

Memorandum

TO:**Luigi Nicolucci**

City of Toronto: Transportation Services: Etobicoke York District

E: lnicolu@toronto.ca**FROM:**

Stephen J. Bahadoor, P.Eng.

George J. Poulos, P.Eng.

PROJECT:

6571-26

250 Wincott (Richview Square)

DATE:December 9th, 2020**SUBJECT: RICHVIEW SQUARE (250 WINCOTT DRIVE)****Signal Warrant Update**

1.0 INTRODUCTION

Dear Luigi:

BA Group has provided transportation advisory services in support of the Richview Square development application located at 250 Wincott Drive and 4620 Eglinton Avenue West in the City of Toronto.

In October, 2019 BA Group prepared a Transportation Impact Study “*Richview Square Traffic Update Report*” which reviewed the development proposal as conceived at that time and provided a comprehensive traffic operations review. The application considered a total of 605 units and 107,770 sq.ft (10,012 sq.m.) GFA retail space in addition to the existing retail 42,409 sq.ft (3,940 sq.m). The application proposed a total retail space of 150,179 sq.ft. (13,952 sq.m.). Site access was proposed via a right-in/right-out driveway onto Eglinton Avenue West, a full moves signalized driveway onto Wincott Drive opposite Waterford Drive, a full moves unsignalized driveway onto Wincott Drive and a full moves driveway onto Widdicombe Hill Boulevard.

More recently, an update letter was prepared in March 2020 which outlined a development plan that was consistent from an access and use perspective with minor adjustments to the plan with respect to development intensities. The March 2020 letter report considered a total of 586 units and 151,078 sq.ft (14,035.65 sq.m.) retail area.

Most recently, another update letter was prepared in October 2020 which detailed minor changes in the development proposal. As per the March 2020 update letter, the current development plan maintains the same access configurations and proposed land uses, although the application now considers a total of 587 units and 118,807 sq.ft (11,037.56 sq.m.) retail area and 5,005 sq.ft (465.2 sq.m.) community spaces. As part of the reduction in retail space, the fitness centre has been removed in the current proposal.

Per the latest development statistics and reduced trip generation, this letter provides an update of signal warrant calculations for the proposed traffic signal at the Wincott Drive / Site Access – Waterford Drive intersection. Warrant calculations were considered for “baseline” access conditions as discussed above, as well as a sensitivity condition which considers the potential closure of the Widdicombe Hill site access.

2.0 SIGNAL WARRANT REVIEW

Signal warrant analysis were completed for the existing Wincott Drive / Site Access – Waterford Drive intersection. The warrant analysis was conducted in accordance with the methodologies outlined in the Ontario Traffic Manual (OTM) Book 12. Signal warrant calculation sheets for the baseline and sensitivity conditions are attached in **Appendix A**.

The 8-hour vehicular traffic utilized in the analysis was based on existing peak 8-hour survey data at both intersections surveyed by Spectrum Traffic Data Inc. on behalf of BA Group on March 20th, 2018. Site build-out forecasts of 8-hour site traffic have been estimated based on applying the observed hourly variation of residential traffic from comparable developments located within a similar transportation context in the city of Toronto. The detailed vehicular traffic data and resultant 8-hour intersection traffic volumes under 2030 horizon year conditions (i.e. full build-out of development) are summarized and attached in **Appendix A**.

The proposed intersection was assessed based on Justification 1, 2, 3 and 4 of the Ontario Traffic Manual (OTM) signal warrant procedure. As can be seen in **Table 1** and **Table 2**, signalization is warranted by the 2030 horizon year at Wincott Drive / Site Access – Waterford Drive intersection considering both baseline and sensitivity access conditions.

TABLE 1 WINCOTT DRIVE / EAST SITE ACCESS – WATERFORD DRIVE WARRANT ANALYSIS RESULTS SUMMARY – BASELINE ACCESS CONDITIONS

Justification 1 – Minimum Vehicular Volume		Justification 2 – Delay to Cross Traffic		Justification 3 – Combination		Justification 4 – Four Hour Volume	
Justification	% Met	Justification	% Met	Justification	% Met	Justification	% Met
1A	100%	2A	67%	3A	100%	4	96%
1B	100%	2B	100%	3B	67%		
Result: Warranted		Result: Not Warranted		Result: Not Warranted		Result: Not Warranted	

TABLE 2 WINCOTT DRIVE / EAST SITE ACCESS – WATERFORD DRIVE WARRANT ANALYSIS RESULTS SUMMARY – SENSITIVITY ACCESS CONDITIONS

Justification 1 – Minimum Vehicular Volume		Justification 2 – Delay to Cross Traffic		Justification 3 – Combination		Justification 4 – Four Hour Volume	
Justification	% Met	Justification	% Met	Justification	% Met	Justification	% Met
1A	100%	2A	77%	3A	100%	4	100%
1B	100%	2B	100%	3B	77%		
Result: Warranted		Result: Not Warranted		Result: Not Warranted		Result: Warranted	



Should you have any questions regarding our review, please do not hesitate to contact us.

Sincerely,

BA Consulting Group Ltd.

A handwritten signature in black ink, reading "Stephen Bahadoor". The signature is fluid and cursive, with the first name "Stephen" and last name "Bahadoor" clearly legible.

Stephen J. Bahadoor
Associate



Attachment A: Signal Warrant Calculations

Project Name : Richview Plaza

Project No. 6571-26

Intersection: Wincott Drive / Waterford Drive - Baseline Access Conditions

Southbound			Northbound			Average			
Start Time	End Time	Volume	Start Time	End Time	Volume	Start Time	End Time	Volume	
7:00	8:00	39	7:00	8:00	34	7:00	8:00	73	54%
8:00	9:00	76	8:00	9:00	59	8:00	9:00	135	100%
9:00	10:00	58	9:00	10:00	34	9:00	10:00	92	68%
10:00	11:00	64	10:00	11:00	61	10:00	11:00	125	93%
11:00	12:00	68	11:00	12:00	60	11:00	12:00	128	95%
								Max	135

Southbound			Northbound			Average			
Start Time	End Time	Volume	Start Time	End Time	Volume	Start Time	End Time	Volume	
12:00	13:00	75	12:00	13:00	72	12:00	13:00	147	82%
13:00	14:00	61	13:00	14:00	65	13:00	14:00	126	70%
14:00	15:00	61	14:00	15:00	79	14:00	15:00	140	78%
15:00	16:00	67	15:00	16:00	90	15:00	16:00	157	88%
16:00	17:00	68	16:00	17:00	99	16:00	17:00	167	93%
17:00	18:00	79	17:00	18:00	100	17:00	18:00	179	100%
18:00	19:00	66	18:00	19:00	63	18:00	19:00	129	72%
19:00	20:00	35	19:00	20:00	52	19:00	20:00	87	49%
20:00	21:00	42	20:00	21:00	31	20:00	21:00	73	41%
21:00	22:00	10	21:00	22:00	22	21:00	22:00	32	18%
22:00	23:00	9	22:00	23:00	7	22:00	23:00	16	9%
23:00	0:00	2	23:00	0:00	2	23:00	0:00	4	2%
								Max	179

Morning Peak Hour Minor Street Temporal Distribution - Baseline Access Conditions

Site Traffic														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	130			40			55	15	120	10			Time (Hour Ending)
8:00	54%	70	0	0	0	0	22	30	8	65	0	5	0	8:00
9:00	100%	130	0	0	0	0	40	55	15	120	0	10	0	9:00
10:00	68%	89	0	0	0	0	27	37	10	82	0	7	0	10:00
11:00	93%	120	0	0	0	0	37	51	14	111	0	9	0	11:00
12:00	95%	123	0	0	0	0	38	52	14	114	0	9	0	12:00

Background Volumes														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	0	0	0	0	0	0	0	0	0	0	0	0	Time (Hour Ending)
8:00	54%	0	0	0	0	0	0	0	0	0	0	0	0	8:00
9:00	100%	0	0	0	0	0	0	0	0	0	0	0	0	9:00
10:00	68%	0	0	0	0	0	0	0	0	0	0	0	0	10:00
11:00	93%	0	0	0	0	0	0	0	0	0	0	0	0	11:00
12:00	95%	0	0	0	0	0	0	0	0	0	0	0	0	12:00

Existing Retail Removal														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	-15			-15			-15	-15	-10	-10			Time (Hour Ending)
8:00	54%	-8	0	0	0	0	-8	-8	-8	-5	0	-5	0	8:00
9:00	100%	-15	0	0	0	0	-15	-15	-15	-10	0	-10	0	9:00
10:00	68%	-10	0	0	0	0	-10	-10	-10	-7	0	-7	0	10:00
11:00	93%	-14	0	0	0	0	-14	-14	-14	-9	0	-9	0	11:00
12:00	95%	-14	0	0	0	0	-14	-14	-14	-9	0	-9	0	12:00

Sum														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	115	0	0	0	0	25	40	0	110	0	0	0	Time (Hour Ending)
8:00	54%	62	0	0	0	0	14	22	0	59	0	0	0	8:00
9:00	100%	115	0	0	0	0	25	40	0	110	0	0	0	9:00
10:00	68%	78	0	0	0	0	17	27	0	75	0	0	0	10:00
11:00	93%	106	0	0	0	0	23	37	0	102	0	0	0	11:00
12:00	95%	109	0	0	0	0	24	38	0	104	0	0	0	12:00

Morning Peak Hour Minor Street Temporal Distribution - Baseline Access Conditions

PM Inbound		Site Traffic												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	119	0	0	0	0	50	45	20	85	0	25	0	13:00
14:30	70%	102	0	0	0	0	35	32	14	60	0	18	0	14:00
15:30	78%	113	0	0	0	0	39	35	16	66	0	20	0	15:00
16:30	88%	127	0	0	0	0	44	39	18	75	0	22	0	16:00
17:30	93%	135	0	0	0	0	47	42	19	79	0	23	0	17:00
18:30	100%	145	0	0	0	0	50	45	20	85	0	25	0	18:00
19:00	72%	104	0	0	0	0	36	32	14	61	0	18	0	19:00

PM Inbound		Background Volumes												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	0	0	0	0	0	0	0	0	0	0	0	0	13:00
14:30	70%	0	0	0	0	0	0	0	0	0	0	0	0	14:00
15:30	78%	0	0	0	0	0	0	0	0	0	0	0	0	15:00
16:30	88%	0	0	0	0	0	0	0	0	0	0	0	0	16:00
17:30	93%	0	0	0	0	0	0	0	0	0	0	0	0	17:00
18:30	100%	0	0	0	0	0	0	0	0	0	0	0	0	18:00
19:00	72%	0	0	0	0	0	0	0	0	0	0	0	0	19:00

PM Inbound		Existing Retail Removal												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	-21	0	0	0	0	-16	-21	-16	-29	0	-12	0	13:00
14:30	70%	-18	0	0	0	0	-14	-18	-14	-25	0	-11	0	14:00
15:30	78%	-20	0	0	0	0	-16	-20	-16	-27	0	-12	0	15:00
16:30	88%	-22	0	0	0	0	-18	-22	-18	-31	0	-13	0	16:00
17:30	93%	-23	0	0	0	0	-19	-23	-19	-33	0	-14	0	17:00
18:30	100%	-25	0	0	0	0	-20	-25	-20	-35	0	-15	0	18:00
19:00	72%	-18	0	0	0	0	-14	-18	-14	-25	0	-11	0	19:00

PM Inbound		Retail Pass-By												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	8	-8	0	0	-4	4	8	0	4	0	0	0	13:00
14:30	70%	7	-7	0	0	-4	4	7	0	4	0	0	0	14:00
15:30	78%	8	-8	0	0	-4	4	8	0	4	0	0	0	15:00
16:30	88%	9	-9	0	0	-4	4	9	0	4	0	0	0	16:00
17:30	93%	9	-9	0	0	-5	5	9	0	5	0	0	0	17:00
18:30	100%	10	-10	0	0	-5	5	10	0	5	0	0	0	18:00
19:00	72%	7	-7	0	0	-4	4	7	0	4	0	0	0	19:00

PM Inbound		Sum												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	107	-8	0	0	-4	29	25	0	45	0	8	0	13:00
14:30	70%	92	-7	0	0	-4	25	21	0	39	0	7	0	14:00
15:30	78%	102	-8	0	0	-4	27	23	0	43	0	8	0	15:00
16:30	88%	114	-9	0	0	-4	31	26	0	48	0	9	0	16:00
17:30	93%	121	-9	0	0	-5	33	28	0	51	0	9	0	17:00
18:30	100%	130	-10	0	0	-5	35	30	0	55	0	10	0	18:00
19:00	72%	94	-7	0	0	-4	25	22	0	40	0	7	0	19:00

Sum of AM Outbound & PM Inbound Volume

	North Bound			South Bound			East Bound			West Bound		
Ending Time (Hour)	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
8:00	62	0	0	0	0	14	22	0	59	0	0	0
9:00	115	0	0	0	0	25	40	0	110	0	0	0
10:00	78	0	0	0	0	17	27	0	75	0	0	0
11:00	106	0	0	0	0	23	37	0	102	0	0	0
12:00	109	0	0	0	0	24	38	0	104	0	0	0
13:00	107	-8	0	0	-4	29	25	0	45	0	8	0
14:00	92	-7	0	0	-4	25	21	0	39	0	7	0
15:00	102	-8	0	0	-4	27	23	0	43	0	8	0
16:00	114	-9	0	0	-4	31	26	0	48	0	9	0
17:00	121	-9	0	0	-5	33	28	0	51	0	9	0
18:00	130	-10	0	0	-5	35	30	0	55	0	10	0
19:00	94	-7	0	0	-4	25	22	0	40	0	7	0

8-Hour Summary - Wincott Drive / Waterford Drive - Baseline Access Conditions

	East Bound			West Bound			North Bound			South Bound			
Tim (Ending Hour)	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
8:00	30	4	67	21	7	7	67	68	17	5	101	19	413
9:00	64	23	132	53	12	16	142	147	42	12	146	51	840
10:00	58	21	97	21	20	9	125	86	19	5	110	52	623
11:00	63	19	144	14	24	6	150	69	14	3	86	60	652
12:00	85	29	175	17	38	3	172	85	21	2	95	60	782
13:00	71	33	108	22	52	8	171	73	31	3	84	92	748
14:00	68	39	114	24	44	7	162	78	24	12	67	83	722
15:00	67	43	98	38	44	12	158	85	25	9	98	66	743
16:00	77	52	113	36	39	11	180	117	57	5	123	71	881
17:00	82	49	131	33	49	14	184	114	32	9	104	85	886
18:00	78	43	135	29	41	8	197	94	26	7	92	64	814
Total of Max 8 Hours	527	268	881	253	264	85	1224	784	249	55	858	500	5948

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

Wincott Drive / Waterford Drive - Site Access (Base)

What is the direction of the Main Road street?

North-South

When was the data collected?

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Urban

Population >= 10,000

AND

Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
9:00	142	147	42	64	23	132	12	146	51	53	12	16	17
12:00	172	85	21	85	29	175	2	95	60	17	38	3	6
13:00	171	73	31	71	33	108	3	84	92	22	52	8	53
14:00	162	78	24	68	39	114	12	67	83	24	44	7	10
15:00	158	85	25	67	43	98	9	98	66	38	44	12	22
16:00	180	117	57	77	52	113	5	123	71	36	39	11	43
17:00	184	114	32	82	49	131	9	104	85	33	49	14	23
18:00	197	94	26	78	43	135	7	92	64	29	41	8	23
Total	1,366	793	258	592	311	1,006	59	809	572	252	319	79	197

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: Wincott Drive / Waterford Drive - Site Access (Base) Count Date:

Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	B Crossing Volume	100 %		
2. Delay to Cross Traffic	A Main Road	67 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	100 %		
3. Combination	A Justificaton 1	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	67 %		
4. 4-Hr Volume		96 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience		0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met		

Project Name : Richview Plaza

Project No. 6571-26

Intersection: Wincott Drive / Waterford Drive - Sensitivity Access Condition

Southbound			Northbound			Average			
Start Time	End Time	Volume	Start Time	End Time	Volume	Start Time	End Time	Volume	
7:00	8:00	39	7:00	8:00	34	7:00	8:00	73	54%
8:00	9:00	76	8:00	9:00	59	8:00	9:00	135	100%
9:00	10:00	58	9:00	10:00	34	9:00	10:00	92	68%
10:00	11:00	64	10:00	11:00	61	10:00	11:00	125	93%
11:00	12:00	68	11:00	12:00	60	11:00	12:00	128	95%
								Max	135

Southbound			Northbound			Average			
Start Time	End Time	Volume	Start Time	End Time	Volume	Start Time	End Time	Volume	
12:00	13:00	75	12:00	13:00	72	12:00	13:00	147	82%
13:00	14:00	61	13:00	14:00	65	13:00	14:00	126	70%
14:00	15:00	61	14:00	15:00	79	14:00	15:00	140	78%
15:00	16:00	67	15:00	16:00	90	15:00	16:00	157	88%
16:00	17:00	68	16:00	17:00	99	16:00	17:00	167	93%
17:00	18:00	79	17:00	18:00	100	17:00	18:00	179	100%
18:00	19:00	66	18:00	19:00	63	18:00	19:00	129	72%
19:00	20:00	35	19:00	20:00	52	19:00	20:00	87	49%
20:00	21:00	42	20:00	21:00	31	20:00	21:00	73	41%
21:00	22:00	10	21:00	22:00	22	21:00	22:00	32	18%
22:00	23:00	9	22:00	23:00	7	22:00	23:00	16	9%
23:00	0:00	2	23:00	0:00	2	23:00	0:00	4	2%
								Max	179

Morning Peak Hour Minor Street Temporal Distribution - Sensitivity Access Condition

Site Traffic														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	180					105	110	15	120			10	Time (Hour Ending)
8:00	54%	97	0	0	0	0	57	59	8	65	0	5	0	8:00
9:00	100%	180	0	0	0	0	105	110	15	120	0	10	0	9:00
10:00	68%	123	0	0	0	0	72	75	10	82	0	7	0	10:00
11:00	93%	167	0	0	0	0	97	102	14	111	0	9	0	11:00
12:00	95%	171	0	0	0	0	100	104	14	114	0	9	0	12:00

Background Volumes														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	0	0	0	0	0	0	0	0	0	0	0	0	Time (Hour Ending)
8:00	54%	0	0	0	0	0	0	0	0	0	0	0	0	8:00
9:00	100%	0	0	0	0	0	0	0	0	0	0	0	0	9:00
10:00	68%	0	0	0	0	0	0	0	0	0	0	0	0	10:00
11:00	93%	0	0	0	0	0	0	0	0	0	0	0	0	11:00
12:00	95%	0	0	0	0	0	0	0	0	0	0	0	0	12:00

Existing Retail Removal														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	-15					-15	-15	-15	-10			-10	Time (Hour Ending)
8:00	54%	-8	0	0	0	0	-8	-8	-8	-5	0	-5	0	8:00
9:00	100%	-15	0	0	0	0	-15	-15	-15	-10	0	-10	0	9:00
10:00	68%	-10	0	0	0	0	-10	-10	-10	-7	0	-7	0	10:00
11:00	93%	-14	0	0	0	0	-14	-14	-14	-9	0	-9	0	11:00
12:00	95%	-14	0	0	0	0	-14	-14	-14	-9	0	-9	0	12:00

Sum														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	AM OUT	165	0	0	0	0	90	95	0	110	0	0	0	Time (Hour Ending)
8:00	54%	89	0	0	0	0	49	51	0	59	0	0	0	8:00
9:00	100%	165	0	0	0	0	90	95	0	110	0	0	0	9:00
10:00	68%	112	0	0	0	0	61	65	0	75	0	0	0	10:00
11:00	93%	153	0	0	0	0	83	88	0	102	0	0	0	11:00
12:00	95%	156	0	0	0	0	85	90	0	104	0	0	0	12:00

Morning Peak Hour Minor Street Temporal Distribution - Sensitivity Access Condition

PM Inbound		Site Traffic												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	156	0	0	0	0	95	95	20	90	0	25	0	13:00
14:30	70%	134	0	0	0	0	67	67	14	63	0	18	0	14:00
15:30	78%	149	0	0	0	0	74	74	16	70	0	20	0	15:00
16:30	88%	167	0	0	0	0	83	83	18	79	0	22	0	16:00
17:30	93%	177	0	0	0	0	89	89	19	84	0	23	0	17:00
18:30	100%	190	0	0	0	0	95	95	20	90	0	25	0	18:00
19:00	72%	137	0	0	0	0	68	68	14	65	0	18	0	19:00

PM Inbound		Background Volumes												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	0	0	0	0	0	0	0	0	0	0	0	0	13:00
14:30	70%	0	0	0	0	0	0	0	0	0	0	0	0	14:00
15:30	78%	0	0	0	0	0	0	0	0	0	0	0	0	15:00
16:30	88%	0	0	0	0	0	0	0	0	0	0	0	0	16:00
17:30	93%	0	0	0	0	0	0	0	0	0	0	0	0	17:00
18:30	100%	0	0	0	0	0	0	0	0	0	0	0	0	18:00
19:00	72%	0	0	0	0	0	0	0	0	0	0	0	0	19:00

PM Inbound		Existing Retail Removal												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	-21	0	0	0	0	-16	-21	-16	-29	0	-12	0	13:00
14:30	70%	-18	0	0	0	0	-14	-18	-14	-25	0	-11	0	14:00
15:30	78%	-20	0	0	0	0	-16	-20	-16	-27	0	-12	0	15:00
16:30	88%	-22	0	0	0	0	-18	-22	-18	-31	0	-13	0	16:00
17:30	93%	-23	0	0	0	0	-19	-23	-19	-33	0	-14	0	17:00
18:30	100%	-25	0	0	0	0	-20	-25	-20	-35	0	-15	0	18:00
19:00	72%	-18	0	0	0	0	-14	-18	-14	-25	0	-11	0	19:00

PM Inbound		Retail Pass-By												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	8	-8	0	0	-4	4	8	0	4	0	0	0	13:00
14:30	70%	7	-7	0	0	-4	4	7	0	4	0	0	0	14:00
15:30	78%	8	-8	0	0	-4	4	8	0	4	0	0	0	15:00
16:30	88%	9	-9	0	0	-4	4	9	0	4	0	0	0	16:00
17:30	93%	9	-9	0	0	-5	5	9	0	5	0	0	0	17:00
18:30	100%	10	-10	0	0	-5	5	10	0	5	0	0	0	18:00
19:00	72%	7	-7	0	0	-4	4	7	0	4	0	0	0	19:00

PM Inbound		Sum												Time (Hour Ending)
Time (hour ending)	PM IN	North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:30	82%	144	-8	0	0	-4	66	66	0	49	0	8	0	13:00
14:30	70%	123	-7	0	0	-4	56	56	0	42	0	7	0	14:00
15:30	78%	137	-8	0	0	-4	63	63	0	47	0	8	0	15:00
16:30	88%	153	-9	0	0	-4	70	70	0	53	0	9	0	16:00
17:30	93%	163	-9	0	0	-5	75	75	0	56	0	9	0	17:00
18:30	100%	175	-10	0	0	-5	80	80	0	60	0	10	0	18:00
19:00	72%	126	-7	0	0	-4	58	58	0	43	0	7	0	19:00

Sum of AM Outbound & PM Inbound Volume

	North Bound			South Bound			East Bound			West Bound		
Ending Time (Hour)	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
8:00	89	0	0	0	0	49	51	0	59	0	0	0
9:00	165	0	0	0	0	90	95	0	110	0	0	0
10:00	112	0	0	0	0	61	65	0	75	0	0	0
11:00	153	0	0	0	0	83	88	0	102	0	0	0
12:00	156	0	0	0	0	85	90	0	104	0	0	0
13:00	144	-8	0	0	-4	66	66	0	49	0	8	0
14:00	123	-7	0	0	-4	56	56	0	42	0	7	0
15:00	137	-8	0	0	-4	63	63	0	47	0	8	0
16:00	153	-9	0	0	-4	70	70	0	53	0	9	0
17:00	163	-9	0	0	-5	75	75	0	56	0	9	0
18:00	175	-10	0	0	-5	80	80	0	60	0	10	0
19:00	126	-7	0	0	-4	58	58	0	43	0	7	0

8-Hour Summary - Wincott Drive / Waterford Drive - Sensitivity Access Conditions

	East Bound			West Bound			North Bound			South Bound			
Tim (Ending Hour)	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
8:00	59	4	67	21	7	7	94	68	17	5	101	54	504
9:00	119	23	132	53	12	16	192	147	42	12	146	116	1010
10:00	96	21	97	21	20	9	159	86	19	5	110	96	739
11:00	114	19	144	14	24	6	197	69	14	3	86	120	810
12:00	137	29	175	17	38	3	219	85	21	2	95	121	942
13:00	112	33	112	22	52	8	208	73	31	3	84	129	867
14:00	103	39	117	24	44	7	193	78	24	12	67	114	822
15:00	107	43	102	38	44	12	193	85	25	9	98	102	858
16:00	121	52	118	36	39	11	219	117	57	5	123	110	1008
17:00	129	49	136	33	49	14	226	114	32	9	104	127	1022
18:00	128	43	140	29	41	8	242	94	26	7	92	109	959
Total of Max 8 Hours	871	268	904	253	264	85	1533	784	249	55	858	843	6967

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

Wincott Drive / Waterford Drive - Site Access (Sensitivity)

What is the direction of the Main Road street?

North-South

When was the data collected?

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Urban

Population >= 10,000

AND

Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
9:00	92	147	42	119	23	132	12	146	116	53	12	16	17
12:00	219	85	21	137	29	175	2	95	121	17	38	3	6
13:00	208	73	31	112	33	112	3	84	129	22	52	8	53
14:00	193	78	24	103	39	117	12	67	114	24	44	7	10
15:00	193	85	25	107	43	102	9	98	102	38	44	12	22
16:00	219	117	57	121	52	118	5	123	110	36	39	11	43
17:00	226	114	32	129	49	136	9	104	127	33	49	14	23
18:00	242	94	26	128	43	140	7	92	109	29	41	8	23
Total	1,592	793	258	956	311	1,032	59	809	928	252	319	79	197

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: Wincott Drive / Waterford Drive - Site Access (Sensit Count Date:

Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	B Crossing Volume	100 %		
2. Delay to Cross Traffic	A Main Road	77 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	100 %		
3. Combination	A Justificaton 1	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	77 %		
4. 4-Hr Volume		100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>

5. Collision Experience		0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met		