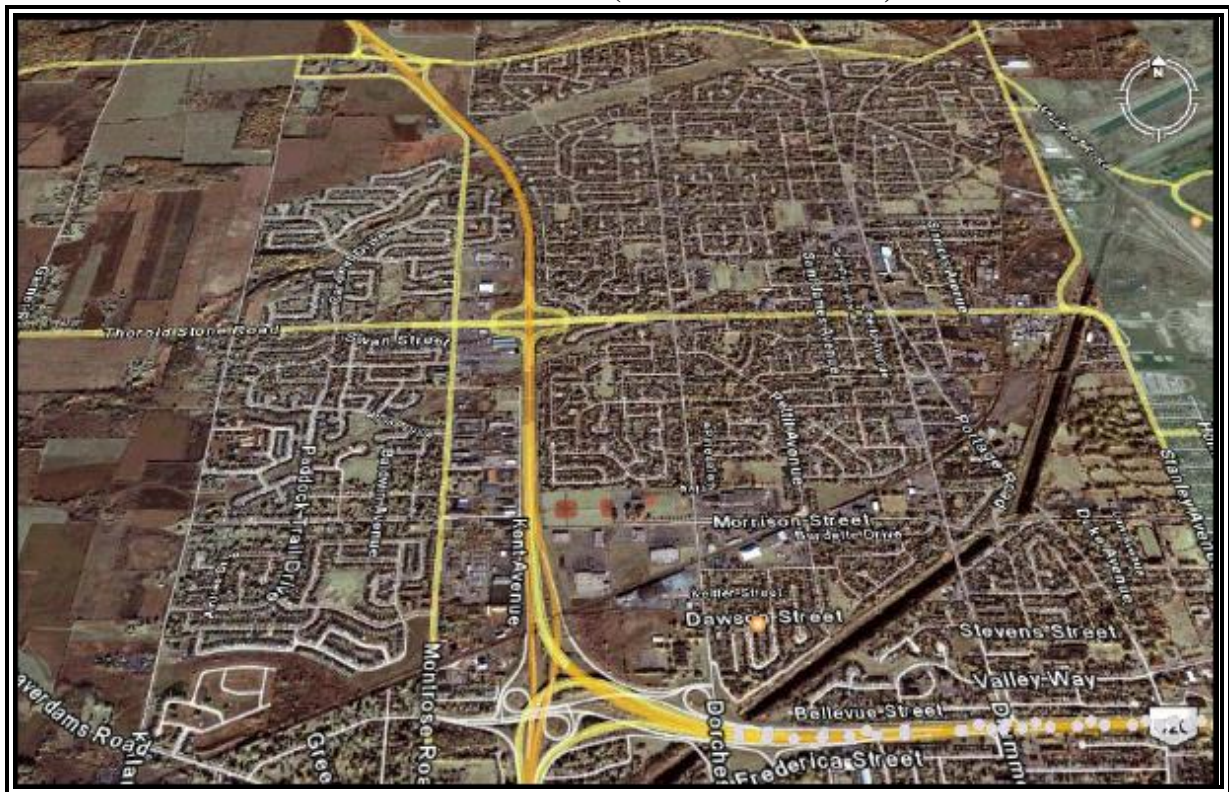
6.3.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2252

Date	22-Sep
Name of the Site	QEW Toronto bound, NB
Location	Thorold Stone Road to Mountain Road
Weather	Clear
Starting Time	20:00
End Time	02:30
Day of Week	Saturday
Time of Day	
Assigned Lane	1&2
Lane Width (m)	3.75
Direction of Traffic	N/B
Shoulder Type	Fully paved
Lane Closure	2 Left lanes (Multi lane)
OPP Presence	Yes
Time of OPP Presence	22:30
Facility Type	Six lane divided freeway
Driver Population	Peak-Off peak
% Heavy Vehicles	2.27
Grade of Road	Flat
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	20:00-06:00
Interchange	QEW and Thorold Stone Rd.
Type of Traffic Control	TL-38
Pavement Condition	Milling
Distractions	
List of Photos Taken	3 Photos Taken
Other Comments	Speed 20-30,merge from Hwy 420

6.3.2 MAP OF LOCATION OF SITE 2007-2252 (SAME AS ABOVE)



6.3.3 AERIAL VIEW OF SITE 2007-2252 (SAME AS ABOVE)

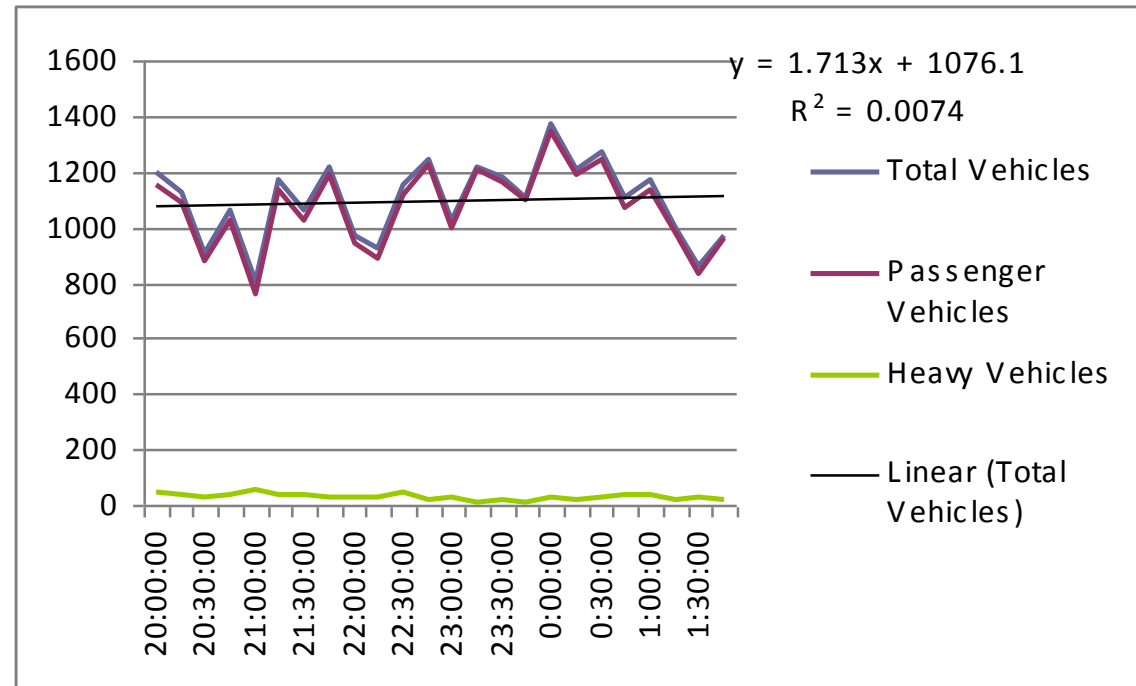


6.3.4 DATA COLLECTED FROM SITE 2007-2252 ON SEPT 22, 2007

Road QEW
 Location QEW N/B from Thorold
 Stone Rd. to Mountain
 Rd
 Evaluation Days September 21, 22, 23

Date: Saturday, September 22,
 2007

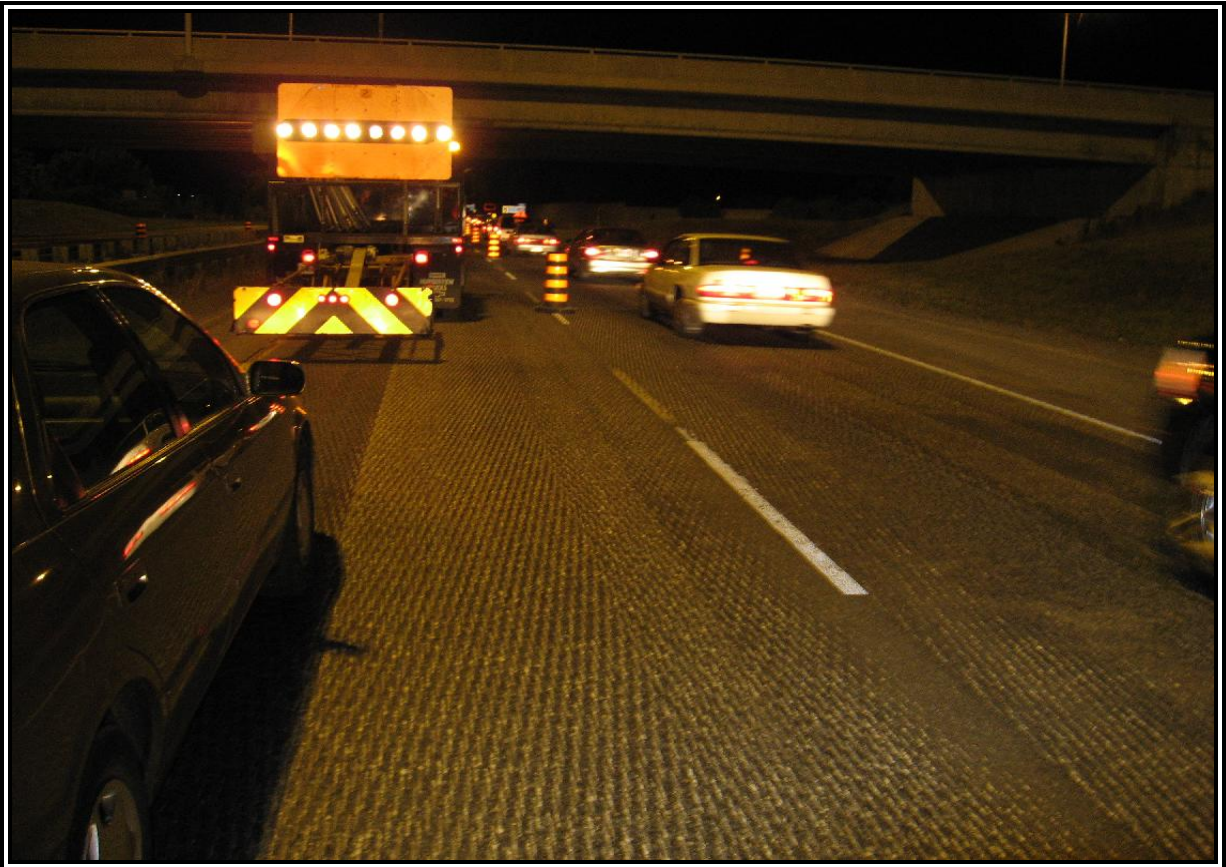
**Average Total Flow
 (ATF)** 1045
SD - ATF 157
**Average PV Flow
 (APVF)** 1007
SD - APVF 158
**Average HV Flow
 (AHVF)** 39
SD - AHVF 9



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
20:00:00	20:15:00	0:15:00	289	11	0	15	0	0.2500	1156	44	1200
20:15:00	20:30:00	0:15:00	272	9	0	15	0	0.2500	1088	36	1124
20:30:00	20:45:00	0:15:00	220	6	0	15	0	0.2500	880	24	904
20:45:00	21:00:00	0:15:00	256	10	0	15	0	0.2500	1024	40	1064
21:00:00	21:15:00	0:15:00	189	13	0	15	0	0.2500	756	52	808
21:15:00	21:30:00	0:15:00	284	9	0	15	0	0.2500	1136	36	1172
21:30:00	21:45:00	0:15:00	256	10	0	15	0	0.2500	1024	40	1064
21:45:00	22:00:00	0:15:00	297	6	0	15	0	0.2500	1188	24	1212

22:00:00	22:15:00	0:15:00	235	7	0	15	0	0.2500	940	28	968
22:15:00	22:30:00	0:15:00	222	8	0	15	0	0.2500	888	32	920
22:30:00	22:45:00	0:15:00	278	11	0	15	0	0.2500	1112	44	1156
22:45:00	23:00:00	0:15:00	307	5	0	15	0	0.2500	1228	20	1248
23:00:00	23:15:00	0:15:00	250	7	0	15	0	0.2500	1000	28	1028
23:15:00	23:30:00	0:15:00	302	3	0	15	0	0.2500	1208	12	1220
23:30:00	23:45:00	0:15:00	291	5	0	15	0	0.2500	1164	20	1184
23:45:00	0:00:00	0:15:00	275	2	0	15	0	0.2500	1100	8	1108
0:00:00	0:15:00	0:15:00	336	6	0	15	0	0.2500	1344	24	1368
0:15:00	0:30:00	0:15:00	298	4	0	15	0	0.2500	1192	16	1208
0:30:00	0:45:00	0:15:00	311	7	0	15	0	0.2500	1244	28	1272
0:45:00	1:00:00	0:15:00	268	9	0	15	0	0.2500	1072	36	1108
1:00:00	1:15:00	0:15:00	283	10	0	15	0	0.2500	1132	40	1172
1:15:00	1:30:00	0:15:00	244	5	0	15	0	0.2500	976	20	996
1:30:00	1:45:00	0:15:00	209	7	0	15	0	0.2500	836	28	864
1:45:00	2:00:00	0:15:00	239	4	0	15	0	0.2500	956	16	972

6.3.5 PHOTOS TAKEN OF SITE 2007-2252 ON SEPTEMBER 22, 2007



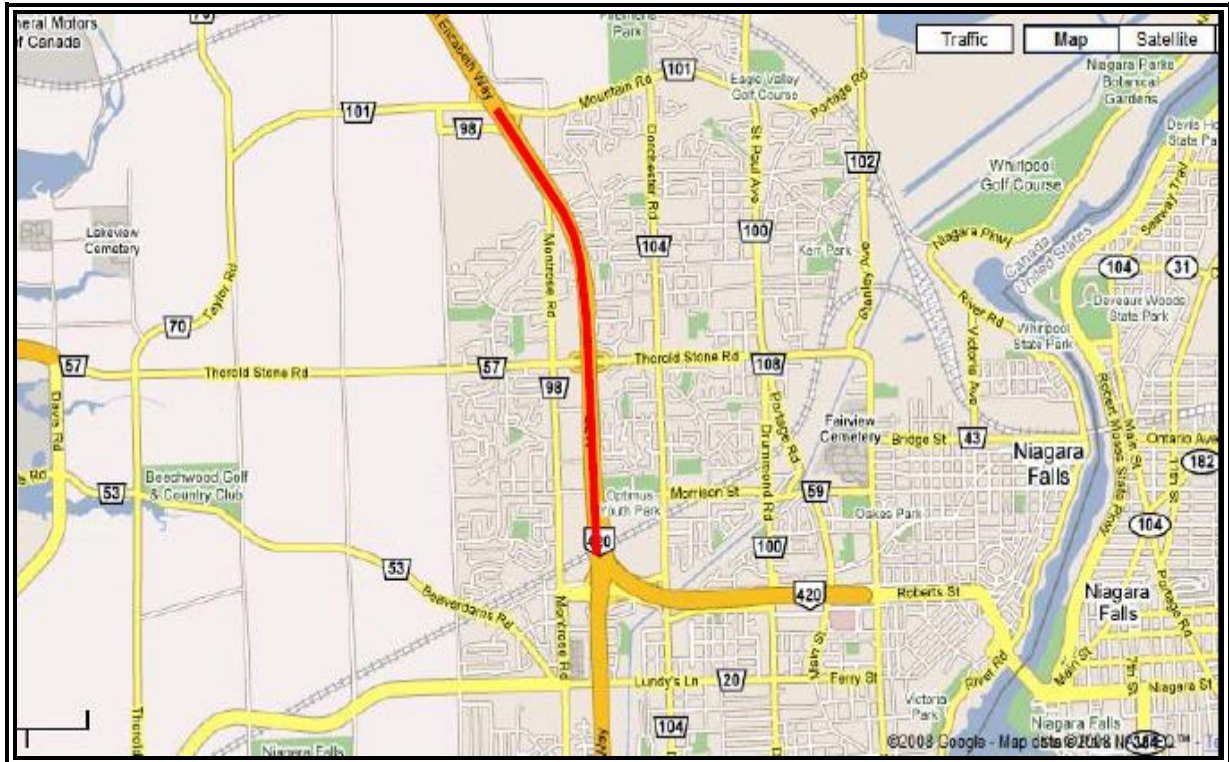


6.4 SITE VISIT 4 – SEPTEMBER 23, 2007

6.4.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2252

Date	23-Sep
Hwy No.	QEW Fort Erie bound, SB
Location	Thorold Stone Road to Hwy 420
Weather	Clear
Starting Time	20:00
End Time	01:00
Day of Week	Sunday
Time of Day	
Assigned Lane	1 & 2
Lane Width (m)	3.75
Direction of Traffic	S/B
Shoulder Type	Fully paved (2.2)
Lane Closure	2 Left lanes (Multi lane)
OPP Presence	Yes
Time of OPP Presence	22:30
Facility Type	Six lane divided freeway
Driver Population	Peak-Off peak
% Heavy Vehicles	2.93
Grade of Road	Level at taper end, +ve slope after Lyndey's lane
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	19:00-06:00
Interchange	
Type of Traffic Control	
Pavement Condition	Paving
Distractions	Night construction
List of Photos Taken	4.4
Other Comments	

6.4.2 MAP OF LOCATION OF SITE 2007-2252 (SAME AS ABOVE)



6.4.3 AERIAL VIEW OF SITE 2007-2252 (SAME AS ABOVE)

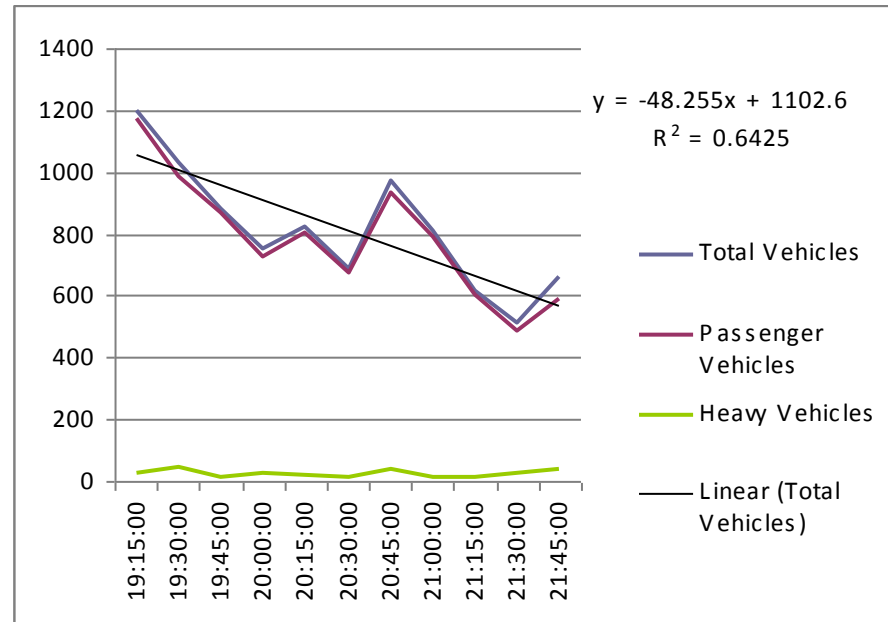


6.4.4 DATA COLLECTED FROM SITE 2007-2252 ON SEPT 23, 2007

Road QEW
 Location QEW Fort Erie bound
 from Mountain Road to
 Hwy 420
 Evaluation Days September 21, 22, 23

Date: Sunday, September 23, 2007

Average Total Flow (ATF) 907
SD - ATF 175
Average PV Flow (APVF) 881
SD - APVF 168
Average HV Flow (AHVF) 26
SD - AHVF 11



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
19:15:00	19:30:00	0:15:00	293	7	0	15	0	0.2500	1172	28	1200
19:30:00	19:45:00	0:15:00	246	11	0	15	0	0.2500	984	44	1028
19:45:00	20:00:00	0:15:00	217	4	0	15	0	0.2500	868	16	884
20:00:00	20:15:00	0:15:00	182	6	0	15	0	0.2500	728	24	752
20:15:00	20:30:00	0:15:00	201	5	0	15	0	0.2500	804	20	824
20:30:00	20:45:00	0:15:00	169	3	0	15	0	0.2500	676	12	688
20:45:00	21:00:00	0:15:00	234	9	0	15	0	0.2500	936	36	972
21:00:00	21:15:00	0:15:00	198	4	0	15	0	0.2500	792	16	808
21:15:00	21:30:00	0:15:00	151	3	0	15	0	0.2500	604	12	616
21:30:00	21:45:00	0:15:00	122	6	0	15	0	0.2500	488	24	512
21:45:00	22:00:00	0:15:00	147	9	0	15	0	0.2500	588	36	660

6.4.5 PHOTOS TAKEN OF SITE 2007-2252 ON SEPTEMBER 23, 2007



7 2007-2027, QEW E, W

7.1 SITE VISIT 1 – OCTOBER 2, 2007 - EB

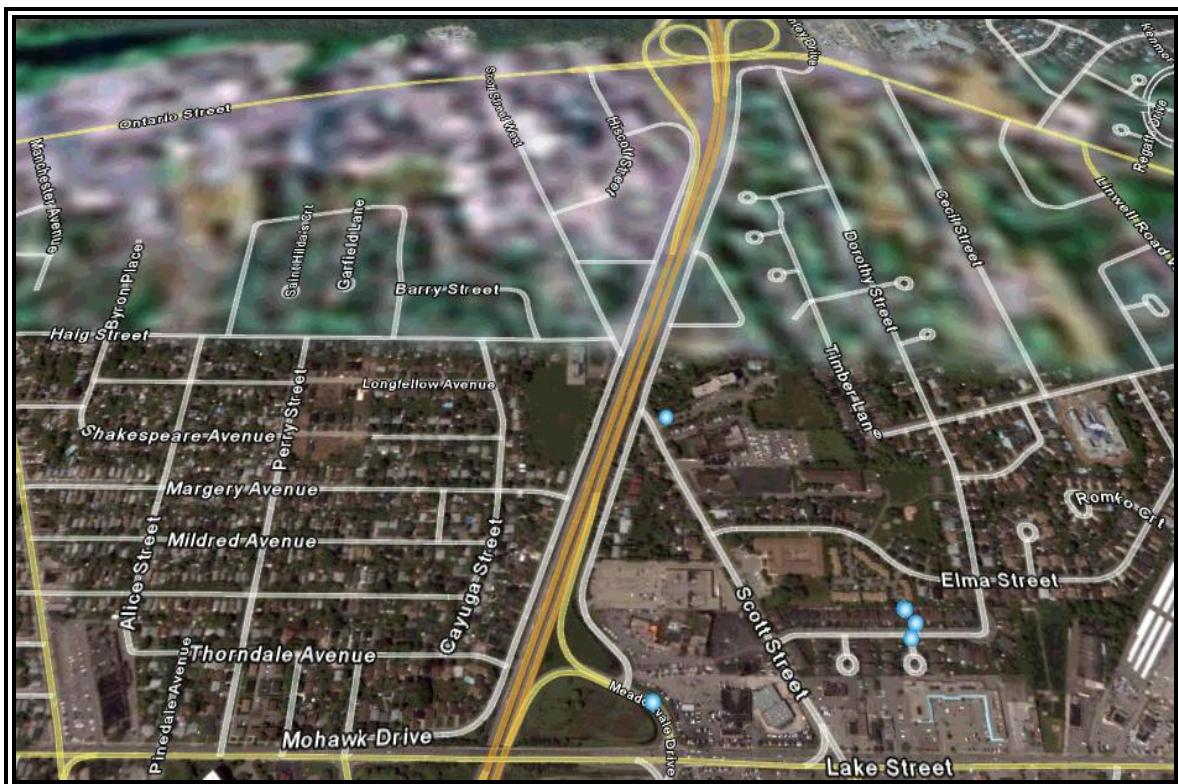
7.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2027

Date	02-Oct
Name of the Site	QEW Niagara bound
Location	St. Catharine's
Weather	Warm and clear, road wet due to earlier rain
Starting Time	20:30
End Time	21:00
Day of Week	Tuesday
Time of Day	Night
Assigned Lane	Traffic in South lane; North lane closed. On/Off ramp lane beside open(see map)
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	1 left lane
OPP Presence	No
Time of OPP Presence	
Facility Type	4 lane, divided highway
Driver Population	Mostly trucks, some commuter vehicles, becoming more heavily trucks
% Heavy Vehicles	
Grade of Road	Slightly uphill
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	300m taper. 1.0km closure (Ontario to Lake St.)
Duration of Closure	Evening only. Closed at 8:30pm
Intersections	Closure begins shortly after 7th. 7th onramp closest access.
Type of Traffic Control	Lane arrow lighted signs. Barrel separated
Pavement Condition	Good
Distractions	Night time. Workers present – barrier adjustments
List of Photos Taken	
Other Comments	No reduced flow, therefore no data taken. Max speed reduction was by 10%.

7.1.2 MAP OF LOCATION OF SITE 2007-2027



7.1.3 AERIAL VIEW OF SITE 2007-2027



7.1.4 DATA COLLECTED FROM SITE 2007-2027 ON OCTOBER 2, 2007 - EB

This site visit yielded no data.

7.1.5 PHOTOS TAKEN OF SITE 2007-2027 ON OCTOBER 2, 2007 - EB

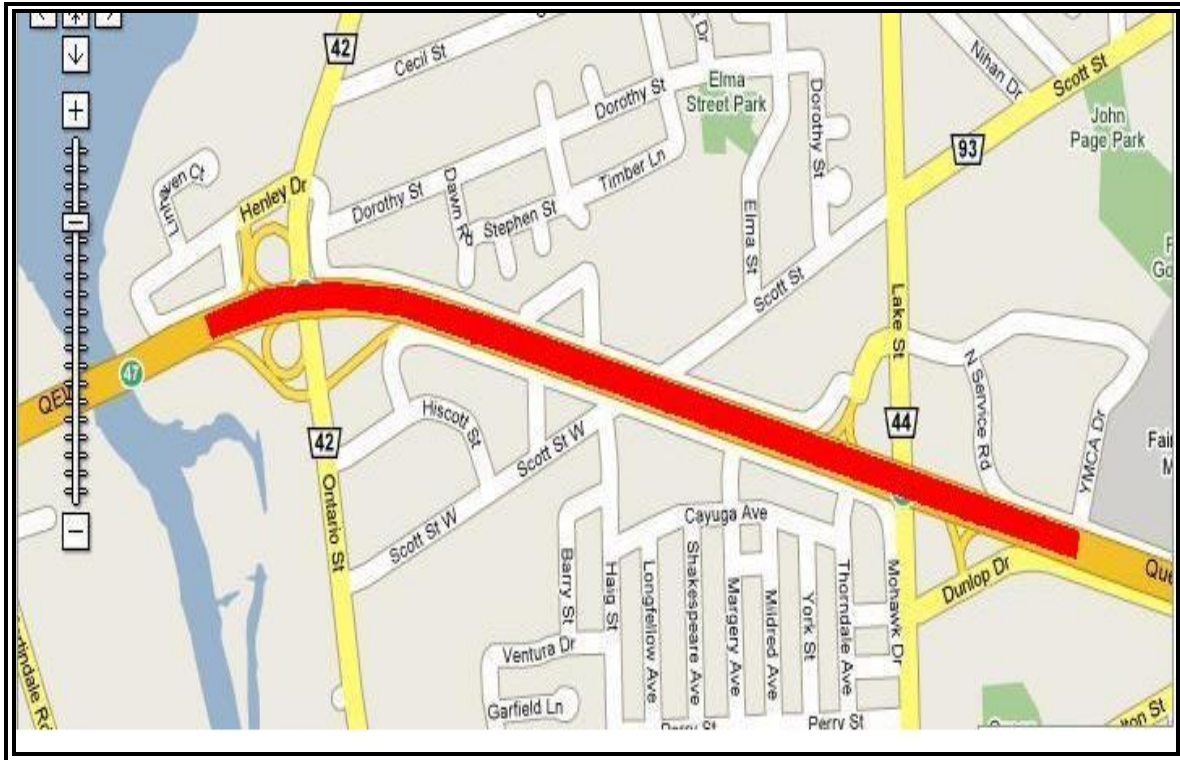
No photos were taken on this site visit.

7.2 SITE VISIT 2 – OCTOBER 2, 2007 - WB

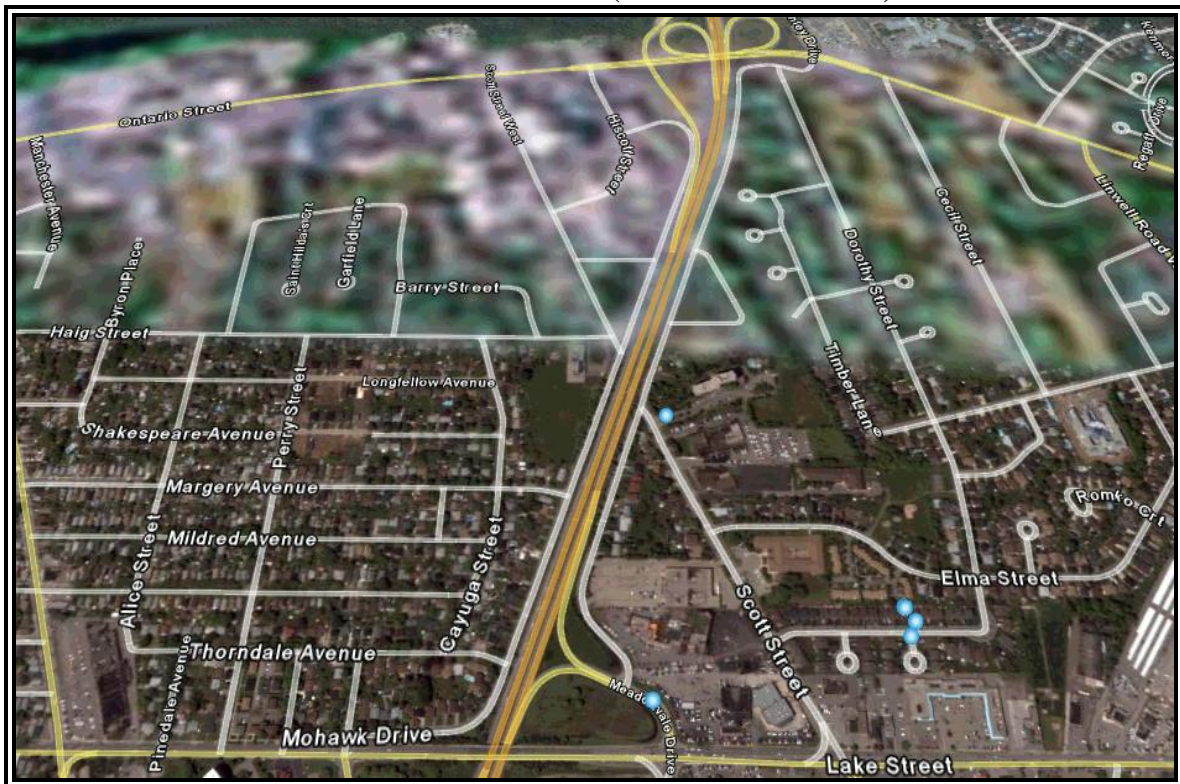
7.2.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2027

Date	02-Oct
Name of the Site	QEW Toronto bound
Location	St. Catharine's
Weather	Warm and clear, road wet due to earlier rain
Starting Time	21:20
End Time	23:00
Day of Week	Tuesday
Time of Day	Night
Assigned Lane	Traffic in North lane; south lane closed. On/Off ramp lane beside open lane (see map)
Lane Width (m)	
Direction of Traffic	WB
Shoulder Type	Paved
Lane Closure	1 left lane
OPP Presence	No
Time of OPP Presence	
Facility Type	4 lane, divided highway
Driver Population	Mostly trucks, some commuter vehicles, becoming more heavily trucks
% Heavy Vehicles	
Grade of Road	Slightly downhill
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	300m taper. 1.0km closure (Ontario to Lake St.)
Duration of Closure	Evening only. Closed at 9:30pm
Intersections	Closure begins shortly after Ontario. Ontario onramp closest access. Closest egret is Lake st.
Type of Traffic Control	Lane arrow lighted signs. Barrel separated
Pavement Condition	Good
Distractions	Night time. Workers present – barrier adjustments
List of Photos Taken	2 Photos Taken
Other Comments	Due to construction location, traffic onto lake could flow through

7.2.2 MAP OF LOCATION OF SITE 2007-2027 (SAME AS ABOVE)



7.2.3 AERIAL VIEW OF SITE 2007-2027 (SAME AS ABOVE)

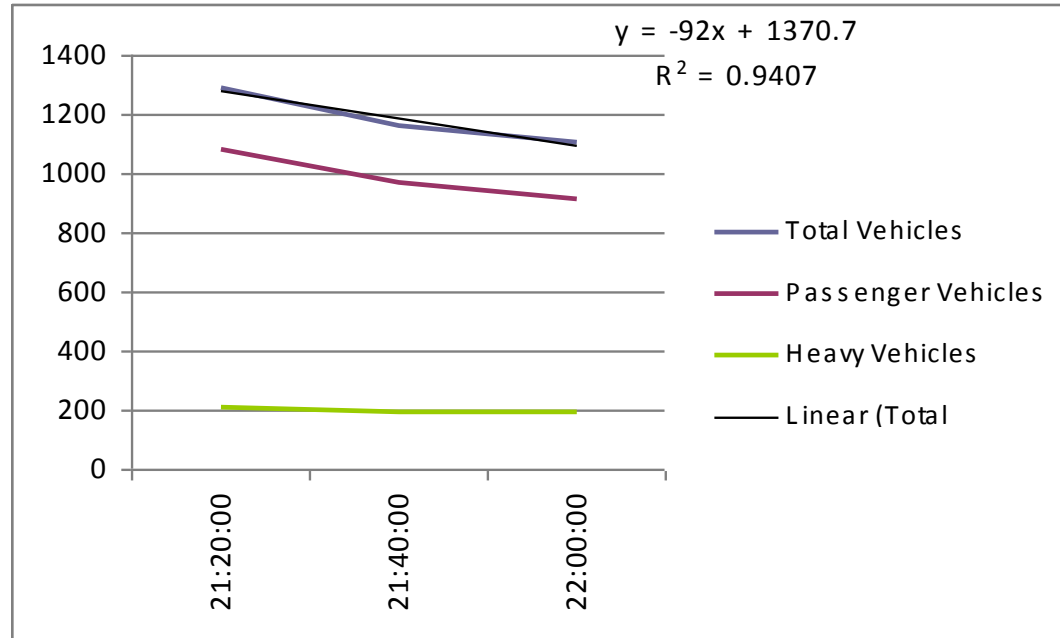


7.2.4 DATA COLLECTED FROM SITE 2007-2027 ON OCTOBER 2, 2007

Road QEW WB (to TO)
 Location QEW in St. Catharines
 from Ontario to Lake St.
 Evaluation Days October 2

Date: Tuesday, October 2, 2007

Average Total Flow (ATF) 1157
SD - ATF 98
Average PV Flow (APVF) 951
SD - APVF 103
Average HV Flow (AHVF) 206
SD - AHVF 16



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
21:20:00	21:35:00	00:15:00	271	52	0	15	0	0.2500	1084	208	1292
21:40:00	21:55:00	00:15:00	242	48	0	15	0	0.2500	968	192	1160
22:00:00	22:15:00	00:15:00	228	49	0	15	0	0.2500	912	196	1108

7.2.5 PHOTOS TAKEN OF SITE 2007-2027 ON OCTOBER 2, 2007

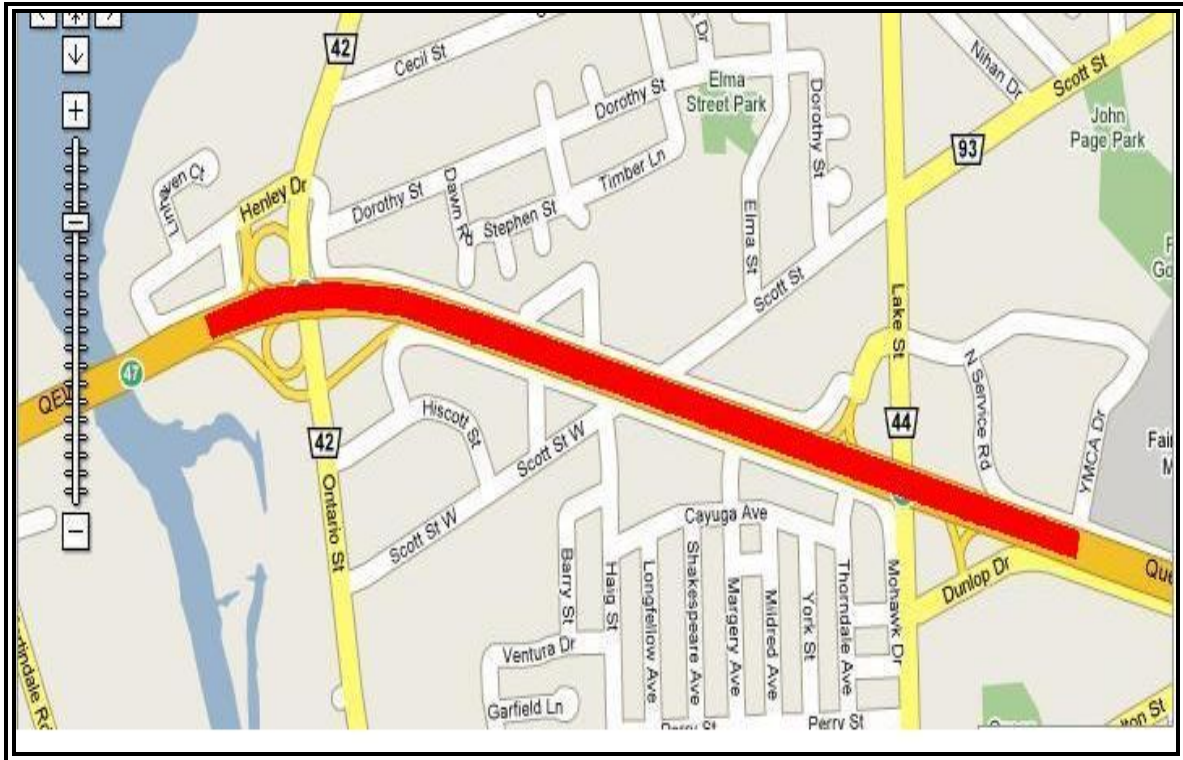


7.3 SITE VISIT 3 – MARCH 13, 2008 - WB

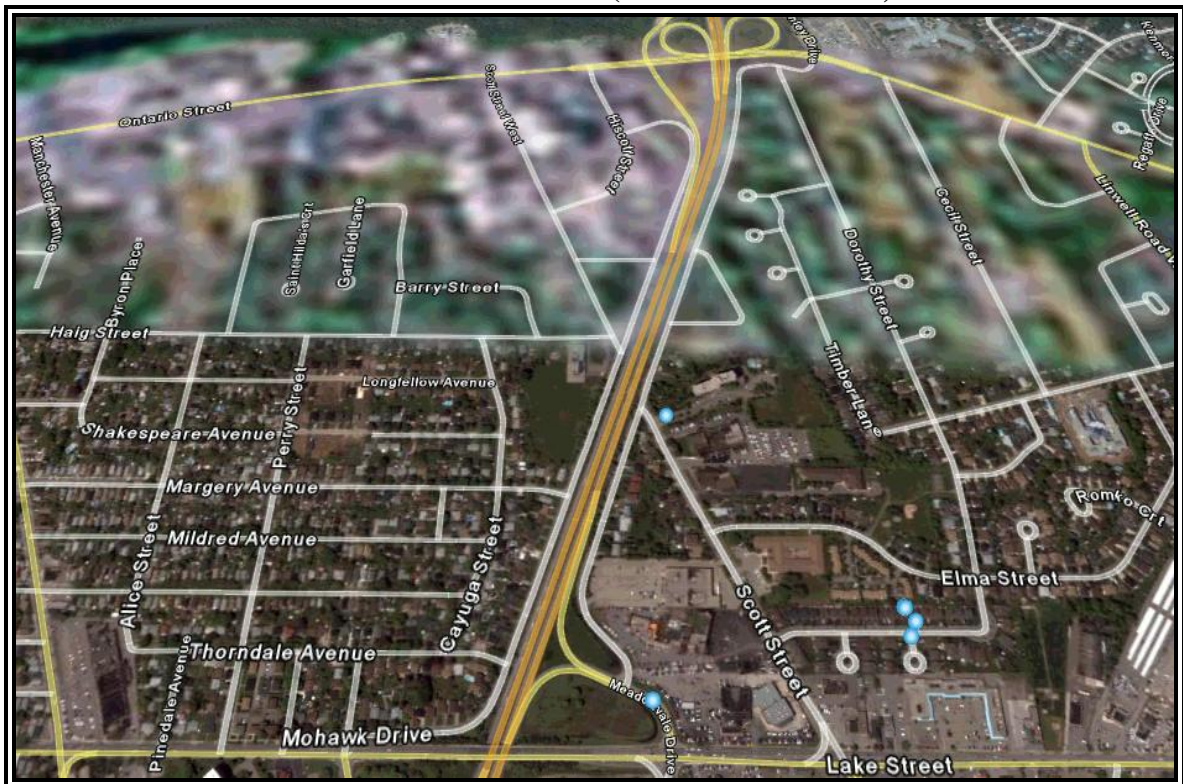
7.3.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2027

Date	13-Mar
Name of the Site	QEW Toronto bound
Location	St. Catharine's
Weather	Cold
Starting Time	21:30
End Time	22:45
Day of Week	Thursday
Time of Day	Night
Assigned Lane	Traffic in North lane; south lane closed. On/Off ramp lane beside open late (see map)
Lane Width (m)	
Direction of Traffic	WB
Shoulder Type	Paved
Lane Closure	1 left lane
OPP Presence	No
Time of OPP Presence	
Facility Type	4 lane, divided highway
Driver Population	Mostly trucks, some commuter vehicles, becoming more heavily trucks
% Heavy Vehicles	
Grade of Road	Slightly downhill
Speed Limit (km/hr)	100
Curve of Road	0
Length of Work Zone	300m taper. 1.0km closure (Ontario to Lake St.)
Duration of Closure	Evening
Intersections	Closure begins shortly after Ontario. Ontario onramp closest access. Closest egret is Lake st.
Type of Traffic Control	Lane arrow lighted signs. Barrel separated
Pavement Condition	Good
Distractions	Night time
List of Photos Taken	No Photos Taken
Other Comments	

7.3.2 MAP OF LOCATION OF SITE 2007-2027 (SAME AS ABOVE)



7.3.3 AERIAL VIEW OF SITE 2007-2027 (SAME AS ABOVE)

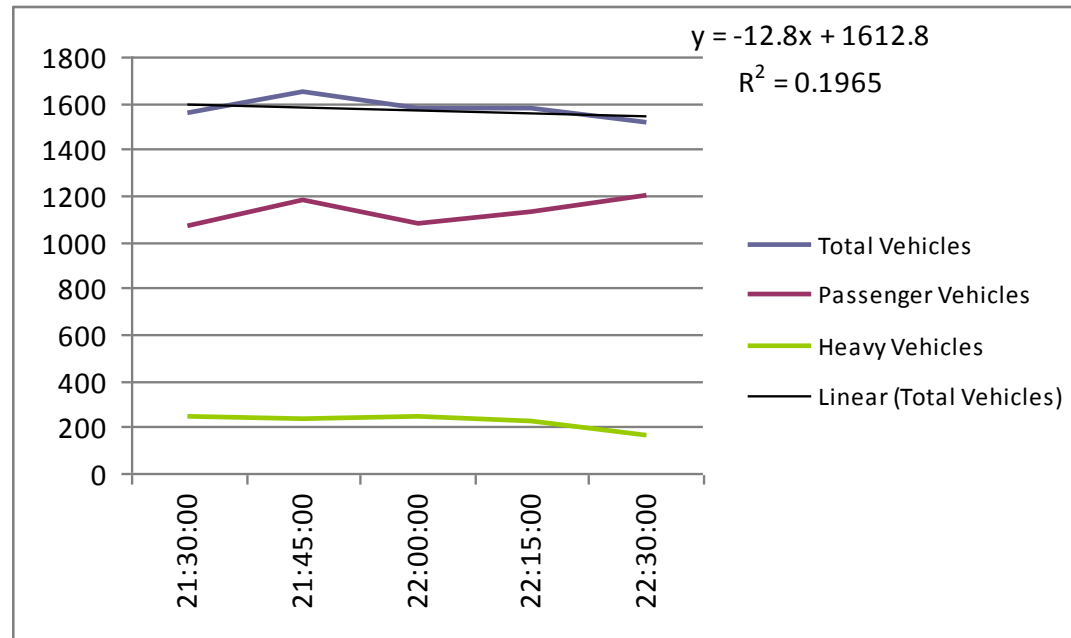


7.3.4 DATA COLLECTED FROM SITE 2007-2027 ON MARCH 13, 2008

Road: QEW
 Location: St. Catharines
 Evaluation Days: March 13

Date: Thursday, March 13, 2008

Average Total Flow (ATF) 1533
SD - ATF 109
Average PV Flow (APVF) 1108
SD - APVF 77
Average HV Flow (AHVF) 213
SD - AHVF 38



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol	vphpl
21:30:00	21:45:00	00:15:00	268	60	0	15	0	0.2500	1072	240	1552	1312
21:45:00	22:00:00	00:15:00	295	58	0	15	0	0.2500	1180	232	1644	1412
22:00:00	22:15:00	00:15:00	270	62	0	15	0	0.2500	1080	248	1576	1328
22:15:00	22:30:00	00:15:00	281	57	0	15	0	0.2500	1124	228	1580	1352
22:30:00	22:45:00	00:15:00	300	40	0	15	0	0.2500	1200	160	1520	1360

7.3.5 PHOTOS TAKEN OF SITE 2007-2027 ON MARCH 13, 2008

No photos were taken on this site visit.

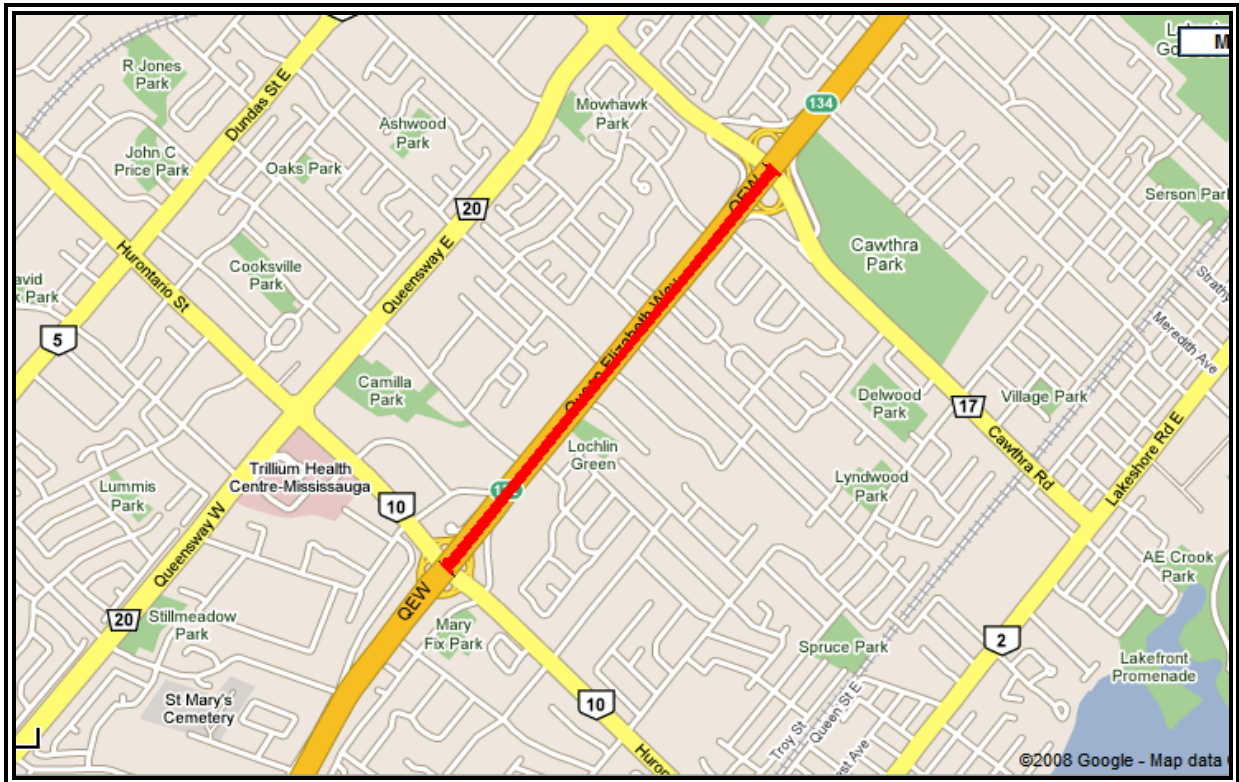
8 2007-2031, QEW W

8.1 SITE VISIT 1 – OCTOBER 10, 2007

8.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2031

Date	10-Oct
Hwy No.	QEW WB
Location	Cawthra to Hurontario I/C
Weather	Clear
Starting Time	24:00
End Time	02:00
Day of Week	Wednesday
Time of Day	
Assigned Lane	1 & 2
Lane Width (m)	3.75
Direction of Traffic	WB
Shoulder Type	Fully paved
Lane Closure	
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Six lane divided freeway
Driver Population	Off peak
% Heavy Vehicles	
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	22:00-06:00
Interchange	
Type of Traffic Control	
Pavement Condition	Milling
Distractions	
List of Photos Taken	3 Photos Taken
Other Comments	

8.1.2 MAP OF LOCATION OF SITE 2007-2031



8.1.3 AERIAL VIEW OF SITE 2007-2031

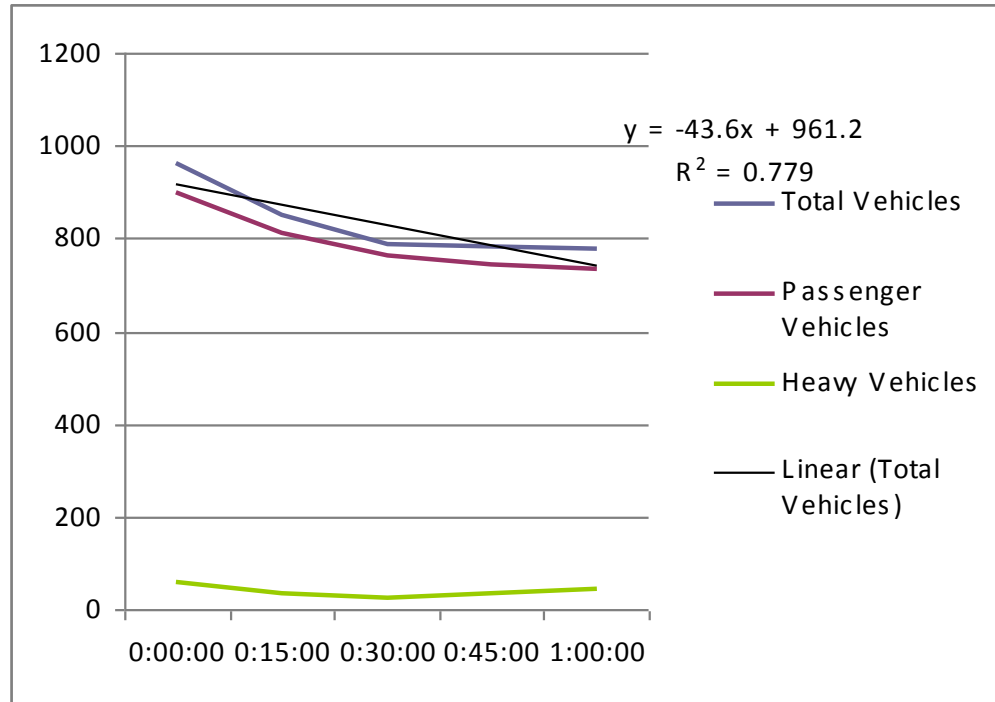


8.1.4 DATA COLLECTED FROM SITE 2007-2031 ON OCTOBER 10, 2007

Road QEW
 Location QEW from Cawthra to
 Hurontario I/C
 Evaluation Days October 10, 11

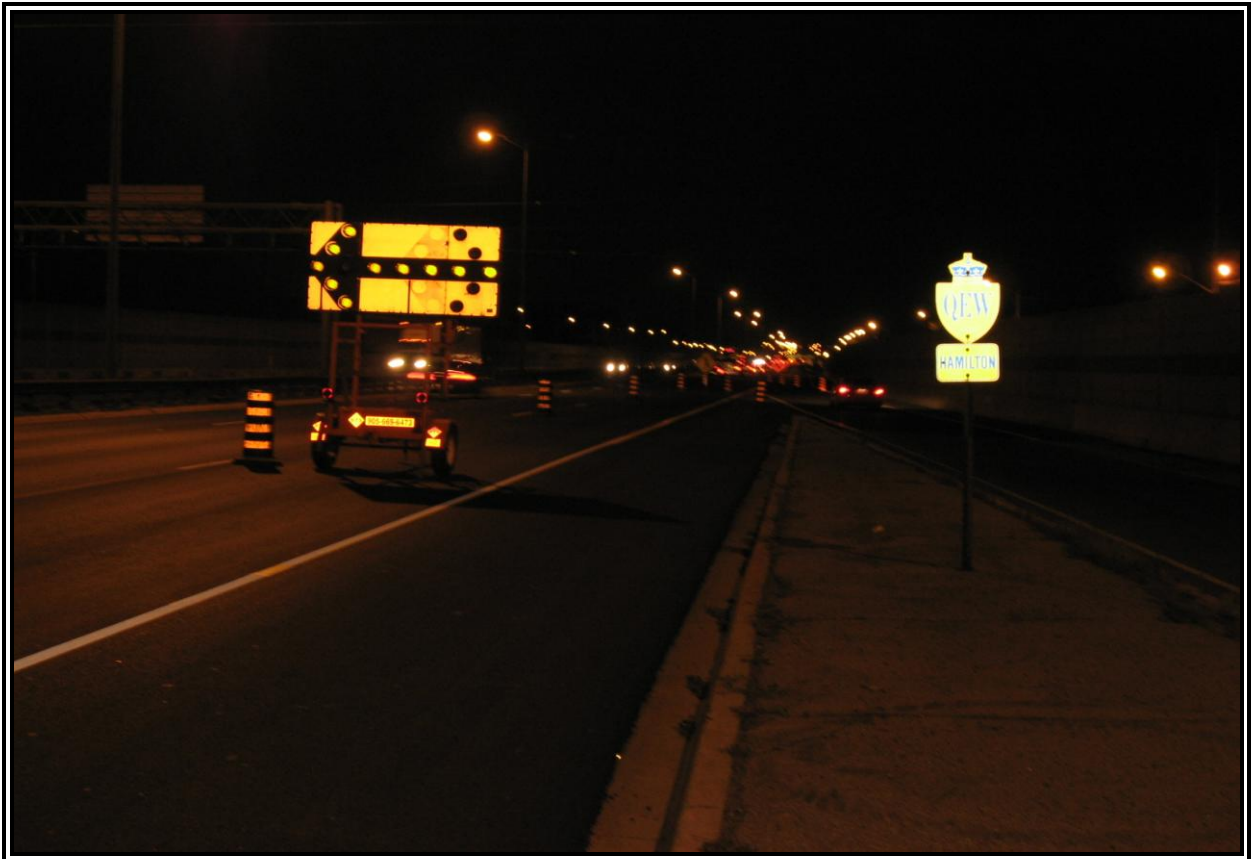
Date: Wednesday, October 10, 2007

**Average Total Flow
 (ATF)** 830
SD - ATF 78
**Average PV Flow
 (APVF)** 790
SD - APVF 68
**Average HV Flow
 (AHVF)** 40
SD - AHVF 13



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
0:00:00	0:15:00	0:15:00	225	15	0	15	0	0.2500	900	60	960
0:15:00	0:30:00	0:15:00	203	9	0	15	0	0.2500	812	36	848
0:30:00	0:45:00	0:15:00	191	6	0	15	0	0.2500	764	24	788
0:45:00	1:00:00	0:15:00	186	9	0	15	0	0.2500	744	36	780
1:00:00	1:15:00	0:15:00	183	11	0	15	0	0.2500	732	44	776

8.1.5 PHOTOS TAKEN OF SITE 2007-2031 ON OCTOBER 10, 2007



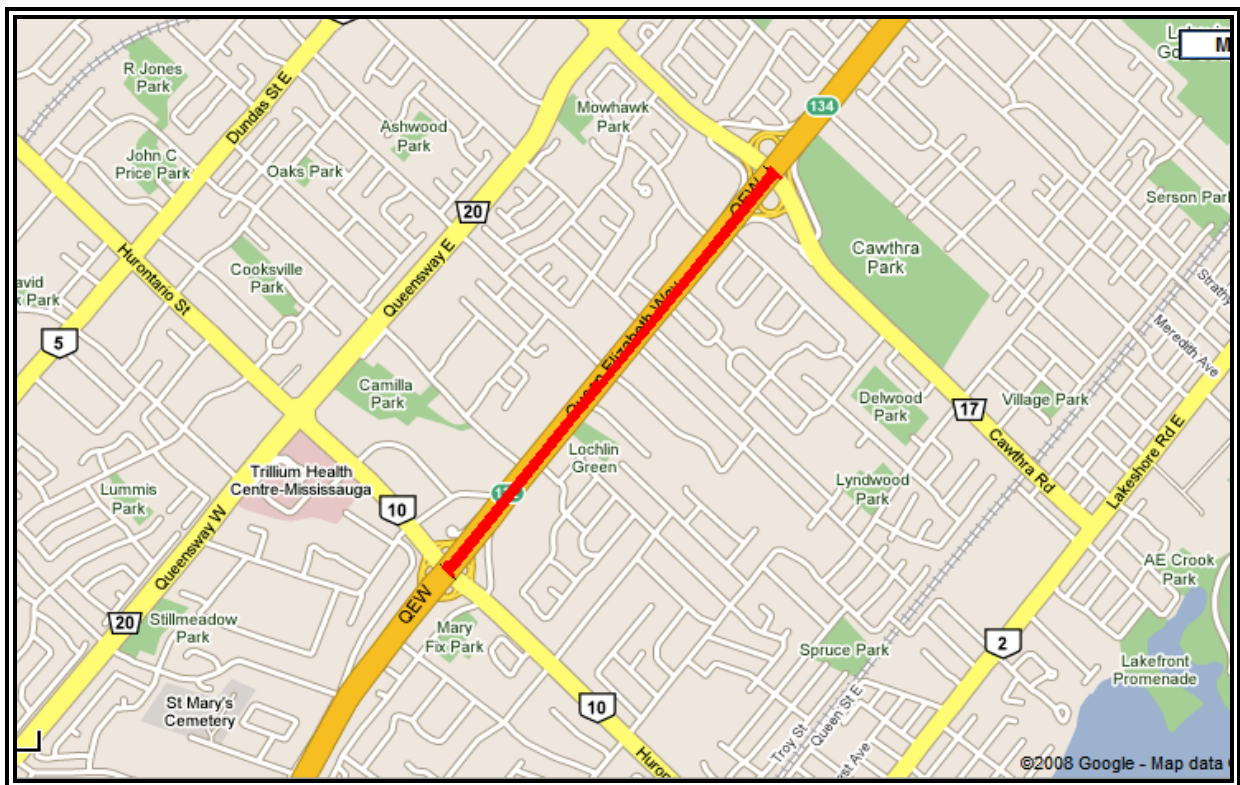


8.2 SITE VISIT 2 – OCTOBER 11, 2007

8.2.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2031

Date	11-Oct
Hwy No.	QEW WB
Location	Cawthra to Hurontario I/C
Weather	Cloudy
Starting Time	22:00
End Time	02:00
Day of Week	Thursday
Time of Day	Night
Assigned Lane	1 & 2
Lane Width (m)	3.75
Direction of Traffic	WB
Shoulder Type	Fully paved
Lane Closure	3-to-1
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Six lane divided freeway
Driver Population	Off peak
% Heavy Vehicles	
Grade of Road	Level
Speed Limit (km/hr)	100
Curve of Road	Straight
Length of Work Zone	
Duration of Closure	22:00-06:00
Interchange	
Type of Traffic Control	Barrel separated
Pavement Condition	Milling
Distractions	
List of Photos Taken	1 Photo Taken
Other Comments	

8.2.2 MAP OF LOCATION OF SITE 2007-2031 (SAME AS ABOVE)



8.2.3 AERIAL VIEW OF SITE 2007-2031 (SAME AS ABOVE)

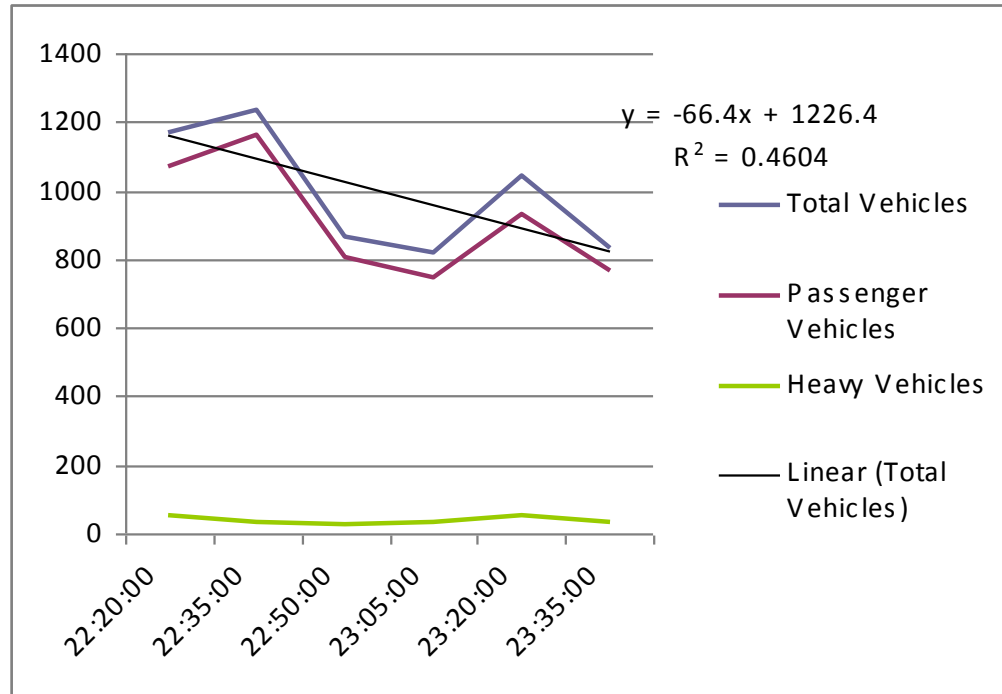


8.2.4 DATA COLLECTED FROM SITE 2007-2031 ON OCTOBER 11, 2007

Road QEW
 Location QEW from Cawthra to Hurontario I/C
 Evaluation Days October 10, 11

Date: Thursday, October 11, 2007

Average Total Flow (ATF) 994
SD - ATF 183
Average PV Flow (APVF) 914
SD - APVF 172
Average HV Flow (AHVF) 40
SD - AHVF 11



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
22:20:00	22:35:00	0:15:00	267	13	0	15	0	0.2500	1068	52	1172
22:35:00	22:50:00	0:15:00	291	9	0	15	0	0.2500	1164	36	1236
22:50:00	23:05:00	0:15:00	202	7	0	15	0	0.2500	808	28	864
23:05:00	23:20:00	0:15:00	186	9	0	15	0	0.2500	744	36	816
23:20:00	23:35:00	0:15:00	233	14	0	15	0	0.2500	932	56	1044
23:35:00	23:50:00	0:15:00	192	8	0	15	0	0.2500	768	32	832

8.2.5 PHOTOS TAKEN OF SITE 2007-2031 ON OCTOBER 11, 2007



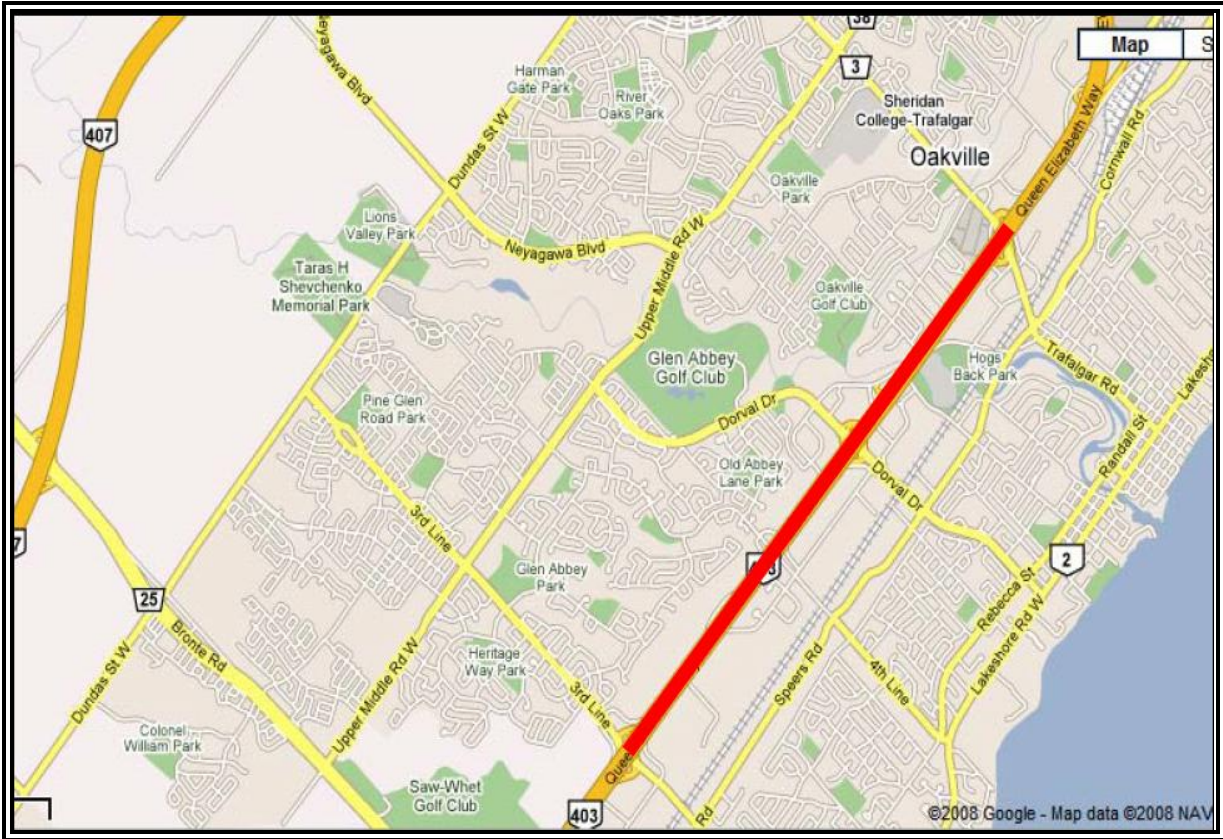
9 2007-2125, QEW E

9.1 SITE VISIT 1 – NOVEMBER 13, 2007

9.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2125

Date	13-Nov
Hwy No.	QEW E/B
Location	3rd line to 1.0 Km East of Trafalgar Road
Weather	Clear
Starting Time	23:00
End Time	01:30
Day of Week	Tuesday
Time of Day	Night
Assigned Lane	3
Lane Width (m)	3.75
Direction of Traffic	EB
Shoulder Type	Fully paved
Lane Closure	One Right lane closed
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	6 lane divided freeway
Driver Population	Off-Peak
% Heavy Vehicles	Data not collected (No forced flow)
Grade of Road	Flat
Speed Limit (km/hr)	100
Curve of Road	No curve
Length of Work Zone	6.8 Km
Duration of Closure	23:00-05:00
Interchange	Trafalgar Road
Type of Traffic Control	TL-29
Pavement Condition	Average
Distractions	Bad light
List of Photos Taken	3 Photos Taken
Other Comments	Average speed of vehicle between 80-95 km/h

9.1.2 MAP OF LOCATION OF SITE 2007-2125



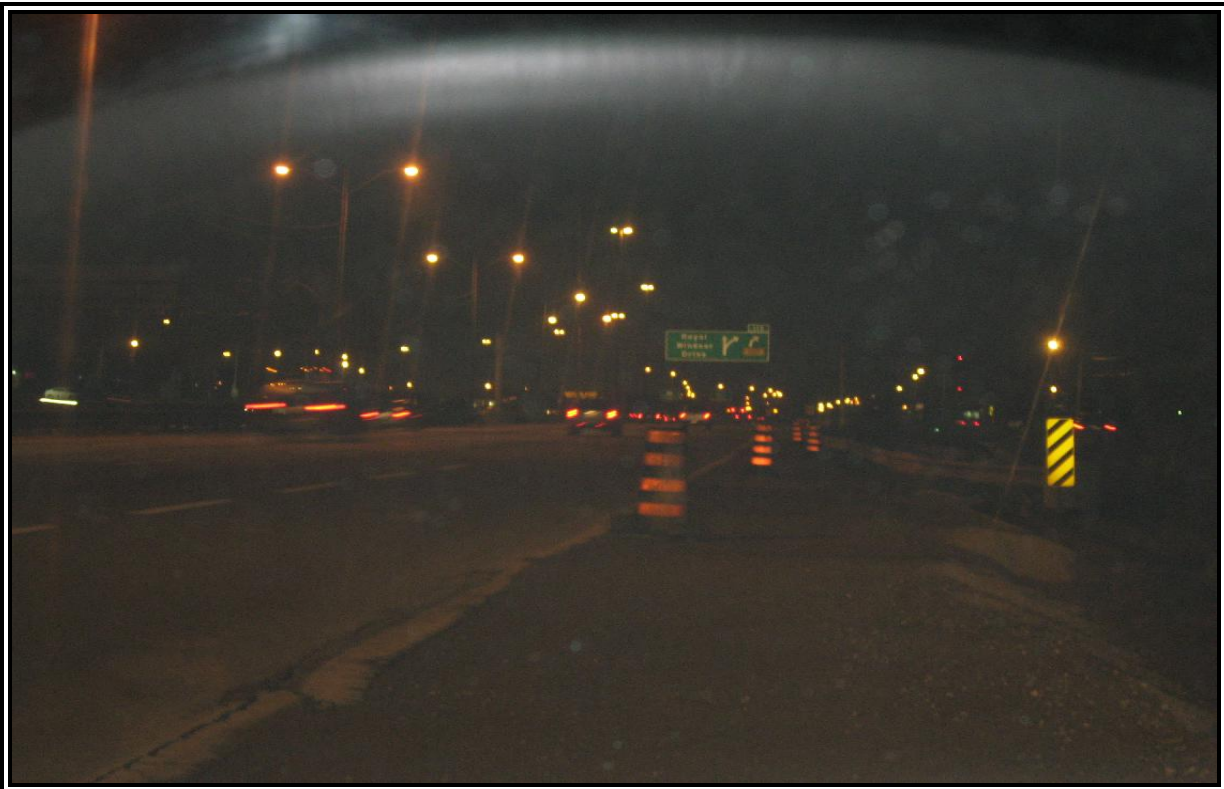
9.1.3 AERIAL VIEW OF SITE 2007-2125



9.1.4 DATA COLLECTED FROM SITE 2007-2125 ON NOVEMBER 13, 2007

This site visit yielded no data.

9.1.5 PHOTOS TAKEN OF SITE 2007-2125 ON NOVEMBER 13, 2007



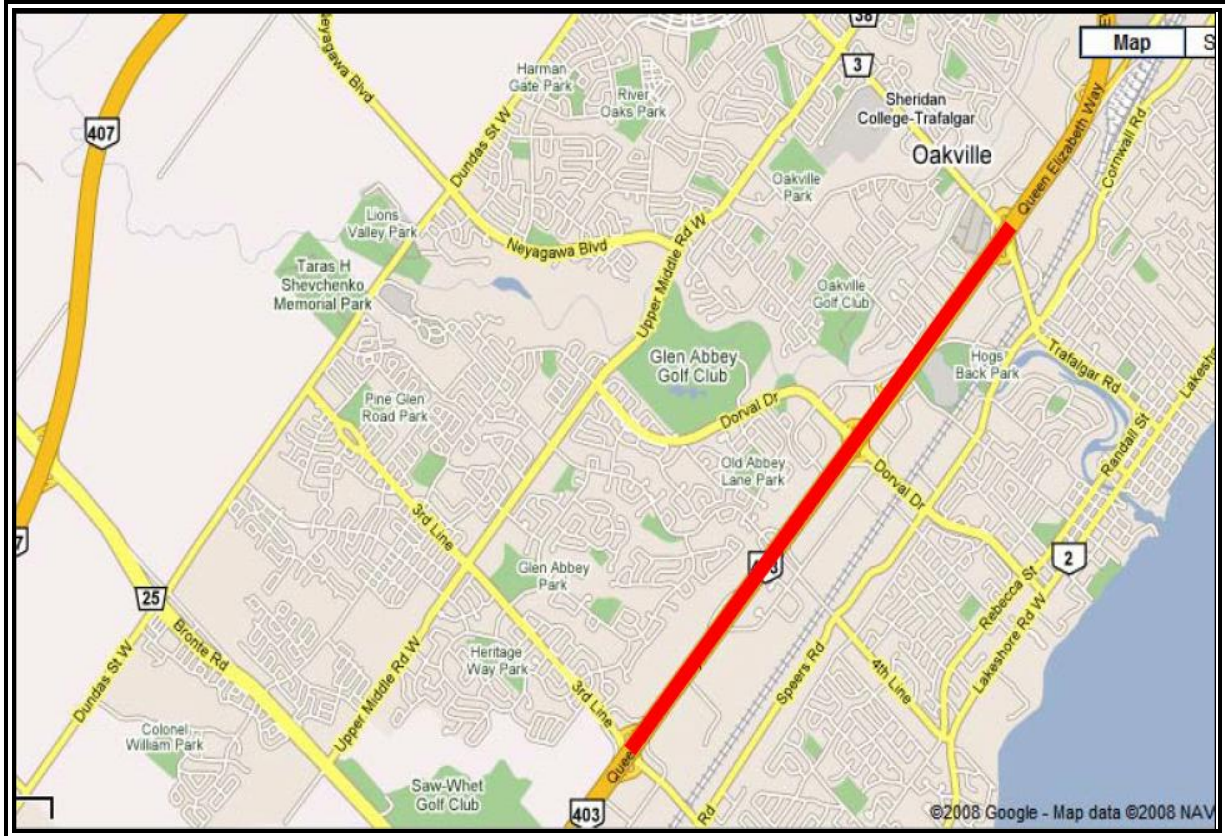


9.2 SITE VISIT 2 – NOVEMBER 14, 2007

9.2.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2125

Date	14-Nov
Hwy No.	QEW W/B
Location	3rd line to 1.0 Km East of Trafalgar Road
Weather	Clear
Starting Time	22:30
End Time	01:30
Day of Week	Wednesday
Time of Day	Night
Assigned Lane	2 & 3
Lane Width (m)	3.75
Direction of Traffic	WB
Shoulder Type	Fully paved
Lane Closure	Two left lanes closed (Median lanes)
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	6 lane freeway
Driver Population	Peak, Off-peak
% Heavy Vehicles	Data not collected (No forced flow)
Grade of Road	Flat
Speed Limit (km/hr)	100
Curve of Road	No curve
Length of Work Zone	6.8 Km
Duration of Closure	22:30-01:30
Interchange	Trafalgar road ramp closed
Type of Traffic Control	TL-29
Pavement Condition	Average
Distractions	Moving construction vehicles
List of Photos Taken	1 Photo Taken
Other Comments	Limited space for data collection

9.2.2 MAP OF LOCATION OF SITE 2007-2125 (SAME AS ABOVE)



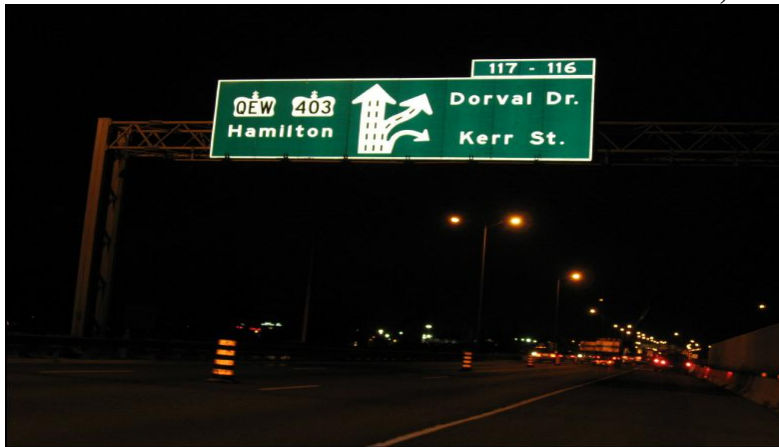
9.2.3 AERIAL VIEW OF SITE 2007-2125 (SAME AS ABOVE)



9.2.4 DATA COLLECTED FROM SITE 2007-2125 ON NOVEMBER 14, 2007

This site visit yielded no data.

9.2.5 PHOTOS TAKEN OF SITE 2007-2125 ON NOVEMBER 14, 2007

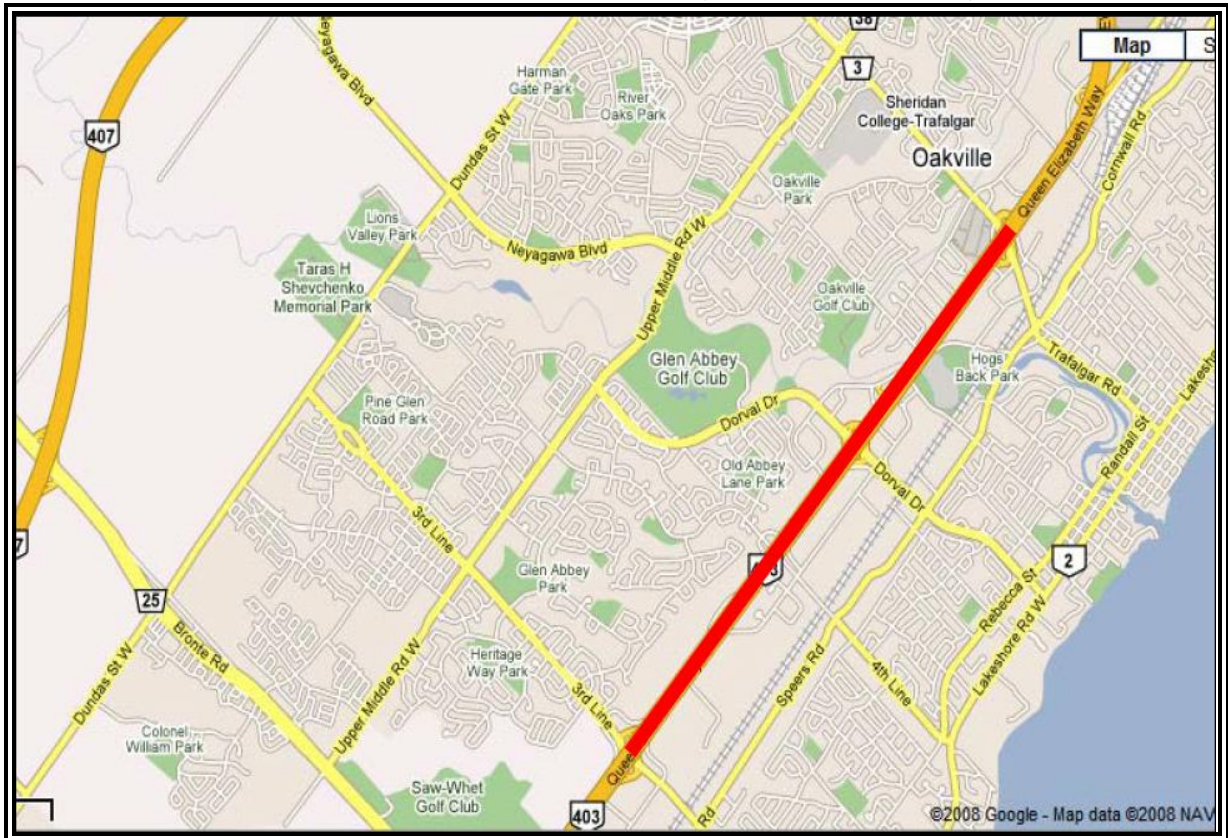


9.3 SITE VISIT 3 – JUNE 26, 2008

9.3.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2125

Date	26-Jun-08
Hwy No.	2007-2125
Location	QEW in Oakville - just West of Trafalgar Rd
Weather	Clear
Starting Time	N/A
End Time	N/A
Day of Week	Thursday
Time of Day	Night
Assigned Lane	N/A
Lane Width (m)	
Direction of Traffic	WB
Shoulder Type	No shoulder - median
Lane Closure	
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Freeway
Driver Population	Mostly commuter vehicles becoming more HV
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	Enough curve to obstruct counting site line
Length of Work Zone	1.8
Duration of Closure	21:00-6:00
Interchange	Some interchanges remained open with minimal traffic
Type of Traffic Control	Advance signage, barrels
Pavement Condition	Good
Distractions	Construction work
List of Photos Taken	
Other Comments	Sight lines made it impossible to safely count vehicles

9.3.2 MAP OF LOCATION OF SITE 2007-2125 (SAME AS ABOVE)



9.3.3 AERIAL VIEW OF SITE 2007-2125 (SAME AS ABOVE)



9.3.4 DATA COLLECTED FROM SITE 2007-2125 ON JUNE 26, 2008

This site visit yielded no data.

9.3.5 PHOTOS TAKEN OF SITE 2007-2125 ON JUNE 26, 2008

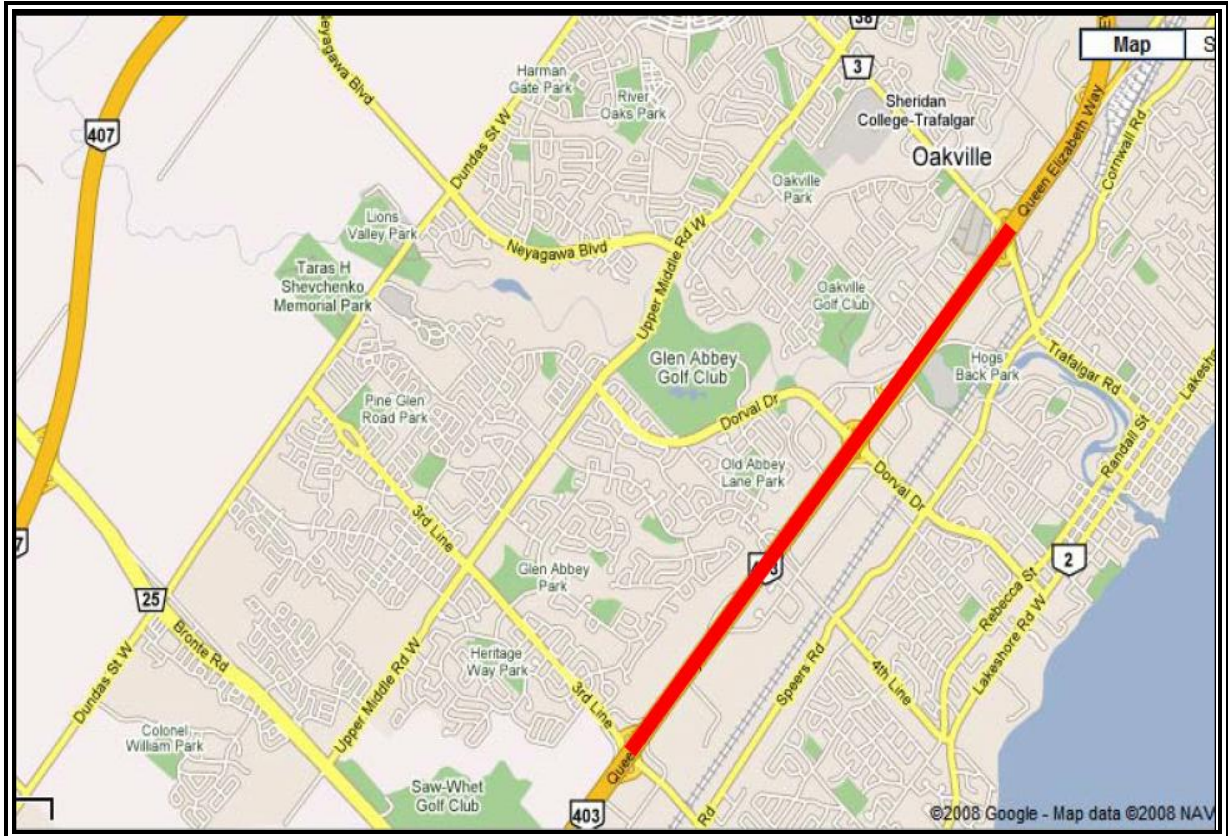
No photos were taken on this site visit.

9.4 SITE VISIT 4 – JULY 2, 2008

9.4.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2125

Date	2-Jul-08
Hwy No.	2007-2125
Location	QEW in Oakville - just West of Trafalgar Rd
Weather	Clear
Starting Time	N/A
End Time	N/A
Day of Week	Wednesday
Time of Day	Night
Assigned Lane	N/A
Lane Width (m)	
Direction of Traffic	WB
Shoulder Type	No shoulder - median
Lane Closure	
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Freeway
Driver Population	Mostly commuter vehicles becoming more HV
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	Enough curve to obstruct counting site line
Length of Work Zone	1.8
Duration of Closure	21:00-6:00
Interchange	Some interchanges remained open with minimal traffic
Type of Traffic Control	Advance signage, barrels
Pavement Condition	Good
Distractions	Construction work
List of Photos Taken	
Other Comments	Sight lines made it impossible to safely count vehicles

9.4.2 MAP OF LOCATION OF SITE 2007-2125 (SAME AS ABOVE)



9.4.3 AERIAL VIEW OF SITE 2007-2125 (SAME AS ABOVE)



9.4.4 DATA COLLECTED FROM SITE 2007-2125 ON JULY 2, 2008

This site visit yielded no data.

9.4.5 PHOTOS TAKEN OF SITE 2007-2125 ON JULY 2, 2008

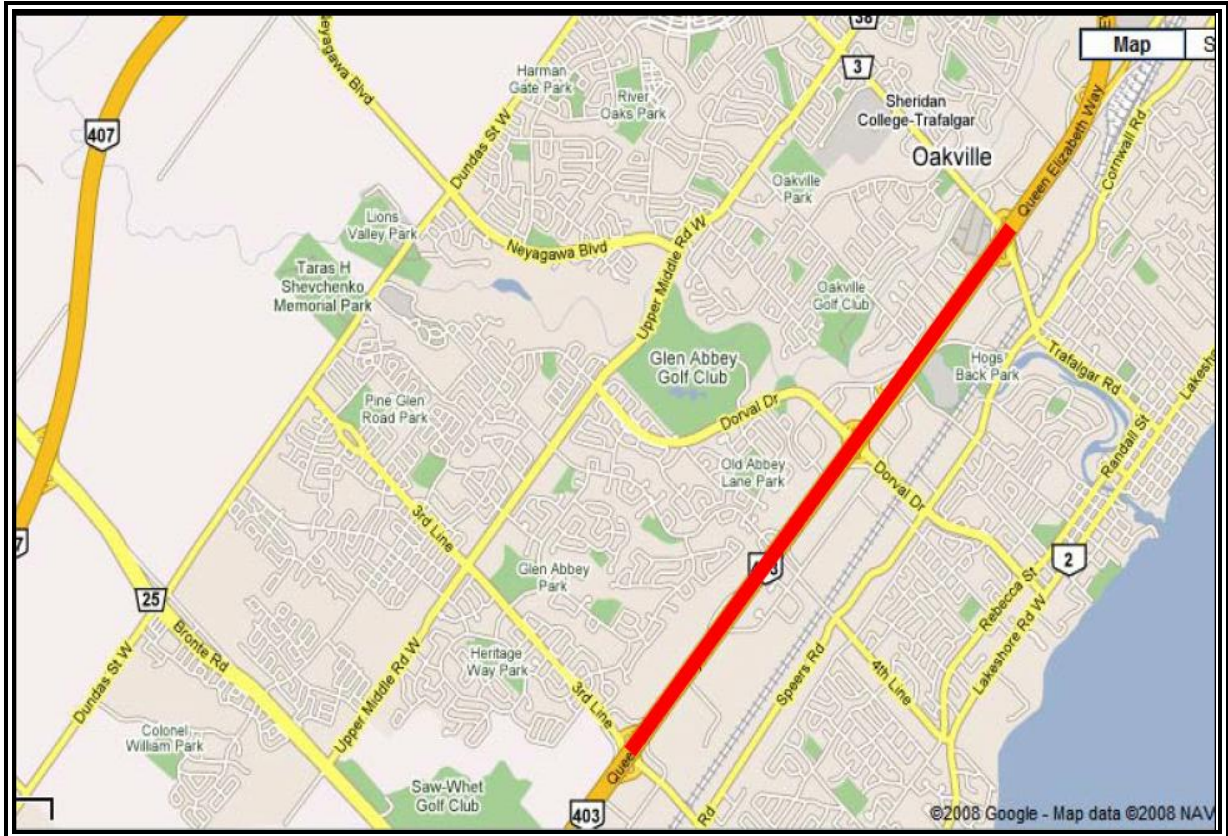
No photos were taken on this site visit.

9.5 SITE VISIT 5 – JULY 7, 2008

9.5.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2125

Date	7-Jul
Hwy No.	2007-2125
Location	QEW in Oakville - just West of Trafalgar Rd
Weather	Clear
Starting Time	12:00
End Time	1:00
Day of Week	Monday
Time of Day	Night
Assigned Lane	3 Right Lanes Closed
Lane Width (m)	
Direction of Traffic	WB
Shoulder Type	No shoulder - median
Lane Closure	3 Right Lanes Closed
OPP Presence	No
Time of OPP Presence	
Facility Type	Freeway
Driver Population	Mostly commuter vehicles becoming more HV
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	100
Curve of Road	None
Length of Work Zone	3.6
Duration of Closure	22:00-6:00
Interchange	Some interchanges remained open with minimal traffic
Type of Traffic Control	Advance signage, barrels
Pavement Condition	Good
Distractions	Construction work
List of Photos Taken	None
Other Comments	

9.5.2 MAP OF LOCATION OF SITE 2007-2125 (SAME AS ABOVE)



9.5.3 AERIAL VIEW OF SITE 2007-2125 (SAME AS ABOVE)

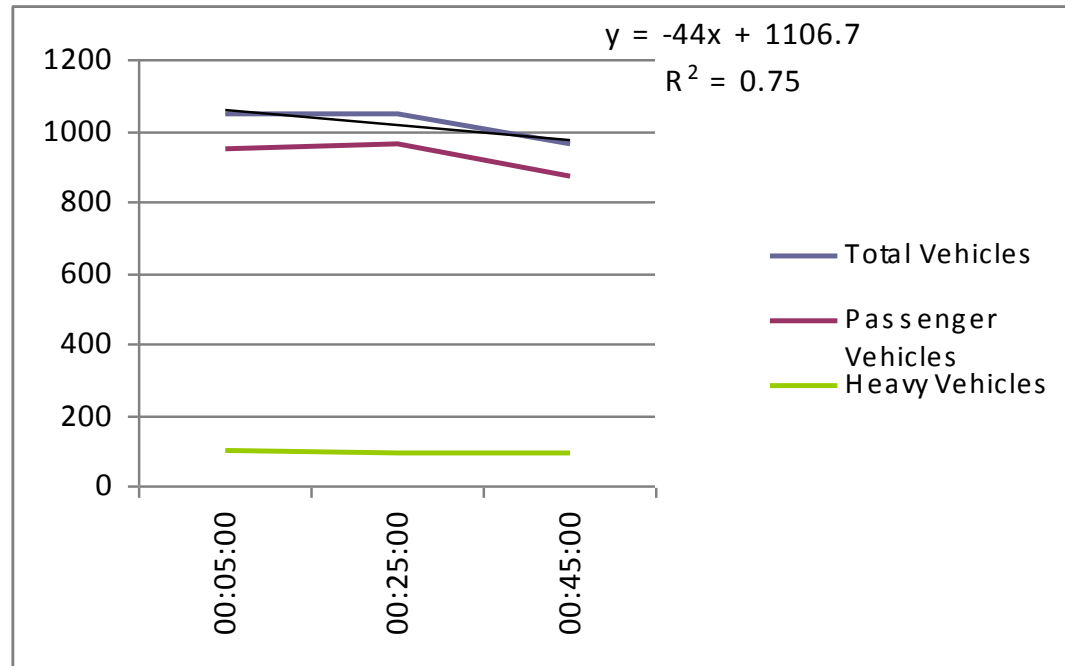


9.5.4 DATA COLLECTED FROM SITE 2007-2125 ON JULY 7, 2008

Road: QEW WB
 Location: QEW in Oakville - 200m West of Trafalgar Rd
 Evaluation Days: July 7th

Date: Monday July 7th, 2008

Average vphpl: 1019
 SD - ATF: 51
 Average PV Flow (APVF): 925
 SD - APVF: 50
 Average HV Flow (AHVF): 93
 SD - AHVF: 6



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	vphpl
00:05:00	00:20:00	00:15:00	237	25	0	15	0	0.2500	948	100	1048
00:25:00	00:40:00	00:15:00	240	22	0	15	0	0.2500	960	88	1048
00:45:00	01:00:00	00:15:00	217	23	0	15	0	0.2500	868	92	960

9.5.5 PHOTOS TAKEN OF SITE 2007-2125 ON JULY 7, 2008

No photos were taken on this site visit.

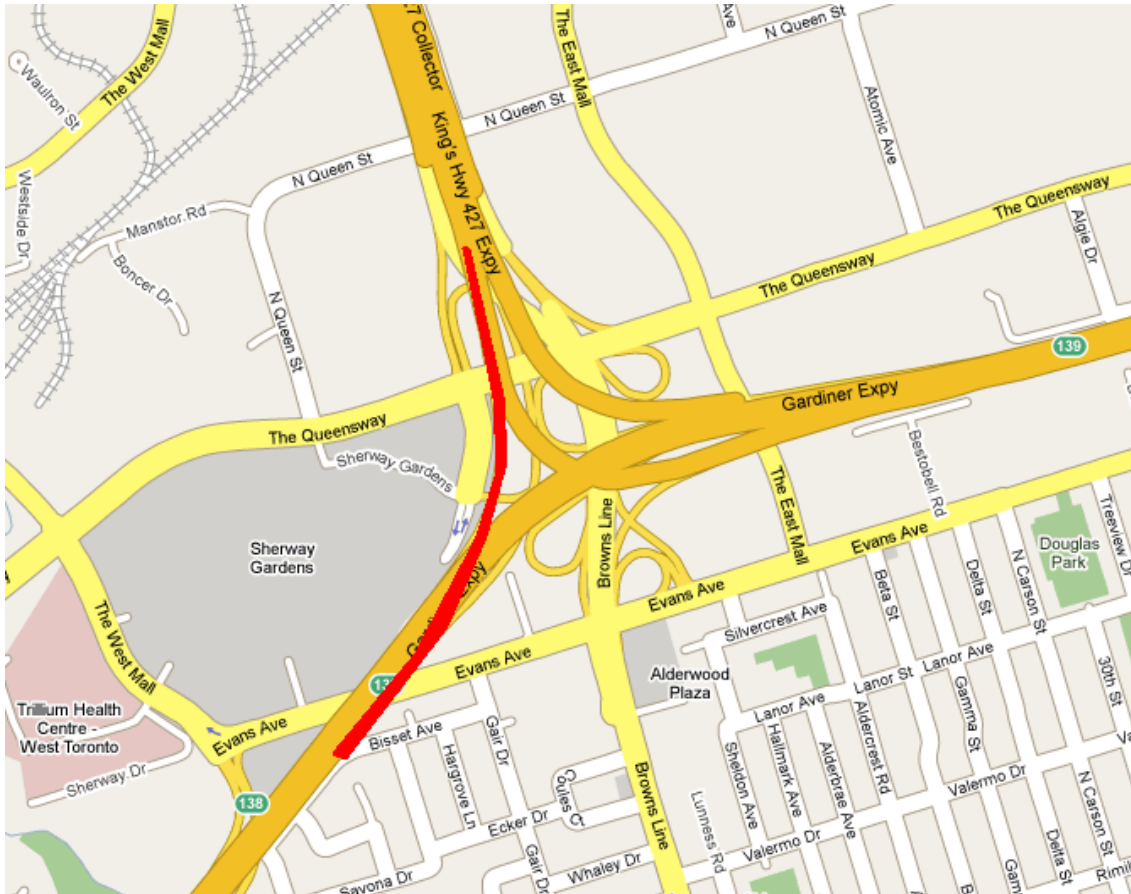
10 2008-2003, QEW, E/Hwy 427, N

10.1 SITE VISIT 1 – JUNE 26, 2008

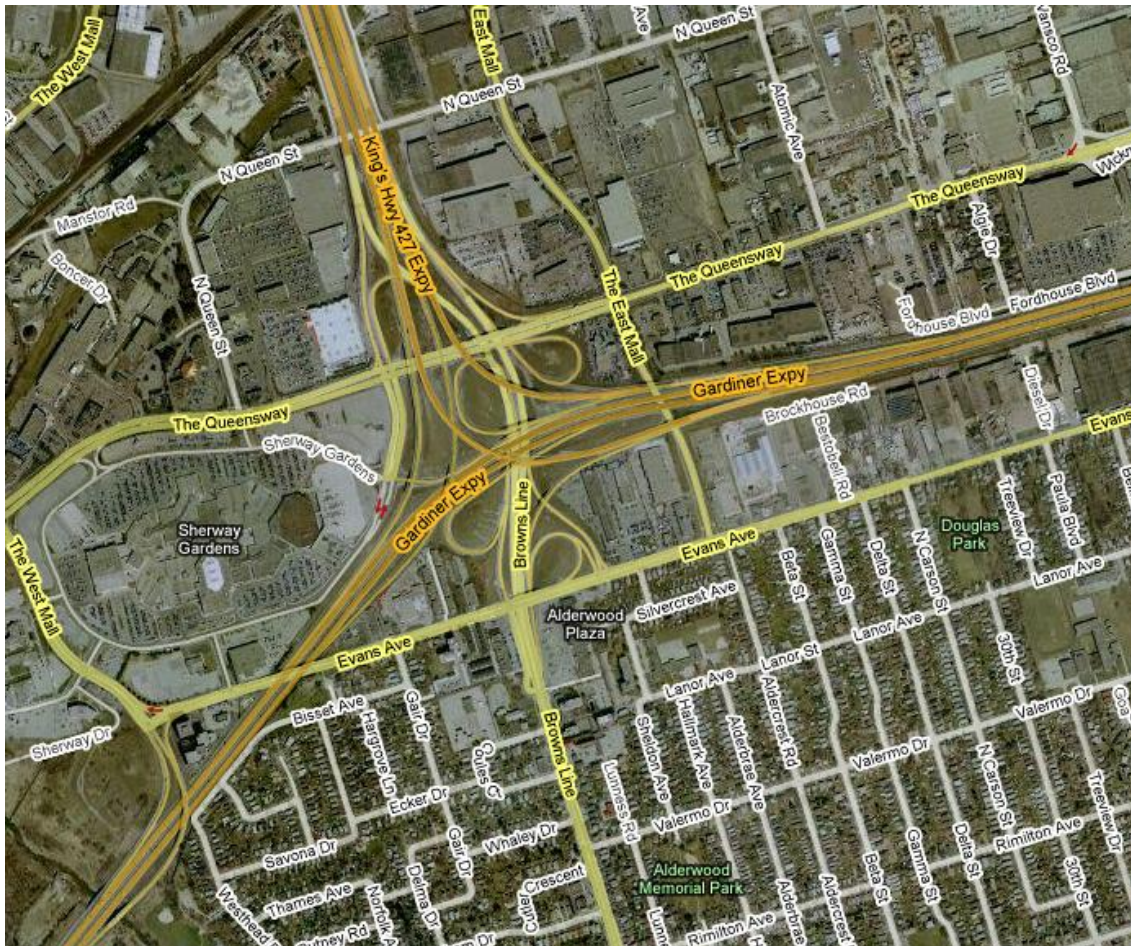
10.1.1 SITE CHARACTERISTICS FORM FOR SITE 2008-2003

Date	26-Jun
Name of the Site	2008-2003
Location	Hwy 427 & QEW. Ramp coming off of EB QEW onto NB 427
Weather	Hot and clear. Approx 29 degrees
Starting Time	8:50
End Time	14:30
Day of Week	Thursday
Time of Day	Daytime
Assigned Lane	Left lane was closed
Lane Width (m)	
Direction of Traffic	EB becoming NB
Shoulder Type	Paved
Lane Closure	Left lane was closed
OPP Presence	No
Time of OPP Presence	
Facility Type	2 lane off ramp
Driver Population	Mostly commuter vehicles
% Heavy Vehicles	
Grade of Road	Uphill – Off-ramp overpass
Speed Limit (km/hr)	100
Curve of Road	90% eventually
Length of Work Zone	1.0 km
Duration of Closure	Continuous
Intersections	Begins at ramp exit
Type of Traffic Control	Advance signage, some barrels; mostly jersey barrier
Pavement Condition	Good
Distractions	Construction work
List of Photos Taken	(1) Looking WB towards queue (2) Looking South at Ramp
Other Comments	

10.1.2 MAP OF LOCATION OF SITE 2008-2003



10.1.3 AERIAL VIEW OF SITE 2008-2003

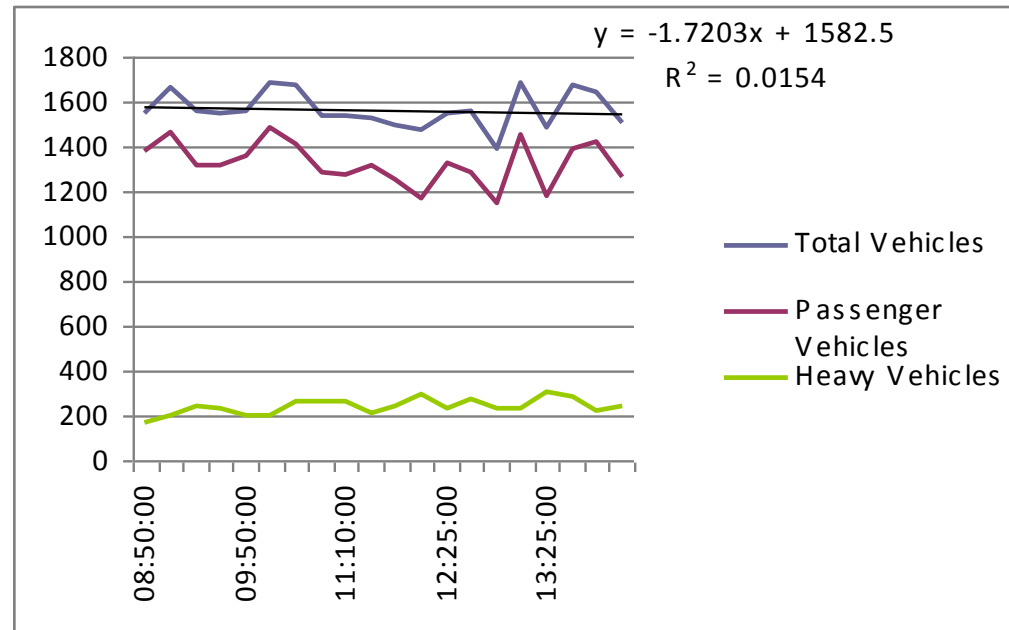


10.1.4 DATA COLLECTED FROM SITE 2008-2003 ON JUN 26, 2008

Road QEW to 427
 Location EB QEW offramp to NB 427
 Evaluation Days June 26th

Date: Thursday, June 26th, 2008

Average vphpl 1564
 SD - ATF 82
 Average PV Flow (APVF) 1324
 SD - APVF 96
 Average HV Flow (AHVF) 241
 SD - AHVF 36



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	vphpl
08:50:00	09:05:00	00:15:00	345	42	0	15	0	0.2500	1380	168	1548
09:05:00	09:20:00	00:15:00	366	49	0	15	0	0.2500	1464	196	1660
09:20:00	09:35:00	00:15:00	328	61	0	15	0	0.2500	1312	244	1556
09:35:00	09:50:00	00:15:00	329	58	0	15	0	0.2500	1316	232	1548
09:50:00	10:05:00	00:15:00	339	50	0	15	0	0.2500	1356	200	1556
10:25:00	10:40:00	00:15:00	371	50	0	15	0	0.2500	1484	200	1684
10:40:00	10:55:00	00:15:00	352	67	0	15	0	0.2500	1408	268	1676
10:55:00	11:10:00	00:15:00	320	65	0	15	0	0.2500	1280	260	1540
11:10:00	11:25:00	00:15:00	318	65	0	15	0	0.2500	1272	260	1532

11:35:00	11:50:00	00:15:00	328	53	0	15	0	0.2500	1312	212	1524
11:50:00	12:05:00	00:15:00	314	60	0	15	0	0.2500	1256	240	1496
12:05:00	12:20:00	00:15:00	293	75	0	15	0	0.2500	1172	300	1472
12:25:00	12:40:00	00:15:00	331	57	0	15	0	0.2500	1324	228	1552
12:40:00	12:55:00	00:15:00	320	69	0	15	0	0.2500	1280	276	1556
12:55:00	13:10:00	00:15:00	288	59	0	15	0	0.2500	1152	236	1388
13:10:00	13:25:00	00:15:00	363	59	0	15	0	0.2500	1452	236	1688
13:25:00	13:40:00	00:15:00	295	77	0	15	0	0.2500	1180	308	1488
13:40:00	13:55:00	00:15:00	348	71	0	15	0	0.2500	1392	284	1676
13:55:00	14:10:00	00:15:00	355	56	0	15	0	0.2500	1420	224	1644
14:10:00	14:25:00	00:15:00	316	60	0	15	0	0.2500	1264	240	1504

10.1.5 PHOTOS TAKEN OF SITE 2008-2003 ON JUNE 26, 2008

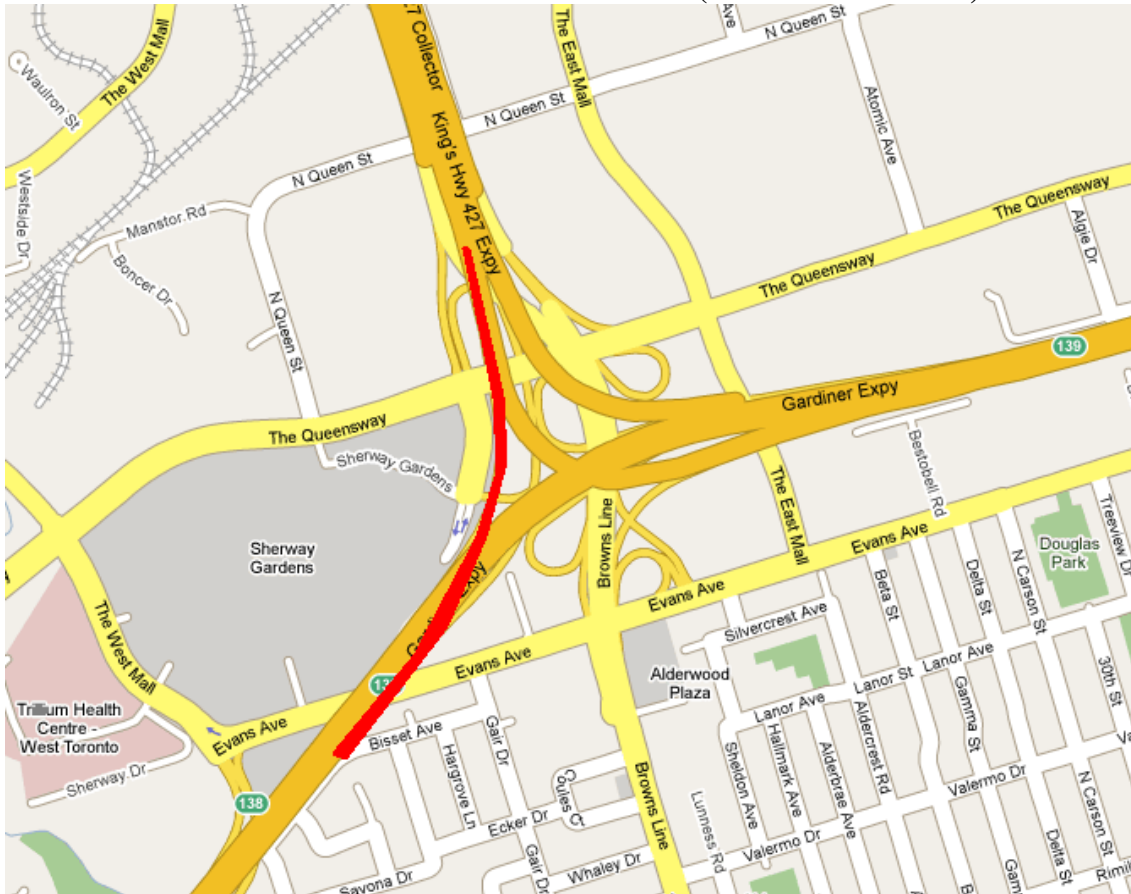


10.2 SITE VISIT 2 – JULY 2, 2008

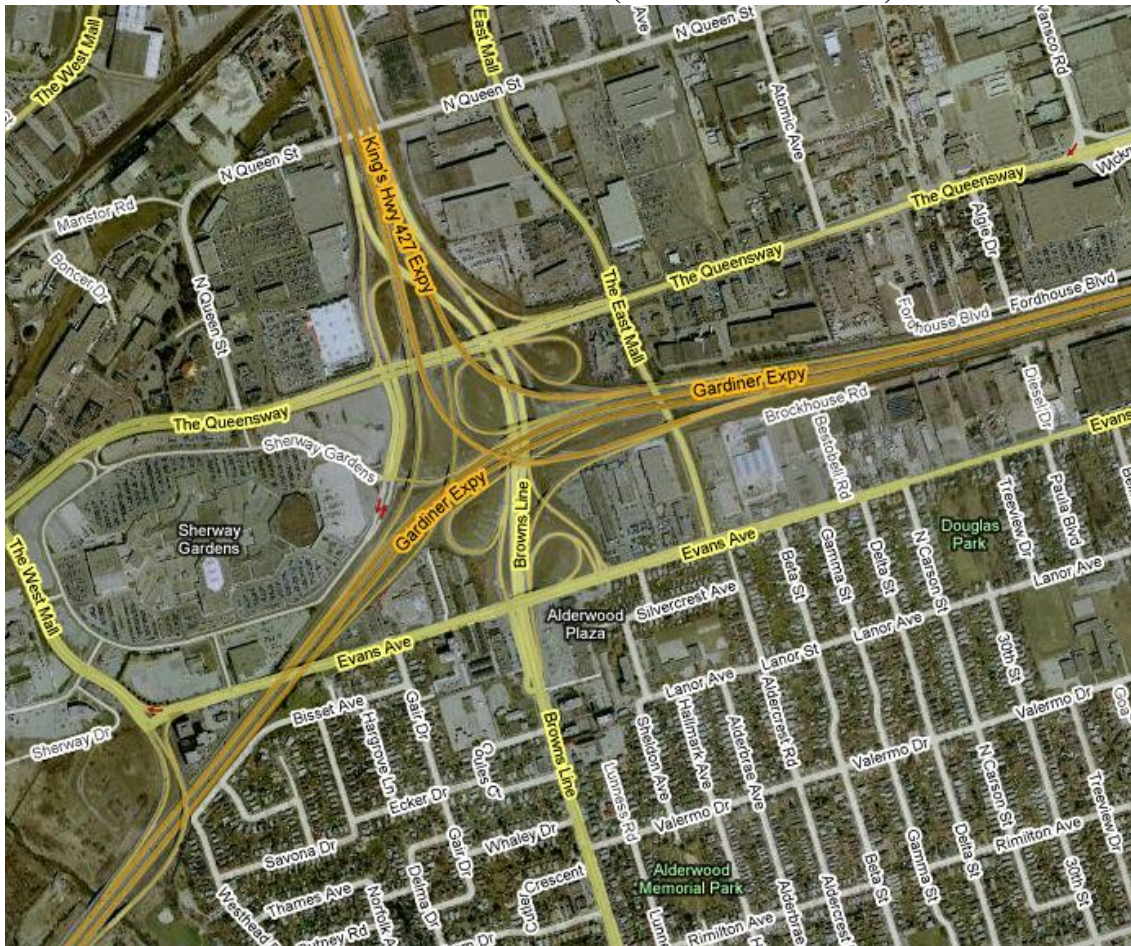
10.2.1 SITE CHARACTERISTICS FORM FOR SITE 2008-2003

Date	2-Jul
Name of the Site	2008-2003
Location	Hwy 427 & QEW. Ramp coming off of EB QEW onto NB 427
Weather	Clear
Starting Time	21:00
End Time	21:45
Day of Week	Wednesday
Time of Day	Night Time
Assigned Lane	Left lane was closed
Lane Width (m)	
Direction of Traffic	EB becoming NB
Shoulder Type	Paved
Lane Closure	Left lane was closed
OPP Presence	No
Time of OPP Presence	
Facility Type	2 lane off ramp
Driver Population	Mostly commuter vehicles
% Heavy Vehicles	
Grade of Road	Uphill – Off-ramp overpass
Speed Limit (km/hr)	100
Curve of Road	90% eventually
Length of Work Zone	1.0km
Duration of Closure	Continuous
Intersections	Begins at ramp exit
Type of Traffic Control	Advance signage, some barrels; mostly jersey barrier
Pavement Condition	Good
Distractions	Construction work
List of Photos Taken	
Other Comments	No queuing formed while on site, not enough vehicles to form a queue

10.2.2 MAP OF LOCATION OF SITE 2008-2003 (SAME AS ABOVE)



10.2.3 AERIAL VIEW OF SITE 2008-2003 (SAME AS ABOVE)



10.2.4 DATA COLLECTED FROM SITE 2008-2003 ON JUL 2, 2008

This site visit yielded no data.

10.2.5 PHOTOS TAKEN OF SITE 2008-2003 ON JULY 2, 2008

No photos were taken on this site visit.

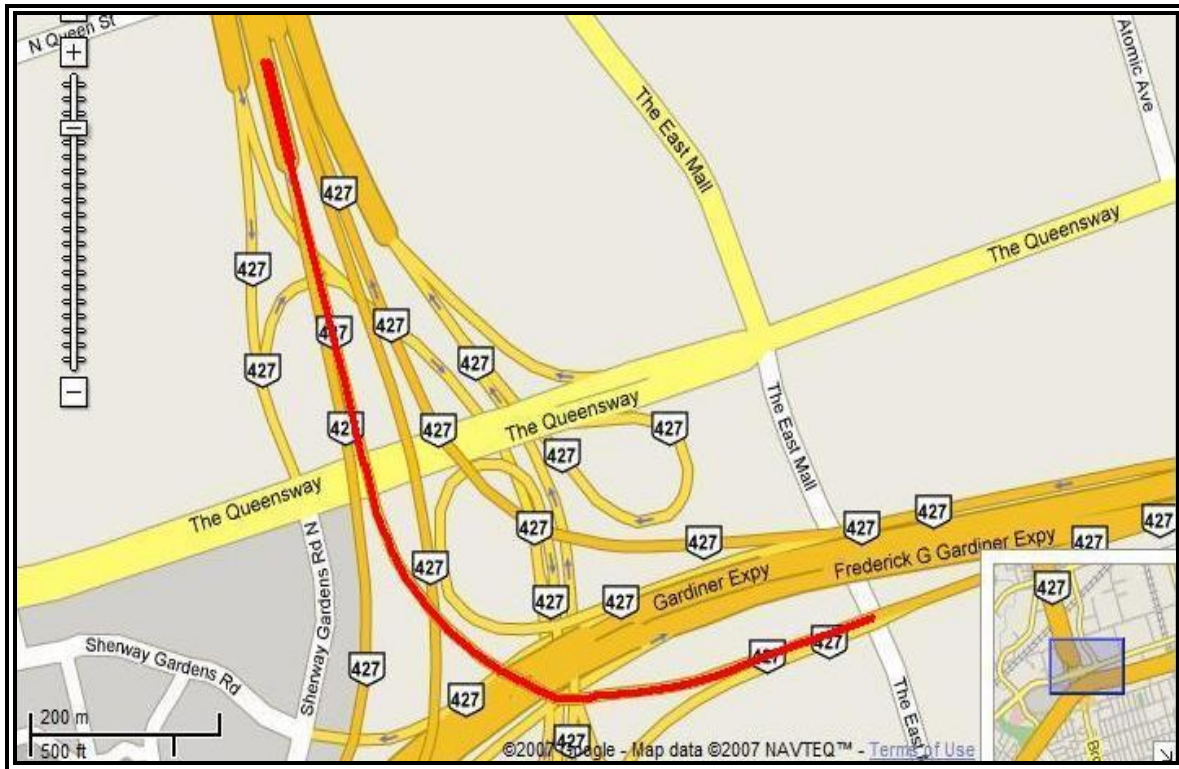
11 2007-2028, Hwy 427 S

11.1 SITE VISIT 1 – SEPTEMBER 20, 2007

11.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2028

Date	20-Sep
Name of the Site	Hwy 427
Location	427 South onramp onto QEW East
Weather	Sunny
Starting Time	10:30
End Time	15:00
Day of Week	Thursday
Time of Day	Mid-day
Assigned Lane	West lane (becomes South lane after turn was open to traffic) other lane was closed
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	1 Left lane
OPP Presence	No
Time of OPP Presence	
Facility Type	2 Lane onramp
Driver Population	Mostly commuter vehicles
% Heavy Vehicles	
Grade of Road	Downhill, graded as an off ramp from an overpass
Speed Limit (km/hr)	100
Curve of Road	Yes
Length of Work Zone	1.0km on ramp. 2.5km in advance of CZ
Duration of Closure	24 hours/day for multi-month project
Intersections	On-ramp from 427 to EB QEW (see map)
Type of Traffic Control	Lane markings and concrete barriers – onramp refurbishing
Pavement Condition	Good
Distractions	Workers and high traffic
List of Photos Taken	14.1,14.2
Other Comments	Queue generally started at shift in lanes, approx. 2.5km from start of CZ. Hard to tell though since the queue has an egret to the WB QEW up until start of CZ therefore lane changing occurred and queue did not remain under controlled conditions.

11.1.2 MAP OF LOCATION OF SITE 2007-2028



11.1.3 AERIAL VIEW OF SITE 2007-2028

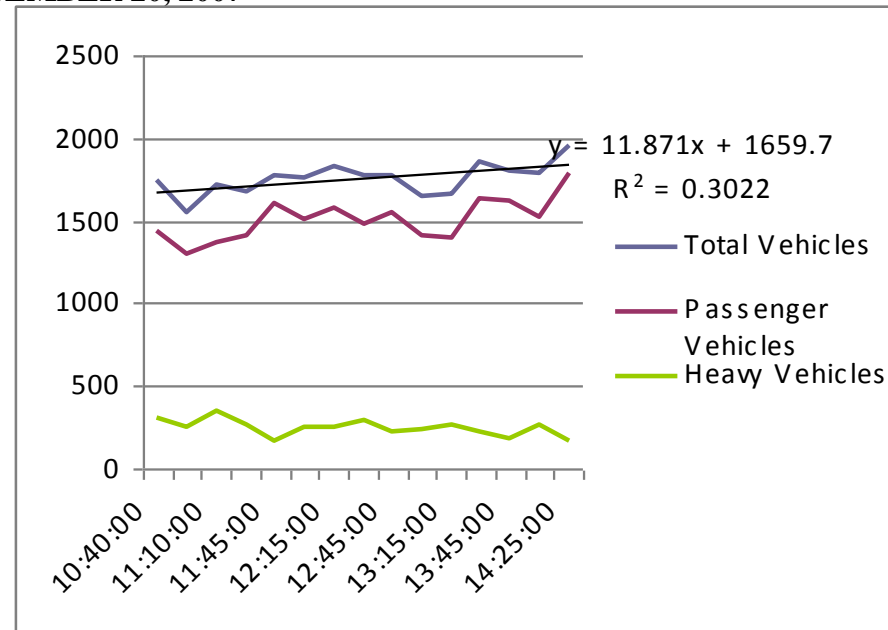


11.1.4 DATA COLLECTED FROM SITE 2007-2028 ON SEPTEMBER 20, 2007

Road Hwy 427
 Location Hwy 427 & QEW
 Evaluation Days September 20 to 24

Date: Thursday, September 20, 2007

Average Total Flow (ATF) 1765
SD - ATF 102
Average PV Flow (APVF) 1515
SD - APVF 125
Average HV Flow (AHVF) 241
SD - AHVF 55



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
10:40:00	10:55:00	00:15:00	360	78	0	15	0	0.2500	1440	312	1752
10:55:00	11:10:00	00:15:00	326	62	0	15	0	0.2500	1304	248	1552
11:10:00	11:25:00	00:15:00	343	87	0	15	0	0.2500	1372	348	1720
11:25:00	11:40:00	00:15:00	353	67	0	15	0	0.2500	1412	268	1680
11:45:00	12:00:00	00:15:00	403	42	0	15	0	0.2500	1612	168	1780
12:00:00	12:15:00	00:15:00	377	62	0	15	0	0.2500	1508	248	1756
12:15:00	12:30:00	00:15:00	393	63	0	15	0	0.2500	1572	252	1824
12:30:00	12:45:00	00:15:00	370	74	0	15	0	0.2500	1480	296	1776
12:45:00	13:00:00	00:15:00	388	55	0	15	0	0.2500	1552	220	1772
13:00:00	13:15:00	00:15:00	351	60	0	15	0	0.2500	1404	240	1644
13:15:00	13:30:00	00:15:00	348	67	0	15	0	0.2500	1392	268	1660

13:30:00	13:45:00	00:15:00	410	56	0	15	0	0.2500	1640	224	1864
13:45:00	14:00:00	00:15:00	405	44	0	15	0	0.2500	1620	176	1796
14:00:00	14:15:00	00:15:00	381	66	0	15	0	0.2500	1524	264	1788
14:25:00	14:40:00	00:15:00	446	43	0	15	0	0.2500	1784	172	1956

11.1.5 PHOTOS TAKEN OF SITE 2007-2028 ON SEPTEMBER 20, 2007

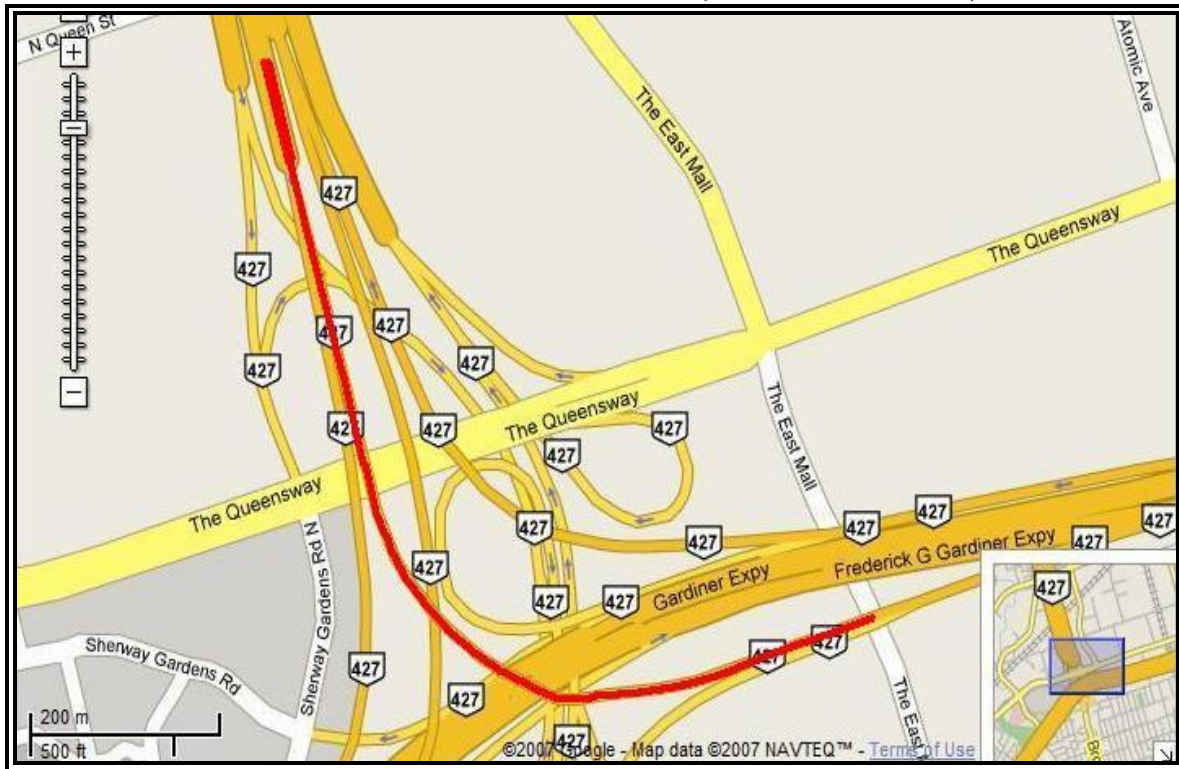


11.2 SITE VISIT 2 – SEPTEMBER 21, 2007

11.2.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2028

Date	21-Sep
Name of the Site	Hwy 427
Location	427 South onramp onto QEW East
Weather	Slightly overcast, becoming sunny
Starting Time	7:15
End Time	16:20
Day of Week	Friday
Time of Day	Morning to Afternoon
Assigned Lane	West lane (becomes South lane after turn was open to traffic) other lane was closed
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	1 Left lane
OPP Presence	No
Time of OPP Presence	
Facility Type	2 Lane onramp
Driver Population	Mostly commuter vehicles
% Heavy Vehicles	
Grade of Road	Downhill, graded as an off ramp from an overpass
Speed Limit (km/hr)	100
Curve of Road	Yes
Length of Work Zone	1.0km on ramp. 2.5km in advance of CZ
Duration of Closure	24 hours/day for multi-month project
Intersections	On-ramp from 427 to EB QEW (see map)
Type of Traffic Control	Lane markings and concrete barriers – onramp refurbishing
Pavement Condition	Good
Distractions	Workers and high traffic
List of Photos Taken	14.3,14.4
Other Comments	Unexpected lane closure North of CZ (Construction Zone) caused free flow starting at 12:35pm and ending at 15:32

11.2.2 MAP OF LOCATION OF SITE 2007-2028 (SAME AS ABOVE)



11.2.3 AERIAL VIEW OF SITE 2007-2028 (SAME AS ABOVE)

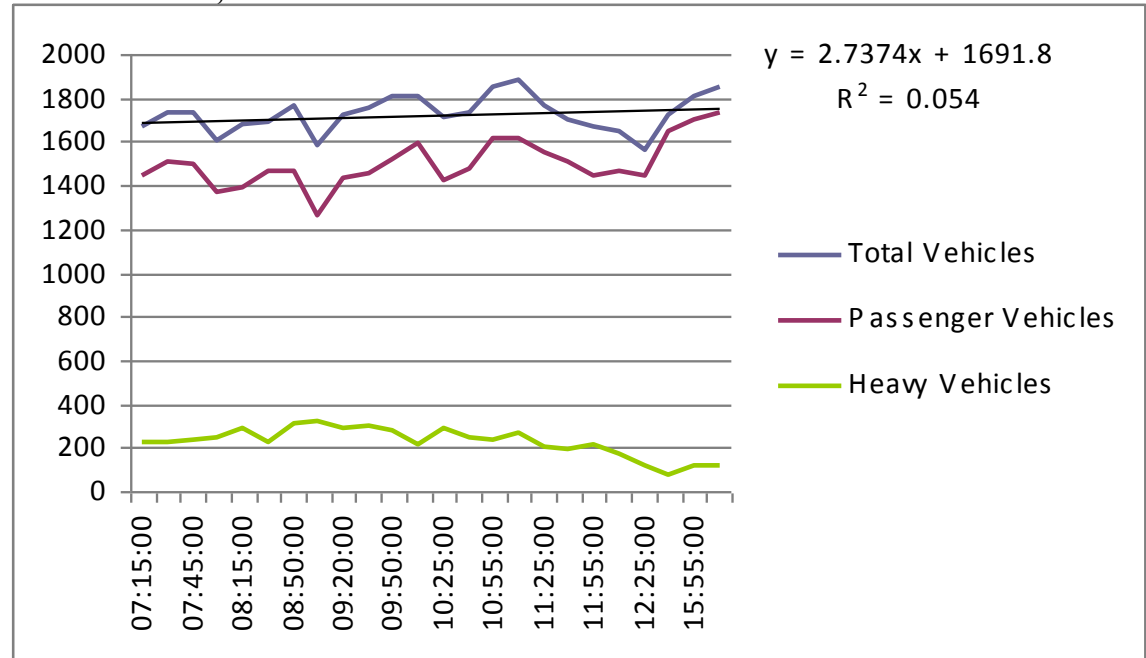


11.2.4 DATA COLLECTED FROM SITE 2007-2028 ON SEPTEMBER 21, 2007

Road Hwy 427
 Location Hwy 427 & QEW
 Evaluation Days September 20 to 24

Date: Friday, September 21, 2007

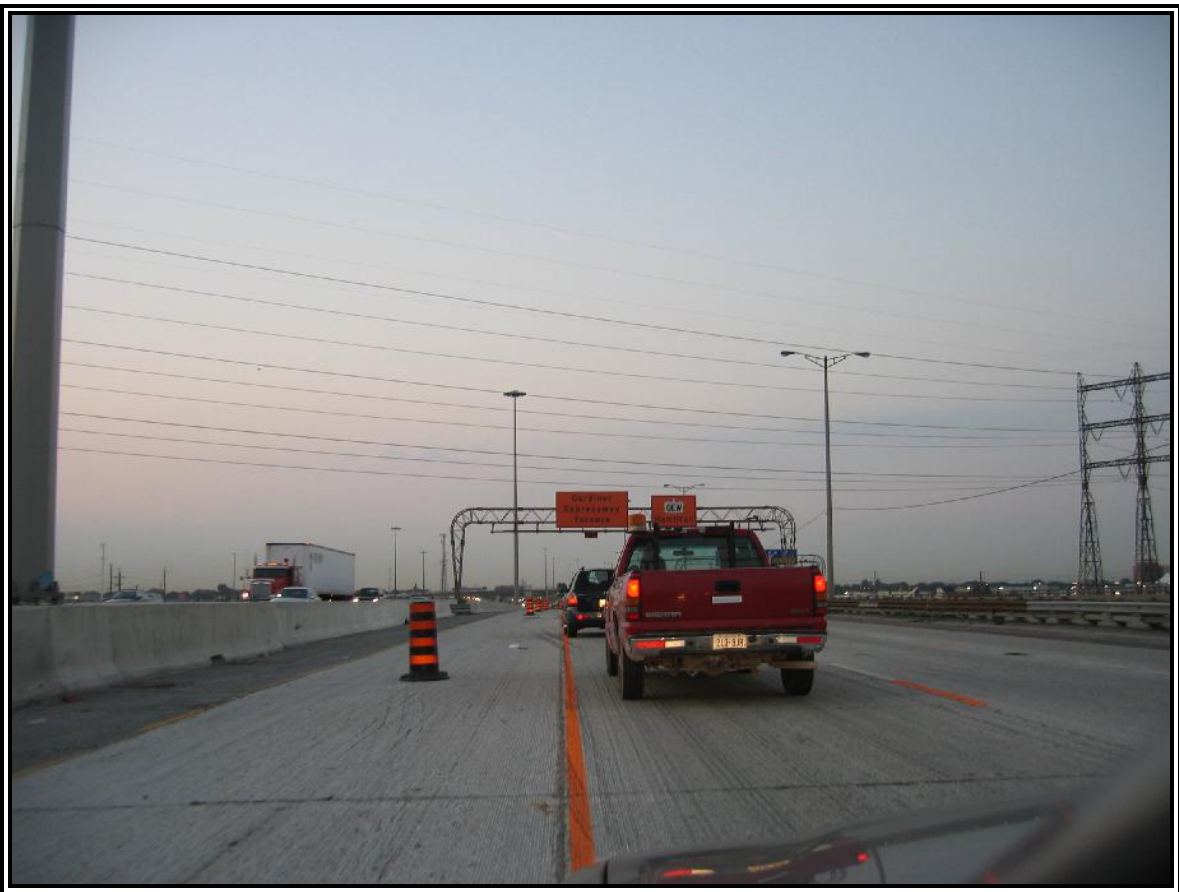
Average Total Flow (ATF) 1726
SD - ATF 83
Average PV Flow (APVF) 1501
SD - APVF 108
Average HV Flow (AHVF) 225
SD - AHVF 66



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
07:15:00	07:30:00	00:15:00	360	57	0	15	0	0.2500	1440	228	1668
07:30:00	07:45:00	00:15:00	376	56	0	15	0	0.2500	1504	224	1728
07:45:00	08:00:00	00:15:00	374	60	0	15	0	0.2500	1496	240	1736
08:00:00	08:15:00	00:15:00	341	61	0	15	0	0.2500	1364	244	1608
08:15:00	08:30:00	00:15:00	347	72	0	15	0	0.2500	1388	288	1676
08:35:00	08:50:00	00:15:00	365	57	0	15	0	0.2500	1460	228	1688
08:50:00	09:05:00	00:15:00	365	77	0	15	0	0.2500	1460	308	1768
09:05:00	09:20:00	00:15:00	316	79	0	15	0	0.2500	1264	316	1580
09:20:00	09:35:00	00:15:00	357	73	0	15	0	0.2500	1428	292	1720
09:35:00	09:50:00	00:15:00	363	75	0	15	0	0.2500	1452	300	1752
09:50:00	10:05:00	00:15:00	381	70	0	15	0	0.2500	1524	280	1804

10:10:00	10:25:00	00:15:00	399	54	0	15	0	0.2500	1596	216	1812
10:25:00	10:40:00	00:15:00	356	71	0	15	0	0.2500	1424	284	1708
10:40:00	10:55:00	00:15:00	370	62	0	15	0	0.2500	1480	248	1728
10:55:00	11:10:00	00:15:00	405	58	0	15	0	0.2500	1620	232	1852
11:10:00	11:25:00	00:15:00	404	66	0	15	0	0.2500	1616	264	1880
11:25:00	11:40:00	00:15:00	388	52	0	15	0	0.2500	1552	208	1760
11:40:00	11:55:00	00:15:00	378	47	0	15	0	0.2500	1512	188	1700
11:55:00	12:10:00	00:15:00	362	54	0	15	0	0.2500	1448	216	1664
12:10:00	12:25:00	00:15:00	367	44	0	15	0	0.2500	1468	176	1644
12:25:00	12:40:00	00:15:00	362	29	0	15	0	0.2500	1448	116	1564
15:40:00	15:55:00	00:15:00	412	19	0	15	0	0.2500	1648	76	1724
15:55:00	16:10:00	00:15:00	424	29	0	15	0	0.2500	1696	116	1812
16:10:00	16:25:00	00:15:00	433	29	0	15	0	0.2500	1732	116	1848

11.2.5 PHOTOS TAKEN OF SITE 2007-2028 ON SEPTEMBER 21, 2007

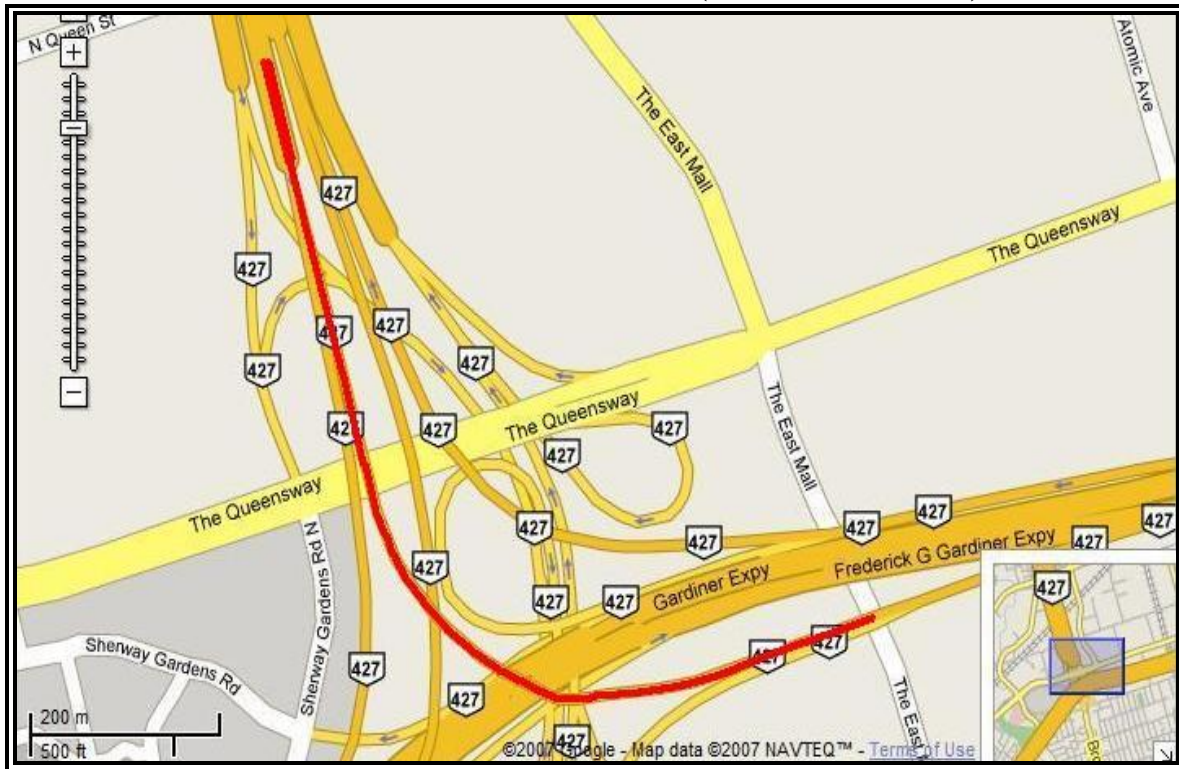


11.3 SITE VISIT 3 – SEPTEMBER 24, 2007

11.3.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2028

Date	24-Sep
Name of the Site	Hwy 427
Location	427 South onramp onto QEW East
Weather	Slightly overcast, becoming sunny
Starting Time	7:05
End Time	11:45
Day of Week	Monday
Time of Day	Morning
Assigned Lane	West lane (becomes South lane after turn was open to traffic) other lane was closed
Lane Width (m)	
Direction of Traffic	EB
Shoulder Type	Paved
Lane Closure	1 Left lane
OPP Presence	No
Time of OPP Presence	
Facility Type	2 Lane onramp
Driver Population	Mostly commuter vehicles
% Heavy Vehicles	
Grade of Road	Downhill, graded as an off ramp from an overpass
Speed Limit (km/hr)	100
Curve of Road	Yes
Length of Work Zone	1.0km on ramp. 2.5km in advance of CZ
Duration of Closure	24 hours/day for multi-month project
Intersections	On-ramp from 427 to EB QEW (see map)
Type of Traffic Control	Lane markings and concrete barriers – onramp refurbishing
Pavement Condition	Good
Distractions	Workers and high traffic
List of Photos Taken	
Other Comments	

11.3.2 MAP OF LOCATION OF SITE 2007-2028 (SAME AS ABOVE)



11.3.3 AERIAL VIEW OF SITE 2007-2028 (SAME AS ABOVE)

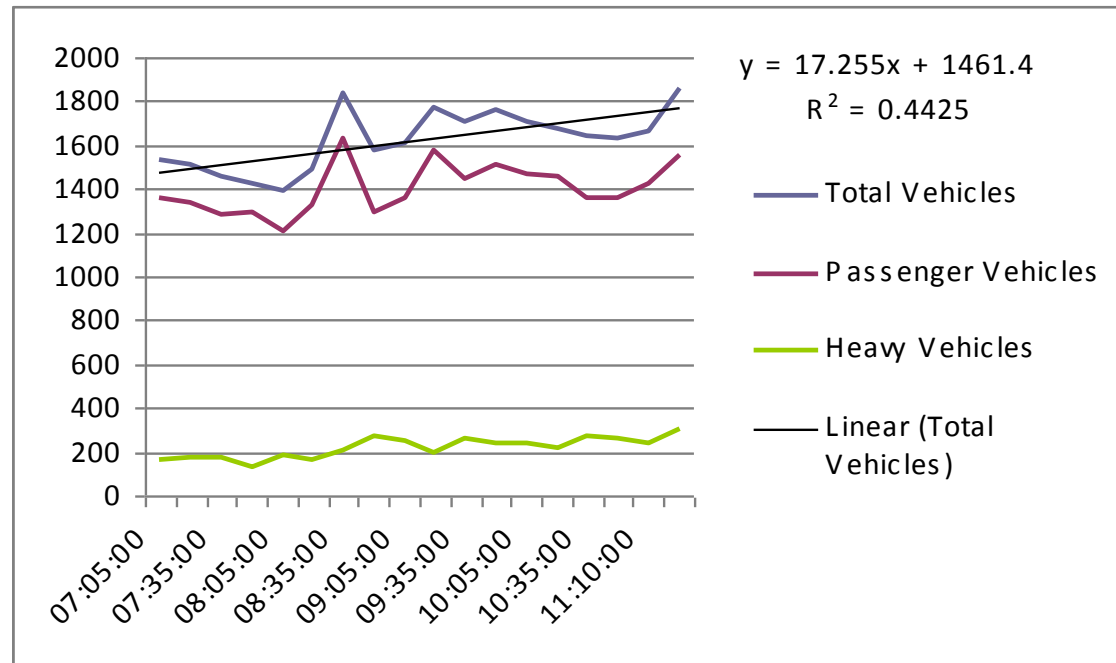


11.3.4 DATA COLLECTED FROM SITE 2007-2028 ON SEPTEMBER 24, 2007

Road Hwy 427
 Location Hwy 427 & QEW
 Evaluation Days September 20 to 24

Date: Monday, September 24, 2007

Average Total Flow (ATF) 1626
SD - ATF 135
Average PV Flow (APVF) 1404
SD - APVF 111
Average HV Flow (AHVF) 221
SD - AHVF 47



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
07:05:00	07:20:00	00:15:00	341	42	0	15	0	0.2500	1364	168	1532
07:20:00	07:35:00	00:15:00	335	44	0	15	0	0.2500	1340	176	1516
07:35:00	07:50:00	00:15:00	322	43	0	15	0	0.2500	1288	172	1460
07:50:00	08:05:00	00:15:00	323	32	0	15	0	0.2500	1292	128	1420
08:05:00	08:20:00	00:15:00	302	47	0	15	0	0.2500	1208	188	1396
08:20:00	08:35:00	00:15:00	331	40	0	15	0	0.2500	1324	160	1484
08:35:00	08:50:00	00:15:00	408	52	0	15	0	0.2500	1632	208	1840
08:50:00	09:05:00	00:15:00	324	69	0	15	0	0.2500	1296	276	1572
09:05:00	09:20:00	00:15:00	341	62	0	15	0	0.2500	1364	248	1612

09:20:00	09:35:00	00:15:00	395	49	0	15	0	0.2500	1580	196	1776
09:35:00	09:50:00	00:15:00	361	66	0	15	0	0.2500	1444	264	1708
09:50:00	10:05:00	00:15:00	379	61	0	15	0	0.2500	1516	244	1760
10:05:00	10:20:00	00:15:00	367	60	0	15	0	0.2500	1468	240	1708
10:20:00	10:35:00	00:15:00	364	55	0	15	0	0.2500	1456	220	1676
10:35:00	10:50:00	00:15:00	341	69	0	15	0	0.2500	1364	276	1640
10:55:00	11:10:00	00:15:00	341	66	0	15	0	0.2500	1364	264	1628
11:10:00	11:25:00	00:15:00	356	61	0	15	0	0.2500	1424	244	1668
11:25:00	11:40:00	00:15:00	389	76	0	15	0	0.2500	1556	304	1860

11.3.5 PHOTOS TAKEN OF SITE 2007-2028 ON SEPTEMBER 24, 2007

No photos were taken on this site visit.

12 2006-3099, Hwy 7&8 E,W

12.1 SITE VISIT 1 – SEPTEMBER 18, 2007

12.1.1 SITE CHARACTERISTICS FORM

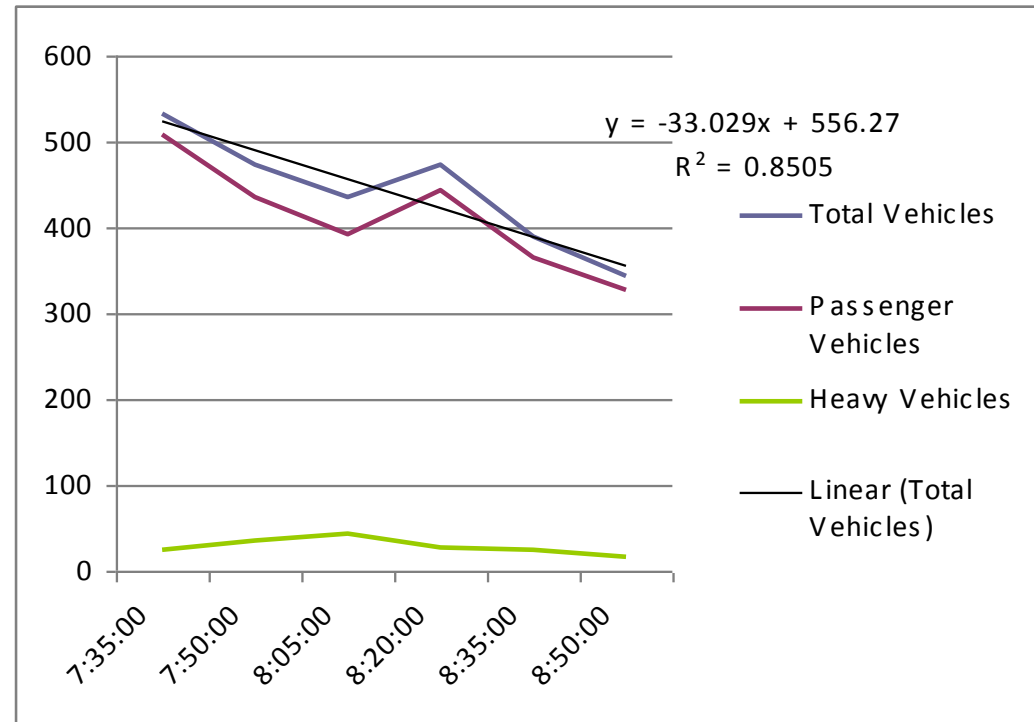
Date	18-Sep
Hwy No.	Hwy 7/8 EB
Location	Waterloo Rd. 1 to Waterloo Rd. 5, New Hamburg
Weather	Clear
Starting Time	07:30
End Time	13:00
Day of Week	Tuesday
Time of Day	
Assigned Lane	E/B Traffic on lane 2, W/B Traffic on Lane 1,W/B lanes closed
Lane Width (m)	3.75
Direction of Traffic	EB
Shoulder Type	Fully Paved (0.5 m)
Lane Closure	Both WBL closed
OPP Presence	Yes
Time of OPP Presence	08:00-13:00
Facility Type	Four lane undivided highway
Driver Population	Peak
% Heavy Vehicles	
Grade of Road	Level
Speed Limit (km/hr)	80
Curve of Road	Slight curve (Shown in pictures)
Length of Work Zone	5.7 Km (approx)
Duration of Closure	07:00-19:00
Intersections	Hwy 7/8 and Walker road
Type of Traffic Control	Barrel separated
Pavement Condition	Milling
Distractions	Signalised and unsignalised intersection
List of Photos Taken	3 Photos Taken
Other Comments	

12.1.4 DATA COLLECTED FROM SITE 2006-3099 ON SEPT 18, 2007

Road Hwy 7
 Location Waterloo Rd. 1 to Waterloo Rd. 5, New Hamburg
 Evaluation Days September 18, 19, 20

Date: Tuesday, September 18, 2007

Average Total Flow (ATF) 441
SD - ATF 67
Average PV Flow (APVF) 412
SD - APVF 64
Average HV Flow (AHVF) 29
SD - AHVF 10



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
7:35:00	7:50:00	0:15:00	127	6	0	15	0	0.2500	508	24	532
7:50:00	8:05:00	0:15:00	109	9	0	15	0	0.2500	436	36	472
8:05:00	8:20:00	0:15:00	98	11	0	15	0	0.2500	392	44	436
8:20:00	8:35:00	0:15:00	111	7	0	15	0	0.2500	444	28	472
8:35:00	8:50:00	0:15:00	91	6	0	15	0	0.2500	364	24	388
8:50:00	9:05:00	0:15:00	82	4	0	15	0	0.2500	328	16	344

12.1.5 PHOTOS TAKEN OF 2006-3099 ON SEPTEMBER 18, 2007



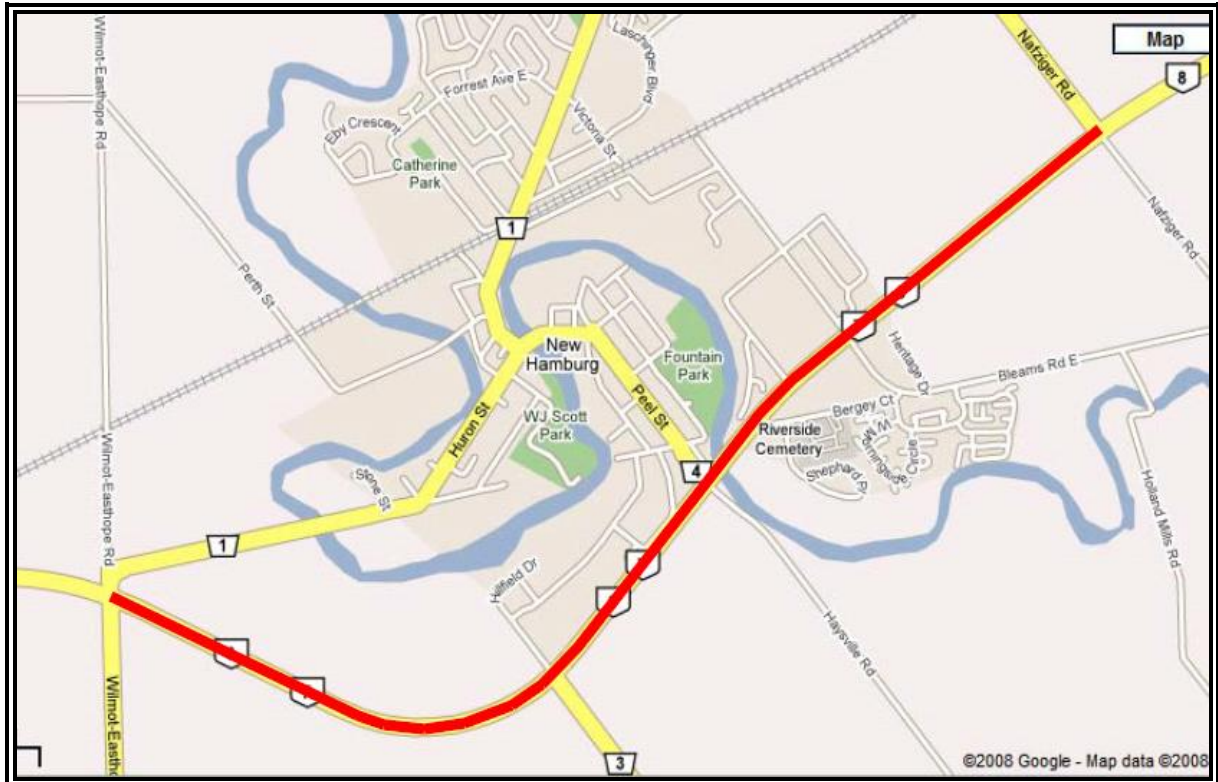


12.2 SITE VISIT 2 – SEPTEMBER 19, 2007 - EB

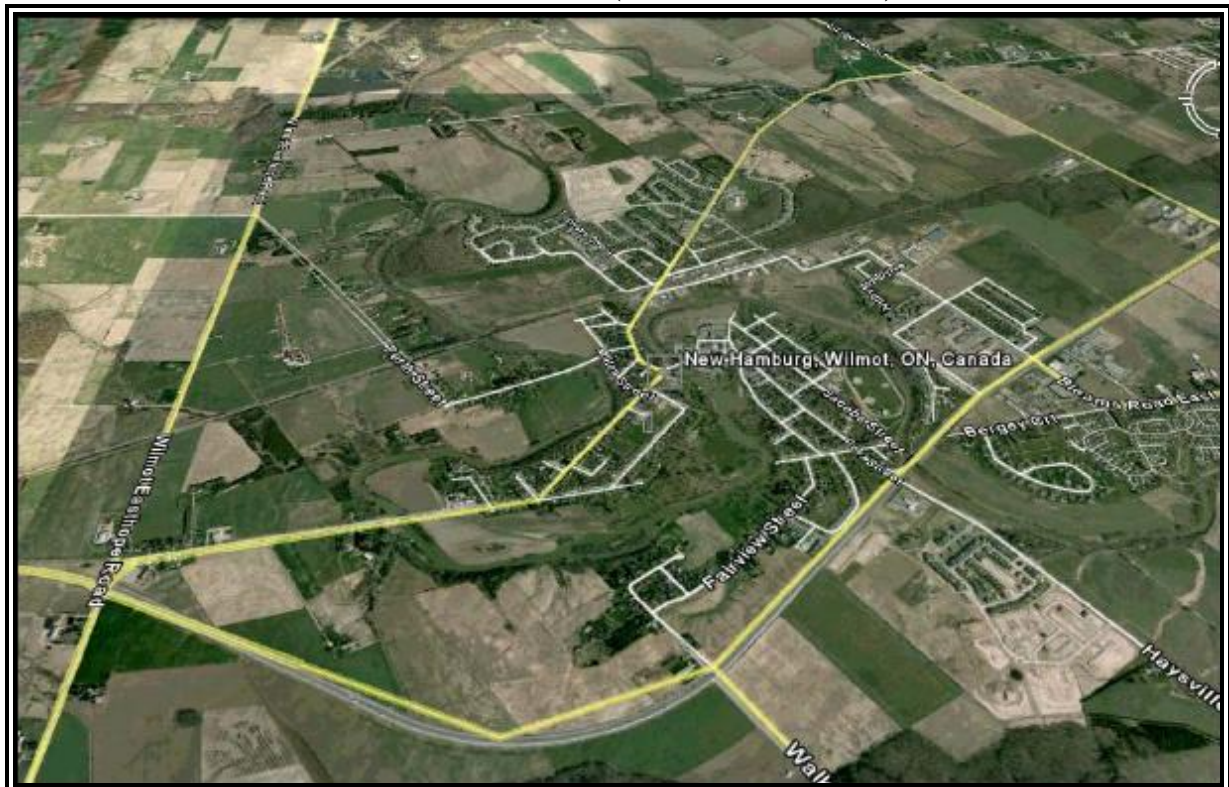
12.2.1 SITE CHARACTERISTICS FORM FOR SITE 2006-3099

Date	19-Sep
Hwy No.	Hwy 7/8 EB
Location	Waterloo Rd. 1 to Waterloo Rd. 5, New Hamburg
Weather	Thick fog
Starting Time	07:00
End Time	13:00
Day of Week	Wednesday
Time of Day	
Assigned Lane	Both E/B lanes closed- E/B traffic on lane 1 of W/B Lanes
Lane Width (m)	3.75
Direction of Traffic	EB
Shoulder Type	Fully Paved (0.5 m)
Lane Closure	Both EBL closed
OPP Presence	Yes
Time of OPP Presence	08:00-13:00
Facility Type	Four lane undivided highway
Driver Population	Peak and Off-peak
% Heavy Vehicles	
Grade of Road	Slight downgrade
Speed Limit (km/hr)	80
Curve of Road	Straight
Length of Work Zone	5.7 Km (approx)
Duration of Closure	07:00-19:00
Intersections	Hwy 7/8 and Regional Road 4(Bleams/Hamilton Rd)
Type of Traffic Control	Barrel separated
Pavement Condition	Milling
Distractions	Signalised and unsignalised intersection, Scattered work
List of Photos Taken	1 Photo Taken
Other Comments	

12.2.2 MAP OF LOCATION OF SITE 2006-3099 (SAME AS ABOVE)



12.2.3 AERIAL VIEW OF SITE 2006-3099 (SAME AS ABOVE)

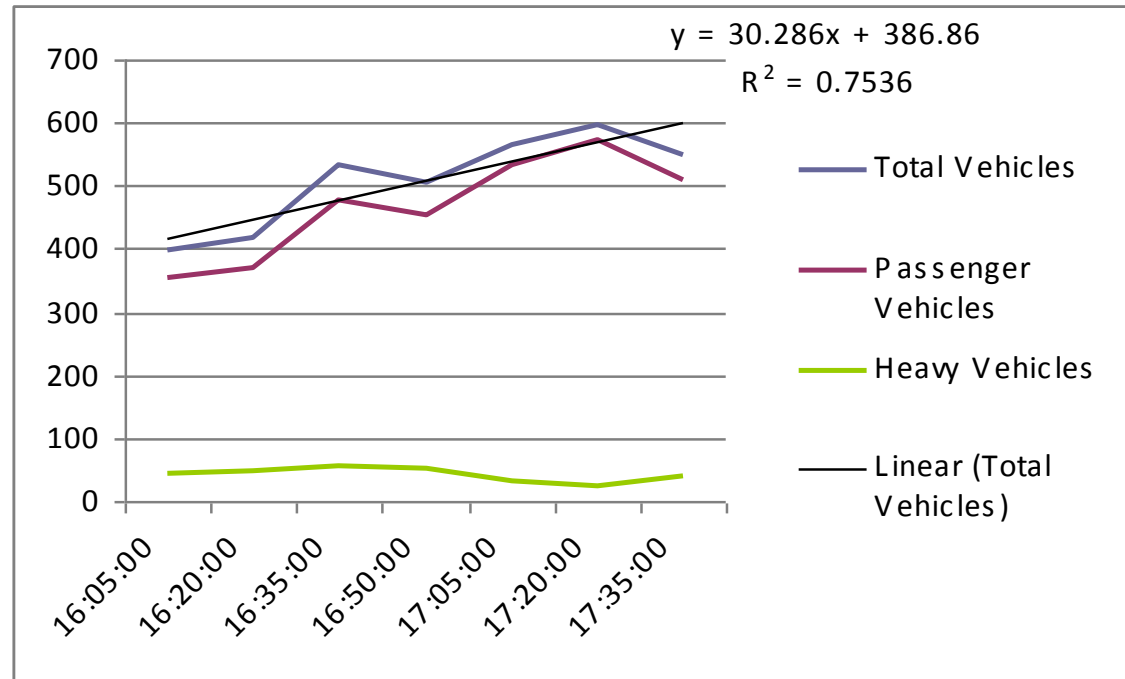


12.2.4 DATA COLLECTED FROM SITE 2006-3099 ON SEPT 19, 2007 - EB

Road: Hwy 7 - EB
 Location: Waterloo Rd. 1 to Waterloo Rd. 5, New Hamburg
 Evaluation Days: September 18, 19, 20

Date: Wednesday, September 19, 2007

Average Total Flow (ATF) 508
SD - ATF 75
Average PV Flow (APVF) 466
SD - APVF 82
Average HV Flow (AHVF) 42
SD - AHVF 11



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
16:05:00	16:20:00	0:15:00	88	11	0	15	0	0.2500	352	44	396
16:20:00	16:35:00	0:15:00	92	12	0	15	0	0.2500	368	48	416
16:35:00	16:50:00	0:15:00	119	14	0	15	0	0.2500	476	56	532
16:50:00	17:05:00	0:15:00	113	13	0	15	0	0.2500	452	52	504
17:05:00	17:20:00	0:15:00	133	8	0	15	0	0.2500	532	32	564
17:20:00	17:35:00	0:15:00	143	6	0	15	0	0.2500	572	24	596
17:35:00	17:50:00	0:15:00	127	10	0	15	0	0.2500	508	40	548

12.2.5 PHOTO TAKEN OF 2006-3099 ON SEPTEMBER 19, 2007 – EB



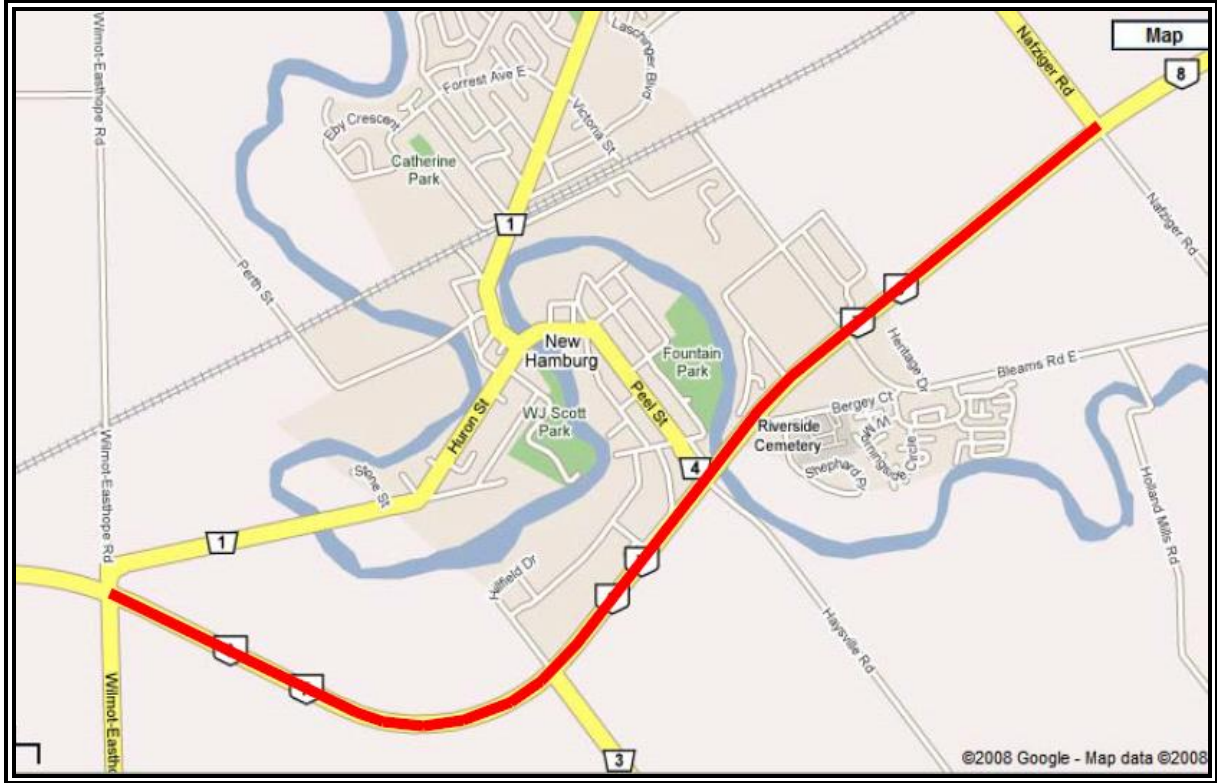
12.3 SITE VISIT 3 – SEPTEMBER 19, 2007 - WB

12.3.1 SITE CHARACTERISTICS FORM FOR SITE 2006-3099

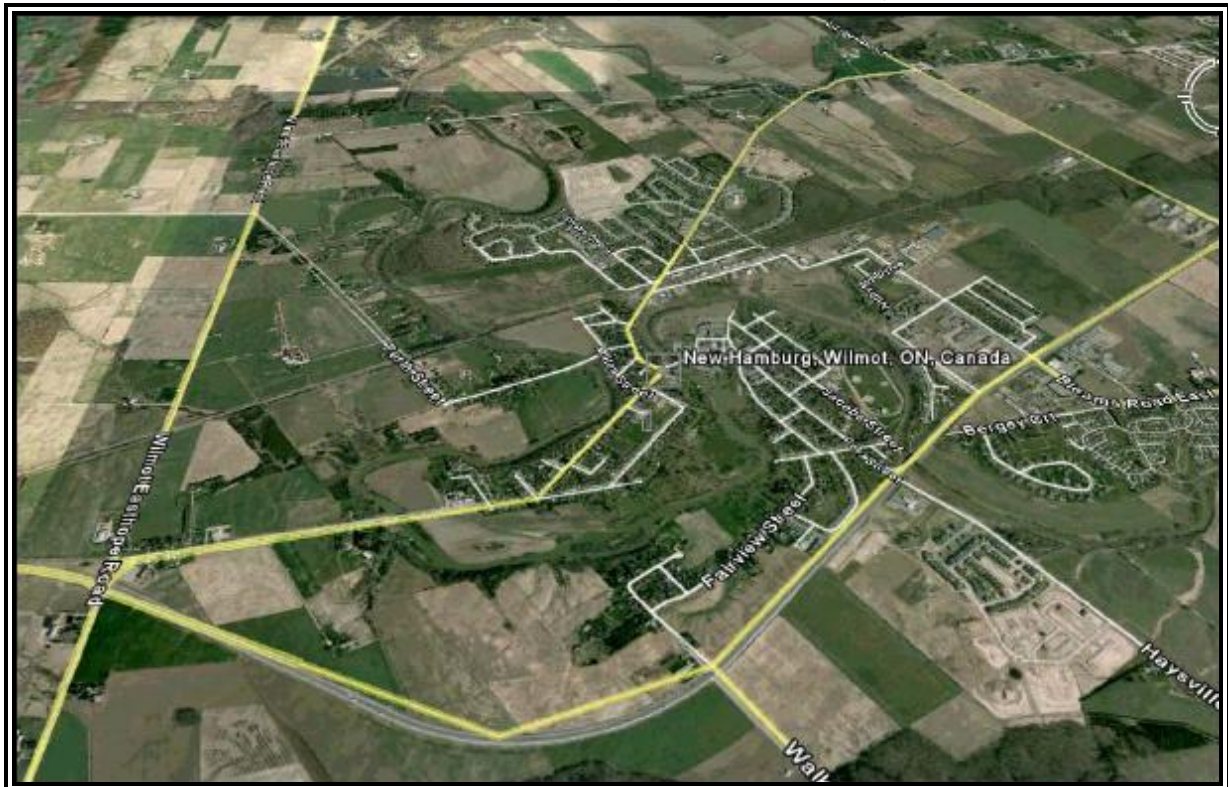
Date	19-Sep
Hwy No.	Hwy 7/8 WB
Location	Waterloo Rd. 1 to Waterloo Rd. 5, New Hamburg
Weather	Clear
Starting Time	15:30
End Time	18:00
Day of Week	Wednesday
Time of Day	
Assigned Lane	WB traffic on lane 1 (Right lane) of E/B lanes
Lane Width (m)	3.75
Direction of Traffic	WB
Shoulder Type	Fully Paved
Lane Closure	Both WBL closed
OPP Presence	Yes
Time of OPP Presence	
Facility Type	Four lane undivided highway
Driver Population	Peak and Off-peak
% Heavy Vehicles	
Grade of Road	Level
Speed Limit (km/hr)	80
Curve of Road	Straight
Length of Work Zone	5.7 Km (approx)
Duration of Closure	07:00-19:00
Intersections	Signalised intersection (Hwy7&8 and Hamilton/Bleams
Type of Traffic Control	Barrel separated
Pavement Condition	Average

Distractions	Signalised and unsignalised intersection, Scattered work
List of Photos Taken	1 Photo Taken
Other Comments	

12.3.2 MAP OF LOCATION OF SITE 2006-3099 (SAME AS ABOVE)



12.3.3 AERIAL VIEW OF SITE 2006-3099 (SAME AS ABOVE)

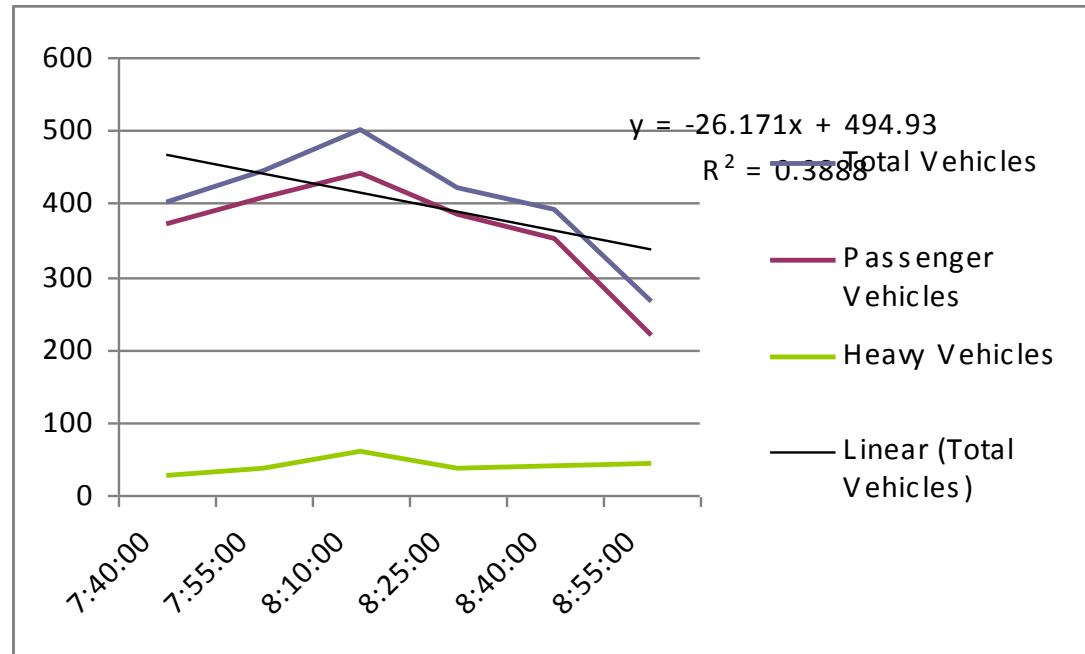


12.3.4 DATA COLLECTED FROM SITE 2006-3099 ON SEPT 19, 2007 - WB

Road: Hwy 7 - WB
 Location: Waterloo Rd. 1 to Waterloo Rd. 5, New Hamburg
 Evaluation Days: September 18, 19, 20

Date: Wednesday, September 19, 2007

Average Total Flow (ATF) 403
SD - ATF 79
Average PV Flow (APVF) 363
SD - APVF 76
Average HV Flow (AHVF) 41
SD - AHVF 11



Start Time	Finish Time	Leg Time	PV	HV	Hour	Minute	Second	Time (hr)	PV Vol	HV Vol	Total Vol
7:40:00	7:55:00	0:15:00	93	7	0	15	0	0.2500	372	28	400
7:55:00	8:10:00	0:15:00	102	9	0	15	0	0.2500	408	36	444
8:10:00	8:25:00	0:15:00	110	15	0	15	0	0.2500	440	60	500
8:25:00	8:40:00	0:15:00	96	9	0	15	0	0.2500	384	36	420
8:40:00	8:55:00	0:15:00	88	10	0	15	0	0.2500	352	40	392
8:55:00	9:10:00	0:15:00	55	11	0	15	0	0.2500	220	44	264

12.3.5 PHOTOS TAKEN OF 2006-3099 ON SEPTEMBER 19, 2007 – WB

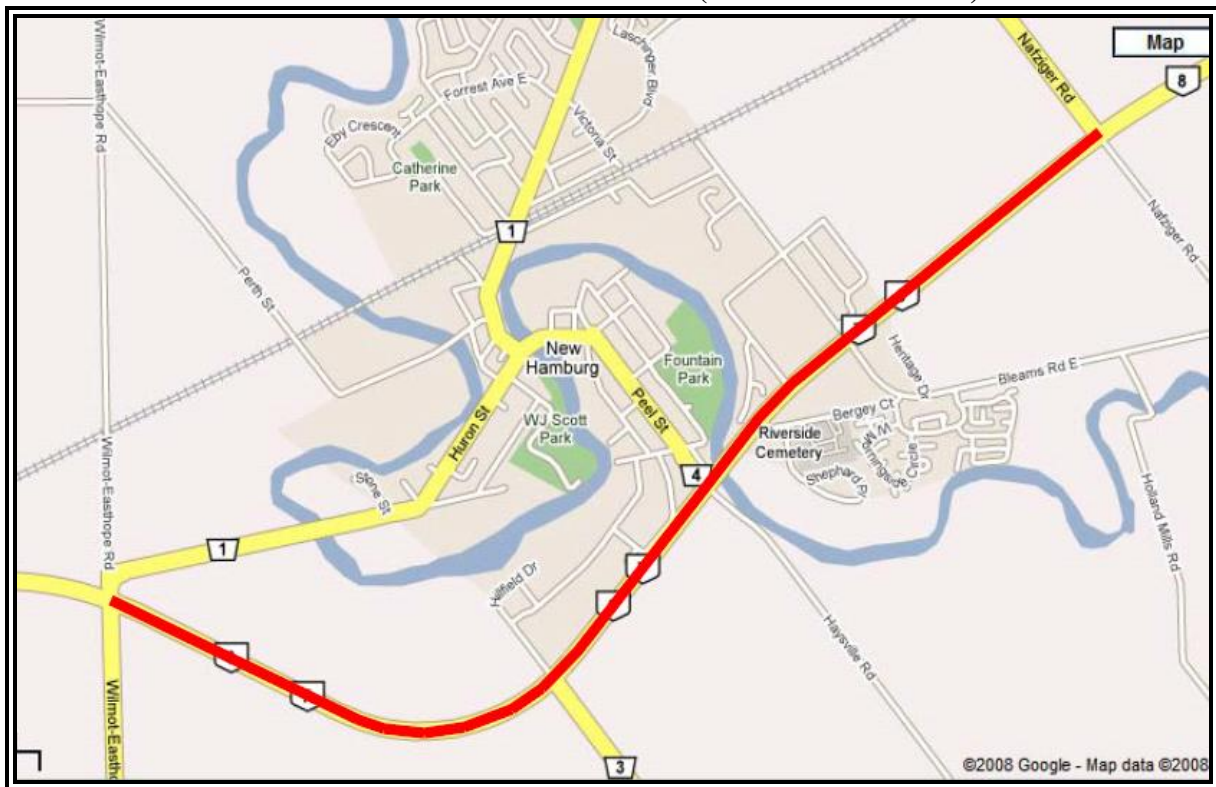


12.4 SITE VISIT 4 – SEPTEMBER 20, 2007

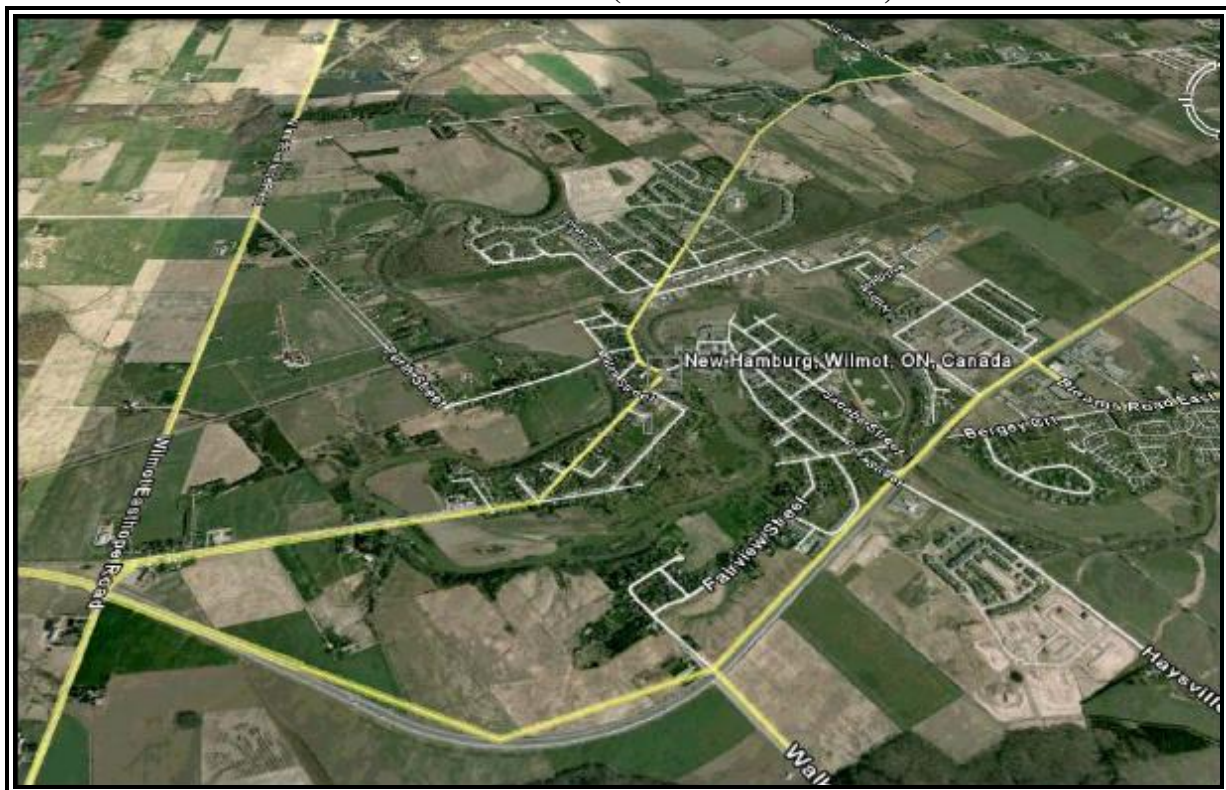
12.4.1 SITE CHARACTERISTICS FORM FOR SITE 2006-3099

Date	20-Sep
Hwy No.	Hwy 7/8 WB
Location	Waterloo Rd. 1 to Waterloo Rd. 5, New Hamburg
Weather	Clear
Starting Time	07:00
End Time	10:00
Day of Week	Thursday
Time of Day	
Assigned Lane	WB traffic on lane 1 (Right lane) of E/B lanes
Lane Width (m)	3.75
Direction of Traffic	WB
Shoulder Type	Fully Paved
Lane Closure	Both WBL closed
OPP Presence	Yes
Time of OPP Presence	
Facility Type	Four lane undivided highway
Driver Population	Peak and Off-peak
% Heavy Vehicles	
Grade of Road	Level
Speed Limit (km/hr)	80
Curve of Road	Straight
Length of Work Zone	5.7 Km (approx)
Duration of Closure	07:00-19:00
Intersections	Signalised intersection (Hwy7&8 and Hamilton/Bleams)
Type of Traffic Control	Barrel separated
Pavement Condition	Average
Distractions	Signalised and unsignalised intersection, Scattered work
List of Photos Taken	2.6
Other Comments	No forced flow

12.4.2 MAP OF LOCATION OF SITE 2006-3099 (SAME AS ABOVE)



12.4.3 AERIAL VIEW OF SITE 2006-3099 (SAME AS ABOVE)



12.4.4 DATA COLLECTED FROM SITE 2006-3099 ON SEPT 20, 2007

This site visit yielded no data.

12.4.5 PHOTOS TAKEN OF 2006-3099 ON SEPTEMBER 19, 2007 – EB



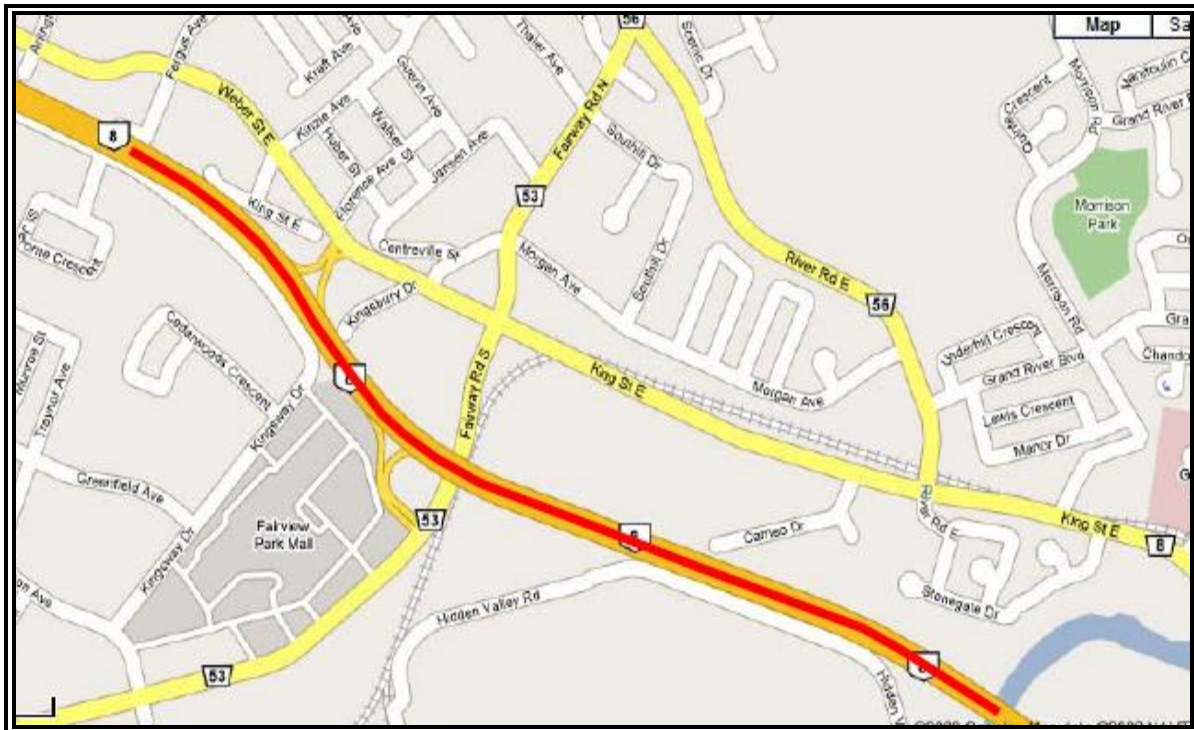
13 2005-3045, Hwy 8, S, N

13.1 SITE VISIT 1 – SEPTEMBER 26, 2007

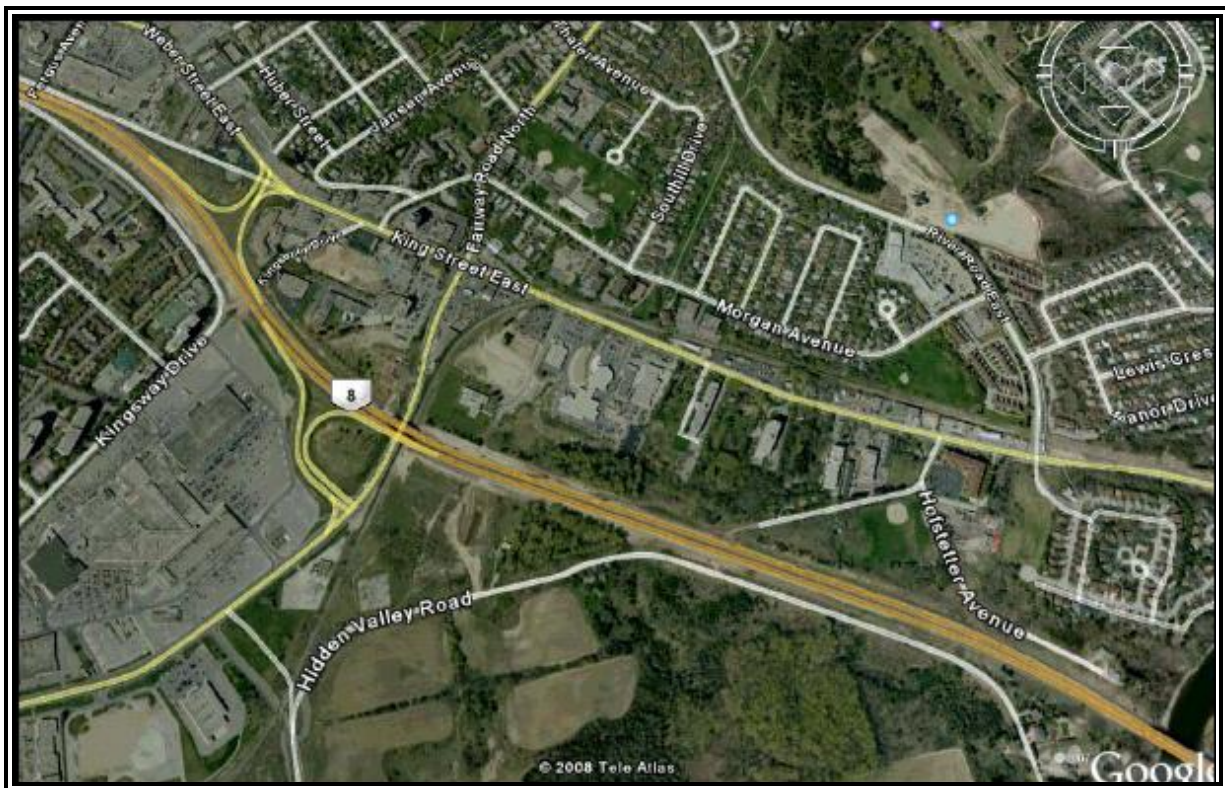
13.1.1 SITE CHARACTERISTICS FORM OF 2005-3045

Date	26-Sep
Hwy No.	Hwy 8 SB
Location	Grand River to Fergus Avenue, Kitchener
Weather	Cloudy
Starting Time	21:00
End Time	01:00
Day of Week	Wednesday
Time of Day	
Assigned Lane	2
Lane Width (m)	3.75
Direction of Traffic	S/B
Shoulder Type	Fully paved
Lane Closure	Right lane
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Four lane highway
Driver Population	Off-peak
% Heavy Vehicles	N/A
Grade of Road	-3.5
Speed Limit (km/hr)	80
Curve of Road	Straight
Length of Work Zone	2.9 Km
Duration of Closure	22:00-06:00
Interchange	Hwy 8 and Fairway Road
Type of Traffic	TL-29
Pavement Condition	Milling
Distractions	
List of Photos Taken	5.1,5.2,5.3
Other Comments	

13.1.2 MAP OF LOCATION OF SITE 2005-3045



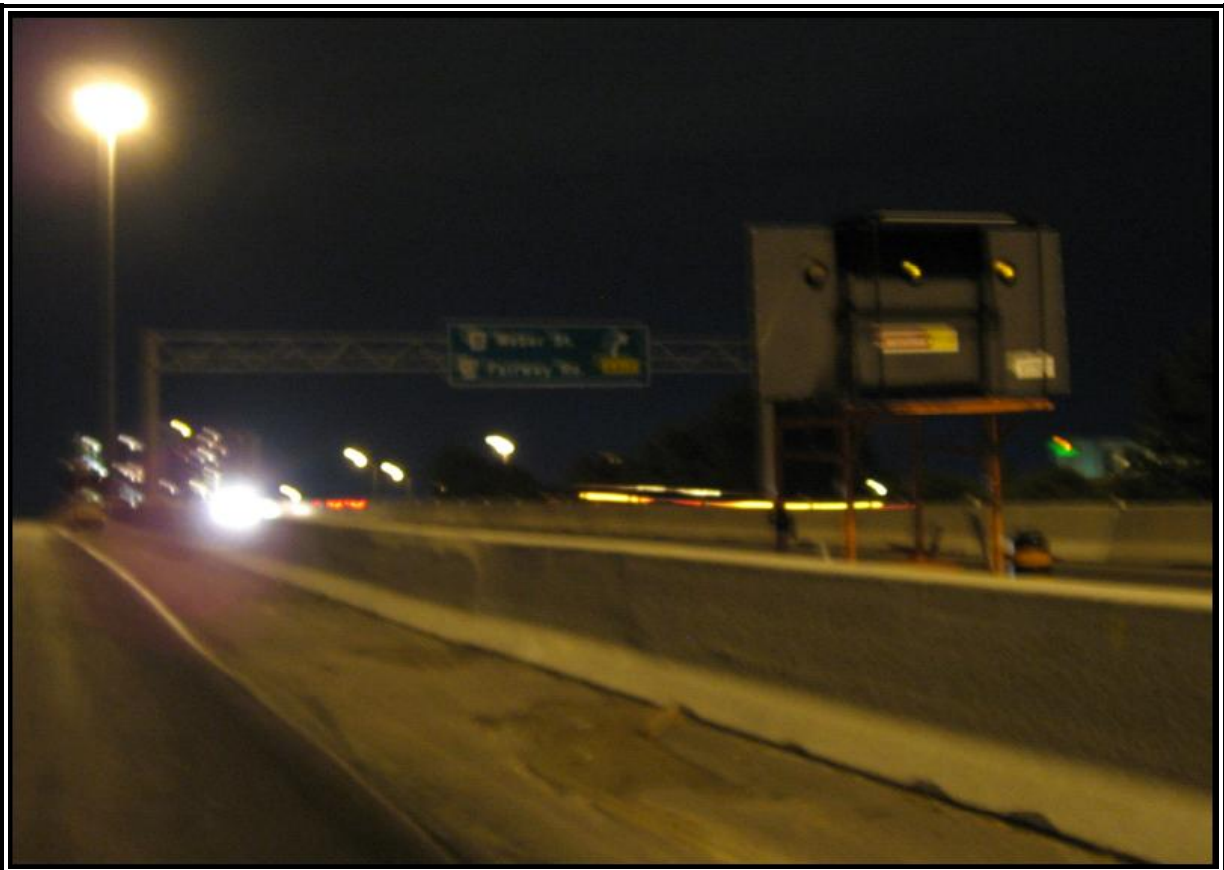
13.1.3 AERIAL VIEW OF SITE 2005-3045



13.1.4 DATA COLLECTED

This site visit yielded no data.

13.1.5 PHOTOS TAKEN OF 2005-3045 ON SEPTEMBER 26, 2007



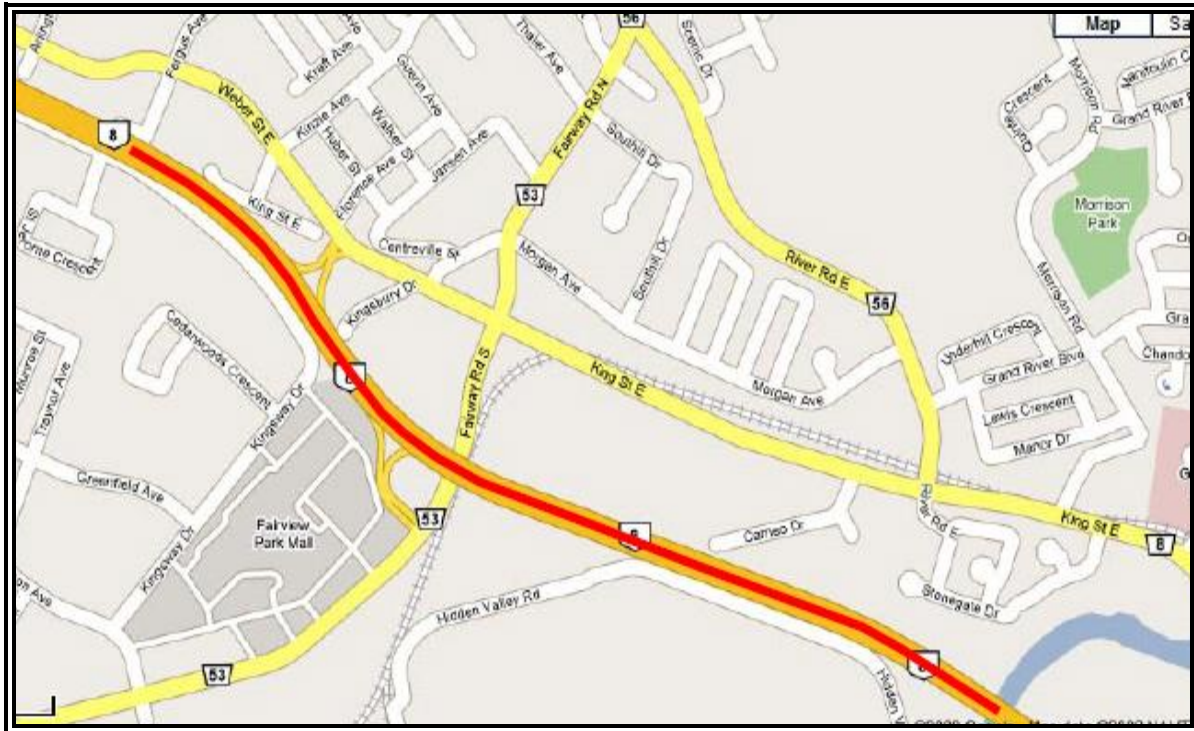


13.2 SITE VISIT 2 - SEPTEMBER 28, 2007

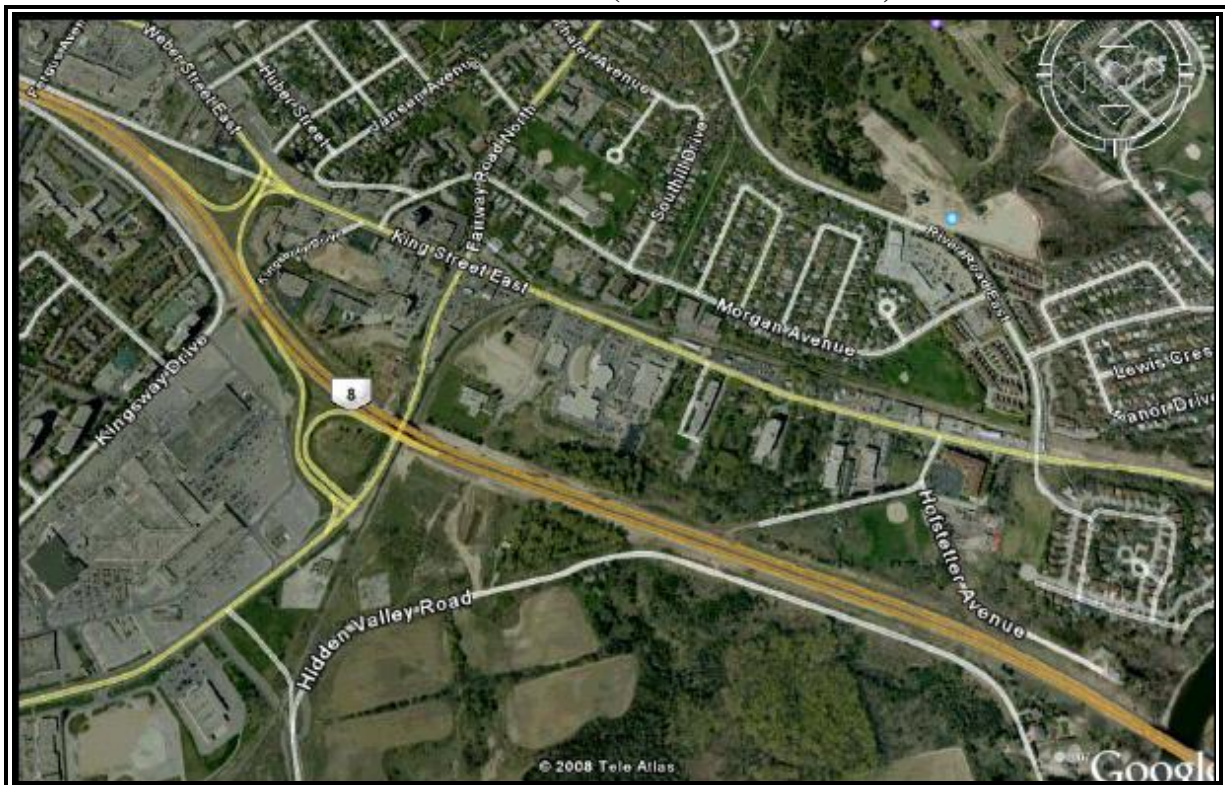
13.2.1 SITE CHARACTERISTICS FORM

Date	28-Sep
Name of the Site	Hwy 8 NB
Location	Grand River to Fergus Avenue, Kitchener
Weather	Cloudy
Starting Time	21:00
End Time	01:00
Day of Week	Friday
Time of Day	
Assigned Lane	1 and 2
Lane Width (m)	3.75
Direction of Traffic	N/B
Shoulder Type	Fully paved
Lane Closure	Left lane
OPP Presence	No
Time of OPP Presence	N/A
Facility Type	Four lane highway
Driver Population	Peak-Off peak
% Heavy Vehicles	N/A
Grade of Road	Level
Speed Limit (km/hr)	80
Curve of Road	Curve towards median
Length of Work Zone	2.9 Km
Duration of Closure	22:00-08:00
Interchange	Hwy 8 and Fair way Road
Type of Traffic Control	TL-29
Pavement Condition	Milling
Distractions	
List of Photos Taken	1 Photo Taken
Other Comments	

13.2.2 MAP OF LOCATION OF SITE 2005-3045 (SAME AS ABOVE)



13.2.3 AERIAL VIEW OF SITE 2005-3045 (SAME AS ABOVE)



13.2.4 DATA COLLECTED

This site visit yielded no data.

13.2.5 PHOTOS TAKEN OF 2005-3045 ON SEPTEMBER 28, 2007



14 2007-2263, Hwy 12, E,W

14.1 SITE VISIT 1 – JULY 4, 2008

14.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2263

Date	4-Jul
Name of the Site	2007-2263
Location	Hwy 12, East of Lower Big Chute
Weather	Sunny, low wind
Starting Time	8:00
End Time	11:30
Day of Week	Friday
Time of Day	Morning
Assigned Lane	EB&WB - Work on South Lane
Lane Width (m)	
Direction of Traffic	EB & WB
Shoulder Type	Unpaved
Lane Closure	Single lane
OPP Presence	No
Time of OPP Presence	
Facility Type	2 lane , undivided highway
Driver Population	Rural traffic - mix of truck and pv
% Heavy Vehicles	
Grade of Road	Minimal
Speed Limit (km/hr)	80
Curve of Road	None
Length of Work Zone	0.9km
Duration of Closure	Closed daily Monday-Friday, 7:30 to 14:00
Intersections	Minimally used country road, mid work zone
Type of Traffic Control	Flagger
Pavement Condition	Milled/Unpaved
Distractions	Workers and work trucks present - ditch excavation
List of Photos Taken	(1) WB (2) EB
Other Comments	

14.1.2 MAP OF LOCATION OF SITE 2007-2263



14.1.3 AERIAL VIEW OF SITE 2007-2263



14.1.4 DATA COLLECTED FROM SITE 2007-2263 ON JUL 4, 2008

Road Hwy 12
 Location Hwy 12 near Lower Big Chute Rd
 Observer Carolyn and Bijan
 Evaluation
 Days July 4th, 2008

Raw Data

Date: July 4th, 2008

Down Time	West Bound					Down Time	East Bound				
	Start Time	Finish Time	Leg Time	PV	HV		Start Time	Finish Time	Leg Time	PV	HV
								08:01:50	08:01:50		
00:00:25	8:02:15	08:02:30	00:00:15	3	1	00:02:00	8:04:30	08:05:15	00:00:45	10	0
00:00:30	08:05:45	08:05:55	00:00:10	2	1	00:01:55	08:07:50	08:09:50	00:02:00	13	2
00:00:20	08:10:10	08:11:00	00:00:50	9	4	00:01:15	08:12:15	08:13:45	00:01:30	11	0
00:00:20	08:14:05	08:14:50	00:00:45	4	2	00:01:30	08:16:20	08:19:05	00:02:45	29	4
00:00:25	08:19:30	08:20:00	00:00:30	8	3	00:03:05	08:23:05	08:23:35	00:00:30	8	1
00:00:50	08:24:25	08:24:45	00:00:20	5	1	00:01:10	08:25:55	08:27:15	00:01:20	5	3
00:00:35	08:27:50	08:28:20	00:00:30	9	2	00:01:30	08:29:50	08:31:30	00:01:40	13	4
00:00:15	08:31:45	08:32:40	00:00:55	13	4	00:01:40	08:34:20	08:35:15	00:00:55	6	0
00:00:25	08:35:40	08:36:00	00:00:20	5	1	00:01:25	08:37:25	08:40:35	00:03:10	14	3
00:00:10	08:40:45	08:41:55	00:01:10	13	3	00:00:15	08:42:10	08:44:25	00:02:15	10	3
00:00:05	08:44:30	08:46:30	00:02:00	4	2	00:00:35	08:47:05	08:47:25	00:00:20	2	0
00:00:05	08:47:30	08:48:10	00:00:40	7	1	00:01:50	08:50:00	08:52:00	00:02:00	21	4
00:00:15	08:52:15	08:54:00	00:01:45	16	4	00:01:30	08:55:30	08:56:40	00:01:10	14	0
00:00:15	08:56:55	08:57:30	00:00:35	5	0	00:00:55	08:58:25	09:01:55	00:03:30	12	1
								09:31:35			
00:00:10	09:31:45	09:32:30	00:00:45	13	0	00:02:05	09:34:35	09:35:00	00:00:25	3	0
00:00:10	09:35:10	09:36:30	00:01:20	7	2	00:01:20	09:37:50	09:38:50	00:01:00	12	3
00:00:10	09:39:00	09:40:00	00:01:00	6	3	00:01:40	09:41:40	09:43:00	00:01:20	17	2
00:00:20	09:43:20	09:44:00	00:00:40	7	3	00:02:45	09:46:45	09:47:20	00:00:35	6	1
00:00:15	09:47:35	09:48:20	00:00:45	11	2	00:01:50	09:50:10	09:52:20	00:02:10	22	5

00:00:10	09:52:30	09:55:00	00:02:30	16	7	00:01:00	09:56:00	10:00:20	00:04:20	18	7
00:00:20	10:00:40	10:01:20	00:00:40	6	1	00:00:30	10:01:50	10:04:10	00:02:20	18	3
00:00:35	10:04:45	10:06:15	00:01:30	18	6	00:02:15	10:08:30	10:10:45	00:02:15	18	4
00:00:10	10:10:55	10:11:30	00:00:35	8	1	00:00:50	10:12:20	10:13:30	00:01:10	10	3
00:00:15	10:13:45	10:14:00	00:00:15	1	0	00:02:15	10:16:15	10:16:40	00:00:25	1	1
00:00:10	10:16:50	10:17:00	00:00:10	1	0	00:02:05	10:19:05	10:21:30	00:02:25	17	3
00:00:15	10:21:45	10:22:30	00:00:45	18	4	00:01:30	10:24:00	10:26:45	00:02:45	22	4
00:00:20	10:27:05	10:27:10	00:00:05	1	0	00:01:35	10:28:45	10:31:15	00:02:30	14	4
00:00:05	10:31:20	10:32:10	00:00:50	14	1	00:02:05	10:34:15	10:34:45	00:00:30	5	2
00:00:15	10:35:00	10:35:45	00:00:45	14	1	00:01:40	10:37:25	10:38:25	00:01:00	9	1
00:00:20	10:38:45	10:39:40	00:00:55	8	4	00:01:30	10:41:10	10:42:20	00:01:10	5	1
00:00:10	10:42:30	10:44:10	00:01:40	8	1	00:00:20	10:44:30	10:46:10	00:01:40	7	2
00:00:50	10:47:00	10:48:00	00:01:00	7	2	00:01:50	10:49:50	10:51:10	00:01:20	11	2
00:00:35	10:51:45	10:52:05	00:00:20	9	1	00:01:35	10:53:40	10:55:00	00:01:20	3	2
00:00:25	10:55:25	10:56:05	00:00:40	9	5	00:00:20	10:56:25	11:00:30	00:04:05	23	3
00:00:40	11:01:10	11:03:10	00:02:00	26	7	00:01:15	11:04:25	11:07:30	00:03:05	18	5
00:00:25	11:07:55	11:09:00	00:01:05	10	4	00:01:15	11:10:15	11:12:30	00:02:15	21	4
00:00:25	11:12:55	11:15:30	00:02:35	30	6	00:02:00	11:17:30	11:19:45	00:02:15	25	3
00:00:15	11:20:00	11:20:25	00:00:25	9	0	00:01:15	11:21:40	11:24:45	00:03:05	13	3
00:00:15	11:25:00	11:27:15	00:02:15	22	12	00:01:45	11:29:00	11:33:25	00:04:25	40	6
00:00:25	11:33:50	11:34:25	00:00:35	16	2	00:02:35	11:37:00	11:38:30	00:01:30	7	3

14.1.5 PHOTOS TAKEN OF SITE 2007-2263 ON JULY 4, 2008



15 2007-2128, Hwy 12 S, N

15.1 SITE VISIT 1 – SEPTEMBER 13, 2007

15.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2128

Date	13-Sep
Name of the Site	Hwy 12
Location	North of Hwy 12/48 junction
Weather	Sunny, low wind
Starting Time	9:45
End Time	13:00
Day of Week	Thursday
Time of Day	Morning to Afternoon
Assigned Lane	NB&SB - work on E lane; travel on W lane. Switched during the day
Lane Width (m)	4'3"
Direction of Traffic	NB & SB
Shoulder Type	Unpaved
Lane Closure	Single lane
OPP Presence	No
Time of OPP Presence	
Facility Type	2 lane, undivided highway
Driver Population	Mostly heavy trucks and commuter vehicles
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	80
Curve of Road	Yes (see map)
Length of Work Zone	1.5km
Duration of Closure	Closed daily Monday-Thursday
Intersections	Intersection with light 200m from South of CZ. Intersection with light at Beaverton's Simcoe St., 4.1 km from North of CZ.
Type of Traffic Control	Flagger
Pavement Condition	Milled/Unpaved for first part of day. Recently paved for second half.
Distractions	Workers and work trucks present – shave and pave
List of Photos Taken	2 Photos Taken
Other Comments	Did not count construction trucks on shoulder. 11:17:00 – Emergency Vehicle Changed traffic side of road at 12:00 (afterwards East=Traffic)

15.1.2 MAP OF LOCATION OF SITE 2007-2128



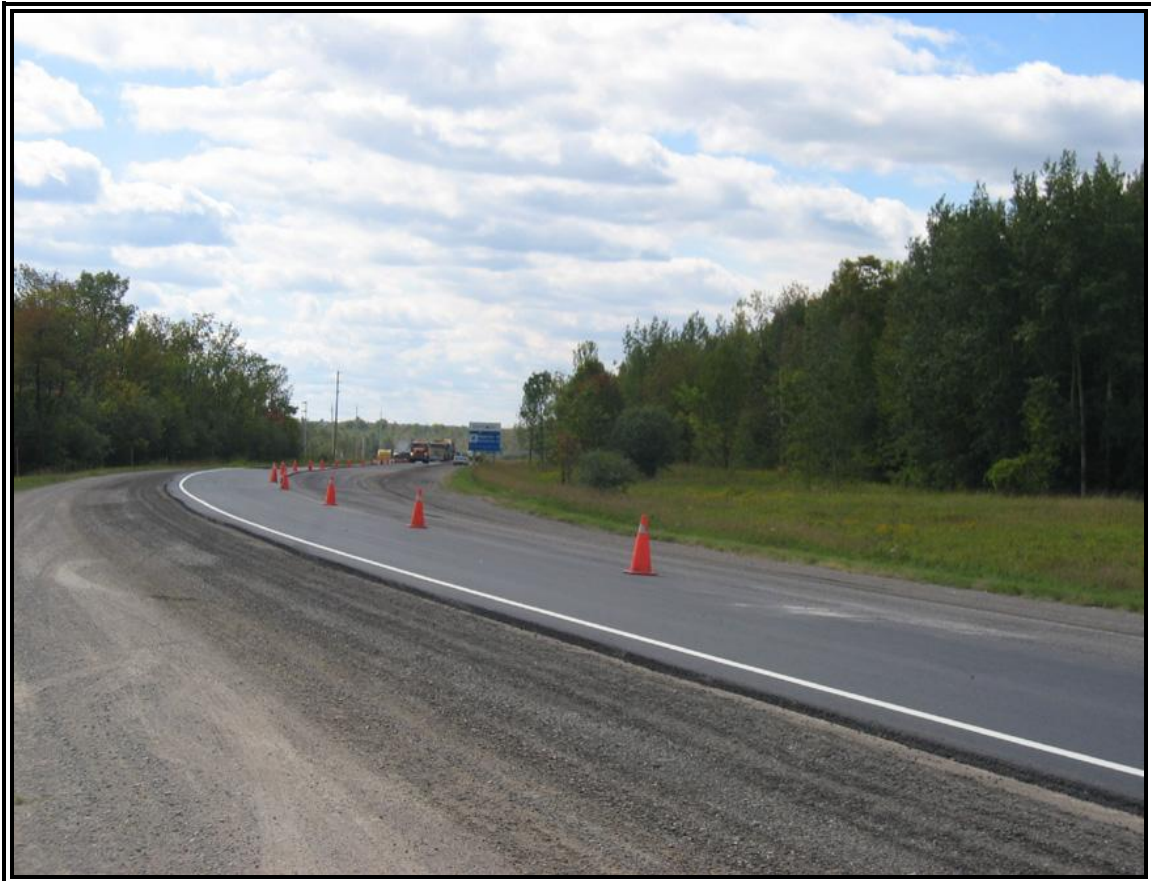
15.1.3 AERIAL VIEW OF SITE 2007-2128



15.1.4 DATA COLLECTED FROM SITE 2007-2128 ON SEPT 13, 2007

Date		Sept.13, 2007								
Name of the Site		Hwy 48 & 12								
Contract		2007-2128								
Location		Beaverton, Hwy 48 & 12								
			South Bound				North Bound			
St.Time	F.Time	Leg Time	PV	HV	St.Time	F.Time	Leg Time	PV	HV	
09:45:10			13	5				28	13	
09:53:30			16	11		10:06:20		53	30	
10:08:10	10:10:10	00:02:00	16	11	10:12:20	10:17:25	00:05:05	43	15	
10:19:50	10:23:40	00:03:50	23	11	10:24:00	10:27:45	00:03:45	38	15	
10:30:45	10:32:40	00:01:55	16	8	10:34:10	10:37:50	00:03:40	43	16	
10:40:40	10:44:45	00:04:05	34	17	10:45:15	10:48:12	00:02:57	25	15	
10:50:35	10:54:25	00:03:50	20	11	10:55:35	10:59:45	00:04:10	38	16	
11:02:20	11:05:00	00:02:40	18	13	11:06:20	11:10:00	00:03:40	42	15	
11:14:35	11:15:55	00:01:20	22	11	11:17:35	11:20:20	00:02:45	33	11	
11:22:50	11:26:10	00:03:20	22	11	11:27:40	11:30:50	00:03:10	42	9	
11:33:15	11:36:00	00:02:45	21	9	11:37:20	11:39:40	00:02:20	24	9	
11:43:20	11:46:40	00:03:20	23	19	11:48:50	11:51:05	00:02:15	24	10	
11:53:30	11:56:10	00:02:40	27	12	11:59:20	12:01:30	00:02:10	38	16	
12:05:43	12:09:20	00:03:37	19	18	12:10:50	12:13:45	00:02:55	32	11	
12:15:20	12:21:15	00:05:55	29	17	12:26:05	12:28:15	00:02:10	28	3	
12:31:30	12:37:10	00:05:40	42	17	12:39:50	12:43:45	00:03:55	38	18	
12:46:10	12:50:05	00:03:55	29	21	12:52:50	12:57:55	00:05:05	61	16	

15.1.5 PHOTOS TAKEN OF SITE 2007-2128 ON SEPTEMBER 13, 2007



15.2 SITE VISIT 2 – SEPTEMBER 17, 2007 – SOUTH SECTION

15.2.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2128

Date	17-Sep
Name of the Site	Hwy 12
Location	South of Hwy 12 & 8 intersection
Weather	Sunny
Starting Time	9:00
End Time	14:15
Day of Week	Monday
Time of Day	Morning to Afternoon
Assigned Lane	NB&SB - work on E lane; travel on W lane. Switched during the day
Lane Width (m)	4'3"
Direction of Traffic	NB & SB
Shoulder Type	Unpaved
Lane Closure	Single lane
OPP Presence	No
Time of OPP Presence	
Facility Type	2 lane, undivided highway
Driver Population	Mostly heavy trucks and commuter vehicles
% Heavy Vehicles	
Grade of Road	Slightly up hill SB
Speed Limit (km/hr)	80
Curve of Road	None (see map)
Length of Work Zone	950m
Duration of Closure	Closed daily Monday-Thursday
Intersections	Intersection with light 1.0km North of CZ
Type of Traffic Control	Flagger
Pavement Condition	Milled/Unpaved
Distractions	Workers and work trucks present – shave and pave
List of Photos Taken	11.3,11.4
Other Comments	Changed traffic side of road at 11:45 (afterwards East lane = traffic)

15.2.2 MAP OF LOCATION OF SITE 2007-2128



15.2.3 AERIAL VIEW OF SITE 2007-2128



15.2.4 DATA COLLECTED FROM SITE 2007-2128 ON SEPTEMBER 17, 2007 – SOUTH SECTION

Date		Sept.17, 2007							
Name of the Site		Hwy 48 & 12							
Contract		2007-2128							
Location		Beaverton, Hwy 48 & 12							
South Bound					North Bound				
St.Time	F.Time	Leg Time	PV	HV	St.Time	F.Time	Leg Time	PV	HV
09:06:10	09:08:20	00:02:10	18	11	09:09:35	09:12:35	00:03:00	15	15
09:14:00	09:17:10	00:03:10	23	13	09:18:10	09:21:35	00:03:25	26	14
09:22:15	09:25:10	00:02:55	25	18	09:26:15	09:28:40	00:02:25	19	14
09:30:00	09:31:30	00:01:30	18	8	09:32:30	09:34:50	00:02:20	16	10
09:41:30	09:44:00	00:02:30	21	12	09:45:20	09:47:15	00:01:55	20	11
09:49:30	09:51:55	00:02:25	23	15	09:52:45	09:55:00	00:02:15	27	18
09:57:00	09:58:45	00:01:45	19	9	09:59:55	10:01:55	00:02:00	23	10
10:03:05	10:04:50	00:01:45	19	4	10:06:10	10:08:00	00:01:50	22	13
10:09:35	10:11:25	00:01:50	16	8	10:13:05	10:14:15	00:01:10	14	7
10:15:35	10:18:10	00:02:35	17	16	10:19:15	10:21:25	00:02:10	30	13
10:22:55	10:24:30	00:01:35	15	8	10:25:45	10:27:15	00:01:30	19	11
10:28:45	10:30:05	00:01:20	16	4	10:31:00	10:31:45	00:00:45	15	1
10:33:10	10:34:20	00:01:10	16	7	10:35:30	10:37:10	00:01:40	13	15
		00:00:00			10:42:00	10:43:35	00:01:35	17	13
10:45:10	10:48:50	00:03:40	19	7	10:48:50	10:50:50	00:02:00	25	11
10:52:15	10:55:50	00:03:35	33	18	10:57:00	10:59:55	00:02:55	23	25
11:01:20	11:04:30	00:03:10	26	18	11:05:30	11:06:50	00:01:20	16	7
11:08:10	11:09:45	00:01:35	20	9	11:10:55	11:13:45	00:02:50	20	14
11:14:45	11:17:30	00:02:45	18	19	11:18:35	11:20:30	00:01:55	29	12
11:22:05	11:24:00	00:01:55	22	7	11:25:00	11:26:30	00:01:30	22	7
11:28:20	11:29:55	00:01:35	22	9	11:30:50	11:32:30	00:01:40	23	9
11:34:00	11:36:00	00:02:00	17	12	11:37:05	11:38:25	00:01:20	18	6
11:40:45	11:42:05	00:01:20	13	6	11:44:15	11:45:45	00:01:30	10	8
11:47:20	11:50:15	00:02:55	21	21	11:51:35	11:54:25	00:02:50	28	20

11:55:50	11:58:30	00:02:40	30	16	11:59:40	12:02:20	00:02:40	27	17
12:04:05	12:07:40	00:03:35	33	18	12:09:05	12:11:00	00:01:55	26	10
12:13:00	12:15:20	00:02:20	23	12	12:16:30	12:18:20	00:01:50	25	8
12:20:25	12:22:45	00:02:20	23	13	12:24:20	12:25:50	00:01:30	17	13
12:28:45	12:29:45	00:01:00	17	7	12:30:50	12:33:10	00:02:20	23	13
12:34:50	12:38:45	00:03:55	37	15	12:39:55	12:41:00	00:01:05	20	5
12:42:30	12:44:05	00:01:35	14	9	12:45:15	12:46:45	00:01:30	18	10
12:48:05	12:50:20	00:02:15	19	11	12:51:25	12:52:35	00:01:10	16	7
12:54:15	12:56:25	00:02:10	24	14	12:57:45	12:58:45	00:01:00	9	10
13:00:55	13:04:05	00:03:10	24	21	13:05:20	13:07:35	00:02:15	35	8
13:09:10	13:11:10	00:02:00	24	10	13:13:15	13:14:55	00:01:40	28	7
13:16:25	13:18:55	00:02:30	19	6	13:19:15	13:20:20	00:01:05	14	6
13:21:40	13:22:50	00:01:10	14	6	13:23:55	13:25:30	00:01:35	14	1
13:27:00	13:29:35	00:02:35	16	20	13:30:45	13:32:50	00:02:05	25	10
13:34:40	13:35:45	00:01:05	11	7	13:36:50	13:37:25	00:00:35	8	3
13:38:45	13:40:40	00:01:55	17	8	13:41:45	13:41:55	00:00:10	17	6
13:44:30	13:46:35	00:02:05	14	8	13:47:55	13:51:40	00:03:45	21	14
13:51:35	13:53:50	00:02:15	24	10	13:54:50	13:56:00	00:01:10	10	7
13:58:00	13:58:45	00:00:45	14	5	13:59:35	14:02:20	00:02:45	17	8
14:04:05	14:06:35	00:02:30	23	16	14:08:10	14:10:00	00:01:50	22	10
14:11:55	14:13:45	00:01:50	20	8	14:14:40	14:17:00	00:02:20	30	13

15.2.5 PHOTOS TAKEN OF SITE 2007-2128 ON SEPTEMBER 17, 2007 – SOUTH SECTION

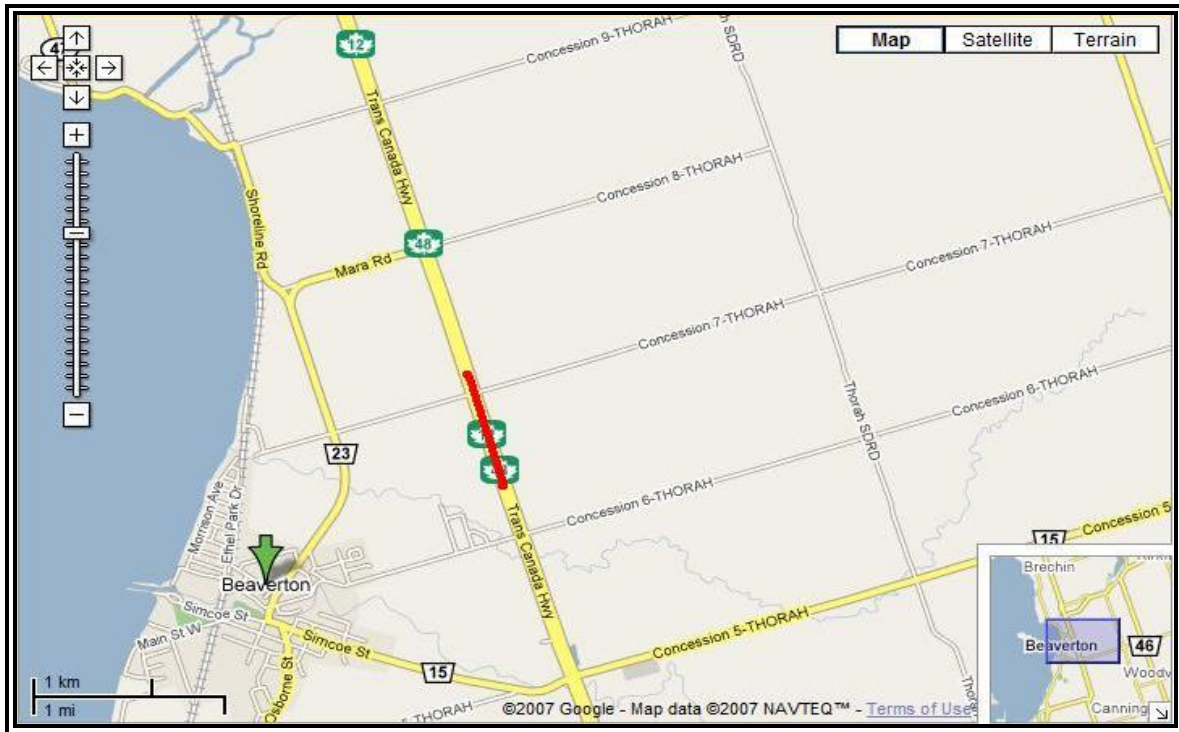


15.3 SITE VISIT 3 – SEPTEMBER 17, 2007 – NORTH SECTION

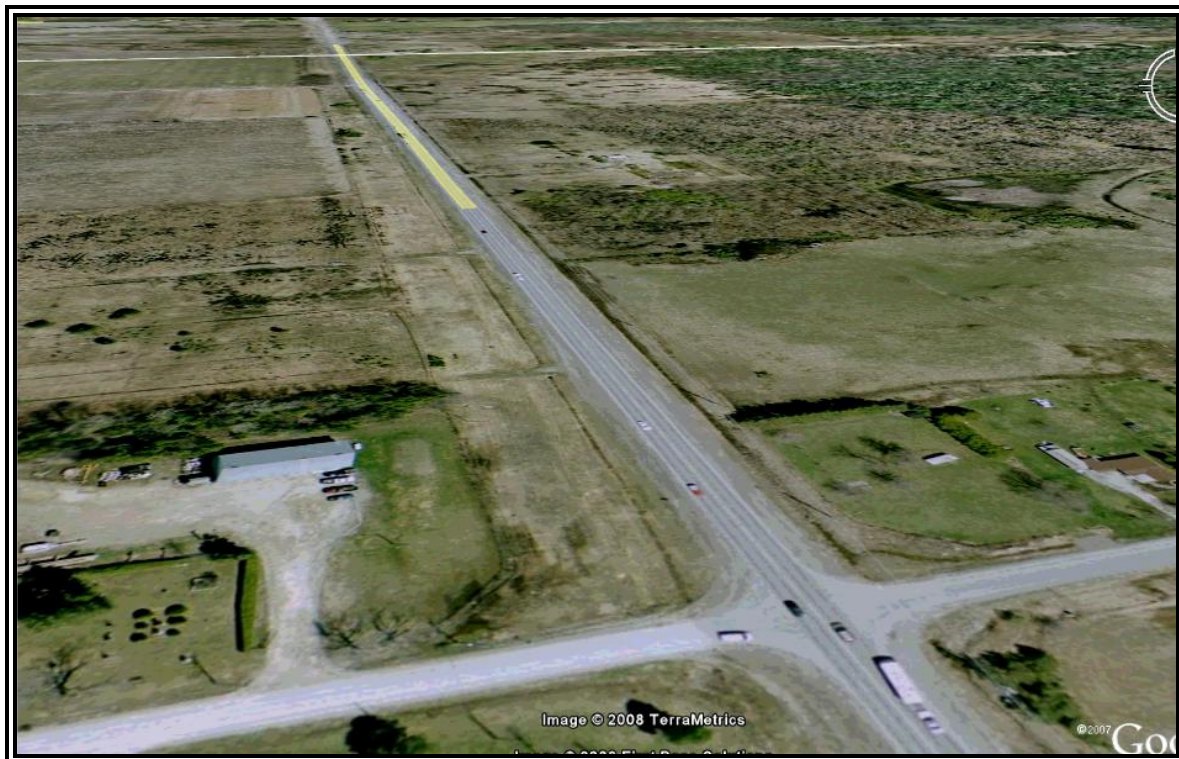
15.3.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2128

Date	17-Sep
Name of the Site	2007-2128
Location	Hwy 12, 1.9km North of Hwy 12&8 intersection
Weather	Sunny
Starting Time	14:15
End Time	17:00
Day of Week	Monday
Time of Day	Afternoon
Assigned Lane	NB&SB - work on E lane; travel on W lane. Switched during the day
Lane Width (m)	4'3"
Direction of Traffic	NB & SB
Shoulder Type	Unpaved
Lane Closure	Single lane
OPP Presence	No
Time of OPP Presence	
Facility Type	2 lane, undivided highway
Driver Population	Mostly heavy trucks and commuter vehicles
% Heavy Vehicles	
Grade of Road	0
Speed Limit (km/hr)	80
Curve of Road	None (see map)
Length of Work Zone	700m
Duration of Closure	Closed daily Monday-Thursday
Intersections	Intersection with light 1.9km from South of CZ at Hwy8 (Glenarm Road) & Hwy 12 Intersection with light 1.4km from North of CZ at Hwy12 & Thorah 8.
Type of Traffic Control	Flagger
Pavement Condition	Milled/Unpaved for first part of day. Recently paved for second half.
Distractions	Workers and work trucks present – shave and pave
List of Photos Taken	2 Photos Taken
Other Comments	Changed traffic side of road at 16:30 (afterwards East=Traffic)

15.3.2 MAP OF LOCATION OF SITE 2007-2128



15.3.3 AERIAL VIEW OF SITE 2007-2128



15.3.4 DATA COLLECTED FROM SITE 2007-2128 ON SEPTEMBER 17, 2007 – NORTH SECTION

Date		Sept.17, 2007								
Name of the Site		Hwy 48 & 12								
Contract		2007-2128								
Location		Beaverton, Hwy 48 & 12								
South Bound					North Bound					
St.Time	F.Time	Leg Time	PV	HV	St.Time	F.Time	Leg Time	PV	HV	
					14:31:30	14:33:10	00:01:40	13	11	
14:34:00	14:35:40	00:01:40	15	7	14:36:20	14:38:10	00:01:50	16	11	
14:39:10	14:41:15	00:02:05	18	10	14:42:05	14:44:00	00:01:55	24	12	
14:45:20	14:47:20	00:02:00	19	14	14:48:26	14:49:55	00:01:29	17	14	
14:51:00	14:53:35	00:02:35	15	22	14:54:25	14:55:55	00:01:30	19	100	
14:57:15	14:58:40	00:01:25	10	9	14:59:55	15:01:20	00:01:25	26	2	
15:02:15	15:04:15	00:02:00	18	13	15:05:35	15:07:15	00:01:40	17	11	
15:18:15	16:40:10	01:21:55	15	12	15:11:00	15:12:30	00:01:30	18	9	
15:14:30	15:15:55	00:01:25	27	12	15:16:50	15:18:45	00:01:55	30	7	
15:20:05	15:22:15	00:02:10	18	16	15:23:15	15:24:15	00:01:00	15	6	
15:25:45	15:28:25	00:02:40	27	13	15:29:15	15:30:30	00:01:15	14	11	
15:31:25	15:33:20	00:01:55	12	10	15:34:15	15:35:15	00:01:00	13	7	
15:36:15	15:37:15	00:01:00	8	7	15:38:10	15:38:55	00:00:45	10	4	
15:39:55	15:41:05	00:01:10	16	7	15:41:50	15:43:05	00:01:15	14	8	
15:44:10	15:44:50	00:00:40	6	3	15:45:45	15:47:10	00:01:25	13	8	
15:48:00	15:49:30	00:01:30	22	6	15:50:15	15:54:30	00:04:15	18	6	
15:52:30	15:54:00	00:01:30	14	8	15:54:45	15:55:10	00:00:25	6	1	
15:56:00	15:56:30	00:00:30	6	3	15:57:20	15:58:05	00:00:45	12	4	
15:59:10	15:59:55	00:00:45	6	4	16:00:50	16:01:30	00:00:40	13	2	
16:02:25	16:03:55	00:01:30	15	5	16:04:45	16:05:55	00:01:10	17	6	
16:07:20	16:08:15	00:00:55	9	4	16:09:00	16:09:45	00:00:45	7	5	
16:10:50	16:12:35	00:01:45	11	10	16:13:20	16:14:20	00:01:00	11	7	
16:15:45	16:16:55	00:01:10	11	7	16:17:30	16:19:00	00:01:30	21	6	
16:20:30	16:22:45	00:02:15	25	11	16:23:35	16:25:15	00:01:40	19	7	

16:26:30	16:28:35	00:02:05	24	13	16:30:40	16:32:45	00:02:05	29	8
16:34:00	16:36:20	00:02:20	30	10	16:42:25	16:44:00	00:01:35	21	7
16:40:45	16:42:15	00:01:30	18	7	16:43:00	16:44:45	00:01:45	28	6
16:46:05	16:49:25	00:03:20	18	3	16:48:15	16:49:30	00:01:15	20	5
16:51:45	16:53:05	00:01:20	20	4	16:53:45	16:55:05	00:01:20	21	5
16:56:50	16:57:40	00:00:50	13	5	16:58:25	16:59:35	00:01:10	14	5
17:00:55	17:02:30	00:01:35	17	2	17:03:25	17:05:35	00:02:10	26	7

15.3.5 PHOTOS TAKEN OF SITE 2007-2128 ON SEPTEMBER 17, 2007 – NORTH SECTION



16 2007-2127, Hwy 26 N, S, E

16.1 SITE VISIT 1 – OCTOBER 3, 2007

16.1.1 SITE CHARACTERISTICS FORM FOR SITE 2007-2127

Date	03-Oct
Name of the Site	Hwy 26
Location	Horseshoe Valley Rd.
Weather	Sunny, windy
Starting Time	10:45
End Time	16:00
Day of Week	Wednesday
Time of Day	Mid-day
Assigned Lane	West lane on hwy 26, switch to E during the day. South lane on Horseshoe Valley
Lane Width (m)	4'3"
Direction of Traffic	NB&SB
Shoulder Type	Unpaved
Lane Closure	Multilane
OPP Presence	Yes
Time of OPP Presence	7:00 - 17:00
Facility Type	2 lane, undivided highway
Driver Population	Mostly heavy trucks and commuter vehicles
% Heavy Vehicles	
Grade of Road	Relatively flat
Speed Limit (km/hr)	80
Curve of Road	Yes (see map)
Length of Work Zone	500m on Hwy 26
Duration of Closure	Closed daily, Monday-Thursday
Intersections	Intersection of Hwy 26 & Horseshoe Valley Rd in CZ. Flow to and from all three points permitted.
Type of Traffic Control	Flagger on three roads
Pavement Condition	Milled/Unpaved for first part of day. Recently paved for second half.
Distractions	Workers and work trucks present – Shave and pave
List of Photos Taken	16.1,16.2
Other Comments	Kept track of all traffic flow from all three access points throughout the day.

16.1.2 MAP OF LOCATION OF SITE 2007-2127



16.1.3 AERIAL VIEW OF SITE 2007-2127



16.1.4 DATA COLLECTED FROM SITE 2007-2127 ON OCTOBER 3, 2007

Date		Wednesday Oct 03, 2007					
Name of Site		Hwy 26					
Contract		2007-2127					
Location		Hwy 26 at Horseshoe Valley Rd.					
			South to North		South to East		
St. Time	F. Time	Leg Time	PV	HV	PV	HV	
10:49:35	10:51:10	00:01:35	25	3	0	0	
10:59:15	11:01:15	00:02:00	25	8	2	1	
11:16:15	11:22:40	00:06:25	49	10	11	1	
11:38:05	11:43:20	00:05:15	44	10	4	1	
11:55:00	11:58:45	00:03:45	44	6	1	0	
12:07:40	12:08:35	00:00:55	9	0	4	0	
12:13:05	12:14:55	00:01:50	14	1	5	2	
12:24:05	12:26:55	00:02:50	29	5	1	2	
12:33:05	12:34:50	00:01:45	17	1	1	0	
12:42:20	12:43:50	00:01:30	9	2	2	0	
12:50:35	12:51:35	00:01:00	11	2	2	2	
12:57:00	12:59:55	00:02:55	22	5	2	1	
13:13:00	13:17:50	00:04:50	34	10	3	0	
13:28:30	13:32:40	00:04:10	33	10	2	1	
13:44:00	13:47:45	00:03:45	45	5	6	1	
13:56:40	13:59:25	00:02:45	30	2	5	0	
14:06:20	14:07:45	00:01:25	19	2	1	1	
14:14:05	14:15:00	00:00:55	14	1	3	0	
14:21:10	14:22:45	00:01:35	22	1	3	0	
14:31:00	14:31:45	00:00:45	21	6	3	0	
14:39:20	14:41:45	00:02:25	41	0	4	0	
14:47:45	14:49:10	00:01:25	20	2	5	2	
14:55:40	14:56:55	00:01:15	20	3	4	0	
15:03:10	15:04:05	00:00:55	11	1	4	1	

15:09:20	15:10:00	00:00:40	13	1	0	0
15:16:30	15:18:30	00:02:00	26	6	4	1
15:20:20	15:21:40	00:01:20	23	1	3	0
15:31:15	15:32:35	00:01:20	21	3	6	0
15:39:50	15:41:25	00:01:35	25	3	4	0
15:46:15	15:48:00	00:01:45	26	2	8	1
15:53:10	15:54:10	00:01:00	21	1	5	0
15:58:15	15:59:45	00:01:30	13	2	4	3

Date	Wednesday Oct 03, 2007					
Name of Site	Hwy 26					
Contract	2007-2127					
Location	Hwy 26 at Horseshoe Valley Rd.					
			East to South		East to North	
Start Time	Finish Time	Leg Time	PV	HV	PV	HV
10:43:25	10:44:35	00:01:10	4	1	14	0
10:52:10	10:54:50	00:02:40	5	1	13	8
11:02:45	11:07:10	00:04:25	11	0	7	3
11:23:40	11:26:30	00:02:50	2	0	9	14
11:43:40	11:49:00	00:05:20	5	3	23	21
11:59:35	12:01:25	00:01:50	1	0	6	8
12:06:00	12:07:10	00:01:10	2	0	5	3
12:09:45	12:09:55	00:00:10	0	0	0	1
12:16:10	12:17:30	00:01:20	7	1	9	2
12:21:10	12:22:10	00:01:00	1	1	9	2
12:27:45	12:28:45	00:01:00	2	0	10	3
12:35:30	12:37:20	00:01:50	5	3	13	5
12:44:30	12:45:45	00:01:15	2	1	9	2
12:52:20	12:52:55	00:00:35	0	0	4	1

12:59:35	13:01:05	00:01:30	1	0	5	6
13:09:40	13:12:25	00:02:45	4	0	10	10
13:18:20	13:19:25	00:01:05	3	0	4	4
13:33:30	13:37:25	00:03:55	11	0	24	12
13:48:50	13:51:30	00:02:40	5	2	11	9
14:00:55	14:02:00	00:01:05	2	0	4	5
14:08:35	14:10:35	00:02:00	2	0	10	5
14:16:05	14:17:40	00:01:35	4	1	9	5
14:24:25	14:26:20	00:01:55	3	0	6	5
14:33:40	14:36:05	00:02:25	7	2	12	8
14:42:30	14:44:25	00:01:55	4	0	9	6
14:50:40	14:53:00	00:02:20	2	1	6	5
14:58:00	15:00:20	00:02:20	1	3	7	5
15:05:20	15:06:20	00:01:00	5	1	4	1
15:10:45	15:14:40	00:03:55	1	2	9	9
15:19:40	15:21:45	00:02:05	5	0	10	5
15:27:45	15:28:30	00:00:45	6	1	3	0
15:33:45	15:34:55	00:01:10	3	0	8	2
15:38:20	15:39:30	00:01:10	5	0	6	1
15:42:30	15:43:30	00:01:00	0	0	7	3
15:49:00	15:50:35	00:01:35	3	1	5	5
15:55:10	15:56:55	00:01:45	5	0	13	2

Date	Wednesday Oct 03, 2007					
Name of Site	Hwy 26					
Contract	2007-2127					
Location	Hwy 26 at Horseshoe Valley Rd.					
			North to South		North to East	
Start Time	Finish Time	Leg Time	PV	HV	PV	HV
10:45:35	10:49:00	00:03:25	28	4	13	9

10:55:55	10:58:50	00:02:55	21	2	15	7
11:07:15	11:15:45	00:08:30	23	9	15	7
11:27:40	11:37:50	00:10:10	75	8	25	19
11:49:50	11:54:20	00:04:30	45	9	10	9
12:02:20	12:04:45	00:02:25	26	1	6	6
12:10:55	12:12:25	00:01:30	14	2	6	4
12:18:35	12:20:00	00:01:25	9	1	7	0
12:29:25	12:32:25	00:03:00	29	2	15	4
12:38:20	12:41:15	00:02:55	25	3	6	7
12:46:50	12:49:45	00:02:55	29	9	6	4
12:54:00	15:56:10	03:02:10	18	4	7	4
13:04:25	13:08:30	00:04:05	36	5	11	2
13:20:40	13:27:50	00:07:10	42	8	12	18
13:28:20	13:43:15	00:14:55	42	5	14	8
13:52:50	13:56:20	00:03:30	30	9	11	5
14:03:00	14:05:35	00:02:35	25	4	2	6
14:11:25	14:13:25	00:02:00	24	3	2	7
14:18:40	14:20:30	00:01:50	15	2	5	5
14:27:05	15:00:15	00:33:10	24	2	6	9
14:37:00	14:38:45	00:01:45	18	6	5	7
14:45:10	14:47:00	00:01:50	25	5	11	1
14:53:35	14:55:00	00:01:25	16	2	12	3
15:01:20	15:02:30	00:01:10	8	3	7	5
15:06:50	15:08:45	00:01:55	8	2	6	11
15:13:55	15:16:00	00:02:05	19	4	8	8
15:22:10	15:24:45	00:02:35	23	5	11	4
15:29:15	15:30:35	00:01:20	14	2	4	3
15:35:30	15:37:30	00:02:00	27	4	6	7
15:45:40	15:45:40	00:00:00	19	4	7	2
15:51:10	15:52:15	00:01:05	12	3	4	1
15:57:00	15:57:50	00:00:50	6	2	3	1

16.1.5 PHOTOS TAKEN OF SITE 2007-2127 ON OCTOBER 3, 2007

